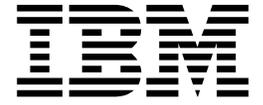


IBM WebSphere MQ



# File Transfer Edition

*Version 7 Release 0*

**Note**

Before using this information and the product it supports, read the information in "Notices" on page 1091.

This edition applies to version 7 release 0 modification 4 of IBM WebSphere MQ File Transfer Edition and to all subsequent releases and modifications until otherwise indicated in new editions.

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**Sending your comments to IBM 1095**



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## Product overview

This section provides introductory information that you can use to get started with WebSphere® MQ File Transfer Edition.

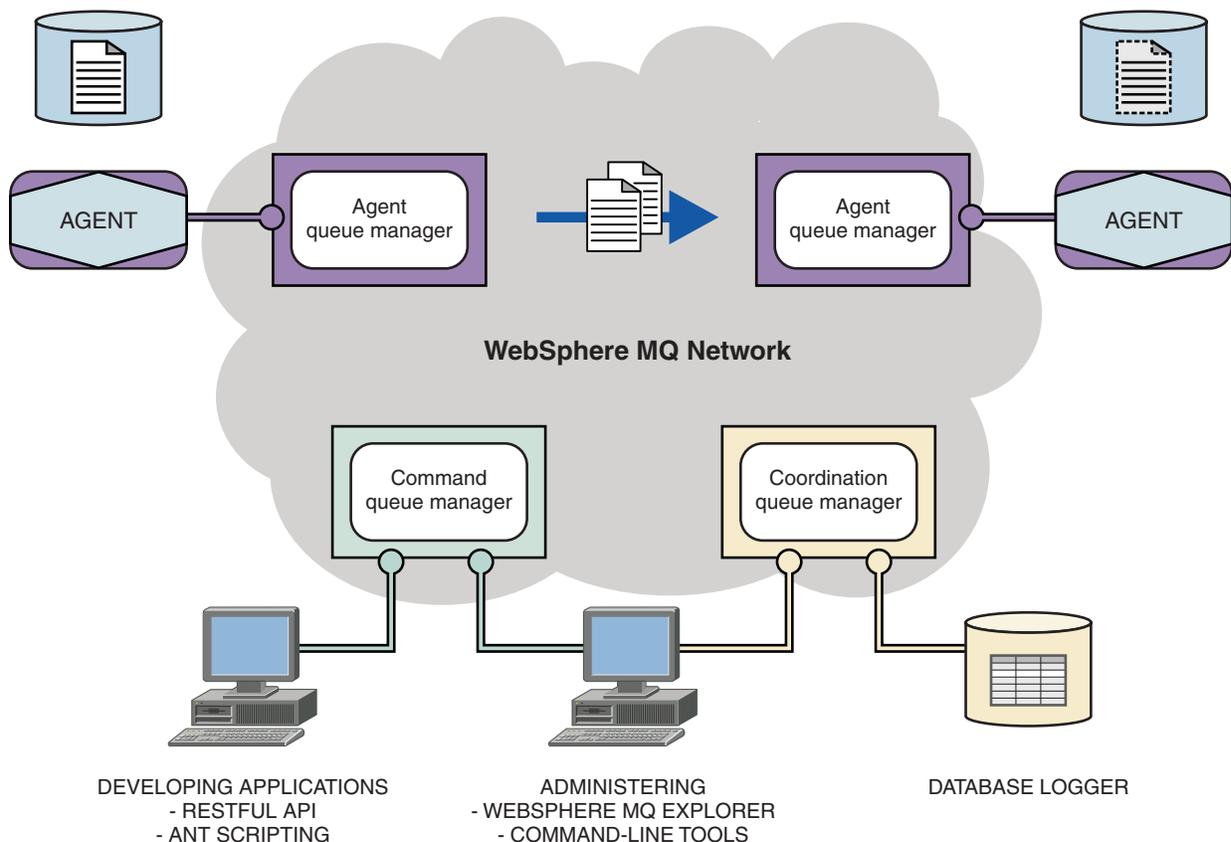
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- “WebSphere MQ File Transfer Edition product options” on page 3
- “WebSphere MQ File Transfer Edition topology overview” on page 14
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## WebSphere MQ File Transfer Edition introduction

WebSphere MQ File Transfer Edition transfers files between systems in a managed and auditable way, regardless of file size or the operating systems used.

You can use WebSphere MQ File Transfer Edition to build a customized, scalable, and automated solution that enables you to manage, trust, and secure file transfers. WebSphere MQ File Transfer Edition eliminates costly redundancies, lowers maintenance costs, and maximizes your existing IT investments.



The diagram shows a simple WebSphere MQ File Transfer Edition topology. There are two agents, each connect to their own agent queue manager in a WebSphere MQ network. A file is transferred from the agent on the left side of the diagram, through the WebSphere MQ network, to the agent on the right side of the diagram. Also in the WebSphere MQ network are the coordination queue manager and a command

queue manager. Applications and tools connect to these queue managers to configure, administer, operate, and log WebSphere MQ File Transfer Edition activity in the WebSphere MQ network.

WebSphere MQ File Transfer Edition can be installed as three different options, depending on your operating system and overall setup. These options are WebSphere MQ File Transfer Edition Server, WebSphere MQ File Transfer Edition Client, and WebSphere MQ File Transfer Edition for z/OS®. For information, see “WebSphere MQ File Transfer Edition product options” on page 3.

You can use WebSphere MQ File Transfer Edition to perform the following tasks:

- Create managed file transfers
  - Create new file transfers from WebSphere MQ Explorer on Linux or Windows platforms.
  - Create new file transfers from the command line on all supported platforms.
  - Integrate file transfer function into the Apache Ant tool.
  - Write applications that control WebSphere MQ File Transfer Edition by putting messages on agent command queues.
  - Schedule file transfers to take place at a later time. You can also trigger scheduled file transfers based on a range of file system events, for example a new file being created.
  - Continually monitor a resource, for example a directory, and when the contents of that resource meet some predefined condition, start a task. This task can be a file transfer, an Ant script, or a JCL job.
  - Use the RESTful API provided by the WebSphere MQ File Transfer Edition Web Gateway to transfer files.
  - Transfer files to and from WebSphere MQ queues.
  - Transfer files to and from FTP and SFTP servers.
  - Transfer files to and from FTPS servers (if you enable the Version 7.0.4.1 function).
  - Transfer files to and from Connect:Direct® nodes.
  - Transfer both text and binary files. Text files are automatically converted between the code pages and end-of-line conventions of the source and destination systems.
  - Transfers can be secured, using the industry standards for Secure Socket Layer (SSL) based connections.
- View transfers in progress and log information about all transfers in your network
  - View the status of transfers in progress from WebSphere MQ Explorer on Linux or Windows platforms.
  - Check the status of completed transfers by using the WebSphere MQ Explorer on Linux or Windows platforms.
  - Use the WebSphere MQ File Transfer Edition database logger feature to save log messages to a DB2® or Oracle database.
  - Use the RESTful API provided by the WebSphere MQ File Transfer Edition Web Gateway to see information about all transfers in your network.

WebSphere MQ File Transfer Edition is built on WebSphere MQ, which provides assured, once-only delivery of messages between applications. You can take advantage of various features of WebSphere MQ. For example, you can use channel compression to compress the data that you send between agents over WebSphere MQ channels and use SSL channels to secure the data that you send between agents. Files are transferred reliably and can tolerate the failure of the infrastructure over which the file transfer is carried out. If you experience a network outage, the file transfer restarts from where it left off when connectivity is restored.

By consolidating file transfer with your existing WebSphere MQ network, you can avoid spending the resources required to maintain two separate infrastructures. If you are not already a WebSphere MQ customer, by creating a WebSphere MQ network to support WebSphere MQ File Transfer Edition you are

building the backbone for a future SOA implementation. If you are already a WebSphere MQ customer, WebSphere MQ File Transfer Edition can take advantage of your existing WebSphere MQ infrastructure including WebSphere MQ internet pass-thru and WebSphere Message Broker.

WebSphere MQ File Transfer Edition integrates with a number of other IBM® products:

#### **WebSphere MQ Advanced Message Security**

Use WebSphere MQ Advanced Message Security to provide enhanced security for message traffic in WebSphere MQ File Transfer Edition, in particular for data on queues. For more information, see “Using IBM WebSphere MQ Advanced Message Security with IBM WebSphere MQ File Transfer Edition” on page 85.

#### **WebSphere Message Broker**

Process files that have been transferred by WebSphere MQ File Transfer Edition as part of a WebSphere Message Broker flow. For more information, see “Working with WebSphere Message Broker” on page 287.

#### **WebSphere DataPower® B2B Appliance XB60**

Create a solution for a B2B scenario by using WebSphere MQ File Transfer Edition and WebSphere DataPower B2B Appliance XB60. A sample solution is provided in WebSphere MQ File Transfer Edition Remote Tools and Documentation. For more information, see “WebSphere DataPower B2B Appliance XB60 sample” on page 287.

#### **IBM Sterling Connect:Direct**

Transfer files to and from an existing Connect:Direct network by using the WebSphere MQ File Transfer Edition Connect:Direct bridge. For more information, see “The Connect:Direct bridge” on page 269.

#### **IBM Tivoli® License Compliance Manager**

If you have set up IBM Tivoli License Compliance Manager to monitor the system that you install WebSphere MQ File Transfer Edition on, your WebSphere MQ File Transfer Edition license information is stored in the IBM Tivoli License Compliance Manager database.

#### **IBM Tivoli Composite Application Manager**

IBM Tivoli Composite Application Manager provides an agent that you can use to monitor information that is published to the coordination queue manager.

#### **Related concepts:**

“WebSphere MQ File Transfer Edition product options”

WebSphere MQ File Transfer Edition can be installed as three different options, depending on your operating system and overall setup. These options are WebSphere MQ File Transfer Edition Server, WebSphere MQ File Transfer Edition Client, and WebSphere MQ File Transfer Edition for z/OS.

“WebSphere MQ File Transfer Edition topology overview” on page 14

#### **Related reference:**

“How does WebSphere MQ File Transfer Edition work?” on page 445

WebSphere MQ File Transfer Edition interacts in a number of ways with WebSphere MQ. This topic describes how the two products interact.

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## **WebSphere MQ File Transfer Edition product options**

WebSphere MQ File Transfer Edition can be installed as three different options, depending on your operating system and overall setup. These options are WebSphere MQ File Transfer Edition Server, WebSphere MQ File Transfer Edition Client, and WebSphere MQ File Transfer Edition for z/OS.

### **WebSphere MQ File Transfer Edition Server**

Using WebSphere MQ File Transfer Edition Server you can establish client and bindings mode connections from agents to queue managers.

WebSphere MQ File Transfer Edition Server includes a full WebSphere MQ V7.0 license.

In addition to the features of WebSphere MQ File Transfer Edition Client, the WebSphere MQ File Transfer Edition Server installation supports protocol bridge agents and includes the Web Gateway feature.

This option includes the WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD.

### **WebSphere MQ File Transfer Edition Client**

WebSphere MQ File Transfer Edition Client installs a file transfer agent. This agent can connect to queue managers using WebSphere MQ client connection channels only. To use WebSphere MQ server bindings mode to connect to a local WebSphere MQ queue manager running on the same system as the file transfer agent, you require WebSphere MQ File Transfer Edition Server. Examples of situations where you might use Clients include appliances, automated teller machines, cash registers, desktop computers, kiosks, notebook computers, personal digital assistants, point-of-sale terminals, and technical workstations.

This option includes the WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD.

### **WebSphere MQ File Transfer Edition for z/OS**

Using WebSphere MQ File Transfer Edition for z/OS you can establish bindings mode connections from agents to queue managers.

IBM WebSphere MQ for z/OS is a prerequisite for WebSphere MQ File Transfer Edition for z/OS. A separate license of WebSphere MQ for z/OS is required for this product on the IBM System z<sup>®</sup> platform.

This option includes the WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD.

## **Capabilities provided by each option**

### **WebSphere MQ File Transfer Edition Server**

- Make client or bindings mode connections to queue managers. When the agent and the queue manager are located on the same system, a bindings mode connection provides better performance.
- Transfer files to and from other WebSphere MQ File Transfer Edition agents.
- Transfer files to and from SFTP, FTP, or FTPS protocol servers (you must enable the V7.0.4.1 function to use FTPS servers).
- Transfer files to and from Connect:Direct nodes.
- Transfer files from HTTP clients through the Web Gateway.

Some capabilities are available on only a subset of supported platforms. For more information, see System requirements for WebSphere MQ File Transfer Edition.

### **WebSphere MQ File Transfer Edition Client**

- Make only client mode connections to queue managers.
- Transfer files to and from other WebSphere MQ File Transfer Edition agents.
- Transfer files to and from Connect:Direct nodes.

### **WebSphere MQ File Transfer Edition for z/OS**

- Transfer files to and from other WebSphere MQ File Transfer Edition agents.

- Transfer files to and from SFTP, FTP, or FTPS protocol servers (you must enable the V7.0.4.1 function to use FTPS servers).

**Related concepts:**

“WebSphere MQ File Transfer Edition introduction” on page 1

WebSphere MQ File Transfer Edition transfers files between systems in a managed and auditable way, regardless of file size or the operating systems used.

“WebSphere MQ File Transfer Edition topology overview” on page 14

**Related information:**

 <http://www-01.ibm.com/software/integration/wmq/filetransfer/requirements/index.html>

## **IBM MQ and IBM MQ Appliance on premises considerations for GDPR readiness**

**For PID(s):**

- 5724-H72 IBM MQ
- 5655-AV9 IBM MQ Advanced for z/OS
- 5655-AV1 IBM MQ Advanced for z/OS, Value Unit Edition
- 5655-AM9 IBM MQ Advanced Message Security for z/OS
- 5725-Z09 IBM MQ Appliance M2001
- 5725-S14 IBM MQ Appliance M2000
- 5655-MQ9 IBM MQ for z/OS
- 5655-VU9 IBM MQ for z/OS Value Unit Edition
- 5639-L92 IBM MQ Internet Pass-Thru
- 5655-MF9 IBM MQ Managed File Transfer for z/OS
- 5655-ADV IBM WebSphere MQ Advanced for z/OS
- 5655-AMS IBM WebSphere MQ Advanced Message Security for z/OS
- 5724-R10 IBM WebSphere MQ File Transfer Edition for Multiplatforms
- 5724-A39 IBM WebSphere MQ for HP NonStop Server
- 5724-A38 IBM WebSphere MQ for HP OpenVMS
- 5655-W97 IBM WebSphere MQ for z/OS
- 5655-VU8 IBM WebSphere MQ for z/OS Value Unit Edition
- 5655-VUE IBM WebSphere MQ for z/OS Value Unit Edition
- 5725-C79 IBM WebSphere MQ Hypervisor Edition for Red Hat Enterprise Linux for x86
- 5725-F22 IBM WebSphere MQ Hypervisor for AIX®
- 5655-MFT IBM WebSphere MQ Managed File Transfer for z/OS

**Notice:**

This document is intended to help you in your preparations for GDPR readiness. It provides information about features of IBM MQ that you can configure, and aspects of the product’s use, that you should consider to help your organization with GDPR readiness. This information is not an exhaustive list, due to the many ways that clients can choose and configure features, and the large variety of ways that the product can be used in itself and with third-party applications and systems.

**Clients are responsible for ensuring their own compliance with various laws and regulations, including the European Union General Data Protection Regulation. Clients are solely responsible for obtaining advice of competent legal counsel as to the identification and interpretation of any relevant laws and regulations that may affect the clients’ business and any actions the clients may need to take to comply with such laws and regulations.**

The products, services, and other capabilities described herein are not suitable for all client situations and may have restricted availability. IBM does not provide legal, accounting, or auditing advice or represent or warrant that its services or products will ensure that clients are in compliance with any law or regulation.

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## GDPR

General Data Protection Regulation (GDPR) has been adopted by the European Union ("EU") and applies from May 25, 2018.

### Why is GDPR important?

GDPR establishes a stronger data protection regulatory framework for processing of personal data of individuals. GDPR brings:

- New and enhanced rights for individuals
- Widened definition of personal data
- New obligations for processors
- Potential for significant financial penalties for non-compliance
- Compulsory data breach notification

### Read more about GDPR:

- EU GDPR Information Portal
- [ibm.com/GDPR](http://ibm.com/GDPR) website

## Product Configuration - considerations for GDPR Readiness

The following sections provide considerations for configuring IBM MQ to help your organization with GDPR readiness.

### Data Life Cycle

IBM MQ is a transactional message oriented middleware product that enables applications to asynchronously exchange application provided data. IBM MQ supports a range of messaging APIs, protocols and bridges for the purpose of connecting applications. As such, IBM MQ may be used to exchange many forms of data, some of which could potentially be subject to GDPR. There are several third-party products with which IBM MQ might exchange data. Some of these are IBM-owned, but many others are provided by other technology suppliers. The Software Product Compatibility Reports website provides lists of the associated software. For considerations regarding the GDPR readiness of a

third-party product, you should consult that product's documentation. IBM MQ administrators control the way in which IBM MQ interacts with data passing through it, by the definition of queues, topics and subscriptions.

### **What types of data flow through IBM MQ?**

As IBM MQ provides asynchronous messaging service for application data, there is no one definitive answer to this question because use cases vary through application deployment. Application message data is persisted in queue files (pagesets or the Coupling Facility on z/OS), logs and archives and the message may itself contain data that is governed by GDPR. Application provided message data may also be included in files collected for problem determination purposes such as error logs, trace files and FFSTs. On z/OS application provided message data may also be included in address space or Coupling Facility dumps.

The following are some typical examples of personal data that may be exchanged using IBM MQ:

- Employees of the customer (for example; IBM MQ might be used to connect the customer's payroll or HR systems)
- The customer's own clients' personal data (for example; IBM MQ might be used by a customer to exchange data between applications that relates to their clients, such as taking sales leads and storing data inside their CRM system).
- The customer's own clients' sensitive personal data (for example; IBM MQ might be used within industry contexts that require personal data to be exchanged, such as HL7-based healthcare records when integrating clinical applications).

In addition to application provided message data, IBM MQ processes the following types of data:

- Authentication Credentials (such as username and passwords, API keys, etc.)
- Technically Identifiable Personal Information (such as device IDs, usage based identifiers, IP address, etc. - when linked to an individual)

### **Personal data used for online contact with IBM**

IBM MQ clients can submit online comments/feedback/requests to contact IBM about IBM MQ subjects in a variety of ways, primarily:

- Public comments area on pages in the IBM MQ community on IBM developerWorks
- Public comments area on pages of IBM MQ product documentation in IBM Knowledge Center
- Public comments in the IBM Cloud space of dWAnswers
- Public comments in the IBM RFE Community on IBM developerWorks

Typically, only the client name and email address are used, to enable personal replies for the subject of the contact, and the use of personal data conforms to the IBM Online Privacy Statement.

### **Data Collection**

IBM MQ can be used to collect personal data. When assessing your use of IBM MQ and your needs to meet with the demands of GDPR, you should consider the types of personal data which in your circumstances are passing through IBM. You may wish to consider aspects such as:

- How does data arrive into your queue managers? (Across which protocols? Is the data encrypted? Is the data signed?)
- How is data sent out from your queue managers? (Across which protocols? Is the data encrypted? Is the data signed?)

- How is data stored as it passes through a queue manager? (Any messaging application has the potential to write message data to stateful media, even if a message is non-persistent. Are you aware of how messaging features could potentially expose aspects of the application message data passing through the product?)
- How are credentials collected and stored where needed by IBM MQ to access third-party applications?

IBM MQ may need to communicate with other systems and services which require authentication, for example LDAP. Where needed, authentication data (userids, passwords) is configured and stored by IBM MQ for its use in such communications. Wherever possible, you should avoid using personal credentials for IBM MQ authentication. Consider the protection of the storage used for authentication data. (See Data Storage below.)

## Data Storage

When message data travels through queue managers, IBM MQ will persist (perhaps multiple copies of) that data directly to stateful media. IBM MQ users may want to consider securing message data whilst it is at rest.

The following items highlight areas where IBM MQ persists application provided data, which users may wish to consider when ensuring compliance with GDPR.

- **Application Message Queues:**  
IBM MQ provides message queues to allow asynchronous data exchange between applications. Non-persistent and persistent messages stored on a queue are written to stateful media.
- **File Transfer Agent Queues:**  
IBM MQ Managed File Transfer utilizes message queues to co-ordinate the reliable transfer of file data, files that contain personal data and records of transfers are stored on these queues.
- **Transmission Queues:**  
To transfer messages reliably between queue managers, messages are stored temporarily on transmission queues.
- **Dead-Letter Queues:**  
There are some circumstances where messages cannot be put to a destination queue and are stored on a dead-letter queue if the queue manager has one configured.
- **Backout Queues:**  
JMS and XMS messaging interfaces provide a capability that allows poison messages to be moved to a backout queue after a number of backouts have occurred to allow other valid messages to be processed.
- **AMS Error Queue:**  
IBM MQ Advanced Message Security will move messages that don't comply with a security policy to the SYSTEM.PROTECTION.ERROR.QUEUE error queue in a similar way to dead-letter queuing.
- **Retained Publications:**  
IBM MQ provides a retained publication feature to allow subscribing applications to recall a previous publication.

Read more:

- Logging: Making sure that messages are not lost
- MFT Agent queue settings
- Defining a transmission queue
- Using the dead-letter queue
- Handling poison messages in IBM MQ classes for JMS
- AMS error handling
- Retained publications

The following items highlight areas where IBM MQ may indirectly persist application provided data which users may also wish to consider when ensuring compliance with GDPR.

- Trace route messaging:  
IBM MQ provides trace route capabilities, which record the route a message takes between applications. The event messages generated may include technically identifiable personal information such as IP addresses.
- Application activity trace:  
IBM MQ provides application activity trace, which record the messaging API activities of applications and channels, application activity trace can record the contents of application provided message data to event messages.
- Service trace:  
IBM MQ provides service trace features, which records the internal code paths through which message data flows. As part of these features, IBM MQ can record the contents of application provided message data to trace files stored on disk.
- Queue manager events:  
IBM MQ can generate event messages that could include personal data, such as authority, command and configuration events.

Read more:

- Trace-route messaging
- Using trace
- Event monitoring
- Queue manager events

To protect access to copies of the application provided message data consider the following actions:

- Restrict privileged user access to IBM MQ data in the filesystem, for example restricting user membership of the 'mqm' group on UNIX platforms.
- Restrict application access to IBM MQ data via dedicated queues and access control. Where appropriate avoid unnecessary sharing of resources such as queues between applications and provide granular access control to queue and topic resources.
- Use IBM MQ Advanced Message Security to provide end-to-end signing and/or encryption of message data.
- Use file- or volume-level encryption to protect the contents of the directory used to store trace logs.
- After uploading service trace to IBM, you can delete your service trace files and FFST data if you are concerned about the contents potentially containing personal data.

Read more:

- Privileged users
- Planning file system support on Multiplatforms

An IBM MQ administrator may configure a queue manager with credentials (username and password, API keys, etc.) for 3rd party services such as LDAP, IBM Cloud Product Insights, Salesforce, etc. This data is generally stored in the queue manager data directory protected through file system permissions.

When an IBM MQ queue manager is created, the data directory is set up with group-based access control such that IBM MQ can read the configuration files and use the credentials to connect to these systems. IBM MQ administrators are considered privileged users and are members of this group so have read access to the files. Some files are obfuscated but they are not encrypted. For this reason, to fully protect access to credentials, you should consider the following actions:

- Restrict privileged user access to IBM MQ data, for example restricting membership of the 'mqm' group on UNIX platforms.

- Use file- or volume-level encryption to protect the contents of the queue manager data directory.
- Encrypt backups of the production configuration directory and store them with appropriate access controls.
- Consider providing audit trails for authentication failure, access control and configuration changes with security, command and configuration events.

Read more:

- Securing IBM MQ

## Data Access

IBM MQ queue manager data can be accessed through the following product interfaces, some of which are designed for access through a remote connection, and others for access through a local connection.

- IBM MQ Console [Only Remote]
- IBM MQ REST API [Only Remote]
- MQI [Local and Remote]
- JMS [Local and Remote]
- XMS [Local and Remote]
- IBM MQ Telemetry (MQTT) [Only Remote]
- IBM MQ Light (AMQP) [Only Remote]
- IBM MQ IMS bridge [Only Local]
- IBM MQ CICS bridge [Only Local]
- IBM MQ bridge for HTTP [Only Remote]
- IBM MQ MFT Protocol bridges [Only Remote]
- IBM MQ Connect:Direct bridges [Only Remote]
- IBM MQ Bridge to Salesforce [Only Remote]
- IBM MQ Bridge to Blockchain [Only Remote]
- IBM MQ MQAI [Local and Remote]
- IBM MQ PCF commands [Local and Remote]
- IBM MQ MQSC commands [Local and Remote]
- IBM MQ Explorer [Local and Remote]

The interfaces are designed to allow users to make changes to an IBM MQ queue manager and messages stored on it. Administration and messaging operations are secured such that there are three stages involved when a request is made;

- Authentication
- Role mapping
- Authorization

### Authentication:

If the message or administrative operation was requested from a local connection, the source of this connection is a running process on the same system. The user running the process must have passed any authentication steps provided by the operating system. The user name of the owner of the process from which the connection was made is asserted as the identity. For example, this could be the name of the user running the shell from which an application has been started. The possible forms of authentication for local connections are:

1. Asserted user name (local OS)
2. Optional username and password (OS, LDAP or custom 3rd party repositories)

If the administrative action was requested from a remote connection, then communications with IBM MQ are made through a network interface. The following forms of identity may be presented for authentication via network connections;

1. Asserted user name (from remote OS)
2. Username and password (OS, LDAP or custom 3rd party repositories)
3. Source network address (such as IP address)
4. X.509 Digital Certificate (mutual SSL/TLS authentication)
5. Security tokens (such as LTPA2 token)
6. Other custom security (capability provided by 3rd party exits)

### **Role mapping:**

In the role mapping stage, the credentials that were provided in the authentication stage may be mapped to an alternate user identifier. Provided the mapped user identifier is permitted to proceed (for example administrative users may be blocked by channel authentication rules), then the mapped user id is carried forward into the final stage when authorizing activities against IBM MQ resources.

### **Authorization:**

IBM MQ provides the ability for different users to have different authorities against different messaging resources such as queues, topics and other queue manager objects.

### **Logging activity:**

Some users of IBM MQ may need to create an audit record of access to MQ resources. Examples of desirable audit logs might include configuration changes that contain information about the change in addition to who requested it.

The following sources of information are available to implement this requirement:

1. An IBM MQ queue manager can be configured to produce command events when an admin command has been run successfully.
2. An IBM MQ queue manager can be configured to produce configuration events when a queue manager resource is created, altered or deleted.
3. An IBM MQ queue manager can be configured to produce an authority event when an authorization check fails for a resource.
4. Error messages indicating failed authorization checks are written to the queue manager error logs.
5. The IBM MQ Web console will write audit messages to its logs when authentication, authorization checks fail or when queue managers are created, started, stopped or deleted.

When considering these kind of solutions, IBM MQ users might want to give consideration to the following points:

- Event messages are non-persistent so when a queue manager restarts the information is lost. Any event monitors should be configured to constantly consume any available messages and transfer the content to persistent media.
- IBM MQ privileged users have sufficient privileges to disabled events, clear logs or delete queue managers.

For more information about securing access to IBM MQ data and providing an audit trail refer to the following topics:

- IBM MQ security mechanisms
- Configuration events
- Command events

- Error logs

## Data Processing

### Encryption using a Public Key Infrastructure:

You can secure network connections to IBM MQ to use TLS, which can also provide mutual authentication of the initiating side of the connection.

Using the PKI security facilities that are provided by transport mechanisms is the first step towards securing data processing with IBM MQ. However, without enabling further security features, the behavior of a consuming application is to process all messages delivered to it without validating the origin of the message or whether it was altered whilst in transit.

Users of IBM MQ that are licensed to use Advanced Message Security (AMS) capabilities can control the way in which applications process personal data held in messages, through the definition and configuration of security policies. Security policies allow digital signing and/or encryption to be applied to message data between applications.

It is possible to use security policies to require and validate a digital signature when consuming messages to ensure messages are authentic. AMS encryption provides a method by which message data is converted from a readable form to an encoded version that can only be decoded by another application if it is the intended recipient or the message and has access to the correct decryption key.

For more information about using SSL and certificates to secure your network connections, refer to the following topics in the IBM MQ V9 product documentation:

- Configuring TLS security for IBM MQ
- AMS Overview

## Data Deletion

IBM MQ provides commands and user interface actions to delete data which has been provided to the product. This enables users of IBM MQ with facilities to delete data which relates to particular individuals, should this be required.

- Areas of IBM MQ behavior to consider for complying with GDPR Client Data deletion
  - Delete message data stored on an application queue by:
    - Removing individual messages using messaging API or tooling or by using message expiry.
    - Specifying that messages are non-persistent, held on a queue where non-persistent message class is normal and restarting the queue manager.
    - Administratively clearing the queue.
    - Deleting the queue.
  - Delete retained publication data stored on a topic by:
    - Specifying that messages are non-persistent and restarting the queue manager.
    - Replacing the retained data with new data or by using message expiry.
    - Administratively clearing the topic string.
  - Delete data stored on a queue manager by deleting the whole queue manager.
  - Delete data stored by the Service trace commands by deleting the files in the trace directory.
  - Delete FFST data stored by deleting the files in the errors directory.
  - Delete address space and Coupling Facility dumps (on z/OS).
  - Delete archive, backup or other copies of such data.
- Areas of IBM MQ behavior to consider for complying with GDPR Account Data deletion

- You can delete account data and preferences stored by IBM MQ for connecting to queue managers and 3rd party services by deleting (including archive, backup or otherwise replicated copies thereof):
  - Queue manager authentication information objects that store credentials.
  - Queue manager authority records that reference user identifiers.
  - Queue manager channel authentication rules that map or block specific IP addresses, certificate DN's or user identifiers.
  - Credentials files used by IBM MQ Managed File Transfer Agent, Logger and MQ Explorer MFT Plugin for authentication with queue manager and file servers.
  - X.509 digital certificates that represent or contain information about an individual from keystores which may be used by SSL/TLS connections or IBM MQ Advanced Message Security (AMS).
  - Individual user accounts from IBM MQ Appliance, including reference to those accounts in system log files.
  - IBM MQ Explorer workspace metadata and Eclipse settings.
  - IBM MQ Explorer password store as specified in the Password Preferences.
  - IBM MQ Console and mqweb server configuration files.
  - Salesforce connection data configuration files.
  - blockchain connection data configuration files.
  - IBM Cloud Product Insights connection data under ReportingService stanza in qm.ini and APIKeyFile.

Read more:

- [Configuring the IBM MQ Bridge to Salesforce](#)
- [Configuring IBM MQ for use with blockchain](#)
- [MFT and IBM MQ connection authentication](#)
- [Mapping credentials for a file server by using the ProtocolBridgeCredentials.xml file](#)
- [Configuring IBM MQ Console users and roles](#)

## Data Monitoring

IBM MQ provides a range of monitoring features that users can exploit to gain a better understanding of how applications and queue managers are performing.

IBM MQ also provides a number a features that help manage queue manager error logs.

Read more:

- [Monitoring your IBM MQ network](#)
- [Diagnostic message services](#)
- [QMErrorLog service](#)

IBM MQ provides a feature that enables users to publish information to an IBM Cloud Product Insights service, so that the IBM MQ user can view queue manager startup and usage information.

Read more:

- [Configuring IBM MQ for use with IBM Cloud Product Insights service in IBM Cloud](#)

## Capability for Restricting Use of Personal Data

Using the facilities summarized in this document, IBM MQ enables an end-user to restrict usage of their personal data.

IBM MQ message queues should not be used as a permanent data store in the same way as a database, which is particularly true when handling application data that is subject to GDPR.

Unlike a database where data may be found through a search query, it can be difficult to find message data unless you know the queue, message and correlation identifiers of a message.

Provided messages containing an individual's data can be readily identified and located, it is possible using standard IBM MQ messaging features to access or modify message data.

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## WebSphere MQ File Transfer Edition topology overview

WebSphere MQ File Transfer Edition agents send and receive the files that are transferred. Each agent has its own set of queues on its associated queue manager and the agent is attached to its queue manager in either bindings or client mode. The choice of transport modes available depends on the edition of the product you are using. An agent can also use the coordination queue manager as its queue manager.

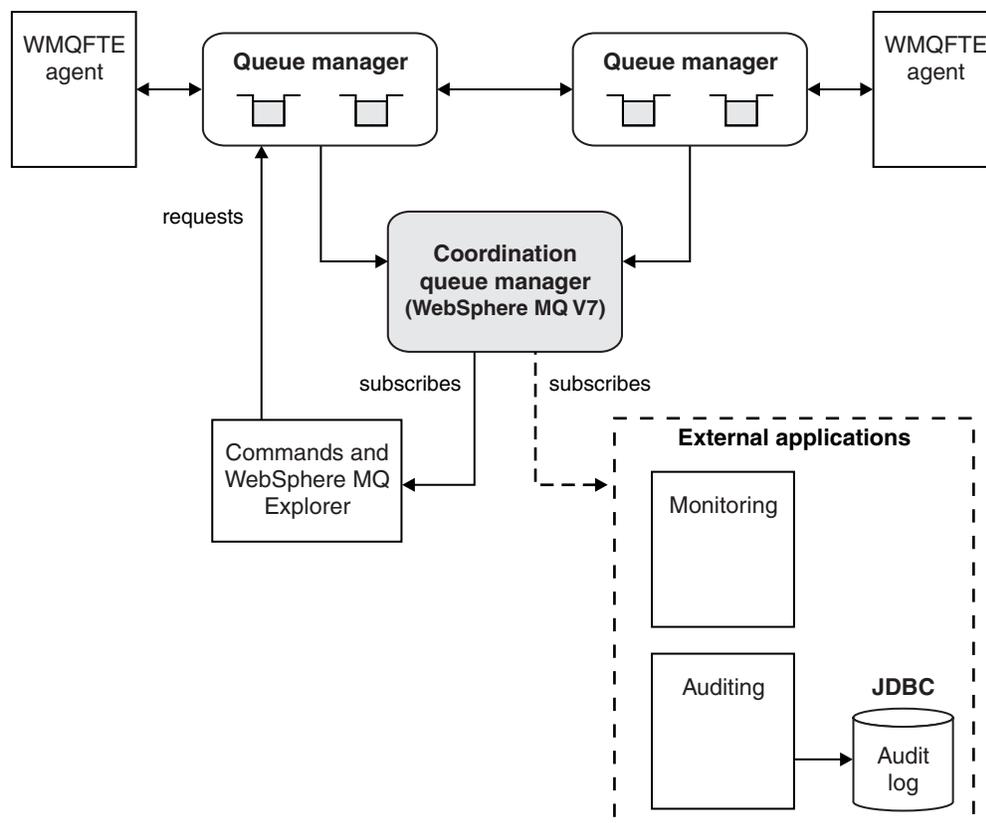
The coordination queue manager broadcasts audit and file transfer information. The coordination queue manager represents a single point for the collection of agent, transfer status, and transfer audit information. The coordination queue manager is not required to be available in order for transfers to take place. If the coordination queue manager become temporarily unavailable, transfers would continue as normal. Audit and status messages would be stored in the agent queue managers until the coordination queue manager became available, and can then be processed as normal.

Agents register with the coordination queue manager and publish their details to that queue manager. This agent information is used by the WebSphere MQ File Transfer Edition plug-in to enable the start of transfers from the WebSphere MQ Explorer. The agent information collected on the coordination queue manager is also used by the commands to display agent information and agent status.

Transfer status and transfer audit information is published on the coordination queue manager. The transfer status and transfer audit information is used by the WebSphere MQ File Transfer Edition plug-in to monitor the progress of transfers from the WebSphere MQ Explorer. The transfer audit information stored on the coordination queue manager can be retained to provide auditability.

You can use WebSphere MQ File Transfer Edition with either WebSphere MQ Version 6.0 or WebSphere MQ Version 7.0. However, you need access to one WebSphere MQ Version 7.0 queue manager to act as your coordination queue manager.

- | The command queue manager is used to connect to the WebSphere MQ network and is the queue manager connected to when you issue WebSphere MQ File Transfer Edition commands.



**Related concepts:**

“WebSphere MQ File Transfer Edition introduction” on page 1

WebSphere MQ File Transfer Edition transfers files between systems in a managed and auditable way, regardless of file size or the operating systems used.

**Related reference:**

“How does WebSphere MQ File Transfer Edition work?” on page 445

WebSphere MQ File Transfer Edition interacts in a number of ways with WebSphere MQ. This topic describes how the two products interact.

## Accessibility features for WebSphere MQ File Transfer Edition

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products successfully. IBM strives to provide products with usable access for everyone, regardless of age or ability.

### Accessibility features

The following list includes the major accessibility features in WebSphere MQ File Transfer Edition. You can use screen-reader software to hear what is displayed on the screen.

- Supports keyboard-only operation
- Supports interfaces commonly used by screen readers
- Fully-functional command line interface
- Respects system font and color scheme options
- Text-only (console) installation
- Supports all accessibility features of the Eclipse interface (applies to the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer)

## Keyboard navigation

This product uses standard operating system-defined navigation keys, as well as Eclipse standard navigation keys.

Visit the *IBM Accessibility Center* for more information about IBM's commitment to accessibility.

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## What's new in this release?

These topics list the new product capabilities added in each release of WebSphere MQ File Transfer Edition Version 7.

- “What's new in Version 7.0.4.5 and later?” on page 17
- “What's new in Version 7.0.4.4?” on page 17
- “What's new in Version 7.0.4.3?” on page 17
- “What's new in Version 7.0.4.2?” on page 18
- “What's new in Version 7.0.4.1?” on page 19
- “What's new in Version 7.0.4?”
- “What's new in Version 7.0.3?” on page 21
- “What's new in Version 7.0.2?” on page 23
- “What's new in Version 7.0.1?” on page 24

## What's new in Version 7.0.4?

Learn about the main new functions in WebSphere MQ File Transfer Edition Version 7.0.4.

### **Transferring files between WebSphere MQ File Transfer Edition agents and IBM Sterling Connect:Direct nodes**

You can now use WebSphere MQ File Transfer Edition to initiate a file transfer from a WMQFTE agent to a Connect:Direct node, or from a Connect:Direct node to a WMQFTE agent. To transfer files between the two environments you must configure the Connect:Direct bridge, which is available as part of the Server or Client component of WebSphere MQ File Transfer Edition. For more information about the Connect:Direct bridge, see “The Connect:Direct bridge” on page 269.

### **Starting user-defined IBM Sterling Connect:Direct processes from a WebSphere MQ File Transfer Edition transfer request**

You can now use WebSphere MQ File Transfer Edition to start user-defined IBM Sterling Connect:Direct processes as part of a transfer request. To integrate the two environments you must configure the Connect:Direct bridge, which is available as part of the Server or Client component of WebSphere MQ File Transfer Edition. For more information about the Connect:Direct bridge, see “The Connect:Direct bridge” on page 269.

### **Submitting a WebSphere MQ File Transfer Edition transfer request from a IBM Sterling Connect:Direct process**

You can now start a WebSphere MQ File Transfer Edition file transfer from within a IBM Sterling Connect:Direct process. To integrate the two environments you must configure the Connect:Direct bridge, which is available as part of the Server or Client component of WebSphere MQ File Transfer Edition. For more information about the Connect:Direct bridge, see “The Connect:Direct bridge” on page 269.

## What's new in Version 7.0.4.5 and later?

Learn about what's new in WebSphere MQ File Transfer Edition Version 7.0.4.5 and later versions.

### Fixes and improvements

To find information about the fixes included in Version 7.0.4.5 and later versions, see Fix List for WebSphere MQ File Transfer Edition 7.0.

This product documentation also includes various corrections and improvements.

## Serviceability enhancements for WebSphere MQ File Transfer Edition

From WebSphere MQ File Transfer Edition Version 7.0.4.5, the following changes have been made for WebSphere MQ File Transfer Edition:

- The default value for of the `commandMessagePriority` property in the `wmqfte.properties` file has changed to 8. For more information, see “The `wmqfte.properties` file” on page 575.
- The default value for of the `logTransferRecovery` property in the `agent.properties` file has changed to true. For more information, see “The `agent.properties` file” on page 583.
- A first failure data capture (FDC) is generated if an agent encounters an unrecoverable error.

## What's new in Version 7.0.4.4?

Learn about what's new in WebSphere MQ File Transfer Edition Version 7.0.4.4.

### SHA-2 support

WebSphere MQ File Transfer Edition now supports SHA-2 cipher specifications and cipher suites on the IBM i and z/OS platforms. For more information, see “SHA-2 cipher specifications and cipher suites” on page 655.

### `enableDetailedReplyMessages` property

The `enableDetailedReplyMessages` property allows managed transfer request replies to contain detailed information about the transferred files. For more information, see “The `agent.properties` file” on page 583.

## What's new in Version 7.0.4.3?

Learn about the new function in WebSphere MQ File Transfer Edition Version 7.0.4.3.

Version 7.0.4.3 is a fix pack containing new function. By default, this new function is not enabled. To enable the function, add the `enableFunctionalFixPack` property to the `wmqfte.properties` file and set it to 7043. For more information, see “The `wmqfte.properties` file” on page 575.

- You can now submit a large one file to one message transfer, up to a file size of 100 MB. To reduce memory usage for large one file to one message transfers, you are recommended to set the `-qs` parameter on the `fteCreateTransfer` command equal to the size of message being written. If you have a file larger than 100 MB, and you also specify the `-qs` parameter on the `fteCreateTransfer` command, the file is split into multiple messages.

In the case of recovery of binary one file to message transfers, the transfer restarts from the point that the last checkpoint was written. In the case of recovery of text transfers, the transfer restarts from the beginning of the file, which might result in an incomplete group of messages on the destination queue. When the failed text transfer is restarted, a completely new group of messages is written.

- Transfer progress log messages are now published for transfers that fail early. You can then use the information published about the transfer items in the failed transfer to resubmit that transfer.
- The `commandMessagePriority` property sets the priority of both internal messages and command messages for the `fteStopAgent`, `fteCancelTransfer`, `ftePingAgent`, and `fteSetAgentTraceLevel` commands. You can also use the `commandMessagePriority` property to set the priority of internal acknowledgement and acknowledgement-expected messages. You can set `commandMessagePriority` to a value to prioritize internal WebSphere MQ File Transfer Edition messages above new transfer requests, which can improve agent performance. For more information, see “The `wmqfte.properties` file” on page 575.

- You can use the `maxInlineFileSize` property to set the maximum size of file that is included in the transfer request message for single file-to-file or file-to-message transfers. This might improve transfer performance. For more information, see “The `agent.properties` file” on page 583.
- You can use the `enableMemoryAllocationChecking` property to ensure that the agent checks whether there is sufficient memory available to run a transfer before the transfer is started. If there is insufficient memory available, the transfer is put into recovery, which prevents the agent from failing with an out-of-memory error. For more information, see “The `agent.properties` file” on page 583.
- Transfer log publications for file-to-message and message-to-file transfers now contain all the transfer request attributes.
- You can now transfer physical file members in the QSYS.LIB file system on IBM i.

This support is limited to transferring file members in program-described files only and does not support the use of externally-described files or source physical files. You can transfer file members to a destination file member on another IBM i system or to a stream file residing in an IBM i system or other platforms such as Windows or UNIX. You can also transfer stream files to a destination file member. When transferring to a file that does not exist, a program-described file is created with a record length of 5000. There is currently no support for specifying the record length, CCSID, or other attributes for creating the file during the transfer. If you want to specify a value or attribute, you must create the destination file before the transfer occurs, although you could also do this using a pre-destination transfer task.

You can transfer file members in text mode only. The data is automatically converted from EBCDIC.

For more information, see “Transferring physical file members that reside in the QSYS.LIB file system on IBM i systems” on page 739.

- On IBM i, you can use the user exit samples provided in WMQFTE for the following tasks:
  - Transfer files in the QDLS file system.
  - Automatically transfer physical file members from an IBM i library in the same way as a WMQFTE file monitor.
  - Delete an empty file object when the source file member is deleted as part of the transfer.

For more information, see “Sample IBM i user exits” on page 362.

## What's new in Version 7.0.4.2?

Learn about the new function in WebSphere MQ File Transfer Edition Version 7.0.4.2.

Version 7.0.4.2 is a fix pack that contains a new feature to support user-defined metadata transfer options for the **`fteCreateTransfer`** command. By default, this new feature is not enabled. To enable this feature, complete the following steps:

- Enable the 7.0.4.1 functional fix pack. For more information, see “The `wmqfte.properties` file” on page 575
- Define the new agent property `enableUserMetadataOptions` and set this property to a value of `true`

The feature to support user-defined metadata transfer options allows you to specify additional transfer options that do not have a specific **`fteCreateTransfer`** parameter defined. For this release, three user-defined metadata transfer options are supported, which can control line separator generation for text transfers to and from record-oriented files, such as z/OS data sets. For details about these options and how to specify them, see “Supported user-defined metadata keys” on page 620 and `fteCreateTransfer -md` parameter.

## What's new in Version 7.0.4.1?

Learn about the new function in WebSphere MQ File Transfer Edition Version 7.0.4.1.

Version 7.0.4.1 is a fix pack containing new function. By default, this new function is not enabled. To enable this function for agents and command-line tools, add the **enableFunctionalFixPack** property to the `wmqfte.properties` file. For more information, see “The `wmqfte.properties` file” on page 575. This property does not enable the new function in the WebSphere MQ Explorer plug-in. After installing Version 7.0.4.1 and starting WebSphere MQ Explorer, you can enable the new function from the **Preferences** pane.

- Enhancements to existing commands
- Enhancements to the protocol bridge
- Enhancement to the agent
- Enhancements to user exit routines
- Usability improvements in the WebSphere MQ Explorer plug-in

### Enhancements to existing commands

- To specify that programs start at the source and destination agents, you can now use the **fteCreateTransfer** command, in addition to the previous method of using an Ant task. For more information, see “**fteCreateTransfer** (create new file transfer)” on page 509 and “Examples of using **fteCreateTransfer** to start programs” on page 938.
- You can use the **fteCleanAgent** command to specify which transfer-related objects you want to delete. You can choose to delete in-progress and pending transfers, resource monitor definitions, or scheduled transfer definitions for a particular agent. For more information, see “**fteCleanAgent** (cleans up a WebSphere MQ File Transfer Edition agent)” on page 473.
- You can redirect command trace from the current directory to your specified directory. For more information, see “Tracing WebSphere MQ File Transfer Edition commands” on page 380.
- Specify a timeout for the **fteCreateTransfer** command using the **-w** parameter. Previously, specifying this parameter caused the command to wait indefinitely for the agent to respond. For more information, see “**fteCreateTransfer** (create new file transfer)” on page 509.
- Use the **com.ibm.wmqfte.propertyset** property to specify a set of configuration options to use for Ant tasks. For more information, see “**fteAnt** (run Ant tasks in a WebSphere MQ File Transfer Edition environment)” on page 468.
- The output produced by the **-v** parameter on the **fteShowAgentDetails** command now includes host name, product version, trace level, and First Failure Data Capture (FFDC) specification. For more information, see “**fteShowAgentDetails** (display WebSphere MQ File Transfer Edition agent details)” on page 563.
- You can export and import a resource monitor configuration to an XML file using the **-ox** and **-ix** parameters on the **fteCreateMonitor** command. For more information, see “**fteCreateMonitor** (create new resource monitor)” on page 490.
- You can export an existing resource monitor configuration to an XML file using the **-ox** parameter on the **fteListMonitors** command. For more information, see “**fteListMonitors** (list WebSphere MQ File Transfer Edition resource monitors)” on page 542.
- You can update a monitor configuration dynamically either based on an existing XML configuration or starting again from the beginning using the **-f** and **-c** parameters on the **fteCreateMonitor** command. For more information, see “**fteCreateMonitor** (create new resource monitor)” on page 490.
- You can specify record delimiters for binary transfers from record-oriented files (for example, data sets) to normal files using the **-srdp** parameter on the **fteCreateTransfer** command. For more information, see “**fteCreateTransfer** (create new file transfer)” on page 509.
- You can select whether to keep or to strip trailing spaces from fixed-record format data sets for text transfers using the **-skeep** parameter on the **fteCreateTransfer** command. For more information, see “**fteCreateTransfer** (create new file transfer)” on page 509.

### Enhancements to the protocol bridge

- You can use a protocol bridge agent to transfer files to and from multiple protocol file servers. Use the `ProtocolBridgeProperties.xml` file to define the properties of the protocol file servers that you want to transfer to. For more information, see “The protocol bridge” on page 254 and “Protocol bridge properties file format” on page 626.
- The protocol bridge supports a subset of the FTPS protocol. For more information, see “FTPS server support by the protocol bridge” on page 752 and “Configuring a protocol bridge for an FTPS server” on page 267.
- You can use FTP in passive mode by setting the `passiveMode` attribute. For more information, see “Protocol bridge properties file format” on page 626

### Enhancement to the agent

- You can enable WebSphere MQ client channel header compression for individual agents, using the property `agentHeaderCompression`. For more information, see “The agent.properties file” on page 583.

### Enhancements to user exit routines

- You can manage the properties of multiple protocol file servers by implementing the `com.ibm.wmqfte.exitroutine.api.ProtocolBridgePropertiesExit` interface. For more information, see “Looking up protocol file server properties by using exit classes” on page 259.
- You can map protocol bridge credentials for multiple endpoints using the `com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit2` interface. For more information, see “Mapping credentials for a file server using exit classes” on page 264.
- You can configure custom code to perform the underlying file system I/O work for WebSphere MQ File Transfer Edition transfers using the `IOExit` interfaces. For more information, see “Using WebSphere MQ File Transfer Edition transfer I/O user exits” on page 361.

### Usability improvements in the WebSphere MQ Explorer plug-in

There is a completely redesigned set of wizards to create transfers, monitors, and templates that replace the previous wizards and provide extra function. For example, the new wizards include the following additional features:

- You can sort the columns in any of the panels by clicking the column header in the Navigator View.
- The **Pending Transfers** panel now shows the optional job name assigned to each file transfer.
- There is a new wizard to create transfers, monitors, and templates that replaces previous wizards. The new wizard includes the following features:
  - You can now edit and change the individual items in a previously saved transfer request template.
  - As part of a file transfer request, you can now specify a program, Ant script, or JCL job to run either before a transfer starts or after it finishes.
  - The wizard provides help in specifying variable substitution values in the transfer elements.
  - You can specify a job name for a file transfer.
  - There is an improved method of specifying BPXWDYN options for data sets.
  - You can edit the configuration of an existing monitor by selecting the monitor and using the right-click menu on the **Monitors** panel.
  - When submitting a new file transfer request to an agent in the same location, you can now use a standard file selector dialog box to browse for the files.

## What's new in Version 7.0.3?

Learn about the main new functions in WebSphere MQ File Transfer Edition Version 7.0.3.

### Working with WebSphere MQ File Transfer Edition by using the Web Gateway

You can transfer files to existing WMQFTE agents by using an HTTP client that communicates with the WebSphere MQ File Transfer Edition Web Gateway. You can also transfer files from WMQFTE V7.0.3 agents to HTTP clients by using file spaces, and check the status of any transfer that has been logged to a database by the database logger. By using an HTTP client with the WebSphere MQ File Transfer Edition Web Gateway you can transfer files from environments that are not supported by WMQFTE agents, and to distribute files from your WMQFTE environment to web users. For more information about the Web Gateway, see “Scenarios for the Web Gateway” on page 293. For more information about file spaces, see “File spaces” on page 334.

### Transferring files to and from WebSphere MQ queues

You can now transfer files to and from WebSphere MQ queues. Files can be transferred to one or more messages on a WebSphere MQ queue. You can transfer one or more messages on a WebSphere MQ queue to a file. You can use WebSphere MQ File Transfer Edition to monitor a WebSphere MQ queue and trigger transfers of messages to files. For more information, see the following topics: “Transfer data from files to messages” on page 224 and “Transferring data from messages to files” on page 240.

### Consumability enhancements

You can now view the status of WebSphere MQ File Transfer Edition agents in a panel in WebSphere MQ Explorer.

You can now start WebSphere MQ File Transfer Edition agents and database loggers as Windows services. Agents and database loggers that are configured as Windows services can start running automatically when the system that they are hosted on is started. For more information, see “Starting an agent as a Windows service” on page 191.

### Monitoring enhancements

You can now use Java™ regular expressions as an alternative to wildcard characters when specifying the condition pattern and exclude pattern for the **fteCreateMonitor** command. You can specify the type of pattern to use with the **-pt** parameter. For more information, see “**fteCreateMonitor** (create new resource monitor)” on page 490.

You can batch monitor tasks. If a resource monitor finds multiple matches to the trigger conditions, you can specify how many of these matches are processed in a single task. You can specify the number of matches to include in a single batch with the **-bs** parameter. For more information, see “**fteCreateMonitor** (create new resource monitor)” on page 490.

### Security enhancements

You can now use WebSphere MQ Advanced Message Security to secure messages sent by WebSphere MQ File Transfer Edition. For more information, see “Using IBM WebSphere MQ Advanced Message Security with IBM WebSphere MQ File Transfer Edition” on page 85.

### Java Platform, Enterprise Edition (JEE) database logger

You can now run the WebSphere MQ File Transfer Edition database logger application within a JEE application server environment. With the JEE database logger you can manage the database logger with the rest of your enterprise applications. For more information, see the following topic: “Configuring a WebSphere MQ File Transfer Edition logger” on page 123

### New template commands: **fteDeleteTemplates** and **fteListTemplates**

You can use the “**fteDeleteTemplates** (delete WebSphere MQ File Transfer Edition templates)” on page 537 command to delete existing file transfer templates and use the “**fteListTemplates** (list WebSphere MQ File Transfer Edition templates)” on page 545 command to list your existing file transfer templates.

### **fteDisplayVersion command**

You can use the `fteDisplayVersion` command to display the installed version of WebSphere MQ File Transfer Edition.

### **Extended platform support**

WebSphere MQ File Transfer Edition is now also supported on the following platforms:

- AIX on POWER7®
- Linux on POWER7
- Oracle Solaris 10 on Intel x86
- Virtualized platforms

For a full information about the platforms that WebSphere MQ File Transfer Edition is supported on, see WebSphere MQ File Transfer Edition System Requirements.

## **The WebSphere MQ File Transfer Edition Web Gateway**

The Web Gateway provides a RESTful API, which you can use to interact with your WebSphere MQ File Transfer Edition network.

This section explains the concepts of the Web Gateway, and how the Web Gateway fits into your existing WebSphere MQ File Transfer Edition network. For more information see “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. For examples of HTTP requests that you can send to the Web Gateway, see “Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301.

For information about configuring and securing the Web Gateway in an application server, see “Configuring the Web Gateway” on page 149 and “Securing the Web Gateway” on page 87. To check your Web Gateway setup, see “Verifying your Web Gateway installation” on page 173.

For reference information about the Web Gateway RESTful API, see “Web Gateway API reference” on page 940.

To solve problems related to the Web Gateway, see “Troubleshooting the Web Gateway” on page 416.

### **Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

### **Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

“Sample web page” on page 351

WebSphere MQ File Transfer Edition Web Gateway provides a sample web page. This sample uses Web Gateway API functions to upload files, view the status of file transfers, view the contents of a file space and download files from a file space.

“Database tables used by the Web Gateway” on page 987

The WebSphere MQ File Transfer Edition Web Gateway uses the following database tables to configure and secure user file spaces.

## What's new in Version 7.0.2?

Learn about the main new functions in WebSphere MQ File Transfer Edition Version 7.0.2.

### IBM i platform support

WebSphere MQ File Transfer Edition now supports the transfer of files that reside in the "root" (/), QOpenSys, and QSYS.LIB file systems on IBM i systems. Save files in QSYS.LIB (IBM i native file system) are the only files eligible for file transfer operations.

### File protocol bridge

The protocol bridge allows your WebSphere MQ File Transfer Edition network to access files stored on a file server outside your WebSphere MQ File Transfer Edition network. This file server can use either the FTP or SFTP network protocols. For more information, see Protocol bridge.

### Enhancements to access control

WebSphere MQ File Transfer Edition now supports finer grained checking of users' authorities, which permits access to be granted (or denied) to specific product functions for each user. For example, you can choose which users have the authority to schedule transfer operations to happen at a future time. For more information, start with the following topic: Managing authorities for WebSphere MQ File Transfer Edition resources.

### Support for multi-instance queue managers

WebSphere MQ Version 7.0.1 supports the creation of multi-instance queue managers. WebSphere MQ File Transfer Edition Version 7.0.2 supports connection to multi-instance agent queue managers and a multi-instance coordination queue manager. For more information, see Multi-instance queue managers.

### Maximum concurrent transfer limit - behavior change

When an agent reaches the limit of its `maxSourceTransfers` property (the default value is 25), any additional transfer requests no longer fail. The additional transfer requests are accepted and queued by the agent until the agent has capacity to run the transfers. The order that queued transfer requests are processed in is determined as a result of their priority and how long they have been queued. Old and high priority pending transfers are selected first. Transfers with a low priority that have been on the queue for a long time will be selected in preference to newer, higher priority transfers. The agent will queue up to the limit of `maxQueuedTransfers` requests before rejecting the request with a `SOURCE_CAPACITY_EXCEEDED` (44) return code.

For more information about these properties, see “Advanced agent properties” on page 584.

## What's new in Version 7.0.1?

Learn about the main new functions in WebSphere MQ File Transfer Edition Version 7.0.1.

### Apache Ant extensions

WebSphere MQ File Transfer Edition now includes a number of extensions for Apache Ant that allow you to carry out certain tasks. Start with [Using Apache Ant](#) to read about how to use Apache Ant.

The **fteant** command runs an Apache Ant script in the WebSphere MQ File Transfer Edition Ant environment, which removes the need to include the WebSphere MQ File Transfer Edition Ant extensions in any Ant scripts that might need them. For more information about to use this command, see: [fteant command](#).

### Database logger

When WebSphere MQ File Transfer Edition transfers files, it publishes information about its actions to a topic on the coordination queue manager. The database logger is a new optional component of WebSphere MQ File Transfer Edition that you can use to copy this information into a database for analysis and auditing purposes. The database logger is a stand-alone Java application that is installed on a machine that hosts the coordination queue manager and the database. You must firstly install and configure your WebSphere MQ File Transfer Edition coordination queue manager before you install the database logger. Start the following topics for more information: [Installing the IBM WebSphere MQ File Transfer Edition Server](#) and [After you have installed WebSphere MQ File Transfer on distributed platforms](#)

For information about how to install and configure the database logger, start with the information at: [Using the database logger](#)

### Resource monitoring

You can now monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition. When a trigger condition is successfully met in this monitored resource, a task is started, like a file transfer. Start with [Resource monitoring](#) for further information.

For example, you can use a resource monitor in the following way: an external application puts one or more files in a known directory and when processing is complete, the external application places a trigger file in a directory monitored by WebSphere MQ File Transfer Edition. The trigger file is then detected and a defined file transfer starts, which copies the files from the known directory to a destination agent.

The `fteCreateMonitor` command creates and starts a resource monitor. You can also create resource monitors using the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

The `fteDeleteMonitor` command deletes and stops an existing resource monitor.

The `fteListMonitors` command lists existing resource monitors

### Unattended installation

You can now install WebSphere MQ File Transfer Edition in an unattended or silent mode. Unattended mode means the installer runs without any user interaction and installation is completed according to a predefined set of options contained in a response file.

For information about how to run an unattended installation, start with the information at: [Installing in unattended \(silent\) mode](#).

### Support for generation data groups

WebSphere MQ File Transfer Edition now supports generation data groups (GDGs) for source and destination data sets on the z/OS platform. Both absolute and relative GDG names are supported. For more information, see the information at: [Transferring generation data groups \(GDGs\)](#)

### z/OS tape support

WebSphere MQ File Transfer Edition now supports tape data sets.

When you transfer a file or data set to tape, any existing data set that is already on the tape is replaced. The attributes for the new data set are set from attributes passed in the transfer definition. If no attributes are specified, attributes are set to the same as the source data set or to the default values when the source is a file. The attributes of an existing tape data set are ignored.



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## Installing WebSphere MQ File Transfer Edition

This topic details the preparation you must do before installing WebSphere MQ File Transfer Edition.

Before you install WebSphere MQ File Transfer Edition, check that your system meets both the hardware and software requirements of the product. For all platforms, you must have one WebSphere MQ Version 7.0 queue manager available in your WebSphere MQ File Transfer Edition network to use as the coordination queue manager.

See the web page [WebSphere MQ File Transfer Edition System Requirements](#) for hardware and software prerequisites.

### Product options

WebSphere MQ File Transfer Edition can be installed as three different options, depending on your operating system and overall setup. These options are WebSphere MQ File Transfer Edition Server, WebSphere MQ File Transfer Edition Client, and WebSphere MQ File Transfer Edition for z/OS.

To decide which components to install, review the product options and topology information in the following topics:

- “WebSphere MQ File Transfer Edition product options” on page 3
- “WebSphere MQ File Transfer Edition topology overview” on page 14

### What you must install

- To use WebSphere MQ File Transfer Edition you must install at least one WebSphere MQ File Transfer Edition Server and at least one other type of WebSphere MQ File Transfer Edition Client, so that you can create two agents that can communicate. You might want to install more than one Server and more than one WebSphere MQ File Transfer Edition Client.
- To work with WebSphere MQ File Transfer Edition using a graphical user interface (GUI) you must install the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer. This plug-in is available from the WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD.
- WebSphere MQ File Transfer Edition requires at least one Version 7 WebSphere MQ queue manager to act as the coordination queue manager. However, you can configure WebSphere MQ File Transfer Edition to transfer files among a network of Version 6 queue managers, Version 7 queue managers, or a mixture of both.

For information about configuring topologies of queue managers for use with WebSphere MQ File Transfer Edition, see [Configuring the coordination queue manager](#) and [Configuring WebSphere MQ queue managers](#).

For more help on connecting WebSphere MQ queue managers start with the information here: [WebSphere MQ distributed-messaging techniques](#).

**Related concepts:**

“WebSphere MQ File Transfer Edition product options” on page 3

WebSphere MQ File Transfer Edition can be installed as three different options, depending on your operating system and overall setup. These options are WebSphere MQ File Transfer Edition Server, WebSphere MQ File Transfer Edition Client, and WebSphere MQ File Transfer Edition for z/OS.

“WebSphere MQ File Transfer Edition topology overview” on page 14

**Related reference:**

“Media included in each product offering” on page 446

WebSphere MQ File Transfer Edition can be installed as three different types of offering, depending on your platform and overall setup. The following table lists the media that are included with each product offering.

“Installed command sets” on page 447

The following table shows which commands are installed with each product offering.

---

## Migration, coexistence, and compatibility between different versions

If you are planning to move from a previous version of WebSphere MQ File Transfer Edition to V7.0.4.6, use the following information.

### Migration

To migrate from a previous version to V7.0.4.6, complete the following steps:

1. Stop all of your previous version agents using the `fteStopAgent` command.
2. Close the previous version of WebSphere MQ Explorer, if it is open.
3. Install V7.0.4.6 to the same location as you used when installing the previous version.

### Restoring a previous version

After you have started an agent on a new version of WebSphere MQ File Transfer Edition, you might not be able to restart the agent using a previous version of the product. If you experience problems with your agent after restoring a previous version of the product, run the `fteCleanAgent` command.

### Coexistence

You can install and run V7.0.4.6 alongside previous versions on the same host. However, on all platforms, ensure you do not have agents created by different versions of WebSphere MQ File Transfer Edition that use the same queues. You can run an agent that was created on an earlier release on a later release, which upgrades the agent. But after the upgrade is complete, do not attempt to run that agent on an older release.

### Compatibility between different versions

You are recommended to always apply the latest Fix Pack to any version of WebSphere MQ File Transfer Edition that you are using. For the very latest details of version compatibility, refer to the product readme (`readme.txt`), which is included with the product and is published on the Product readmes web page.

There is no support for interoperation of agents running any level of Early Access Program or Early Design Program code with any general availability level of the product.

## Related tasks:

“Migrating from an earlier version of WebSphere MQ File Transfer Edition”

To migrate from an earlier version or from the trial version of WebSphere MQ File Transfer Edition to a later version, perform the following steps.

“Migrating from the Early Access Program or Early Design Program” on page 31

If you have previously installed the Early Access Program or Early Design Program for WebSphere MQ File Transfer Edition you must uninstall this version of the product before installing the general availability (GA) version of WebSphere MQ File Transfer Edition. You must also remove any configuration associated with the Early Access Program installation.

“Migrating the stand-alone database logger” on page 33

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

“Migrating from the stand-alone database logger to the JEE database logger” on page 34

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

## Migrating from an earlier version of WebSphere MQ File Transfer Edition

To migrate from an earlier version or from the trial version of WebSphere MQ File Transfer Edition to a later version, perform the following steps.

### About this task

**Note:** If you have installed an Early Access Program (EAP) or Early Design Program (EDP) driver do not follow the instructions in this topic. For information about how to migrate from an EDP or EAP driver, see “Migrating from the Early Access Program or Early Design Program” on page 31.

You must perform the migration steps in the order that they are listed. You must migrate your database logger and WebSphere MQ Explorer plug-in before migrating any of the agents in your WebSphere MQ File Transfer Edition network.

### Procedure

1. Migrate the WebSphere MQ File Transfer Edition Remote Tools and Documentation installation. The Remote Tools and Documentation installation includes one or many of the following components: the WebSphere MQ Explorer plug-in, the WebSphere MQ File Transfer Edition Information Center, the stand-alone Java database logger application, the Java Platform, Enterprise Edition (JEE) database logger application, and the tools to remotely administer WebSphere MQ File Transfer Edition. Perform the following steps, if appropriate for the components you have previously installed on the system:
  - a. Optional: If the WebSphere MQ Explorer plug-in is installed, close WebSphere MQ Explorer.
  - b. Optional: If the WebSphere MQ File Transfer Edition Information Center is installed, close the web browser that is displaying the information center and ensure that the information center is stopped, by running the `install-directory/tools/help/help_end.sh` or `install-directory/tools/help/help_end.bat` command.
  - c. Optional: If the tools for remote administration are installed, ensure that all commands have completed.
  - d. Optional: If the stand-alone database logger is installed, either upgrade the stand-alone database logger or migrate from the stand-alone database logger to the JEE database logger application. For information about upgrading the stand-alone database logger, see “Migrating the stand-alone

database logger” on page 33. For information about migrating to the JEE database logger application, see “Migrating from the stand-alone database logger to the JEE database logger” on page 34.

- e. Back up the Remote Tools and Documentation directory by copying to a new directory. By default, the Remote Tools and Documentation installation is located in the following directory:
    - c:\Program Files\IBM\WMQFTE\tools on Windows platforms.
    - /opt/IBM/wmqfte/tools on UNIX platforms.
    - If the existing level of tools installation is V7.0.3 or earlier /opt/IBM/wmqfte/tools on Linux platforms. For more information, see “Installation location on Linux platforms” on page 447.
    - If the existing level of tools installation is V7.0.4 or later /opt/ibm/wmqfte/tools on Linux platforms. For more information, see “Installation location on Linux platforms” on page 447.
  - f. Install the new version of WebSphere MQ File Transfer Edition Remote Tools and Documentation in the same location as the existing installation. When asked if you want to reuse or replace the existing configuration options, select **Reuse existing configuration**. For information about using the Remote Tools and Documentation installer, see “Installing IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation using the graphical installer” on page 45.
  - g. Optional: If the WebSphere MQ Explorer plug-in is installed, start WebSphere MQ Explorer using the command `strmqcfg -c`.
  - h. Optional: If the stand-alone database logger is installed, start the database logger using the command **fteStartDatabaseLogger**.
2. Migrate each agent to the new version of WebSphere MQ File Transfer Edition. For each agent perform the following steps. If multiple agents are running on the same system from the same installation of WebSphere MQ File Transfer Edition, you must stop all of these agents before upgrading.
    - a. Stop the agent using the **fteStopAgent** command. The agent will stop when it has completed all currently-running transfers.
    - b. Ensure that the agent is stopped using the **ftePingAgent** command.
    - c. Back up the agent installation directory by copying to a new directory. By default, the agent installation is located in the following directory:
      - c:\Program Files\IBM\WMQFTE on Windows platforms
      - /opt/IBM/wmqfte on UNIX platforms
      - If the existing level of agent is V7.0.3 or earlier /opt/IBM/wmqfte on Linux platforms. For more information, see “Installation location on Linux platforms” on page 447.
      - If the existing level of agent is V7.0.4 or later /opt/ibm/wmqfte on Linux platforms. For more information, see “Installation location on Linux platforms” on page 447.
    - d. Install the new version of WebSphere MQ File Transfer Edition Server or Client installation in the same location as the existing installation, depending on whether the existing installation is a Server or Client installation.
      - Select **Refresh existing install**, when asked if you want to overwrite the existing installation.
      - Select **Reuse existing configuration**, when asked if you want to reuse or replace the existing configuration options.
      - If you are migrating WebSphere MQ File Transfer Edition Server from V7.0.3 to a later version, there are no changes to the database schema for the Web Gateway. There is no SQL migration file to run against the database that is used by the Web Gateway.
    - e. Optional: If you are migrating from V7.0.1 or earlier, you must create additional security queues for each agent. Run the following MQSC commands against the agent queue manager:
 

```
DEFINE QLOCAL("SYSTEM.FTE.AUTHADM1.agent_name") DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +
  MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(999999999) SHARE NOTRIGGER +
  USAGE(NORMAL) REPLACE
DEFINE QLOCAL("SYSTEM.FTE.AUTHAGT1.agent_name") DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +
  MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(999999999) SHARE NOTRIGGER +
```

```

USAGE(NORMAL) REPLACE
DEFINE QLOCAL("SYSTEM.FTE.AUTHMON1.agent_name") DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +
MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(999999999) SHARE NOTRIGGER +
USAGE(NORMAL) REPLACE
DEFINE QLOCAL("SYSTEM.FTE.AUTHOPS1.agent_name") DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +
MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(999999999) SHARE NOTRIGGER +
USAGE(NORMAL) REPLACE
DEFINE QLOCAL("SYSTEM.FTE.AUTHSCH1.agent_name") DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +
MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(999999999) SHARE NOTRIGGER +
USAGE(NORMAL) REPLACE
DEFINE QLOCAL("SYSTEM.FTE.AUTHTRN1.agent_name") DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +
MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(999999999) SHARE NOTRIGGER +
USAGE(NORMAL) REPLACE

```

Do not use the MQSC scripts that are generated by the installation process, because using these replaces your existing queues and might cause transfers, monitors, or other agent state to be lost.

- f. Start the agent using the **fteStartAgent** command.

## Migrating from the Early Access Program or Early Design Program

If you have previously installed the Early Access Program or Early Design Program for WebSphere MQ File Transfer Edition you must uninstall this version of the product before installing the general availability (GA) version of WebSphere MQ File Transfer Edition. You must also remove any configuration associated with the Early Access Program installation.

### About this task

Complete the following steps to uninstall the Early Access Program installation:

### Procedure

1. For each agent in your WebSphere MQ File Transfer Edition topology:
  - a. Stop the agent using the **fteStopAgent** command.
  - b. Delete all transfers from the agent using the **fteCleanAgent** command.
  - c. Delete the agent using the **fteDeleteAgent** command.
2. For each agent queue manager in your WebSphere MQ File Transfer Edition topology:
  - a. Ensure that all agent queues have been deleted from your agent queue manager. Each agent has the following queues:

```

SYSTEM.FTE.COMMAND.agent_name
SYSTEM.FTE.DATA.agent_name
SYSTEM.FTE.EVENT.agent_name
SYSTEM.FTE.REPLYagent_name
SYSTEM.FTE.STATE.agent_name
SYSTEM.FTE.AUTHADM1.agent_name
SYSTEM.FTE.AUTHAGT1.agent_name
SYSTEM.FTE.AUTHMON1.agent_name
SYSTEM.FTE.AUTHOPS1.agent_name
SYSTEM.FTE.AUTHSCH1.agent_name
SYSTEM.FTE.AUTHTRN1.agent_name

```

If you had created any web agents, you must also delete the following queues:

```

SYSTEM.FTE.WEB.gateway_name
SYSTEM.FTE.WEB.RESP.agent_name

```

3. For each Web Gateway in your WebSphere MQ File Transfer Edition topology:
  - a. Stop the Web Gateway application in your application server.

- b. Drop any tables from your database that are used by the Web Gateway. For a list of tables used by the Web Gateway, see the topic “Database tables used by the Web Gateway” on page 987.
  - c. Delete all file spaces associated with the Web Gateway.
4. For each stand-alone database logger in your WebSphere MQ File Transfer Edition topology:
    - a. Stop the database logger using the **fteStopDatabaseLogger** command.
    - b. Drop all the tables in the database that are used by the database logger. For a list of tables used by the database logger, see the topic “Database logger tables” on page 753.
  5. For each Java Platform, Enterprise Edition (JEE) database logger in your WebSphere MQ File Transfer Edition topology:
    - a. Stop the database logger application in your application server.
    - b. Drop all the tables in the database that are used by the database logger. For a list of tables used by the database logger, see the topic “Database logger tables” on page 753.
  6. For each coordination queue manager in your WebSphere MQ File Transfer Edition topology:
    - a. Remove the SYSTEM.FTE name from the SYSTEM.QPUBSUB.QUEUE.NAMELIST namelist on your coordination queue manager.
    - b. Delete the SYSTEM.FTE queue from your coordination queue manager.
    - c. Delete the SYSTEM.FTE topic from your coordination queue manager.
  7. For each system that has a WebSphere MQ File Transfer Edition component installed:
    - a. Uninstall the Early Access Program or Early Design Program installation. For instructions about how to uninstall WebSphere MQ File Transfer Edition, see “Uninstalling IBM WebSphere MQ File Transfer Edition” on page 74.
    - b. Optional: If you are uninstalling WebSphere MQ File Transfer Edition from a Windows system, restart your system. If you do not restart your system after uninstalling an Early Access Program or Early Design Program installation and before installing the GA version, there might still be files marked for deletion. This file deletion still occurs, even if you have installed a new version. This behavior might cause your new installation to stop working after a future restart.
    - c. Delete the WMQFTE directory if the directory still exists.
  8. You can now install the GA version of WebSphere MQ File Transfer Edition.

**Related concepts:**

“Installing WebSphere MQ File Transfer Edition on Windows, Linux, or UNIX platforms” on page 40  
 To install WebSphere MQ File Transfer Edition on UNIX and Linux systems, you must have write access to the locations that you want to use for the installation and data (configuration) directories. Do not use a tilde character (~) as a path prefix or include environment variables such as \$HOME in the path. Specify the directory path name in full. If you use a tilde character or environment variable in a path it is not expanded correctly. This causes an installation error, meaning that the product is not installed and you must repeat the installation process. You can install to a non-system location if you do not have root access to the default installation location.

**Related tasks:**

“Installing WebSphere MQ File Transfer Edition on IBM i systems” on page 62

You can install WebSphere MQ File Transfer Edition Server or Client on IBM i systems using the console or silent installer. The graphical installer is not supported on IBM i systems.

“Installing WebSphere MQ File Transfer Edition for z/OS” on page 70

You can install WebSphere MQ File Transfer Edition for z/OS by using the System Modification Program Extended (SMP/E) with guidance from the Program Directory for WebSphere MQ File Transfer Edition for z/OS.

## Migrating the database logger from an earlier version

To migrate the database logger from an earlier version you must upgrade the database logger and migrate the database tables to the latest version.

## About this task

You can migrate between versions or types of the database logger by performing the steps in one of the following topics:

- “Migrating the stand-alone database logger”
- “Migrating from the stand-alone database logger to the JEE database logger” on page 34
- 

If your database is Db2 on z/OS, you must complete the following steps to migrate the database tables from V7.0.2 to V7.0.3 and from V7.0.3 to V7.0.4.

- “Migrating the database tables on Db2 on z/OS” on page 35

If your database is Db2 on Windows, UNIX, or Linux, and you created your log database with a page size of less than 8 KB, you must increase the page size of the database before migrating to the V7.0.3 or later tables.

- “Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37

## Migrating the stand-alone database logger

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

### Procedure

1. Stop the database logger using the **fteStopDatabaseLogger** command.
2. Back up the database using the tools supplied with the database software.
3. Back up the database logger installation directory by copying to a new directory. By default, the database logger installation is located in the following directory:
  - c:\Program Files\IBM\WMQFTE\tools on Windows platforms
  - /opt/IBM/wmqfte/tools on UNIX platforms
  - If the existing level of database logger is V7.0.3 or earlier, /opt/IBM/wmqfte/tools on Linux platforms
  - If the existing level of database logger is V7.0.4 or later, /opt/ibm/wmqfte/tools on Linux platforms
4. Install the new version of the stand-alone database logger in the same location as the existing stand-alone database logger using the WebSphere MQ File Transfer Edition Remote Tools and Documentation installer. When asked if you want to reuse or replace the existing configuration options, select **Reuse existing configuration**. For information about using the Remote Tools and Documentation installer, see “Installing IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation using the graphical installer” on page 45.
5. If your database schema is at an earlier version, you must migrate the schema to each subsequent level in order. For example, if your database schema is at V7.0.1 and you are migrating to V7.0.4, you must migrate your schema from V7.0.1 to V7.0.2, then from V7.0.2 to V7.0.3, and then from V7.0.3 to V7.0.4. Migrate your database schema from version *old* to version *new*, where *old* and *new* are variables that describe a schema version, by performing the one of the following actions for each version of the schema that you must migrate through:
  - If your database is Db2 on z/OS and you are migrating between the V7.0.2 and V7.0.3 schemas or between the V7.0.3 and V7.0.4 schemas, you must create a new database schema and copy your existing data into it. For more information, see “Migrating the database tables on Db2 on z/OS” on page 35.
  - If your database is Db2 on Windows, Linux or UNIX, you are migrating between the V7.0.2 and V7.0.3 schemas, and you created your database with a page size of less than 8K; you must increase

the page size of the database before migrating to the new version of the database schema. For more information, see “Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37.

If your database is not Db2 or you created your database with a page size of more than 8K, you can migrate the schema in the same way as for other versions, by completing the steps below.

- If you are migrating between database tables in any other circumstances complete the following steps:
  - a. Choose the file that is appropriate to your database platform and has a name that includes the string *old-new*. This file is located in the *install\_directory/tools/sql* directory of the Remote Tools and Documentation installation.
  - b. If you have made modifications to the initial schema, review the migration file to ensure that the file will be compatible with your modified database.
  - c. Run the SQL file against your database.

6. Start the database logger using the **fteStartDatabaseLogger** command.

#### Related tasks:

“Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37

If your database is Db2 on a Windows, UNIX or Linux system, and you created your log database with a page size of less than 8 KB, you must increase the page size of the database before migrating to the V7.0.3 or later tables.

“If you receive an error when updating your database schema on an Oracle database” on page 404

You might receive the following error message when updating your database schema to the latest level by using the *ftelog\_tables\_oracle\_702\_703.sql* file: ERROR at line 1: ORA-02289: sequence does not exist. This error occurs because the sequences and triggers used by the tables are not in the same schema as the tables.

“Migrating from the stand-alone database logger to the JEE database logger”

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

### Migrating from the stand-alone database logger to the JEE database logger

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

#### About this task

#### Procedure

1. Before stopping the database, run the following MQSC command against your coordination queue manager: **ALTER QM PSMODE (COMPAT)** This stops messages being published to the SYSTEM.FTE/Log topic. Wait until the database logger has processed all of the messages on its subscription. By default, this subscription is called SYSTEM.FTE.DATABASELOGGER.AUTO.
2. Stop the database logger using the **fteStopDatabaseLogger** command.
3. Back up the database using the tools supplied with the database software.
4. Delete the subscription belonging to the stand-alone database logger. By default, this subscription is called SYSTEM.FTE.DATABASELOGGER.AUTO.

5. If your database schema is at an earlier version, you must migrate the schema to each subsequent level in order. For example, if your database schema is at V7.0.1 and you are migrating to V7.0.4, you must migrate your schema from V7.0.1 to V7.0.2, then from V7.0.2 to V7.0.3, and then from V7.0.3 to V7.0.4. Migrate your database schema from version *old* to version *new*, where *old* and *new* are variables that describe a schema version, by performing the one of the following actions for each version of the schema that you must migrate through:
  - If your database is Db2 on z/OS and you are migrating between the V7.0.2 and V7.0.3 schemas or between the V7.0.3 and V7.0.4 schemas, you must create a new database schema and copy your existing data into it. For more information, see “Migrating the database tables on Db2 on z/OS.”
  - If your database is Db2 on Windows, Linux or UNIX, you are migrating between the V7.0.2 and V7.0.3 schemas, and you created your database with a page size of less than 8K; you must increase the page size of the database before migrating to the new version of the database schema. For more information, see “Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37.  
 If your database is not Db2 or you created your database with a page size of more than 8K, you can migrate the schema in the same way as for other versions, by completing the steps below.
  - If you are migrating between database tables in any other circumstances complete the following steps:
    - a. Choose the file that is appropriate to your database platform and has a name that includes the string *old-new*. This file is located in the *install\_directory/tools/sql* directory of the Remote Tools and Documentation installation.
    - b. If you have made modifications to the initial schema, review the migration file to ensure that the file will be compatible with your modified database.
    - c. Run the SQL file against your database.
6. Install the JEE database logger EAR file as part of the Remote Tools and Documentation installation. For more information, see “Installing IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation using the graphical installer” on page 45.
7. Deploy the JEE database logger. For more information, see “Installing the WebSphere MQ File Transfer Edition JEE database logger” on page 136.
8. Run the following MQSC command against your coordination queue manager: ALTER QMGR PSMODE(ENABLED) This enables publishing of messages to the SYSTEM.FTE/Log topic.

## Results

### Related tasks:

“Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37

If your database is Db2 on a Windows, UNIX or Linux system, and you created your log database with a page size of less than 8 KB, you must increase the page size of the database before migrating to the V7.0.3 or later tables.

“Migrating the stand-alone database logger” on page 33

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

## Migrating the database tables on Db2 on z/OS

If your database is Db2 on a z/OS system, you must complete the following steps to migrate between the V7.0.2 and V7.0.3 tables or between the V7.0.3 and V7.0.4 tables. You may also use these migration steps to enable use of the BIGINT data type in your database tables. The BIGINT data type is available in WebSphere MQ File Transfer Edition V7.0.4 Fix Pack 3.

## About this task

To enable use of BIGINT data types, you must be using Db2 V9.1 or later. INTEGER data types are used for fields which denote the sizes of files that are transferred and the table ID associated with each transfer. If you want to log transfers with file sizes greater than 2 GB, or if you want to store more than 2,147,483,648 individual transfers in your database you must use the BIGINT SQL file.

## Procedure

1. If you have not already stopped your database logger, stop your database logger using the **fteStopDatabaseLogger** command.
2. Back up your log database using the tools provided by Db2.
3. Create a table space. This table space must have a page size of at least 8 KB and an associated buffer pool with a page size of at least 8 KB. Give your new table space a name. For example, FTENEWSpace.
4. Create the new tables. Change the schema name in the file from FTELOG to a schema name that is different to the name of your existing schema. If you want to use the BIGINT datatype instead of the INTEGER datatype use the `ftelog_tables_zos_bigint.sql`. Otherwise, use the `ftelog_tables_zos.sql` file.
5. Migrate the data from your old schema to your new schema. To do this migration edit the `ftelog_tables_zosold-new.sql` file, where *old* is the version of the database tables that exist and *new* is the version of the database tables that you are migrating to. Change FTESRC to the name of your existing schema. Change FTEDEST to the name of the schema that you created in the previous step.
6. Change the database logger properties to refer to the new database schema.
  - If you are using the stand-alone database logger, edit the `databaselogger.properties` file to include the following line:  

```
wmqfte.database.schema=schema_name
```

In this example, *schema\_name* is the name of the schema that you created in step 3.

- If you are using the JEE database logger, you must change the schema name in the database logger EAR file. For more information, see “Changing the schema name in your Java Platform, Enterprise Edition database logger” on page 138.
7. In tables with generated ID columns, set the ID generators to begin from a value one higher than the existing highest ID value. The following tables have generated ID columns:
    - AUTH\_EVENT
    - CALL
    - CALL\_ARGUMENT
    - CALL\_RESULT
    - METADATA
    - MONITOR\_ACTION
    - MONITOR\_EXIT\_RESULT
    - MONITOR\_METADATA
    - SCHEDULE
    - SCHEDULE\_ACTION
    - SCHEDULE\_ITEM
    - SCHEDULE\_SPEC
    - TRANSFER\_CALLS
    - TRANSFER\_EVENT
    - TRANSFER\_ITEM
    - TRANSFER\_STATS
    - TRIGGER\_CONDITION

To set the generated IDs of these tables to the correct value perform the following steps for each table:

- a. Determine the maximum ID value in the existing data. You can find this value by running this SQL statement:

```
SELECT MAX(ID) FROM schema_name.table_name
```

The value returned from this command is the maximum existing ID in the specified table.

- b. Alter the table to set the ID generator to begin from a new value that is 1 higher than the value returned by the previous step. You can set this value by running the following SQL statement:

```
ALTER TABLE schema_name.table_name ALTER COLUMN ID RESTART WITH value
```

In these statements, *schema\_name* is the name of the schema that you created in step 3.

#### Related tasks:

“Migrating the stand-alone database logger” on page 33

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

“Migrating from the stand-alone database logger to the JEE database logger” on page 34

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

“Increasing the page size of the log database on Db2 on Windows, UNIX or Linux”

If your database is Db2 on a Windows, UNIX or Linux system, and you created your log database with a page size of less than 8 KB, you must increase the page size of the database before migrating to the V7.0.3 or later tables.

### Increasing the page size of the log database on Db2 on Windows, UNIX or Linux

If your database is Db2 on a Windows, UNIX or Linux system, and you created your log database with a page size of less than 8 KB, you must increase the page size of the database before migrating to the V7.0.3 or later tables.

#### Procedure

1. If you have not already stopped your database logger, stop your database logger using the **fteStopDatabaseLogger** command.
2. Back up your log database using the tools provided by Db2.
3. Use the Db2 **export** command to transfer the data from your log database tables to files on disk.

**Note:** You must specify large object files for tables that include large objects. Those tables are CALL\_RESULT and METADATA.

4. Drop your log database tables.
5. Create a table space with a page size of at least 8 KB and with an associated buffer pool with a page size of at least 8 KB. Give your new table space a name. For example, FTE8KSPACE.
6. Edit the `ftelog_tables_db2.sql` file so that the commands create tables in the new table space. In the `ftelog_tables_db2.sql` file, change all occurrences of the text `IN "USERSPACE1"` to `IN "new_tablespace_name"`. For example, change `IN "USERSPACE1"` to `IN "FTE8KSPACE"`.
7. Run the SQL commands in the `ftelog_tables_db2.sql` file against your database.
8. Use the Db2 **load** command to transfer the exported data into the new tables.

**Note:**

- **Map the column names based on the column names found in the input file.** Ensure that the input column names and target column names match up in those tables that have changed their structure.
  - You must specify the IDENTITY OVERRIDE behavior on the identity column of all tables, except for MONITOR and TRANSFER. Specifying this behavior ensures that the row IDs are not regenerated during the load operation.
9. Run the Db2 **set integrity** command with integrity status values of **immediate** and **checked**, against the following tables in the order given:
    - CALL\_ARGUMENT
    - MONITOR
    - MONITOR\_ACTION
    - MONITOR\_EXIT\_RESULT
    - MONITOR\_METADATA
    - SCHEDULE\_ACTION
    - SCHEDULE
    - SCHEDULE\_ITEM
    - TRANSFER
    - TRANSFER\_CALLS
    - TRANSFER\_EVENT
    - TRANSFER\_ITEM
    - TRANSFER\_STATS
    - TRIGGER\_CONDITION
  10. In tables with generated ID columns, set the ID generators to begin from a value one higher than the existing highest ID value. The following tables have generated ID columns:
    - AUTH\_EVENT
    - CALL
    - CALL\_ARGUMENT
    - CALL\_RESULT
    - METADATA
    - MONITOR\_ACTION
    - MONITOR\_EXIT\_RESULT
    - MONITOR\_METADATA
    - SCHEDULE
    - SCHEDULE\_ACTION
    - SCHEDULE\_ITEM
    - SCHEDULE\_SPEC
    - TRANSFER\_CALLS
    - TRANSFER\_EVENT
    - TRANSFER\_ITEM
    - TRANSFER\_STATS
    - TRIGGER\_CONDITION

To set the generated IDs of these tables to the correct value perform the following steps for each table:

- a. Determine the maximum ID value in the existing data. You can find this value by running this SQL statement:
 

```
SELECT MAX(ID) FROM FTELOG.table_name
```

The value returned from this command is the maximum existing ID in the specified table.

- b. Alter the table to set the ID generator to begin from a new value that is 1 higher than the value returned by the previous step. You can set this value by running the following SQL statement:

```
ALTER TABLE FTELOG.table_name ALTER COLUMN ID RESTART WITH value
```

#### Related tasks:

“Migrating the stand-alone database logger” on page 33

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

“Migrating from the stand-alone database logger to the JEE database logger” on page 34

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

“Migrating the database tables on Db2 on z/OS” on page 35

If your database is Db2 on a z/OS system, you must complete the following steps to migrate between the V7.0.2 and V7.0.3 tables or between the V7.0.3 and V7.0.4 tables. You may also use these migration steps to enable use of the BIGINT data type in your database tables. The BIGINT data type is available in WebSphere MQ File Transfer Edition V7.0.4 Fix Pack 3.

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## Trial version of WebSphere MQ File Transfer Edition

WebSphere MQ File Transfer Edition provides a 90-day trial version of the product for you to test and evaluate.

The trial version offers the same functions as the full production version of WebSphere MQ File Transfer Edition. You can download trial versions of the Server and Remote Tools and Documentation components from the WebSphere MQ File Transfer Edition web page.

To install the trial version, follow the installation instructions for a full production version, which are detailed in “Installing WebSphere MQ File Transfer Edition on Windows, Linux, or UNIX platforms” on page 40.

The 90-day trial period begins from when you first start an agent that you have created by using the trial product (by using the **fteStartAgent** command).

Do not use the trial version in a production environment. Agents that you create by using the trial product can communicate only with other agents created by using the trial product.

When you use the WebSphere MQ Explorer, the **fteStartAgent** command and the **ftelistAgents** command in the trial version, you see information either about how many days you have remaining for the trial or if the trial has already completed.

At the end of the 90-day trial, no new transfers are processed. If you stop a trial agent after the trial period has expired, you will not be able to restart the agent. 10 days after the trial period has ended, you will no longer be able to use trial agents unless you upgrade to the production version of WebSphere MQ File Transfer Edition. Any agents that were still running are ended.

When the trial period has ended, resource monitors and their associated tasks are not started, and scheduled transfers are not run.

When you upgrade from the trial version to the full production version, you do not need to reconfigure the production version because your existing trial configuration is reused. See the “Migrating from an earlier version of WebSphere MQ File Transfer Edition” on page 29 topic for the steps to take to upgrade from the trial version to the full production version.

**Related concepts:**

“Installing WebSphere MQ File Transfer Edition on Windows, Linux, or UNIX platforms”

To install WebSphere MQ File Transfer Edition on UNIX and Linux systems, you must have write access to the locations that you want to use for the installation and data (configuration) directories. Do not use a tilde character (~) as a path prefix or include environment variables such as \$HOME in the path. Specify the directory path name in full. If you use a tilde character or environment variable in a path it is not expanded correctly. This causes an installation error, meaning that the product is not installed and you must repeat the installation process. You can install to a non-system location if you do not have root access to the default installation location.

**Related tasks:**

“Migrating from an earlier version of WebSphere MQ File Transfer Edition” on page 29

To migrate from an earlier version or from the trial version of WebSphere MQ File Transfer Edition to a later version, perform the following steps.

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## Installing WebSphere MQ File Transfer Edition on Windows, Linux, or UNIX platforms

To install WebSphere MQ File Transfer Edition on UNIX and Linux systems, you must have write access to the locations that you want to use for the installation and data (configuration) directories. Do not use a tilde character (~) as a path prefix or include environment variables such as \$HOME in the path. Specify the directory path name in full. If you use a tilde character or environment variable in a path it is not expanded correctly. This causes an installation error, meaning that the product is not installed and you must repeat the installation process. You can install to a non-system location if you do not have root access to the default installation location.

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing WebSphere MQ File Transfer Edition Server: the installer does not create queue managers for you.

**Related concepts:**

“Installing using the graphical installer on Windows, Linux, or UNIX platforms” on page 41

WebSphere MQ File Transfer Edition provides a graphical installer for Linux, UNIX, and Windows platforms.

“Installing using the text-only (console) installer on Windows, Linux, or UNIX platforms” on page 48

WebSphere MQ File Transfer Edition provides a text-only (console) installer for Linux, UNIX, and Windows platforms.

“Installing by using the unattended (silent) installer on Windows or UNIX platforms” on page 54

WebSphere MQ File Transfer Edition provides an unattended (silent) installer for Linux, UNIX, and Windows platforms.

**Related tasks:**

“Installing using the graphical installer with a screen reader” on page 47

WebSphere MQ File Transfer Edition provides a method of starting the graphical installer so that you can use Java-compatible screen reader software for accessibility reasons.

**Related reference:**

“Installation location on Linux platforms” on page 447

The default installation directory and default configuration directory for WebSphere MQ File Transfer Edition on Linux is different depending on the circumstances.

## Installing using the graphical installer on Windows, Linux, or UNIX platforms

WebSphere MQ File Transfer Edition provides a graphical installer for Linux, UNIX, and Windows platforms.

If you want to use the graphical installer with Java-compatible screen reader software for accessibility reasons, see *Using the graphical installer with a screen reader*.

### Related tasks:

“Installing IBM WebSphere MQ File Transfer Edition Server using the graphical installer”

WebSphere MQ File Transfer Edition Server can be installed using a graphical installer for Linux, UNIX, and Windows platforms. The Server installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client or bindings mode, agents that can connect to protocol servers, and a Web Gateway application that you can use to submit and manage transfers through the web.

“Installing IBM WebSphere MQ File Transfer Edition Client using the graphical installer” on page 43

WebSphere MQ File Transfer Edition Client can be installed using a graphical installer for Linux, UNIX, and Windows platforms. The Client installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client mode.

“Installing IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation using the graphical installer” on page 45

WebSphere MQ File Transfer Edition Remote Tools and Documentation provides a graphical installer for Linux, UNIX, and Windows platforms. However, you can install WebSphere MQ Explorer and information center options on Windows and Linux platforms only.

## Installing IBM WebSphere MQ File Transfer Edition Server using the graphical installer

WebSphere MQ File Transfer Edition Server can be installed using a graphical installer for Linux, UNIX, and Windows platforms. The Server installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client or bindings mode, agents that can connect to protocol servers, and a Web Gateway application that you can use to submit and manage transfers through the web.

### Before you begin

To install WebSphere MQ File Transfer Edition on UNIX and Linux systems, you must have write access to the locations that you want to use for the installation and data (configuration) directories. As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing WebSphere MQ File Transfer Edition Server: The installer does not create queue managers for you.

### About this task

To install WebSphere MQ File Transfer Edition Server using the graphical installer, complete the following steps:

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Server DVD into the DVD drive.
2. Start the installer, using the executable file or binary file. On Windows, this file is `install.exe` and on UNIX and Linux platforms, this file is `install.bin`.

When you have started the installer, continue with the installation process by working through each of the panels outlined in the following steps . The installer itself contains help information about selected panels.

3. Select the language that you want to use for the installation process. Click **OK**.

4. On the **Server - Introduction** panel, click **Next**.
5. Read the software license agreement and select the option to accept the terms of the license. Click **Next**.
6. Enter (or browse for) a product installation directory and a data directory for WebSphere MQ File Transfer Edition, or accept the default locations. The data directory is used to store your configuration information. Click **Next**.
  - The default installation directory for the Server on Windows is C:\Program Files\IBM\WMQFTE\.
  - The default data directory for the Server on Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config\ or C:\ProgramData\IBM\WMQFTE\config\.
  - The default installation directory for the Server on UNIX systems is /opt/IBM/WMQFTE/.
  - The default data directory for the Server on UNIX systems is /var/IBM/WMQFTE/config.
  - The default installation directory for the Server on Linux systems is /opt/ibm/WMQFTE/. For more information, see “Installation location on Linux platforms” on page 447.
  - The default data directory for the Server on Linux systems is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447.
7. If the product installation directory exists because you have already installed a different WebSphere MQ File Transfer Edition component, you can either choose to **Refresh existing install** or **Select new product directory**. If the data directory exists because of a previous installation, you can either choose to **Reuse existing configurations** or **Select new configuration directory**. If you choose to reuse an existing configuration, go to step 14.
8. Enter your coordination queue manager name and select either **client** or **bindings** transport mode to connect to the coordination queue manager. Click **Next**. The coordination queue manager name is case-sensitive.
9. If you selected client mode in the previous step, enter the host name, port number, and channel name of your coordination queue manager. Click **Next**.
10. Enter your agent name, an optional agent description, and the agent queue manager name. Then select either **client** or **bindings** transport mode to connect to the agent queue manager. Click **Next**. The agent name is not case-sensitive. All agent names are uppercase. If you enter an agent name in mixed case or lowercase it is converted to uppercase. The agent queue manager name is case-sensitive.
11. If you selected client mode in the previous step, enter the agent queue manager host name, port number, and channel name. Click **Next**.
12. Enter your command queue manager name. Then select either **client** or **bindings** transport mode. Click **Next**. The command queue manager name is case-sensitive. The command queue manager is used to connect to the WebSphere MQ network and is the queue manager connected to when you issue WebSphere MQ File Transfer Edition commands.
13. If you selected client mode in the previous step, enter the command queue manager host name, port number, and channel name. Click **Next**.
14. Read the summary panel. You can click **Previous** to go back and modify any of the earlier panels. Click **Install** and wait while the files are installed.
15. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the location of the file and ensure that you run these commands after completing the installer panels. Click **Next** to continue.
16. The installer creates a file containing MQSC commands that you must run against the agent queue manager. Make a note of the location of the file and ensure that you run these commands after completing the installer panels. Click **Next** to continue.
17. On the **Install complete** panel, click **Done**.

## What to do next

Use the MQSC scripts created by the installation process to create WebSphere MQ objects on your agent queue manager and coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61. If you want to set up your agent and coordination queue managers manually, see “Configuring the coordination queue manager” on page 106 and “Configuring agent queue managers” on page 107.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

### Related tasks:

“Installing using the graphical installer with a screen reader” on page 47

WebSphere MQ File Transfer Edition provides a method of starting the graphical installer so that you can use Java-compatible screen reader software for accessibility reasons.

“Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## Installing IBM WebSphere MQ File Transfer Edition Client using the graphical installer

WebSphere MQ File Transfer Edition Client can be installed using a graphical installer for Linux, UNIX, and Windows platforms. The Client installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client mode.

### Before you begin

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing WebSphere MQ File Transfer Edition Server: The installer does not create queue managers for you.

### About this task

To install WebSphere MQ File Transfer Edition Client on any of the distributed platforms, complete the following steps:

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Client DVD into the DVD drive.
2. Start the installer, using the executable file or binary file. On Windows, this file is `install.exe` and on UNIX and Linux platforms, this file is `install.bin`.

When you have started the installer, continue with the installation process by working through each of the panels outlined in the following steps . The installer itself contains help information about selected panels.

3. Select the language that you want to use for the installation process. Click **OK**.
4. On the **Client - Introduction** panel, click **Next**.
5. Read the software license agreement and select the option to accept the terms of the license. Click **Next**.
6. Enter (or browse for) a product installation directory and a data directory for WebSphere MQ File Transfer Edition, or accept the default locations. The data directory is used to store your configuration information. Click **Next**.
  - The default installation directory for the Client on Windows is `C:\Program Files\IBM\WMQFTE\`.

- The default data directory for the Client on Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config\ or C:\ProgramData\IBM\WMQFTE\config\.
  - The default installation directory for the Client on UNIX systems is /opt/IBM/WMQFTE/.
  - The default data directory for the Client on UNIX systems is /var/IBM/WMQFTE/config
  - The default installation directory for the Client on Linux systems is /opt/ibm/WMQFTE/. For more information, see “Installation location on Linux platforms” on page 447.
  - The default data directory for the Client on Linux systems is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447.
7. If the product installation directory exists because you have already installed a different WebSphere MQ File Transfer Edition component, you can either choose to **Refresh existing install** or **Select new product directory**. If the data directory exists because of a previous installation, you can either choose to **Reuse existing configurations** or **Select new configuration directory**. If you choose to reuse an existing configuration, go to step 14.
  8. Enter your coordination queue manager name. The coordination queue manager name is case-sensitive. Click **Next**.
  9. Enter the host name, port number, and channel name of your coordination queue manager. Click **Next**.
  10. Enter your agent name, an optional agent description, and the agent queue manager name. Click **Next**. The agent name is not case-sensitive. All agent names are uppercase. If you enter an agent name in mixed case or lowercase, it is converted to uppercase. The agent queue manager name is case-sensitive.
  11. Enter the agent queue manager host name, port number, and channel name. Click **Next**.
  12. Enter your command queue manager name. The command queue manager name is case-sensitive. Click **Next**.
  13. Enter the command queue manager host name, port number, and channel name. Click **Next**.
  14. Read the summary panel. You can click **Previous** to go back and modify any of the earlier panels. Click **Install** and wait while the files are installed.
  15. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the location of the file and ensure that you run these commands after completing the installer panels. Click **Next** to continue.
  16. The installer creates a file containing MQSC commands that you must run against the agent queue manager. Make a note of the location of the file and ensure that you run these commands after completing the installer panels. Click **Next** to continue.
  17. On the **Install complete** panel, click **Done**.

## What to do next

Use the MQSC scripts created by the installation process to create WebSphere MQ objects on your agent queue manager and coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61. If you want to set up your agent and coordination queue managers manually, see “Configuring the coordination queue manager” on page 106 and “Configuring agent queue managers” on page 107.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

### Related tasks:

“Installing using the graphical installer with a screen reader” on page 47

WebSphere MQ File Transfer Edition provides a method of starting the graphical installer so that you can use Java-compatible screen reader software for accessibility reasons.

“Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## Installing IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation using the graphical installer

WebSphere MQ File Transfer Edition Remote Tools and Documentation provides a graphical installer for Linux, UNIX, and Windows platforms. However, you can install WebSphere MQ Explorer and information center options on Windows and Linux platforms only.

### Before you begin

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing WebSphere MQ File Transfer Edition Remote Tools and Documentation: The installer does not create queue managers for you.

If you want to install the WebSphere MQ Explorer plug-in so that you can manage WebSphere MQ File Transfer Edition using the GUI, you must use WebSphere MQ Explorer Version 7.0. The plug-in does not install on WebSphere MQ Explorer Version 6.0. However, you can install the Version 7.0 stand-alone version of WebSphere MQ Explorer supplied in the MS0T WebSphere MQ Explorer SupportPac. You can then install the IBM WebSphere MQ File Transfer Edition plug-in on top of the stand-alone WebSphere MQ Explorer.

### About this task

To install WebSphere MQ File Transfer Edition Remote Tools and Documentation on any of the distributed platforms, complete the following steps:

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD into the DVD drive.
2. Start the installer, using the executable file or binary file. On Windows, this file is `install.exe` and on UNIX and Linux platforms, this file is `install.bin`.  
When you have started the installer, continue with the installation process by working through each of the panels outlined in the following steps. The installer itself contains help information about selected panels.
3. Select the language that you want to use for the installation process. Click **OK**.
4. On the **Remote tools and documentation - Introduction** panel, click **Next**.
5. Read the software license agreement and select the option to accept the terms of the license. Click **Next**.
6. On the **Select Set of Features to Install** panel, select a feature to install. The list of features that are available to install is dependent on your platform.
  - **Complete installation** installs the WebSphere MQ Explorer plug-in, tools to remotely administer WebSphere MQ File Transfer Edition, the stand-alone database logger, the Java Platform,

Enterprise Edition database logger, and the information center. The information center and WebSphere MQ Explorer plug-in are available only on Linux and Windows.

- **Remote Tools** installs the tools to remotely administer WebSphere MQ File Transfer Edition only. Available on all supported platforms.
  - **Database Logger** installs a stand-alone Java application and a Java Platform, Enterprise Edition application. Either of these applications can be used to copy log messages from your coordination queue manager to a Db2 or Oracle database. Available on AIX, Linux, HP-UX, Solaris, and Windows.
  - **Custom** installs some or all of the three options: the WebSphere MQ Explorer plug-in, tools to remotely administer WebSphere MQ File Transfer Edition, and the information center.
7. Enter (or browse for) a product installation directory and a data directory for WebSphere MQ File Transfer Edition, or accept the default locations. The data directory is used to store your configuration information. Click **Next**.
    - The default installation directory for Remote Tools and Documentation on Windows is C:\Program Files\IBM\WMQFTE\
    - The default data directory for Remote Tools and Documentation on Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config\ or C:\ProgramData\IBM\WMQFTE\config\
    - The default installation directory for Remote Tools and Documentation on UNIX systems is /opt/IBM/WMQFTE/
    - The default data directory for Remote Tools and Documentation on UNIX systems is /var/IBM/WMQFTE/config
    - The default installation directory for Remote Tools and Documentation on Linux systems is /opt/ibm/WMQFTE/. For more information, see “Installation location on Linux platforms” on page 447.
    - The default data directory for Remote Tools and Documentation on Linux systems is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447.
  8. If the product installation directory exists because you have already installed a different WebSphere MQ File Transfer Edition component, you can either choose to **Refresh existing install** or **Select new product directory**. If the data directory exists because of a previous installation, you can either choose to **Reuse existing configurations** or **Select new configuration directory**. If you choose to reuse an existing configuration, go to step 14.
  9. Enter your coordination queue manager name. The coordination queue manager name is case-sensitive. Click **Next**.
  10. Enter the host name, port number, and channel name of your coordination queue manager. Click **Next**.
  11. Enter your command queue manager name. The command queue manager name is case-sensitive. Click **Next**.
  12. Enter the command queue manager host name, port number, and channel name. Click **Next**.
  13. Read the summary panel. You can click **Previous** to go back and modify any of the earlier panels. Click **Install** and wait while the files are installed.
  14. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the location of the file and ensure that you run these commands after completing the installer panels. Click **Next** to continue.
  15. On the **Install complete** panel, click **Done**.

## What to do next

Use the MQSC script created by the installation process to create WebSphere MQ objects on your coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer

Edition on Windows, UNIX, and Linux systems after you have installed” on page 61. If you want to set up your coordination queue manager manually, see “Configuring the coordination queue manager” on page 106 and “Configuring agent queue managers” on page 107.

You can configure the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer to monitor file transfers remotely either during the following installation steps or after installation is complete. To configure after installation, follow the instructions in Configuring WebSphere MQ Explorer to monitor a remote coordination queue manager.

**Related concepts:**

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

**Related tasks:**

“Installing using the graphical installer with a screen reader”

WebSphere MQ File Transfer Edition provides a method of starting the graphical installer so that you can use Java-compatible screen reader software for accessibility reasons.

“Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## **Installing using the graphical installer with a screen reader**

WebSphere MQ File Transfer Edition provides a method of starting the graphical installer so that you can use Java-compatible screen reader software for accessibility reasons.

### **About this task**

If you want to use the graphical installer with screen reader software, complete the following steps:

### **Procedure**

1. Install the Java Access Bridge. Ensure that you are using Java Version 5.0 or higher.
2. Start the installer, using the provided `install.exe` or `install.bin` file, by issuing the following command:

```
install.exe LAX_VM java_install_directory\java.exe
```

`java_install_directory\java.exe` must be a Java Access Bridge-enabled Java virtual machine on your system.

### **What to do next**

When you have started the installer, continue with the installation process by working through the panels. The steps are outlined in the following topics:

- “Installing IBM WebSphere MQ File Transfer Edition Server using the graphical installer” on page 41
- “Installing IBM WebSphere MQ File Transfer Edition Client using the graphical installer” on page 43
- “Installing IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation using the graphical installer” on page 45

## Installing using the text-only (console) installer on Windows, Linux, or UNIX platforms

WebSphere MQ File Transfer Edition provides a text-only (console) installer for Linux, UNIX, and Windows platforms.

To install WebSphere MQ File Transfer Edition on UNIX and Linux systems, you must have write access to the locations that you want to use for the installation and data (configuration) directories.

**Note:** Before installing WebSphere MQ File Transfer Edition on a UNIX or Linux platform using the console installer, you must unset the DISPLAY variable. Use the command `unset DISPLAY`, to do unset this variable.

### Related tasks:

“Installing IBM WebSphere MQ File Transfer Edition Server using the text-only (console) installer”  
WebSphere MQ File Transfer Edition Server can be installed using a text-only (console) installer for Linux, UNIX, and Windows platforms. The Server installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client or bindings mode, agents that can connect to protocol servers, and a Web Gateway application that you can use to submit and manage transfers through the web.

“Installing IBM WebSphere MQ File Transfer Edition Client using the text-only (console) installer” on page 50

WebSphere MQ File Transfer Edition Client can be installed using a text-only (console) installer for Linux, UNIX, and Windows platforms. The Client installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client mode.

“Installing the Remote Tools and Documentation using the text-only (console) installer” on page 52  
WebSphere MQ File Transfer Edition Remote Tools and Documentation provides a text-only (console) installer for Linux, UNIX, and Windows platforms. However, you can install WebSphere MQ Explorer and information center options on Windows and Linux platforms only.

## Installing IBM WebSphere MQ File Transfer Edition Server using the text-only (console) installer

WebSphere MQ File Transfer Edition Server can be installed using a text-only (console) installer for Linux, UNIX, and Windows platforms. The Server installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client or bindings mode, agents that can connect to protocol servers, and a Web Gateway application that you can use to submit and manage transfers through the web.

### Before you begin

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing WebSphere MQ File Transfer Edition Server: The installer does not create queue managers for you.

### About this task

Complete the following steps to install the WebSphere MQ File Transfer Edition Edition Server in text-only mode.

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Server DVD into the DVD drive.
2. Start the installer, using the executable or binary file. When you have started the console installer, continue with the installation process by working through each of the panels.

- On Windows, the command to run a console installation is as follows:

```
DVD_ROM/Windows_x86/VM/install.exe -i console
```

- On UNIX and Linux the command to run a console installation is as follows:

```
DVD_ROM/platform_name/VM/install.bin -i console
```

where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, Solaris\_SPARC, or Solaris\_x86.

3. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
4. On the **Server - Introduction** panel, read the information displayed and press **Enter**.
5. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
6. Type the name of the product installation directory for WebSphere MQ File Transfer Edition and press **Enter**. Alternatively, press **Enter** to accept the default installation directory.
  - The default installation directory for the Server on Windows is C:\Program Files\IBM\WMQFTE\.
  - The default installation directory for the Server on UNIX systems is /opt/IBM/WMQFTE/.
  - The default installation directory for the Server on Linux systems is /opt/ibm/WMQFTE/. For more information, see “Installation location on Linux platforms” on page 447.
7. Type Y to confirm the product installation directory. Press **Enter**.
8. Type the name of the configuration directory for WebSphere MQ File Transfer Edition and press **Enter**. This directory is used to store configuration data specific to WebSphere MQ File Transfer Edition. Alternatively, press **Enter** to accept the default configuration directory.
  - The default configuration directory for the Server on Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config or C:\ProgramData\IBM\WMQFTE\config
  - The default configuration directory for the Server on UNIX systems is /var/IBM/WMQFTE/config.
  - The default configuration directory for the Server on Linux systems is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447.
9. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
10. Enter your coordination queue manager details starting with the queue manager name.
11. Enter the transport type to connect to the coordination queue manager: bindings or client.
12. Optional: If you selected client transport mode, enter the coordination queue manager host name, port number, and channel name.
13. Enter your agent details: agent name, an agent description (optional), the name of the agent queue manager,
14. Enter the transport type of the agent queue manager: bindings or client.
15. Optional: If you selected client transport mode, enter the agent queue manager host name, port number, and channel name.
16. Enter your command queue manager name.
17. Enter the transport type of the command queue manager: bindings or client.
18. Optional: If you selected client transport mode, enter the command queue manager host name, port number, and channel name.
19. Read the **Pre-Installation Summary** information and press **Enter** to continue.
20. On the **Ready to Install** panel, press **Enter** to install WebSphere MQ File Transfer Edition. Wait while the files are installed.
21. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
22. The installer creates a file containing MQSC commands that you must run against the agent queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
23. On the **Installation Complete** panel, press **Enter** to exit the console installer.

## What to do next

Use the MQSC scripts created by the installation process to create WebSphere MQ objects on your agent queue manager and coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61. If you want to set up your agent and coordination queue managers manually, see “Configuring the coordination queue manager” on page 106 and “Configuring agent queue managers” on page 107.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

### Related tasks:

“Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## Installing IBM WebSphere MQ File Transfer Edition Client using the text-only (console) installer

WebSphere MQ File Transfer Edition Client can be installed using a text-only (console) installer for Linux, UNIX, and Windows platforms. The Client installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client mode.

### Before you begin

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing IBM WebSphere MQ File Transfer Edition Client: The installer does not create queue managers for you.

### About this task

Complete the following steps to install the WebSphere MQ File Transfer Edition Client in text-only mode.

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Client DVD into the DVD drive.
2. Start the installer, using the executable or binary file. When you have started the console installer, continue with the installation process by working through each of the panels.
  - On Windows, the command to run a console installation is as follows:  
| `DVD_ROM/Windows_x86/VM/install.exe -i console`
  - On UNIX and Linux the command to run a console installation is as follows:  
| `DVD_ROM/platform_name/VM/install.bin -i console`

where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, Solaris\_SPARC, or Solaris\_x86.
3. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
4. On the **Client - Introduction** panel, read the information that is displayed and press **Enter**.
5. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
6. Type the name of the product installation directory for WebSphere MQ File Transfer Edition and press **Enter**. Alternatively, press **Enter** to accept the default installation directory.
  - The default installation directory for the Client on Windows is C:\Program Files\IBM\WMQFTE\.

- The default installation directory for the Client on UNIX systems is /opt/IBM/WMQFTE/.
  - The default installation directory for the Client on Linux systems is /opt/ibm/WMQFTE/. For more information, see “Installation location on Linux platforms” on page 447.
7. Type Y to confirm the product installation directory. Press **Enter**.
  8. Type the name of the configuration directory for WebSphere MQ File Transfer Edition and press **Enter**. This directory is used to store configuration data specific to WebSphere MQ File Transfer Edition. Alternatively, press **Enter** to accept the default configuration directory.
    - The default configuration directory for the Client on Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config or C:\ProgramData\IBM\WMQFTE\config.
    - The default configuration directory for the Client on UNIX systems is /var/IBM/WMQFTE/config.
    - The default configuration directory for the Client on Linux systems is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447.
  9. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
  10. Enter your coordination queue manager details starting with the queue manager name.
  11. Enter your coordination queue manager details starting with the queue manager name.
  12. Enter the coordination queue manager host name, port number, and channel name.
  13. Enter your agent details: agent name, an agent description (optional), the name of the agent queue manager,
  14. Enter the agent queue manager host name, port number, and channel name.
  15. Enter your command queue manager name.
  16. Enter your command queue manager name.
  17. Enter the command queue manager host name, port number, and channel name.
  18. Read the **Pre-Installation Summary** information and press **Enter** to continue.
  19. On the **Ready to Install** panel, press **Enter** to install WebSphere MQ File Transfer Edition. Wait while the files are installed.
  20. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
  21. The installer creates a file containing MQSC commands that you must run against the agent queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
  22. On the **Installation Complete** panel, press **Enter** to exit the console installer.

## What to do next

Use the MQSC scripts created by the installation process to create WebSphere MQ objects on your agent queue manager and coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61. If you want to set up your agent and coordination queue managers manually, see “Configuring the coordination queue manager” on page 106 and “Configuring agent queue managers” on page 107.

## Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

## Installing the Remote Tools and Documentation using the text-only (console) installer

WebSphere MQ File Transfer Edition Remote Tools and Documentation provides a text-only (console) installer for Linux, UNIX, and Windows platforms. However, you can install WebSphere MQ Explorer and information center options on Windows and Linux platforms only.

### Before you begin

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing IBM WebSphere MQ File Transfer Edition Server: The installer does not create queue managers for you.

### About this task

Complete the following steps to install the WebSphere MQ File Transfer Edition Remote Tools and Documentation in text-only mode.

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD into the DVD drive.
2. Start the installer, using the executable or binary file. When you have started the console installer, continue with the installation process by working through each of the panels.
  - On Windows, the command to run a console installation is as follows:  
`DVD_ROM/Windows_x86/VM/install.exe -i console`
  - On UNIX and Linux the command to run a console installation is as follows:  
`DVD_ROM/platform_name/VM/install.bin -i console`  
  
where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, Solaris\_SPARC, or Solaris\_x86.
3. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
4. On the **Remote tools and documentation - Introduction** panel, read the information displayed and press **Enter**.
5. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
6. Select either a **Complete installation**, a **Remote Tools**, or a **Database Logger** installation by typing the appropriate number.
  - A Complete installation installs four items: The WebSphere MQ Explorer plug-in, tools that you can use to administer the product on a remote system, the database logger, and the information center. The Complete installation option is only available on Windows and Linux.
  - A Remote Tools installation installs tools that you can use to administer the product on a remote system.
  - A Database Logger installation installs a Java application and a Java Platform, Enterprise Edition application. Either of these applications can be used to save WebSphere MQ File Transfer Edition log messages to a database.
7. Type the name of the product installation directory for WebSphere MQ File Transfer Edition and press **Enter**. Alternatively, press **Enter** to accept the default installation directory.

- The default installation directory for Remote Tools and Documentation on Windows is C:\Program Files\IBM\WMQFTE\.
  - The default installation directory Remote Tools and Documentation on UNIX is /opt/IBM/WMQFTE/.
  - The default installation directory Remote Tools and Documentation on Linux is /opt/ibm/WMQFTE/. For more information, see “Installation location on Linux platforms” on page 447.
8. Type Y to confirm the product installation directory. Press **Enter**.
  9. Type the name of the configuration directory for WebSphere MQ File Transfer Edition and press **Enter**. This directory is used to store configuration data specific to WebSphere MQ File Transfer Edition. Alternatively, press **Enter** to accept the default configuration directory.
    - The default configuration directory on Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config.
    - The default configuration directory on UNIX is /var/IBM/WMQFTE/config.
    - The default configuration directory on Linux is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447.
  10. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**. If you have previously performed configuration, for example for an earlier Server installation, type 1 to skip the configuration steps and go to Step 17.
  11. Enter your coordination queue manager details starting with the queue manager name.
  12. Enter your coordination queue manager details starting with the queue manager name.
  13. Enter the coordination queue manager host name, port number, and channel name.
  14. Enter your command queue manager name.
  15. Enter your command queue manager name.
  16. Enter the command queue manager host name, port number, and channel name.
  17. Read the **Pre-Installation Summary** information and press **Enter** to continue.
  18. On the **Ready to Install** panel, press **Enter** to install WebSphere MQ File Transfer Edition. Wait while the files are installed.
  19. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
  20. On the **Installation Complete** panel, press **Enter** to exit the console installer.

## What to do next

Use the MQSC script created by the installation process to create WebSphere MQ objects on your coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61. If you want to set up your coordination queue manager manually, see “Configuring the coordination queue manager” on page 106 and “Configuring agent queue managers” on page 107.

**Related concepts:**

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

**Related tasks:**

“Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## Installing by using the unattended (silent) installer on Windows or UNIX platforms

WebSphere MQ File Transfer Edition provides an unattended (silent) installer for Linux, UNIX, and Windows platforms.

When you install WebSphere MQ File Transfer Edition in an unattended or silent mode, the installer runs without any user interaction. In this mode, installation is completed according to a predefined set of options contained in a response file. Use the unattended mode for automated installations over many identical systems.

If you are running a silent installation on Linux, unset the DISPLAY environment variable before you install.

**Related tasks:**

“Creating a Server response file by using the console installer”

WebSphere MQ File Transfer Edition Server provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

“Creating a Client response file by using the console installer” on page 56

WebSphere MQ File Transfer Edition Client provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

“Creating a Remote Tools and Documentation response file by using the console installer” on page 57

WebSphere MQ File Transfer Edition Remote Tools and Documentation provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

“Installing the Server or Client in unattended (silent) mode on Windows, Linux or UNIX platforms” on page 59

WebSphere MQ File Transfer Edition provides an unattended or silent installation for the Server and Client components.

“Installing the Remote Tools and Documentation in unattended (silent) mode” on page 60

WebSphere MQ File Transfer Edition provides an unattended or silent installation for the Remote Tools and Documentation. You can install the WebSphere MQ Explorer and information center options on Windows and Linux platforms only.

### Creating a Server response file by using the console installer

WebSphere MQ File Transfer Edition Server provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

### About this task

Response files that you create by using the method described in this topic install the product and then create the configuration directory.

Complete the following information to create a response file by using the console installer:

## Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Server, or copy the contents of the DVD onto the system where you want to install the product, or unpack the relevant eAssembly image onto the system where you want to install the product. Ensure that you keep the full directory structure intact.
2. Start the installer, by using the executable or binary file and use the **-r** parameter to define the location where you want to create the response file. When you have started the console installer, continue with the installation process by working through each of the panels.

- On Windows, the command to run a console installation and create a response file is:

```
installer_location/Windows_x86/VM/install.exe -i console -r response_file_location/installer.properties
```

- On UNIX and Linux platforms, the command to run a console installation and create a response file is:

```
installer_location/platform_name/Disk1/InstData/VM/install.bin -i console -r response_file_location/installer.pro
```

where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, Solaris\_SPARC, or Solaris\_x86.

3. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
4. On the **Server - Introduction** panel, read the information displayed and press **Enter**.
5. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
6. Type the name of the product installation directory for WebSphere MQ File Transfer Edition and press **Enter**. Alternatively, press **Enter** to accept the default installation directory.
  - The default installation directory for the Server on Windows is C:\Program Files\IBM\WMQFTE\.
  - The default installation directory for the Server on UNIX systems is /opt/IBM/WMQFTE/.
  - The default installation directory for the Server on Linux systems is /opt/ibm/WMQFTE/. For more information, see "Installation location on Linux platforms" on page 447.
7. Type Y to confirm the product installation directory. Press **Enter**.
8. Type the name of the configuration directory for WebSphere MQ File Transfer Edition and press **Enter**. This directory is used to store configuration data specific to WebSphere MQ File Transfer Edition. Alternatively, press **Enter** to accept the default location.
  - The default configuration directory for Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config.
  - The default configuration directory for UNIX systems is /var/IBM/WMQFTE/config.
  - The default configuration directory for Linux systems is /var/ibm/WMQFTE/config. For more information, see "Installation location on Linux platforms" on page 447.
9. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
10. Follow the prompts displayed and enter the requested details about your coordination queue manager and new agent. Press **Enter** after each of your responses.
11. Read the **Pre-Installation Summary** information and press **Enter** to continue.
12. On the **Ready to Install** panel, press **Enter** to install WebSphere MQ File Transfer Edition. Wait while the files are installed.
13. The silent installer creates a file containing MQSC commands that you must run against the coordination queue manager. The location where this file is created is displayed on this panel. Make a note of the location of the file and ensure that you run these commands after you have run the silent installer. Press **Enter** to continue.

14. The silent installer creates a file containing MQSC commands that you must run against the agent queue manager. The location where this file is created is displayed on this panel. Make a note of the location of the file and ensure that you run these commands after you have run the silent installer. Press **Enter** to continue.
15. On the **Installation Complete** panel, press **Enter** to exit the console installer.
16. In the created response file, ensure that the value of **LICENSE\_ACCEPTED** is set to true.

**Related reference:**

“Server installation response file” on page 449

Sample silent installation script for the WebSphere MQ File Transfer Edition Server installation.

## Creating a Client response file by using the console installer

WebSphere MQ File Transfer Edition Client provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

### About this task

Response files that you create by using the method described in this topic install the product and then create the configuration directory.

Complete the following information to create a response file by using the console installer:

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Client, or copy the contents of the DVD onto the system where you want to install the product, or unpack the relevant eAssembly image onto the system where you want to install the product. Ensure that you keep the full directory structure intact.
2. Start the installer, by using the executable or binary file and use the **-r** parameter to define the location where you want to create the response file. When you have started the console installer, continue with the installation process by working through each of the panels.

- On Windows, the command to run a console installation and create a response file is:

```
installer_location/Windows_x86/Disk1/install.exe -i console -r response_file_location/installer.properties
```

- On UNIX and Linux platforms, the command to run a console installation and create a response file is:

```
installer_location/platform_name/Disk1/InstData/VM/install.bin -i console -r response_file_location/installer.properties
```

where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, Solaris\_SPARC, or Solaris\_x86.

3. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
4. On the **Client - Introduction** panel, read the information displayed and press **Enter**.
5. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
6. Type the name of the product installation directory for WebSphere MQ File Transfer Edition and press **Enter**. Alternatively, press **Enter** to accept the default installation directory.
  - The default installation directory for the Server on Windows is C:\Program Files\IBM\WMQFTE\.
  - The default installation directory for the Server on UNIX systems is /opt/IBM/WMQFTE/.
  - The default installation directory for the Server on Linux systems is /opt/ibm/WMQFTE/. For more information, see “Installation location on Linux platforms” on page 447.
7. Type Y to confirm the product installation directory. Press **Enter**.

8. Type the name of the configuration directory for WebSphere MQ File Transfer Edition and press **Enter**. This directory is used to store configuration data specific to WebSphere MQ File Transfer Edition. Alternatively, press **Enter** to accept the default location.
  - The default configuration directory for Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config.
  - The default configuration directory for UNIX systems is /var/IBM/WMQFTE/config.
  - The default configuration directory for Linux systems is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447. For more information, see “Installation location on Linux platforms” on page 447.
9. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
10. Follow the prompts displayed and enter the requested details about your coordination queue manager and new agent. Press **Enter** after each of your responses.
11. Read the **Pre-Installation Summary** information and press **Enter** to continue.
12. On the **Ready to Install** panel, press **Enter** to install WebSphere MQ File Transfer Edition. Wait while the files are installed.
13. The silent installer creates a file containing MQSC commands that you must run against the coordination queue manager. The location where this file is created is displayed on this panel. Make a note of the location of the file and ensure that you run these commands after you have run the silent installer. Press **Enter** to continue.
14. The silent installer creates a file containing MQSC commands that you must run against the agent queue manager. The location where this file is created is displayed on this panel. Make a note of the location of the file and ensure that you run these commands after you have run the silent installer. Press **Enter** to continue.
15. On the **Installation Complete** panel, press **Enter** to exit the console installer.
16. In the created response file, ensure that the value of **LICENSE\_ACCEPTED** is set to true.

**Related reference:**

“Client installation response file” on page 449

Sample silent installation script for the WebSphere MQ File Transfer Edition Client installation.

## Creating a Remote Tools and Documentation response file by using the console installer

WebSphere MQ File Transfer Edition Remote Tools and Documentation provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

### About this task

Response files that you create by using the method described in this topic install the product and then create the configuration directory.

Complete the following information to create a response file by using the console installer:

### Procedure

1. Insert the IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation, or copy the contents of the DVD onto the system where you want to install the product, or unpack the relevant eAssembly image onto the system where you want to install the product. Ensure that you keep the full directory structure intact.
2. Start the installer, by using the executable or binary file and use the **-r** parameter to define the location where you want to create the response file. When you have started the console installer, continue with the installation process by working through each of the panels.
  - On Windows, the command to run a console installation and create a response file is:

```
installer_location/Windows_x86/VM/install.exe -i console -r response_file_location/installer.properties
```

- On UNIX and Linux platforms, the command to run a console installation and create a response file is:

```
installer_location/platform_name/Disk1/InstData/VM/install.bin -i console -r response_file_location/installer.properties
```

where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, Solaris\_SPARC, or Solaris\_x86.

3. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
4. On the **Remote Tools and Documentation - Introduction** panel, read the information displayed and press **Enter**.
5. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
6. Type the name of the product installation directory for WebSphere MQ File Transfer Edition and press **Enter**. Alternatively, press **Enter** to accept the default installation directory.
  - The default installation directory for the Remote Tools and Documentation on Windows is C:\Program Files\IBM\WMQFTE.
  - The default installation directory for the Remote Tools and Documentation on UNIX systems is /opt/IBM/WMQFTE.
  - The default installation directory for the Remote Tools and Documentation on Linux systems is /opt/ibm/WMQFTE. For more information, see “Installation location on Linux platforms” on page 447.
7. Type Y to confirm the product installation directory. Press **Enter**.
8. Type the name of the configuration directory for WebSphere MQ File Transfer Edition and press **Enter**. This directory is used to store configuration data specific to WebSphere MQ File Transfer Edition. Alternatively, press **Enter** to accept the default location.
  - The default configuration directory for Windows is C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config.
  - The default configuration directory for UNIX systems is /var/IBM/WMQFTE/config.
  - The default configuration directory for Linux systems is /var/ibm/WMQFTE/config. For more information, see “Installation location on Linux platforms” on page 447.
9. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
10. Follow the prompts displayed and enter the requested details about your coordination queue manager and new agent. Press **Enter** after each of your responses.
11. Read the **Pre-Installation Summary** information and press **Enter** to continue.
12. On the **Ready to Install** panel, press **Enter** to install WebSphere MQ File Transfer Edition. Wait while the files are installed.
13. The silent installer creates a file containing MQSC commands that you must run against the coordination queue manager. The location where this file is created is displayed on this panel. Make a note of the location of the file and ensure that you run these commands after you have run the silent installer. Press **Enter** to continue.
14. On the **Installation Complete** panel, press **Enter** to exit the console installer.
15. Required: Go to the newly created response file and perform the following steps:
  - a. Ensure that the **LICENSE\_ACCEPTED** property is set to **true**.
  - b. Set the value of the **CHOSEN\_INSTALL\_BUNDLE** property to the same value as that of **CHOSEN\_INSTALL\_SET**. The value of these properties can be one of the following values:
    - Complete
    - Database
    - Remote

These values are case-sensitive. **Complete** installs all of the features of the Remote Tools and Documentation installation. **Database** installs the database logger feature only. **Remote** installs the remote commands

**Note:** You must perform this step. If your response file does not contain these properties and their correct values, the silent install of Remote Tools and Documentation fails.

#### Related reference:

“Remote Tools and Documentation installation response file” on page 450  
Sample silent installation script for the WebSphere MQ File Transfer Edition Remote Tools and Documentation installation.

## Installing the Server or Client in unattended (silent) mode on Windows, Linux or UNIX platforms

WebSphere MQ File Transfer Edition provides an unattended or silent installation for the Server and Client components.

### Before you begin

To use the unattended installation mode you must provide the installer with a response file. For information about how to create this file, see “Creating a Server response file by using the console installer” on page 54 and “Creating a Client response file by using the console installer” on page 56. Because the Server and Client installations differ from the Remote Tools and Documentation installation in the options you can select, you must create a specific response file to install the Server or Client silently: you cannot reuse a Remote Tools and Documentation response file.

If you are running a console installation on Linux, unset the DISPLAY environment variable before you install.

### About this task

Complete the following steps to install the Server or Client in an unattended mode.

### Procedure

1. Create a response file that defines your install directory and configuration directory. For information about how to create this file, see “Creating a Server response file by using the console installer” on page 54 and “Creating a Client response file by using the console installer” on page 56.
2. Insert the IBM WebSphere MQ File Transfer Edition Server or Client DVD into the DVD drive, or copy the contents of the DVD onto the system where you want to install the product, or unpack the relevant eAssembly image onto your system where you want to install the product. Ensure that you keep the full directory structure intact.
3. Start the installer, by using the executable or binary file and use the **-f** parameter to pass in the location of the response file. You must specify the full path to the response file.

- On Windows, the command to run an unattended installation is as follows:

```
installer_location\Windows_x86\VM\install.exe -i silent -f response_file_location\response_file_name
```

- On UNIX and Linux platforms, the command to run an unattended installation is as follows:

```
installer_location/platform_name/VM/install.bin -i silent -f response_file_location/response_file_name
```

where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, Solaris\_x86, or Solaris\_SPARC.

4. Wait while the unattended installer installs the product to the installation directory and creates the configuration directory defined by the response file.

If you are installing on Windows, the installation takes place in the background and might take a few minutes. If you are installing on UNIX or Linux, progress information is written to the console during the installation.

5. When installation is complete, run the MQSC commands contained in the files created by the **fteSetupCoordination** and **fteCreateAgent** commands against the coordination and agent queue managers. Run the *coordination\_qmgr\_name.mqsc* file, which is located in the *config\_directory/coordination\_qmgr\_name* directory. If you want to set up your coordination queue manager manually, see “Configuring the coordination queue manager” on page 106

If you have created an agent, you must also run the *agent\_name\_create.mqsc* file. This file is located in the *config\_directory/coordination\_qmgr\_name/agents/agent\_name* directory. If you want to set up your agent queue manager manually, see “Configuring agent queue managers” on page 107

#### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

#### Related tasks:

“Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed” on page 61

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## Installing the Remote Tools and Documentation in unattended (silent) mode

WebSphere MQ File Transfer Edition provides an unattended or silent installation for the Remote Tools and Documentation. You can install the WebSphere MQ Explorer and information center options on Windows and Linux platforms only.

### Before you begin

To use the unattended installation mode you must provide the installer with a response file. For information about how to create this file, see “Creating a Remote Tools and Documentation response file by using the console installer” on page 57. Because the Remote Tools and Documentation installation differs from the Server and Client installations in the options you can select, you must create a specific response file to install Remote Tools and Documentation silently: you cannot reuse a Server or Client response file.

If you are running a console installation on Linux, unset the DISPLAY environment variable before you install.

### About this task

Complete the following steps to install in an unattended mode:

#### Procedure

1. Create a response file that defines your install directory and configuration directory.

**Note:** Ensure that you edit the response file to include the properties **CHOSEN\_INSTALL\_SET** and **LICENSE\_ACCEPTED**.

For more information, see “Creating a Remote Tools and Documentation response file by using the console installer” on page 57.

2. Insert the IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD into the DVD drive, or copy the contents of the DVD onto the system where you want to install the product, or unpack the relevant eAssembly image onto your system where you want to install the product. Ensure that you keep the full directory structure intact.

3. Start the installer, by using the executable or binary file and use the **-f** parameter to pass in the location of the response file.

- On Windows, the command to run an unattended installation is as follows:

```
installer_location\Windows_x86\VM\install.exe -i silent -f response_file_location\response_file_name
```

- On UNIX and Linux platforms, the command to run an unattended installation is as follows:

```
installer_location/platform_name/VM/install.bin -i silent -f response_file_location/response_file_name
```

where *platform\_name* is one of the following platforms: AIX\_ppc, HPUX\_IA64, HPUX\_PARISC, Linux\_SystemZ, Linux\_x86, Linux64\_SystemP, or Solaris\_SPARC.

4. Wait while the unattended installer installs the product to the installation directory and creates the configuration directory defined by the response file.

If you chose to skip the configuration steps in your response file, you must carry out the following steps 5 and 6 to set up the configuration now.

5. Configure the coordination queue manager by using the `fteSetupCoordination` command.
6. Configure the command queue manager by using the `fteSetupCommands` command.
7. When installation is complete, run the MQSC commands contained in the file created by the **fteSetupCoordination** command against the coordination queue managers. This file is called *coordination\_qmgr\_name.mqsc* file and is located in the *config\_directory/coordination\_qmgr\_name* directory. If you want to set up your coordination queue manager manually, see “Configuring the coordination queue manager” on page 106

#### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

#### Related tasks:

“Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed”

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## Configuring WebSphere MQ File Transfer Edition on Windows, UNIX, and Linux systems after you have installed

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

### About this task

After you have installed, you must run the configuration scripts provided by WebSphere MQ File Transfer Edition for new coordination queue managers and new agents before you can use the coordination queue managers and agents to transfer files. You must then start the agents you have created.

### Procedure

1. For all new coordination queue managers: run the MQSC commands in the *coordination\_qmgr\_name.mqsc* file. This file is located in the following directory: *config\_directory/coordination\_qmgr\_name/coordination\_qmgr\_name.mqsc*

To run this command, change to the directory the MQSC script file is in and issue a command like:

```
runmqsc COORDINATION_QMGR_NAME < COORDINATION_QMGR_NAME.mqsc
```

You can configure the coordination queue manager manually instead. For more information, see “Configuring the coordination queue manager” on page 106.

2. For all new agents: run the MQSC commands in the *agent\_name\_create.mqsc* file against the agent queue manager. This file is located in the following directory: *config\_directory/coordination\_qmgr\_name/agents/agent\_name/agent\_name\_create.mqsc*.

To run this command, change to the directory the MQSC script file is in and issue a command like:  
`runmqsc AGENT_QMGR_NAME < AGENT1_create.mqsc`

If the agent queue manager is not on the same computer as the agent, copy the MQSC script file to the computer where the queue manager is located and then run the script.

You can configure the agent queue manager manually instead. For more information, see “Configuring agent queue managers” on page 107.

3. Start your new agents by issuing the **fteStartAgent** command.

## What to do next

To ensure that your coordination queue manager can communicate with other WebSphere MQ queue managers in your network, follow the instructions at: [Configuring WebSphere MQ queue managers](#)

You are recommended to set up sandboxes to limit the areas of the file system that an agent can access. This feature is described in [Working with sandboxes](#).

For information about how to run MQSC commands from files on distributed platforms, see [Running MQSC commands from text files](#).

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

---

## Installing WebSphere MQ File Transfer Edition on IBM i systems

You can install WebSphere MQ File Transfer Edition Server or Client on IBM i systems using the console or silent installer. The graphical installer is not supported on IBM i systems.

### About this task

WebSphere MQ File Transfer Edition Remote Tools and Documentation is not supported on IBM i systems. If you want to use the WebSphere MQ File Transfer Edition plug-in for the WebSphere MQ Explorer, install the Remote Tools and Documentation component on Linux or Windows to remotely manage queue managers and file transfers between agents running on an IBM i system.

To install WebSphere MQ File Transfer Edition on IBM i platforms, the user that performs the installation or the uninstall must have a user profile of \*SECOFR class.

On IBM i systems, the installation location and the configuration location are fixed. The product installation is installed in the `/QIBM/ProdData/WMQFTE/V7` directory in the integrated file system and the data directory is created under the `/QIBM/UserData/WMQFTE/V7/config` directory.

### Related concepts:

“Installing using the unattended (silent) installer on IBM i systems” on page 66  
WebSphere MQ File Transfer Edition provides an unattended (silent) installer for IBM i platforms.

### Related tasks:

“Installing using the text-only (console) installer on IBM i systems”  
WebSphere MQ File Transfer Edition provides a text-only (console) installer for IBM i systems. The console installer must run in the IBM Portable Application Solutions Environment (PASE).

## Installing using the text-only (console) installer on IBM i systems

WebSphere MQ File Transfer Edition provides a text-only (console) installer for IBM i systems. The console installer must run in the IBM Portable Application Solutions Environment (PASE).

### About this task

To install WebSphere MQ File Transfer Edition on IBM i platforms, the user that performs the installation must have a user profile of \*SECOFR class.

On IBM i systems, the installation location and the configuration location are fixed. The product installation is installed under /QIBM/ProdData/WMQFTE/V7 in the integrated file system and the data directory is created under the /QIBM/UserData/WMQFTE/V7/config directory.

### Related tasks:

“Installing IBM WebSphere MQ File Transfer Edition Server using the text-only (console) installer”  
WebSphere MQ File Transfer Edition Server can be installed using a text-only (console) installer on IBM i systems. The Server installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client or bindings mode and agents that can connect to protocol servers.

“Installing IBM WebSphere MQ File Transfer Edition Client using the text-only (console) installer” on page 65  
WebSphere MQ File Transfer Edition Client can be installed using a text-only (console) installer on IBM i systems. The Client installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client mode.

### Installing IBM WebSphere MQ File Transfer Edition Server using the text-only (console) installer

WebSphere MQ File Transfer Edition Server can be installed using a text-only (console) installer on IBM i systems. The Server installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client or bindings mode and agents that can connect to protocol servers.

### Before you begin

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing IBM WebSphere MQ File Transfer Edition Server: the installer does not create queue managers for you.

### About this task

Complete the following steps to install the WebSphere MQ File Transfer Edition Server in text-only mode.

### Procedure

1. Mount the DVD containing WebSphere MQ File Transfer Edition Server installation for IBM i on the optical drive of your IBM i system.
2. From an IBM i command line, start PASE using the following command: CALL QP2TERM

3. When you are in PASE, change directory using the following command: `cd /QOPT/IBMi/VM`
4. Start the console installer using the following command:  
`./install -i console`

This command starts the installer in interactive console mode.

5. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
6. On the **Server - Introduction** panel, read the information that is displayed and press **Enter**.
7. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
8. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
9. Enter your coordination queue manager details starting with the queue manager name.
10. Enter the transport type to connect to the coordination queue manager: `bindings` or `client`.
11. Optional: If you selected transport mode, enter the coordination queue manager host name, port number, and channel name.
12. Enter your agent details: agent name, an agent description (optional), the name of the agent queue manager,
13. Enter the transport type to connect to the agent queue manager: `bindings` or `client`.
14. Optional: If you selected transport mode, enter the agent queue manager host name, port number, and channel name.
15. Enter your command queue manager name.
16. Enter the transport type to connect to the command queue manager: `bindings` or `client`.
17. Optional: If you selected transport mode, enter the command queue manager host name, port number, and channel name.
18. Read the **Pre-Installation Summary** information and press **Enter** to continue.
19. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
20. The installer creates a file containing MQSC commands that you must run against the agent queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
21. On the **Installation Complete** panel, you must press **Enter** to exit the installer.

**Note:** Do not press **F3=Exit**.

Wait a few minutes until clean-up operations and the configuration of the QFTE runtime environment is complete.

22. Press the **F3=Exit** function key to exit the PASE environment, when you receive a message.
23. From the IBM i command line, start the QFTE subsystem using the following command: `STRSBS QFTE/QFTE`

## What to do next

Use the MQSC scripts created by the installation process to create WebSphere MQ objects on your agent queue manager and coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer Edition on IBM i systems after you have installed” on page 69.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

## Installing IBM WebSphere MQ File Transfer Edition Client using the text-only (console) installer

WebSphere MQ File Transfer Edition Client can be installed using a text-only (console) installer on IBM i systems. The Client installation provides the components required to run WebSphere MQ File Transfer Edition agents that connect to WebSphere MQ in client mode.

### Before you begin

As part of the installation, you must enter the name of at least one WebSphere MQ queue manager. Create these queue managers before installing IBM WebSphere MQ File Transfer Edition Client: The installer does not create queue managers for you.

### About this task

Complete the following steps to install the WebSphere MQ File Transfer Edition Client in text-only mode.

### Procedure

1. Mount the DVD containing WebSphere MQ File Transfer Edition Client installation for IBM i on the optical drive of your IBM i system.
2. From an IBM i command line, start PASE using the following command: `CALL QP2TERM`
3. When you are in PASE, change directory using the following command: `cd /QOPT/IBMi/VM`
4. Start the console installer using the following command:  
`./install -i console`

This command starts the installer in interactive console mode.

5. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
6. On the **Client - Introduction** panel, read the information that is displayed and press **Enter**.
7. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
8. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
9. Enter your coordination queue manager details starting with the queue manager name.
10. Enter your agent details: agent name, an agent description (optional), the name of the agent queue manager,
11. Enter your command queue manager name.
12. Read the **Pre-Installation Summary** information and press **Enter** to continue.
13. The installer creates a file containing MQSC commands that you must run against the coordination queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
14. The installer creates a file containing MQSC commands that you must run against the agent queue manager. Make a note of the file location and ensure that you run these commands after completing the installer panels. Press **Enter** to continue.
15. On the **Installation Complete** panel, you must press **ENTER** to exit the installer.

**Note:** Do not press **F3=Exit**.

Wait a few minutes until clean-up operations and the configuration of the QFTE runtime environment is complete.

16. Press the **F3=Exit** function key to exit the PASE environment, when you receive a message.
17. From the IBM i command line, start the QFTE subsystem using the following command: STRSBS QFTE/QFTE

## What to do next

Use the MQSC scripts created by the installation process to create WebSphere MQ objects on your agent queue manager and coordination queue manager. For more details, see the topic “Configuring WebSphere MQ File Transfer Edition on IBM i systems after you have installed” on page 69.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

## Installing using the unattended (silent) installer on IBM i systems

WebSphere MQ File Transfer Edition provides an unattended (silent) installer for IBM i platforms.

When you install WebSphere MQ File Transfer Edition in an unattended or silent mode, the installer runs without any user interaction. In this mode, installation is completed according to a predefined set of options contained in a response file. Use the unattended mode for automated installations over many identical systems.

To install WebSphere MQ File Transfer Edition on IBM i platforms, the user that performs the installation must have a user profile of \*SECOFR class.

On IBM i systems, the installation location and the configuration location are fixed. The product installation is installed in the /QIBM/ProdData/WMQFTE/V7 directory in the integrated file system and the data directory is created in the /QIBM/UserData/WMQFTE/V7/config directory.

### Related tasks:

“Creating a Server response file using the console installer”

WebSphere MQ File Transfer Edition Server provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

“Creating a Client response file using the console installer” on page 67

WebSphere MQ File Transfer Edition Client provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installer as described in this topic.

“Installing the Server or Client in unattended (silent) mode on IBM i systems” on page 68

WebSphere MQ File Transfer Edition provides an unattended or silent installation for the Server and Client components.

## Creating a Server response file using the console installer

WebSphere MQ File Transfer Edition Server provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installation as described in this topic.

### About this task

A response file that you create using the method described in this topic installs the product and then create the configuration directory.

Complete the following steps to create a response file using the console installer:

## Procedure

1. Mount the DVD containing WebSphere MQ File Transfer Edition Server installation for IBM i on the optical drive of your IBM i system.
2. From an IBM i command line, start PASE using the following command: `CALL QP2TERM`
3. When you are in PASE, change directory using the following command: `cd /QOPT/IBMi/VM`
4. Start the console installer using the following command:  
`./install -r /home/user_name/response.properties`

This command starts the installer in interactive console mode. The installer creates a response file at the location `/home/user_name/response.properties`.

5. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
6. On the **Server - Introduction** panel, read the information that is displayed and press **Enter**.
7. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
8. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
9. Enter your coordination queue manager details starting with the queue manager name.
10. Enter the transport type to connect to the coordination queue manager: `bindings` or `client`.
11. Optional: If you selected transport mode, enter the coordination queue manager host name, port number, and channel name.
12. Enter your agent details: agent name, an agent description (optional), the name of the agent queue manager,
13. Enter the transport type to connect to the agent queue manager: `bindings` or `client`.
14. Optional: If you selected transport mode, enter the agent queue manager host name, port number, and channel name.
15. Enter your command queue manager name.
16. Enter the transport type to connect to the command queue manager: `bindings` or `client`.
17. Optional: If you selected transport mode, enter the command queue manager host name, port number, and channel name.
18. Read the **Pre-Installation Summary** information and press **Enter** to continue.
19. In the created response file, ensure that the value of **LICENSE\_ACCEPTED** is set to true.

## Creating a Client response file using the console installer

WebSphere MQ File Transfer Edition Client provides an unattended or silent installation. The unattended installation is driven by data in a response file. Generate the response file by running a console installer as described in this topic.

### About this task

A response file that you create using the method described in this topic installs the product and then create the configuration directory.

Complete the following steps to create a response file using the console installer:

## Procedure

1. Mount the DVD containing WebSphere MQ File Transfer Edition Client installation on the optical drive of your IBM i system.
2. From an IBM i command line, start PASE using the following command: `CALL QP2TERM`
3. When you are in PASE, change directory using the following command: `cd /QOPT/IBMi/VM`
4. Start the console installer using the following command:

```
./install -r /home/user_name/response.properties
```

This command starts the installer in interactive console mode. The installer creates a response file at the location `/home/user_name/response.properties`.

5. Select the locale that you want to use for the installation process. The locale determines the language the installer runs in. Type the number that is displayed next to your locale and press **Enter**. Alternatively, press **Enter** to accept the default locale.
6. On the **Client - Introduction** panel, read the information that is displayed and press **Enter**.
7. Read the software license agreement and type 1 to accept the terms of the license. Press **Enter**.
8. In the **Skip Configuration** panel, type 2 to configure the product. Press **Enter**.
9. Enter your coordination queue manager details starting with the queue manager name.
10. Enter your agent details: agent name, an agent description (optional), the name of the agent queue manager,
11. Enter your command queue manager name.
12. Read the **Pre-Installation Summary** information and press **Enter** to continue.
13. In the created response file, ensure that the value of **LICENSE\_ACCEPTED** is set to true.

## Installing the Server or Client in unattended (silent) mode on IBM i systems

WebSphere MQ File Transfer Edition provides an unattended or silent installation for the Server and Client components.

### Before you begin

To use the unattended mode of the installer, you must provide the installer with a response file. For information about how to create this file, see “Creating a Server response file using the console installer” on page 66 and “Creating a Client response file using the console installer” on page 67.

To install WebSphere MQ File Transfer Edition on IBM i platforms, the user that performs the installation must have a user profile of \*SECOFR class with \*ALLOBJ authority.

### About this task

Complete the following steps to install the Server or Client in an unattended mode.

### Procedure

1. Create a response file that defines your install directory and configuration directory. For information about how to create this file, see “Creating a Server response file using the console installer” on page 66 and “Creating a Client response file using the console installer” on page 67.
2. Mount the DVD containing WebSphere MQ File Transfer Edition Server installation for IBM i on the optical drive of your IBM i system.
3. Mount the IBM WebSphere MQ File Transfer Edition Server or Client DVD on the optical drive of the IBM i system.
4. From an IBM i command line, start PASE using the following command: `CALL QP2TERM`
5. When you are in PASE, change directory using the following command: `cd /QOPT/IBMi/VM`
6. Start the installer, using the executable or binary file and use the **-f** parameter to pass in the location of the response file. You must specify the full path to the response file. Use the following command:  

```
./install -i silent -f response_file_location/response_file_name
```
7. Wait while the unattended installer installs the product to the installation directory and creates the configuration directory defined by the response file.

If you chose to skip the configuration steps in your response file, you can continue with steps 8 through 10 to configure the coordination queue manager, command manager, and agent after the silent installation is completed.

8. Optional: If you chose to skip the configuration steps in your response file, configure the coordination queue manager using the `fteSetupCoordination` command.
9. Optional: If you chose to skip the configuration steps in your response file, configure the command queue manager using the `fteSetupCommands` command.
10. Optional: If you chose to skip the configuration steps in your response file, create the agent configuration using the `fteCreateAgent` command.
11. The installer or the **`fteSetupCoordination`** command creates a file containing MQSC commands that you must run against the coordination queue manager. This file is located in the `config_directory/coordination_qmgr_name` directory.
12. The installer or the **`fteCreateAgent`** command creates a file containing MQSC commands that you must run against the agent queue manager. This file is located in the `config_directory/coordination_qmgr_name/agents/agent_name` directory.
13. Press the **F3=Exit** function key to exit the PASE environment.
14. From the IBM i command line, start the QFTE subsystem using the following command: `STRSBS QFTE/QFTE`

#### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

#### Related tasks:

“Configuring WebSphere MQ File Transfer Edition on IBM i systems after you have installed”

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

## Configuring WebSphere MQ File Transfer Edition on IBM i systems after you have installed

To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

### About this task

After you have installed, you must run the configuration scripts provided by WebSphere MQ File Transfer Edition for new coordination queue managers and new agents before you can use the coordination queue managers and agents to transfer files. You must then start the agents you have created.

### Procedure

1. For all new coordination queue managers: run the MQSC commands in the `coordination_qmgr_name.mqsc` file against the coordination queue manager. If the coordination queue manager is not on the same computer as the installation, copy the MQSC script file to the computer where the queue manager is located and then run the script.
  - a. From an IBM i command line, start PASE using the following command: `CALL QP2TERM`
  - b. Change to the following directory: `/QIBM/UserData/WMQFTE/V7/config/coordination_qmgr_name`
  - c. Issue the following command, replacing `coordination_qmgr_name` with the name of your queue manager:
 

```
/QSYS.LIB/MQM.LIB/RUNMQSC.PGM coordination_qmgr_name < coordination_qmgr_name.mqsc
```

You can configure the coordination queue manager manually instead. For more information, see “Configuring the coordination queue manager” on page 106.
2. For all new agents: run the MQSC commands in the `<agent_name>_create.mqsc` file against the agent queue manager. If the agent queue manager is not on the same computer as the agent, copy the MQSC script file to the computer where the queue manager is located and then run the script.

- a. From an IBM i command line, start PASE using the following command: CALL QP2TERM
- b. Change to the following directory: /QIBM/UserData/WMQFTE/V7/config/coordination\_qmgr\_name/agents
- c. Issue the following command, replacing *agent\_qmgr\_name* with the name of your agent queue manager and replacing *agent\_name* with the name of your agent:
 

```
/QSYS.LIB/MQM.LIB/RUNMQSC.PGM agent_qmgr_name < agent_name_create.mqsc
```

You can configure the agent queue manager manually instead. For more information, see “Configuring agent queue managers” on page 107.

3. If you have not already started the QFTE subsystem as part of the installation, from the IBM i command line, start the QFTE subsystem using the following command: STRSBS QFTE/QFTE
4. Start your new agents using the **fteStartAgent** command.
  - a. From an IBM i command line, start PASE using the following command: CALL QP2TERM
  - b. Change to the following directory: /QIBM/ProdData/WMQFTE/V7/bin
  - c. Issue the following command, replacing AGENT with the name of your agent:
 

```
./fteStartAgent AGENT
```

## What to do next

To ensure that your coordination queue manager can communicate with other WebSphere MQ queue managers in your network, follow the instructions at: Configuring WebSphere MQ queue managers.

You are recommended to set up sandboxes to limit the areas of the file system that an agent can access. This feature is described in Working with sandboxes.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

### Related tasks:

“Configuring a basic WebSphere MQ File Transfer Edition scenario on IBM i systems” on page 117  
 WebSphere MQ File Transfer Edition supports the transfer of files that are located on an IBM i platform. You can set up a basic client/server environment to support file transfer operations between IBM i systems using the steps in this example.

---

## Installing WebSphere MQ File Transfer Edition for z/OS

You can install WebSphere MQ File Transfer Edition for z/OS by using the System Modification Program Extended (SMP/E) with guidance from the Program Directory for WebSphere MQ File Transfer Edition for z/OS.

### Procedure

Follow the instructions and advice contained in the *Program Directory for WebSphere MQ File Transfer Edition for z/OS*.

The *Program Directory for WebSphere MQ File Transfer Edition for z/OS* is available at the following locations:

- For V7.0.0, <http://publibfp.dhe.ibm.com/epubs/pdf/i1305300.pdf>
- For V7.0.1, <http://publibfp.dhe.ibm.com/epubs/pdf/i1305301.pdf>
- For V7.0.2, <http://publibfp.dhe.ibm.com/epubs/pdf/i1305302.pdf>
- For V7.0.3, <http://publibfp.dhe.ibm.com/epubs/pdf/i1305303.pdf>
- For V7.0.4, <http://publibfp.dhe.ibm.com/epubs/pdf/i1305304.pdf>

## What to do next

Configure the WebSphere MQ File Transfer Edition for z/OS installation for first use by using the instructions in the topic “After installing WebSphere MQ File Transfer Edition for z/OS.”

### Related tasks:

“After installing WebSphere MQ File Transfer Edition for z/OS”

After you have installed on z/OS, you must set environment variables then run the configuration scripts provided by WebSphere MQ File Transfer Edition to configure a new coordination queue manager and create new agents. Finally, you must start the agents that you have created. You can then use the agents to transfer files.

### Related reference:

“Environment variables for WebSphere MQ File Transfer Edition for z/OS” on page 120

After customization and configuration, you must set a number of environment variables before running the configuration and administration scripts provided by WebSphere MQ File Transfer Edition. You must set these variables for each user and in each environment that the scripts will be invoked from.

## After installing WebSphere MQ File Transfer Edition for z/OS

After you have installed on z/OS, you must set environment variables then run the configuration scripts provided by WebSphere MQ File Transfer Edition to configure a new coordination queue manager and create new agents. Finally, you must start the agents that you have created. You can then use the agents to transfer files.

## About this task

Complete the following steps to configure WebSphere MQ File Transfer Edition for z/OS:

### Procedure

1. Set the environment variables described in Environment variables for WebSphere MQ File Transfer for z/OS.
2. Set up the connection to the coordination queue manager by running the **fteSetupCoordination** command. You must run this command even if you have already set up a coordination queue manager on this system or another system.
3. Optional: If it is the first time you have set up this coordination queue manager you must run the MQSC script generated by the **fteSetupCoordination** command on the coordination queue manager by performing the following steps:
  - If MQSC is available on your z/OS system, run the following command, replacing *coordination\_queue\_manager* with the name of your coordination queue manager:  
`runmqsc coordination_queue_manager < configuration_directory/coordination_queue_manager/coordination_queue_manager`
  - If MQSC is not available on your z/OS system, use CSQUTIL to configure WebSphere MQ File Transfer Edition.

In this example, the first step copies the script commands from a z/OS UNIX System Services file defined on the MQSCIN DD statement, to a data set. This step is required to stop commands being truncated by CSQUTIL if the commands are read directly from a z/OS UNIX System Services file. The second step runs the script commands in the data set against the queue manager defined in the PARM parameter. For more information about how to use CSQUTIL, see: WebSphere MQ utility program (CSQUTIL).

```
//TSO      EXEC PGM=IKJEFT01,REGION=2000K,DYNAMNBR=20,TIME=(,10)
//MQSCIN DD PATH='/u/fteuser/AGENT1_create.mqsc',
//  PATHOPTS=ORDONLY
//MQSCOUT DD RECFM=FB,LRECL=80,DISP=(NEW,PASS),
//  SPACE=(TRK,(1,1))
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD *
OCOPY INDD(MQSCIN) OUTDD(MQSCOUT) TEXT
```

```
//CSQUTIL EXEC PGM=CSQUTIL,PARM='FT7B'
//SYSPRINT DD SYSOUT=*
//STEPLIB DD DSN=MQM.SCSQANLE,DISP=SHR
//          DD DSN=MQM.SCSQAUTH,DISP=SHR
//CSQUCMD DD DSN=*.TSO.MQSCOUT,DISP=(OLD,DELETE)
//SYSIN   DD *
COMMAND
```

For your own environment, change the following lines in the example:

- Change MQSCIN DD PATH='/u/fteuser/AGENT1\_create.mqsc' to the path to the MQSC file on the destination system.
- Change the PARM=' ' value in the following line CSQUTIL EXEC PGM=CSQUTIL,PARM='FT7B' to the name of the queue manager that you want to run the script against.
- Change STEPLIB DD DSN=MQM.SCSQANLE,DISP=SHR and DD DSN=MQM.SCSQAUTH,DISP=SHR to point to the SCSQAUTH and SCSQANLE data sets for your installation of WebSphere MQ. For information about the supported versions of WebSphere MQ, see the web page WebSphere MQ File Transfer Edition System Requirements.

4. Set up the connection to the command queue manager by running the **fteSetupCommands** command.

5. Create an agent by running the **fteCreateAgent** command.

6. Run the MQSC script generated by the **fteCreateAgent** command on the agent queue manager by performing the following steps:

- If MQSC is available on your z/OS system, run the following command, replacing *agent\_queue\_manager* with the name of your agent queue manager and replacing *agent\_name* with the name of your agent:

```
runmqsc agent_queue_manager < configuration_directory/coordination_queue_manager/agents/agent_name_create.mqsc
```

- If MQSC is not available on your z/OS system, use CSQUTIL to configure WebSphere MQ File Transfer Edition.

In this example, the first step copies the script commands from a z/OS UNIX System Services file defined on the MQSCIN DD statement, to a data set. This step is required to stop commands being truncated by CSQUTIL if the commands are read directly from a z/OS UNIX System Services file. The second step runs the script commands in the data set against the queue manager defined in the PARM parameter. For more information about how to use CSQUTIL, see: WebSphere MQ utility program (CSQUTIL).

```
//TSO      EXEC PGM=IKJEFT01,REGION=2000K,DYNAMNBR=20,TIME=(,10)
//MQSCIN DD PATH='/u/fteuser/AGENT1_create.mqsc',
//          PATHOPTS=ORDONLY
//MQSCOUT DD RECFM=FB,LRECL=80,DISP=(NEW,PASS),
//          SPACE=(TRK,(1,1))
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD *
OCOPY INDD(MQSCIN) OUTDD(MQSCOUT) TEXT
//CSQUTIL EXEC PGM=CSQUTIL,PARM='FT7B'
//SYSPRINT DD SYSOUT=*
//STEPLIB DD DSN=MQM.V700.SCSQANLE,DISP=SHR
//          DD DSN=MQM.V700.SCSQAUTH,DISP=SHR
//CSQUCMD DD DSN=*.TSO.MQSCOUT,DISP=(OLD,DELETE)
//SYSIN   DD *
COMMAND
```

For your own environment, change the following lines in the example:

- Change MQSCIN DD PATH='/u/fteuser/AGENT1\_create.mqsc' to the path to the MQSC file on the destination system.
- Change the PARM=' ' value in the following line CSQUTIL EXEC PGM=CSQUTIL,PARM='FT7B' to the name of the queue manager that you want to run the script against.

- Change STEPLIB DD DSN=MQM.V700.SCSQANLE,DISP=SHR and DD DSN=MQM.V700.SCSQAUTH,DISP=SHR to point to the SCSQAUTH and SCSQANLE data sets for your installation of WebSphere MQ Version 7.0

7. Start the agent using the **fteStartAgent** command.

**Related concepts:**

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

“Authority to use WebSphere MQ File Transfer Edition commands” on page 464

**Related reference:**

“Using WebSphere MQ File Transfer Edition commands from JCL” on page 465

On z/OS, you can invoke WebSphere MQ File Transfer Edition commands from JCL (Job Control Language) for integration into batch suites.

---

## Installing an IBM WebSphere MQ File Transfer Edition Fix Pack

Fix Packs are cumulative, so you can install an IBM WebSphere MQ File Transfer Edition Fix Pack on top of any previous WebSphere MQ File Transfer Edition version or fix pack. The fix pack installer uses your existing product configuration so you are not asked to enter any configuration information during fix pack installation. There are three versions of the fix pack: one for each version of IBM WebSphere MQ File Transfer Edition (Server, Client, or Remote Tools and Documentation).

### Before you begin

If you want to use the graphical installer with Java-compatible screen reader software for accessibility reasons, see *Using the graphical installer with a screen reader*.

To install WebSphere MQ File Transfer Edition on UNIX and Linux systems, you must have write access to the location that you want to use for the installation directory. If you originally used an installation directory in your home directory rather than the default installation directory, do not use a tilde character (~) as a path prefix. Specify the directory path name in full. If you use a tilde character, this character causes an InstallAnywhere error meaning that the product is not installed and you must repeat the installation process.

### About this task

To install an IBM WebSphere MQ File Transfer Edition Fix Pack, complete the following steps. Repeat these steps for each version of the product that you have installed on a system (Server, Client, or Remote Tools and Documentation).

### Procedure

1. Start the fix pack graphical installer, using the executable file or binary file. On Windows, this file is `install.exe` and on UNIX and Linux platforms, this file is `install.bin`.
2. Select the language that you want to use for the installation process. Click **OK**.
3. On the **Introduction** panel, click **Next**.
4. Read the software license agreement and select the option to accept the terms of the license. Click **Next**.
5. Select the same installation directory as you used to install the product previously. Click **Next**.
6. Click **Update existing install**.
7. Read the summary panel and click **Install**.
8. Wait while the fix pack is installed and click **Done**.

---

## Uninstalling IBM WebSphere MQ File Transfer Edition

You can uninstall WebSphere MQ File Transfer Edition by using the graphical uninstaller, in text-only (console) mode, or in unattended (silent) mode. By default, the uninstaller runs in the same mode that the installer ran in. You can use the **-i** parameter to specify what mode to run the uninstaller in.

Before uninstalling WebSphere MQ File Transfer Edition Server or Client, ensure that all agents are stopped and that all commands have completed. Before uninstalling WebSphere MQ File Transfer Edition Remote Tools and Documentation, ensure that the database logger, stand-alone information center, and WebSphere MQ Explorer are stopped, and that all commands have completed.

### Related concepts:

“Uninstalling WebSphere MQ File Transfer Edition on Windows platforms”

You can start the uninstaller on Windows platforms from the command line or from the **Control Panel**.

### Related tasks:

“Uninstalling WebSphere MQ File Transfer Edition on UNIX and Linux systems” on page 76

You can start the uninstaller on UNIX and Linux platforms from the command line.

“Uninstalling WebSphere MQ File Transfer Edition on IBM i systems” on page 77

You can uninstall WebSphere MQ File Transfer Edition on IBM i systems in two ways: in text-only (console) mode or in unattended (silent) mode. You can start the uninstaller on IBM i platforms from the command line.

## Uninstalling WebSphere MQ File Transfer Edition on Windows platforms

You can start the uninstaller on Windows platforms from the command line or from the **Control Panel**.

### Related tasks:

“Uninstalling WebSphere MQ File Transfer Edition on Windows platforms by using the Control Panel”

You can start the uninstaller to uninstall any WebSphere MQ File Transfer Edition component from the Windows **Control Panel**.

“Uninstalling WebSphere MQ File Transfer Edition on Windows by using the command prompt” on page 75

You can start the uninstaller to uninstall any WebSphere MQ File Transfer Edition component from the Windows command prompt.

## Uninstalling WebSphere MQ File Transfer Edition on Windows platforms by using the Control Panel

You can start the uninstaller to uninstall any WebSphere MQ File Transfer Edition component from the Windows **Control Panel**.

### About this task

Complete the following steps:

### Procedure

1. From the Windows task bar, click **Start > Control Panel**. (On some systems, click **Start > Settings > Control Panel**.)
2. Click **Add or Remove Programs**.
3. Click one of the following IBM WebSphere MQ File Transfer Edition products to uninstall:
  - **IBM WebSphere MQ File Transfer Edition Server**
  - **IBM WebSphere MQ File Transfer Edition Client**
  - **IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation**

4. Click **Change/Remove**. The uninstaller launches. The mode of the uninstaller depends on the mode that was used by the installer: graphical, console, or silent.
5. Follow the instructions on the uninstaller.
  - If you are using the graphical uninstaller perform the following actions:
 

If you want the uninstaller to remove the configuration directory and its subdirectories that were created when you installed WebSphere MQ File Transfer Edition, select the **Remove configuration** check box. Do not select this check box if you have stored data in this directory that is not related to WebSphere MQ File Transfer Edition or if you want to reuse the same configuration data later for another installation.

The uninstaller summarizes what will be uninstalled. Click **Next**. Wait while the product is uninstalled.

If the uninstaller lists items that cannot be uninstalled, delete these items manually.

Click **Done**.
  - If you are using the text-only (console) uninstaller perform the following actions:
 

If you want the uninstaller to remove the configuration directory and its subdirectories that were created when you installed WebSphere MQ File Transfer Edition, enter 1 to select the **Remove configuration directory** option. Or, enter 2 to select the **Leave Configuration Directory** option. Select option 2 if you have stored data in the configuration directory that is not related to WebSphere MQ File Transfer Edition or if you want to reuse the configuration data later for a reinstallation.

The product is uninstalled and the uninstaller command window closes when the uninstall is completed.
  - If you are using the unattended (silent) uninstaller perform the following actions:
 

The silent uninstaller removes the product installation, but not the configuration directory. You must remove the configuration directory manually.
6. When the uninstaller has completed, restart your Windows system.

## Uninstalling WebSphere MQ File Transfer Edition on Windows by using the command prompt

You can start the uninstaller to uninstall any WebSphere MQ File Transfer Edition component from the Windows command prompt.

### About this task

Complete the following steps:

#### Procedure

1. From the Windows task bar, click **Start > Run**. Type `cmd` and press **Enter**.
2. Change to the uninstall directory, by using the following command:
 

```
cd install_directory\Uninstall_component
```

The default value of `install_directory` is `c:\Program Files\IBM\WMQFTE`. The value of `component` is one of the following values: `Server`, `Client`, or `Remote_tools_and_documentation`.

3. Type one of the following commands depending on which mode you want to run the uninstaller in.
  - To uninstall in graphical mode:
 

```
Uninstall_component -i gui
```
  - To uninstall in text-only (console) mode:
 

```
Uninstall_component -i console
```
  - To uninstall in unattended (silent) mode:
 

```
Uninstall_component -i silent
```

For an example uninstall response file, see “Uninstallation response file” on page 450.

4. Follow the instructions on the uninstaller.
  - If you are using the graphical uninstaller perform the following actions:

If you want the uninstaller to remove the configuration directory and its subdirectories that were created when you installed WebSphere MQ File Transfer Edition, select the **Remove configuration** check box. Do not select this check box if you have stored data in this directory that is not related to WebSphere MQ File Transfer Edition or if you want to reuse the same configuration data later for another installation.

The uninstaller summarizes what will be uninstalled. Click **Next**. Wait while the product is uninstalled.

If the uninstaller lists items that cannot be uninstalled, delete these items manually.

Click **Done**.
  - If you are using the text-only (console) uninstaller perform the following actions:

If you want the uninstaller to remove the configuration directory and its subdirectories that were created when you installed WebSphere MQ File Transfer Edition, enter 1 to select the **Remove configuration directory** option. Or, enter 2 to select the **Leave Configuration Directory** option. Select option 2 if you have stored data in the configuration directory that is not related to WebSphere MQ File Transfer Edition or if you want to reuse the configuration data later for a reinstallation.

The product is uninstalled and the uninstaller command window closes when the uninstall is completed.
  - If you are using the unattended (silent) uninstaller perform the following actions:

The silent uninstaller removes the product installation, but not the configuration directory. You must remove the configuration directory manually.
5. When the uninstaller has completed, restart your Windows system.

## Uninstalling WebSphere MQ File Transfer Edition on UNIX and Linux systems

You can start the uninstaller on UNIX and Linux platforms from the command line.

### Before you begin

To uninstall successfully on UNIX and Linux systems, you need write permission to the installation directory. You are likely to need root administrator privileges for this task.

### About this task

Complete the following steps:

#### Procedure

1. Change to the uninstall directory, by using the following command:

```
cd install_directory/Uninstall_component
```

On UNIX the default value of *install\_directory* is `/opt/IBM/WMQFTE`. On Linux the default value of *install\_directory* is `/opt/ibm/WMQFTE`. The value of *component* is one of the following values: `Server`, `Client`, or `Remote_tools_and_documentation`.

2. Type one of the following commands depending on which mode you want to run the uninstaller in.
  - To uninstall in graphical mode:

```
./Uninstall_component -i gui
```
  - To uninstall in text-only (console) mode:

```
./Uninstall_component -i console
```
  - To uninstall in unattended (silent) mode:

```
./Uninstall_component -i silent -f response_file
```

For an example uninstall response file, see “Uninstallation response file” on page 450.

3. Follow the instructions on the uninstaller.

- If you are using the graphical uninstaller perform the following actions:

If you want the uninstaller to remove the configuration directory and its subdirectories that were created when you installed WebSphere MQ File Transfer Edition, select the **Remove configuration** check box. Do not select this check box if you have stored data in this directory that is not related to WebSphere MQ File Transfer Edition or if you want to reuse the same configuration data later for another installation.

The uninstaller summarizes what will be uninstalled. Click **Next**. Wait while the product is uninstalled.

If the uninstaller lists items that cannot be uninstalled, delete these items manually.

Click **Done**.

- If you are using the text-only (console) uninstaller perform the following actions:

If you want the uninstaller to remove the configuration directory and its subdirectories that were created when you installed WebSphere MQ File Transfer Edition, enter 1 to select the **Remove configuration directory** option. Or, enter 2 to select the **Leave Configuration Directory** option. Select option 2 if you have stored data in the configuration directory that is not related to WebSphere MQ File Transfer Edition or if you want to reuse the configuration data later for a reinstallation.

The product is uninstalled and the uninstaller command window closes when the uninstall is completed.

- If you are using the unattended (silent) uninstaller perform the following actions:

The silent uninstaller removes the product installation, but not the configuration directory. You must remove the configuration directory manually.

## Uninstalling WebSphere MQ File Transfer Edition on IBM i systems

You can uninstall WebSphere MQ File Transfer Edition on IBM i systems in two ways: in text-only (console) mode or in unattended (silent) mode. You can start the uninstaller on IBM i platforms from the command line.

### Before you begin

To uninstall successfully on IBM i systems, you must have a user profile of the \*SECOFR class. Ensure that the QFTE subsystem is stopped.

### About this task

Complete the following steps:

#### Procedure

1. From an IBM i command line, start PASE using the following command: CALL QP2TERM
2. Change to the uninstall directory, by using the following command:

```
cd /QIBM/ProdData/WMQFTE/V7/Uninstall_component
```

The value of *component* is one of the following values: `Server` or `Client`.

3. Type one of the following commands depending on which mode you want to run the uninstaller in.
  - To uninstall in text-only (console) mode:  

```
./uninstall -i console
```
  - To uninstall in unattended (silent) mode:  

```
./uninstall -i silent
```

4. Follow the instructions on the uninstaller.

- If you are using the text-only (console) uninstaller perform the following actions:

If you want the uninstaller to remove the configuration directory and its subdirectories that were created when you installed WebSphere MQ File Transfer Edition, enter 1 to select the **Remove configuration directory** option. Or, enter 2 to select the **Leave Configuration Directory** option. Select option 2 if you have stored data in the configuration directory that is not related to WebSphere MQ File Transfer Edition or if you want to reuse the configuration data later for a reinstallation.

The product is uninstalled and the PASE prompt returns. Press F3 to exit the PASE session.

- If you are using the unattended (silent) uninstaller perform the following actions:

The silent uninstaller removes the product installation, but not the configuration directory. You must remove the configuration directory manually.

---

## Security overview for WebSphere MQ File Transfer Edition

Directly after installation and with no modification, WebSphere MQ File Transfer Edition is unsecured, which might be suitable for test or evaluation purposes in a protected environment. In a production environment, you must consider controlling who can start file transfer operations, who can read and write the files being transferred, and how to protect the integrity of files.

### Related concepts:

#### “Sandboxes”

You can restrict the area of the file system that the agent can access as part of a transfer. The area that the agent is restricted to is called the sandbox. You can apply restrictions to either the agent or to the user that requests a transfer.

#### “Securing the Web Gateway” on page 87

There are a number of ways that you can secure the Web Gateway. You must perform some of these security steps before you can use the Web Gateway. The other steps are optional and can increase the security of your Web Gateway and WebSphere MQ File Transfer Edition network, but they are not required for you to use the Web Gateway.

### Related tasks:

#### “Configuring SSL encryption for WebSphere MQ File Transfer Edition” on page 84

Use SSL with WebSphere MQ and WebSphere MQ File Transfer Edition to prevent unauthorized connections between agents and queue managers, and to encrypt message traffic between agents and queue managers.

#### “Using IBM WebSphere MQ Advanced Message Security with IBM WebSphere MQ File Transfer Edition” on page 85

WebSphere MQ Advanced Message Security provides enhanced security for message traffic in WebSphere MQ File Transfer Edition, in particular for data at rest on queues.

### Related reference:

#### “Authorities for resources specific to WebSphere MQ File Transfer Edition” on page 451

For any file transfer request, the agent processes require some level of access to their local file systems. In addition, both the user identifier associated with the agent process, and the user identifiers associated with users performing file transfer operations must have the authority to use certain WebSphere MQ objects.

#### “Authorities to access file systems” on page 461

For any file transfer request, the agent processes require some level of access to their local file systems.

#### “The commandPath property” on page 461

Use the commandPath property to restrict the locations that WebSphere MQ File Transfer Edition can run commands from.

#### “Authority to publish log and status messages” on page 460

Agents issue various log, progress, and status messages that are published on the coordination queue manager. The publication of these messages is subject to the WebSphere MQ security model, and in some cases you might have to perform further configuration to enable publication.

---

## Sandboxes

You can restrict the area of the file system that the agent can access as part of a transfer. The area that the agent is restricted to is called the sandbox. You can apply restrictions to either the agent or to the user that requests a transfer.

Sandboxes are not supported when the agent is a protocol bridge agent or a Connect:Direct bridge agent. You can not use agent sandboxing for agents that need to transfer to or from WebSphere MQ queues.

### Related reference:

“Working with agent sandboxes”

To add an additional level of security to WebSphere MQ File Transfer Edition, you can restrict the area of a file system that an agent can access.

“Working with user sandboxes” on page 81

You can restrict the area of the file system that files can be transferred into and out of based on the MQMD user name that requests the transfer.

## Working with agent sandboxes

To add an additional level of security to WebSphere MQ File Transfer Edition, you can restrict the area of a file system that an agent can access.

To enable agent sandboxing, add the following property to the `agent.properties` file for the agent you want to restrict:

```
sandboxRoot=[!]restricted_directory_name<separator>...<separator>[!]restricted_directory_name
```

where:

- `restricted_directory_name` is a directory path to be allowed or denied.
- `!` is optional and specifies that the following value for `restricted_directory_name` is denied (excluded). If `!` is not specified `restricted_directory_name` is an allowed (included) path.
- `<separator>` is the platform-specific separator.

For example, if you want to restrict the access that AGENT1 has to the `/tmp` directory only, but not allow the subdirectory `private` to be accessed, set the property as follows in the `agent.properties` file belonging to AGENT1: `sandboxRoot=/tmp:!/tmp/private`.

The `sandboxRoot` property is described in Advanced agent properties.

You cannot use agent sandboxing for agents that transfer to or from WebSphere MQ queues. Restricting access to WebSphere MQ queues with sandboxing can be implemented instead by using user sandboxing which is the recommended solution for any sandboxing requirements. For more information about user sandboxing, see “Working with user sandboxes” on page 81

Both agent and user sandboxing are not supported on protocol bridge agents or on Connect:Direct bridge agents.

## Working in a sandbox on UNIX, Linux, and Windows platforms

On UNIX, Linux, and Windows platforms, sandboxing restricts which directories a WebSphere MQ File Transfer Edition agent can read from and write to. When sandboxing is activated, the WebSphere MQ File Transfer Edition agent can read and write to the directories specified as allowed, and any subdirectories that the specified directories contain unless the subdirectories are specified as denied in the `sandboxRoot`. WebSphere MQ File Transfer Edition sandboxing does not take precedence over operating system security. The user that started the WebSphere MQ File Transfer Edition agent must have the appropriate operating system level access to any directory to be able to read from or write to the directory. A symbolic link to a directory is not followed if the directory linked to is outside the specified `sandboxRoot` directories (and subdirectories).

## Working in a sandbox on z/OS

On z/OS, sandboxing restricts the data set name qualifiers that the WebSphere MQ File Transfer Edition agent can read from and write to. The user that started the WebSphere MQ File Transfer Edition agent must have the correct operating system authorities to any data sets involved. If you enclose a `sandboxRoot` data set name qualifier in double quotation marks, the value follows the normal z/OS

convention and is treated as fully qualified. If you omit the double quotation marks, the `sandboxRoot` is prefixed with the current user ID. For example, if you set the `sandboxRoot` property to the following: `sandboxRoot=//test`, the agent can access the following data sets (in standard z/OS notation) `//<username>.test.**`. At run time, if the initial levels of the fully resolved data set name do not match the `sandboxRoot`, the transfer request is rejected.

## Working in a sandbox on IBM i systems

For files in the integrated file system on IBM i systems, sandboxing restricts which directories a WebSphere MQ File Transfer Edition agent can read from and write to. When sandboxing is activated, the WebSphere MQ File Transfer Edition agent can read and write to the directories specified as allowed, and any subdirectories that the specified directories contain unless the subdirectories are specified as denied in the `sandboxRoot`. WebSphere MQ File Transfer Edition sandboxing does not take precedence over operating system security. The user that started the WebSphere MQ File Transfer Edition agent must have the appropriate operating system level access to any directory to be able to read from or write to the directory. A symbolic link to a directory is not followed if the directory linked to is outside the specified `sandboxRoot` directories (and subdirectories).

### Related reference:

“Working with user sandboxes”

You can restrict the area of the file system that files can be transferred into and out of based on the MQMD user name that requests the transfer.

## Working with user sandboxes

You can restrict the area of the file system that files can be transferred into and out of based on the MQMD user name that requests the transfer.

User sandboxes are not supported when the agent is a protocol bridge agent or a Connect:Direct bridge agent.

To enable user sandboxing, add the following property to the `agent.properties` file for the agent that you want to restrict:

```
userSandboxes=true
```

When this property is present and set to true the agent uses the information in the `configuration_directory/coordination_queue_manager/agents/agent_name/UserSandboxes.xml` file to determine which parts of the file system the user who requests the transfer can access.

The `UserSandboxes.xml` XML is composed of an `<agent>` element that contains zero or more `<sandbox>` elements. These elements describe which rules are applied to which users. The `user` attribute of the `<sandbox>` element is a pattern that is used to match against the MQMD user of the request.

If you specify the `userPattern="regex"` attribute or value, the `user` attribute is interpreted as a Java regular expression. For more information, see “Regular expressions used by WebSphere MQ File Transfer Edition” on page 746.

If you do not specify the `userPattern="regex"` attribute or value the `user` attribute is interpreted as a pattern with the following wildcard characters:

- asterisk (\*), which represents zero or more characters
- question mark (?), which represents exactly one character

Matches are performed in the order that the `<sandbox>` elements are listed in the file. Only the first match is used, all following potential matches in the file are ignored. If none of the `<sandbox>` elements specified in the file match the MQMD user associated with the transfer request message, the transfer cannot access the file system. When a match has been found between the MQMD user name and a user attribute, the

match identifies a set of rules inside a <sandbox> element that are applied to the transfer. This set of rules is used to determine which files, or data sets, can be read from or written to as part of the transfer.

Each set of rules can specify a <read> element, which identifies which files can be read, and a <write> element which identifies which files can be written. If you omit the <read> or <write> elements from a set of rules, it is assumed that the user associated with that set of rules is not allowed to perform any reads or any writes, as appropriate.

**Note:** The <read> element must be before the <write> element, and the <include> element must be before the <exclude> element, in the UserSandboxes.xml file.

Each <read> or <write> element contains one or more patterns that are used to determine whether a file is in the sandbox and can be transferred. Specify these patterns by using the <include> and <exclude> elements. The name attribute of the <include> or <exclude> element specifies the pattern to be matched. An optional type attribute specifies whether the name value is a file or queue pattern. If the type attribute is not specified the agent treats the pattern as a file or directory path pattern. For example:

```
<tns:read>
  <tns:include name="/home/user/**"/>
  <tns:include name="USER.**" type="queue"/>
  <tns:exclude name="/home/user/private/**"/>
</tns:read>
```

The <include> and <exclude> name patterns are used by the agent to determine whether files, data sets, or queue can be read from or written to. An operation is allowed if the canonical file path, data set, or queue name matches at least one of the included patterns and exactly zero of the excluded patterns. The patterns specified by using the name attribute of the <include> and <exclude> elements use the path separators and conventions appropriate to the platform that the agent is running on. If you specify relative file paths, the paths are resolved relative to the transferRoot property of the agent.

When specifying a queue restriction, a syntax of QUEUE@QUEUEMANAGER is supported, with the following rules:

- If the at character (@) is missing from the entry, the pattern is treated as a queue name that can be accessed on any queue manager. For example, if the pattern is name it is treated the same way as name@\*\*.
- If the at character (@) is the first character in the entry, the pattern is treated as a queue manager name and all queues on the queue manager can be accessed. For example, if the pattern is @name it is treated the same way as \*\*@name..

The following wildcard characters have special meaning when you specify them as part of the name attribute of the <include> and <exclude> elements:

- \* A single asterisk matches zero or more characters in a directory name, or in a qualifier of a data set name or queue name.
- ? A question mark matches exactly one character in a directory name, or in a qualifier of a data set name or queue name.
- \*\* Two asterisk characters match zero or more directory names, or zero or more qualifiers in a data set name or queue name. Also, paths that end with a path separator have an implicit "\*\*\*" added to the end of the path. So /home/user/ is the same as /home/user/\*\*.

For example:

- /\*\*/test/\*\* matches any file that has a test directory in its path
- /test/file? matches any file inside the /test directory that starts with the string file followed by any single character
- c:\test\\*.txt matches any file inside the c:\test directory with a .txt extension

- `c:\test\**\*.txt` matches any file inside the 'c:\test' directory, or one of its subdirectories that has a .txt extension
- `//'TEST.*.DATA'` matches any data set that has the first qualifier of TEST, has any second qualifier, and a third qualifier of DATA.
- `TEST.*.QUEUE@QM1` matches any queue on the queue manager QM1 that has the first qualifier of TEST, has any second qualifier, and a third qualifier of QUEUE.

## Symbolic links

You must fully resolve any symbolic links that you use in file paths in the `UserSandboxes.xml` file by specifying hard links in the `<include>` and `<exclude>` elements. For example, if you have a symbolic link where `/var` maps to `/SYSTEM/var`, you must specify this path as `<tns:include name="/SYSTEM/var"/>`, otherwise the intended transfer fails with a user sandbox security error.

## Example

To allow the user with the MQMD user name `guest` to transfer any file from the `/home/user/public` directory or any of its subdirectories on the system where the agent `AGENT_JUPITER` is running, add the following `<sandbox>` element to the file `UserSandboxes.xml` in `AGENT_JUPITER`'s configuration directory

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:userSandboxes
  xmlns:tns="http://wmqfte.ibm.com/UserSandboxes"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/UserSandboxes UserSandboxes.xsd">
<tns:agent>
  <tns:sandbox user="guest">
    <tns:read>
      <tns:include name="/home/user/public/**"/>
    </tns:read>
  </tns:sandbox>
</tns:agent>
</tns:userSandboxes>
```

## Example

To allow any user with the MQMD user name `account` followed by a single digit, for example `account4`, to complete the following actions:

- Transfer any file from the `/home/account` directory or any of its subdirectories, excluding the `/home/account/private` directory on the system where the agent `AGENT_SATURN` is running
- Transfer any file to the `/home/account/output` directory or any of its subdirectories on the system where the agent `AGENT_SATURN` is running
- Read messages from queues on the local queue manager starting with the prefix `ACCOUNT.` unless it starts with `ACCOUNT.PRIVATE.` (that is has `PRIVATE` at the second level).
- Transfer data onto queues starting with the prefix `ACCOUNT.OUTPUT.` on any queue manager.

add the following `<sandbox>` element to the file `UserSandboxes.xml`, in `AGENT_SATURN`'s configuration directory,

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:userSandboxes
  xmlns:tns="http://wmqfte.ibm.com/UserSandboxes"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/UserSandboxes UserSandboxes.xsd">
<tns:agent>
  <tns:sandbox user="account[0-9]" userPattern="regex">
    <tns:read>
      <tns:include name="/home/account/**"/>
      <tns:include name="ACCOUNT.**" type="queue"/>
      <tns:exclude name="ACCOUNT.PRIVATE.**" type="queue"/>
    </tns:read>
  </tns:sandbox>
</tns:agent>
</tns:userSandboxes>
```

```

<tns:exclude name="/home/account/private/**"/>
                </tns:read>
<tns:write>
  <tns:include name="/home/account/output/**"/>
  <tns:include name="ACCOUNT.OUTPUT.**" type="queue"/>
</tns:write>
</tns:sandbox>
</tns:agent>
</tns:userSandboxes>

```

---

## Configuring SSL encryption for WebSphere MQ File Transfer Edition

Use SSL with WebSphere MQ and WebSphere MQ File Transfer Edition to prevent unauthorized connections between agents and queue managers, and to encrypt message traffic between agents and queue managers.

### Before you begin

SSL encryption encrypts messages only on the channels between queue managers, and between queue managers and agents. If you want to encrypt your messages while they are on queues, you must use WebSphere MQ Advanced Message Security. For more information, see “Using IBM WebSphere MQ Advanced Message Security with IBM WebSphere MQ File Transfer Edition” on page 85.

### About this task

For general information about using SSL with WebSphere MQ, see Channel security using SSL in the WebSphere MQ V7.0.1 product documentation. In WebSphere MQ terms, WebSphere MQ File Transfer Edition is a standard Java client application.

Follow these steps to use SSL with WebSphere MQ File Transfer Edition:

### Procedure

1. Create a truststore file and optionally a keystore file (these files can be the same file). If you do not need client-authentication (that is, `SSLCAUTH=OPTIONAL` on channels) you do not need to provide a keystore. You require a truststore only to authenticate the queue manager's certificate against. The key algorithm of the truststore file and keystore file must be RSA to work with WebSphere MQ. If you need instructions about how to create truststore and keystore files, see the [developerWorks®](#) article, [Configuring Secure Sockets Layer connectivity in WebSphere MQ File Transfer Edition](#), or see the information about the keytool at the [Oracle keytool documentation](#).
2. Set up your WebSphere MQ queue manager to use SSL. For information about how to set up a queue manager to use SSL, see the [WebSphere MQ product documentation](#).
3. Save the truststore file and keystore file (if you have one) in a suitable location. A suggested location is the `config_directory/coordination_qmgr/agents/agent_name` directory.
4. Set the SSL properties as required for each SSL-enabled queue manager in the appropriate WebSphere MQ File Transfer Edition properties file. Each set of properties refers to a separate queue manager (agent, coordination, and command), although one queue manager might perform two or more of these roles.

One of the **CipherSpec** or **CipherSuite** properties is required, otherwise the client tries to connect without SSL. Both the **CipherSpec** or **CipherSuite** properties are provided because of the terminology differences between WebSphere MQ and Java. WebSphere MQ File Transfer Edition accepts either property and does the necessary conversion, so you do not need to set both properties. If you do specify both the **CipherSpec** or **CipherSuite** properties, **CipherSpec** takes precedence.

The **PeerName** property is optional. You can set the property to the Distinguished Name of the queue manager that you want to connect to. WebSphere MQ File Transfer Edition rejects connections to an incorrect SSL server with a Distinguished Name that does not match.

Set the **SslTrustStore** and **SslKeyStore** properties to file names that point to the truststore and keystore files. If you are setting up these properties for an agent that is already running, stop and restart the agent to reconnect in SSL mode.

Properties files contain plain-text passwords so consider setting appropriate file system permissions.

For more information about SSL properties, see “SSL properties” on page 650.

5. If an agent queue manager uses SSL, you cannot provide the necessary details when you create the agent. Use the following steps to create the agent:
  - a. Create the agent by using the **fteCreateAgent** command. You receive a warning about being unable to publish the existence of the agent to the coordination queue manager.
  - b. Edit the `agent.properties` file that was created by the previous step to add the SSL information. When the agent is successfully started, the publish is attempted again.
6. If agents or instances of the WebSphere MQ Explorer are running while the SSL properties in the `agent.properties` file or `coordination.properties` file are changed, you must restart the agent or WebSphere MQ Explorer.

**Related tasks:**

“Using IBM WebSphere MQ Advanced Message Security with IBM WebSphere MQ File Transfer Edition”  
WebSphere MQ Advanced Message Security provides enhanced security for message traffic in WebSphere MQ File Transfer Edition, in particular for data at rest on queues.

**Related reference:**

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

---

## Using IBM WebSphere MQ Advanced Message Security with IBM WebSphere MQ File Transfer Edition

WebSphere MQ Advanced Message Security provides enhanced security for message traffic in WebSphere MQ File Transfer Edition, in particular for data at rest on queues.

### About this task

In this topic, WebSphere MQ Advanced Message Security is referred to as WMQAMS and WebSphere MQ File Transfer Edition is referred to as WMQFTE. For more information about WMQAMS, see the WebSphere MQ Advanced Message Security v7.1.0 product documentation.

WMQAMS provides a number of facilities to intercept and apply security actions to message data. For WMQFTE, the WMQAMS Java Interceptor is used to encrypt the data before it leaves the source agent and to decrypt the data after it arrives in the destination agent. The messages in transit between the two agents are secured.

WMQAMS offers a range of security policies that can be applied to a WebSphere MQ network. The configuration supported by WebSphere MQ File Transfer Edition 7.0.3 or later is the encryption of file data between two agents; the protection of control or status messages is not supported.

Install and configure WMQFTE first, and confirm that your installation is working correctly, before adding WMQAMS for additional protection.

### Procedure

1. Install the WMQAMS Java Interceptor on each system that hosts WMQFTE agents you want to secure. Follow the instructions in the WMQAMS product documentation to install the Java Interceptor

component. You must also install the WMQAMS administration tools on at least one system and run the necessary MQSC scripts against each queue manager, which is also described in the WMQAMS product documentation.

2. Create the cryptographic keystores and policies used by WMQAMS.

This configuration requires a policy of message encryption on the data queue of each agent involved (SYSTEM.FTE.DATA.*agent\_name*). See the WMQAMS V7.0.1 product information for detailed information about this step.

3. Enable the use of WMQAMS by WMQFTE Perform the following steps for each agent that is to use WMQAMS:
  - a. Stop the agent.
  - b. Add the **advancedSecurityPath** property to the agent.properties file. The value of this property is the full file name of the WMQAMS Java Interceptor JAR file (com.ibm.mq.es.e.jar) installed on that system.

See “The agent.properties file” on page 583 for more information about this file and property.

**Note:** Note that the instructions in the WMQAMS documentation that refer to this JAR file being loaded from the WebSphere MQ directory do not apply. WMQFTE contains its own WebSphere MQ libraries and does not require or use a separate WebSphere MQ installation for client connections.

- c. If running the agent in WebSphere MQ bindings mode, set the **mqs.intercept.bindingsJava** property to 1.

WebSphere MQ bindings is the connection mode used when an agent connects directly to a queue manager on the same system without using a network protocol. If the agent.properties file contains an **agentQMgr** property but no **agentQMgrHost** property, the agent is using WebSphere MQ bindings mode.

The WMQAMS Java Interceptor works only on bindings mode connections with the **mqs.intercept.bindings** property set to 1. To set the **mqs.intercept.bindings** property, run the following command before starting the agent:

- export FTE\_JVM\_PROPERTIES="-Dmqs.intercept.bindings=1" # on Unix platforms
- set FTE\_JVM\_PROPERTIES="-Dmqs.intercept.bindings=1" # on Windows platforms

- d. Start the agent.

## What to do next

When WebSphere MQ Advanced Message Security is used to protect agent data queues, the agents at both the source and destination of the transfer must be configured with identical queue protection policies. For more information, see the topic “Using WebSphere MQ AMS with WebSphere MQ File Transfer Edition” in the WebSphere MQ Advanced Message Security v7.1.0 product documentation.

---

## Securing the Web Gateway

There are a number of ways that you can secure the Web Gateway. You must perform some of these security steps before you can use the Web Gateway. The other steps are optional and can increase the security of your Web Gateway and WebSphere MQ File Transfer Edition network, but they are not required for you to use the Web Gateway.

### Related concepts:

“Required security for the Web Gateway”

There are security configuration steps that you must complete before you can use the Web Gateway. These steps are configuring user roles for the Web Gateway, setting file space permissions, and, if you are using WebSphere Application Server Version 7.0, setting the correct level of security in the application server.

“Optional security for the Web Gateway” on page 89

There are security configuration steps that are not required before you can use the Web Gateway. These optional steps can add extra security to your Web Gateway and your WebSphere MQ File Transfer Edition network. The optional steps are filtering Web Gateway requests and enabling sandboxing on destination agents.

## Required security for the Web Gateway

There are security configuration steps that you must complete before you can use the Web Gateway. These steps are configuring user roles for the Web Gateway, setting file space permissions, and, if you are using WebSphere Application Server Version 7.0, setting the correct level of security in the application server.

WebSphere MQ File Transfer Edition has two stages of authorization: user roles and file space permissions. To upload a file or to query transfer information, the user must have the appropriate user role assigned to them. To access a file space the user must have both the appropriate user role assigned to them and have the appropriate level of permission for the file space that they are trying to access.

## Application server security

If you are deploying the Web Gateway in WebSphere Application Server Version 7.0, use the **Global security** panel to enable the correct level of security. Select **Enable administrative security** and **Enable application security**. Ensure that **Use Java 2 security to restrict application access to local resources** is not selected.

## User roles for Web Gateway

Web Gateway users must have one or more roles assigned before they can use the Web Gateway. When deploying the Web Gateway to an application server these roles can be mapped to users and groups that exist in that application server.

WebSphere MQ File Transfer Edition defines the following roles:

- wmqfte-agent-upload
- wmqfte-filespace-user
- wmqfte-filespace-create
- wmqfte-filespace-modify
- wmqfte-filespace-permissions
- wmqfte-filespace-delete
- wmqfte-audit
- wmqfte-admin

For more information about these roles, see “User roles for the Web Gateway” on page 88.

For example, if your application server defines the groups 'Employees', 'Managers' and 'Administrators', the roles could be assigned to the groups as shown:

#### **Employees**

wmqfte-agent-upload

wmqfte-filespace-user

#### **Managers**

wmqfte-filespace-create

wmqfte-filespace-modify

wmqfte-filespace-permissions

#### **Administrators**

wmqfte-admin

In this example, only users in the Administrators group can delete file spaces.

### **File space permissions**

A Web Gateway user can access a file space if they are the owner of the file space, or if they have been given explicit permission to access the file space. When you create a file space you can specify lists of authorized or unauthorized user names, or Java regular expressions to match user names. Users that are in the authorized list can download from and upload to the file space. Users that are in the unauthorized list cannot access the file space, even if they are also in the authorized list, or match a regular expression in the authorized list. For more information, see “Example: Creating a file space” on page 323.

#### **Related concepts:**

“Securing the Web Gateway” on page 87

There are a number of ways that you can secure the Web Gateway. You must perform some of these security steps before you can use the Web Gateway. The other steps are optional and can increase the security of your Web Gateway and WebSphere MQ File Transfer Edition network, but they are not required for you to use the Web Gateway.

“Optional security for the Web Gateway” on page 89

There are security configuration steps that are not required before you can use the Web Gateway. These optional steps can add extra security to your Web Gateway and your WebSphere MQ File Transfer Edition network. The optional steps are filtering Web Gateway requests and enabling sandboxing on destination agents.

#### **Related reference:**

“User roles for the Web Gateway”

WebSphere MQ File Transfer Edition has defined several different roles that control the actions a user can take.

### **User roles for the Web Gateway**

WebSphere MQ File Transfer Edition has defined several different roles that control the actions a user can take.

You configure these roles on your application server, either before deploying the Web Gateway, or during deployment. For information about how to configure WebSphere Application Server Community Edition, including how to set up security roles, see “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152. For information about how to deploy the Web Gateway on WebSphere Application Server Version 7.0, including how to set up security roles, see “Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169.

The following table lists the different roles and the level of access associated with each role:

Table 1. Roles and associated permissions

Role	Description
wmqfte-agent-upload	User can upload files to an agent
wmqfte-filespace-user	User can list contents of their own file space User can download from their own file space User can delete files from their own file space
wmqfte-filespace-create	User can create a file space, if a file space of that name does not already exist
wmqfte-filespace-modify	User can modify the properties of a file space
wmqfte-filespace-permissions	User can modify the permissions <sup>(1)</sup> of a file space
wmqfte-filespace-delete	User can delete a file space
wmqfte-audit	User can view information in the audit database. <b>Note:</b> Users who are not associated with this role can view audit information for the following transfers only: <ul style="list-style-type: none"> <li>• Uploads that are initiated by the user</li> <li>• Transfers to a file space that is owned by the user</li> </ul>
wmqfte-admin	User can perform the actions associated with all roles, except one: <ul style="list-style-type: none"> <li>• User cannot receive the contents of a file that the user deletes from a file space</li> </ul>
(1) Permissions can be set on individual file spaces. For more information see the topics “Web Gateway administration API reference” on page 966 and “Example: Modifying file space configuration” on page 325.	

## Optional security for the Web Gateway

There are security configuration steps that are not required before you can use the Web Gateway. These optional steps can add extra security to your Web Gateway and your WebSphere MQ File Transfer Edition network. The optional steps are filtering Web Gateway requests and enabling sandboxing on destination agents.

### Filtering Web Gateway requests

As a Web Gateway administrator (with a wmqfte-admin role), you can filter HTTP requests to the Web Gateway by using the servlet filtering functions that are provided by your application server. Servlet filtering allows HTTP requests to be parsed and optionally rejected or modified before the request is delivered to the Web Gateway. WebSphere MQ File Transfer Edition includes a sample implementation of a servlet filter, which demonstrates this capability.

For example, for security reasons you might want to reject any requests that use the x-fte-postdest header to specify a command to execute after a file transfer has completed. Alternatively you might want to modify one of the values in the request, such as the queue manager name.

For more information about the sample servlet filter, see “Filtering requests with the sample servlet filter” on page 90.

### Sandboxing on destination agents

When uploading files to a destination agent using the Web Gateway, you can upload the file to an absolute path on the destination agent's system. If you do not want to allow transfers from the Web Gateway to have access to the entire file system of the destination agent, you must configure agent sandboxes or user sandboxes on any agent that is the destination of a Web Gateway file upload.

For more information about the user sandboxing, see “Working with user sandboxes” on page 81. For more information about agent sandboxing, see “Working with agent sandboxes” on page 80.

#### **Related concepts:**

“Securing the Web Gateway” on page 87

There are a number of ways that you can secure the Web Gateway. You must perform some of these security steps before you can use the Web Gateway. The other steps are optional and can increase the security of your Web Gateway and WebSphere MQ File Transfer Edition network, but they are not required for you to use the Web Gateway.

“Required security for the Web Gateway” on page 87

There are security configuration steps that you must complete before you can use the Web Gateway. These steps are configuring user roles for the Web Gateway, setting file space permissions, and, if you are using WebSphere Application Server Version 7.0, setting the correct level of security in the application server.

#### **Related tasks:**

“Filtering requests with the sample servlet filter”

You can filter HTTP requests to reject or modify them before they are delivered to the WebSphere MQ File Transfer Edition Web Gateway.

### **Filtering requests with the sample servlet filter**

You can filter HTTP requests to reject or modify them before they are delivered to the WebSphere MQ File Transfer Edition Web Gateway.

#### **Before you begin**

You need the Java Platform, Enterprise Edition (Java EE) libraries on your class path to compile the sample servlet filter file.

#### **About this task**

The sample servlet filter provided with WebSphere MQ File Transfer Edition shows you an example of how to filter HTTP requests. The sample filter file, `SampleServletFilter.java`, is located in the `samples/web/filter` directory of your WebSphere MQ File Transfer Edition installation. It is also reproduced at the bottom of this topic.

#### **Procedure**

1. Compile the `SampleServletFilter.java` file to create the `SampleServletFilter.class` and `RequestWrapper.class` files.
2. Put the compiled class files onto your application server classpath. The process for doing this is specific to the application server you are using. For example, if you are using WebSphere Application Server Version 7.0, put the class files into a JAR file, and copy the JAR file into the `WAS_install_root/lib` directory.
3. Extract the module `com.ibm.wmqfte.web.war` from the Web Gateway EAR file, `com.ibm.wmqfte.web.ear`. The EAR file is located in the `install-directory/web` directory of your WebSphere MQ File Transfer Edition Server installation. To extract the `com.ibm.wmqfte.web.war` file, run the following command:

```
jar -xf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.war
```

4. Extract the `web.xml` file from the `com.ibm.wmqfte.web.war` file by running the following command:

```
jar -xf com.ibm.wmqfte.web.war WEB-INF/web.xml
```

5. Use a text editor to uncomment the following lines in the `web.xml` file:

```
<filter>
  <filter-name>SampleServletFilter</filter-name>
  <filter-class>SampleServletFilter</filter-class>
</filter>
```

```

<filter-mapping>
  <filter-name>SampleServletFilter</filter-name>
  <url-pattern>/*</url-pattern>
</filter-mapping>

```

**Note:** If you are writing your own servlet filter, change the <filter-name> and <filter-class> values in the web.xml file to match your servlet filter. Leave the url-pattern value as /\*.

6. Update the Web Gateway application with the modified WEB-INF/web.xml file, by running the following command:

```
jar -uf com.ibm.wmqfte.web.war WEB-INF/web.xml
```

7. Update the EAR file with the updated WAR file, by running the following command:

```
jar -uf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.war
```

8. Deploy the Web Gateway application to your application server. For instructions on deploying the application, see “Deploying the WebSphere MQ File Transfer Edition Web Gateway” on page 168.

## Example

```

/*
 *
 * Version: %Z% %I% %W% %E% %U% [%H% %T%]
 *
 * Licensed Materials - Property of IBM
 *
 * 5655-U80, 5724-R10
 *
 * Copyright IBM Corp. 2010, 2018. All Rights Reserved.
 *
 * US Government Users Restricted Rights - Use, duplication or
 * disclosure restricted by GSA ADP Schedule Contract with
 * IBM Corp.
 */

import java.io.IOException;
import java.util.Enumeration;
import java.util.logging.Level;
import java.util.logging.LogRecord;
import java.util.logging.Logger;

import javax.servlet.Filter;
import javax.servlet.FilterChain;
import javax.servlet.FilterConfig;
import javax.servlet.ServletException;
import javax.servlet.ServletRequest;
import javax.servlet.ServletResponse;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletRequestWrapper;
import javax.servlet.http.HttpServletResponse;

/**
 * A sample servlet filter implementation that demonstrates how an application
 * server administrator can filter (reject or modify) HTTP requests before they
 * are passed to the Web Gateway. The filter is called when a request
 * is received by the application server for any servlet which has this
 * class configured as a filter.
 *
 * In this example implementation two parts of an HTTP request are checked before
 * the request is passed to the servlet:
 *
 * 1 - If the x-fte-postdest header has been set, the request is rejected by
 * returning an HTTP 400 Bad Request in a response to the HTTP client.
 *
 * This demonstrates how an administrator can use servlet filters to reject
 * WMQFTE HTTP requests that they don't want to reach the WMQFTE environment.
 */

```

```

*   In this example, the filter rejects any HTTP request that specifies a
*   command to execute after the transfer has completed.
*
* 2 - If the destination agent that is specified in a file upload URI matches one
*     of the three aliases defined in this filter (ACCOUNTS, MARKETING and WAREHOUSE),
*     the destination alias is replaced with the actual destination agent and queue
*     manager values for that alias.
*
*   This demonstrates how an administrator can use servlet filters to modify
*   any part of a request before it is passed through to the WMQFTE
*   environment. In this example, the destination agent is changed in the
*   request URI if it matches one of a number of known aliases.
*
public class SampleServletFilter implements Filter {

/*
 * (non-Javadoc)
 * @see javax.servlet.Filter#doFilter(javax.servlet.HttpServletRequest, javax.servlet.HttpServletResponse, javax.servlet.FilterChain)
 */
public void doFilter(ServletRequest request, ServletResponse response, FilterChain chain) throws IOException, ServletException {

    Logger sampLogger = Logger.getLogger("SampleServletFilter");
    sampLogger.log(new LogRecord(Level.INFO, "WebSphere MQ File Transfer Edition Web Gateway - SampleServletFilter invoked"));

    RequestWrapper modifiedRequest = null;

    if (request instanceof HttpServletRequest && response instanceof HttpServletResponse) {

        HttpServletRequest httpRequest = (HttpServletRequest) request;
        HttpServletResponse httpResponse = (HttpServletResponse) response;

        /*****
         * The first part of the filter - reject any requests that attempt
         * to run commands on the destination agent system
         *****/

        /*
         * Get any 'x-fte-postdest' headers which might have been set
         */
        Enumeration<?> postDestCalls = httpRequest.getHeaders("x-fte-postdest");

        if (postDestCalls != null && postDestCalls.hasMoreElements()) {

            /*
             * Because we want to filter out all requests that attempt to run commands
             * on the destination agent system, if we find any values at all for the
             * x-fte-postdest header then we reject the request instead of proceeding.
             */

            httpResponse.setContentType("text/html");
            httpResponse.sendError(HttpServletResponse.SC_BAD_REQUEST, "Request rejected - an attempt to run commands was detected.");
        }

        /*****
         * The second part of the filter - map our own aliases for WMQFTE
         * agents to the correct agent and queue manager pair
         *****/
        String requestURI = httpRequest.getRequestURI();

        if (requestURI.indexOf("/agent/ACCOUNTS") >= 0) {
            modifiedRequest = new RequestWrapper(httpRequest);
            modifiedRequest.changeDestinationAgent("/agent/ACCOUNTS", "/agent/ACTS.AGENT@ACTS.QM");
        } else if (requestURI.indexOf("/agent/MARKETING") >= 0) {
            modifiedRequest = new RequestWrapper(httpRequest);
            modifiedRequest.changeDestinationAgent("/agent/MARKETING", "/agent/MKTG.AGENT@MKTG.QM");
        } else if (requestURI.indexOf("/agent/WAREHOUSE") >= 0) {
            modifiedRequest = new RequestWrapper(httpRequest);

```

```

    modifiedRequest.changeDestinationAgent("/agent/WAREHOUSE", "/agent/WRHS.AGENT@WRHS.QM");
} else {
    // Leave the original request URI in place
}

/*****
 * Finally call the next filter in the chain with the original
 * request (or a new wrapped request if one has been created) and
 * the original response.
 *****/
if (modifiedRequest != null) {
    chain.doFilter(modifiedRequest, response);
} else {
    chain.doFilter(request, response);
}
} else {
    chain.doFilter(request, response);
}
}

/*
 * (non-Javadoc)
 * @see javax.servlet.Filter#destroy()
 */
public void destroy() {
    // Do nothing
}

/*
 * (non-Javadoc)
 * @see javax.servlet.Filter#init(javax.servlet.FilterConfig)
 */
public void init(FilterConfig config) throws ServletException {
    // Do nothing
}
}

/**
 * A class to wrap an HttpServletRequest so we can modify parts of the request
 */
class RequestWrapper extends HttpServletRequestWrapper {

    private String originalDestination, newDestinationAgent;

    /*
     * Constructor
     */
    public RequestWrapper(HttpServletRequest request) {
        super(request);
    }

    /*
     * (non-Javadoc)
     * @see javax.servlet.http.HttpServletRequestWrapper#getRequestURI()
     */
    @Override
    public String getRequestURI() {
        String originalURI = super.getRequestURI();

        StringBuffer newURI = new StringBuffer();

        newURI.append(originalURI.substring(0, originalURI.indexOf(originalDestination)));
        newURI.append(newDestinationAgent);
        newURI.append(originalURI.substring(originalURI.indexOf(originalDestination) + originalDestination.length(),
            originalURI.length()));
    }
}

```



```
Fw0yMTAyMjYxNjIwNDZAMFAx CzAJBgNVBAYTAkdCMRIwEAYDVQIQI Ew1IYw1wc2hp
cmUxDDAKBgNVBAoTA01CTTEOMA wGA1UECxmFTVFGVEUxDzANBgNVBAMTBmJpbmJh
ZzCBnzANBkgkqhkiG9w0BAQEFAAOBjQAwYkCgYEAvgP1QIk1U9ypSKD1Xo0Do1yk
EyMFXB0UpZRrDVxj0SEC0vtWNCj199e+Vc4UpNybdyBu+Nkd1MNoFX4QxeQcLAFj
WnhakqCiQ+JIAD5AurhnrwChe0MV3kjA84GKH/rOSVqt1984mu/1DyS819XcfSSn
c00MsK1KbneVSCI V2XECAwEAAa7MHkwCQYDVR0TBAlwADAsBg1ghkgBhvCAQ0E
HxYdT3B1b1NTTCBHZW51cmF0ZWQgQ2VydG1maWNhdGUwHQYDVR00BBYEFNXMIpSc
csBXUniW4A3UrZnCrsv3MB8GA1UdIwQYMBaAFDXY8rmj41Vz5+FVAoQb++cns+B4
MA0GCSqGSIb3DQEBBQUAA4GBAfc7k1Xa4pGKYgwchxKpE3ZF6FNwy4vBXS216/ja
8h/v18+iv010CL8t0ZOKSU95fyZLz0PKnCH7v+ItFSE3CIiEk9D1z2U6W091ICwn
17PL72TdfaL3kabWHYvF17IVcuL+VZsZ3HjLggP2qH09ZuJPspeT9+AxFVMLiaAb
8eHw
```

-----END CERTIFICATE-----

-----BEGIN RSA PRIVATE KEY-----

Proc-Type: 4, ENCRYPTED

DEK-Info: DES-EDE3-CBC, 64A02DA15B6B6EF9

```
57kqxL0J/gRU0IQ6hVK2YN13B4E1jAi1gSme0I5ZpEIG8CHXISKB7/0cke2FTqsV
1vI99QyCxsDwoMnt5fj51v7aPmVeS60b0m+U1Gre8B/Zel8JVj204K2Uh72rDCXE
5e6eFxsDUM207sQdy20euBVELJtM2k0kL1ROdoQs1U3XQNgJw/t3ZIx5hPXWEQT
rjRQ064BEhb+PzzxPF8uwzZ9IruK9BJ/UUnqC60dBR87IeA4pnJD1Jvb2ML7EN9Z
5Y+50hTKI80GvBvWx04fHyvIX5as1whBoArXIS1AtNTtrptPvoaP1zyIAeZ60Cvo/
Sfo+A2UhmteJe0JaZG2XZ3H495fAw/EHmjehzIACwukQ9nSIETgu4A1+CV64RJED
aYBCM8UjaAkbZDH5gn7+eBov0ssXAXWdyJBVhU0jXjvAj/e1h+kcSF1hax5D//AI
66nRMZzboSxNqkjcvD8wfdwP+bEjDzUaaarJTS71IFeLLw7eJ8MNAkMGicDkycL0
EPBU9X5QnHKLK0fYHN/1WgUk8qt3UytFXXfzTXGF3EbsWbBupkt5e5+1YcX80VZ6
sHFPN1H1uCNy/riUcBy9iviVeodX8IomOchSy05DK18bwZNjYtUP+CtYHNFU5BaD
I+1uU0AeJ+wjQYKT1WaeIGZ3VxuNITJu18y5qDTXXfX7vxM50oWXA6U5+AYuGUMg
/itPZmUmNrHjTk7ghT6i1IQ0aBowXXXJB1Mmq/6BQXN2IhkD9ys2qrvM1hdi5nAf
egmdiG501oLnBRqWbFR+DykpAhK4SaDi2F52Uxovw3Lh1w8dQP71zQ==
```

-----END RSA PRIVATE KEY-----

7. Start the Secure+ Admin Tool.

- On Linux or UNIX systems, run the command **spadmin.sh**.
- On Windows systems, click **Start > Programs > Sterling Commerce Connect:Direct > CD Secure+ Admin Tool**

The CD Secure+ Admin Tool starts.

8. In the CD Secure+ Admin Tool, double-click the **.Local** line to edit the main SSL or TLS settings.

- a. Select **Enable SSL Protocol** or **Enable TLS Protocol**, depending on which protocol you are using.
- b. Select **Disable Override**.
- c. Select at least one Cipher Suite.
- d. If you want two-way authentication, change the value of **Enable Client Authentication** to Yes.
- e. In the **Trusted Root Certificate** field, enter the path to the public certificate file of your certification authority, `/test/ssl/certs/CAcert`.
- f. In the **Key Certificate File** field, enter the path to the file that you created, `/test/ssl/cd/keyCertFile/node_name.txt`.

9. Double-click the **.Client** line to edit the main SSL or TLS settings.

- a. Select **Enable SSL Protocol** or **Enable TLS Protocol**, depending on which protocol you are using.
- b. Select **Disable Override**.

For the Connect:Direct bridge agent, perform the following steps:

10. Create a truststore. You can do this by creating a dummy key and then deleting the dummy key. You can use the following commands:

```
keytool -genkey -alias dummy -keystore /test/ssl/fte/stores/truststore.jks
keytool -delete -alias dummy -keystore /test/ssl/fte/stores/truststore.jks
```

11. Import the public certificate of the certification authority into the truststore. You can use the following command:

```
keytool -import -trustcacerts -alias myCA
        -file /test/ssl/certs/CAcert
        -keystore /test/ssl/fte/stores/truststore.jks
```

12. Edit the Connect:Direct bridge agent properties file. Include the following lines anywhere in the file:

```
cdNodeProtocol=protocol
cdNodeTruststore=/test/ssl/fte/stores/truststore.jks
cdNodeTruststorePassword=password
```

In the example above, *protocol* is the protocol you are using, either SSL or TLS, and *password* is the password that you specified when you created the truststore.

13. If you want two-way authentication, create a key and certificate for the Connect:Direct bridge agent.

- a. Create a keystore and key. You can use the following command:

```
keytool -genkey -keyalg RSA -alias agent_name
        -keystore /test/ssl/fte/stores/keystore.jks
        -storepass password -validity 365
```

- b. Generate a signing request. You can use the following command:

```
keytool -certreq -v -alias agent_name
        -keystore /test/ssl/fte/stores/keystore.jks -storepass password
        -file /test/ssl/fte/requests/agent_name.request
```

- c. Import the certificate you receive from the preceding step into the keystore. The certificate must be in x.509 format. You can use the following command:

```
keytool -import -keystore /test/ssl/fte/stores/keystore.jks
        -storepass password -file certificate_file_path
```

- d. Edit the Connect:Direct bridge agent properties file. Include the following lines anywhere in the file:

```
cdNodeKeystore=/test/ssl/fte/stores/keystore.jks
cdNodeKeystorePassword=password
```

In the example above, *password* is the password that you specified when you created the keystore.

#### Related tasks:

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

---

## Configuring WebSphere MQ File Transfer Edition

You can configure the features of WebSphere MQ File Transfer Edition after installation.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

“Configuring a WebSphere MQ File Transfer Edition logger” on page 123

“Recovery and restart for WebSphere MQ File Transfer Edition” on page 290

If your agent or queue manager are unavailable for any reason, for example because of a power or network failure, WebSphere MQ File Transfer Edition recovers as follows in these scenarios:

“Hints and tips for using WebSphere MQ File Transfer Edition” on page 397

Here are some suggestions to help you to make best use of WebSphere MQ File Transfer Edition:

“Administering WebSphere MQ File Transfer Edition” on page 187

Use WebSphere MQ File Transfer Edition commands to administer WebSphere MQ File Transfer Edition. You can also use the WebSphere MQ Explorer for some of the administrative tasks.

### Related tasks:

“Configuring the Web Gateway” on page 149

You must configure the WebSphere MQ File Transfer Edition Web Gateway to work with your existing WebSphere MQ File Transfer Edition environment. The process of configuration is specific to the application server you are using. Before configuring a Web Gateway, create a web agent on the same system as the application server.

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

### Related reference:

“Summary of the WebSphere MQ File Transfer Edition commands” on page 462

All WebSphere MQ File Transfer Edition commands are listed with links to their detailed descriptions.

“Security overview for WebSphere MQ File Transfer Edition” on page 79

Directly after installation and with no modification, WebSphere MQ File Transfer Edition is unsecured, which might be suitable for test or evaluation purposes in a protected environment. In a production environment, you must consider controlling who can start file transfer operations, who can read and write the files being transferred, and how to protect the integrity of files.

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Troubleshooting WebSphere MQ File Transfer Edition” on page 373

Use the following reference information to help you to diagnose errors in WebSphere MQ File Transfer Edition:

---

## Configuration options

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

You can have multiple sets of configuration options, each set of configuration options contains a set of directories and properties files. The values defined in these properties files are used as the default parameters for all WebSphere MQ File Transfer Edition commands, unless you explicitly specify a different value on the command line.

To change the default set of configuration options that you are using you can use the **fteChangeDefaultConfigurationOptions** command. To change the set of configuration options that you are using for an individual command you can use the **-p** parameter with any WebSphere MQ File Transfer Edition command.

The name of a set of configuration options is typically the name of the coordination queue manager, but it is not required that this is the case. To change the name of a set of configuration options, you can change the name of the directory containing that set of configuration options. In the following examples the name of the set of configuration options is represented as *coordination\_qmgr\_name*.

## Configuration options for a Server or Client installation

When you perform a Server or Client installation and choose to configure the product, directories and properties files are created in the following structure in the configuration directory. You can also create or change these directories and properties files with the following commands: **fteSetupCoordination**, **fteSetupCommands**, **fteChangeDefaultConfiguration**, and **fteCreateAgent**.

```
config_directory/  
  wmqfte.properties  
  coordination_qmgr_name/  
    coordination.properties  
    command.properties  
  agent_name/  
    agent.properties
```

The *coordination\_qmgr\_name* directory is a configuration options directory. There can be more than one configuration options directory in the configuration directory. The *agent\_name* directory is an agent directory. In addition to containing the `agent.properties` file, this directory contains the log files and the lock file of the agent. There can be more than one agent directory in the agents directory of a set of configuration options.

In addition to the properties files created in the configuration directory, the Server or Client installation creates an `install.properties` file in the product installation directory, which points to the location of the configuration directory.

## Configuration options for a Remote Tools and Documentation installation

When you perform a Remote Tools and Documentation installation and choose to configure the product, directories and properties files are created in the following structure in the configuration directory. You can also create or change these directories and properties files with the following commands:

**fteSetupCoordination**, **fteSetupCommands**, and **fteChangeDefaultConfiguration**.

```
config_directory/  
  wmqfte.properties  
  coordination_qmgr_name/  
    coordination.properties  
    command.properties  
    databaselogger.properties
```

The *coordination\_qmgr\_name* directory is a configuration options directory. There can be more than one configuration options directory in the configuration directory.

In addition to the properties files created in the configuration directory, the Remote Tools and Documentation installation creates an `install.properties` file in the product installation directory, which points to the location of the configuration directory.

### Properties files

#### **install.properties**

The `install.properties` file specifies the path to your WebSphere MQ File Transfer Edition configuration directory. This data directory contains configuration files and log files. If you administer WebSphere MQ File Transfer Edition from the WebSphere MQ Explorer, WebSphere MQ File Transfer Edition uses the information in the `install.properties` file to set the path to your configuration directory. For more information about the `install.properties` file, see “The `install.properties` file” on page 574.

#### **wmqfte.properties**

The `wmqfte.properties` file specifies the name of your default set of configuration options. This entry points WebSphere MQ File Transfer Edition to a structured set of directories and property files that contain the configuration to use. Typically the name of a set of configuration options is the name of the associated coordination queue manager. For more information about the `wmqfte.properties` file, see “The `wmqfte.properties` file” on page 575.

#### **coordination.properties**

The `coordination.properties` file specifies the connection details to the coordination queue manager. Because several WebSphere MQ File Transfer Edition installations might share the same coordination queue manager, you can use a symbolic link to a common `coordination.properties` file on a shared drive. For more information about the `coordination.properties` file, see “The `coordination.properties` file” on page 577.

#### **command.properties**

The `command.properties` file specifies the command queue manager to connect to when you issue commands and the information that WebSphere MQ File Transfer Edition requires to contact that queue manager. For more information about the `command.properties` file, see “The `command.properties` file” on page 580.

#### **agent.properties**

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent. For more information about the `agent.properties` file, see “The `agent.properties` file” on page 583.

#### **databaselogger.properties**

The `databaselogger.properties` file specifies the configuration properties for the database logger. For more information about the `databaselogger.properties` file, see “Database logger configuration properties for WebSphere MQ File Transfer Edition” on page 131.

## Properties files and code pages

The content of all the WebSphere MQ File Transfer Edition properties files must remain in US English because of a limitation of Java. If you edit properties files on a non-US English system, you must use Unicode escape sequences.

### Related reference:

“The `install.properties` file” on page 574

The `install.properties` file specifies the path to your WebSphere MQ File Transfer Edition configuration directory. This data directory contains configuration files and log files. If you administer WebSphere MQ File Transfer Edition from the WebSphere MQ Explorer, WebSphere MQ File Transfer Edition uses the information in the `install.properties` file to set the path to your configuration directory.

“The `wmqfte.properties` file” on page 575

The `wmqfte.properties` file specifies the name of your default set of configuration options. This entry points WebSphere MQ File Transfer Edition to a structured set of directories and property files that contain the configuration to use. Typically the name of a set of configuration options is the name of the associated coordination queue manager.

“The `coordination.properties` file” on page 577

The `coordination.properties` file specifies the connection details to the coordination queue manager. Because several WebSphere MQ File Transfer Edition installations might share the same coordination queue manager, you can use a symbolic link to a common `coordination.properties` file on a shared drive.

“The `command.properties` file” on page 580

The `command.properties` file specifies the command queue manager to connect to when you issue commands and the information that WebSphere MQ File Transfer Edition requires to contact that queue manager.

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

“Database logger configuration properties for WebSphere MQ File Transfer Edition” on page 131

The database logger has a set of configuration properties. The table details the properties and their default values. Specify these properties in the `databaselogger.properties` file, which is in the `config_directory/coordination_qmgr` directory.

“SSL properties” on page 650

Use SSL with WebSphere MQ and WebSphere MQ File Transfer Edition to prevent unauthorized connections between agents and queue managers, and to encrypt message traffic between agents and queue managers.

“Java system properties” on page 650

A number of WebSphere MQ File Transfer Edition command and agent properties must be defined as Java system properties, because they define configuration for early function that is unable to use the command or agent properties mechanism.

“`fteChangeDefaultConfigurationOptions` (change the default configuration options)” on page 472

Use the **`fteChangeDefaultConfigurationOptions`** command to change the default configuration options that you want WebSphere MQ File Transfer Edition to use. The value of the configuration options defines the group of properties files that WebSphere MQ File Transfer Edition uses.

“`fteSetupCommands` (create the `command.properties` file)” on page 559

The **`fteSetupCommands`** command creates the `command.properties` file. This properties file specifies the details of the queue manager that connects to the WebSphere MQ network when you issue commands.

“`fteSetupCoordination` (set up coordination details)” on page 560

The **`fteSetupCoordination`** command creates properties files and the coordination queue manager directory for WebSphere MQ File Transfer Edition.

“`fteCreateAgent` (create a WebSphere MQ File Transfer Edition agent)” on page 478

The **`fteCreateAgent`** command creates an agent and its associated configuration.

---

## Configuring WebSphere MQ File Transfer Edition for first use

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

### Related concepts:

“Connecting to WebSphere MQ” on page 102

All network communication with WebSphere MQ queue managers, including communication related to WebSphere MQ File Transfer Edition, involves WebSphere MQ channels. A WebSphere MQ channel represents one end of a network link. Channels are classified as either message channels or MQI channels.

“WebSphere MQ multi-instance queue managers” on page 108

WebSphere MQ Version 7.0.1 supports the creation of multi-instance queue managers. A multi-instance queue manager restarts automatically on a standby server. WebSphere MQ File Transfer Edition Version 7.0.2 or later supports connection to multi-instance agent queue managers and a multi-instance coordination queue manager. WebSphere MQ File Transfer Edition Version 7.0.3 or later additionally supports connection to a multi-instance command queue manager.

### Related tasks:

“Configuring a basic WebSphere MQ File Transfer Edition scenario on Windows and Linux” on page 110  
You can set up a basic WebSphere MQ File Transfer Edition network between a Windows system and a Linux system by following the steps given in this topic. If you have two Windows systems or two Linux systems, you can adapt the instructions in the steps to allow for your setup.

“Configuring a basic WebSphere MQ File Transfer Edition scenario on IBM i systems” on page 117  
WebSphere MQ File Transfer Edition supports the transfer of files that are located on an IBM i platform. You can set up a basic client/server environment to support file transfer operations between IBM i systems using the steps in this example.

“Configuring WebSphere MQ queue managers” on page 104

If your WebSphere MQ File Transfer Edition network includes more than one WebSphere MQ queue manager, these WebSphere MQ queue managers must be able to remotely communicate with each other.

“Configuring agent queue managers” on page 107

After installation, run the `create_agent_name.mqsc` script in the `config_directory/coordination_qmgr_name/agents/agent_name` directory to perform the necessary configuration for the agent queue manager. However, if you want to do this configuration manually, complete these steps on the agent queue manager:

“Configuring the coordination queue manager” on page 106

After installation, run the `coordination_qmgr_name.mqsc` script in the `config_directory/coordination_qmgr_name` directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the `coordination_qmgr_name.mqsc` file is in the `/var/ibm/WMQFTE` or `/var/IBM/WMQFTE` directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

### Related reference:

“Ensuring that WebSphere MQ File Transfer Edition log messages are retained” on page 121  
WebSphere MQ File Transfer Edition sends file transfer progress and log information to the coordination queue manager. The coordination queue manager publishes this information to any matching subscriptions to the `SYSTEM.FTE` topic. If there are no subscriptions, this information is not retained.

“Agent queues for WebSphere MQ File Transfer Edition” on page 717

The MQSC command scripts generated by the `fteCreateAgent` command create the agent queues with parameters set to the following values. If you do not use the MQSC scripts provided to create the queues, but create the queues manually, ensure you set the following parameters to the values given.

“System queues and the system topic” on page 719

WebSphere MQ File Transfer Edition has a number of system queues and one system topic that are for internal use only. Do not delete these objects or change them in any way.

## Connecting to WebSphere MQ

All network communication with WebSphere MQ queue managers, including communication related to WebSphere MQ File Transfer Edition, involves WebSphere MQ channels. A WebSphere MQ channel represents one end of a network link. Channels are classified as either message channels or MQI channels.

### WebSphere MQ File Transfer Edition and channels

MQI channels are used by applications in client mode (rather than bindings mode) to connect to queue managers. MQI channels are bidirectional; they carry WebSphere MQ API calls (for example, "GET a message from queue XYZ") from the application to the queue manager. They also carry responses to those calls from the queue manager back to the application. There are two types of MQI channel: server connection (SVRCONN) and client connection (CLNTCONN). SVRCONN channels define the queue manager endpoint of the link. CLNTCONN channels can be used by some kinds of client to define the client endpoint, but are not used by WebSphere MQ File Transfer Edition.

WebSphere MQ File Transfer Edition uses MQI channels to connect agents in client mode to their agent queue managers, and to connect command applications (for example, **fteCreateTransfer**) to their command and coordination queue managers. In the default configuration, these connections are made using a SVRCONN channel called SYSTEM.DEF.SVRCONN, which exists by default on all queue managers. Because of these defaults, you do not need to alter any MQI channels for a basic WebSphere MQ File Transfer Edition installation.

Message channels carry fully-formed WebSphere MQ messages between queue managers. Message channels are unidirectional; if you need messages to flow in both directions you must create a pair of channels, one for each direction. WebSphere MQ queue managers do not communicate with one another except through these channels, so although WebSphere MQ File Transfer Edition does not directly interact with message channels, the channels are vital to configuring a functioning WebSphere MQ File Transfer Edition network.

There are six types of message channel, but this topic covers only sender-receiver pairs. See Message channels for information about other channel combinations.

### Required message paths

WebSphere MQ messages can travel over message channels only, so you must ensure that channels are available for all message paths required by WebSphere MQ File Transfer Edition. These paths do not need to be direct; messages can travel through intermediate queue managers if required. This topic covers only direct point-to-point communication. See How to get to the remote queue manager in the IBM WebSphere MQ Version 7.0.1 product documentation.

The communication paths used by WebSphere MQ File Transfer Edition are as follows:

#### Agent to agent

Any two agents that files are transferred between require bidirectional communication between their associated queue managers. Because this path carries the bulk data, consider making the path as short, fast, or cheap as possible according to your needs.

#### Agent to coordination

Log messages from the agents that participate in a transfer must be able to reach the coordination queue manager.

#### Command to agent

Any queue manager that command applications or the WebSphere MQ Explorer (using the command queue manager) connect to must be able to send messages to the queue managers of the agents that those command applications are used to control. To enable feedback messages to be shown by the commands, use a bidirectional connection.

## Creating a sender-receiver channel

The following instructions show you how to create a standard point-to-point channel using the TCP network protocol. The channel goes from an example queue manager called LONDON to an example queue manager called NEWYORK and is created using either the WebSphere MQ Explorer or the command line. The link created by these instructions operates in one direction only: from LONDON to NEWYORK. If you need bidirectional communication, you must repeat the steps with queue manager names reversed to create a link in the opposite direction.

### Using the WebSphere MQ Explorer

#### 1. Create the LONDON endpoint:

- a. In the Navigator view, ensure that the WebSphere MQ Explorer is connected to queue manager LONDON and expand LONDON.
- b. Right-click the **Channels** folder and select **New > Sender Channel**.
- c. Type a channel name. For example: LONDON.TO.NEWYORK and click **Next**.
- d. In the **Connection Name** field, type the host name and port of the NEWYORK queue manager. For example: mq.newyork.example.com(1414).
- e. In the **Transmission Queue** field, type NEWYORK. This value must be the name of the queue manager that this channel connects to. Click **Finish**.

#### 2. Create the transmission queue:

A transmission queue is required to hold messages waiting to go through the channel. Messages for a remote queue manager are placed on the transmission queue named after that queue manager, so in this example the transmission queue must be called NEWYORK.

- a. In the Navigator view, under the LONDON queue manager right-click the **Queues** folder and select **New > Local Queue**.
- b. Type the queue name NEWYORK. Click **Next**.
- c. Change the value of the **Usage** field from **Normal** to **Transmission**. Click **Finish**.

#### 3. Create the NEWYORK endpoint:

- a. In the Navigator view, ensure that the WebSphere MQ Explorer is connected to the queue manager NEWYORK. Expand NEWYORK.
- b. Right-click the **Channels** folder and select **New > Receiver Channel**.
- c. Type the name of the channel. This name must be the same name as the matching sender channel. For example: LONDON.TO.NEWYORK. Click **Finish**.

#### 4. Start the channel:

- a. In the **Channels** folder of queue manager LONDON, right-click the new channel and select **Start**.

### Using MQSC

If you want to create the channel using MQSC, run the following example commands. Change the queue manager and channel details as required:

```
echo "define channel(LONDON.TO.NEWYORK) chltype(SDR) conname('mq.newyork.example.com(1414)') xmitq(NEWYORK)" | runmqsc LONDON
echo "define qlocal(NEWYORK) usage(XMITQ)" | runmqsc LONDON
echo "define channel(LONDON.TO.NEWYORK) chltype(RCVR)" | runmqsc NEWYORK
```

The preceding MQSC syntax applies to a UNIX system with the target queue manager running on the same system as the command. You can also use **runmqsc** on Windows and with remote queue managers. The channel names used on each side of the link must be the same. The name used for the transmission queue must be the name of the queue manager that the link points to.

For information about using MQSC, see Performing local administration tasks using MQSC commands.

## Listeners

Because a queue manager can receive connections on multiple network interfaces, and on multiple ports on each TCP interface, objects called listeners are used to configure each connection point. Each listener can receive connections from many peers and route the traffic through many separate channels, so often only a single listener is needed. However, by default, queue managers have no listeners configured and so you might need to create one.

### Using the WebSphere MQ Explorer:

1. In the Navigator view, expand the **Queue Managers** section and click the **Listeners** folder.
2. Examine the list of listeners in the **Content** pane. If at least one listener shows a status of **Running**, the queue manager is listening on the port shown in that listener's **Port** column. If this port is acceptable, you do not need to do any further configuration and you can use the port number when configuring sender channels to point to this queue manager.
3. By default, the list of listeners contains a listener called "SYSTEM.DEFAULT.LISTENER.TCP", with **Control** set to **Manual** and **Port** set to **0**. You can configure this listener to make the queue manager listen to a particular port: Right-click the listener and select **Properties**.
  - a. Change the **Port** field to your preferred port number (1414 is the standard for WebSphere MQ queue managers). Each port number on a system can only be used by a single application.
  - b. Change the **Control** field to **Queue Manager** to avoid the need to manually start the listener when the queue manager is restarted.
4. If the listener you want to use is not running, right-click the listener and select **Start**.

### Using MQSC

If you want to use MQSC to work with the listener, run the following example commands. Change the queue manager and port number as required:

```
echo "alter listener(SYSTEM.DEFAULT.LISTENER.TCP) trptype(TCP) port(1414) control(QMGR)" | runmqsc NEWYORK
echo "start listener(SYSTEM.DEFAULT.LISTENER.TCP) " | runmqsc NEWYORK
```

For more information about using MQSC, see [Performing local administration tasks using MQSC commands](#).

### Related concepts:

"WebSphere MQ multi-instance queue managers" on page 108

WebSphere MQ Version 7.0.1 supports the creation of multi-instance queue managers. A multi-instance queue manager restarts automatically on a standby server. WebSphere MQ File Transfer Edition Version 7.0.2 or later supports connection to multi-instance agent queue managers and a multi-instance coordination queue manager. WebSphere MQ File Transfer Edition Version 7.0.3 or later additionally supports connection to a multi-instance command queue manager.

### Related tasks:

"Configuring WebSphere MQ queue managers"

If your WebSphere MQ File Transfer Edition network includes more than one WebSphere MQ queue manager, these WebSphere MQ queue managers must be able to remotely communicate with each other.

"Configuring the coordination queue manager" on page 106

After installation, run the *coordination\_qmgr\_name.mqsc* script in the *config\_directory/coordination\_qmgr\_name* directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the *coordination\_qmgr\_name.mqsc* file is in the */var/ibm/WMQFTE* or */var/IBM/WMQFTE* directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

## Configuring WebSphere MQ queue managers

If your WebSphere MQ File Transfer Edition network includes more than one WebSphere MQ queue manager, these WebSphere MQ queue managers must be able to remotely communicate with each other.

## About this task

There are two ways to configure your queue managers to be able to communicate with each other:

- By setting up a WebSphere MQ queue manager cluster
- By creating channels between the queue managers

### Setting up a queue manager cluster

For information about WebSphere MQ queue manager clusters and how to configure them, see [Getting started with queue manager clusters](#).

### Setting up channels between queue managers

Set up the following message channels between your queue managers:

- From the agent queue manager to the coordination queue manager
- From the command queue manager to the agent queue manager
- From the agent queue manager to the command queue manager (to enable feedback messages to be shown by the commands).
- From the command queue manager to the coordination queue manager
- From the agent queue manager to any other agent queue manager in the WebSphere MQ File Transfer Edition network

If you need further information about how to set up this communication, start with this WebSphere MQ Version 7.0 information: [Administering remote WebSphere MQ objects using MQSC](#)

Some suggested example steps are:

### Procedure

1. Create a transmission queue on the WebSphere MQ queue manager with the same name as the coordination queue manager. You can use the following MQSC command:

```
DEFINE QLOCAL(coordination-qmgr-name) USAGE(XMITQ)
```

2. On the WebSphere MQ queue manager, create a sender channel to the WebSphere MQ File Transfer Edition coordination queue manager. The name of the transmission queue created in the previous step is a required parameter for this channel. On the sender channel, ensure the CONVERT parameter of the channel is set to no. (WebSphere MQ File Transfer Edition always publishes messages in UTF-8 format, which means that any data conversion corrupts the message.) You can use the following MQSC command:

```
DEFINE CHANNEL(channel-name) CHLTYPE(SDR) CONNAME('coordination-qmgr-host(coordination-qmgr-port)') XMITQ(coordination-qmgr-name)
```

3. On the WebSphere MQ File Transfer Edition coordination queue manager, create a receiver channel to the WebSphere MQ queue manager. Give this receiver channel the same name as the sender channel on the WebSphere MQ queue manager. You can use the following MQSC command:

```
DEFINE CHANNEL(channel-name) CHLTYPE(RCVR)
```

### What to do next

Next, follow the configuration steps for your coordination queue manager: [Configuring the coordination queue manager](#).

## Related concepts:

“Connecting to WebSphere MQ” on page 102

All network communication with WebSphere MQ queue managers, including communication related to WebSphere MQ File Transfer Edition, involves WebSphere MQ channels. A WebSphere MQ channel represents one end of a network link. Channels are classified as either message channels or MQI channels.

“WebSphere MQ multi-instance queue managers” on page 108

WebSphere MQ Version 7.0.1 supports the creation of multi-instance queue managers. A multi-instance queue manager restarts automatically on a standby server. WebSphere MQ File Transfer Edition Version 7.0.2 or later supports connection to multi-instance agent queue managers and a multi-instance coordination queue manager. WebSphere MQ File Transfer Edition Version 7.0.3 or later additionally supports connection to a multi-instance command queue manager.

## Related tasks:

“Configuring the coordination queue manager”

After installation, run the *coordination\_qmgr\_name.mqsc* script in the *config\_directory/coordination\_qmgr\_name* directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the *coordination\_qmgr\_name.mqsc* file is in the */var/ibm/WMQFTE* or */var/IBM/WMQFTE* directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

“Configuring the coordination queue manager”

After installation, run the *coordination\_qmgr\_name.mqsc* script in the *config\_directory/coordination\_qmgr\_name* directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the *coordination\_qmgr\_name.mqsc* file is in the */var/ibm/WMQFTE* or */var/IBM/WMQFTE* directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

## Configuring the coordination queue manager

After installation, run the *coordination\_qmgr\_name.mqsc* script in the *config\_directory/coordination\_qmgr\_name* directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the *coordination\_qmgr\_name.mqsc* file is in the */var/ibm/WMQFTE* or */var/IBM/WMQFTE* directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

## About this task

If you skipped the configuration steps during installation, you must first run the `fteSetupCoordination` command and then either run *coordination\_qmgr\_name.mqsc* or complete the steps described here.

## Procedure

1. Create a local queue named SYSTEM.FTE.
2. Add the SYSTEM.FTE queue to the SYSTEM.QPUBSUB.QUEUE.NAMELIST namelist.
3. Create a topic named SYSTEM.FTE with a topic string of SYSTEM.FTE.
4. Ensure the Non-persistent message delivery (NPMSGDLV) and Persistent messages delivery (PMSGDLV) attributes of the SYSTEM.FTE topic are set to ALLAVAIL.
5. Ensure the Publish/Subscribe mode (PSMODE) attribute of the coordination queue manager is set to ENABLED. ENABLED is the default setting, but you might have changed it previously. If you have upgraded this queue manager from WebSphere MQ Version 6.0 to WebSphere MQ Version 7.0, check the value of the PSMODE attribute: in a Version 6.0 to Version 7.0 migration this attribute defaults to COMPAT.

When you set PSMODE to ENABLED on a queue manager, you cannot use this queue manager as your IBM WebSphere Message Broker Version 6 (or earlier) queue manager.

6. Create the database logger queues using the following MQSC commands:

```

DEFINE QLOCAL(SYSTEM.FTE.DATABASELOGGER.REJECT) DESCR('Messages rejected by the WMQFTE database logger.') +
DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(999999999) MAXMSGL(4194304) MSGDLVSQ(PRIORITY) PUT(ENABLED) +
RETINTVL(999999999) SHARE NOTRIGGER USAGE(NORMAL) REPLACE
DEFINE QLOCAL(SYSTEM.FTE.DATABASELOGGER.COMMAND) DESCR('Command messages to control the WMQFTE database logger.') +
DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(999999999) MAXMSGL(4194304) MSGDLVSQ(PRIORITY) PUT(ENABLED) +
RETINTVL(5000) SHARE NOTRIGGER USAGE(NORMAL) REPLACE

```

### Related concepts:

“Connecting to WebSphere MQ” on page 102

All network communication with WebSphere MQ queue managers, including communication related to WebSphere MQ File Transfer Edition, involves WebSphere MQ channels. A WebSphere MQ channel represents one end of a network link. Channels are classified as either message channels or MQI channels.

“WebSphere MQ multi-instance queue managers” on page 108

WebSphere MQ Version 7.0.1 supports the creation of multi-instance queue managers. A multi-instance queue manager restarts automatically on a standby server. WebSphere MQ File Transfer Edition Version 7.0.2 or later supports connection to multi-instance agent queue managers and a multi-instance coordination queue manager. WebSphere MQ File Transfer Edition Version 7.0.3 or later additionally supports connection to a multi-instance command queue manager.

### Related tasks:

“Configuring WebSphere MQ queue managers” on page 104

If your WebSphere MQ File Transfer Edition network includes more than one WebSphere MQ queue manager, these WebSphere MQ queue managers must be able to remotely communicate with each other.

“Configuring WebSphere MQ queue managers” on page 104

If your WebSphere MQ File Transfer Edition network includes more than one WebSphere MQ queue manager, these WebSphere MQ queue managers must be able to remotely communicate with each other.

### Related reference:

“fteSetupCoordination (set up coordination details)” on page 560

The **fteSetupCoordination** command creates properties files and the coordination queue manager directory for WebSphere MQ File Transfer Edition.

## Configuring agent queue managers

After installation, run the `create_agent_name.mqsc` script in the `config_directory/coordination_qmgr_name/agents/agent_name` directory to perform the necessary configuration for the agent queue manager. However, if you want to do this configuration manually, complete these steps on the agent queue manager:

### About this task

#### Procedure

1. Create the agent operation queues. These queues are named:

- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

For information about the queue parameters, see “Agent queues for WebSphere MQ File Transfer Edition” on page 717.

2. Create the agent authority queues. These queues are named:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*

- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*

For information about the queue parameters, see “Agent queues for WebSphere MQ File Transfer Edition” on page 717.

3. If the agent is a web agent, create the web agent operation queues. These queues are named:
  - SYSTEM.FTE.WEB.*gateway\_name*
  - SYSTEM.FTE.WEB.RESP.*agent\_name*
  - For information about the queue parameters, see “Agent queues for WebSphere MQ File Transfer Edition” on page 717.

## What to do next

For information about creating and configuring a protocol bridge agent, see “fteCreateBridgeAgent (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481 and “Configuring a protocol bridge for an FTPS server” on page 267.

### Related concepts:

“Connecting to WebSphere MQ” on page 102

All network communication with WebSphere MQ queue managers, including communication related to WebSphere MQ File Transfer Edition, involves WebSphere MQ channels. A WebSphere MQ channel represents one end of a network link. Channels are classified as either message channels or MQI channels.

“WebSphere MQ multi-instance queue managers”

WebSphere MQ Version 7.0.1 supports the creation of multi-instance queue managers. A multi-instance queue manager restarts automatically on a standby server. WebSphere MQ File Transfer Edition Version 7.0.2 or later supports connection to multi-instance agent queue managers and a multi-instance coordination queue manager. WebSphere MQ File Transfer Edition Version 7.0.3 or later additionally supports connection to a multi-instance command queue manager.

### Related tasks:

“Configuring WebSphere MQ queue managers” on page 104

If your WebSphere MQ File Transfer Edition network includes more than one WebSphere MQ queue manager, these WebSphere MQ queue managers must be able to remotely communicate with each other.

“Configuring the coordination queue manager” on page 106

After installation, run the *coordination\_qmgr\_name.mqsc* script in the *config\_directory/coordination\_qmgr\_name* directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the *coordination\_qmgr\_name.mqsc* file is in the */var/ibm/WMQFTE* or */var/IBM/WMQFTE* directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

### Related reference:

“Agent queues for WebSphere MQ File Transfer Edition” on page 717

The MQSC command scripts generated by the **fteCreateAgent** command create the agent queues with parameters set to the following values. If you do not use the MQSC scripts provided to create the queues, but create the queues manually, ensure you set the following parameters to the values given.

“fteSetupCoordination (set up coordination details)” on page 560

The **fteSetupCoordination** command creates properties files and the coordination queue manager directory for WebSphere MQ File Transfer Edition.

## WebSphere MQ multi-instance queue managers

WebSphere MQ Version 7.0.1 supports the creation of multi-instance queue managers. A multi-instance queue manager restarts automatically on a standby server. WebSphere MQ File Transfer Edition Version 7.0.2 or later supports connection to multi-instance agent queue managers and a multi-instance

coordination queue manager. WebSphere MQ File Transfer Edition Version 7.0.3 or later additionally supports connection to a multi-instance command queue manager.

## Configuring a multi-instance queue manager

Ensure that you have read the relevant topics in the WebSphere MQ product documentation before you attempt to configure a multi-instance queue manager to work with WebSphere MQ File Transfer Edition. See Multi-instance queue managers.

## Using a multi-instance queue manager as an agent queue manager

To enable an agent to connect to both the active and standby instance of your multi-instance queue manager, add the `agentQMGrStandby` property to the agent's `agent.properties` file. The `agentQMGrStandby` property defines the host name and the port number used for client connections for the standby queue manager instance. The value of the property must be given in MQ CONNAME format, that is, `host_name(port_number)`.

The `agentQMGr` property specifies the name of the multi-instance queue manager. The `agentQMGrHost` property specifies host name for the active queue manager instance and the `agentQMGrPort` property specifies the port number for the active queue manager instance. The agent must connect in client mode to both the active and the standby instance of the multi-instance queue manager.

See “The `agent.properties` file” on page 583 for more information.

This example shows the contents of the `agent.properties` file for AGENT1 that connects to a multi-instance queue manager called QM\_JUPITER. The active instance of QM\_JUPITER is on the system host1 and uses the port number 1414 for client connections. The standby instance of QM\_JUPITER is on the system host2 and uses port number 1414 for client connections.

```
agentName=AGENT1
agentDesc=
agentQMGr=QM_JUPITER
agentQMGrPort=1414
agentQMGrHost=host1
agentQMGrChannel=SYSTEM.DEF.SVRCONN
agentQMGrStandby=host2(1414)
```

## Using a multi-instance queue manager as the coordination queue manager

To enable connections to both the active and standby instance of your multi-instance coordination queue manager, add the `coordinationQMGrStandby` property to all the `coordination.properties` files in your WebSphere MQ File Transfer Edition topology.

See “The `coordination.properties` file” on page 577 for more information.

This example shows the contents of a `coordination.properties` file that specifies the connection details to a multi-instance coordination queue manager called QM\_SATURN. The active instance of QM\_SATURN is on the system `coordination_host1` and uses the port number 1420 for client connections. The standby instance of QM\_SATURN is on the system `coordination_host2` and uses the port number 1420 for client connections.

```
coordinationQMGr=QM_SATURN
coordinationQMGrHost=coordination_host1
coordinationQMGrPort=1420
coordinationQMGrChannel=SYSTEM.DEF.SVRCONN
coordinationQMGrStandby=coordination_host2(1420)
```

The WebSphere MQ File Transfer Edition database logger must always connect to its queue manager in bindings mode. When using the database logger with a multi-instance coordination queue manager

connect the database logger, in bindings mode, to a different queue manager. The steps to do this are described in “Alternative configurations for the database logger” on page 135. You must define the channels between the database logger's queue manager and the coordination queue manager with the host name and port number of both instances of the multi-instance coordination queue manager. For information on how to do this, see the WebSphere MQ product documentation.

The WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer connects to the coordination queue manager in client mode. If the active instance of the multi-instance coordination queue manager fails the standby instance of the coordination queue manager becomes active and the plug-in reconnects.

The WebSphere MQ File Transfer Edition commands **ftelist\*** and **fteShowAgentDetails** connect directly to the coordination queue manager. If the active instance of the multi-instance coordination is unavailable these commands will attempt to connect to the standby instance of the coordination queue manager.

## Using a multi-instance queue manager as the command queue manager

To enable connections to both the active and standby instance of your multi-instance command queue manager, add the `connectionQMGrStandby` property to all the `command.properties` files in your WebSphereMQ File Transfer Edition topology.

See “The `command.properties` file” on page 580 for more information.

This example shows the contents of a `command.properties` file that specifies the connection details to a multi-instance command queue manager called QM\_MARS. The active instance of QM\_MARS is on the system `command_host1` and uses the port number 1424 for client connections. The standby instance of QM\_MARS is on the system `command_host2` and uses the port number 1424 for client connections.

```
connectionQMGr=QM_SATURN
connectionQMGrHost=command_host1
connectionQMGrPort=1424
connectionQMGrChannel=SYSTEM.DEF.SVRCONN
connectionQMGrStandby=command_host2(1424)
```

### Related concepts:

“Connecting to WebSphere MQ” on page 102

All network communication with WebSphere MQ queue managers, including communication related to WebSphere MQ File Transfer Edition, involves WebSphere MQ channels. A WebSphere MQ channel represents one end of a network link. Channels are classified as either message channels or MQI channels.

### Related tasks:

“Configuring WebSphere MQ queue managers” on page 104

If your WebSphere MQ File Transfer Edition network includes more than one WebSphere MQ queue manager, these WebSphere MQ queue managers must be able to remotely communicate with each other.

“Configuring the coordination queue manager” on page 106

After installation, run the `coordination_qmgr_name.mqsc` script in the `config_directory/coordination_qmgr_name` directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the `coordination_qmgr_name.mqsc` file is in the `/var/ibm/WMQFTE` or `/var/IBM/WMQFTE` directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

## Configuring a basic WebSphere MQ File Transfer Edition scenario on Windows and Linux

You can set up a basic WebSphere MQ File Transfer Edition network between a Windows system and a Linux system by following the steps given in this topic. If you have two Windows systems or two Linux systems, you can adapt the instructions in the steps to allow for your setup.

## Before you begin

To set up this basic configuration you require the following items:

- Two systems, one with a Windows operating system and one with a Linux operating system. These systems must be connected on a network.
- WebSphere MQ for Linux
- WebSphere MQ for Windows
- WebSphere MQ File Transfer Edition Server version 7.0.3 or later.
- WebSphere MQ File Transfer Edition Remote Tools and Documentation version 7.0.3 or later.

**Note:** This example assumes that you have the same user name on both of the systems and that the maximum length of the user name is 12 characters. If you cannot use the same user name on both systems, you must set up WebSphere MQ security to allow the user name on one system access to WebSphere MQ on the other system.

**Note:** Do not use a user name with more than 12 characters on the Windows system, for example Administrator. Windows user names that are more than 12 characters long cause WebSphere MQ security problems.

## About this task

These steps describe how to set up WebSphere MQ File Transfer Edition agents on two systems. Each agent has its own agent queue manager on the same system. In the examples given, the two systems are called `linux_system.example.com` and `windows_system.example.com`. The system `linux_system.example.com` has a Linux operating system and the queue manager defined on this system is used as the coordination queue manager for the WebSphere MQ File Transfer Edition network. The system `windows_system.example.com` has a Windows operating system and the agent defined on this system is run as a Windows Service.

## Procedure

1. Set up WebSphere MQ on `linux_system.example.com`. For more information, see “Set up WebSphere MQ on `linux_system.example.com`” on page 112.
2. Install WebSphere MQ File Transfer Edition Server on `linux_system.example.com` and set up an agent. For more information, see “Install WebSphere MQ File Transfer Edition Server on `linux_system.example.com`” on page 112.
3. Set up WebSphere MQ on `windows_system.example.com`. For more information, see “Set up WebSphere MQ on `windows_system.example.com`” on page 113.
4. Create channels between queue managers on the two systems. For more information, see “Connect the queue managers QM\_LINUX and QM\_WINDOWS” on page 114.
5. Install WebSphere MQ File Transfer Edition Server on `windows_system.example.com` and set up an agent to run as a Windows Service. For more information, see “Install WebSphere MQ File Transfer Edition Server on `windows_system.example.com`” on page 115.
6. Install WebSphere MQ File Transfer Edition Remote Tools and Documentation on either system. For more information, see “Install WebSphere MQ File Transfer Edition Remote Tools and Documentation” on page 116.
7. Transfer a file from the system `windows_system.example.com` to the system `linux_system.example.com` by using the command line. For more information, see “Transfer a file from AGENT\_WINDOWS to AGENT\_LINUX” on page 116.
8. Transfer a file from the system `linux_system.example.com` to the system `windows_system.example.com` by using the WebSphere MQ Explorer plug-in. For more information, see “Transfer a file from AGENT\_LINUX to AGENT\_WINDOWS by using the WebSphere MQ Explorer plug-in” on page 116.

## Set up WebSphere MQ on linux\_system.example.com

### About this task

The queue manager on linux\_system.example.com is used as the coordination queue manager, so the level of WebSphere MQ that is installed must be version 7.0 or later.

### Procedure

1. Install WebSphere MQ, version 7.0, or later, on linux\_system.example.com. As part of the installation process, install the WebSphere MQ Explorer. For information about how to install WebSphere MQ, see the “Quick Beginnings” guide for your platform in the IBM WebSphere MQ Version 7.0.1 documentationxref>.
2. Ensure that the user name that WebSphere MQ File Transfer Edition uses is in the mqm group. If this user name is different to the user name that is used on windows\_system.example.com, you must set up WebSphere MQ security to allow the other user name to access WebSphere MQ on this system. For more information, see the Security section of the IBM WebSphere MQ Version 7.0.1 product documentation.
3. Create a queue manager on linux\_system.example.com called QM\_LINUX. You can create the queue manager by using the WebSphere MQ Explorer or by using the command line. To create the queue manager by using the command line, type the following command:

```
crtmqm QM_LINUX
```

4. Start the queue manager QM\_LINUX. You can start the queue manager by using the WebSphere MQ Explorer or by using the command line. To start QM\_LINUX using the command line, type the following command:

```
strmqm QM_LINUX
```

5. Define a listener for QM\_LINUX. If you created QM\_LINUX by using the WebSphere MQ Explorer, the listener is already defined on the default port of 1414, unless you changed this value. To create a listener for QM\_LINUX using the command line, type the following command:

```
runmqsc QM_LINUX
```

The runmqsc program opens. Type the following commands into runmqsc:

```
ALTER LISTENER(SYSTEM.DEFAULT.LISTENER.TCP) TRPTYPE(TCP) PORT(1414) CONTROL(QMGR)  
START LISTENER(SYSTEM.DEFAULT.LISTENER.TCP)
```

## Install WebSphere MQ File Transfer Edition Server on linux\_system.example.com

### Procedure

1. Install WebSphere MQ File Transfer Edition Server on linux\_system.example.com and enter the following values during the configuration steps:
  - a. When asked for the coordination queue manager name, enter QM\_LINUX. Select bindings transport mode and click **Next**.
  - b. When asked for the agent name, enter AGENT\_LINUX. Enter an agent description, for example “WMQFTE agent on Linux”.
  - c. When asked for the agent queue manager name, enter QM\_LINUX. Select bindings transport mode and click **Next**.
  - d. When asked for the command queue manager name, enter QM\_LINUX. Select bindings transport mode and click **Next**.

For information about how to install WebSphere MQ File Transfer Edition Server, see “Installing IBM WebSphere MQ File Transfer Edition Server using the graphical installer” on page 41.

2. Create the required WebSphere MQ objects on the coordination queue manager QM\_LINUX. The commands to create these objects are located in the QM\_LINUX.mqsc file in the directory *configuration\_directory/QM\_LINUX*. To run the commands, enter the following command:

```
runmqsc QM_LINUX < configuration_directory/QM_LINUX/QM_LINUX.mqsc
```

3. Create the required WebSphere MQ objects on the agent queue manager QM\_LINUX. The commands to create these objects are located in the `create_AGENT_LINUX.mqsc` file in the directory `configuration_directory/QM_LINUX/agents/AGENT_LINUX`. To run the commands, enter the following command:

```
runmqsc QM_LINUX < configuration_directory/QM_LINUX/agents/AGENT_LINUX/create_AGENT_LINUX.mqsc
```

4. Start the agent AGENT\_LINUX. At the command line, change the directory to `install_directory/bin` and run the following command:

```
fteStartAgent AGENT_LINUX
```

5. Check that AGENT\_LINUX is registered with the coordination queue manager. At the command line, change the directory to `install_directory/bin` and run the following command:

```
fteListAgents
```

The command displays a list of agents and AGENT\_LINUX is listed.

6. Check that AGENT\_LINUX is ready to process managed file transfers. At the command line, change the directory to `install_directory/bin` and run the following command:

```
ftePingAgent AGENT_LINUX
```

The command displays a message that indicates how long AGENT\_LINUX took to respond to the ping.

## Set up WebSphere MQ on windows\_system.example.com

### About this task

The queue manager on `windows_system.example.com` is not used as the coordination queue manager, so the level of WebSphere MQ that is installed can be version 6.0 or later. The maximum length of the user name that you use on this system must be 12 characters.

### Procedure

1. Install WebSphere MQ, version 6.0, or later, on `windows_system.example.com`. For information about how to install WebSphere MQ, see the "Quick Beginnings guide" for your platform in the WebSphere MQ Version 7.0.1 product documentation.
2. Ensure that the user name that WebSphere MQ File Transfer Edition uses is in the `mqm` group. If this user name is different to the user name that is used on `linux_system.example.com`, you must set up WebSphere MQ security to allow the other user name to access WebSphere MQ on this system. For more information, see the Security section of the IBM WebSphere MQ Version 7.0.1 product documentation.
3. Create a queue manager on `windows_system.example.com` called QM\_WINDOWS. You can create the queue manager by using the WebSphere MQ Explorer or by using the command line. To create the queue manager by using the command line, type the following command:

```
crtmqm QM_WINDOWS
```

4. Start the queue manager QM\_WINDOWS. You can start the queue manager by using the WebSphere MQ Explorer or by using the command line. To start QM\_WINDOWS using the command line, type the following command:

```
strmqm QM_WINDOWS
```

5. Define a listener for QM\_WINDOWS. If you created QM\_WINDOWS by using the WebSphere MQ Explorer, the listener is already defined on the default port of 1414, unless you changed this value. To create a listener for QM\_WINDOWS using the command line, type the following command:

```
runmqsc QM_WINDOWS
```

The `runmqsc` program opens. Type the following commands into `runmqsc`:

```
ALTER LISTENER(SYSTEM.DEFAULT.LISTENER.TCP) TRPTYPE(TCP) PORT(1414) CONTROL(QMGR)  
START LISTENER(SYSTEM.DEFAULT.LISTENER.TCP)
```

## Connect the queue managers QM\_LINUX and QM\_WINDOWS

### About this task

For files to be transferred between AGENT\_LINUX and AGENT\_WINDOWS their agent queue managers must be able to communicate with one another. To enable the queue managers QM\_LINUX and QM\_WINDOWS to communicate with each other you must set up sender and receiver channels. You can set up channels by using the WebSphere MQ Explorer or by using the command line.

### Procedure

1. On `linux_system.example.com`, perform the following steps:
  - a. Start the runmqsc interface for QM\_LINUX. Type the following command:

```
runmqsc QM_LINUX
```
  - b. Create the transmission queue. You must create this queue with the same name as the queue manager that you want QM\_LINUX to connect to, in this case QM\_WINDOWS. Type the following command into the runmqsc interface:

```
DEFINE QLOCAL(QM_WINDOWS) USAGE(XMITQ)
```
  - c. Create the sender channel. Define this channel by specifying the host name and port number of QM\_WINDOWS and by specifying the name of the transmission queue created in step 1b. Type the following command into the runmqsc interface:

```
DEFINE CHANNEL(LIN.TO.WIN) CHLTYPE(SDR) CONNAME('windows_system.example.com(1414)') XMITQ(QM_WINDOWS) CONVERT(NO)
```
  - d. Start the sender channel. Type the following command into the runmqsc interface:

```
START CHANNEL(LIN.TO.WIN)
```
  - e. Create the receiver channel. This channel must have the same name as the sender channel that is defined on QM\_WINDOWS in step 2c. Type the following command into the runmqsc interface:

```
DEFINE CHANNEL(WIN.TO.LIN) CHLTYPE(RCVR)
```
  - f. Exit the runmqsc interface. Type the following command:

```
EXIT
```
2. On `windows_system.example.com`, perform the following steps:
  - a. Start the runmqsc interface for QM\_WINDOWS. Type the following command:

```
runmqsc QM_WINDOWS
```
  - b. Create the transmission queue. You must create this queue with the same name as the queue manager that you want QM\_WINDOWS to connect to, in this case QM\_LINUX. Type the following command into the runmqsc interface:

```
DEFINE QLOCAL(QM_LINUX) USAGE(XMITQ)
```
  - c. Create the sender channel. Define this channel by specifying the host name and port number of QM\_LINUX and by specifying the name of the transmission queue created in the preceding step. This channel must have the same name as the receiver channel created in step 1e. Type the following command into the runmqsc interface:

```
DEFINE CHANNEL(WIN.TO.LIN) CHLTYPE(SDR) CONNAME('linux_system.example.com(1414)') XMITQ(QM_LINUX) CONVERT(NO)
```
  - d. Start the sender channel. Type the following command into the runmqsc interface:

```
START CHANNEL(WIN.TO.LIN)
```
  - e. Create the receiver channel. This channel must have the same name as the sender channel that is defined on QM\_LINUX in step 1c. Type the following command into the runmqsc interface:

```
DEFINE CHANNEL(LIN.TO.WIN) CHLTYPE(RCVR)
```
  - f. Exit the runmqsc interface. Type the following command:

```
EXIT
```

## Install WebSphere MQ File Transfer Edition Server on windows\_system.example.com

### About this task

To run the agent on windows\_system.example.com as a Windows Service, the level of WebSphere MQ File Transfer Edition that is installed must be version 7.0.3 or later.

### Procedure

1. Install WebSphere MQ File Transfer Edition Server on windows\_system.example.com and enter the following values during the configuration steps:
  - a. When asked for the coordination queue manager name, enter QM\_LINUX. Select client transport mode and click **Next**.
  - b. When asked for the coordination queue manager connection details, enter the following values. For host name, enter linux\_system.example.com. For port number, enter 1414. For channel, enter SYSTEM.DEF.SVRCONN. Click **Next**.
  - c. When asked for the agent name, enter AGENT\_WINDOWS. Enter an agent description, for example "WMQFTE agent on Windows".
  - d. When asked for the agent queue manager name, enter QM\_WINDOWS. Select bindings transport mode and click **Next**.
  - e. When asked for the command queue manager name, enter QM\_WINDOWS. Select bindings transport mode and click **Next**.

For information about how to install WebSphere MQ File Transfer Edition Server, see "Installing IBM WebSphere MQ File Transfer Edition Server using the graphical installer" on page 41.

2. Create the required WebSphere MQ objects on the agent queue manager QM\_WINDOWS. The commands to create these objects are located in the create\_AGENT\_WINDOWS.mqsc file in the directory *configuration\_directory/QM\_LINUX/agents/AGENT\_WINDOWS*. To run the commands, type the following command:

```
runmqsc QM_WINDOWS < configuration_directory/QM_LINUX/agents/AGENT_WINDOWS/create_AGENT_WINDOWS.mqsc
```

3. Modify the agent AGENT\_WINDOWS to act as a Windows Service. Use the **fteModifyAgent** command to specify that AGENT\_WINDOWS runs as a Windows Service and, optionally, to specify the parameters that are used by the service. At the command line, change the directory to *install\_directory/bin* and run the following command:

```
fteModifyAgent -agentName AGENT_WINDOWS -s -su user_name -sp user_password
```

where *user\_name* is the name of the user account to run the service under. For more information, see "fteModifyAgent (modify a WebSphere MQ File Transfer Edition agent)" on page 548.

4. Start the agent AGENT\_WINDOWS. You can start the agent AGENT\_WINDOWS from **Control Panel > Administrative Tools > Windows Services** or by using the **fteStartAgent** command. At the command line, change the directory to *install\_directory/bin* and type the following command:

```
fteStartAgent AGENT_WINDOWS
```

5. Check that AGENT\_WINDOWS is registered with the coordination queue manager. At the command line, change the directory to *install\_directory/bin* and run the following command:

```
fteListAgents
```

The command displays a list of agents and both AGENT\_WINDOWS and AGENT\_LINUX are listed.

6. Check that AGENT\_WINDOWS is ready to process managed file transfers. At the command line, change the directory to *install\_directory/bin* and run the following command:

```
ftePingAgent AGENT_WINDOWS
```

The command displays a message that indicates how long AGENT\_WINDOWS took to respond to the ping.

## Install WebSphere MQ File Transfer Edition Remote Tools and Documentation Procedure

1. Install WebSphere MQ File Transfer Edition Remote Tools and Documentation on either system. When asked if you want to use an existing configuration directory, choose **Reuse existing configuration**. For information about how to install WebSphere MQ File Transfer Edition Remote Tools and Documentation, see “Installing IBM WebSphere MQ File Transfer Edition Server using the graphical installer” on page 41.
2. Start the WebSphere MQ Explorer. Type the following command:  
`strmqcfg`
3. Ensure that the **Managed File Transfer** section is displayed in the left panel and that when it is expanded it shows a connection to QM\_LINUX.

## Transfer a file from AGENT\_WINDOWS to AGENT\_LINUX Procedure

1. Create a file on windows\_system.example.com at the location `c:\files\send\sourcefile.txt`.
2. Create a directory on linux\_system.example.com at the location `/home/user_name/files`.
3. On either windows\_system.example.com or linux\_system.example.com, run the following command to request a file transfer:

```
fteCreateTransfer -sa AGENT_WINDOWS -sm QM_WINDOWS -da AGENT_LINUX -dm QM_WINDOWS  
-dd /home/user_name/files "c:\files\send\sourcefile.txt"
```

For more information, see “`fteCreateTransfer` (create new file transfer)” on page 509.

4. Check that the file `sourcefile.txt` has been copied to `/home/user_name/files` on linux\_system.example.com.

## Transfer a file from AGENT\_LINUX to AGENT\_WINDOWS by using the WebSphere MQ Explorer plug-in Procedure

1. On the system where the WMQFTE Remote Documentation and Tools is installed, start the WebSphere MQ Explorer. Type the following command:  
`strmqcfg`
2. In the WebSphere MQ Explorer, expand **Managed File Transfer > QM\_LINUX** in the left panel.
3. Click **Transfer Log**. A new panel opens on the right. This panel **Transfer Log** displays information about the transfer that you created in the preceding section.
4. Right-click **Transfer Log** in the left panel. A menu is displayed.
5. Select **New Transfer** from the menu. The Create New Managed File Transfer window opens.
6. In the **From** section, from the **Agent** list, choose AGENT\_LINUX.
7. In the **From** section, in the **File** field, type `/home/user_name/files/sourcefile.txt`.
8. In the **To** section, from the **Agent** list, choose AGENT\_WINDOWS.
9. In the **To** section, in the **Directory** field, type `c:\files\receive\`.
10. In the **To** section, in the **File** field, type `returnfile.txt`.
11. Click **Finish**.
12. In the **Current Transfer Progress** panel at the lower right, you can watch the progress of the transfer that you have submitted.

## What to do next

Now that you have set up a basic configuration, you can use it to perform a number of actions, including the following actions:

- Set up a scheduled transfer that happens in the future and can repeat regularly. For more information, see “Creating a scheduled file transfer” on page 197.

- Set up a resource monitor that monitors a resource, for example a directory. If the resource fulfills a given condition the resource monitor starts a file transfer. For more information, see “Resource monitoring” on page 204.
- Create Ant scripts that start managed file transfers. For more information, see “Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352.

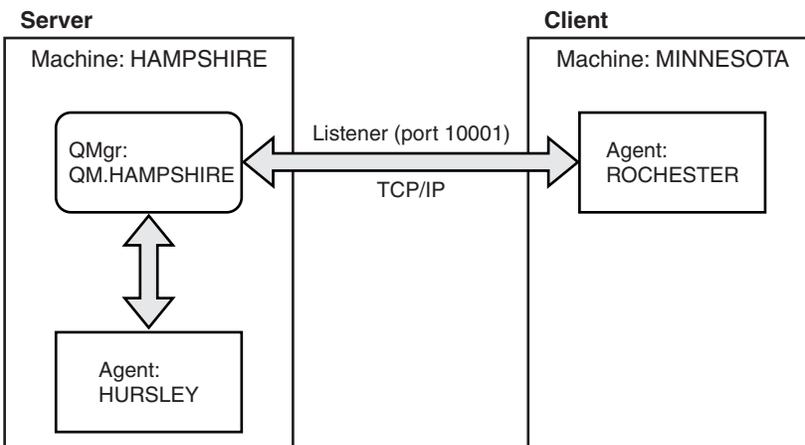
## Configuring a basic WebSphere MQ File Transfer Edition scenario on IBM i systems

WebSphere MQ File Transfer Edition supports the transfer of files that are located on an IBM i platform. You can set up a basic client/server environment to support file transfer operations between IBM i systems using the steps in this example.

### Before you begin

To set up this environment, complete the following steps with a user profile that has \*SECOFR authority and a `/home/user profile` directory on each system.

### About this task



In this setup, there are two IBM i systems: one called HAMPSHIRE that has WebSphere MQ installed, and another system called MINNESOTA that has a client connection to HAMPSHIRE.

The server system, HAMPSHIRE, hosts coordination, command, and agent queue manager functions using the local queue manager QM.HAMPSHIRE. HAMPSHIRE runs the agent HURSLEY that connects using bindings mode to QM.HAMPSHIRE.

The client system, MINNESOTA, hosts the agent ROCHESTER. Agent ROCHESTER connects across the Internet Protocol network to its remote queue manager, QM.HAMPSHIRE, on HAMPSHIRE. Because there is only one queue manager, QM.HAMPSHIRE also serves as the coordination, command, and agent queue manager for the agent ROCHESTER.

### Procedure

1. Install the prerequisites for WebSphere MQ File Transfer Edition as needed. See Hardware and software prerequisites for details. For this scenario, you must install WebSphere MQ on the server system, HAMPSHIRE, only and not on the client system, MINNESOTA.
2. Install WebSphere MQ on HAMPSHIRE. Install the base product 5724H72. If you are using WebSphere MQ V6, also install the JMS product 5724L26.

3. Start the WebSphere MQ subsystem on HAMPSHIRE using the STRSBS QMQM/QMQM command.
4. Install WebSphere MQ File Transfer Edition V7.0.2 on each system. You must install WebSphere MQ File Transfer Edition Server on the server system, HAMPSHIRE. You can install either the Client or Server edition of WebSphere MQ File Transfer Edition on the client system MINNESOTA.

For the purposes of this setup type 1-Yes in response to the **Skip Configuration** prompt in the installer and configure WebSphere MQ File Transfer Edition manually as shown in subsequent steps.

To configure a WebSphere MQ File Transfer Edition network that contains multiple coordination queue managers, you can add the **-p** parameter to the commands. See the following topics for details:

- “fteSetupCoordination (set up coordination details)” on page 560
- “fteSetupCommands (create the command.properties file)” on page 559
- “fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)” on page 478
- “**fteStartAgent** (start a WebSphere MQ File Transfer Edition agent)” on page 567

5. Start the QFTE subsystem on each system using the **STRSBS QFTE/QFTE** command.  
**On the server system HAMPSHIRE, complete the following steps 6 through 12:**
6. Verify that local port number 10001 is not currently being used. You can use the **NETSTAT** command for this verification. If port 10001 is already in use, use a different (currently unused) port in the following steps where port number 10001 is indicated.
7. Display existing queue managers using the **WRKMQM** command. Press F6 to create a queue manager called QM.HAMPSHIRE and start this queue manager using option 14.
8. Display listeners in **Work with Listener Objects** display using option 27 with QM.HAMPSHIRE. In that display, press F6 to create listener LSR.ROCHESTER for port 10001 and start the listener using option 14.
9. Create the agent HURSLEY by issuing the following Qshell commands. This agent connects to the queue manager QM.HAMPSHIRE in bindings mode. On IBM i, the installation location and the configuration location are fixed. The product installation is located in the /QIBM/ProdData/WMQFTE/V7 directory in the integrated file system and the data directory is located in the /QIBM/UserData/WMQFTE/V7/config directory.
  - a. `cd /QIBM/ProdData/WMQFTE/V7/bin`
  - b. `fteSetupCoordination -coordinationQMgr QM.HAMPSHIRE`
  - c. Pipe the MQSC command script that is generated by the **fteSetupCoordination** command for QM.HAMPSHIRE using the **runmqsc** command:
 

```
/QSYS.LIB/QMQM.LIB/RUNMQSC.PGM QM.HAMPSHIRE
< /QIBM/UserData/WMQFTE/V7/config/QM.HAMPSHIRE/QM.HAMPSHIRE.mqsc
```
  - d. Set up the queue manager to connect to when you run commands using the following command:
 `fteSetupCommands -p QM.HAMPSHIRE -connectionQMgr QM.HAMPSHIRE`
  - e. Create the agent HURSLEY using the following command: `fteCreateAgent -p QM.HAMPSHIRE -agentName HURSLEY -agentQMgr QM.HAMPSHIRE -agentDesc HAMPSHIRE`
  - f. Pipe the MQSC command script that is generated by the **fteCreateAgent** command for QM.HAMPSHIRE using the **runmqsc** command:
 

```
/QSYS.LIB/QMQM.LIB/RUNMQSC.PGM QM.HAMPSHIRE
< /QIBM/UserData/WMQFTE/V7/config/QM.HAMPSHIRE/agents/HURSLEY/HURSLEY_create.mqsc
```
10. Start the agent HURSLEY by entering the following Qshell command: `fteStartAgent -p QM.HAMPSHIRE HURSLEY`
11. Check if the agent job is running in the QFTE subsystem using the following IBM i command: `WRKSBSJOB QFTE` If the agent job is not running, check spool files and logs to determine the reason and then take corrective actions.
12. Verify that the agent is known to the coordination queue manager using the **fteListAgents** command from Qshell. Ping the agent with the **ftePingAgent** command: `ftePingAgent -p QM.HAMPSHIRE -w 5 HURSLEY`

On the client system MINNESOTA complete the following steps 13 through 17.

13. Create the agent ROCHESTER (which connects to QM.HAMPSHIRE using a TCP/IP connection) by issuing the following Qshell commands:
  - a. `cd /QIBM/ProdData/WMQFTE/V7/bin`
  - b.

```
fteSetupCoordination -coordinationQMGr QM.HAMPSHIRE
-coordinationQMGrHost HAMPSHIRE -coordinationQMGrPort 10001
-coordinationQMGrChannel SYSTEM.DEF.SVRCONN
```
  - c.

```
fteSetupCommands -p QM.HAMPSHIRE -connectionQMGr QM.HAMPSHIRE
-connectionQMGrHost HAMPSHIRE -connectionQMGrPort 10001
-connectionQMGrChannel SYSTEM.DEF.SVRCONN
```
  - d.

```
fteCreateAgent -p QM.HAMPSHIRE -agentName ROCHESTER
-agentQMGr QM.HAMPSHIRE -agentQMGrHost HAMPSHIRE
-agentQMGrPort 10001 -agentQMGrChannel SYSTEM.DEF.SVRCONN
```

The **fteSetupCoordination** command sets up the details of the coordination queue manager, QM.HAMPSHIRE. The **fteSetupCommands** command sets up the queue manager to connect to when you run commands.

14. Transfer the MQSC command script that was generated by the **fteCreateAgent** command on MINNESOTA to HAMPSHIRE. Pipe the script using the **runmqsc** command:
  - a. On HAMPSHIRE, create a temp directory using the following Qshell command: `mkdir /temp`
  - b. Transfer the file: `/QIBM/UserData/WMQFTE/V7/config/QM.HAMPSHIRE/agents/ROCHESTER/ROCHESTER_create.mqsc` on MINNESOTA to a `/temp` directory on HAMPSHIRE.
  - c. On HAMPSHIRE, pipe the file `ROCHESTER_create.mqsc` for QM.HAMPSHIRE using the `runmqsc` command. Use the following Qshell command:

```
/QSYS.LIB/QMQM.LIB/RUNMQSC.PGM QM.HAMPSHIRE < /temp/ROCHESTER_create.mqsc
```
15. Start agent ROCHESTER using the following Qshell command:

```
fteStartAgent -p QM.HAMPSHIRE ROCHESTER
```
16. Use the following native command to check if the agent job is running in the QFTE subsystem: `WRKSBSJOB QFTE` If the agent is not running, check spool files and logs to determine the reason for failure and then take corrective actions.
17. Verify that the agent is known to the coordination queue manager by using the Qshell **fteListAgents** command. Ping the agent with the **ftePingAgent** command as follows:
  - a. `ftePingAgent -m QM.HAMPSHIRE ROCHESTER`
  - b. `ftePingAgent -m QM.HAMPSHIRE HURSLEY`

## Environment variables for WebSphere MQ File Transfer Edition for z/OS

After customization and configuration, you must set a number of environment variables before running the configuration and administration scripts provided by WebSphere MQ File Transfer Edition. You must set these variables for each user and in each environment that the scripts will be invoked from.

To avoid conflicts with other products, you can choose to create a `.wmqfterc` script in your home directory. The `.wmqfterc` script is then invoked by each of the WebSphere MQ File Transfer Edition scripts and you can use this script to provide custom environment settings for WebSphere MQ File Transfer Edition.

**Note:** You must include the `_BPXK_AUTOCVT` environment variable in your `.profile`, and not in your `.wmqfterc` script, to interpret the WebSphere MQ File Transfer Edition scripts.

There is also one optional environment variable, `FTE_WTO`, that you can set to send messages to the operator log when running agents from JCL.

Table 2. Required z/OS environment variables

Environment variable	Value
<code>_BPXK_AUTOCVT</code>	ON
<code>FTE_JAVA_HOME</code>	The location of your Java installation. For more information about the levels of Java supported, see WebSphere MQ File Transfer Edition system requirements.
<code>FTE_CONFIG</code>	The location of the WebSphere MQ File Transfer Edition for z/OS configuration. This is the path to a directory that subdirectories and files are created in by the configuration scripts as the scripts are invoked. The directory structure will then be used by administration scripts and agents. All users making configuration changes and running agents require write access to this directory structure.
<code>STEPLIB</code>	<p>Must include the following WebSphere MQ data sets:</p> <ul style="list-style-type: none"> <li>• SCSQAUTH</li> <li>• SCSQANLE</li> <li>• SCSQLOAD</li> </ul> <p>If you want to run the database logger component on a z/OS system, <code>STEPLIB</code> must also include the following Db2 data sets in the order shown:</p> <ul style="list-style-type: none"> <li>• SDSNEXIT</li> <li>• SDSNLOAD2</li> <li>• SDSNLOAD</li> </ul>
<code>LIBPATH</code>	Must include the location of your WebSphere MQ Java libraries in z/OS UNIX System Services space (for WebSphere MQ Version 7, the default is <code>/mqm/V7R0M0/java/lib</code> ).

The following is an example `.profile` that correctly configures the environment variables for WebSphere MQ File Transfer Edition:

```
LIBPATH=/mqm/V7R0M0/java/lib:$LIBPATH
STEPLIB=MQM.V700.SCSQAUTH:MQM.V700.SCSQANLE:MQM.V700.SCSQLOAD
PATH=/u/fteuser/bin:/u/fteuser/J5.0/bin:/bin:/usr/bin:/u/fteuser/extras/bin:/bin:$PATH
FTE_JAVA_HOME=/u/fteuser/J5.0
```

```
FTE_CONFIG=/u/fteuser/test/ftedata
_BPXX_AUTOCVT=ON
export PATH LIBPATH STEPLIB FTE_JAVA_HOME FTE_CONFIG _BPXX_AUTOCVT
```

Optionally, you can also set the following environment variable:

*Table 3. Optional z/OS environment variable*

Environment variable	Value
FTE_WTO	<p>One of the following values:</p> <ul style="list-style-type: none"> <li>• YES</li> <li>• ON</li> <li>• TRUE</li> </ul> <p>Enables z/OS logging. By default, this environment variable is disabled.</p> <p>Messages that are written to the agent event log are also written to the z/OS operator log facility, which allows easier access for automation products when you run an agent from JCL. The routing code is Programmer Information (11) and the descriptor code is Informational (12).</p>

## Ensuring that WebSphere MQ File Transfer Edition log messages are retained

WebSphere MQ File Transfer Edition sends file transfer progress and log information to the coordination queue manager. The coordination queue manager publishes this information to any matching subscriptions to the SYSTEM.FTE topic. If there are no subscriptions, this information is not retained.

If transfer progress or log information is significant to your business, you must take one of the following steps to ensure that the information is retained:

- Use the WebSphere MQ File Transfer Edition database logger to copy messages published to the SYSTEM.FTE/Log topic to an Oracle or Db2 database.
- Define a subscription to the SYSTEM.FTE topic, which stores publications on a WebSphere MQ queue. Define this subscription before transferring any file transfers to ensure that all progress and log messages are retained on the queue.
- Write an application that uses the message queue interface (MQI) or WebSphere MQ JMS to create a durable subscription and process the publications that are delivered to the subscription. This application must be in operation before any files are transferred to ensure that the application receives all progress and log messages.

Each of these approaches is described in more detail in the sections that follow.

Do not rely on the WebSphere MQ File Transfer Edition WebSphere MQ Explorer plug-in to retain log information.

### Using the WebSphere MQ File Transfer Edition database logger to retain log messages

The database logger is an optional component of WebSphere MQ File Transfer Edition that you can use to copy log information in to a database for analysis and auditing purposes. The database logger is a stand-alone Java application that you install on a system that hosts the coordination queue manager and the database. For more information about the database logger, see “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

## Retaining progress and log messages by using the WebSphere MQ File Transfer Edition MQ Explorer plug-in

When an instance of the WebSphere MQ File Transfer Edition WebSphere MQ Explorer plug-in is first started, the instance creates a durable subscription on the coordination queue manager. This durable subscription is used to collect the information displayed in the Transfer Log and Current Transfer Progress views. The name of the durable subscription is prefixed with the host name of the system running the associated instance of WebSphere MQ Explorer. This prefix is added in case an administrator wants to delete a durable subscription that is no longer in active use by an instance of the WebSphere MQ Explorer plug-in.

Using a durable subscription on the coordination queue manager can cause messages to build up on the SYSTEM.MANAGED.DURABLE queues. If you have a high-volume WebSphere MQ File Transfer Edition network, use the WebSphere MQ Explorer plug-in infrequently, or this message data can fill the local file system.

To avoid this happening, you can specify that the WebSphere MQ Explorer plug-in use a non-durable subscription to the coordination queue manager. Perform the following steps in your WebSphere MQ Explorer:

1. Select **Window > Preferences > WebSphere MQ File Transfer Edition**
2. From the **Transfer Log subscriber type** list, choose **NON\_DURABLE**.

### Storing publications on a WebSphere MQ queue

To store log or progress messages on a WebSphere MQ queue, configure a subscription on the coordination queue manager that forwards messages to this queue. For example, to forward all log messages to a queue named LOG.QUEUE, submit the following MQSC command:

```
define sub(MY.SUB) TOPICSTR('Log/#') TOPICOBJ(SYSTEM.FTE) DEST(LOG.QUEUE)
```

After the log messages have been forwarded to a WebSphere MQ queue, they are persisted on the queue until they are processed by a WebSphere MQ application that uses the queue.

### Writing applications that manage a durable subscription to the SYSTEM.FTE topic

You can write applications that manage their own durable subscriptions to the SYSTEM.FTE topic by using one of the application programming interfaces supported by WebSphere MQ. These applications can receive WebSphere MQ queue or log messages and act on them appropriately for your business needs.

For more information about the available application programming interfaces, see the following WebSphere MQ information: WebSphere MQ Application Programming Reference (SC34-6940-00) or WebSphere MQ Using Java (SC34-6935-00).

---

## Configuring a WebSphere MQ File Transfer Edition logger

When WebSphere MQ File Transfer Edition transfers files, it publishes information about its actions to a topic on the coordination queue manager. The database logger is an optional component of WebSphere MQ File Transfer Edition that you can use to copy this information into a database for analysis and auditing purposes.

There are two versions of the database logger: a stand-alone Java Platform, Standard Edition (JSE) application and a Java Platform, Enterprise Edition (JEE) application. In this documentation the two versions are referred to as the stand-alone database logger and the JEE database logger.

### Stand-alone database logger

The stand-alone database logger is a Java application that you install on a system that hosts the coordination queue manager and the database. The stand-alone database logger connects to the coordination queue manager using WebSphere MQ bindings, and to a Db2 or Oracle database using the type 2 JDBC driver. This type of connection is required because the stand-alone database logger uses the queue manager's XA support to coordinate a global transaction over both the queue manager and database, protecting the data.

If you are using a Windows system, you can run the stand-alone loggers as Windows services to ensure that the loggers continue running when you log off from your Windows session. For instructions, see “Installing the WebSphere MQ File Transfer Edition stand-alone database logger” on page 124.

### JEE database logger

The JEE database logger is provided as an EAR file, which you install into an application server. This can be more convenient than using the stand-alone database logger if you have an existing JEE application server environment available because the JEE database logger can be managed alongside your other enterprise applications. You can also install the JEE database logger on a separate system to the systems hosting your WebSphere MQ server and database. The JEE database logger is supported for use with Db2 and Oracle databases. The JEE database logger also supports Oracle Real Application Clusters when installed on WebSphere Application Server Version 7.0.

For instructions on how to configure a logger, see the following topics:

- “Installing the WebSphere MQ File Transfer Edition stand-alone database logger” on page 124
- “Installing the WebSphere MQ File Transfer Edition JEE database logger” on page 136

#### Related tasks:

“Installing the WebSphere MQ File Transfer Edition stand-alone database logger” on page 124

Follow these instructions to install and configure the stand-alone database logger.

“Installing the WebSphere MQ File Transfer Edition JEE database logger” on page 136

Follow these instructions to install and configure the JEE database logger.

“Migrating from the stand-alone database logger to the JEE database logger” on page 34

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

“Migrating the stand-alone database logger” on page 33

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

“Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37  
If your database is Db2 on a Windows, UNIX or Linux system, and you created your log database with a page size of less than 8 KB, you must increase the page size of the database before migrating to the V7.0.3 or later tables.

“Configuring transaction support - distributed systems only” on page 129

You must register the database with the coordination queue manager before using the stand-alone database logger. This protects the log data by using global transactions on distributed systems. The database acts as an XA resource manager and the queue manager as an XA transaction manager.

“Working with a remote database” on page 127

You can use the WebSphere MQ File Transfer Edition database logger to communicate with a database on a remote system.

#### **Related reference:**

“Database logger error handling and rejection” on page 405

The database logger identifies two types of error: per-message errors and general errors.

“Alternative configurations for the database logger” on page 135

Typically the database logger is on the same system as the coordination queue manager and is connected to the coordination queue manager in WebSphere MQ bindings mode. The database logger receives messages using a subscription, which the database logger creates automatically. This is the configuration described in the installation instructions.

“Database logger configuration properties for WebSphere MQ File Transfer Edition” on page 131

The database logger has a set of configuration properties. The table details the properties and their default values. Specify these properties in the `databaselogger.properties` file, which is in the `config_directory/coordination_qmgr` directory.

“fteStartDatabaseLogger (start the stand-alone database logger)” on page 569

The **fteStartDatabaseLogger** command starts the stand-alone database logger.

“fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

“fteStopDatabaseLogger (stop the stand-alone database logger)” on page 572

The **fteStopDatabaseLogger** command stops the stand-alone database logger.

“Database logger tables” on page 753

When you have installed and configured the database logger, the following database tables are created:

“Authorities for the database logger” on page 459

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the SYSTEM.FTE topic.

## **Installing the WebSphere MQ File Transfer Edition stand-alone database logger**

Follow these instructions to install and configure the stand-alone database logger.

### **About this task**

For more information about the stand-alone database logger, see the topic “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

**Note:** You cannot run a JEE database logger at the same time as a stand-alone database logger, unless these database loggers are using separate instances of the database.

### **Procedure**

1. Install your database software using the documentation for your database. If JDBC support is an optional component for your database, you must install this component.

2. Create a database using the tools provided by your database. The database must have a tablespace and bufferpool page size of at least 8K. The default schema name is FTELOG. If you use a schema name other than FTELOG, you must edit the provided SQL file appropriate to your database, `ftelog_tables_db2.sql` or `ftelog_tables_oracle.sql`, to reflect this before proceeding to the next step. For more information, see `wmqfte.database.schema` in
3. Create the required database tables using your database's tools. On distributed platforms, the files `ftelog_tables_db2.sql` and `ftelog_tables_oracle.sql` contain SQL commands that you can run to create the tables.

On z/OS, the file that you need to run depends on the version of Db2 for z/OS that you are using:

- For Db2 z/OS V9.0 and earlier, run the file `ftelog_tables_zos.sql` to create the tables. This file creates the tables using an INTEGER data type for fields which denote the sizes of files that are transferred and the table ID associated with each transfer.
- For Db2 z/OS V9.1 and later, run the file `ftelog_tables_zos_bigint.sql` to create the tables. This file creates the tables using a BIGINT data type for fields which denote the sizes of files that are transferred and the table ID associated with each transfer.

4. Install the stand-alone database logger.

- On distributed platforms, install the stand-alone database logger as part of the WebSphere MQ File Transfer Edition Remote Tools and Documentation installation. You can either choose to install just the stand-alone database logger or install the stand-alone database logger with the other WebSphere MQ File Transfer Edition tools.
- On z/OS, install the stand-alone database logger from the tape.

Add the following Db2 data sets to the STEPLIB environment variable in the order shown:

- SDSNEXIT
- SDSNLOAD
- SDSNLOAD2

5. Create the stand-alone database logger queues. The stand-alone database logger uses two queues on the coordination queue manager. The first queue is a command queue where messages to control the operation of the stand-alone database logger are placed. The default name of this command queue is `SYSTEM.FTE.DATABASELOGGER.COMMAND`. The second queue is a reject queue. Because the stand-alone database logger never discards log messages, if the logger encounters a message that it cannot handle, it places the message on the reject queue for examination, and possible reprocessing. You are not recommended to use the queue manager's dead letter queue for this purpose, because rejected messages do not have a DLH header and because rejected messages should not be combined with messages put to the dead letter queue for other reasons. The default name for the reject queue is `SYSTEM.FTE.DATABASELOGGER.REJECT`. These two queues are defined in the MQSC file generated by the **fteSetupCoordination** command in WebSphere MQ File Transfer Edition Version 7.0.1 or later. If you defined your coordination queue manager configuration using an earlier version, you create these two queues manually.
6. Choose a user and configure permissions
7. Configure the stand-alone database logger by editing the `databaselogger.properties` file. This file is a Java properties file that consists of key=value pairs. The `databaselogger.properties` file is in the `config_directory/coordination_qmgr_name` directory. If you install the Remote Tools and Documentation on z/OS or if you skip the configuration steps, the `databaselogger.properties` file is not created during installation. Manually create the file in the `config_directory/coordination_qmgr_name` directory. You must complete some properties for the stand-alone database logger to operate. You only need to use some other properties if you want to override built-in defaults. The minimum set of properties you must use is as follows:
  - a. `wmqfte.queue.manager` - set this property to the name of the coordination queue manager that you want the database loader to connect to.
  - b. `wmqfte.database.name` - set this property to the name of the database that holds the WebSphere MQ File Transfer Edition log tables.

- c. `wmqfte.database.driver` - set this property to the fully qualified file name of the .jar file that provides your database's JDBC driver. For example: `/opt/IBM/db2/V9.5/java/db2jcc.jar`. On Windows specify the path separator as a forward slash character (/) for example, `C:/Program Files/IBM/SQLLIB/java/db2jcc.jar`. If your database driver consists of multiple jar files (for example, Db2 V9.1 requires a driver jar file and a license jar file), include all these jar files in this property. Separate multiple file names using the classpath separator for your platform, that is, the semicolon character (;) on Windows and the colon character (:) on other platforms. See Database logger configuration properties for a description of all the properties in the file `databaselogger.properties`.
  - d. If you are using an Oracle database you must set this property, `wmqfte.database.user` - set this property to the user that connects to the database.
  - e. If you are using an Oracle database you must set this property, `wmqfte.database.password` - set this property to the password associated with the user specified by the preceding property.
  - f. If you are using an Oracle database you must set this property, `wmqfte.database.type` - set this property to `oracle` to override the default of `db2`.
  - g. If the native library path is not already available on the system path, you must set this property, `wmqfte.database.native.library.path` - set this to the full name of the directory that contains the WebSphere MQ native libraries.
8. If your WebSphere MQ system does not already include transaction support, configure this now. For more information about how to set up transaction support, see “Configuring transaction support - distributed systems only” on page 129
  9. Optional: If you are using a Windows system, you can run the stand-alone database logger as a Windows service. Run the **`fteModifyDatabaseLogger`** command with the `-s` parameter. For more information, see the topic “`fteModifyDatabaseLogger` (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550.
  10. Start the stand-alone database logger using the **`fteStartDatabaseLogger`** command. By default, the stand-alone database logger runs in the background and the stand-alone database logger places output into a file in the `logs` directory. If you want to run the stand-alone database logger in the foreground and produce output to the console as well as to the log file, add the `-F` parameter to the **`fteStartDatabaseLogger`** command.

If you carried out the previous step and used the **`fteModifyDatabaseLogger`** command with the `-s` parameter on Windows, the stand-alone database logger starts as a Windows service.

#### Related tasks:

“Configuring user access for the stand-alone database logger” on page 127

In a test environment, you can add any new privileges needed to your normal user account. In a production environment, you are recommended to create a new user with the minimum permissions required to do the job.

“Configuring transaction support - distributed systems only” on page 129

You must register the database with the coordination queue manager before using the stand-alone database logger. This protects the log data by using global transactions on distributed systems. The database acts as an XA resource manager and the queue manager as an XA transaction manager.

#### Related reference:

“Database logger configuration properties for WebSphere MQ File Transfer Edition” on page 131

The database logger has a set of configuration properties. The table details the properties and their default values. Specify these properties in the `databaselogger.properties` file, which is in the `config_directory/coordination_qmgr` directory.

“`fteStartDatabaseLogger` (start the stand-alone database logger)” on page 569

The **`fteStartDatabaseLogger`** command starts the stand-alone database logger.

“`fteModifyDatabaseLogger` (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550

The **`fteModifyDatabaseLogger`** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

“Authorities for the database logger” on page 459

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the SYSTEM.FTE topic.

## Working with a remote database

You can use the WebSphere MQ File Transfer Edition database logger to communicate with a database on a remote system.

### About this task

If you have a database installed on a different machine from the machine WebSphere MQ File Transfer Edition is installed on, complete the following steps. The steps apply to both Db2 and Oracle unless stated otherwise.

### Procedure

1. Install a database client on the system that you have installed WebSphere MQ File Transfer Edition on.
2. Add your remote database server to your local database client configuration. This configuration update is needed for WebSphere MQ File Transfer Edition and WebSphere MQ to correctly access the database.
3. **Oracle only:** To allow a remote connection to the database, change the XAResourceManager stanza in the coordination queue manager's `qm.ini` file to the following (ensuring you change the database name, user name and user password to match your own information):

```
Oracle_XA+Acc=P/ftelog/qgw783jhT+SesTm=35+DB=FTEAUDIT1+Sq1Net=FTEAUDIT1+threads=false
```

The change is highlighted in bold. For more information about this stanza, see *Configuring transaction support*.

4. **Oracle only:** Specify a host and port in the `databaselogger.properties` file, using the `wmqfte.oracle.host` and `wmqfte.oracle.port` properties. The default values for the host and port allow you to work with a local database client so if you have previously worked with a local database, you might not have set these values.

### Related reference:

“Database logger configuration properties for WebSphere MQ File Transfer Edition” on page 131

The database logger has a set of configuration properties. The table details the properties and their default values. Specify these properties in the `databaselogger.properties` file, which is in the `config_directory/coordination_qmgr` directory.

## Configuring user access for the stand-alone database logger

In a test environment, you can add any new privileges needed to your normal user account. In a production environment, you are recommended to create a new user with the minimum permissions required to do the job.

### Before you begin

Before configuring user permissions for the database logger user you must ensure that the correct permissions are set for the queue manager user. The queue manager user account is created by WebSphere MQ at installation.

- If you are using Db2 on Windows ensure that the MUSR\_MQADMIN user is in the DB2USERS group.

### About this task

The number and type of user accounts you need to run the database logger depend on the number of systems you use. You can install the database logger, WebSphere MQ and your database on a single

system, or across two systems. The database logger must be on the same system as WebSphere MQ. The components can be installed in the following topologies:

#### **Database logger, WebSphere MQ and the database all on the same system**

You can define a single operating system user for use with all three components. This is a suitable configuration for the stand-alone database logger. The database logger uses Bindings mode to connect to WebSphere MQ and a native connection to connect to the database.

#### **Database logger and WebSphere MQ on one system, the database on a separate system**

You create two users for this configuration: an operating system user on the system running the database logger, and a operating system user with remote access to the database on the database server. This is a suitable configuration for the stand-alone database logger using a remote database. The database logger uses Bindings mode to connect to WebSphere MQ and a client connection to access the database.

As an example, the rest of these instructions assume that the user is called `ftelog`, but you can use any user name. Configure the user's permissions as follows:

#### **Procedure**

1. Ensure that the user has permission to read and, where necessary, execute, the files installed as part of the WebSphere MQ File Transfer Edition Remote Tools and Documentation installation.
2. Ensure that the user has permission to create and write to any file in the logs directory (in the configuration directory). This directory is used for an event log, and if necessary for diagnostic trace and FFDC files.
3. Ensure that the user has its own group, and is not also in any groups with wide-ranging permissions on the coordination queue manager. The user should not be in the `mqm` group. On certain platforms, the staff group is automatically given queue manager access as well; the database logger user should not be in the staff group. You can view authority records for the queue manager itself and for objects in it using the WebSphere MQ Explorer. Right-click the object and select **Object Authorities > Manage Authority Records**. At the command line, you can use the commands `dspmqaout` (display authority) or `dmpmqaout` (dump authority).
4. Use the Manage Authority Records window in the WebSphere MQ Explorer or the `setmqaut` (grant or revoke authority) command to add authorities for the user's own group (on UNIX, WebSphere MQ authorities are associated with groups only, not individual users). The authorities required are as follows:
  - Connect and Inquire on the queue manager (the WebSphere MQ Java libraries require Inquire permission to operate).
  - Subscribe permission on the `SYSTEM.FTE` topic.
  - Put permission on the `SYSTEM.FTE.DATABASELOGGER.REJECT` queue.
  - Get permission on the `SYSTEM.FTE.DATABASELOGGER.COMMAND` queue.

The reject and command queue names given above are the default names. If you chose different queue names when you configured the database logger queues, add the permissions to those queue names instead.

5. Perform the user configuration that is specific to the database you are using.
  - If your database is Db2, carry out the following steps:

There are several mechanisms for managing database users with Db2. These instructions apply to the default scheme based on operating system users.

    - Ensure that the `ftelog` user is not in any Db2 administration groups (for example, `db2iadm1`, `db2fadm1`, or `dasadm1`)
    - Give the user permission to connect to the database and permission to select, insert and update on the tables that you created as part of Step 2: create the required database tables
    - On Windows, see WebSphere MQ coordinating with Db2 as the resource manager.
  - If your database is Oracle, carry out the following steps:

- Ensure that the `ftelog` user is not in any Oracle administration groups (for example, `ora_dba` on Windows or `dba` on Unix)
- Give the user permission to connect to the database and permission to select, insert and update on the tables that you created as part of Step 2: create the required database tables

## Configuring transaction support - distributed systems only

You must register the database with the coordination queue manager before using the stand-alone database logger. This protects the log data by using global transactions on distributed systems. The database acts as an XA resource manager and the queue manager as an XA transaction manager.

### About this task

If you are using z/OS, do not carry out any of these steps because WebSphere MQ File Transfer Edition for z/OS uses the Resource Recovery Service (RRS), which is a prerequisite.

### Procedure

1. Prepare the XA switch files. Complete the instructions in the following topic: JTA/JDBC coordination using WebSphere MQ classes for Java.
  - Copy the `jdbcdb2.dll` file on Windows, `jdbcora10.dll` file on an Oracle 10g database, or `jdbcora11.dll` file on an Oracle 11g database, from the `mq_install_directory\java\lib\jdbc` directory to the `mq_install_directory\exits` directory.
  - On other platforms, you must link the files to the database libraries by using the makefile supplied. Depending on the exact platform and versions, you might need to modify the Db2 makefile to point to `DB2LIBPATH=-L$(DB2_HOME)/lib32` instead of `DB2LIBPATH=-L$(DB2_HOME)/lib`. For more information, see [Configuring JTA/JDBC coordination on platforms other than Windows](#).
2. Configure the queue manager by adding the information similar to that in the following examples. In these examples, `FTAUDIT1` is the database name, `ftelog` is the user name, and `qgw783jhT` is the user password:

For Db2:

```
XAResourceManager:
  Name=DB2DB
  SwitchFile=jdbcdb2
  XAOpenString=db=FTAUDIT1, uid=ftelog, pwd=qgw783jhT, toc=p, tpm=mq
  ThreadOfControl=PROCESS
```

For Oracle:

```
XAResourceManager:
  Name=OracleDB
  SwitchFile=jdbcora10
  XAOpenString=Oracle_XA+Acc=P/ftelog/qgw783jhT+SesTm=35+DB=FTAUDIT1+threads=false
  ThreadOfControl=PROCESS
```

For information specific to using an Oracle database, see the following article: [Adding resource manager configuration information for Oracle](#)

- On UNIX platforms, shut down the coordination queue manager (this shutdown does not disrupt transfers in progress on your WebSphere MQ File Transfer Edition network unless you are also using the coordination queue manager as an agent or command queue manager). Modify the coordination queue manager's `qm.ini` file to add an `XAResourceManager` stanza similar to the preceding examples.
- On Windows, you can set these values by using WebSphere MQ Explorer.
  - a. Right-click on the queue manager name in the **MQ Explorer - Navigator** panel. Select **Properties**.
  - b. In the left panel select **XA resource managers**. Click **Add**.
  - c. Type values similar to those values in the preceding examples into the appropriate fields. Click **OK**.
  - d. Click **Apply**.

e. Click OK.

**Note:** On Windows with a Db2 database, you must add the user MUSR\_MQADMIN to the DB2USERS group for the queue manager to be able to start.

3. Start or restart the coordination queue manager.

4. Configure the database for XA.

- If you are using Db2 on a platform *other than* Windows, you do not need to do any further configuration.
- If you are using Db2 on Windows, configure WebSphere MQ as the transaction monitor by using the following Db2 command:

```
db2 UPDATE DBM CFG USING TP_MON_NAME MQ
```

The MQ in this command matches the tpm=mq set in the XAOpenString of the XAResourceManager stanza above.

- If you are using Oracle 9i, you might need to run two scripts, `initxa.sql` and `initjvm.sql`. Information about how to run these scripts is described in the following developerWorks article: [Configuring and using XA distributed transactions in WebSphere Studio](#)
- If you are using Oracle, the database logger's user name (ftelog in the examples) must have access to the DBA\_PENDING\_TRANSACTIONS table, which Oracle uses to implement XA. For example, use a command like the following to grant ftelog access:

```
GRANT SELECT ON DBA_PENDING_TRANSACTIONS TO FTELOG
```

## What to do next

For more information about completing these steps, see the following topics in the WebSphere MQ V7.0.1 product documentation and the following developerWorks article:

- This topic describes XA registration in general terms, with specifics applicable to C programs: Scenario 1: Queue manager performs the coordination. Not all the databases that are mentioned here are supported by WebSphere MQ when you use a Java application such as WebSphere MQ File Transfer Edition. Do not follow the instructions in this linked topic to create switch files. These instructions apply to native code programs only. For the database logger, which is a Java program, use the instructions in the following topic instead: [Configuring JTA/JDBC coordination on platforms other than Windows](#).
- This topic is applicable specifically to the approach used by the WebSphere MQ File Transfer Edition database logger: [JTA/JDBC coordination using WebSphere MQ classes for Java](#).
- You might also find the following IBM developerWorks article useful: [Configuring and using XA transactions with WebSphere MQ V6 Classes for Java](#).

## Database logger configuration properties for WebSphere MQ File Transfer Edition

The database logger has a set of configuration properties. The table details the properties and their default values. Specify these properties in the `databaselogger.properties` file, which is in the `config_directory/coordination_qmgr` directory.

**Note:** When you specify file paths on Windows, the backslash (\) separator character must appear as double backslashes (\\) (that is, escaped \). Alternatively, you can use a single forward slash character (/) as a separator. For further information about character escaping in Java properties files see Sun's Javadoc for the Properties class.

Property name	Description	Default value
<code>wmqfte.max.transaction.messages</code>	The maximum number of messages that is processed in a transaction before the transaction is committed. In circular logging mode, a queue manager has a fixed amount of space available for inflight data. Ensure you set this property with a sufficiently low value so that the available space does not run out.	50
<code>wmqfte.max.transaction.time</code>	The maximum length of time in milliseconds that passes between transaction commits.	5000
<code>wmqfte.max.consecutive.reject</code>	The maximum number of messages that can be rejected consecutively (that is, without encountering a valid message).  If this number is exceeded the database logger concludes that the problem is not with the messages themselves but with the configuration. For example, if you make an agent-name column in the database narrower than all of your agent names, all messages referring to agents are rejected.	50
<code>wmqfte.reject.queue.name</code>	The name of a queue that the database logger puts messages to that the logger cannot handle. See Database logger error handling and rejection for details of which messages might be put onto this queue.	<code>SYSTEM.FTE.DATABASELOGGER.REJECT</code>
<code>wmqfte.command.queue.name</code>	The name of a queue that the database logger reads command messages controlling its behavior from.	<code>SYSTEM.FTE.DATABASELOGGER.COMMAND</code>
<code>wmqfte.queue.manager</code>	The queue manager that the database logger connects to (the queue manager must be on the same machine as the database logger).	No default value

Property name	Description	Default value
wmqfte.message.source.type	<p>One of the following values:</p> <p><b>automatic subscription</b> The default value. The database logger creates and uses its own durable, managed subscription on the above-named queue manager, to the topic SYSTEM.FTE/Log/#. This is an appropriate value for most scenarios.</p> <p><b>administrative subscription</b> If the automatic subscription is not appropriate, you can administratively define a different subscription (for example, using the WebSphere MQ Explorer, MQSC, or PCF) and instruct the database logger to use the subscription. For example, use this value to partition the log space so that one logger instance handles agents from A-H, another logger instance handles I-P, and a third logger instance from Q-Z.</p> <p><b>queue</b> If the WebSphere MQ topology means that creating a subscription for the database logger is not convenient, you can use a queue instead. Configure WebSphere MQ so that the queue receives the messages that are typically received by a subscription to SYSTEM.FTE/Log/# on the coordination queue manager.</p>	automatic subscription
wmqfte.message.source.name	If the message source type is administrative subscription or queue, the name of the subscription or queue to use. This property is ignored if the source type is automatic subscription.	No default value
wmqfte.database.name	The name of the database containing the WebSphere MQ File Transfer Edition log tables.	No default value
wmqfte.database.type	The database management system in use: Db2 or Oracle. Set this value to db2 or oracle.	db2

Property name	Description	Default value
wmqfte.database.schema	The database schema that contains the WebSphere MQ File Transfer Edition logging tables. In most cases the default value is appropriate, but you might need to specify an alternative value depending on your own site-specific database considerations.	FTELOG
wmqfte.database.native.library.path	The path containing the native libraries needed by your chosen database driver (if any). For example, the Type 2 driver for Db2 on AIX requires libraries from /opt/IBM/db2/V9.5/lib32/. As an alternative to this property, you can set the java.library.path system property using other methods.	No default value
wmqfte.database.driver	<p>The location of the JDBC driver classes for the database. This is typically the path and file name of a JAR file. For example, the Type 2 driver for Db2 on AIX requires the file /opt/IBM/db2/V9.5/java/db2jcc.jar. On Windows specify the path separator as a forward slash character (/) for example, C:/Program Files/IBM/SQLLIB/java/db2jcc.jar.</p> <p>On z/OS, you must reference all of the following JAR files:</p> <ul style="list-style-type: none"> <li>• db2jcc.jar</li> <li>• db2jcc_license_cisuz.jar</li> <li>• db2jcc_javax.jar</li> </ul> <p>If your database driver consists of multiple JAR files (for example, Db2 V9.1 requires a driver JAR file and a license JAR file), include all of these JAR files in this property. Separate multiple file names using the classpath separator for your platform, that is, the semicolon character (;) on Windows and the colon character (:) on other platforms.</p>	No default value

Property name	Description	Default value
wmqfte.max.retry.interval	<p>The maximum time, in seconds, between retries when the database logger encounters a persistent error.</p> <p>Some error conditions (for example, loss of database connection) prevent the database logger continuing. When this type of condition occurs, the logger rolls back the current transaction, waits for a period, and then retries. The time that the logger waits is initially very short, so that transitory errors can be overcome quickly. However, each time the database logger retries, the time that it waits is increased. This prevents too much unnecessary work taking place when the error condition is longer-lasting, for example when a database is taken down for maintenance.</p> <p>Use this property to set a limit to the length of the wait, so that a retry occurs in a reasonable time of the error condition being resolved.</p>	600
wmqfte.database.user	The user that the database logger uses to connect to the database.	No default value
wmqfte.database.password	The password that the database logger uses to connect to the database.	No default value
wmqfte.oracle.port	The port that the database logger uses to connect to the Oracle instance. This port is also known as a TNS listener.	1521
wmqfte.oracle.host	The host that the database logger uses to connect to the Oracle instance.	localhost

## Alternative configurations for the database logger

Typically the database logger is on the same system as the coordination queue manager and is connected to the coordination queue manager in WebSphere MQ bindings mode. The database logger receives messages using a subscription, which the database logger creates automatically. This is the configuration described in the installation instructions.

However, if you have site-specific considerations, you can configure the database logger to receive messages in two other ways, controlled by the `wmqfte.message.source.type` property. This property is described in Database logger properties.

### Administrative subscription

By default, the database logger creates its own subscription to the `SYSTEM.FTE/Log/#` topic, using the default durable subscription options and a managed subscription (that is, the queue manager controls the backing queue used to hold the messages before they are passed to the application). If other options are required on the subscription or the queue, you can instead create a subscription yourself, set the options that you require, and configure the database logger to use that subscription instead. Remember to add permission for the database logger to use the subscription that you create.

An example of using this configuration is to partition the log space by using two wildcard subscriptions, to send logs from agents whose name begins with `FINANCE` into one database and logs from agents beginning with `ACCOUNTING` into another. This type of configuration requires two database logger instances, each with its own `databaselogger.properties` file referring to the required subscription and its own command queue and reject queue.

To collect log messages only from agents whose names begin with `ACCOUNTING`, create a subscription object on your coordination queue manager with a topic string of `SYSTEM.FTE/Log/ACCOUNTING*`. Set the **Wildcard usage** value to **Character level wildcard**. You must also add entries to the `databaselogger.properties` file for your WebSphere MQ File Transfer Edition installation. For example, if you create a subscription object called `ACCOUNTING.LOGS` with these settings, add the following entries to the `databaselogger.properties` file:

```
wmqfte.message.source.type=administrative subscription
wmqfte.message.source.name=ACCOUNTING.LOGS
```

If your alternative configuration means that you must use more than one database logger, you need separate command and reject queues defined for each of your database loggers. For example, if you create a command queue called `SYSTEM.FTE.DATABASELOGGER.COMMAND.ACCOUNTING` and a reject queue called `SYSTEM.FTE.DATABASELOGGER.REJECT.ACCOUNTING`, add the following entries to the `databaselogger.properties` file:

```
wmqfte.command.queue.name=SYSTEM.FTE.DATABASELOGGER.COMMAND.ACCOUNTING
wmqfte.reject.queue.name=SYSTEM.FTE.DATABASELOGGER.REJECT.ACCOUNTING
```

The database logger handles log messages that start with the topic string of `SYSTEM.FTE/Log/` only. You can specify a more restrictive topic string, but you cannot specify a less restrictive string. If you do specify a less restrictive string in error, all publications that relate to a topic string other than `SYSTEM.FTE/Log/` go to the reject queue, and the database logger produces the error message `BFGDB0002E`. This error message implies that there is a problem with the database logger configuration.

### Queue

The typical topology is where the database logger runs on the same system as the coordination queue manager. If this is not possible, you can create a subscription on the coordination queue manager using a queue on another queue manager as the subscription destination (either using a remote queue definition or by using the `DESTQMGR` property of the subscription). The database logger can then run on the system hosting the second queue manager and read the messages from the queue. To ensure transactional integrity, the database logger must always connect to its queue manager in bindings mode. You must

define the reject queue and command queue on the same queue manager that the database logger connects to. The queue managers must be at WebSphere MQ Version 7 or later.

For example, to collect log messages which are being placed on the queue USER.QUEUE by a subscription, add these entries to the `databaseLogger.properties` file:

```
wmqfte.message.source.type=queue  
wmqfte.message.source.name=USER.QUEUE
```

## Installing the WebSphere MQ File Transfer Edition JEE database logger

Follow these instructions to install and configure the JEE database logger.

### About this task

For more information about the JEE database logger, see the topic “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

**Note:** You cannot run a JEE database logger at the same time as a stand-alone database logger, unless these database loggers are using separate instances of the database.

### Procedure

1. Before installing the JEE database logger, you must prepare your environment. Use the instructions in the topic “Preparing to install the WebSphere MQ File Transfer Edition JEE database logger” on page 137.
2. You install the JEE database logger in a Java Platform, Enterprise Edition (JEE)-compliant application server. For instructions, see the following topics:
  - “Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Version 7.0 or later” on page 139
  - “Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Community Edition” on page 143

### Related tasks:

“Preparing to install the WebSphere MQ File Transfer Edition JEE database logger” on page 137  
Follow these instructions to prepare your environment before installing the JEE database logger.

“Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Version 7.0 or later” on page 139

Follow these instructions to install and configure the Java Platform, Enterprise Edition (JEE) database logger with WebSphere Application Server Version 7 or later.

“Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Community Edition” on page 143

Follow these instructions to install and configure the JEE database logger with WebSphere Application Server Community Edition.

“Configuring user access for the JEE database logger” on page 147

When you configure the WebSphere MQ File Transfer Edition Java Platform, Enterprise Edition (JEE) database logger, you need user accounts to access WebSphere MQ, your database, and your operating system. The number of operating system users that is required depend on the number of systems you are using to host these components.

“Migrating from the stand-alone database logger to the JEE database logger” on page 34

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

### Related reference:

“Authorities for the database logger” on page 459

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the SYSTEM.FTE topic.

## Preparing to install the WebSphere MQ File Transfer Edition JEE database logger

Follow these instructions to prepare your environment before installing the JEE database logger.

### About this task

For more information about the JEE database logger, see the topic “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

### Procedure

1. Install your database software using the documentation for your database. If JDBC support is an optional component for your database, you must install this component.
2. Create a database using the tools provided by your database. The database must have a tablespace and bufferpool page size of at least 8K. The default schema name is FTELOG. If you use a schema name other than FTELOG, you must edit the provided SQL file appropriate to your database, `ftelog_tables_db2.sql` or `ftelog_tables_oracle.sql`, to reflect this before proceeding to the next step. For more information, see `wmqfte.database.schema` in
3. Create the required database tables using your database's tools. On distributed platforms, the files `ftelog_tables_db2.sql` and `ftelog_tables_oracle.sql` contain SQL commands that you can run to create the tables.

On z/OS, the file that you need to run depends on the version of Db2 for z/OS that you are using:

- For Db2 z/OS V9.0 and earlier, run the file `ftelog_tables_zos.sql` to create the tables. This file creates the tables using an INTEGER data type for fields which denote the sizes of files that are transferred and the table ID associated with each transfer.
  - For Db2 z/OS V9.1 and later, run the file `ftelog_tables_zos_bigint.sql` to create the tables. This file creates the tables using a BIGINT data type for fields which denote the sizes of files that are transferred and the table ID associated with each transfer.
4. If you have changed the schema name from FTELOG, you must change the schema name in the EAR file. For more information, see “Changing the schema name in your Java Platform, Enterprise Edition database logger” on page 138.
  5. Create a reject queue in WebSphere MQ. Because the database logger never discards log messages, if the logger encounters a message that it cannot handle, it places the message on the reject queue for examination and possible reprocessing. Do not use the queue manager's dead letter queue for this purpose, because rejected messages do not have a DLH header and because rejected messages must not be combined with messages put to the dead letter queue for other reasons. The default name for the reject queue is `SYSTEM.FTE.DATABASELOGGER.REJECT`. The reject and command queues are defined in the MQSC file generated by the **fteSetupCoordination** command in WebSphere MQ File Transfer Edition Version 7.0.1 or later. If you defined your coordination queue manager configuration using an earlier version, you create this queue manually.
  6. Follow the instructions in the topic Configuring user access for the JEE database logger.

### What to do next

Now you can install the JEE database logger in a JEE-compliant application server. Use the instructions in the following topics, based on the application server you are using:

- “Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Version 7.0 or later” on page 139
- “Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Community Edition” on page 143

## Changing the schema name in your Java Platform, Enterprise Edition database logger

The Java Platform, Enterprise Edition (JEE) database logger can use a database that has a non-default schema name. You must change the schema name in the database logger EAR file.

### About this task

To change the name of the schema that your JEE database logger uses, complete the following steps:

### Procedure

1. Extract the JPA JAR file from the EAR file by using the following command:

```
jar -xvf ear_file lib/jpa_file
```

where:

- *ear\_file* is com.ibm.wmqfte.databaselogger.jee.oracle.ear or com.ibm.wmqfte.databaselogger.jee.ear depending on whether you are using Db2 or Oracle.
- *jpa\_file* is com.ibm.wmqfte.web.jpa.oracle.jar or com.ibm.wmqfte.web.jpa.jar depending on whether you are using Db2 or Oracle.

2. Extract the persistence.xml file from the JPA JAR file by using the following command:

```
jar -xvf lib/jpa_file META-INF/persistence.xml
```

where:

- *jpa\_file* is com.ibm.wmqfte.web.jpa.oracle.jar or com.ibm.wmqfte.web.jpa.jar depending on whether you are using Db2 or Oracle.

3. Edit the persistence.xml file to change the following line:

```
<property name="openjpa.jdbc.Schema" value="schema_name" />
```

where

- *schema\_name* is the schema name you want to use.

4. Update JPA JAR with the modified persistence.xml file by using the following command:

```
jar -uvf lib/jpa_file META-INF/persistence.xml
```

where:

- *jpa\_file* is com.ibm.wmqfte.web.jpa.oracle.jar or com.ibm.wmqfte.web.jpa.jar depending on whether you are using Db2 or Oracle.

5. Update the EAR file with the modified JPA JAR file by using the following command:

```
jar -uvf ear_file lib/jpa_file
```

where:

- *ear\_file* is com.ibm.wmqfte.databaselogger.jee.oracle.ear or com.ibm.wmqfte.databaselogger.jee.ear depending on whether you are using Db2 or Oracle.
- *jpa\_file* is com.ibm.wmqfte.web.jpa.oracle.jar or com.ibm.wmqfte.web.jpa.jar depending on whether you are using Db2 or Oracle.

### What to do next

Use the modified EAR file to install the JEE database logger.

### Related tasks:

“Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Version 7.0 or later”

Follow these instructions to install and configure the Java Platform, Enterprise Edition (JEE) database logger with WebSphere Application Server Version 7 or later.

“Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Community Edition” on page 143

Follow these instructions to install and configure the JEE database logger with WebSphere Application Server Community Edition.

## Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Version 7.0 or later

Follow these instructions to install and configure the Java Platform, Enterprise Edition (JEE) database logger with WebSphere Application Server Version 7 or later.

### Before you begin

Before you install the JEE database logger application, follow the instructions in the topics “Preparing to install the WebSphere MQ File Transfer Edition JEE database logger” on page 137 and “Setting the native library path in WebSphere Application Server Version 7.0” on page 167.

### About this task

For more information about the JEE database logger, see “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

### Procedure

1. Set up the XA JDBC provider:
  - a. Select **Resources > JDBC > JDBC Providers** from the WebSphere Application Server Version 7.0 or later administration console navigation.
  - b. Create a JDBC provider using the console wizard, by clicking **New**.
  - c. At Step 1 of the wizard, select the database that you are using from the **Database type** list, and the associated provider type from the **Provider type** list. From the **Implementation type** list, select **XA data source**. Click **Next**.
  - d. At Step 2 of the wizard, ensure that the directory location of the required database jar files is set correctly. Click **Next**.
  - e. Click **Finish** on the summary page to create the JDBC provider.
2. Create authentication aliases. You create one alias for the data source and another for WebSphere MQ:
  - a. Select **Security > Global security** from the WebSphere Application Server Version 7.0 or later administration console navigation.
  - b. Under the **Authentication** heading, expand **Java Authentication and Authorization Service**.
  - c. Click **J2C authentication data**. The authentication alias page opens.
  - d. Create an authentication alias for your data source:
    - 1) Click **New**.
    - 2) Enter the details for **Alias**, **User ID**, **Password** and **Description**. The details that are entered in the **User ID** and **Password** fields must match the details that you entered when you created your database user in step 4, Configuring user access for the JEE database logger.
    - 3) Click **OK**.
  - e. Create an authentication alias for WebSphere MQ:
    - 1) Click **New**.

- 2) Enter the details for **Alias**, **User ID**, **Password** and **Description**. The details that are entered in the **User ID** and **Password** fields must match your user and password settings for your WebSphere MQ installation.
  - 3) Click **OK**.
3. Create a data source:
    - a. Select **Resources > JDBC > Data sources** from the WebSphere Application Server Version 7.0 or later administration console navigation.
    - b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
    - c. Create a data source using the console wizard, by clicking **New**.
    - d. At Step 1 of the wizard, in the **Data source name** field, enter wmqfte-database and in the **JNDI name** field, enter jdbc/wmqfte-database. Click **Next**.
    - e. At Step 2 of the wizard, use the **Select an existing JDBC provider** dropdown list to select the JDBC provider created in the above steps. Click **Next**.
    - f. **Db2**: At Step 3 of the wizard, in the **Driver type** field, enter 4.
    - g. **Db2**: Enter the required details in the **Database name**, **Server name**, and **Port number** fields, and click **Next**.  
**Oracle**: Enter the required connection URL in the **URL** field and choose the correct data store helper in the **Data store helper class name** field.  
**Oracle RAC**: When you connect to an Oracle Real Application Cluster, the connection URL must include the host information necessary to connect to all available instances of the database.
    - h. At Step 4 of the wizard, select the name of the data source authentication alias that you defined in step 2d from the **Authentication alias for XA recovery** list. Select the same name from the **Component-managed authentication alias** and **Container-managed authentication alias** lists.
    - i. Click **Finish** on the summary page to create the data source.
  4. Optional: Verify the configuration of the data source:
    - a. Select **Resources > JDBC > Data sources** from the WebSphere Application Server Version 7.0 or later administration console navigation.
    - b. Click the **Test Connection** button.
  5. Create a topic.
    - a. From the WebSphere Application Server Version 7.0 or later administration console navigation, click **Resources > JMS > Topics**.
    - b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
    - c. Click **New**.
    - d. Click **WebSphere MQ messaging provider**.
    - e. On the Administration panel of the property page for the topic, choose unique values for the **Name** and **JNDI name** fields, that you will reference later on in the configuration.
    - f. In the WebSphere MQ topic panel, enter SYSTEM.FTE/Log/# in the **Topic name** field.
  6. Create an activation specification:
    - a. From the WebSphere Application Server Version 7.0 or later administration console navigation, click **Resources > JMS > Activation specifications**.
    - b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
    - c. Click **New**.
    - d. Click **WebSphere MQ messaging provider**.
    - e. In Step 1 of the wizard, choose unique values for the **Name** and **JNDI name** fields, that you will again reference later on in the configuration.

- f. In Step 1.1, enter the JNDI name for the topic that you set up in step 5 in the **Destination JNDI name** field.
- g. From the **Destination type** list, select **Topic**.
- h. In Step 1.2 of the wizard, select **Durable Subscription**. Enter SYSTEM.FTE.DATABASELOGGER.AUTO in the **Subscription name** field.
- i. In Step 2 of the wizard, select **Enter all the required information into this wizard**.
- j. In Step 2.1, enter your queue manager name in the **Queue manager or queue sharing group name** field.
- k. In Step 2.2, select your chosen transport method from the **Transport** list. If you select **Bindings**, no other information is required. If you select **Client** or **Bindings then client**, enter the details for **Hostname**, **Port** and **Server connection channel**.
- l. Optional: Click **Test Connection** if you want to confirm the queue manager is present. However, you can expect to receive NOT\_AUTHORIZED until you reference the authentication alias in step 6n below.
- m. Click **Save**.
- n. Click the name of the Activation Specification that you created. In the General Properties section of the Configuration tab, scroll down to the Advanced panel and enter a unique name to identify your MQ connection in the **Client ID** field. You must complete this step or your connection is rejected by MQ with the JMSCC0101 error code.
- o. If you chose **Client** as your transport method, scroll down to the Security Settings panel and select the authentication alias that you defined in step 8 from the **Authentication alias** list.
- p. Click **Apply**.
- q. In the Additional Properties section of the **Configuration** tab, click **Advanced Properties**. In the Connection Consumer section of the Advanced Properties panel, enter 1 into the **Maximum server sessions** field.

**Note:** Ensure that you have completed this step before proceeding. Failure to do so can cause the database logger to fail to operate correctly.

- r. In the Additional Properties section of the **Configuration** tab, click **Advanced Properties**. Set the value of **Stop endpoint if message delivery fails** to a minimum of 1.  
If the value of the `_numberOfFailedAttemptsBeforeReject` property is set to more than 1 (see 9j for more information), set **Stop endpoint if message delivery fails** to at least the value of the `_numberOfFailedAttemptsBeforeReject` property. This prevents the endpoint from stopping when a message that cannot be processed (for example, a malformed transfer log message) is received. For more information, see "Database logger error handling and rejection" on page 405.
7. Create a queue connection factory.
- a. From the WebSphere Application Server Version 7.0 or later administration console navigation, click **Resources > JMS > Queue connection factories**.
  - b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
  - c. Click **New**.
  - d. Click **WebSphere MQ messaging provider**.
  - e. In Step 1 of the wizard, choose unique values for the **Name** and **JNDI name** fields, that you will again reference later on in the configuration.
  - f. In Step 2, select **Enter all the required information into this wizard**.
  - g. In Step 2.1, enter your queue manager name in the **Queue manager or queue sharing group name** field.
  - h. In Step 2.2, select your chosen transport method from the **Transport** list. If you select **Bindings**, no other information is required. If you select **Client** or **Bindings then client**, enter the details for **Hostname**, **Port** and **Server connection channel**.

- i. Optional: Click **Test Connection** if you wish to confirm the queue manager is present. However, you can expect to receive NOT\_AUTHORIZED until you reference the authentication alias in step 7h below.
  - j. If you selected **Client** or **Bindings then client** as your transport method, click the name of the queue connection factory you created. Scroll down to the Security Settings panel of the **Configuration** tab and select the authentication alias that you defined in step 2e from the **Authentication alias for XA recovery** and **Container-managed authentication alias** lists.
8. Create a reject queue in WebSphere Application Server:
- a. From the WebSphere Application Server Version 7.0 or later administration console navigation, click **Resources > JMS > Queues**.
  - b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
  - c. Click **New**.
  - d. Click **WebSphere MQ messaging provider**.
  - e. Choose unique values for the **Name** and **JNDI name** fields, that you will again reference later on in the configuration.
  - f. Enter SYSTEM.FTE.DATABASELOGGER.REJECT in the **Queue name** field.
  - g. Enter your queue manager name in the **Queue manager name** field.
  - h. Click **OK**.
9. Install the JEE database logger application:
- a. From the WebSphere Application Server Version 7.0 administration console, select **Applications > New Application**.
  - b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
  - c. From the options list, select **New Enterprise Application**.
  - d. On the **Preparing for the application installation** page, select the com.ibm.wmqfte.databaselogger.jee.ear file or the com.ibm.wmqfte.databaselogger.jee.oracle.ear file from the *install\_directory/web* directory of the WebSphere MQ File Transfer Edition WebSphere MQ File Transfer Edition Server installation, and click **Next**.
  - e. On the following screen, select **Detailed** to show all installation options and parameters, and click **Next**.
  - f. Click **Next** through wizard steps 1-4 to accept the default values.
  - g. In step 5 of the wizard, **Bind listeners for message driven beans**, scroll to the **Listener Bindings** section. Click **Activation Specification**. Enter the required values for the following fields:
    - Target Resource JNDI name**  
The JNDI name that you specified when you created an activation specification in step 6d.
    - Destination JNDI name**  
The JNDI name that you specified when you created a topic in step 5d.

Click **Next**.
  - h. In step 6 of the wizard, **Map resource references to resources**, enter the required details in the **Target Resource JNDI name** field. This name is the JNDI name that you specified for the reject queue connection factory in step 7c. Click **Next**.
  - i. In step 7 of the wizard, **Map resource environment entry references to resources**, enter the required details in the **Target Resource JNDI name** field. This name is the JNDI name of the reject queue that you created in step 8d. Click **Next**.
  - j. In step 8 of the wizard, **Map environment entries for EJB modules**, accept the default value of 1. Click **Next**.

**Oracle RAC:** When you connect to an Oracle Real Application Cluster you must set the value of the `_numberOfFailedAttemptsBeforeReject` property to **at least 2**. This property determines the number of times that the database logger attempts to process an audit message after a failure occurs. In a case of database failover at least one failure is likely to occur. To avoid unnecessarily moving a message to the reject queue, increasing this value allows a second attempt to be made, which usually results in success as a connection is made to the new database instance. If you find during testing that messages are still moved to the reject queue during failover of your database instance, increase this value further: the timing of the switch between instances might cause more than one failure for the same message. However, be aware that increasing this value affects all failure cases (for example, a malformed message) and not just database failover, so increase the value with care to avoid unnecessary retries.

- k. In step 9 of the wizard, **Metadata for modules**, click **Next**.
  - l. In step 10 of the wizard, **Summary**, click **Finish**.
10. You can now start the application from the WebSphere Application Server Version 7.0 administration console:
- a. Select **Applications > Application Types > WebSphere enterprise applications** from the console navigation.
  - b. Select the check box for the **WebSphere MQ File Transfer Edition database logger** enterprise application from the collection table, and click **Start**.

## Results

### Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Community Edition

Follow these instructions to install and configure the JEE database logger with WebSphere Application Server Community Edition.

#### Before you begin

Before installing the JEE database logger application, follow the instructions in the topic “Preparing to install the WebSphere MQ File Transfer Edition JEE database logger” on page 137.

#### About this task

For more information about the JEE database logger, see the topic “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

#### Procedure

1. Deploy the WebSphere Application Server resource adapter, `wmq.jmsra.rar`.

**Note:** If you have already deployed the WebSphere MQ File Transfer Edition Web Gateway in your WebSphere Application Server Community Edition environment, you already have a WebSphere MQ resource adapter. In this case you need to uninstall that instance of the resource adapter and redeploy using a plan file that contains the combined resources for both the Web Gateway and the JEE database logger.

- To deploy the WebSphere Application Server resource adapter for a JEE database logger using a coordination queue manager `QM_JUPITER`, perform the following steps. This example applies when your WebSphere Application Server Community Edition instance is running on the same system as the WebSphere Application Server queue manager that you want to connect to.
  - a. Create a plan file that defines a connection to the `WMQFTE` coordination queue manager. The following example plan file defines a connection to a queue manager called `QM_JUPITER`, and a reference to a queue called `SYSTEM.FTE.DATABASELOGGER.REJECT` on that queue manager.

```

<?xml version="1.0" encoding="UTF-8"?>
<connector xmlns="http://geronimo.apache.org/xml/ns/j2ee/connector">
  <resourceadapter>
    <resourceadapter-instance>
      <resourceadapter-name>WMQ</resourceadapter-name>
      <workmanager>
        <gbean-link>DefaultWorkManager</gbean-link>
      </workmanager>
    </resourceadapter-instance>
  </outbound-resourceadapter>
  <connection-definition>
    <connectionfactory-interface>javax.jms.ConnectionFactory</connectionfactory-interface>
    <connectiondefinition-instance>
      <name>jms/WMQFTEJEEEDBLoggerRejectQueueCF</name>
      <config-property-setting name="queueManager">QM_JUPITER</config-property-setting>
      <config-property-setting name="transportType">BINDINGS</config-property-setting>
      <connectionmanager>
        <xa-transaction>
          <transaction-caching/>
        </xa-transaction>
        <single-pool>
          <max-size>10</max-size>
          <min-size>1</min-size>
          <blocking-timeout-milliseconds>5000</blocking-timeout-milliseconds>
          <idle-timeout-minutes>2</idle-timeout-minutes>
          <match-all />
        </single-pool>
      </connectionmanager>
    </connectiondefinition-instance>
  </connection-definition>
</outbound-resourceadapter>
</resourceadapter>
<adminobject>
  <adminobject-interface>javax.jms.Queue</adminobject-interface>
  <adminobject-class>com.ibm.mq.connector.outbound.MQQueueProxy</adminobject-class>
  <adminobject-instance>
    <message-destination-name>jms/WMQFTEJEEEDBLoggerRejectQueue</message-destination-name>
    <config-property-setting name="baseQueueManagerName">QM_JUPITER</config-property-setting>
    <config-property-setting name="baseQueueName">SYSTEM.FTE.DATABASELOGGER.REJECT</config-property-setting>
  </adminobject-instance>
</adminobject>
</connector>

```

To use this plan file in your environment change QM\_JUPITER to the name of your coordination queue manager.

- b. Open the WebSphere Application Server CE administration console.
  - c. From the **Common Console Actions** list on the Welcome page, click **Deploy New Applications > Deploy New**.
  - d. In the **Archive** field, enter `mq_install_root/java/lib/jca/wmq.jmsra.rar`
  - e. In the **Plan** field, type the path to the plan file you created in Step 1a.
- If your WebSphere Application Server Community Edition instance is running on a different system to the WebSphere Application Server queue manager that you want to connect to, perform the following steps to deploy the WebSphere MQ resource adapter.
    - a. Create a plan file that defines a connection to the WMQFTE coordination queue manager. The following example plan file defines a connection to a queue manager, QM\_SATURN, that is located on a different system to your WebSphere Application Server Community Edition installation, and a reference to a queue called SYSTEM.FTE.DATABASELOGGER.REJECT on that queue manager. The host name of QM\_SATURN is saturn.example.com. The port of QM\_SATURN is 1415. The channel of QM\_SATURN is SYSTEM.DEF.SVRCONN.

Because the application server and the queue manager are on different systems, you must use a client mode connection to the queue manager. The following plan file sets the value of the `<config-property-setting>` element that has the name `transportType` to `CLIENT`.

```

<?xml version="1.0" encoding="UTF-8"?>
<connector xmlns="http://geronimo.apache.org/xml/ns/j2ee/connector">
  <resourceadapter>
    <resourceadapter-instance>
      <resourceadapter-name>WMQ</resourceadapter-name>
      <workmanager>

```

```

    <gbean-link>DefaultWorkManager</gbean-link>
  </workmanager>
</resourceadapter-instance>
<outbound-resourceadapter>
  <connection-definition>
    <connectionfactory-interface>javax.jms.ConnectionFactory</connectionfactory-interface>
    <connectiondefinition-instance>
      <name>jms/WMQFTEJEEEDBLoggerRejectQueueCF</name>
      <config-property-setting name="queueManager">QM_SATURN</config-property-setting>
      <config-property-setting name="transportType">CLIENT</config-property-setting>
      <config-property-setting name="channel">SYSTEM.DEF.SVRCONN</config-property-setting>
      <config-property-setting name="hostName">saturn.example.com</config-property-setting>
      <config-property-setting name="port">1415</config-property-setting>
      <connectionmanager>
        <xa-transaction>
          <transaction-caching/>
        </xa-transaction>
        <single-pool>
          <max-size>10</max-size>
          <min-size>1</min-size>
          <blocking-timeout-milliseconds>5000</blocking-timeout-milliseconds>
          <idle-timeout-minutes>2</idle-timeout-minutes>
          <match-all />
        </single-pool>
      </connectionmanager>
    </connectiondefinition-instance>
  </connection-definition>
</outbound-resourceadapter>
</resourceadapter>
<adminobject>
  <adminobject-interface>javax.jms.Queue</adminobject-interface>
  <adminobject-class>com.ibm.mq.connector.outbound.MQQueueProxy</adminobject-class>
  <adminobject-instance>
    <message-destination-name>jms/WMQFTEJEEEDBLoggerRejectQueue</message-destination-name>
    <config-property-setting name="baseQueueManagerName">QM_SATURN</config-property-setting>
    <config-property-setting name="baseQueueName">SYSTEM.FTE.DATABASELOGGER.REJECT</config-property-setting>
  </adminobject-instance>
</adminobject>
</connector>

```

To use this plan file in your environment change QM\_SATURN to the name of your coordination queue manager. Change the value of the host name, port and channel to the values for your coordination queue manager.

- b. Copy the file *mq\_install\_root/java/lib/jca/wmq.jmsra.rar* from the system where WebSphere Application Server is installed to the system where WebSphere Application Server CE is installed.
  - c. Open the WebSphere Application Server CE administration console.
  - d. From the **Common Console Actions** list on the Welcome page, click **Deploy New Applications > Deploy New**.
  - e. In the **Archive** field, type the path to the copy of the *wmq.jmsra.rar* file that you obtained.
  - f. In the **Plan** field, type the path to the plan file you created.
2. You must define a database connector so that the JEE database logger application has access to the required database from within the WebSphere Application Server Community Edition environment.

**Note:** If you have already deployed the WebSphere MQ File Transfer Edition Web Gateway in your WebSphere Application Server Community Edition environment, you already have a database connector defined. In this case you do not need to repeat these steps.

Carry out the following steps from the WebSphere Application Server Community Edition administration console:

- a. Depending on the level of WebSphere Application Server Community Edition that you are using, from the **Console Navigation** either select **Services > Database Pools**, or select **Resources > Datasources**.
- b. Create a database pool using the Geronimo database pool wizard. In the **Name of Database Pool** field, type *jdbc/wmqfte-database*.
- c. For the **Database Type** select DB2 XA or Oracle Thin, as appropriate for your database.

- d. Click **Next**.
  - e. In the **Driver jar** field, select the appropriate jar for your database.
  - f. In the **Database Name** field, type the name of the database you are connecting to for transfer status information.
  - g. In the **User Name** field, type the user name for connecting to and authenticating with your database.
  - h. In the **Password** and **Confirm Password** fields, type the password for authenticating with your database.
  - i. In the **Port Number** field, type the port number you are using if it is not the default port.
  - j. Ensure that the value for **Driver Type** is 4.
  - k. Select XA from the **Transaction Type** list.
  - l. Click **Deploy**.
3. Update the WebSphere MQ File Transfer Edition JEE database logger application `openejb-jar.xml` file for your environment. Use a Java SDK jar utility to complete the following steps:

- a. Extract the EJB jar file from the supplied EAR file by running the following command:

```
jar -xf ear_file_name com.ibm.wmqfte.databaselogger.jee.ejb.jar
```

where *ear\_file\_name* is `com.ibm.wmqfte.databaselogger.jee.ear` or `com.ibm.wmqfte.databaselogger.jee.oracle.ear` depending on whether you are using Db2 or Oracle. The EAR file is located in the *install\_directory/web* directory of the WebSphere MQ File Transfer Edition Server installation.

- b. Extract the META-INF/openejb-jar.xml file from the previously extracted EJB jar file, `com.ibm.wmqfte.databaselogger.jee.ejb.jar`, by running the following command:
 

```
jar -xf com.ibm.wmqfte.databaselogger.jee.ejb.jar META-INF/openejb-jar.xml
```
- c. Use a text editor to edit the extracted META-INF/openejb-jar.xml file. Change the following activation-config-property values to match your environment:

**queueManager**

The name of the WebSphere Application Server queue manager that is used by the JEE database logger.

**hostName**

The host name to use to connect to the specified WebSphere Application Server queue manager. This value is not required if you are connecting to the queue manager in bindings mode.

**transportType**

Whether to connect to the specified WebSphere Application Server queue manager in client or bindings mode.

**port** Not required if you specified a **transportType** of bindings. The port to use to connect to the specified WebSphere Application Server queue manager.

**channel**

Not required if you specified a **transportType** of bindings. The server channel to use to connect to the specified WebSphere Application Server queue manager.

- d. Update the EJB jar file with the modified META-INF/openejb-jar.xml file, by running the following command:

```
jar -uf com.ibm.wmqfte.databaselogger.jee.ejb.jar META-INF/openejb-jar.xml
```

- e. Update the supplied ear file with the updated EJB jar file, by running the following command:

```
jar -uf ear_file_name com.ibm.wmqfte.databaselogger.jee.ejb.jar
```

where *ear\_file\_name* is `com.ibm.wmqfte.databaselogger.jee.ear` or `com.ibm.wmqfte.databaselogger.jee.oracle.ear` depending on your database.

4. To deploy the EAR file to the application server, carry out the following steps from the WebSphere Application Server Community Edition administration console.
  - a. Select: **Applications > Deploy New** from the **Console Navigation** menu.
  - b. In the **Archive** field, specify the EAR file: `com.ibm.wmqfte.databaselogger.jee.ear` or `com.ibm.wmqfte.databaselogger.jee.oracle.ear` depending on your database.
  - c. Leave the **Plan** field blank.
  - d. Ensure the **Start application after install** box is selected.
  - e. Click **Install**. The JEE database logger application is installed and started.

## Configuring user access for the JEE database logger

When you configure the WebSphere MQ File Transfer Edition Java Platform, Enterprise Edition (JEE) database logger, you need user accounts to access WebSphere MQ, your database, and your operating system. The number of operating system users that is required depend on the number of systems you are using to host these components.

### About this task

The number and type of user accounts you need to run the Java Platform, Enterprise Edition (JEE) database logger depend on the number of systems you use. User accounts are required to access the following three environments:

- Local operating system
- WebSphere MQ
- Database

You can install the JEE database logger, WebSphere MQ and your database on a single system, or across several systems. The components can be installed in the following example topologies:

#### Database logger, WebSphere MQ, and the database all on the same system

You can define a single operating system user for use with all three components. The database logger uses Bindings mode to connect to WebSphere MQ and a native connection to connect to the database.

#### Database logger and WebSphere MQ on one system, the database on a separate system

You create two users for this configuration: an operating system user on the system running the database logger, and an operating system user with remote access to the database on the database server. The database logger uses Bindings mode to connect to WebSphere MQ and a client connection to access the database.

#### Database logger on one system, WebSphere MQ on another system, the database on a further system

You create three users for this configuration: An operating system user to start the application server, a WebSphere MQ user to access the queues and topics being used, and a database server user to access and insert into the database tables. The database logger uses Client mode to access WebSphere MQ and a client connection to access the database.

As an example, the rest of these instructions assume that the user is called `ftelog`, but you can use any user name, new or existing. Configure the user permissions as follows:

### Procedure

1. Ensure that the operating system user has its own group, and is not also in any groups with wide-ranging permissions on the coordination queue manager. The user should not be in the `mqm` group. On certain platforms, the staff group is automatically given queue manager access as well; the database logger user should not be in the staff group. You can view authority records for the queue manager itself and for objects in it using the WebSphere MQ Explorer. Right-click the object and select **Object Authorities > Manage Authority Records**. At the command line, you can use the commands `dspmqaout` (display authority) or `dmpmqaout` (dump authority).

2. Use the Manage Authority Records window in the WebSphere MQ Explorer or the `setmqaut` (grant or revoke authority) command to add authorities for the WebSphere MQ user's own group (on UNIX, WebSphere MQ authorities are associated with groups only, not individual users). The authorities required are as follows:

- CONNECT and INQUIRE on the queue manager (the WebSphere MQ Java libraries require INQUIRE permission to operate).
- SUBSCRIBE permission on the SYSTEM.FTE topic.
- PUT permission on the SYSTEM.FTE.DATABASELOGGER.REJECT queue.

The reject and command queue names given above are the default names. If you chose different queue names when you configured the database logger queues, add the permissions to those queue names instead.

3. Perform the database user configuration that is specific to the database you are using.

- If your database is Db2, carry out the following steps:

**Note:** There are several mechanisms for managing database users with Db2. These instructions apply to the default scheme based on operating system users.

- Ensure that the `ftelog` user is not in any Db2 administration groups (for example, `db2iadm1`, `db2fadm1`, or `dasadm1`)
  - Give the user permission to connect to the database and permission to select, insert, and update on the tables that you created as part of Step 2: create the required database tables
- If your database is Oracle, carry out the following steps:
  - Ensure that the `ftelog` user is not in any Oracle administration groups (for example, `ora_dba` on Windows or `dba` on Unix)
  - Give the user permission to connect to the database and permission to select, insert and update on the tables that you created as part of Step 2: create the required database tables

## Migrating from the stand-alone database logger to the JEE database logger

You can migrate from the stand-alone database logger to the JEE database logger. You must stop the stand-alone database logger and install the JEE database logger. To avoid losing or duplicating log entries you must stop messages being published to the SYSTEM.FTE topic before stopping the stand-alone database logger, and restart it after you have installed the JEE database logger. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the current version of WebSphere MQ File Transfer Edition.

### About this task

#### Procedure

1. Before stopping the database, run the following MQSC command against your coordination queue manager: `ALTER QM PSMODE(COMPAT)` This stops messages being published to the SYSTEM.FTE/Log topic. Wait until the database logger has processed all of the messages on its subscription. By default, this subscription is called SYSTEM.FTE.DATABASELOGGER.AUTO.
2. Stop the database logger using the `fteStopDatabaseLogger` command.
3. Back up the database using the tools supplied with the database software.
4. Delete the subscription belonging to the stand-alone database logger. By default, this subscription is called SYSTEM.FTE.DATABASELOGGER.AUTO.
5. If your database schema is at an earlier version, you must migrate the schema to each subsequent level in order. For example, if your database schema is at V7.0.1 and you are migrating to V7.0.4, you must migrate your schema from V7.0.1 to V7.0.2, then from V7.0.2 to V7.0.3, and then from V7.0.3 to V7.0.4. Migrate your database schema from version *old* to version *new*, where *old* and *new* are

variables that describe a schema version, by performing the one of the following actions for each version of the schema that you must migrate through:

- If your database is Db2 on z/OS and you are migrating between the V7.0.2 and V7.0.3 schemas or between the V7.0.3 and V7.0.4 schemas, you must create a new database schema and copy your existing data into it. For more information, see “Migrating the database tables on Db2 on z/OS” on page 35.
- If your database is Db2 on Windows, Linux or UNIX, you are migrating between the V7.0.2 and V7.0.3 schemas, and you created your database with a page size of less than 8K; you must increase the page size of the database before migrating to the new version of the database schema. For more information, see “Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37.

If your database is not Db2 or you created your database with a page size of more than 8K, you can migrate the schema in the same way as for other versions, by completing the steps below.

- If you are migrating between database tables in any other circumstances complete the following steps:
    - a. Choose the file that is appropriate to your database platform and has a name that includes the string *old-new*. This file is located in the *install\_directory/tools/sql* directory of the Remote Tools and Documentation installation.
    - b. If you have made modifications to the initial schema, review the migration file to ensure that the file will be compatible with your modified database.
    - c. Run the SQL file against your database.
6. Install the JEE database logger EAR file as part of the Remote Tools and Documentation installation. For more information, see “Installing IBM WebSphere MQ File Transfer Edition Remote Tools and Documentation using the graphical installer” on page 45.
  7. Deploy the JEE database logger. For more information, see “Installing the WebSphere MQ File Transfer Edition JEE database logger” on page 136.
  8. Run the following MQSC command against your coordination queue manager: ALTER QMGR PSMODE(ENABLED) This enables publishing of messages to the SYSTEM.FTE/Log topic.

## Results

### Related tasks:

“Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37

If your database is Db2 on a Windows, UNIX or Linux system, and you created your log database with a page size of less than 8 KB, you must increase the page size of the database before migrating to the V7.0.3 or later tables.

“Migrating the stand-alone database logger” on page 33

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

---

## Configuring the Web Gateway

You must configure the WebSphere MQ File Transfer Edition Web Gateway to work with your existing WebSphere MQ File Transfer Edition environment. The process of configuration is specific to the application server you are using. Before configuring a Web Gateway, create a web agent on the same system as the application server.

### Before you begin

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

### Related tasks:

“Preparing to deploy the Web Gateway” on page 152

Before deploying the WebSphere MQ File Transfer Edition Web Gateway, you must set up your application server environment and dependent modules. This section describes the setup tasks for WebSphere MQ and two different application servers.

“Deploying the WebSphere MQ File Transfer Edition Web Gateway” on page 168

The WebSphere MQ File Transfer Edition Web Gateway must be deployed to an application server that is compatible with Java Platform, Enterprise Edition 5. The deployment process for different application servers varies. This section outlines the deployment process for two application servers.

“Setting up a database for use with file spaces”

Before you can use file spaces you must set up database tables for the Web Gateway to store file space information in. You can create these tables in your existing log database, or create a new database to contain the tables.

“Configuring the database logger for use with the Web Gateway” on page 172

To be able to query the status of transfers and the contents of file spaces you must have a WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger in your WebSphere MQ File Transfer Edition network and a database that contains the Version 7.0.3, or later, tables.

“Verifying your Web Gateway installation” on page 173

Follow these instructions to check that your WebSphere MQ File Transfer Edition Web Gateway application is deployed correctly.

### Related reference:

“fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

## Setting up a database for use with file spaces

Before you can use file spaces you must set up database tables for the Web Gateway to store file space information in. You can create these tables in your existing log database, or create a new database to contain the tables.

### About this task

Follow these instructions to create the database tables that the Web Gateway requires to work with file spaces.

### Procedure

1. If you do not have database software installed, install your database software using the documentation for your database. If JDBC support is an optional component for your database you must install this database.
2. If you do not have a database or you want to use a different database to the database that is used by the database logger, create a database using the database tools. The default schema name is FTEWEB. If you use a schema name other than FTEWEB, you must edit the provided SQL files, `webgateway_db2.sql`, `webgateway_oracle.sql` or `webgateway_zos.sql` to reflect this before proceeding to the next step. If you want to create the Web Gateway tables in the same database as the database logger tables, the two sets of tables must not have the same schema name.
3. Create the required database tables using the database tools. The files `webgateway_db2.sql`, `webgateway_oracle.sql` or `webgateway_zos.sql` contain SQL commands you can run to create the tables. The files are in the `install_directory/web/sql` directory of a WebSphere MQ File Transfer Edition Server installation.

Information about how to use and customize the SQL commands are described in the comments at the top of the files.

**Note:** If you are migrating from V7.0.3 to a later version of WebSphere MQ File Transfer Edition, there are no changes to the database schema for the Web Gateway. There is no SQL migration file to run against your database.

**Related tasks:**

“Configuring the database logger for use with the Web Gateway” on page 172

To be able to query the status of transfers and the contents of file spaces you must have a WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger in your WebSphere MQ File Transfer Edition network and a database that contains the Version 7.0.3, or later, tables.

**Related reference:**

“Database tables used by the Web Gateway” on page 987

The WebSphere MQ File Transfer Edition Web Gateway uses the following database tables to configure and secure user file spaces.

## Changing the schema name in the Web Gateway

The Web Gateway can use a database that has a non-default schema name. You must change the schema name in the Web Gateway EAR file.

### About this task

The default schema name is FTEWEB. To change the name of the schema that the Web Gateway uses, complete the following steps:

### Procedure

1. Extract the JAR file using the following command:

```
jar -xvf com.ibm.wmqfte.web.ear lib/com.ibm.wmqfte.web.jpa.fs.jar
```

The JAR file is found in *<product\_install\_location>/web/com.ibm.wmqfte.web.ear*.

2. Extract the persistence.xml file from the JPA JAR file by using the following command:

```
jar -xvf lib/com.ibm.wmqfte.web.jpa.fs.jar META-INF/persistence.xml
```

3. Edit the META-INF/persistence.xml file to change the following line:

```
<property name="openjpa.jdbc.Schema" value="schema_name" />
```

where

- *schema\_name* is your chosen schema name. The default schema name is FTEWEB

4. Update JPA JAR with the modified persistence.xml file by using the following command:

```
jar -uvf lib/com.ibm.wmqfte.web.jpa.fs.jar META-INF/persistence.xml
```

5. Update the EAR file with the modified JPA JAR file by using the following command:

```
jar -uvf com.ibm.wmqfte.web.ear lib/com.ibm.wmqfte.web.jpa.fs.jar
```

## Preparing to deploy the Web Gateway

Before deploying the WebSphere MQ File Transfer Edition Web Gateway, you must set up your application server environment and dependent modules. This section describes the setup tasks for WebSphere MQ and two different application servers.

### Before you begin

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

Before you deploy the Web Gateway application, you must complete the required security steps. For more information, see “Required security for the Web Gateway” on page 87.

To complete your Web Gateway topology, you also need a web agent and a database logger. For more information, see “fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528 and “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

#### Related tasks:

“Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163  
Use these instructions to define required resources before deploying the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Version 7.0. You must customize the example deployment plan for your environment.

“Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition”  
Use these instructions to set up your environment before deploying the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Community Edition. Customize the example deployment plan for your environment.

## Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition

Use these instructions to set up your environment before deploying the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Community Edition. Customize the example deployment plan for your environment.

### Before you begin

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

To check that you are using an application server version that is supported for use with the Web Gateway, refer to the web page WebSphere MQ File Transfer Edition System Requirements.

**Note:** The user that your application server runs as must be the same as, or in the same group as, the user that your web agent runs as.

Before starting your application server setup, complete the following tasks to prepare your WebSphere MQ environment for working with the Web Gateway.

Determine which user ID the application server uses to connect to WebSphere MQ. This user ID must be given the **Set identity context** permission in your WebSphere MQ environment. For example, if the application server is running as appuser1, who is a member of group appgrp, and connecting to a local WebSphereMQ queue manager called qm1 using a bindings mode connection, then run the following command:

```
setmqaut -m qm1 -g appgrp +setid -t qmgr
```

You must also give the user ID the **Set identity context** permission on the web agent command queue. For example, if the application server is running as `appuser1`, who is a member of group `appgrp`, and the web agent is called `WEBAGENT` and it connects to a local WebSphereMQ queue manager called `qm2` using a bindings mode connection, then run the following command:

```
setmqaut -m qm2 -g appgrp +setid -t queue -n SYSTEM.FTE.COMMAND.WEBAGENT
```

## About this task

WebSphere Application Server Community Edition can be obtained from the following web page:  
<http://www.ibm.com/software/webservers/appserv/community>

Before deploying the Web Gateway application, you must set up the dependent components. These components are the WebSphere MQ resource adaptor, a database written to by a WebSphere MQ File Transfer Edition database logger, a database connector, and a security realm. You must also update the `web.xml` file and the deployment plan for your environment.

The Web Gateway also requires a WebSphere MQ File Transfer Edition web agent installed on the same system as the application and run as the same user, or a user in the same group, as the application server. For instructions on how to create and configure this agent, see “`fteCreateWebAgent` (create a WebSphere MQ File Transfer Edition web agent)” on page 528.

## Procedure

1. Deploy the WebSphere MQ resource adapter. If your WebSphere Application Server Community Edition instance is running on the same system as the WebSphere MQ queue manager that you want to connect to, see “Deploying the WebSphere MQ resource adapter on the same system as the application server” on page 154. If your WebSphere Application Server Community Edition instance is running on a different system from the WebSphere MQ queue manager that you want to connect to, see “Deploying the WebSphere MQ resource adapter on a different system from the application server” on page 154.
2. Define a database connector to connect to the log database. For more information, see “Defining a database connector to connect to the log database” on page 156.
3. Define a database connector to connect to the file space database. For more information, see “Defining a database connector to connect to the file space database” on page 156
4. Define a security realm. For more information, see “Defining a security realm” on page 157.
5. Update the `web.xml` file. For more information, see “Updating the `web.xml` file” on page 158.
6. Update the `openejb-jar.xml` file. For more information, see “Updating the `openejb-jar.xml` to configure the Web Gateway to use file spaces” on page 160.
7. If you must deploy the Web Gateway in a non-default environment or are using your own security realm, you must either update the supplied deployment plan or provide a separate deployment plan. For more information, see “Update the deployment plan” on page 161.
8. Optional: If you want to deploy the Web Gateway administrative console in a non-default environment update the supplied deployment plan in the `com.ibm.wmqfte.web.admin.war` file. For more information, see “Update the deployment plan for the administrative console” on page 162.

## Results

You can now deploy the Web Gateway EAR file to the application server. Carry out the steps in the topic “Deploying the Web Gateway with WebSphere Application Server Community Edition” on page 168.

## Deploying the WebSphere MQ resource adapter on the same system as the application server: About this task

If your WebSphere Application Server Community Edition instance is running on the same system as the WebSphere MQ queue manager that you want to connect to, perform the following steps to deploy the WebSphere MQ resource adapter.

### Procedure

1. Create a plan file that defines a connection to the queue manager of the source agent. The following example plan file defines a connection to a queue manager called QM\_JUPITER.

```
<?xml version="1.0" encoding="UTF-8"?>
<connector xmlns="http://geronimo.apache.org/xml/ns/j2ee/connector">
  <resourceadapter>
    <resourceadapter-instance>
      <resourceadapter-name>WMQ</resourceadapter-name>
      <workmanager>
        <gbean-link>DefaultWorkManager</gbean-link>
      </workmanager>
    </resourceadapter-instance>
    <outbound-resourceadapter>
      <connection-definition>
        <connectionfactory-interface>
          javax.jms.ConnectionFactory
        </connectionfactory-interface>
        <connectiondefinition-instance>
          <name>jms/WMQFTEWebAgentConnectionFactory</name>
          <config-property-setting name="queueManager">
            QM_JUPITER
          </config-property-setting>
          <config-property-setting name="transportType">
            BINDINGS
          </config-property-setting>
          <connectionmanager>
            <no-transaction />
            <no-pool/>
          </connectionmanager>
        </connectiondefinition-instance>
      </connection-definition>
    </outbound-resourceadapter>
  </resourceadapter>
</connector>
```

To use this plan file in your environment change QM\_JUPITER to the name the queue manager of your source agent. The sections of the XML file that must be edited are highlighted in **bold** typeface.

2. Open the WebSphere Application Server CE administration console.
3. From the **Common Console Actions** list on the Welcome page, click **Deploy New Applications > Deploy New**.
4. In the **Archive** field, type *mq-install-root/java/lib/jca/wmq.jmsra.rar*
5. In the **Plan** field, type the path to the plan file you created in Step 1.
6. Optional: If you receive the following error: HTTP Status 403 - The request body was too large to be cached during the authentication process, you must increase the maximum post size. On the WebSphere Application Server CE administration console click **Server > Web Server > Tomcat Web Connector > Edit** and change the value of **maxPostSize** to -1 (unlimited).

### What to do next

Next define a database connector to connect to the log database. For more information, see “Defining a database connector to connect to the log database” on page 156.

## Deploying the WebSphere MQ resource adapter on a different system from the application server:

## About this task

If your WebSphere Application Server Community Edition instance is running on a different system from the WebSphere MQ queue manager that you want to connect to, perform the following steps to deploy the WebSphere MQ resource adapter

## Procedure

1. Create a plan file that defines a connection to the queue manager of the source agent. The following example plan file defines a connection to a queue manager, QM\_SATURN, that is located on a different system to your WebSphere Application Server Community Edition installation. The host name of QM\_SATURN is saturn.example.com. The port of QM\_SATURN is 1415. The channel of QM\_SATURN is SYSTEM.DEF.SVRCONN.

```
<?xml version="1.0" encoding="UTF-8"?>
<connector xmlns="http://geronimo.apache.org/xml/ns/j2ee/connector">
  <resourceadapter>
    <resourceadapter-instance>
      <resourceadapter-name>WMQ</resourceadapter-name>
      <workmanager>
        <gbean-link>DefaultWorkManager</gbean-link>
      </workmanager>
    </resourceadapter-instance>
    <outbound-resourceadapter>
      <connection-definition>
        <connectionfactory-interface>
          javax.jms.ConnectionFactory
        </connectionfactory-interface>
        <connectiondefinition-instance>
          <name>jms/WMQFTEWebAgentConnectionFactory</name>
          <config-property-setting name="channel">
            SYSTEM.DEF.SVRCONN
          </config-property-setting>
          <config-property-setting name="queueManager">
            QM_SATURN
          </config-property-setting>
          <config-property-setting name="hostName">
            saturn.example.com
          </config-property-setting>
          <config-property-setting name="port">
            1415
          </config-property-setting>
          <config-property-setting name="transportType">
            CLIENT
          </config-property-setting>
          <connectionmanager>
            <no-transaction />
            <no-pool/>
          </connectionmanager>
        </connectiondefinition-instance>
      </connection-definition>
    </outbound-resourceadapter>
  </resourceadapter>
</connector>
```

To use this plan file in your environment change QM\_SATURN to the name of the queue manager of your source agent. Change the value of the host name, port, and channel to the values for the queue manager of your source agent. The sections of the XML file that must be edited are highlighted in **bold** typeface.

2. Copy the file *mq-install-root/java/lib/jca/wmq.jmsra.rar* from the system where WebSphere MQ is installed to the system where WebSphere Application Server Community Edition is installed.
3. Open the WebSphere Application Server Community Edition administration console.
4. From the **Common Console Actions** list on the Welcome page, click **Deploy New Applications > Deploy New**.
5. In the **Archive** field, type the path to the copy of the *wmq.jmsra.rar* file that you obtained.
6. In the **Plan** field, type the path to the plan file you created.

## What to do next

Next define a database connector to connect to the log database. For more information, see “Defining a database connector to connect to the log database.”

### Defining a database connector to connect to the log database: Before you begin

For transfer status information, the Web Gateway application requires access to a database written by a WebSphere MQ File Transfer Edition database logger. Before defining a database connector to this database, you must first set up the database and database logger. For instructions on how to set up the database and use the database logger application, see the topic “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

### About this task

To access this database from within a WebSphere Application Server Community Edition environment, a database connector must be defined. To define a database connector, perform the following steps from the WebSphere Application Server Community Edition administration console:

#### Procedure

1. Depending on the level of WebSphere Application Server Community Edition that you are using, from the **Console Navigation** either select **Services > Database Pools**, or select **Resources > Datasources**.
2. Create a database pool using the Geronimo database pool wizard. In the **Name of Database Pool** field, type jdbc/wmqfte-database.
3. For the **Database Type** select either DB2 XA or Oracle Thin, as appropriate for your database.
4. Click **Next**.
5. In the **Driver jar** field, select the appropriate jar file for your database.
6. In the **Database Name** field, type the name of the database you are connecting to for transfer status information.
7. In the **User Name** field, type the user name for connecting to and authenticating with your database.
8. In the **Password** and **Confirm Password** fields, type the password for authenticating with your database.
9. In the **Server Name** field, type the host name or IP address of the host that the database driver needs to connect to.
10. In the **Port Number** field, type the port number you are using if it is not the default port.
11. Ensure that the value for **Driver Type** is 4.
12. Select XA from the **Transaction Type** list.
13. Click **Deploy**.

## What to do next

Next define a database connector to connect to the file space database. For more information, see “Defining a database connector to connect to the file space database.”

### Defining a database connector to connect to the file space database: Before you begin

Before you define this database connector you must create the database and tables that the Web gateway requires to work with file spaces. For more information, see “Setting up a database for use with file spaces” on page 150.

## About this task

The Web Gateway application requires access to a database, to store information about the user file spaces that you create and use. This database can be the same database as the database used by the WebSphere MQ File Transfer Edition database logger, which is referred to in “Defining a database connector to connect to the log database” on page 156. Even if you use the same database for your file space information, you must create a second database connector as described in the following steps. To define a database connector, perform the following steps from the WebSphere Application Server Community Edition console:

### Procedure

1. Depending on the level of WebSphere Application Server Community Edition that you are using, from the **Console Navigation** either select **Services > Database Pools**, or select **Resources > Datasources**.
2. Create a database pool using the Geronimo database pool wizard. In the **Name of Database Pool** field, type `jdbc/wmqfte-fileSPACE`.
3. For the **Database Type** select either DB2 XA or Oracle Thin, as appropriate for your database.
4. Click **Next**.
5. In the **Driver jar** field, select the appropriate jar file for your database.
6. In the **Database Name** field, type the name of the database you are connecting to for file space information.
7. In the **User Name** field, type the user name for connecting to and authenticating with your database.
8. In the **Password** and **Confirm Password** fields, type the password for authenticating with your database.
9. In the **Port Number** field, type the port number you are using if it is not the default port.
10. Ensure that the value for **Driver Type** is 4.
11. Select XA from the **Transaction Type** list.
12. Click **Deploy**.

### What to do next

Next define a security realm. For more information, see “Defining a security realm.”

### Defining a security realm:

#### About this task

By default, for the Web Gateway application, a security realm called **WMQFTESecurityRealm** is required. Define the realm with groups named *administrators*, *employees*, and *managers*. Define at least one user for each group. To define a security realm, from the WebSphere Application Server Community Edition administration console:

### Procedure

1. Select **Security > Security Realms** from the **Console Navigation**.
2. On the panel that is displayed, click **Add new security realm**.
3. In the **Name of Security Realm** field, type `WMQFTESecurityRealm`.
4. For the **Realm Type**:
  - If a simple setup is required then perform the following steps:
    - a. Create a file that contains user and password information. The format of each line is `username=password`. For example,

```
ftadmin=password1
fteuser=password2
```

- b. Create a file that contains group information. The format of each line is group=user,user. For example,  
administrators=fteadmin  
employees=fteadmin,fteuser  
managers=fteuser
- c. For the **Realm Type**, select **Properties File Realm** and click **Next**.
- d. Enter the required information in the following fields.

#### **Users File URI**

The location of the properties file, created in Step 4a, that contains user and password information. Path separators must be specified as a forward slash (/) character on all platforms. The path to this file is relative to the WebSphere Application Server Community Edition installation directory.

#### **Groups File URI**

The location of a properties file, created in Step 4b, that contains group information. Path separators must be specified as a forward slash (/) character on all platforms. The path to this file is relative to the WebSphere Application Server Community Edition installation directory.

#### **Digest Algorithm**

The message digest algorithm used on the passwords. Example values are MD5 andSHA1. Leave this field empty for a simple setup or if no digest algorithm is used.

#### **Digest Encoding**

The encoding to use for digest algorithms. Example values are hex and base64. This value is only used if a **Digest Algorithm** is specified. If no encoding is specified, hex is used.

- e. Click the **Next** button. The **Advanced Configuration** panel is displayed. Leave the check boxes clear.
  - f. Click the **Test a login** button. On the **Test a login** panel, enter a valid user name and password for one of the users specified in the file that you defined in the **Users File URI** field. Click the **Next** button.
  - g. On the panel that is displayed, click the **Deploy Realm** button.
- If a more advanced setup is required, see the information in the WebSphere Application Server Community Edition documentation.

### **What to do next**

Next update the web.xml file. For more information, see “Updating the web.xml file.”

#### **Updating the web.xml file:**

##### **About this task**

Update the WebSphere MQ File Transfer Edition Web Gateway application web.xml file for your environment, using a Java SDK jar utility to complete the following steps:

##### **Procedure**

1. Extract the Web Gateway application from the supplied EAR file, com.ibm.wmqfte.web.ear, by running the following command:

```
jar -xf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.war
```

The EAR file is located in the *install-directory/web* directory of the WebSphere MQ File Transfer Edition Server installation.

2. Extract the WEB-INF/web.xml file from the previously extracted Web Gateway application, com.ibm.wmqfte.web.war, by running the following command:

```
jar -xf com.ibm.wmqfte.web.war WEB-INF/web.xml
```

3. Use a text editor to edit the extracted WEB-INF/web.xml. Change the following parameters:

**agentName**

Required. The name of the web agent that acts as the source for transfers initiated by the Web Gateway. This agent must be installed on the same system as the application server where you are deploying the Web Gateway application and run as the same user, or a user in the same group, as the application server. For information about how to create this agent, see the topic: “fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528.

The agent name is not case-sensitive and must conform to the WebSphere MQ object naming conventions. For more information, see “Object naming conventions for WebSphere MQ File Transfer Edition” on page 719.

**coordinationQMGr**

Required. The name of the coordination queue manager that is used by the Web Gateway for logging of transfer information.

**fileSpaceRoot**

Optional. The root directory path for file spaces created and managed by the Web Gateway. Each file space is located in a subdirectory, under this root directory, with the same name as the file space. If you leave the value of this parameter blank, the application server home directory is used as the default file space root. If you change the value of this parameter after creating file spaces, the location of those file spaces will remain unchanged.

**webGatewayName**

Required. The name of the Web Gateway that you are deploying.

The name of the Web Gateway is not case-sensitive and must conform to the WebSphere MQ object naming conventions. For more information, see “Object naming conventions for WebSphere MQ File Transfer Edition” on page 719.

**tempFileUploadDir**

Optional. The directory path for the storage of temporary files related to transfers initiated by the Web Gateway. The upload directory for temporary files is used to temporarily store files when they are uploaded to the Web Gateway. When the upload to the Web Gateway is complete, the web agent transfers the files from the upload directory for temporary files to the destination agent. If you do not provide a value for this parameter, the application server temporary directory (the value of java.io.tmpdir) is used.

**maxTempFileUploadSpace**

Optional. The maximum amount of space, in MB, that a user is allowed for storing temporary files related to Web Gateway-initiated transfers. When a user uploads files to an agent they are temporarily stored on the file system until they have been transferred. This parameter can be used to limit the amount of space an upload user can use at any one time. If you do not provide a value for this parameter, the amount of temporary file storage available to a user is unlimited.

**defaultMQMDUserID**

You must map user names to MQMD user IDs. If you do not do this, users cannot perform file transfers using the Web Gateway. There are two ways to map users to MQMD user IDs. You must perform one or both of the following actions:

- Set this parameter to the default WebSphere MQ Message Descriptor (MQMD) user ID to associate with a requesting user when there is no specific MQMD user ID defined for the user.
- Use the Web Gateway user administration API to define mappings between users and MQMD user IDs.

For more information on defining mappings between users and MQMD user IDs, see “XML format for mapping web user ID to an MQMD user ID” on page 980, “Web Gateway administration API reference” on page 966, and “Example: Mapping web user IDs to MQMD user IDs” on page 332.

4. Update the Web Gateway application with the modified WEB-INF/web.xml, by running the following command:

```
jar -uf com.ibm.wmqfte.web.war WEB-INF/web.xml
```

5. Update the supplied ear file with the updated Web Gateway application, by running the following command:

```
jar -uf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.war
```

## What to do next

Next update the openejb-jar.xml file. For more information, see “Updating the openejb-jar.xml to configure the Web Gateway to use file spaces.”

## Updating the openejb-jar.xml to configure the Web Gateway to use file spaces:

### About this task

If you want to use the file space functionality of the Web Gateway, update the WebSphere MQ File Transfer Edition Web Gateway application openejb-jar.xml file for your environment. Use a Java SDK jar utility to complete the following steps:

### Procedure

1. Extract the EJB jar file from the supplied EAR file, com.ibm.wmqfte.web.ear, by running the following command:

```
jar -xf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.mdb.jar
```

The EAR file is located in the *install-directory/web* directory of the WebSphere MQ File Transfer Edition Server installation.

2. Extract the META-INF/openejb-jar.xml file from the previously extracted EJB jar file, com.ibm.wmqfte.web.mdb.jar, by running the following command:

```
jar -xf com.ibm.wmqfte.web.mdb.jar META-INF/openejb-jar.xml
```

3. Use a text editor to edit the extracted META-INF/openejb-jar.xml file. Change the following activation-config-property values to match your environment:

#### **queueManager**

The name of the WebSphere MQ queue manager that is used by the web agent.

#### **hostName**

The host name to use to connect to the specified WebSphere MQ queue manager.

#### **transportType**

The connection method used to communicate with the specified WebSphere MQ queue manager. The value of this property can be either CLIENT or BINDINGS.

**port** The port to use to connect to the specified WebSphere MQ queue manager. This property is only required if the transportType is set to CLIENT.

#### **channel**

The server channel to use to connect to the specified WebSphere MQ queue manager. This property is only required if the transportType is set to CLIENT.

#### **destination**

The name of the WebSphere MQ File Transfer Edition Web Gateway queue that is used by the Web Gateway. For example, if your Web Gateway is called JUPITER.GATEWAY, set this property to SYSTEM.FTE.WEB.JUPITER.GATEWAY.

- Update the EJB jar file with the modified META-INF/openejb-jar.xml file, by running the following command:
 

```
jar -uf com.ibm.wmqfte.web.mdb.jar META-INF/openejb-jar.xml
```
- Update the supplied ear file with the updated EJB jar file, by running the following command:
 

```
jar -uf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.mdb.jar
```

## What to do next

Next update the deployment plan. For more information, see “Update the deployment plan.”

## Update the deployment plan:

### About this task

If you must deploy the Web Gateway for a non-default environment or are using your own security realm, you must either update the supplied deployment plan or provide a separate deployment plan. The supplied deployment plan is in the Web Gateway application file `com.ibm.wmqfte.web.war`, in the file `WEB-INF/geronimo-web.xml`. Update the supplied deployment plan for your environment, using a Java SDK jar utility to complete the following steps:

### Procedure

- Extract the Web Gateway application from the supplied EAR file, `com.ibm.wmqfte.web.ear`, by running the following command:

```
jar -xf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.war
```

The EAR file is located in the *install-directory/web* directory of the WebSphere MQ File Transfer Edition Server installation.

- Extract the `WEB-INF/geronimo-web.xml` file from the previously extracted Web Gateway application, `com.ibm.wmqfte.web.war`, by running the following command:

```
jar -xf com.ibm.wmqfte.web.war WEB-INF/geronimo-web.xml
```

- Use a text editor to edit the extracted `WEB-INF/geronimo-web.xml`. The following example deployment plan shows a sample security configuration for WebSphere Application Server Community Edition:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!-- Licensed Materials - Property of IBM Copyright IBM Corp. 2010, 2018. All Rights Reserved.
US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp. -->
<web:web-app xmlns:app="http://geronimo.apache.org/xml/ns/j2ee/application-2.0"
  xmlns:client="http://geronimo.apache.org/xml/ns/j2ee/application-client-2.0"
  xmlns:conn="http://geronimo.apache.org/xml/ns/j2ee/connector-1.2"
  xmlns:dep="http://geronimo.apache.org/xml/ns/deployment-1.2"
  xmlns:ejb="http://openejb.apache.org/xml/ns/openejb-jar-2.2"
  xmlns:name="http://geronimo.apache.org/xml/ns/naming-1.2"
  xmlns:pers="http://java.sun.com/xml/ns/persistence"
  xmlns:pkgen="http://openejb.apache.org/xml/ns/pkgen-2.1"
  xmlns:sec="http://geronimo.apache.org/xml/ns/security-2.0"
  xmlns:web="http://geronimo.apache.org/xml/ns/j2ee/web-2.0.1">
  <dep:environment>
    <dep:moduleId>
      <dep:groupId>ibm</dep:groupId>
      <dep:artifactId>com.ibm.wmqfte.web.war</dep:artifactId>
      <dep:version>7.0.4.6</dep:version>
      <dep:type>car</dep:type>
    </dep:moduleId>
    <dep:dependencies>
      <dep:dependency>
        <dep:artifactId>wmq.jmsra.rar</dep:artifactId>
        <dep:type>rar</dep:type>
      </dep:dependency>
    </dep:dependencies>
  </dep:environment>
  <web:context-root>/wmq/web:context-root<
  <!-- Sample security configuration for WAS CE deployment -->
  <!-- With the following settings, WAS must be configured as follows: -->
  <!-- 1 - A security realm must be defined called 'WMQFTESecurityRealm' -->
  <!-- 2 - For each group add a <sec:principal> element into each <sec:role> -->
  <!-- for the roles required for that group. For example: -->
  <!-- <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal" name="[Group Name]"/> -->
  <web:security-realm-name>WMQFTESecurityRealm</web:security-realm-name>
  <sec:security>
    <sec:role-mappings>
```

```

<sec:role role-name="wmqfte-admin">
  <!-- Add groups here that are to have the highest administration roles -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="administrators"/>
</sec:role>
<sec:role role-name="wmqfte-filespace-create">
  <!-- Add groups here that are to have the ability to create a file space -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="managers"/>
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="administrators"/>
</sec:role>
<sec:role role-name="wmqfte-filespace-modify">
  <!-- Add groups here that are to have the ability to modify properties of a file space -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="managers"/>
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="administrators"/>
</sec:role>
<sec:role role-name="wmqfte-filespace-permissions">
  <!-- Add groups here that are to have the ability to modify the user permissions of a file space -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="managers"/>
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="employees"/>
</sec:role>
<sec:role role-name="wmqfte-filespace-delete">
  <!-- Add groups here that are to have the ability to delete a file space -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="administrators"/>
</sec:role>
<sec:role role-name="wmqfte-agent-upload">
  <!-- Add groups here that are to have the ability to upload a file to a file space -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="employees"/>
</sec:role>
<sec:role role-name="wmqfte-filespace-user">
  <!-- Add groups here that are to have the ability to view information from a file space -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="employees"/>
</sec:role>
<sec:role role-name="wmqfte-audit">
  <!-- Add groups here that are to have the ability to view information from the transfer logs -->
  <sec:principal class="org.apache.geronimo.security.realm.providers.GeronimoGroupPrincipal"
    name="employees"/>
</sec:role>
</sec:role-mappings>
</sec:security>
</web:web-app>

```

Add groups into the sections of the XML file highlighted in **bold** typeface to give the groups permission to perform certain actions. For more information about Web Gateway roles, see the topic “User roles for the Web Gateway” on page 88. If you are using your own security realm update the deployment plan `web:security-realm-name` element to reference that realm and update the roles to reference a group name that is defined for the realm.

- Optional: If you want to use a non-default context root for your Web Gateway, you can edit the `<web:context-root>` element in the `WEB-INF/geronimo-web.xml` file.
- Update the Web Gateway application with the modified `WEB-INF/geronimo-web.xml`, by running the following command:

```
jar -uf com.ibm.wmqfte.web.war WEB-INF/geronimo-web.xml
```

- Update the supplied ear file with the updated Web Gateway application, by running the following command:

```
jar -uf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.war
```

## What to do next

Next, if you are using a non-default context root, update the deployment plan. For more information, see “Update the deployment plan for the administrative console.”

## Update the deployment plan for the administrative console:

### About this task

You can use the Web Gateway administrative console to manage file spaces and user mappings from a web browser. For more information, see “Web Gateway administrative console” on page 320.

If you want to deploy the Web Gateway administrative console with a non-default context root, you must update the supplied deployment plan to contain the non-default context root. The supplied deployment plan is in the administrative console application file `com.ibm.wmqfte.web.admin.war`, in the file `WEB-INF/geronimo-web.xml`. Update the supplied deployment plan for your environment, using a Java SDK jar utility to complete the following steps:

### Procedure

1. Extract the administrative console application from the supplied EAR file, `com.ibm.wmqfte.web.ear`, by running the following command:

```
jar -xf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.admin.war
```

The EAR file is located in the *install-directory/web* directory of the WebSphere MQ File Transfer Edition Server installation.

2. Extract the `WEB-INF/geronimo-web.xml` file from the previously extracted administrative console application, `com.ibm.wmqfte.web.admin.war`, by running the following command:

```
jar -xf com.ibm.wmqfte.web.admin.war WEB-INF/geronimo-web.xml
```

3. Use a text editor to edit the extracted `WEB-INF/geronimo-web.xml`. The following example deployment plan shows a sample security configuration for WebSphere Application Server Community Edition:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!-- Licensed Materials - Property of IBM Copyright IBM Corp. 2010, 2018. All Rights Reserved.
US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp. -->
<web:web-app xmlns:app="http://geronimo.apache.org/xml/ns/j2ee/application-2.0"
  xmlns:client="http://geronimo.apache.org/xml/ns/j2ee/application-client-2.0"
  xmlns:conn="http://geronimo.apache.org/xml/ns/j2ee/connector-1.2"
  xmlns:dep="http://geronimo.apache.org/xml/ns/deployment-1.2"
  xmlns:ejb="http://openejb.apache.org/xml/ns/openejb-jar-2.2"
  xmlns:name="http://geronimo.apache.org/xml/ns/naming-1.2"
  xmlns:pers="http://java.sun.com/xml/ns/persistence"
  xmlns:pkgen="http://openejb.apache.org/xml/ns/pkgen-2.1"
  xmlns:sec="http://geronimo.apache.org/xml/ns/security-2.0"
  xmlns:web="http://geronimo.apache.org/xml/ns/j2ee/web-2.0.1">
  <dep:environment>
    <dep:moduleId>
      <dep:groupId>ibm</dep:groupId>
      <dep:artifactId>com.ibm.wmqfte.web.admin.war</dep:artifactId>
      <dep:version>7.0.3.0</dep:version>
      <dep:type>car</dep:type>
    </dep:moduleId>
  </dep:environment>
  <web:context-root>wmqfteconsole</web:context-root>
  <web:security-realm-name>WMQFTESecurityRealm</web:security-realm-name>
</web:web-app>
```

Edit the text in the XML file that is highlighted in **bold** typeface to change the context root of the administrative console.

4. Update the Web Gateway application with the modified `WEB-INF/geronimo-web.xml`, by running the following command:

```
jar -uf com.ibm.wmqfte.web.admin.war WEB-INF/geronimo-web.xml
```

5. Update the supplied ear file with the updated Web Gateway application, by running the following command:

```
jar -uf com.ibm.wmqfte.web.ear com.ibm.wmqfte.web.admin.war
```

## Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0

Use these instructions to define required resources before deploying the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Version 7.0. You must customize the example deployment plan for your environment.

### Before you begin

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

To check that you are using an application server version that is supported for use with the Web Gateway, refer to the web page [WebSphere MQ File Transfer Edition System Requirements](#).

**Note:** The user that your application server runs as must be the same as, or in the same group as, the user that your web agent runs as.

Before starting your application server setup, complete the following tasks to prepare your WebSphere MQ environment for working with the Web Gateway.

Determine which user ID the application server uses to connect to WebSphere MQ. This user ID must be given the **Set identity context** permission in your WebSphere MQ environment. For example, if the application server is running as `appuser1`, who is a member of group `appgrp`, and connecting to a local WebSphereMQ queue manager called `qm1` using a bindings mode connection, then run the following command:

```
setmqaut -m qm1 -g appgrp +setid -t qmgr
```

You must also give the user ID the **Set identity context** permission on the web agent command queue. For example, if the application server is running as `appuser1`, who is a member of group `appgrp`, and the web agent is called `WEBAGENT` and it connects to a local WebSphereMQ queue manager called `qm2` using a bindings mode connection, then run the following command:

```
setmqaut -m qm2 -g appgrp +setid -t queue -n SYSTEM.FTE.COMMAND.WEBAGENT
```

## About this task

Before deploying the Web Gateway application, you must carry out the following tasks to set up the application server environment. For transfer status information, the Web Gateway application requires access to a database that is written to by a WebSphere MQ File Transfer Edition database logger. See “Configuring a WebSphere MQ File Transfer Edition logger” on page 123 for instructions on how to set up the database and use the database logger application. To access this database from within a WebSphere Application Server Version 7.0 environment you must define a Java Database Connectivity (JDBC) provider and data source.

The Web Gateway also requires a WebSphere MQ File Transfer Edition web agent installed on the same system as the application and run as the same user, or a user in the same group, as the application server. For instructions on how to create and configure this agent, see “`fteCreateWebAgent` (create a WebSphere MQ File Transfer Edition web agent)” on page 528.

**Note:** Several times during the following steps, the WebSphere Application Server Version 7.0 administrative console prompts you to save your configuration. When you are prompted, save your configuration.

## Procedure

1. If you plan to connect the Web Gateway or web agent to a queue manager in bindings mode, you must set the native library path. For information about how to set the native library path in WebSphere Application Server Version 7.0, see “Setting the native library path in WebSphere Application Server Version 7.0” on page 167.
2. Enable the correct level of security in WebSphere Application Server Version 7.0. To do this perform the following steps:
  - a. Select **Security > Global security**.
  - b. Ensure that **Enable administrative security** is selected.
  - c. Ensure that **Enable application security** is selected.
  - d. Ensure that **Use Java 2 security to restrict application access to local resources** is not selected.
  - e. Click **Apply**.
3. Define a JNDI queue connection factory:

- a. Select **Resources > JMS > Queue connection factories** from the WebSphere Application Server Version 7.0 or later administration console navigation.
- b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
- c. Create a queue connection factory using the console wizard, by clicking **New**.
- d. Select **WebSphere MQ messaging provider**, and click **OK**.
- e. At Step 1 of the wizard, in the **Name** field, enter WMQFTEWebAgentConnectionFactory and in the **JNDI name** field, enter jms/WMQFTEWebAgentConnectionFactory. Click **Next**.
- f. At Step 2 of the wizard, select **Enter all the required information into this wizard**, and click **Next**.
- g. At Step 2.1 of the wizard, in the **Queue manager or queue sharing group name** field, enter the name of the queue manager that the Web Gateway agent connects to, and click **Next**.
- h. At Step 2.2 of the wizard, enter the connection details of the queue manager that the Web Gateway agent connects to, and click **Next**.
- i. At Step 3 of the wizard, click **Test Connection**. Click **Next**.
- j. At Step 4 of the wizard, review the summary information and click **Finish**.
- k. On the **Queue connections factories** panel, select the resource you created.
- l. In the **Advanced** section, ensure that the **Support distributed two phase commit protocol** check box is selected.

**Note:** Ensure you have completed this step before proceeding. Failure to do so can cause the Web Gateway to fail to operate correctly.

4. Define a JNDI queue:
  - a. Select **Resources > JMS > Queues** from the WebSphere Application Server Version 7.0 or later administration console navigation.
  - b. Select the **Scope** drop-down list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
  - c. Create a queue using the console wizard, by clicking **New**.
  - d. Select **WebSphere MQ messaging provider**, and click **OK**.
  - e. At Step 1 of the wizard, in the **Name** field, enter WMQFTEWebAgentRequestQueue. In the **JNDI name** field, enter jms/WMQFTEWebAgentRequestQueue. In the **Queue name** field, enter SYSTEM.FTE.WEB.gateway\_name. The variable gateway\_name is the name that you choose to give to the Web Gateway instance. In the **Queue manager or queue sharing group name** field, enter the name of the queue manager that the Web Gateway agent connects to, and click **OK**.
5. Define an activation specification:
  - a. Select **Resources > JMS > Activation specification** from the WebSphere Application Server Version 7.0 or later administration console navigation.
  - b. Select the **Scope** dropdown list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
  - c. Create an activation specification using the console wizard, by clicking **New**.
  - d. Select **WebSphere MQ messaging provider**, and click **OK**.
  - e. At Step 1 of the wizard, in the **Name** field, enter WMQFTEActivationSpec and in the **JNDI name** field, enter jms/WMQFTEActivationSpec. Click **Next**.
  - f. At Step 1.1 of the wizard, in the **Destination JNDI name** field, enter jms/WMQFTEWebAgentRequestQueue, from the **Destination type** dropdown list, select Queue, and click **Next**.
  - g. At Step 2 of the wizard, select **Enter all the required information into this wizard**, and click **Next**.
  - h. At Step 2.1 of the wizard, in the **Queue manager or queue sharing group name** field, enter the name of the queue manager that the Web Gateway agent connects to, and click **Next**.

- i. At Step 2.2 of the wizard, enter the connection details of the queue manager that the Web Gateway agent connects to, and click **Next**.
- j. At Step 3 of the wizard, click **Test Connection**. Click **Next**.
- k. At Step 4 of the wizard, review the summary information and click **Finish**.
- l. Click the name of the Activation Specification that you have just created. In the Additional Properties section of the **Configuration** tab, click **Advanced Properties**. In the Connection Consumer section of the Advanced Properties panel, enter 1 into the **Maximum server sessions** field.

**Note:** Ensure you have completed this step before proceeding. Failure to do so can cause the Web Gateway to fail to operate correctly.

6. Define a JDBC provider. If you have already deployed a JEE database logger, this data source is already defined at your selected scope.
  - a. Select **Resources > JDBC > JDBC Providers** from the WebSphere Application Server Version 7.0 or later administration console navigation.
  - b. Select the **Scope** dropdown list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
  - c. Create a JDBC provider using the console wizard, by clicking **New**.
  - d. At Step 1 of the wizard, the values you provide depend on the type of database you are using.
    - If you are using Db2, select **DB2** from the **Database type** list, **DB2 Universal JDBC Driver Provider** from the **Provider type** list and **XA Data Source** from the **Implementation type** list. Click **Next**.
    - If you are using Oracle, select **Oracle** from the **Database type** list, **Oracle JDBC Driver** from the **Provider type** list and **XA Data Source** from the **Implementation type** list. Click **Next**.
  - e. At Step 2 of the wizard, ensure that the directory location of the required database jar files is set correctly. Click **Next**.
  - f. Click **Finish** on the summary page to create the JDBC provider.
7. Define a data source, so that the Web Gateway application can retrieve transfer status information. If you have already deployed a JEE database logger, this data source is already defined at your selected scope.
  - a. Select **Resources > JDBC > Data sources** from the WebSphere Application Server Version 7.0 or later administration console navigation.
  - b. Select the **Scope** dropdown list and change the scope to the appropriate value. For example, Node=yourNode, Server=yourServer.
  - c. Create a data source using the console wizard, by clicking **New**.
  - d. At Step 1 of the wizard, in the **Data source name** field, enter `wmqfte-database` and in the **JNDI name** field, enter `jdbc/wmqfte-database`. Click **Next**.
  - e. At Step 2 of the wizard, use the **Select an existing JDBC provider** dropdown list to select the JDBC provider created in the above steps. Click **Next**.
  - f. **Db2:** At Step 3 of the wizard, in the **Driver type** field, enter 4.
  - g. **Db2:** Enter the required details in the **Database name**, **Server name**, and **Port number** fields, and click **Next**.  
**Oracle:** Enter the required connection URL in the **URL** field and choose the correct data store helper in the **Data store helper class name** field.
  - h. At Step 4 of the wizard, if you have configured the authentication on your database, supply the required **Component-managed authentication alias** and **Container-managed authentication alias** in the respective dropdown boxes, and click **Next**.
  - i. Click **Finish** on the summary page to create the data source.
8. Define a second data source, so that the Web Gateway application can store information about the user file spaces that you create and use:

- a. Create the database and database tables that are required to work with file spaces. For more information, see “Setting up a database for use with file spaces” on page 150.
  - b. Repeat steps 7a to 7i, but for step 7d type `wmqfte-fileSPACE` into the **Data source name** field and `jdbc/wmqfte-fileSPACE` into the **JNDI name** field, and click **Next**.
9. Optional: If you have already configured your database you can verify the configuration of the data sources:
- a. Select **Resources > JDBC > Data sources** from the WebSphere Application Server Version 7.0 or later administration console navigation.
  - b. Click the **Test Connection** button.

## Results

You can now deploy the Web Gateway EAR file to the application server. Carry out the steps in the topic “Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169.

## Setting the native library path in WebSphere Application Server Version 7.0

If you deploy the Web Gateway application or the Java Platform, Enterprise Edition database logger application on WebSphere Application Server Version 7.0, and you want to use bindings mode connections between the application and WebSphere MQ, you must configure the WebSphere MQ messaging provider with the location of the WebSphere MQ native libraries on the system.

### About this task

If you do not set the native library path in your application server, you might receive the following error message in the WebSphere Application Server Version 7.0 system out log:

A connection could not be made to WebSphere MQ for the following reason: CC=2;RC=2495;AMQ8568: The native JNI library 'm

Use the WebSphere Application Server Version 7.0 administrative console to complete the following steps:

### Procedure

1. In the navigation pane, expand **Resources > JMS > JMS Providers**.
2. Select the WebSphere MQ messaging provider that is at the correct scope for the connection factory or activation specification that creates the bindings mode connection.

**Note:** Native path information at Server scope is used in preference to native path information at higher scopes, and native path information at Node scope is used in preference to native path information at Cell scope.

3. Under General Properties, in the **Native library path** field, enter the full name of the directory that contains the WebSphere MQ native libraries. For example, on Linux enter `/opt/mqm/java/lib`. Enter only one directory name.
4. Click **OK**.
5. Restart the application server to refresh the configuration.
6. Required: Restart the application server a second time to load the libraries.

### Related tasks:

“Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163  
Use these instructions to define required resources before deploying the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Version 7.0. You must customize the example deployment plan for your environment.

“Installing the WebSphere MQ File Transfer Edition JEE database logger with WebSphere Application Server Version 7.0 or later” on page 139

Follow these instructions to install and configure the Java Platform, Enterprise Edition (JEE) database logger with WebSphere Application Server Version 7 or later.

## Deploying the WebSphere MQ File Transfer Edition Web Gateway

The WebSphere MQ File Transfer Edition Web Gateway must be deployed to an application server that is compatible with Java Platform, Enterprise Edition 5. The deployment process for different application servers varies. This section outlines the deployment process for two application servers.

### Related tasks:

“Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169  
Use these instructions to deploy the Web Gateway enterprise application to WebSphere Application Server Version 7.0.

“Deploying the Web Gateway with WebSphere Application Server Community Edition”  
Use these instructions to deploy the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Community Edition. Customize the example deployment plan for your environment.

## Deploying the Web Gateway with WebSphere Application Server Community Edition

Use these instructions to deploy the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Community Edition. Customize the example deployment plan for your environment.

### Before you begin

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

Before deploying the Web Gateway application, you must carry out the tasks described in the topic “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152.

### About this task

To deploy the EAR file to the application server, carry out the following steps from the WebSphere Application Server Community Edition administration console.

### Procedure

1. From the **Console Navigation**, select **Applications > Deploy New**.
2. In the **Archive** field, specify the EAR file: `com.ibm.wmqfte.web.ear`
3. In the **Plan** field, either specify your own deployment plan file, or leave the value blank to choose the default deployment plan `geronimo-web.xml`.
4. Ensure that **Start application after install** is selected.
5. Click **Install**. The Web Gateway application is installed and started.

## Results

You can now start to use the Web Gateway, for example by deploying a web application that uses the Web Gateway to submit file transfers and transfer status requests. To use the sample application provided with the Web Gateway, follow the instructions in the topic “Sample web page” on page 351.

To check your Web Gateway installation, use the installation verification application that is provided with the Web Gateway. For instructions, see “Verifying your Web Gateway installation” on page 173.

### Related tasks:

“Enabling trace with WebSphere Application Server Community Edition” on page 420

If the Web Gateway application is running in WebSphere Application Server Community Edition, follow these instructions to enable trace of the Web Gateway application. Trace is produced by the Web Gateway application when it receives and processes requests.

## Deploying the Web Gateway with WebSphere Application Server Version 7.0

Use these instructions to deploy the Web Gateway enterprise application to WebSphere Application Server Version 7.0.

### Before you begin

Before deploying the Web Gateway application, you must follow the instructions in the topic “Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163 to set up the application server environment.

### About this task

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

### Procedure

1. From the WebSphere Application Server Version 7.0 administration console, select **Applications > New Application**.
2. From the options list, select **New Enterprise Application**.
3. On the **Preparing for the application installation** page, select the `com.ibm.wmqfte.web.ear` file from the `install-directory/web` directory of the WebSphere MQ File Transfer Edition Server installation, and click **Next**.
4. On the following screen, select **Detailed** to show all installation options and parameters, and click **Next**.
5. Click **Next** in each of steps 1 - 5 to accept the default values.
6. In step 6 (**Initialize parameters for servlets**), supply values for the following parameters:

#### **agentName**

The name of the WebSphere MQ File Transfer Edition agent that acts as the source for Web Gateway-initiated transfers. This agent must be configured as a web agent and be installed on the same system as the application server where you are deploying the Web Gateway application. You must provide a value for this parameter.

You must create a web agent, it is not created by the deployment process. For information about how to create a web agent, see “`fteCreateWebAgent` (create a WebSphere MQ File Transfer Edition web agent)” on page 528.

#### **coordinationQMgr**

The name of the coordination queue manager that is used by the Web Gateway for logging of transfer information. You must provide a value for this parameter.

**fileSpaceRoot**

The root directory path for file spaces created and managed by the Web Gateway. Each file space is located in a subdirectory, under this root directory, with the same name as the file space. If you change the value of this parameter after creating file spaces, the location of those file spaces remains unchanged. If you leave the value of this parameter blank, the application server home directory is used as the default file space root.

**Note:** Use a new, empty directory as your file space root.

**webGatewayName**

The name of the Web Gateway that you are deploying. You must provide a value for this parameter.

The name of the Web Gateway is not case-sensitive and must conform to the WebSphere MQ object naming conventions. For more information, see “Object naming conventions for WebSphere MQ File Transfer Edition” on page 719.

**tempFileUploadDir**

The directory path for the storage of temporary files related to Web Gateway-initiated transfers. The temporary file upload directory is used to temporarily store files when they are uploaded to the Web Gateway. When the upload to the Web Gateway is complete, the web agent transfers the files from the temporary file upload directory to the destination agent. If you do not provide a value for this parameter, the application server temporary directory (the value of `java.io.tmpdir`) is used.

**maxTempFileUploadSpace**

The maximum amount of space, in MB, that a user is allowed for storing temporary files related to Web Gateway-initiated transfers. When a user uploads files to an agent they are temporarily stored on the file system until they have been transferred. This parameter can be used to limit the amount of space an upload user can use at any one time. If you do not provide a value for this parameter, the amount of temporary file storage available to a user is unlimited.

**defaultMQMDUserID**

The default WebSphere MQ Message Descriptor (MQMD) user ID to associate with a requesting user when there is no specific MQMD user ID defined for the user. You can define mappings between users and MQMD user IDs by using the WMQFTE Web Gateway user administration API. If you do not provide a value for this parameter, then a user that does not have an MQMD user ID defined cannot perform a file upload.

For more information about defining mappings between users and MQMD user IDs, see the topics “Web Gateway administration API reference” on page 966 and “Example: Mapping web user IDs to MQMD user IDs” on page 332.

**Note:** If you want, you can change these values after deployment without redeploying the application. To change these values, go to **Applications > Application types > WebSphere enterprise applications > WebSphere MQ FTE Web Gateway > Initialize parameters for servlets**.

7. Click **Next**.
8. In step 7 (**Bind listeners for message-driven beans**), in the **Target Resource JNDI Name** field, enter `jms/WMQFTEActivationSpec`. Click **Next**.
9. Click **Next** in each of steps 8 - 10 to accept the default values.
10. In step 11 (**Map resource references to resources**) perform the following steps:
  - a. For both items in the `javax.jms.QueueConnectionFactory` section, in the **Target Resource JNDI Name** field, enter `jms/WMQFTEWebAgentConnectionFactory`.
  - b. In the `javax.sql.DataSource` section, locate the entry where the **Resource Reference** field has a value of `jdbc/wmqfte-filespace`. In the **Target Resource JNDI Name** field, enter `jdbc/wmqfte-filespace`.

- c. In the **javax.sql.DataSource** section, locate the entry where the **Resource Reference** field has a value of `jdbc/wmqfte-database`. In the **Target Resource JNDI Name** field, enter `jdbc/wmqfte-database`.

Click **Next**.

11. Click **Next** in each of steps 12 - 13 to accept the default values.
12. In step 14 (**Map security roles to users or groups**) map the required users or groups to the roles defined in the enterprise application. For example:
  - a. Select `wmqfte-admin`, `wmqfte-fileSPACE-create`, `wmqfte-fileSPACE-modify`, and `wmqfte-fileSPACE-delete` from the table.
  - b. Click **Map groups**.
  - c. Click **Search**.
  - d. Select the group administrators from the list and click the top arrow button.
  - e. Click **OK**.
  - f. Select `wmqfte-fileSPACE-create`, `wmqfte-fileSPACE-modify`, and `wmqfte-fileSPACE-permissions` from the table.
  - g. Click **Map groups**.
  - h. Click **Search**.
  - i. Select the group managers from the list and click the top arrow button.
  - j. Click **OK**.
  - k. Select `wmqfte-fileSPACE-permissions`, `wmqfte-agent-upload`, `wmqfte-fileSPACE-user`, and `wmqfte-audit` from the table.
  - l. Click **Map groups**.
  - m. Click **Search**.
  - n. Select the group employees from the list and click the top arrow button.
  - o. Click **OK**.

For more information about Web Gateway roles, see “User roles for the Web Gateway” on page 88. Click **Next**.

13. Optional: If you want to use a non-default context root for your Web Gateway, in step 13 (**Map context roots for Web modules**), you can change the context root of the Web Gateway.
14. Optional: If you want to use a non-default context root for your Web Gateway administrative console, in step 13 (**Map context roots for Web modules**), you can change the context root of the administrative console.
15. Click **Finish** on the summary page to install the enterprise application.
16. You can now start the application from the WebSphere Application Server Version 7.0 administration console:
  - a. Select **Applications > Application Types > WebSphere enterprise applications** from the console navigation.
  - b. Select the check box for the **WebSphere MQ File Transfer Edition Web Gateway** enterprise application from the collection table, and click **Start**.

## Results

You can now start to use the Web Gateway, for example by deploying a web application that uses the Web Gateway to submit file transfers and transfer status requests. To use the sample application provided with the Web Gateway, follow the instructions in the topic “Sample web page” on page 351.

To check your Web Gateway installation, use the installation verification application that is provided with the Web Gateway. For instructions, see “Verifying your Web Gateway installation” on page 173.

## Related tasks:

“Enabling trace with WebSphere Application Server Version 7.0” on page 421

If the Web Gateway application is running in WebSphere Application Server Version 7.0, follow these instructions to enable trace of the Web Gateway application. Trace is produced by the Web Gateway application when it receives and processes requests.

## Configuring the database logger for use with the Web Gateway

To be able to query the status of transfers and the contents of file spaces you must have a WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger in your WebSphere MQ File Transfer Edition network and a database that contains the Version 7.0.3, or later, tables.

### About this task

The following example shows the result of requesting the status of a transfer when the database logger is not correctly configured:

1. This HTTP request submits a transfer query:

```
GET HTTP/1.1 /transfer/414d51204d554e474f2afed834435bc6edaf323520204cee
Host: example.com
User-Agent: mozilla
```

2. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 500 Internal Server Error
Server: WAS/6.0
Content-length: 93
Content-type: text/plain
```

```
BFGWI0018E: The request could not be completed due to an internal
web application server error.
```

To configure the database logger so that the request is processed correctly, perform the following steps:

### Procedure

1. Install the WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger. This is located on the Remote Tools and Documentation install DVD. For more information on how to install and configure the database logger, see “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.
2. If you already have the WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger installed, ensure that your database tables are up to date. Use the SQL files provided in the following directories to update your database tables:
  - On distributed platforms: `<install_directory>/tools/sql`
  - On z/OS: `<install_directory>/sql`

### Related tasks:

“Installing the WebSphere MQ File Transfer Edition JEE database logger” on page 136  
Follow these instructions to install and configure the JEE database logger.

“Installing the WebSphere MQ File Transfer Edition stand-alone database logger” on page 124  
Follow these instructions to install and configure the stand-alone database logger.

## Verifying your Web Gateway installation

Follow these instructions to check that your WebSphere MQ File Transfer Edition Web Gateway application is deployed correctly.

### Before you begin

Before verifying your Web Gateway configuration, you must follow the instructions to deploy the Web Gateway application. See “Configuring the Web Gateway” on page 149.

### About this task

#### Procedure

1. Ensure that you are logged on to the application server environment with a user ID that has the `wmqfte-admin` security role. For more information, see “User roles for the Web Gateway” on page 88.
2. In a web browser, type the following URI:

```
http://host/wmqfte/ivt?logdbschema=FTELOG&webdbschema=FTEWEB
```

If you defined a context root for the Web Gateway application other than the default value of `wmqfte`, use the following URI:

```
http://host/context_root/ivt?logdbschema=FTELOG&webdbschema=FTEWEB
```

**Note:** During configuration of the Web Gateway, you set up database tables for storing information about file spaces and transfer history. The Web Gateway installation verification application assumes that you used the default values for the database schema names. If you defined database schema names other than the default values of `FTELOG` for the transfer history database and `FTEWEB` for the file space information database, you must change the schema names that are specified in the URI. Use the following query terms to specify the database schema names:

#### **logdbschema**

Schema name for the transfer history database

#### **webdbschema**

Schema name for the file space information database

For example, if your transfer history database has a schema name of `MYLOG` and your file space information database has a schema name of `MYWEB`, use the following URI:

```
http://host/wmqfte/ivt?logdbschema=MYLOG&webdbschema=MYWEB
```

For more information about setting up databases, see “Setting up a database for use with file spaces” on page 150 and “Configuring the database logger for use with the Web Gateway” on page 172.

### Results

The web browser displays a page that lists configuration information for your Web Gateway installation, and the results of testing some basic Web Gateway functions. For more information, see “The Web Gateway installation verification application” on page 174.

## The Web Gateway installation verification application

WebSphere MQ File Transfer Edition provides a Web Gateway installation verification application. Use this application to view configuration values for your Web Gateway installation and test basic Web Gateway functions.

For information about how to access the installation verification application, see “Verifying your Web Gateway installation” on page 173. The application displays two types of information: configuration values for your Web Gateway installation, and the results of testing basic Web Gateway functions.

### Configuration values

When you deploy the Web Gateway in an application server, you provide values for several initialization parameters. If you are using WebSphere Application Server Version 7.0, you provide these values using the **Initialize parameters for servlets** step in the administration console. If you are using WebSphere Application Server Community Edition, you set these values in the `web.xml` file.

Under the heading **Web Gateway configuration information**, the application lists the values for the following Web Gateway settings:

#### Servlet information

The name and version of the Web Gateway servlet that you have deployed.

#### Web Gateway name

The name of the Web Gateway that you deployed. You provided this value for the `webGatewayName` initialization parameter.

#### Context root

The context root that you defined for the Web Gateway application. In WebSphere Application Server Community Edition, this is the value of the `<web:context-root>` element in the `WEB-INF/geronimo-web.xml` file. In WebSphere Application Server Version 7.0, this value is set in the **Map context roots for Web modules** step when you install the Web Gateway application. The default value is `wmqfte`.

#### File space root directory

The root directory path for file spaces created and managed by the Web Gateway. You provided this value for the `fileSpaceRoot` initialization parameter.

#### Temporary file upload root directory

The directory path for the storage of temporary files related to Web Gateway-initiated transfers. You provided this value for the `tempFileUploadDir` initialization parameter.

#### Maximum size of temporary file upload directory

The maximum amount of space, in MB, that a user is allowed for storing temporary files related to Web Gateway-initiated transfers. You provided this value for the `maxTempFileUploadSpace` initialization parameter.

#### WMQFTE web agent name

The name of the WebSphere MQ File Transfer Edition agent that acts as the source for Web Gateway-initiated transfers. You provided this value for the `agentName` initialization parameter. This is the name that you specified for your web agent, using the `-agentName` parameter, when you ran the `fteCreateWebAgent` command.

#### Coordination queue manager name

The name of the coordination queue manager that is used by the Web Gateway for logging of transfer information. You provided this value for the `coordinationQMGr` initialization parameter.

#### Default MQMD user ID

The default WebSphere MQ Message Descriptor (MQMD) user ID to associate with a requesting user when there is no specific MQMD user ID defined for the user. You provided this value for the `defaultMQMDUserID` initialization parameter.

### **Application server information**

The name and version of the application server hosting the Web Gateway application.

### **Web Gateway tests**

Under the heading **Results of Web Gateway tests**, the installation verification application shows the results of several tests. If a test fails, a WebSphere MQ File Transfer Edition error code and message are displayed in the **Information** column. For more information about error messages, see Diagnostic messages. The following tests are listed:

#### **Upload file to temporary storage**

Tests the directory that is named in the **Temporary file upload root directory** field. The application tests that the directory exists and is readable and writeable, and that data written to the directory can be read back.

#### **Upload file to file space storage**

Tests the directory that is named in the **File space root directory** field. The application tests that the directory exists and is readable and writeable, and that data written to the directory can be read back.

#### **Transfer history database access**

Tests that the connection to the transfer history database exists. If you are using WebSphere Application Server Version 7, the application tests the data source that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163. If you are using WebSphere Application Server Community Edition, the application tests the database pool that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152. The application checks that the database can be accessed using the credentials that you supplied when you set up the data source or database pool.

The application also checks that the required database tables exist. For more information, see “Setting up a database for use with file spaces” on page 150 and “Configuring the database logger for use with the Web Gateway” on page 172.

The final part of the test checks that Java Persistence API (JPA) objects have been correctly defined.

#### **File space information database access**

Tests that the connection to the file space information database exists. If you are using WebSphere Application Server Version 7, the application tests the data source that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163. If you are using WebSphere Application Server Community Edition, the application tests the database pool that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152. The application checks that the database can be accessed using the credentials that you supplied when you set up the data source or database pool.

The application also checks that the required database tables exist. For more information, see “Setting up a database for use with file spaces” on page 150 and “Configuring the database logger for use with the Web Gateway” on page 172.

The final part of the test checks that Java Persistence API (JPA) objects have been correctly defined.

---

## Configuring the Connect:Direct bridge

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

### About this task

Complete the following steps to configure the Connect:Direct bridge:

#### Procedure

1. "Choose the operating systems for the Connect:Direct bridge agent and node."
2. "Choose and configure a Connect:Direct node" on page 177.
3. "Create and configure a Connect:Direct bridge agent" on page 177.
4. "Configure the ConnectDirectNodeProperties.xml file to include information about the remote Connect:Direct nodes" on page 177.
5. "Configure a secure connection between the Connect:Direct bridge agent and the Connect:Direct node" on page 178.

## Choose the operating systems for the Connect:Direct bridge agent and node

### Before you begin

The agent and node that make up the Connect:Direct bridge must be on the same system, or have access to the same file system, for example through a shared NFS mount. This file system is used to temporarily store files during file transfers that involve the Connect:Direct bridge, in a directory defined by the **cdTmpDir** parameter. The Connect:Direct bridge agent and the Connect:Direct bridge node must be able to address this directory using the same path name. For example, if the agent and node are on separate Windows systems, the systems must use the same drive letter to mount the shared file system. The following configurations allow the agent and the node to use the same path name:

- The agent and node are on the same system, which is either running Windows or Linux for System x
- The agent is on Linux for System x, and the node is on UNIX
- The agent is on one Windows system, and the node is on another Windows system

The following configurations do not allow the agent and the node to use the same path name:

- The agent is on Linux for System x, and the node is on Windows
- The agent is on Windows, and the node is on UNIX

Consider this restriction when planning your installation of the Connect:Direct bridge.

For more details of the operating system versions supported for the Connect:Direct bridge, see the web page [WebSphere MQ File Transfer Edition System Requirements](#).

#### Procedure

1. Choose a system running either Windows or Linux on System x to install the Connect:Direct bridge agent on.
2. Choose an operating system that is supported by Connect:Direct for Windows or Connect:Direct for UNIX to install the Connect:Direct bridge node on.

## Choose and configure a Connect:Direct node

### Before you begin

You must have a Connect:Direct node installed before following these instructions.

### Procedure

1. Choose a Connect:Direct node for the WebSphere MQ File Transfer Edition agent to communicate with.
2. Check the network map for your chosen Connect:Direct node. If the network map contains any entries for remote nodes running on a Windows operating system, you must ensure that these entries specify that the nodes are running on Windows.
  - a. If the Connect:Direct node that you have selected for the Connect:Direct bridge is running on Windows, use the Connect:Direct Requester to edit the network map. Ensure that the **Operating System** field for any remote nodes that are running on Windows is set to **Windows**.

## Create and configure a Connect:Direct bridge agent

### About this task

A Connect:Direct bridge agent is a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with a Connect:Direct node.

### Procedure

1. Create a Connect:Direct bridge agent using the **fteCreateCDAgent** command.
  - a. You must provide a value for the **cdNode** parameter. This parameter specifies the name that the agent uses for the Connect:Direct node that is part of the Connect:Direct bridge. Use the name of the Connect:Direct node that you chose in the previous section.
  - b. Provide values for the **cdNodeHost** and **cdNodePort** parameters, which define the Connect:Direct node that the agent communicates with. If you do not provide a value for the **cdNodeHost** parameter, the host name or IP address of the local system is used. If you do not provide a value for the **cdNodePort** parameter, the value 1363 is used.
  - c. Optional: Use the information in “fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486 to determine whether you need to specify a value for the **cdTmpDir** parameter.
2. Map the user credentials used by WebSphere MQ File Transfer Edition to user credentials on a Connect:Direct node. You can map credentials by using one of the following methods:
  - Edit the `ConnectDirectCredentials.xml` file that is created by the **fteCreateCDAgent** command to include credential mapping information. For more information, see “Mapping credentials for Connect:Direct by using the `ConnectDirectCredentials.xml` file” on page 179.
  - Write a user exit to perform credential mapping for your Connect:Direct bridge. For more information, see “Mapping credentials for Connect:Direct by using exit classes” on page 181.

## Configure the `ConnectDirectNodeProperties.xml` file to include information about the remote Connect:Direct nodes

### Before you begin

You must have created a Connect:Direct bridge agent before following these instructions.

### Procedure

Edit the template `ConnectDirectNodeProperties.xml` in the Connect:Direct bridge agent configuration directory. For each Connect:Direct node or group of nodes that you want to define information about, perform the following steps:

1. Inside the nodeProperties element, create a node element.
2. Add a name attribute to the node element. Specify the value of this attribute as a pattern to match the name of one or more remote Connect:Direct nodes.
3. Optional: Add a pattern attribute to the node element that specifies what type of pattern the value in the name attribute is. Valid values are regex and wildcard. The default option is wildcard.
4. Add a type attribute to the node element that specifies the operating system that the remote Connect:Direct nodes specified by the name attribute run on. The following values are valid:
  - Windows - the node runs on Windows
  - UNIX - the node runs on UNIX or Linux
  - z/OS, zos, os/390, or os390 - the node runs on z/OS

The value of this attribute is not case sensitive. Transfers to remote nodes on other operating systems are not supported by the Connect:Direct bridge.

For more information, see “Connect:Direct node properties file format” on page 637.

## Configure a secure connection between the Connect:Direct bridge agent and the Connect:Direct node

### About this task

By default, the Connect:Direct bridge agent uses the TCP/IP protocol to connect to the Connect:Direct node. If you want a secure connection between your Connect:Direct bridge agent and the Connect:Direct node, you can use the SSL protocol or the TLS protocol.

### Procedure

Configure a secure connection. For an example of how to do this, see “Configuring an SSL or TLS connection between the Connect:Direct bridge agent and the Connect:Direct node” on page 94.

#### Related concepts:

“Troubleshooting the Connect:Direct bridge” on page 431

Use the following reference information and examples to help you diagnose errors returned from the Connect:Direct bridge.

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

#### Related tasks:

“Configuring an SSL or TLS connection between the Connect:Direct bridge agent and the Connect:Direct node” on page 94

Configure the Connect:Direct bridge agent and the Connect:Direct node to connect to each other through the SSL protocol by creating a keystore and a truststore, and by setting properties in the Connect:Direct bridge agent properties file.

“Transferring a file to a Connect:Direct node” on page 272

You can transfer a file from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node using the Connect:Direct bridge. Specify a Connect:Direct node as the destination of the transfer by specifying the Connect:Direct bridge agent as the destination agent and specifying the destination file in the form *connect\_direct\_node\_name:file\_path*.

“Transferring a file from a Connect:Direct node” on page 273

You can transfer a file from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the transfer by specifying the Connect:Direct bridge agent as the source agent and specifying the source specification in the form *connect\_direct\_node\_name:file\_path*.

“Transferring multiple files from a Connect:Direct node” on page 276

You can transfer multiple files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the multiple file transfer by specifying the Connect:Direct bridge agent as the source agent and specifying one or more source specifications in the form *connect\_direct\_node\_name:file\_path*.

## Mapping credentials for Connect:Direct

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on a Connect:Direct node by using the default credential mapping function of the Connect:Direct bridge agent or by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping.

### Related tasks:

“Mapping credentials for Connect:Direct by using the ConnectDirectCredentials.xml file”

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on Connect:Direct nodes by using the default credential mapping function of the Connect:Direct bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

“Mapping credentials for Connect:Direct by using exit classes” on page 181

If you do not want to use the default credential mapping function of the Connect:Direct bridge agent, you can map user credentials in WebSphere MQ File Transfer Edition to user credentials on a Connect:Direct node by writing your own user exit. Configuring your own credential mapping user exits disables the default credential mapping function.

### Related reference:

“CDCredentialExit.java interface” on page 1023

“Connect:Direct credentials file format” on page 634

The `ConnectDirectCredentials.xml` file in the agent configuration directory defines the user names and credential information that the Connect:Direct agent uses to authorize itself with a Connect:Direct node.

## Mapping credentials for Connect:Direct by using the ConnectDirectCredentials.xml file

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on Connect:Direct nodes by using the default credential mapping function of the Connect:Direct bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

### About this task

The `fteCreateCDAgent` command creates the file `ConnectDirectCredentials.xml` in the agent configuration directory `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name`. Before you can use a Connect:Direct bridge agent, set up credential mapping by editing this file to include host, user, and credential information.

### Procedure

1. Ensure that the name attribute in the element `<tns:pnode name="Connect:Direct node host" pattern="wildcard">` contains the value of the name of the Connect:Direct node that the Connect:Direct bridge agent connects to. This value must be the same value that you specify for the `fteCreateCDAgent -cdNode` parameter. The value of the pattern attribute can be either `wildcard` or `regex`. If this attribute is not specified, the default is `wildcard`.
2. Insert user ID and credential information into the file as child elements of `<tns:pnode>`. You can insert one or more instances of the following `<tns:user>` element into the file:

```
<tns:user name="name"
          pattern="pattern"
          ignorecase="ignorecase"
          cdUserId="cdUserId"
```

```

        cdPassword="cdPassword"
        pnodeUserId="pnodeUserId"
        pnodePassword="pnodePassword">
</tns:user>

```

where:

- *name* is a pattern to match the MQMD user ID associated with the WMQFTE transfer request.
- *pattern* specifies whether the pattern specified for the name attribute is a wildcard expression or a Java regular expression. The value of the pattern attribute can be either `wildcard` or `regex`. If this attribute is not specified, the default is `wildcard`.
- *ignorecase* specifies whether to treat the pattern specified by the name attribute as case sensitive. If this attribute is not specified, the default is `true`.
- *cdUserId* is the user ID that is used by the Connect:Direct bridge agent to connect to the Connect:Direct node specified by the name attribute of `<tns:pnode>` element. If possible, ensure that *cdUserId* is a Connect:Direct administrator user ID. If *cdUserId* cannot be a Connect:Direct administrator, ensure that the user ID has the following functional authorities at the Connect:Direct bridge node:

- For a Windows node set the following authorities. This example is formatted with carriage returns to aid readability:

```

View Processes in the TCQ      value: yes
Issue the copy receive, copy send, run job, and run task
Process statements
Issue the submit Process statement value: yes
Monitor, submit, change, and delete all Processes value: all
Access Process statistics      value: all
Use the trace tool or issue traceon and traceoff commands value: yes
Override Process options such as file attributes and remote node ID value: yes

```

- For a UNIX node set the following parameters in the `userfile.cfg` file:

```

pstmt.copy          value: y
pstmt.upload        value: y
pstmt.download      value: y
pstmt.runjob        value: y
pstmt.runtask       value: y
cmd.submit          value: y
pstmt.submit        value: y
cmd.chgproc         value: y
cmd.delproc         value: y
cmd.flsproc         value: y
cmd.selproc         value: a
cmd.selstats       value: a
cmd.trace           value: y
snode.ovrd         value: y

```

- *cdPassword* is the password associated with the user ID specified by the *cdUserId* attribute.
- You can optionally specify the *pnodeUserId* attribute. The value of this attribute is the user ID that is used by the Connect:Direct node specified by the name attribute of `<tns:pnode>` element to submit the Connect:Direct process. If you do not specify the *pnodeUserId* attribute, the Connect:Direct node uses the user ID specified by the *cdUserId* attribute to submit the Connect:Direct process.

- You can optionally specify the attribute `pnodePassword`. The value of this attribute is the password associated with the user ID specified by the `pnodeUserId` attribute.

If no user element matches the MQMD user ID, the transfer fails.

3. Optional: You can include one or more `<tns:snode>` elements as child elements of the `<tns:user>` element. The `<tns:snode>` element specifies credentials that are used by the Connect:Direct node that is part of the Connect:Direct bridge. These credentials are the user ID and password that the Connect:Direct bridge node uses to connect to the Connect:Direct node that is the source or destination of the file transfer. Insert one or many of the following elements into the file:

```
<tns:snode name="name"
           pattern="pattern"
           userId="userId"
           password="password" />
```

where:

- *name* is a pattern to match the name of the Connect:Direct node that is the source or destination of the file transfer.
- *pattern* specifies whether the pattern specified for the name attribute is a wildcard expression or a Java regular expression. The value of the pattern attribute can be either `wildcard` or `regex`. If this attribute is not specified, the default is `wildcard`.
- *userId* is the user ID that is used by the Connect:Direct node specified by the name attribute of the `<tns:pnode>` element to connect to a Connect:Direct node that matches the pattern specified by the name attribute of `<tns:snode>`.
- *password* is the password associated with the user ID specified by the `userId` attribute.

If no `<tns:snode>` element matches the secondary node of the file transfer, this does not cause the transfer to fail. The transfer is started and no user ID and password are specified for use with the `snode`.

## Results

When searching for a pattern match for user names or Connect:Direct node names the Connect:Direct bridge agent searches from the top to the bottom of the file. The first match that is found is the one that is used.

### Related tasks:

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

### Related reference:

“Connect:Direct credentials file format” on page 634

The `ConnectDirectCredentials.xml` file in the agent configuration directory defines the user names and credential information that the Connect:Direct agent uses to authorize itself with a Connect:Direct node.

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The `fteCreateCDAgent` command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

## Mapping credentials for Connect:Direct by using exit classes

If you do not want to use the default credential mapping function of the Connect:Direct bridge agent, you can map user credentials in WebSphere MQ File Transfer Edition to user credentials on a Connect:Direct node by writing your own user exit. Configuring your own credential mapping user exits disables the default credential mapping function.

## About this task

User exits that you create for mapping Connect:Direct credentials must implement the interface `com.ibm.wmqfte.exitroutine.api.ConnectDirectCredentialExit`. For more information, see “CDCredentialExit.java interface” on page 1023.

## Configuring an SSL or TLS connection between the Connect:Direct bridge agent and the Connect:Direct node

Configure the Connect:Direct bridge agent and the Connect:Direct node to connect to each other through the SSL protocol by creating a keystore and a truststore, and by setting properties in the Connect:Direct bridge agent properties file.

## About this task

These steps include instructions for getting your keys signed by a certificate authority. If you do not use a certificate authority, you can generate a self-signed certificate. For more information about generating a self-signed certificate, see *Working with SSL/TLS on UNIX and Windows systems*.

These steps include instructions for creating a new keystore and truststore for the Connect:Direct bridge agent. If the Connect:Direct bridge agent already has a keystore and truststore that it uses to connect securely to WebSphere MQ queue managers, you can use the existing keystore and truststore when connecting securely to the Connect:Direct node. For more information, see “Configuring SSL encryption for WebSphere MQ File Transfer Edition” on page 84.

## Procedure

For the Connect:Direct node, complete the following steps:

1. Generate a key and signed certificate for the Connect:Direct node. You can do this by using the IBM Key Management tool that is provided with WebSphere MQ. For more information, see *Using iKeyman, iKeycmd, GSKCapiCmd, and GSK7Cmd*.
2. Send a request to a certificate authority to have the key signed. You receive a certificate in return.
3. Create a text file; for example, `/test/ssl/certs/CAcert`, that contains the public key of your certification authority.
4. Install the Secure+ Option on the Connect:Direct node. If the node already exists, you can install the Secure+ Option by running the installer again, specifying the location of the existing installation, and choosing to install only the Secure+ Option.
5. Create a new text file; for example, `/test/ssl/cd/keyCertFile/node_name.txt`.
6. Copy the certificate that you received from your certification authority and the private key, located in `/test/ssl/cd/privateKeys/node_name.key`, into the text file. The contents of `/test/ssl/cd/keyCertFile/node_name.txt` must be in the following format:

```
-----BEGIN CERTIFICATE-----
MIICnzCCAgigAwIBAgIBGjANBgkqhkiG9w0BAQUFADBEMQswCQYDVQQGEwJHqjES
MBAGA1UECBMJSgFtcHNoaXJ1MRAwDgYDVQQHEwdldXJzbGV5MzQwYDQKQWwNJ
Qk0xDjAMBGNVBAStBU1RSVBUMQswCQYDVQQDEwJJDQTAeFw0xMTAzMDEwNDZa
Fw0yMTAyMjYxNjIwNDZAMFAxMjYxNjYxNjYxNjYxNjYxNjYxNjYxNjYxNjYx
cmUxDDAKBgNVBAoTA01CTTEOMAwGA1UECmFTVFGVUeUxDzANBgNVBAMTBmJpbmJh
ZzCBnzANBgkqhkiG9w0BAQEFAAOBjQAwGykCgYEAvgP1QIk1U9ypSKD1Xo0Do1yk
EyMFXB0UpZrRdVxjoSEC0vtWNCJ199e+Vc4UpNybdyBu+Nkd1MNoF4QxeQcLAFj
WnhakqCiQ+JIAD5AurhnrwChe0MV3kjA84GKH/rOSVqt1984mu/1DyS819XcfSSn
c00MsK1KbneVSCIv2XECaWAAaA7MHkwCQYDVR0TBAIwADAsBgIghkgBhvhCAQ0E
HxYdT3B1b1NTTCBHZW51cmF0ZWQgQ2VydG1maWNhdGUwHQYDVR00BBYEFNXXMIpSc
csBXUniW4A3UrZnCRsv3MB8GA1UdIwQYMBaAFDX8rmj41Vz5+FVAoQb++cns+B4
MA0GCSqGSIb3DQEBBQUAA4GBAFc7k1Xa4pGKYgwchxKpE3ZF6FNwy4vBXS216/ja
8h/v18+iv01OCL8t0ZOKSU95fyZLz0PKnCH7v+ItFSE3CIiEk9D1z2U6W091ICwn
17PL72Tdfal3kabwHYVf17IVcuL+VZsZ3HjLggP2qH09ZuJPspeT9+AxFVMLiaAb
8eHw
```

```

-----END CERTIFICATE-----
-----BEGIN RSA PRIVATE KEY-----
Proc-Type: 4, ENCRYPTED
DEK-Info: DES-EDE3-CBC,64A02DA15B6B6EF9

```

```

57kqxL0J/gRU0IQ6hVK2YN13B4E1jAi1gSme0I5ZpEIG8CHXISKB7/0cke2FTqsV
1vI99QyCxsDwoMnt5fj51v7aPmVeS60b0m+U1Gre8B/Ze18JVj204K2Uh72rDCXE
5e6eFxsDUM207sQdy20euBVELJtM2k0kL1R0doQs1U3XQNgJw/t3ZIx5hPXWEQT
rjRQ064BEhb+PzzxPF8uwzZ9IruK9BJ/UUnqC60dBR87IeA4pnJD1Jvb2ML7EN9Z
5Y+50hTKI80GvBvWX04fHyvIX5as1whBoArXIS1AtNTrptPvoaP1zyIAeZ60Cvo/
SFo+A2UhtEJe0JaZG2XZ3H495fAw/EHmjehzIACwukQ9nSIETgu4A1+CV64RJED
aYBCM8UjaAkbZDH5gn7+eBov0ssXAXWdyJBVhU0jXjvAj/e1h+kcSF1hax5D//AI
66nRMZzboSxNqkjcVd8wfdwP+bEjDzUaaarJTS71IFeLLw7eJ8MNAkMGicDkycL0
EPBU9X5QnHKLK0fYHN/1WgUk8qt3UytFXXfzTXGF3EbsWbBupkt5e5+1YcX80VZ6
sHFPN1H1uCNy/riUcBy9iviVeodX8IomOchSy05DK18bwZNjYtUP+CtYHNFU5BaD
I+1uU0AeJ+wjQYKT1WaeIGZ3VxuNITJu18y5qDTXXfXvxM50oWxa6U5+AYuGUMg
/itPZmUmNrhjTk7ghT6i1IQ0aBowXXXJB1Mmq/6BQXN2IhkD9ys2qrvM1hdi5nAf
egmdiG501oLnBRqwbFR+DykpAhK4SaDi2F52Uxovw3Lhiw8dQP71zQ==
-----END RSA PRIVATE KEY-----

```

7. Start the Secure+ Admin Tool.

- On Linux or UNIX systems, run the command **spadmin.sh**.
- On Windows systems, click **Start > Programs > Sterling Commerce Connect:Direct > CD Secure+ Admin Tool**

The CD Secure+ Admin Tool starts.

8. In the CD Secure+ Admin Tool, double-click the **.Local** line to edit the main SSL or TLS settings.

- a. Select **Enable SSL Protocol** or **Enable TLS Protocol**, depending on which protocol you are using.
- b. Select **Disable Override**.
- c. Select at least one Cipher Suite.
- d. If you want two-way authentication, change the value of **Enable Client Authentication** to Yes.
- e. In the **Trusted Root Certificate** field, enter the path to the public certificate file of your certification authority, `/test/ssl/certs/CAcert`.
- f. In the **Key Certificate File** field, enter the path to the file that you created, `/test/ssl/cd/keyCertFile/node_name.txt`.

9. Double-click the **.Client** line to edit the main SSL or TLS settings.

- a. Select **Enable SSL Protocol** or **Enable TLS Protocol**, depending on which protocol you are using.
- b. Select **Disable Override**.

For the Connect:Direct bridge agent, perform the following steps:

10. Create a truststore. You can do this by creating a dummy key and then deleting the dummy key. You can use the following commands:

```

keytool -genkey -alias dummy -keystore /test/ssl/fte/stores/truststore.jks
keytool -delete -alias dummy -keystore /test/ssl/fte/stores/truststore.jks

```

11. Import the public certificate of the certification authority into the truststore. You can use the following command:

```

keytool -import -trustcacerts -alias myCA
-file /test/ssl/certs/CAcert
-keystore /test/ssl/fte/stores/truststore.jks

```

12. Edit the Connect:Direct bridge agent properties file. Include the following lines anywhere in the file:

```

cdNodeProtocol=protocol
cdNodeTruststore=/test/ssl/fte/stores/truststore.jks
cdNodeTruststorePassword=password

```

In the example above, *protocol* is the protocol you are using, either SSL or TLS, and *password* is the password that you specified when you created the truststore.

13. If you want two-way authentication, create a key and certificate for the Connect:Direct bridge agent.

- a. Create a keystore and key. You can use the following command:

```
keytool -genkey -keyalg RSA -alias agent_name  
-keystore /test/ssl/fte/stores/keystore.jks  
-storepass password -validity 365
```

- b. Generate a signing request. You can use the following command:

```
keytool -certreq -v -alias agent_name  
-keystore /test/ssl/fte/stores/keystore.jks -storepass password  
-file /test/ssl/fte/requests/agent_name.request
```

- c. Import the certificate you receive from the preceding step into the keystore. The certificate must be in x.509 format. You can use the following command:

```
keytool -import -keystore /test/ssl/fte/stores/keystore.jks  
-storepass password -file certificate_file_path
```

- d. Edit the Connect:Direct bridge agent properties file. Include the following lines anywhere in the file:

```
cdNodeKeystore=/test/ssl/fte/stores/keystore.jks  
cdNodeKeystorePassword=password
```

In the example above, *password* is the password that you specified when you created the keystore.

#### Related tasks:

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

## Specifying the Connect:Direct process to start by using the ConnectDirectProcessDefinition.xml file

Specify which Connect:Direct process to start as part of a WebSphere MQ File Transfer Edition transfer. WebSphere MQ File Transfer Edition provides an XML file that you can edit to specify process definitions.

### About this task

The **fteCreateCDAgent** command creates the file `ConnectDirectProcessDefinitions.xml` in the agent configuration directory `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name`. Before you can call user-defined Connect:Direct processes from the Connect:Direct bridge agent, you must set up process definitions by editing this file.

For each process that you want to specify to call as part of a transfer through the Connect:Direct bridge, perform the following steps:

### Procedure

1. Define the Connect:Direct process that you want the Connect:Direct bridge agent to call as part of the transfer and save the process template in a file.
2. Open the `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name/ConnectDirectProcessDefinitions.xml` file in a text editor.
3. Create a `<processSet>` element.
4. Inside the `<processSet>` element, create a `<condition>` element.
5. Inside the `<condition>` element, create one or more elements that define a condition that the transfer request must match to call the Connect:Direct process you defined in Step 1. These elements can be either `<match>` elements or `<defined>` elements.

- Use a `<match>` element to specify that the value of a variable must match a pattern. Create the `<match>` element with the following attributes:
  - `variable` - the name of the variable whose value is compared. The variable is an intrinsic symbol. For more information, see “Substitution variables for use with user-defined Connect:Direct processes” on page 746.
  - `value` - the pattern to compare to the value of the specified variable.
  - Optional: `pattern` - the type of pattern used by the value of the `value` attribute. This pattern type can be wildcard or regex. This attribute is optional and the default is wildcard.
- Use a `<defined>` element to specify that a variable must have a value defined. Create the `<defined>` element with the following attribute:
  - `variable` - the name of the variable that must have a value defined. The variable is an intrinsic symbol. For more information, see “Substitution variables for use with user-defined Connect:Direct processes” on page 746.

The conditions specified within the `<condition>` element are combined with a logical AND. All conditions must be met for the Connect:Direct bridge agent to call the process specified by this `<processSet>` element. If you do not specify a `<condition>` element, the process set matches all transfers.

6. Inside the `<processSet>` element, create a `<process>` element.
7. Inside the `<process>` element, create a `<transfer>` element. The transfer element specifies the Connect:Direct process that the Connect:Direct bridge agent calls as part of the transfer. Create the `<transfer>` element with the following attribute:
  - `process-` - the location of the Connect:Direct process that you defined in step 1. The location of this file is specified with an absolute path or relative to the `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name` directory.

## Results

When searching for a condition match, the Connect:Direct bridge agent searches from the top to the bottom of the file. The first match that is found is the one that is used.

### Related tasks:

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

### Related reference:

“Connect:Direct process definitions file format” on page 639

The `ConnectDirectProcessDefinitions.xml` file in the Connect:Direct bridge agent configuration directory specifies the user-defined Connect:Direct process to start as part of the file transfer.

“`fteCreateCDAgent` (create a Connect:Direct bridge agent)” on page 486

The `fteCreateCDAgent` command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.



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## Administering WebSphere MQ File Transfer Edition

Use WebSphere MQ File Transfer Edition commands to administer WebSphere MQ File Transfer Edition. You can also use the WebSphere MQ Explorer for some of the administrative tasks.

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

“Configuring a WebSphere MQ File Transfer Edition logger” on page 123

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

“Working with WebSphere Message Broker” on page 287

You can work with WebSphere MQ File Transfer Edition from WebSphere Message Broker using the FTEOutput and FTEInput nodes.

“WebSphere DataPower B2B Appliance XB60 sample” on page 287

This sample has been developed to demonstrate a potential solution for a B2B scenario using WebSphere MQ File Transfer Edition and WebSphere DataPower B2B Appliance XB60. The sample consists of this topic and a .zip file on the WebSphere MQ File Transfer Edition V7.0.2 Remote Tools and Documentation DVD. The sample is not certified for use in a production environment. Contact your local IBM representative if you require a B2B solution.

“Recovery and restart for WebSphere MQ File Transfer Edition” on page 290

If your agent or queue manager are unavailable for any reason, for example because of a power or network failure, WebSphere MQ File Transfer Edition recovers as follows in these scenarios:

### Related tasks:

“Starting a WebSphere MQ File Transfer Edition agent” on page 188

Before you can use a WebSphere MQ File Transfer Edition agent for a file transfer, you must first start the agent.

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

“Monitoring file transfers that are in progress from WebSphere MQ Explorer” on page 200

You can monitor a file transfer that is in progress using the **Managed File Transfer - Current Transfer Progress** tab in WebSphere MQ Explorer. This file transfer can be one started from either WebSphere MQ Explorer or the command line. The tab also displays the progress of scheduled transfers at the point the scheduled transfers start.

“Viewing the status of file transfers by using the Transfer Log” on page 202

You can view the details of file transfers by using the **Transfer Log** in WebSphere MQ Explorer. These can be transfers started from either the command line or the WebSphere MQ Explorer. You can also customize what is displayed in the **Transfer Log**.

“Working with transfer templates” on page 222

You can use file transfer templates to store common file transfer settings for repeated or complex transfers. Either create a transfer template from the command line by using the **fteCreateTemplate** command or use the WebSphere MQ Explorer to create a transfer template by using the **Create New Template for Managed File Transfer** wizard, or save a template while you are creating a file transfer by selecting the **Save transfer settings as a template** check box. The **Transfer Templates** window displays all of the transfer templates that you have created in your WebSphere MQ File Transfer Edition network.

“Listing WebSphere MQ File Transfer Edition agents” on page 251

You can list the agents registered with a particular queue manager using the command line or the WebSphere MQ Explorer.

“Stopping a WebSphere MQ File Transfer Edition agent” on page 252

You can stop an agent from the command line. When you stop an agent, you are quiescing the agent and allowing the agent to complete its current file transfer before stopping. You can also specify the **-i** parameter at the command line to stop an agent immediately. When the agent has stopped, you cannot use that agent to transfer files until you restart it.

**Related reference:**

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

---

## Starting a WebSphere MQ File Transfer Edition agent

Before you can use a WebSphere MQ File Transfer Edition agent for a file transfer, you must first start the agent.

### About this task

To start an agent from the command line, see `fteStartAgent` command.

In Version 7.0.3 or later, you can start a WebSphere MQ File Transfer Edition agent as a Windows service. This configuration ensures that your agent continues running when you log off your Windows session. For more information, see “Starting an agent as a Windows service” on page 191.

Note that, from Version 7.0.4.5, if an agent encounters an unrecoverable error when it is running, a first failure data capture (FDC) is generated and the agent is stopped.

### Related tasks:

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

“Listing WebSphere MQ File Transfer Edition agents” on page 251

You can list the agents registered with a particular queue manager using the command line or the WebSphere MQ Explorer.

“Stopping a WebSphere MQ File Transfer Edition agent” on page 252

You can stop an agent from the command line. When you stop an agent, you are quiescing the agent and allowing the agent to complete its current file transfer before stopping. You can also specify the **-i** parameter at the command line to stop an agent immediately. When the agent has stopped, you cannot use that agent to transfer files until you restart it.

### Related reference:

“**fteStartAgent** (start a WebSphere MQ File Transfer Edition agent)” on page 567

The **fteStartAgent** command starts a WebSphere MQ File Transfer Edition agent from the command line.

“Starting an agent on z/OS”

On z/OS in addition to running the **fteStartAgent** command from a UNIX System Services session, you can start an agent as a started task from JCL without the need for an interactive session. A started task is used because it runs under a specific user ID and is not affected by end users logging off.

## Starting an agent on z/OS

On z/OS in addition to running the **fteStartAgent** command from a UNIX System Services session, you can start an agent as a started task from JCL without the need for an interactive session. A started task is used because it runs under a specific user ID and is not affected by end users logging off.

As a Java application, an agent is a UNIX System Services application that you can run from JCL by using the the JZOS Batch Launcher or the BPXBATCH program. Using the JZOS Batch Launcher is more complex to set up than using BPXBATCH but does allow Java programs like the **fteStartAgent** and **fteStopAgent** much better integration with standard z/OS batch facilities. These batch facilities provide the correct return code as the step completion code, making error handling easier, and is the preferred way to run the agent as a started task.

Using BPXBATCH gives you the option of running either with or without a command shell, but is not the preferred way to run the agent as a started task. If you use BPXBATCH without a logon shell, this provides some isolation from your user environment profile but is slightly more complex. If you use BPXBATCH with a logon shell, this is a more straightforward solution, but it is largely dependent on your user environment. BPXBATCH with a logon shell also provides the facility to start an agent running as a background process, which continues running after the job step ends.

## Sample JCL

The following sample JCL is provided. These samples are installed in the `samples/JCL` subdirectory when you install WebSphere MQ File Transfer Edition on z/OS.

Table 4.

Sample name	Function
BFGXSAG	Runs an agent as a job step by using BPXBATCH without a logon shell.
BFGYSAG	Starts an agent as a background process by using BPXBATCH. The agent continues running after the job step completes.
BFGYSAGF	Runs an agent as a job step by using BPXBATCH with a logon shell. This is typically the most straightforward to configure.
BFGZSAG	Runs an agent as a job step by using the JZOS Batch Launcher. This is the preferred option if you want to run the agent as a started task, rather than a normal batch job step.

## Example

This is an example of a started task procedure, called AGENT1, used to start a WebSphere MQ File Transfer Edition 7.0.3 agent:

```
//AGENT1 PROC
//*
//*****
/* Start the agent AGENT1 using JzOS batch launcher
//*****
/*
//WMQFTE EXEC PGM=JVMLDM60,REGION=0M,PARM='+T'
//STEPLIB DD DSN=SYS1.SIEALNKE,DISP=SHR
// DD DSN=MQM.V701.SCSQAUTH,DISP=SHR
// DD DSN=MQM.V701.SCSQANLE,DISP=SHR
// DD DSN=MQM.V701.SCSQLOAD,DISP=SHR
//SYSOUT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
//STDENV DD DISP=SHR,DSN=FTEUSER.FTE.JCL(STDENV)
//MAINARGS DD DISP=SHR,DSN=FTEUSER.FTE.JCL(MAINARGS)
/*
/*-----
// PEND
/*-----
/*
//
```

The STEPLIB in the JCL adds SYS1.IEALNKE, the JZOS batch launcher load module dataset, to the LINKLIB concatenation. When this procedure is added to a library in the PROCLIB concatenation the agent can be started by using the command **s agent1**

The STDENV DD executes a shell script that sets a number of environment variables needed by the JVM, WebSphere MQ, and WebSphere MQ File Transfer Edition. An example of the STDENV used is as follows:

```
# This is a shell script which configures
# any environment variables for the Java JVM.
# Variables must be exported to be seen by the launcher.
# Use PARM='+T' and set -x to debug environment script problems
set -x
. /etc/profile
#
# Java configuration (including MQ Java interface)
#
```

```

export FTE_JAVA_HOME="/java/java60_bit31_sr6/J6.0/"
export PATH="/bin:£{FTE_JAVA_HOME}/bin"
LIBPATH="/lib:/usr/lib:£{FTE_JAVA_HOME}/bin:£{FTE_JAVA_HOME}/bin/classic
LIBPATH="£{LIBPATH}:/mqm/V7R0M01/java/lib"
export LIBPATH
#
# FTE configuration
#
export FTE_PROD="/wmqi/mqfte703/V7R0M3"
export FTE_CONFIG="/u/FTEUSER/mqfte"
export _BPXK_AUTOCVT="ON"
#
# Select function to be executed (script names without fte prefix)
#
. £{FTE_PROD}/bin/fteBatch StartAgent
#
# Set JZOS parameters to FTE values
#
export IBM_JAVA_OPTIONS="£{FTE_JAVA_OPTIONS}"
export JZOS_MAIN_ARGS="£{FTE_MAIN_ARGS}"

```

The MAINARGS DD contains the arguments passed to the command **StartAgent** named in STDENV. Using the -F parameter makes the agent run in the foreground. If you omit this parameter, the started task terminates and the agent is not started.

-F AGENT1

#### Related reference:

“Stopping an agent on z/OS” on page 253

If you are running a WebSphere MQ File Transfer Edition agent on z/OS as a started task from JCL, the agent accepts the z/OS operator commands **MODIFY** and **STOP**, in addition to the **fteStopAgent** command.

## Starting an agent as a Windows service

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

### About this task

A WebSphere MQ File Transfer Edition agent is a Java process. On Windows, when you start an agent from the command line, the agent process runs using the user name you used to log on to Windows. When you log off the system, the agent process stops. To prevent the agent stopping, you can configure an agent to run as a Windows service. Running as a Windows service also allows you to configure agents to be started automatically when the Windows environment starts or is restarted.

Complete the steps below to start an agent that runs as a Windows service. You must be running WebSphere MQ File Transfer Edition V7.0.3 on one of the supported Windows versions to run the agent as a Windows service. For the list of supported environments, refer to the System Requirements at <http://www.ibm.com/software/integration/wmq/filetransfer/requirements/>.

The exact steps depend on whether you have already created an agent or you are creating an agent. You can configure existing agents to run as a Windows service, or you can configure this when you create an agent. Both options are described in the following steps.

### Procedure

1. If you are creating a WMQFTE agent, use the **fteCreateAgent**, **fteCreateWebAgent**, **fteCreateCDAgent**, or **fteCreateBridgeAgent** command. Specify the **-s** parameter to run the agent as a Windows service. In the following example, the agent AGENT1 is created, which has an agent queue manager QMGR1. The Windows service runs using a user name of fteuser, which has an associated password ftepassword.

```
fteCreateAgent -agentName AGENT1 -agentQMGR QMGR1 -s -su fteuser -sp ftepassword
```

You can optionally specify a name for the service after the **-s** parameter. If you do not specify a name, the service is named `fteAgentAGENTQMGR`, where *AGENT* is the agent name you specified and *QMGR* is your agent queue manager name. In this example, the default name for the service is `fteAgentAGENT1QMGR1`.

**Note:** The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to configure this, see “Guidance for running an agent or database logger as a Windows service” on page 402.

For more information, see “`fteCreateAgent` (create a WebSphere MQ File Transfer Edition agent)” on page 478.

2. If you followed the previous step to create an agent, run the MQSC commands that are generated by the **fteCreateAgent**, **fteCreateWebAgent**, **fteCreateCDAgent**, or **fteCreateBridgeAgent** command. These commands create the WebSphere MQ queues that are needed by the agent. For example, for an agent named *AGENT1*, an agent queue manager named *QMGR1* and a coordination queue manager named *COORDQMGR1*, run the following command:

```
runmqsc QMGR1 < install_directory\config\COORDQMGR1\agents\AGENT1\AGENT1_create.mqsc
```

3. If you did not follow the previous steps to create an agent and instead want to configure an existing agent to run as a Windows service, first stop your agent if it is running, and then modify its configuration.
  - a. The following example uses an agent named *AGENT1*. Run the following command:  
`fteStopAgent AGENT1`
  - b. Use the **fteModifyAgent** command to configure the agent to run as a Windows service:  
`fteModifyAgent -agentName AGENT1 -s -su fteuser -sp ftepassword`

For more information, see “`fteModifyAgent` (modify a WebSphere MQ File Transfer Edition agent)” on page 548.

4. Start your agent using the **fteStartAgent** command. Alternatively, you can use the Windows Services tool, which is available from Administrative Tools in the Control Panel, to start the service.

```
fteStartAgent AGENT1
```

The service continues to run even if you log off Windows. To ensure that the service also restarts when Windows restarts after a shutdown, the **Startup Type** field in the Windows Services tool is set to **Automatic** by default. Change this to **Manual** if you do not want the service to restart when Windows restarts.

5. Optional: To stop the agent, either use the `fteStopAgent` command or use the Windows Services tool. For example, from the command line, run the following command:

```
fteStopAgent AGENT1
```

- If you use the Windows Services tool to stop the service, Windows might produce an error that starts Windows could not stop the IBM WMQFTE agent service. Despite this error, the agent has stopped successfully. This is a known limitation with the Java runtime environment that is used by WebSphere MQ File Transfer Edition.
- When you run the **fteStopAgent** command as a service, the command always runs using the **-i** parameter regardless of whether you specified this parameter. The **-i** parameter stops the agent immediately without completing any transfers that are in progress. This is caused by a limitation of the Windows service.

## What to do next

If you have problems starting your Windows service, see “Guidance for running an agent or database logger as a Windows service” on page 402. This topic also describes the location of the Windows service log files.

### Related concepts:

“Guidance for running an agent or database logger as a Windows service” on page 402

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

### Related tasks:

“Listing WebSphere MQ File Transfer Edition agents” on page 251

You can list the agents registered with a particular queue manager using the command line or the WebSphere MQ Explorer.

“Stopping a WebSphere MQ File Transfer Edition agent” on page 252

You can stop an agent from the command line. When you stop an agent, you are quiescing the agent and allowing the agent to complete its current file transfer before stopping. You can also specify the **-i** parameter at the command line to stop an agent immediately. When the agent has stopped, you cannot use that agent to transfer files until you restart it.

### Related reference:

“fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)” on page 478

The **fteCreateAgent** command creates an agent and its associated configuration.

“fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The **fteCreateCDAgent** command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“fteCreateBridgeAgent (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481

The **fteCreateBridgeAgent** command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

“fteModifyAgent (modify a WebSphere MQ File Transfer Edition agent)” on page 548

The **fteModifyAgent** command modifies an existing agent so that it can be run as a Windows service. This command is only available on Windows.

“fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

---

## Starting a new file transfer

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

### About this task

You can also start a file transfer by putting a file transfer message on the command queue of the source agent. An example command queue name is `SYSTEM.FTE.COMMAND.AGENT01`. You must ensure that the message reaches the command queue of the correct source agent; if the message is received by an agent that does not match the source information in the XML, the message is rejected.

The transfer request XML must conform to the `FileTransfer.xsd` schema and use the `<request>` element as the root element. See `File transfer request message format` for information about the structure and content of a transfer request message. How you put the transfer request message on an agent command queue is task-specific. For example, you can use the WebSphere MQ Java API to put a message on the queue programmatically.

To start a new file transfer from the command line, see `fteCreateTransfer` command.

To start a new file transfer by using the **Create New Managed File Transfer** wizard in WebSphere MQ Explorer, use the following steps:

## Procedure

1. In the Navigator view, click **Managed File Transfer**. **Managed File Transfer Central** is displayed in the Content view.
2. All of your coordination queue managers are displayed in the Navigator view. Expand the name of the coordination queue manager that the agent you want to use for the transfer is registered against. If you are currently connected to a coordination queue manager other than the one you want to use for the transfer, right-click that coordination queue manager name in the Navigator view and click **Disconnect**. Then right-click the name of the coordination queue manager you want to use and click **Connect**.
3. Start the **Create New Managed File Transfer** wizard by using either of the following methods:
  - a. Right-click the name of any of the following nodes in the Navigator view: the relevant coordination queue manager, **Transfer Templates**, **Transfer Log**, or **Pending Transfers**. Then click **New Transfer** to start the wizard.
  - b. Click **File > New > Other > Managed File Transfer Wizards > New Transfer Wizard**
4. Follow the instructions on the wizard panels. There is also context-sensitive help provided for each panel. To access the context-sensitive help on Windows, press F1. On Linux, press Ctrl+F1 or Shift+F1.

### Related concepts:

“Using transfer definition files” on page 195

You can specify a transfer definition file which can be used to create a file transfer. The transfer definition file is an XML file that defines some or all of the information required to create the transfer.

### Related tasks:

“Creating a scheduled file transfer” on page 197

You can schedule a new file transfer either from the WebSphere MQ Explorer or from the command line. The scheduled transfer can contain single files or multiple files in a group. You can perform a scheduled file transfer once or repeat the transfer multiple times.

“Triggering a file transfer” on page 199

You can set certain trigger conditions on a file transfer that must be true before that transfer can take place. If the triggering conditions are not true, the file transfer does not take place and a log message is optionally submitted to record the fact the transfer did not happen. The file transfer request is then discarded. For example, you can set up a file transfer that takes place only if a named file on the system where the source agent is located is over a specified size, or if a particular named file exists on the system where the source agent is located. You can set up a triggered file transfer from either the WebSphere MQ Explorer or from the command line.

### Related reference:

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the `FileTransfer.xsd` schema and have the `<request>` element as the root element. The `FileTransfer.xsd` schema document is located in the `install_directory/samples/schema` directory. The `FileTransfer.xsd` schema imports `fteutils.xsd`, which is in the same directory.

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in

binary or text mode, there are guidelines on what behavior to expect.

## Using transfer definition files

You can specify a transfer definition file which can be used to create a file transfer. The transfer definition file is an XML file that defines some or all of the information required to create the transfer.

Transfer definition files are useful when you want to specify multiple source files and multiple destination files in a single transfer operation. You can use a transfer definition file to submit a complex file transfer. You can reuse and share the transfer definition file.

You can use two formats for a transfer definition file, and while these formats vary slightly, both conform to the `FileTransfer.xsd` schema. You can find this schema in the `samples\schema` directory of the WebSphere MQ File Transfer Edition installation (Version 7.0.2 and later) or in the `MessageSchemas` directory of the WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD.

The following two formats of transfer definition files are supported:

- A definition of the source and destination files for a transfer. This definition uses a `<transferSpecifications>` element as the root.
- A definition of the entire transfer, including source and destination files and the source and destination agents. This definition uses a `<request>` element as the root.
  - Files with this format can be generated from the `fteCreateTransfer` command by using the `-gt` parameter.

The following example shows a transfer definition file format that specifies only the source and destination files for a transfer:

```
<?xml version="1.0" encoding="UTF-8"?>
<transferSpecifications xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <item checksumMethod="MD5" mode="text">
    <source recursive="false" disposition="leave">
      <file>textTransferTest.txt</file>
    </source>
    <destination type="directory" exist="overwrite">
      <file>c:\targetfiles</file>
    </destination>
  </item>
</transferSpecifications>
```

To submit this format of transfer definition file you must specify the source and destination agents on the command line:

```
fteCreateTransfer -sa AGENT1 -sm agent1qm -da AGENT2 -dm agent2qm -td c:\definitions\example1.xml
```

The following example is a transfer definition file format that specifies all information required for a transfer:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="3.00" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>example.com.</hostName>
      <userID>fteuser</userID>
    </originator>
    <sourceAgent agent="AGENT1" QMgr="agent1qm"/>
    <destinationAgent agent="AGENT2" QMgr="agent2qm"/>
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>c:\sourcefiles\*.jpg</file>
        </source>
        <destination type="directory" exist="error">
```

```

        <file>/targetfiles/images</file>
    </destination>
</item>
</transferSet>
</managedTransfer>
</request>

```

You can generate a file with this format by using the **-gt** parameter on the **fteCreateTransfer** command. When you submit a transfer definition file with this format, you do not need to specify anything else on the command line:

```
fteCreateTransfer -td c:\definitions\example2.xml
```

You can override the source and destination agent information about the command line by passing in the normal parameters in addition to the transfer definition file. For example:

```
fteCreateTransfer -da AGENT9 -dm agent9qm -td c:\definitions\example2.xml
```

This example uses the command-line options to override the destination agent defined inside the transfer definition file with **AGENT9** and the destination queue manager defined in the transfer definition file as **agent9qm**.

Both of the above formats can contain one or more `<item>` elements. For further information about the `<item>` element, see File transfer request message format. Each of these transfer items defines a source and destination file pair with additional attributes to control the behavior of the transfer. For example, you can specify the following behavior:

- Whether the transfer uses a checksum
- Whether the transfer is text or binary
- Whether to delete the source file after the transfer has completed
- Whether to overwrite the destination file if the file exists

An advantage of using transfer definition files is that you can specify additional options that are not available from the command line. For example, when you are carrying out message-to-file transfers, you can specify the `groupId` attribute by using a transfer definition file. This attribute specifies the WebSphere MQ group ID of the messages that are read from the queue. Another advantage of transfer definition files is that you can specify different options for each file pair. For example, you can specify whether a checksum is used, or whether the file is transferred in text or binary mode, on a file-by-file basis. If you use the command line, the same options apply for every file in a transfer.

For example:

```

<item checksumMethod="none" mode="binary">
  <source disposition="leave">
    <file>c:\sourcefiles\source1.doc</file>
  </source>
  <destination type="file" exist="error">
    <file>c:\destinationfiles\destination1.doc</file>
  </destination>
</item>

<item checksumMethod="MD5" mode="text">
  <source disposition="delete">
    <file>c:\sourcefiles\source2.txt</file>
  </source>
  <destination type="file" exist="overwrite">
    <file encoding="UTF8" EOL="CRLF">c:\destinationfiles\destination2.txt</file>
  </destination>
</item>

<item checksumMethod="none" mode="text">
  <source recursive="false" disposition="leave">
    <file>c:\originfiles\source3.txt</file>

```

```

</source>
<destination type="file" exist="overwrite">
  <file>c:\targetfiles\destination3.txt</file>
</destination>
</item>

```

You can use items to transfer a file from a distributed system to a z/OS system:

```

<item checksumMethod="none" mode="text">
  <source recursive="false" disposition="leave">
    <file>textTransferTest.txt</file>
  </source>
  <destination type="dataset" exist="overwrite">
    <file encoding="IBM-1047">//TEXT.TRANS.TEST</file>
  </destination>
</item>

```

This example transfers the file `textTransferTest.txt` from the source agent to the data set `//TEXT.TRANS.TEST` on the destination agent in text mode. This transfer converts the source data from the default encoding of the source agent (no source encoding attribute is specified) to code page: IBM-1047.

---

## Creating a scheduled file transfer

You can schedule a new file transfer either from the WebSphere MQ Explorer or from the command line. The scheduled transfer can contain single files or multiple files in a group. You can perform a scheduled file transfer once or repeat the transfer multiple times.

### About this task

You can set up a file transfer schedule to occur once, or to occur at the following intervals:

- Every minute
- Hourly
- Daily
- Weekly
- Monthly
- Yearly

You can then specify the occurrences to stop at the following points:

- At a defined time and date
- After a defined number of occurrences

Alternatively, you can specify that the occurrences continue forever.

To create a new scheduled file transfer using the command line, use the scheduling parameters (**-tb**, **-ss**, **-oi**, **-of**, **-oc**, and **-es**) for the `fteCreateTransfer` command.

To create a new scheduled file transfer using the **Create New Managed File Transfer** wizard in WebSphere MQ Explorer, use the following steps:

### Procedure

1. In the Navigator view, click **Managed File Transfer**. **Managed File Transfer Central** is displayed in the Content view.
2. All of your coordination queue managers are displayed in the Navigator view. Expand the name of the coordination queue manager that the agent you want to use for the transfer is registered against. If you are currently connected to a coordination queue manager other than the one you want to use

for the transfer, right-click that coordination queue manager name in the Navigator view and click **Disconnect**. Then right-click the name of the coordination queue manager you want to use and click **Connect**.

3. Start the **Create New Managed File Transfer** wizard using either of the following methods:
  - a. Right-click the name of any of the following nodes in the Navigator view: the relevant coordination queue manager, **Transfer Templates**, **Transfer Log**, or **Pending Transfers**. Then click **New Transfer** to start the wizard.
  - b. Click **File > New > Other > Managed File Transfer Wizards > New Transfer Wizard**
4. Follow the instructions on the wizard panels. Ensure that you select the **Enable schedule transfer** check box and enter your schedule details on the **Schedule** tab. Scheduled file transfers start within a minute of the schedule start time, if there are no problems that might affect the transfer. For example, there might be issues with your network or agent that prevent the scheduled transfer starting. There is context-sensitive help provided for each panel. To access the context-sensitive help on Windows, press F1. On Linux, press Ctrl+F1 or Shift+F1.

## Results

For information about the messages involved in scheduled file transfers, see Message formats for scheduled transfers.

---

## Working with pending transfers from the WebSphere MQ Explorer

You can view scheduled file transfers that are pending from the WebSphere MQ Explorer. The **Pending Transfers** window displays all of the pending transfers registered with the coordination queue manager that you are currently connected to.

### About this task

To view the status of a scheduled file transfer that has not yet started, use the following steps:

### Procedure

1. Expand **Managed File Transfer** in the Navigator view. **Managed File Transfer Central** is displayed in the Content view.
2. All of your coordination queue managers are displayed in the Navigator view. Expand the name of the coordination queue manager that you have used for the scheduled transfer. If you want to change which coordination queue manager you are connected to, right-click the name of the coordination queue manager you want to use in Navigator view and click **Connect**.
3. Click **Pending Transfers**. The Pending Transfers window is displayed in the Content view.
4. The Pending Transfers window displays the following details about your scheduled file transfers:
  - a. **Name** The number of the scheduled file transfer. This number is automatically assigned.
  - b. **Source** The name of the source agent.
  - c. **Source File** The name of the file to be transferred on its host system.
  - d. **Destination** The name of the destination agent.
  - e. **Destination File** The name of the file after it is transferred to the destination system.
  - f. **Scheduled Start (selected time zone)** The time and date that the file transfer is scheduled to start in the administrator's selected time zone. To change the time zone displayed, click **Window > Preferences > WebSphere MQ File Transfer Edition** and select an alternative time zone from the **Time zone:** list. Click **OK**.
  - g. **Repeat Every** If you have chosen to repeat the scheduled transfer, the specified interval that you want to repeat the transfer, expressed as a number.

- h. **Repeat Type** If you have chosen to repeat the scheduled transfer, the type of repeat interval you have specified for the file transfer. The type can be one of the following values: minutes, hours, days, weeks, months, or years.
- i. **Repeat Until** If you have chosen to repeat the scheduled transfer, the details of when you want the repeating file transfer to stop. For example, a specified date and time, or after a specified number of occurrences.

## Results

To refresh what is displayed in the **Pending Transfers** window, click the Refresh button  on the Content view toolbar.

To cancel a pending file transfer, right-click the particular transfer and click **Cancel**. Canceling a transfer completely discards the file transfer request.

---

## Triggering a file transfer

You can set certain trigger conditions on a file transfer that must be true before that transfer can take place. If the triggering conditions are not true, the file transfer does not take place and a log message is optionally submitted to record the fact the transfer did not happen. The file transfer request is then discarded. For example, you can set up a file transfer that takes place only if a named file on the system where the source agent is located is over a specified size, or if a particular named file exists on the system where the source agent is located. You can set up a triggered file transfer from either the WebSphere MQ Explorer or from the command line.

### About this task

From WebSphere MQ File Transfer Edition V7.0.1 or later, you can also monitor a resource continually for a trigger condition to be satisfied. For further information about resource monitoring see: “Resource monitoring” on page 204.

There are three different triggering conditions that you can set. The conditions are as follows:

- If a particular file exists on the same system as the source agent
- If a particular file does not exist on the same system as the source agent
- If a particular file is over a certain size on the system where the source agent is located (the size can be expressed in bytes, KB, MB, or GB). These units of measurement use the  $2^{10}$  convention, for example 1 KB equals 1024 bytes and 1 MB equals 1024 KB.

The triggering types in the preceding list can be combined in two ways:

- For a single condition, you can specify more than one file on the system where the source agent is located. This triggers the transfer if any one of the specified files meets the condition (Boolean operator OR).
- You can specify multiple conditions. This triggers the transfer only if all of the conditions are met (Boolean operator AND).

You can also combine a triggered transfer with a scheduled transfer. See [Creating a scheduled file transfer](#) for more information. In this case the trigger conditions are evaluated at the time the schedule is due to start, or for a repeating schedule every time the schedule is due to start.

Triggered transfers are not supported on protocol bridge agents.

To create a triggered file transfer by using the command line, use the **-tr** parameter on the `fteCreateTransfer` command.

To create a scheduled file transfer by using the **Create New Managed File Transfer** wizard in WebSphere MQ Explorer, use the following steps:

## Procedure

1. In the Navigator view, click **Managed File Transfer**. **Managed File Transfer Central** is displayed in the Content view.
2. All of your coordination queue managers are displayed in the Navigator view. Expand the name of the coordination queue manager that you have used for the scheduled transfer. If you want to change which coordination queue manager you are connected to, right-click the name of the coordination queue manager you want to use in Navigator view and click **Connect**.
3. Start the **Create New Managed File Transfer** wizard by using either of the following methods:
  - a. Right-click the name of any of the following nodes in the Navigator view: the relevant coordination queue manager, **Transfer Templates**, **Transfer Log**, or **Pending Transfers**. Then click **New Transfer** to open the wizard.
  - b. Click **File > New > Other > Managed File Transfer Wizards > New Transfer Wizard**
4. Follow the instructions on the wizard panels. Ensure that you select the **Enable triggered transfer** check box on the **Triggers** tab and complete the fields on that tab to set up triggering. There is context-sensitive help provided for each panel. To access the context-sensitive help on Windows, press F1. On Linux, press **Ctrl+F1** or **Shift+F1**.

---

## Monitoring file transfers that are in progress from WebSphere MQ Explorer

You can monitor a file transfer that is in progress using the **Managed File Transfer - Current Transfer Progress** tab in WebSphere MQ Explorer. This file transfer can be one started from either WebSphere MQ Explorer or the command line. The tab also displays the progress of scheduled transfers at the point the scheduled transfers start.

### About this task

If you want to use WebSphere MQ Explorer to monitor transfers associated with a coordination queue manager on a remote system, follow the instructions in the [Configuring WebSphere MQ Explorer to monitor a remote coordination queue manager](#) topic.

Previous file transfer information is not retained after you stop and restart WebSphere MQ Explorer. At restart, the information about past transfers is cleared from the **Current Transfer Progress** tab. You can clear completed transfers using **Remove completed transfers**  at any point when WebSphere MQ Explorer is open.

## Procedure

After you have started a new file transfer using WebSphere MQ Explorer or the command line, you can monitor the progress of your transfer in the **Current Transfer Progress** tab. The following information is displayed for each transfer in progress:

1. **Source.** The name of the agent used to transfer the file from the source system.
2. **Destination.** The name of the agent used to receive the file at the destination system.
3. **Current file.** The name of the file currently being transferred. The part of the individual file that has already been transferred is displayed in B, KiB, MiB, GiB, or TiB along with total size of the file in parentheses. The unit of measurement displayed depends on the size of the file. B is bytes per second. KiB/s is kibibytes per second, where 1 kibibyte equals 1024 bytes. MiB/s is mebibytes per second, where 1 mebibyte equals 1 048 576 bytes. GiB/s is gibibytes per second where 1 gibibyte equals 1 073 741 824 bytes. TiB/s is tebibytes per second where 1 tebibyte equals 1 099 511 627 776 bytes.

4. **File number.** If you are transferring more than one file, this number represents how far through the total group of files the transfer is.
5. **Progress.** The progress bar shows how complete the current file transfer is as a percentage.
6. **Rate.** The rate the file is being transferred in KiB/s (kibibytes per second, where 1 kibibyte equals 1024 bytes.)
7. **Started (selected time zone).** The time the transfer started in the administrator's selected time zone. To change the time zone displayed, click **Window > Preferences > WebSphere MQ File Transfer Edition** and select an alternative time zone from the **Time zone:** list. Click **OK**.

## Results

This tab regularly refreshes its information automatically, but to force a refreshed view of what is displayed in the **Current Transfer Progress** tab, click **Refresh**  on the Content view toolbar.

To delete file transfers from the **Current Transfer Progress** tab, click **Remove completed transfers**  on the Content view toolbar. Clicking this button removes file transfer details from the tab only; it does not stop or cancel a current or scheduled transfer.

If you want to return to the **Current Transfer Progress** tab after closing it, you can display the tab by clicking **Window > Show View > Other > Other > Managed File Transfer - Current Transfer Progress**. Click **OK**. By default this tab is displayed below the main Content view.

### Related tasks:

“Configuring WebSphere MQ Explorer to monitor a remote coordination queue manager”

You can use WebSphere MQ Explorer to monitor file transfers associated with a coordination queue manager running on a remote system. You can configure this using the **fteSetupCoordination** and **fteSetupCommands** commands.

“Viewing the status of file transfers by using the Transfer Log” on page 202

You can view the details of file transfers by using the **Transfer Log** in WebSphere MQ Explorer. These can be transfers started from either the command line or the WebSphere MQ Explorer. You can also customize what is displayed in the **Transfer Log**.

## Configuring WebSphere MQ Explorer to monitor a remote coordination queue manager

You can use WebSphere MQ Explorer to monitor file transfers associated with a coordination queue manager running on a remote system. You can configure this using the **fteSetupCoordination** and **fteSetupCommands** commands.

### About this task

You can install WebSphere MQ Explorer and WebSphere MQ File Transfer Edition Remote Tools and Documentation on either Windows or Linux. To monitor queue managers and file transfers between agents on a system that is not running Windows or Linux, install the Remote Tools and Documentation on a Windows or Linux system and configure the WebSphere MQ Explorer plug-in to connect to the remote system. Follow the instructions in the Installing Remote Tools and Documentation topic to configure this during installation. If you have already completed installation, configure the plug-in using the following steps:

### Procedure

1. Run the **fteSetupCoordination** command and supply the details of the coordination queue manager that you want to monitor.
2. Run the **fteSetupCommands** command and supply the details of a command queue manager in your WebSphere MQ File Transfer Edition network.

## Results

Now start WebSphere MQ Explorer. You should be able to monitor transfer activity for the WebSphere MQ File Transfer Edition network associated with the coordination queue manager that you specified during step 1.

### Related tasks:

“Monitoring file transfers that are in progress from WebSphere MQ Explorer” on page 200

You can monitor a file transfer that is in progress using the **Managed File Transfer - Current Transfer Progress** tab in WebSphere MQ Explorer. This file transfer can be one started from either WebSphere MQ Explorer or the command line. The tab also displays the progress of scheduled transfers at the point the scheduled transfers start.

“Viewing the status of file transfers by using the Transfer Log”

You can view the details of file transfers by using the **Transfer Log** in WebSphere MQ Explorer. These can be transfers started from either the command line or the WebSphere MQ Explorer. You can also customize what is displayed in the **Transfer Log**.

---

## Viewing the status of file transfers by using the Transfer Log

You can view the details of file transfers by using the **Transfer Log** in WebSphere MQ Explorer. These can be transfers started from either the command line or the WebSphere MQ Explorer. You can also customize what is displayed in the **Transfer Log**.

### Procedure

1. Expand **Managed File Transfer** in the Navigator view and then expand the name of the coordination queue manager that you want to view the transfer log for.
2. Click **Transfer Log** in the Navigator view. The Transfer Log is displayed in the Content view.
3. The Transfer Log window displays the following details about your file transfers:
  - a. **Source** The name of the agent on the system where the source file is located.
  - b. **Destination** The name of the agent on the system you want to transfer the file to.
  - c. **Completion State** The status of the file transfer. The state can be one of the following values: "Started", "In progress", "Successful", "Partially Successful", "Cancelled", or "Failed".
  - d. **Owner** The user ID on the host that submitted the transfer request.
  - e. **Started (selected time zone)** The time and date that the file transfer started in the time zone selected by the administrator. To change the time zone displayed, click **Window > Preferences > WebSphere MQ File Transfer Edition** and select an alternative time zone from the **Time zone:** list. Click **OK**.
  - f. **State Recorded (selected time zone)** (This column is not displayed by default. You can choose to display the column by using the **Configure Transfer Log Columns**  window.) The time and date that the completion state was recorded, in the time zone selected by the administrator.
  - g. **Job Name** An identifier specified by the user by using the **-jn** parameter of **fteCreateTransfer** or in an Ant script
  - h. **Transfer ID** The unique identifier for the file transfer.

## Results

To view further details about a completed transfer, expand the transfer you are interested in using the plus sign (+). You can then see all of the source and destination file names included in that transfer. However, if the transfer is currently in progress and consists of many files, you can view only the files that have already been transferred so far.

To refresh what is displayed in the **Transfer Log**, click the **Refresh** button  on the Content view toolbar. The file transfer information in the Transfer Log remains in the log after you stop and restart the WebSphere MQ Explorer. If you want to delete all completed file transfers from the log, click **Remove**

**Completed Transfers**  on the Content view toolbar.

To delete an individual completed file transfer from the log, right-click the transfer and click **Delete**. If you delete a transfer, it does not stop or cancel a transfer that is in progress or that has been scheduled; you are deleting only the stored historical data.

To copy the unique identifier of a transfer to the clipboard, right-click that transfer and click **Copy ID**.

The metadata and the complete audit XML for the transfer are available from the context menu, under the **Properties** action.

#### Related tasks:

“Monitoring file transfers that are in progress from WebSphere MQ Explorer” on page 200

You can monitor a file transfer that is in progress using the **Managed File Transfer - Current Transfer Progress** tab in WebSphere MQ Explorer. This file transfer can be one started from either WebSphere MQ Explorer or the command line. The tab also displays the progress of scheduled transfers at the point the scheduled transfers start.

“Configuring the Transfer Log”

You can configure what information is displayed and how information is displayed in the **Transfer Log** in the WebSphere MQ Explorer.

“Monitoring file transfers that are in progress from WebSphere MQ Explorer” on page 200

You can monitor a file transfer that is in progress using the **Managed File Transfer - Current Transfer Progress** tab in WebSphere MQ Explorer. This file transfer can be one started from either WebSphere MQ Explorer or the command line. The tab also displays the progress of scheduled transfers at the point the scheduled transfers start.

## Configuring the Transfer Log

You can configure what information is displayed and how information is displayed in the **Transfer Log** in the WebSphere MQ Explorer.

### About this task

To rearrange the order of the columns in the **Transfer Log**, click the title of the column you want to move and drag the column to its new position. The new column order is retained only until you next stop and restart the WebSphere MQ Explorer.

To filter entries in the **Transfer Log**, enter a string in the **Filter the displayed log entries** field. To restore all of the entries to the log, delete the string you entered from the field. You can use any valid Java regular expression in this field. For more information, see “Regular expressions used by WebSphere MQ File Transfer Edition” on page 746.

To customize which columns are displayed in the Transfer Log, use **Configure Transfer Log Columns**.  Use the following steps to start and use the **Configure Transfer Log Columns** window.

### Procedure

1. Ensure that you have the **Transfer Log** open in the Content view. Click **Configure Transfer Log Columns**  on the Content view toolbar. The **Configure Transfer Log Columns** window opens.
2. To customize your view of the **Transfer Log**, select or clear individual check boxes for the columns you want to show or hide. You can click **Select All**, then **OK** to select all of the check boxes or **Deselect All**, then **OK** to clear all of the check boxes.

## Related tasks:

“Monitoring file transfers that are in progress from WebSphere MQ Explorer” on page 200

You can monitor a file transfer that is in progress using the **Managed File Transfer - Current Transfer Progress** tab in WebSphere MQ Explorer. This file transfer can be one started from either WebSphere MQ Explorer or the command line. The tab also displays the progress of scheduled transfers at the point the scheduled transfers start.

“Viewing the status of file transfers by using the Transfer Log” on page 202

You can view the details of file transfers by using the **Transfer Log** in WebSphere MQ Explorer. These can be transfers started from either the command line or the WebSphere MQ Explorer. You can also customize what is displayed in the **Transfer Log**.

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## Resource monitoring

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

A common scenario is to monitor a directory for the presence of a trigger file. An external application might be processing multiple files and placing them in a known source directory. When the application has completed its processing, it indicates that the files are ready to be transferred, or otherwise acted upon, by placing a trigger file into a monitored location. The trigger file can be detected by a WebSphere MQ File Transfer Edition monitor and the transfer of those files from the source directory to another WebSphere MQ File Transfer Edition agent is initiated.

Two examples of monitoring a directory are as follows:

- Monitor for a trigger file (for example `trigger.file`) and then transfer a wildcard (for example, `*.zip`)
- Monitor for `*.zip` and then transfer `${FilePath}` (for example, the file that triggered the transfer). For more details about variable substitution, see “Customizing tasks with variable substitution” on page 215.

Do not create a monitor that monitors for `*.zip`, and then transfers `*.zip`. The monitor tries to start a transfer of `*.zip` for every `.zip` file on your system. That is, the monitor generates \* number of transfers for `*.zip`.

To see an example of creating a resource monitor to monitor a directory, see “Monitoring a directory and using variable substitution” on page 212.

An example of monitoring a queue is as follows:

- An external application might be generating messages and placing them on a known queue with the same group ID. When the application has completed putting messages on the queue, it indicates that the group is complete. The complete group of messages can be detected by a WebSphere MQ File Transfer Edition monitor and the transfer of the group of messages from the source queue to a file is initiated.

To see an example of creating a resource monitor to monitor a queue, see “Example: Configuring a resource monitor to monitor a queue” on page 214.

WebSphere MQ File Transfer Edition resource monitoring uses the following terminology:

### monitor

A process that polls a resource (such as a directory or queue) at a predefined regular interval to see if the resource contents have changed. If they have, the contents are compared with the set of conditions for this monitor. If there is a match, the task for this monitor is started.

**resource**

The system resource the monitor examines every poll interval to be compared with the trigger conditions. Queues, directories, or nested directory structures can be the monitored resource.

**condition**

An expression that is evaluated (typically against the content of the monitored resource). If the expression evaluates to true, the condition contributes to the overall trigger condition.

**trigger condition**

The overall condition, which is satisfied when all conditions are satisfied. When the trigger condition is satisfied the task can proceed.

**task** The operation that is started when the trigger condition or set of conditions is satisfied.

Supported tasks are file transfer and command call.

**trigger file**

A file that is placed in a monitored directory to indicate that a task (typically a transfer) can begin. For example, it might indicate that all the files to be processed have arrived in a known location and can be transferred or otherwise acted upon. The name of the trigger file can be used to specify the files to be transferred by using variable substitution. For more information, see “Customizing tasks with variable substitution” on page 215.

The trigger file is also known as ready file or go file. However, in this documentation it is always referred to as the trigger file.

Resource monitoring is not supported on protocol bridge agents or Connect:Direct bridge agents.

**Related concepts:**

“Resource monitoring concepts” on page 206

An overview of the key concepts of the WebSphere MQ File Transfer Edition resource monitoring feature.

**Related tasks:**

“Configuring monitor tasks to start commands and scripts” on page 208

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

“Example: Configuring a resource monitor to monitor a queue” on page 214

You can specify a WebSphere MQ queue as the resource to be monitored by a resource monitor by using the **-mq** parameter with the **fteCreateMonitor** command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

**Related reference:**

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

“**fteListMonitors** (list WebSphere MQ File Transfer Edition resource monitors)” on page 542

Use the **fteListMonitors** command to list all of the existing resource monitors in a WebSphere MQ File Transfer Edition network using the command line.

“**fteDeleteMonitor** (delete a WebSphere MQ File Transfer Edition resource monitor)” on page 534

Use the **fteDeleteMonitor** command to stop and delete an existing WebSphere MQ File Transfer Edition resource monitor using the command line. Issue this command against the resource monitoring agent.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the `fteCreateMonitor` command or using the WebSphere MQ Explorer interface.

**Related information:**

“Customizing tasks with variable substitution” on page 215

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

## Resource monitoring concepts

An overview of the key concepts of the WebSphere MQ File Transfer Edition resource monitoring feature.

### Monitors

The resource monitor is associated with a WebSphere MQ File Transfer Edition agent, and is only active when that agent is started. When the monitoring agent stops, so does the monitor. If the agent is already started when the monitor is created, the monitor starts immediately. The monitoring agent must also be the source agent of the task that is initiated by the monitor.

Monitor names must be unique within their agent. The monitor name must be a minimum of one character in length and must not contain asterisk (\*), percent (%) or question mark (?) characters. The case of supplied monitor names is ignored and the monitor name is converted to uppercase. If you try to create a monitor with a name that is already present, the request is ignored and the attempt is logged to the monitor log topic.

There is no restriction on the number of monitors that can be created on an agent, and all run with the same priority. Consider the implications of overlapping monitored resources, conflicting trigger conditions and how frequently the resources are polled.

Monitors look at the contents of resources after every poll interval period. The contents of the resource are compared with the trigger conditions and if those conditions are satisfied, the task associated with the monitor is called.

The task is started asynchronously. If there is a condition match, and the task is started, the monitor continues to poll for further changes to the resource contents. So for example, if a match occurred because a file called `reports.go` arrived in a monitored directory, the task would be started once. At the next poll interval, even if the file still exists, the task is not started again. However, if the file is deleted and then placed in the directory again, or the file is updated (such that the last modified date attribute is changed), the next trigger condition check causes the task to be called again.

### Resources

Monitors in WebSphere MQ File Transfer Edition can poll the contents of directories or nested directory structures. By default, the specified directory is monitored. To also examine subdirectories set the recursion level in the `fteCreateTransfer` command.

Monitors in WebSphere MQ File Transfer Edition can poll the contents of WebSphere MQ queues. You can specify only one monitor per queue. If you specify more than one monitor to poll a WebSphere MQ queue, unpredictable behavior occurs.

Monitoring data sets is not supported.

## Trigger conditions

The condition is met when the resource contains a value that matches some other string or pattern. Conditions can be one of the following:

- Match on file name (pattern)
- No match on file name (pattern)
- File size
- Match if file size remains the same for a number of polls

File name matching can be expressed as:

- Exact string match
- Simple wildcard match, for example the asterisk character (\*) and the question mark (?) as for directory file filtering
- Regular expression match

File names can also be excluded from file name matching by using a wildcard or Java regular expression that identifies file names that are never matched.

When a matching file is detected, its last modified time stamp is retained. If subsequent polls detect that the file has been changed, the trigger condition is satisfied again, and the task is started. If the condition is to detect when a file does not exist, if no file in the monitored directory matches the file name pattern, the task is started. If a file is then added to the directory that does match the file name pattern, the task is only started if the file is then deleted.

For WebSphere MQ File Transfer Edition Version 7.0.1 only a single trigger condition is supported.

## Tasks

WebSphere MQ File Transfer Edition supports the following two types of task that you can configure to be started by resource monitors:

- File transfer
- Command

File transfer tasks are defined in the same way as any other file transfer. A useful way to generate the task XML required by a monitor is to run the `fteCreateTransfer` command with the `-gt` parameter. This command generates a task definition as an XML document, including the transfer specification. You then pass the name of the task XML document as the value for the `-mt` parameter on the `fteCreateMonitor` command. When the `fteCreateMonitor` is run, it reads the task XML document. After the `fteCreateMonitor` is run, any changes that are made to the task XML file are not used by the monitor.

Command tasks can run Ant scripts, call executable programs, or run JCL jobs. For more information, see [Configuring monitor tasks to invoke commands and scripts](#).

When using a file transfer task, you can select how many trigger conditions are batched into a task. The default is for one trigger condition to start one task. You can run the `fteCreateMonitor` command with the `-bs` option to select the number of trigger conditions that are batched together into one task.

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

### Related tasks:

“Configuring monitor tasks to start commands and scripts”

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

“Example: Configuring a resource monitor to monitor a queue” on page 214

You can specify a WebSphere MQ queue as the resource to be monitored by a resource monitor by using the **-mq** parameter with the **fteCreateMonitor** command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

### Related reference:

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

“**fteListMonitors** (list WebSphere MQ File Transfer Edition resource monitors)” on page 542

Use the **fteListMonitors** command to list all of the existing resource monitors in a WebSphere MQ File Transfer Edition network using the command line.

“**fteDeleteMonitor** (delete a WebSphere MQ File Transfer Edition resource monitor)” on page 534

Use the **fteDeleteMonitor** command to stop and delete an existing WebSphere MQ File Transfer Edition resource monitor using the command line. Issue this command against the resource monitoring agent.

### Related information:

“Customizing tasks with variable substitution” on page 215

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

## Configuring monitor tasks to start commands and scripts

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

### About this task

The file path to the executable program, Ant script, or JCL job that you want the monitoring agent to call must be included in the `commandPath` of the monitoring agent. For information about the `commandPath` property, see “The `commandPath` property” on page 461.

You can create the task definition XML document in one of the following ways:

- Create the task definition XML document manually according to the FileTransfer.xsd schema. For more information, see “Create the task definition XML manually according to the schema.”
- Edit the XML document generated by the **fteCreateTransfer -gt** parameter as the basis for your task definition. For more information, see “Creating a task definition document by modifying a generated document” on page 211.

Whether you want a transfer task or a command task, the task definition must start with a `<request>` root element. The child element of `<request>` must be either `<managedTransfer>` or `<managedCall>`. You would typically choose `<managedCall>` when there is a single command or script to run, and `<managedTransfer>` if you want the task to include a file transfer and optionally up to four command calls.

## Create the task definition XML manually according to the schema

### About this task

You can manually create a task definition XML file according to the schema FileTransfer.xsd. This schema can be found in the `tool_install_directory/samples/schema`. For more information about this schema, see “File transfer request message format” on page 881.

### Example

The following example shows an example task definition XML document saved as `cleanuptask.xml`, which uses the `<managedCall>` element to call an Ant script called `RunCleanup.xml`. The `RunCleanup.xml` Ant script must be located on the `commandPath` of the monitoring agent.

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="4.00" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedCall>
    <originator>
      <hostName>hostName</hostName>
      <userID>userID</userID>
      <mqmdUserID>mqmdUserID</mqmdUserID>
    </originator>
    <agent QMgr="QM1" agent="AGENT1"/>
    <reply QMGR="QM1">reply</reply>
    <transferSet priority="1">
      <metaDataSet>
        <metaData key="name1">value1</metaData>
      </metaDataSet>
      <call>
        <command name="RunCleanup.xml" type="antscript" retryCount="2" retryWait="30" successRC="0">
          <target>check_exists</target>
          <target>copy_to_archive</target>
          <target>rename_temps</target>
          <target>delete_files</target>
          <property name="trigger.filename" value="{FileName}"/>
          <property name="trigger.path" value="{FilePath}"/>
        </command>
      </call>
    </transferSet>
  </managedCall>
</request>
```

The `<agent>` element specifies the WebSphere MQ File Transfer Edition agent that is configured with the named Ant script on its `commandPath`.

The `<call><command>...` structure defines the executable or script you want to run. The command takes an optional type attribute that can have one of the following values:

**antscript**

Run an Ant script in a separate JVM.

**executable**

Invoke an executable program.

**jcl** Invoke a JCL job.

If you omit the type attribute, the default value executable is used.

The name attribute specifies the name of the Ant script, executable, or JCL job you want to run, without any path information. The agent searches for the script or program in the locations specified by the `commandPath` property in the agent's `agent.properties` file.

The `retrycount` attribute specifies the number of times to try calling the program again if the program does not return a success return code. The value assigned to this attribute must not be negative. If you do not specify the `retrycount` attribute, a default value of zero is used.

The `retrywait` attribute specifies the time to wait, in seconds, before trying the program invocation again. The value assigned to this attribute must not be negative. If you do not specify the `retrywait` attribute, a default value of zero is used.

The `successrc` attribute is an expression used to determine when the program invocation successfully runs. The process return code for the command is evaluated using this expression. The value can be composed of one or more expressions combined with a vertical bar (|) character to signify Boolean OR, or an ampersand (&) character to signify Boolean AND. Each expression can be one of the following types of expression:

- A number to indicate an equality test between the process return code and the number.
- A number prefixed with a greater than character (>) to indicate a greater-than test between the number and the process return code.
- A number prefixed with a less than character (<) to indicate a less-than test between the number and the process return code.
- A number prefixed with an exclamation point character (!) to indicate a not-equal-to test between the number and the process return code. For example: `>2&<7&!5|0|14` is interpreted as the following return codes being successful: 0, 3, 4, 6, 14. All other return codes are interpreted as being unsuccessful.

If you do not specify the `successrc` attribute, a default value of zero is used. This means that the command is judged to have successfully run if, and only if, it returns a code of zero.

For an Ant script, you would typically specify `<target>` and `<property>` elements. The `<target>` element values must match the target names in the Ant script.

For executable programs, you can specify `<argument>` elements. Nested argument elements specify arguments to pass to the program that is being called as part of the program invocation. The program arguments are built from the values specified by the argument elements in the order that the argument elements are encountered. You can specify zero or more argument elements as nested elements of a program invocation.

The administrator defines and starts the monitor as normal using the task definition XML document that includes the `<managedCall>` element. For example:

```
fteCreateMonitor -ma AGENT1 -mm QM1 -md /monitored -mn MONITOR01 -mt /tasks/cleanuptask.xml -pi 30 -pu seconds -tr match,*,
```

The path to the transfer definition XML document must be on the local file system that you run the **fteCreateMonitor** command from (in this example `/tasks/cleanuptask.xml`). The `cleanuptask.xml` document is used to create the resource monitor only. Any tasks that the `cleanuptask.xml` document references (Ant scripts or JCL jobs) must be in the command path of the monitoring agent. When the

monitor trigger condition is satisfied, any variables in the task definition XML are substituted with actual values from the monitor. So for example `${FilePath}` is replaced in the request message sent to the agent with `/monitored/cleanup.go`. The request message is put on the agent command queue. The command processor detects that the request is for a program call and starts the specified program. If a command of type `antscript` is called, a new JVM is started and the Ant task runs under the new JVM. For more information about using variable substitution, see “Customizing tasks with variable substitution” on page 215.

#### Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the `FileTransfer.xsd` schema and have the `<request>` element as the root element. The `FileTransfer.xsd` schema document is located in the `install_directory/samples/schema` directory. The `FileTransfer.xsd` schema imports `fteutils.xsd`, which is in the same directory.

“The `commandPath` property” on page 461

Use the `commandPath` property to restrict the locations that WebSphere MQ File Transfer Edition can run commands from.

#### Related information:

“Customizing tasks with variable substitution” on page 215

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

## Creating a task definition document by modifying a generated document

### About this task

You can create the monitor task definition document by modifying the XML document generated by the `-gt` option of `fteCreateTransfer`. The generated document has a `<request>` followed by `<managedTransfer>` element. To convert this task definition to a valid `<managedCall>` structure, follow these steps:

### Procedure

1. Replace the `<managedTransfer>` start and end tags with `<managedCall>` tags.
2. Remove any `<schedule>` element and child nodes.
3. Replace the `<sourceAgent>` start and end tags with `<agent>` to match the monitoring agent configuration details.
4. Remove `<destinationAgent>` and `<trigger>` elements.
5. Remove `<item>` elements.
6. Insert a new `<call>...</call>` structure within the `<transferSet>` element. This structure contains the command definition as shown in the following example:

```
<call>
  <command name="RunCleanup.xml" type="antscript" retryCount="2" retryWait="30" successRC="0">
    <target>check_exists</target>
    <target>copy_to_archive</target>
    <target>rename_temps</target>
    <target>delete_files</target>
    <property name="trigger.filename" value="${FileName}"/>
    <property name="trigger.path" value="${FilePath}"/>
  </command>
</call>
```

## Example

You can also retain the `<managedTransfer>` element including all the file transfer details, and insert up to four command calls. In this case you insert any selection of the following call elements between the `<metaDataSet>` and `<item>` elements:

### **preSourceCall**

Call a program on the source agent before starting the transfer.

### **postSourceCall**

Call a program on the source agent after completing the transfer.

### **preDestinationCall**

Call a program on the destination agent before starting the transfer.

### **postDestinationCall**

Call a program on the destination agent after completing the transfer.

Each of these elements takes the `<command>` element structure as described in the earlier example. The `FileTransfer.xsd` schema defines the types used by the various call elements.

The following example shows `preSourceCall`, `postSourceCall`, `preDestinationCall`, and `postDestinationCall` in a task definition document:

```
...
...
<transferSet priority="1">
  <metaDataSet>
    <metaData key="key1">value1</metaData>
  </metaDataSet>
  <preSourceCall>
    <command name="send.exe" retryCount="0" retryWait="0" successRC="0" type="executable">
      <argument>report1.pdf</argument>
      <argument>>true</argument>
    </command>
  </preSourceCall>
  <postSourceCall>
    <command name="//D0_IT.JCL" retryCount="0" retryWait="0" successRC="0" type="jcl">
      <argument>argument</argument>
    </command>
  </postSourceCall>
  <preDestinationCall>
    <command name="ant_script.xml" retryCount="0" retryWait="0" successRC="0" type="antscript">
      <target>step1</target>
      <property name="name" value="value"/>
    </command>
  </preDestinationCall>
  <postDestinationCall>
    <command name="runit.cmd" retryCount="0" retryWait="0" successRC="0" />
  </postDestinationCall>
  <item checksumMethod="none" mode="binary">
...
...

```

You can mix different types of command into the transfer. Argument, target, and property elements are optional.

## Monitoring a directory and using variable substitution

You can monitor a directory using the `fteCreateMonitor` command. The value of a substitution variable can be substituted in the task XML definition and used to define the transfer behavior.

## About this task

In this example, the source agent is called AGENT\_HOP. The directory that AGENT\_HOP monitors is called /test/monitored. The agent polls the directory every 5 minutes.

After a .zip file is written to the directory, the application that writes the file to the directory writes a trigger file to the same directory. The name of the trigger file is the same as the name of the .zip file, but has a different file extension. For example, after the file file1.zip is written to the directory, the file file1.go is written to the directory. The resource monitor monitors the directory for files that match the pattern \*.go then uses variable substitution to request a transfer of the associated .zip file.

## Procedure

1. Create the task XML that defines the task that the monitor performs when it is triggered.

```
<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>blue.example.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT_HOP" QMgr="QM_HOP" />
    <destinationAgent agent="AGENT_SKIP" QMgr="QM_SKIP" />
    <transferSet>
      <item mode="binary" checksumMethod="none">
        <source>
          <file>/test/monitored//${fileName{token=1}}{separator=.}.zip</file>
        </source>
        <destination type="file" exist="overwrite">
          <file>/out//${fileName{token=1}}{separator=.}.zip</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

The variables that are replaced with the values associated with the trigger file are highlighted in **bold**. This task XML is saved to the file /home/USER1/task.xml

2. Create a resource monitor to monitor the directory /test/monitored. Submit the following command:

```
fteCreateMonitor -ma AGENT_HOP -mm QM_HOP -md /test/monitored
                 -mn myMonitor -mt /home/USER1/task.xml
                 -tr match,*.go -pi 5 -pu minutes
```

3. A user or program writes the file jump.zip to the directory /test/monitored, then writes the file jump.go to the directory.
4. The monitor is triggered by the existence of the file jump.go. The agent substitutes the information about the trigger file into the task XML. This results in the task XML being transformed to:

```
<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>blue.example.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT_HOP" QMgr="QM_HOP" />
    <destinationAgent agent="AGENT_SKIP" QMgr="QM_SKIP" />
    <transferSet>
      <item mode="binary" checksumMethod="none">
        <source>
          <file>/test/monitored/jump.zip</file>
```

```

        </source>
        <destination type="file" exist="overwrite">
          <file>/out/jump.zip</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>

```

## Results

The transfer defined by the task XML is performed. The `jump.zip` file is read from the `/test/monitored` directory by `AGENT_HOP` and is transferred to a file called `/out/jump.zip` located on the system where `AGENT_SKIP` is running.

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory.

When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer.

You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

### Related tasks:

“Configuring monitor tasks to start commands and scripts” on page 208

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

### Related reference:

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

### Related information:

“Customizing tasks with variable substitution” on page 215

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

## Example: Configuring a resource monitor to monitor a queue

You can specify a WebSphere MQ queue as the resource to be monitored by a resource monitor by using the `-mq` parameter with the **fteCreateMonitor** command.

### About this task

In this example, the resource to be monitored is the queue `MONITORED_QUEUE`. This queue must be on the monitoring agent's queue manager, `QM_NEPTUNE`. The condition that the queue is monitored for is the presence of a complete group of messages. The task to be performed if the condition is satisfied is defined in the file `task.xml`.

### Procedure

Type the following command:

```
fteCreateMonitor -ma AGENT_NEPTUNE -mn myMonitor -mm QM_NEPTUNE -mq MONITORED_QUEUE -mt task.xml -tr completeGroups -pi 5 -
```

## What to do next

Do not create more than one resource monitor to monitor an individual queue. If you do then unpredictable behavior occurs.

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

### Related tasks:

“Configuring monitor tasks to start commands and scripts” on page 208

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

### Related reference:

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

### Related information:

“Customizing tasks with variable substitution”

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

## Customizing tasks with variable substitution

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

### If the monitored resource is a queue

The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition.

User-defined message properties are prefixed with `usr.`, but do not include this prefix in the variable name. Variable names must be preceded by a dollar sign (\$) character and enclosed in braces ({}). For example, `${destFileName}` is replaced with the value of the `usr.destFileName` message property of the

first message to be read from the source queue. For more information, see “WebSphere MQ message properties read from messages on source queues” on page 764 and “Monitoring a queue and using variable substitution” on page 219.

The following substitution variables are provided by default:

Variable	Description
AGENTNAME	The name of the resource monitor agent.
QUEUENAME	The name of the queue being monitored.
ENCODING	The character encoding of the first message on the queue or the first message in a group.
MESSAGEID	The WebSphere MQ message ID of the first message on the queue or the first message in the group.
GROUPID	The WebSphere MQ group ID of the group or the message ID if only a single message is found. This variable is only set if you are monitoring for complete groups.
CurrentTimeStamp	A time stamp based on the local time that the monitor triggered at. The time stamp value is unique for the agent.
CurrentTimeStampUTC	A time stamp based on the time, in the UTC time zone that the monitor triggered at. The time stamp value is unique for the agent.

For example, \${AGENTNAME} is replaced with the name of the resource monitor agent.

### If the monitored resource is a file

The set of variable names that can be substituted in the task XML definition is as follows:

Variable	Description
FilePath	The complete path name of the trigger file.
FileName	The file name part of the trigger.
LastModifiedTime	The time that the trigger file was last modified. This time is expressed as the local time of the time zone the agent is running in and is formatted as an ISO 8601 time.
LastModifiedDate	The date that the trigger file was last modified. This date is expressed as the local date of the time zone the agent is running in and is formatted as an ISO 8601 date.
LastModifiedTimeUTC	The time that the trigger file was last modified. This time is expressed the local time converted to the UTC time zone and is formatted as an ISO 8601 time.
LastModifiedDateUTC	The date that the trigger file was last modified. This date is expressed as the local date converted to the UTC time zone and is formatted as an ISO 8601 date.
AgentName	The name of the resource monitor agent.
CurrentTimeStamp	A time stamp based on the local time that the monitor triggered at. The time stamp value is unique for the agent.
CurrentTimeStampUTC	A time stamp based on the time, in the UTC time zone that the monitor triggered at. The time stamp value is unique for the agent.

Variable names must be preceded by a dollar sign (\$) character and enclosed in braces ({}). For example, \${FilePath} is replaced with the fully qualified file path of the matching trigger file.

There are two special keywords that can be applied to variable names to provide further refinement. These are:

- token - token index to substitute (starting at 1 from the left and starting at -1 from the right)
- separator - single character to tokenize the variable value. The default is the forward slash character (/), but the separator can be any valid character that can appear in the variable value.

If the separator keyword is specified in a variable name, the variable value is split into tokens according to the separator character.

The value assigned to the token keyword is used as an index to select which token to use to replace the variable name. The token index is relative to the first character in the variable, and starts at 1. If the token keyword is not specified, the entire variable is inserted.

Backslash characters in file paths are replaced with forward slashes in the message XML regardless of operating system.

Variable names are not case-sensitive.

Any values that are substituted into an agent name in the message XML are treated in a not case-sensitive way. All WebSphere MQ File Transfer Edition agent names are uppercase. If the value "Paris" is substituted into an agent attribute in the message XML, this value is interpreted as a reference to the agent PARIS.

The following example explains the various behaviors:

Assuming the file path to the matching trigger file is c:/MONITOR/REPORTS/Paris/Report2009.doc, the variables are substituted as follows:

Variable specification	After variable substitution
\${FilePath}	c:/MONITOR/REPORTS/Paris/Report2009.doc
\${FilePath{token=1}{separator=.}}	c:/MONITOR/REPORTS/Paris/Report2009
\${FilePath{token=2}{separator=.}}	doc
\${FilePath{token=3}}	REPORTS

You can also specify a negative token index to select tokens relative to the last character of the variable. For example, by using the same variable value:

Variable specification	After variable substitution
\${FilePath}	c:/MONITOR/REPORTS/Paris/Report2009.doc
\${FilePath{token=-2}{separator=.}}	c:/MONITOR/REPORTS/Paris/Report2009
\${FilePath{token=-2}{separator=/}}	Paris
\${FilePath{token=-4}}	MONITOR

The variables used for substitution are only available for positive trigger conditions. Only match and fileSize trigger conditions cause variables to be substituted. If a noMatch condition is used, and there are substitution variable names in the task definition, the task is not called, and the monitor raises a return code of 103 and error message BFGDM0060E.

## Example

The following example task definition XML uses the monitor agent name as the source agent for the transfer, uses the penultimate directory name in the file path as the destination agent name for the transfer, and renames the transferred file to be the root of the trigger file name with an extension of .rpt.

```
<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="FileTransfer.x
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="{AgentName}" QMgr="QM1" />
    <destinationAgent agent="{FilePath{token=-2}}" QMgr="QMD" />
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>c:/incoming/reports/summary/report.doc</file>
        </source>
        <destination type="file" exist="overwrite">
          <file>/reports/{FileName{token=1}{separator=}}.rpt</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

This results in the task XML being transformed to:

```
<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="FileTransfer.x
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT1" QMgr="QM1" />
    <destinationAgent agent="Paris" QMgr="QMD" />
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>c:/incoming/reports/summary/report.doc</file>
        </source>
        <destination type="file" exist="overwrite">
          <file>/reports/Report2009.rpt</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

The variable `{FilePath{token=-2}}` in the `<destinationAgent>` element's `agent` attribute is replaced with the value "Paris". This value is treated in a not case-sensitive way and interpreted as a reference to the agent PARIS.

## Monitoring a queue and using variable substitution

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

### About this task

In this example, the source agent is called AGENT\_VENUS, which connects to QM\_VENUS. The queue that AGENT\_VENUS monitors is called START\_QUEUE and is located on QM\_VENUS. The agent polls the queue every 30 minutes.

When a complete group of messages is written to the queue the monitor task sends the group of messages to a file at one of a number of destination agents, all of which connect to the queue manager QM\_MARS. The name of the file that the group of messages is transferred to is defined by the WebSphere MQ message property `usr.fileName` on the first message in the group. The name of the agent that the group of messages is sent to is defined by the WebSphere MQ message property `usr.toAgent` on the first message in the group. If the `usr.toAgent` header is not set, the default value to be used for the destination agent is AGENT\_MAGENTA.

### Procedure

1. Create the task XML that defines the task that the monitor performs when it is triggered.

```
<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT_VENUS" QMgr="QM_VENUS" />
    <destinationAgent agent="{toAgent}" QMgr="QM_MARS" />
    <transferSet>
      <item mode="binary" checksumMethod="none">
        <source>
          <queue>START_QUEUE</queue>
        </source>
        <destination type="file" exist="overwrite">
          <file>/reports/{fileName}.rpt</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

The variables that are replaced with the values of WebSphere MQ message headers are highlighted in **bold**. This task XML is saved to the file `/home/USER1/task.xml`

2. Create a resource monitor to monitor the queue START\_QUEUE. Submit the following command:

```
fteCreateMonitor -ma AGENT_VENUS -mm QM_VENUS -mq START_QUEUE
                 -mn myMonitor -mt /home/USER1/task.xml
                 -tr completeGroups -pi 30 -pu minutes -dv toAgent=AGENT_MAGENTA
```

3. A user or program writes a group of messages to the queue START\_QUEUE. The first message in this group has the following WebSphere MQ message properties set:

```
usr.fileName=larmer
usr.toAgent=AGENT_VIOLET
```

4. The monitor is triggered when the complete group has been written. The agent substitutes the WebSphere MQ message properties into the task XML. This results in the task XML being transformed to:

```

<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00"
  xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT_VENUS" QMgr="QM_VENUS" />
    <destinationAgent agent="AGENT_VIOLET" QMgr="QM_MARS" />
    <transferSet>
      <item mode="binary" checksumMethod="none">
        <source>
          <queue>START_QUEUE</queue>
        </source>
        <destination type="file" exist="overwrite">
          <file>/reports/larmer.rpt</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>

```

## Results

The transfer defined by the task XML is performed. The complete group of messages read from the START\_QUEUE by AGENT\_VENUS is written to a file called /reports/larmer.rpt located on the system where AGENT\_VIOLET is running.

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

### Related tasks:

“Configuring monitor tasks to start commands and scripts” on page 208

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

“Example: Configuring a resource monitor to monitor a queue” on page 214

You can specify a WebSphere MQ queue as the resource to be monitored by a resource monitor by using the **-mq** parameter with the **fteCreateMonitor** command.

### Related reference:

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

“WebSphere MQ message properties read from messages on source queues” on page 764

The agent reading messages from a source queue in a message to file transfer reads the WebSphere MQ message properties from the message. The value of these properties can be used to determine the behavior of a transfer.

“What to do if destination files created by a transfer started by a queue resource monitor contain the wrong data” on page 393

You can create a resource monitor to monitor a queue and transfer a message or a group of messages on a queue to a file. The file name can be specified by using the MQMD message descriptors on the message or the first message in a group. If a message-to-file transfer fails and the message or group is left on the queue, the next time the monitor is triggered it might result in files being created that contain the wrong data.

#### **Related information:**

“Customizing tasks with variable substitution” on page 215

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

## **Monitor retry behavior for message-to-file transfers**

If a message-to-file transfer that is triggered by a resource monitor fails and leaves the message group that triggered the monitor on the queue, that transfer is resubmitted at subsequent poll intervals. The number of times that the transfer is resubmitted is limited by the **monitorGroupRetryLimit** property of the monitoring agent.

The number of times that the message-to-file transfer has been triggered is determined from the MQMD backout count of the first message in the group.

Each time a new message-to-file transfer is triggered a new transfer ID is generated for the transfer task.

If the agent is restarted the monitor triggers a transfer again even if the number of times the transfer has been triggered has exceeded the value of **monitorGroupRetryLimit**. If this transfer attempt causes the number of times that the transfer has been triggered to exceed the value of **monitorGroupRetryLimit**, the agent writes an error to its event log.

A single message is treated as if it was a single group, and the transfer is triggered again at each poll interval while the message remains on the queue and while the number of times the transfer has been triggered is less than the value of **monitorGroupRetryLimit**.

## **Setting the monitorGroupRetryLimit property**

The value of the **monitorGroupRetryLimit** property is the maximum number of times that a monitor triggers a message-to-file transfer again if the message group still exists on the queue. The default value of this property is 10. The value of this property can be set to any positive integer value or -1. If the value -1 is specified for this property, the monitor triggers the transfer again an unlimited number of times, until the trigger condition is not satisfied.

To set the **monitorGroupRetryLimit** property on the monitoring agent, perform the following steps:

1. Stop the monitoring agent, using the **fteStopAgent** command.
2. Edit the monitoring agent `agent.properties` file to include the line `monitorGroupRetryLimit=number_of_retries`. The `agent.properties` file is located in the directory `configuration_directory/coordination_qmgr_name/agents/monitoring_agent_name`.
3. Start the monitoring agent, using the **fteStartAgent** command.

### Related tasks:

“Example: Configuring a resource monitor to monitor a queue” on page 214

You can specify a WebSphere MQ queue as the resource to be monitored by a resource monitor by using the **-mq** parameter with the **fteCreateMonitor** command.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

---

## Working with transfer templates

You can use file transfer templates to store common file transfer settings for repeated or complex transfers. Either create a transfer template from the command line by using the **fteCreateTemplate** command or use the WebSphere MQ Explorer to create a transfer template by using the **Create New Template for Managed File Transfer** wizard, or save a template while you are creating a file transfer by selecting the **Save transfer settings as a template** check box. The **Transfer Templates** window displays all of the transfer templates that you have created in your WebSphere MQ File Transfer Edition network.

### About this task

To create a transfer template from the command line, use the `fteCreateTemplate` command. Then when you want to submit a transfer template that you created on the command line, click **Submit** in WebSphere MQ Explorer.

To view transfer templates in the WebSphere MQ Explorer, use the following steps:

### Procedure

1. Expand **Managed File Transfer** in the Navigator view. **Managed File Transfer Central** is displayed in the Content view.
2. All of your coordination queue managers are listed in the Navigator view. Expand the name of the coordination queue manager that you have used for the scheduled transfer. If you want to change which coordination queue manager you are connected to, right-click the name of the coordination queue manager you want to use in Navigator view and click **Connect**.
3. Click **Transfer Templates**. The Transfer Templates window is displayed in the Content view.
4. The Transfer Templates window lists the following details about your file transfers:
  - a. **Name** The name of your file transfer template.
  - b. **Source** The name of the agent used to transfer the file from the source system.
  - c. **Source File** The name of the file to be transferred on its host system. Expand the transfer template information to view this field.
  - d. **Destination** The name of the agent used to receive the file at the destination system.
  - e. **Destination File** The name of the file after it is transferred to the destination system. Expand the transfer template information to view this field.
  - f. **Scheduled Start (selected time zone)** The time and date that the file transfer is scheduled to start in the time zone used by the administrator. To change the time zone displayed, click **Window > Preferences > WebSphere MQ File Transfer Edition** and select an alternative time zone from the **Time zone:** list. Click **OK**.
  - g. **Trigger Events** The type of event that triggers the file transfer to start. The type can be one of the following values: `exists`, `does not exist`, or `exceeds`.

## Results

To refresh what is displayed in the **Transfer Templates** window, click the Refresh button  on the Content view toolbar.

To submit a transfer template and start the transfer defined in the template, right-click the template name and click **Submit**.

To change a transfer template, right-click the template name and click **Edit**. All files included in the original template are listed as part of a transfer group, even if they were not included as part of a group in the original template. If you want to remove a file from the template you must select the file specification from the group and click **Remove selected**. If you want to add new file specifications to the template use the fields in the template panel and click the **Add to group** button. When you have made your edits, you are prompted to give the edited template a new name.

To create a file transfer from a transfer template, right-click the template name and click **Edit as New Transfer**.

To create a duplicate copy of a transfer template, right-click the template name and click **Duplicate**. The duplicate transfer template is automatically saved with the same name as the original template, appended with "(copy)".

To delete a transfer template, right-click the template name and click **Delete**.

### Related tasks:

“Creating a file transfer template using the WebSphere MQ Explorer”

You can create a file transfer template from the WebSphere MQ Explorer or from the command line. You can then use that template to create new file transfers using the template details or submit the template to start the file transfer.

### Related reference:

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

“**fteListTemplates** (list WebSphere MQ File Transfer Edition templates)” on page 545

Use the **fteListTemplates** command to list the available WebSphere MQ File Transfer Edition transfer templates on a coordination queue manager.

“**fteDeleteTemplates** (delete WebSphere MQ File Transfer Edition templates)” on page 537

Use the **fteDeleteTemplates** command to delete an existing WebSphere MQ File Transfer Edition template from a coordination queue manager.

## Creating a file transfer template using the WebSphere MQ Explorer

You can create a file transfer template from the WebSphere MQ Explorer or from the command line. You can then use that template to create new file transfers using the template details or submit the template to start the file transfer.

### About this task

To create a file transfer template from the command line, use the **fteCreateTemplate** command.

To create a file transfer template using the **Create New Template for Managed File Transfer** wizard in WebSphere MQ Explorer, use the following steps:

## Procedure

1. In the Navigator view, click **Managed File Transfer**. **Managed File Transfer Central** is displayed in the Content view.
2. All of your coordination queue managers are displayed in the Navigator view. Expand the name of the coordination queue manager that you have used for the scheduled transfer. If you want to change which coordination queue manager you are connected to, right-click the name of the coordination queue manager you want to use in Navigator view and click **Connect**.
3. Start the **Create New Template for Managed File Transfer** wizard by right-clicking **Transfer Templates** and then clicking **New Template**.
4. Follow the instructions on the wizard panels. There is context-sensitive help provided for each panel. To access the context-sensitive help on Windows, press F1. On Linux, press Ctrl+F1 or Shift+F1.

If you have created a template that contains all the required transfer details, ensure that you select the **Save transfer settings as a template** check box on the **Transfer Summary** page if this check box is not already selected. Also enter a name for the template in the Name field. If you create a template that does not yet contain all of the required transfer details, the **Save transfer settings as a template** check box is automatically checked for you.

### Related tasks:

“Working with transfer templates” on page 222

You can use file transfer templates to store common file transfer settings for repeated or complex transfers. Either create a transfer template from the command line by using the **fteCreateTemplate** command or use the WebSphere MQ Explorer to create a transfer template by using the **Create New Template for Managed File Transfer** wizard, or save a template while you are creating a file transfer by selecting the **Save transfer settings as a template** check box. The **Transfer Templates** window displays all of the transfer templates that you have created in your WebSphere MQ File Transfer Edition network.

### Related reference:

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

“**fteListTemplates** (list WebSphere MQ File Transfer Edition templates)” on page 545

Use the **fteListTemplates** command to list the available WebSphere MQ File Transfer Edition transfer templates on a coordination queue manager.

“**fteDeleteTemplates** (delete WebSphere MQ File Transfer Edition templates)” on page 537

Use the **fteDeleteTemplates** command to delete an existing WebSphere MQ File Transfer Edition template from a coordination queue manager.

---

## Transfer data from files to messages

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

To perform file-to-message and message-to-file transfers both the source and destination agent of the transfer must be version 7.0.3 or above. For information about message-to-file transfers, see “Transferring data from messages to files” on page 240.

The destination agent for a file-to-message transfer cannot be a protocol bridge agent or a Connect:Direct bridge agent.

You can transfer file data to WebSphere MQ message data. The WebSphere MQ messages can be read and used by applications. The following types of file-to-message transfer are supported:

- From a single file to a single message. The message does not have a WebSphere MQ group ID set.

- From a single file to multiple messages, by splitting the file into messages of a given length. The messages all have the same WebSphere MQ group ID.
- From a single file to multiple messages, by splitting a text file at a Java regular expression delimiter. The messages all have the same WebSphere MQ group ID.
- From a single file to multiple messages, by splitting a binary file at a hexadecimal delimiter. The messages all have the same WebSphere MQ group ID.

By default the messages created by a file-to-message transfer are persistent. The messages can be set to be non-persistent or to have the persistence value defined by the destination queue.

If you specify that a file is split into multiple messages, all messages created from the file have the same WebSphere MQ group ID. If you do not specify that a file is split into multiple messages, only one message is created from the file and this message does not have the WebSphere MQ group ID set.

If you are transferring files to large messages, or many small messages, you might need to change some WebSphere MQ or WebSphere MQ File Transfer Edition properties. For information about, see “Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size” on page 398.

**Note:** If the destination queue is either a clustered queue, or an alias to a clustered queue, you will get an error message when transferring a file into a queue. For more information see “What to do if the destination queue is a clustered queue, or an alias to a clustered queue” on page 394

#### **Related tasks:**

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring a single file to a single message” on page 228

You can specify a queue as the destination of a file transfer by using the **-dq** parameter with the **fteCreateTransfer** command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

“Example: Splitting a single file into multiple messages by length” on page 229

You can split a file into multiple WebSphere MQ messages by using the **-qs** parameter of the **fteCreateTransfer** command. The file is split into fixed-length sections, each of which is written to an individual message.

“Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages” on page 232

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the **-dqdt** and **-qi** parameters of the **fteCreateTransfer** command.

“Example: Splitting a text file into multiple messages using a regular expression delimiter” on page 230

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression. To do this you use the **-dqdt** parameter of the **fteCreateTransfer** command.

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

You can use the **-qmp** parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Example: Setting user-defined properties on a file-to-message transfer” on page 236

User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

#### **Related reference:**

“Failure of a file to message transfer” on page 239

If a file-to- message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

“WebSphere MQ message properties set on messages written to destination queues” on page 762

When transferring from file to message, WebSphere MQ File Transfer Edition can set WebSphere MQ message properties on the first message written to the destination queue. Additional WebSphere MQ message properties are set when a file to message transfer has failed.

“Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size” on page 398

You can change WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties to affect the behavior of WebSphere MQ File Transfer Edition when reading or writing messages of various sizes.

## **Configuring an agent to perform file-to-message transfers**

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

### **About this task**

If you attempt to perform a file-to-message transfer to a destination agent that does not have the `enableQueueInputOutput` property set to true, the transfer fails. The transfer log message that is published to the coordination queue manager contains the following message:

```
BFGI00197E: An attempt to write to a queue was rejected by the destination agent. The agent must have enableQueueInputOutput
```

To enable the agent to write to and read from queues perform the following steps:

### **Procedure**

1. Stop the destination agent using the **fteStopAgent** command.
2. Edit the `agent.properties` file to include the line `enableQueueInputOutput=true`. The `agent.properties` file is located in the directory `configuration_directory/coordination_qmgr/agents/destination_agent_name`.
3. Start the destination agent using the **fteStartAgent** command.

### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related tasks:

“Example: Transferring a single file to a single message” on page 228

You can specify a queue as the destination of a file transfer by using the **-dq** parameter with the **fteCreateTransfer** command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

“Example: Splitting a single file into multiple messages by length” on page 229

You can split a file into multiple WebSphere MQ messages by using the **-qs** parameter of the **fteCreateTransfer** command. The file is split into fixed-length sections, each of which is written to an individual message.

“Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages” on page 232

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the **-dqdt** and **-qi** parameters of the **fteCreateTransfer** command.

“Example: Splitting a text file into multiple messages using a regular expression delimiter” on page 230

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression. To do this you use the **-dqdt** parameter of the **fteCreateTransfer** command.

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

You can use the **-qmp** parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Example: Setting user-defined properties on a file-to-message transfer” on page 236

User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

### Related reference:

“fteStopAgent (stop a WebSphere MQ File Transfer Edition agent)” on page 570

Use the **fteStopAgent** command to either stop a WebSphere MQ File Transfer Edition agent in a controlled way or to stop an agent immediately if necessary using the **-i** parameter.

“**fteStartAgent** (start a WebSphere MQ File Transfer Edition agent)” on page 567

The **fteStartAgent** command starts a WebSphere MQ File Transfer Edition agent from the command line.

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

“Failure of a file to message transfer” on page 239

If a file-to-message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

## Example: Transferring a single file to a single message

You can specify a queue as the destination of a file transfer by using the **-dq** parameter with the **fteCreateTransfer** command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

### About this task

The source file is called `/tmp/single_record.txt` and is located on the same system as the source agent, `AGENT_NEPTUNE`. The source agent, `AGENT_NEPTUNE`, uses the queue manager `QM_NEPTUNE`. The destination agent is `AGENT_VENUS` and this agent connects to the queue manager `QM_VENUS`. The destination queue, `RECEIVING_QUEUE`, is located on the queue manager `QM_MERCURY`. `QM_MERCURY` is in the same WebSphere MQ network as, and can be accessed by, the queue manager `QM_VENUS`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE -da AGENT_VENUS -dm QM_VENUS
                 -dq RECEIVING_QUEUE@QM_MERCURY /tmp/single_record.txt
```

If the destination queue is on a different queue manager to the queue manager used by the destination agent you must specify the value of the **-dq** parameter in the following format `queue_name@queue_manager_name`. If you do not specify `@queue_manager_name` in the value, the destination agent assumes that the destination queue is located on its own queue manager.

The source agent, `AGENT_NEPTUNE`, reads the data from the file `/tmp/single_record.txt` and transfers this data to the destination agent, `AGENT_VENUS`. The destination agent, `AGENT_VENUS`, sends the data to a persistent message on the queue `RECEIVING_QUEUE@QM_MERCURY`. The message does not have a WebSphere MQ group ID set.

#### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

#### Related tasks:

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to `true`.

“Example: Splitting a single file into multiple messages by length” on page 229

You can split a file into multiple WebSphere MQ messages by using the **-qs** parameter of the **fteCreateTransfer** command. The file is split into fixed-length sections, each of which is written to an individual message.

“Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages” on page 232

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the **-dqdt** and **-qi** parameters of the **fteCreateTransfer** command.

“Example: Splitting a text file into multiple messages using a regular expression delimiter” on page 230

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression. To do this you use the **-dqdt** parameter of the **fteCreateTransfer** command.

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235  
You can use the **-qmp** parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Example: Setting user-defined properties on a file-to-message transfer” on page 236  
User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Starting a new file transfer” on page 193  
You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

**Related reference:**

“Failure of a file to message transfer” on page 239  
If a file-to- message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

## Example: Splitting a single file into multiple messages by length

You can split a file into multiple WebSphere MQ messages by using the **-qs** parameter of the **fteCreateTransfer** command. The file is split into fixed-length sections, each of which is written to an individual message.

### About this task

The source file is called `/tmp/source.file` and is 36 KB in size. The source file is located on the same system as the source agent `AGENT_NEPTUNE`. The source agent, `AGENT_NEPTUNE`, connects to the queue manager `QM_NEPTUNE`. The destination agent is `AGENT_MERCURY`, which connects to the queue manager `QM_MERCURY`. The destination queue, `RECEIVING_QUEUE`, is also located on the queue manager `QM_MERCURY`. The transfer splits the source file into sections that are 1 KB in size and writes each of these sections to a message on `RECEIVING_QUEUE`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE -da AGENT_MERCURY -dm QM_MERCURY  
-dq RECEIVING_QUEUE -qs 1K /tmp/source.file
```

The source agent, `AGENT_NEPTUNE`, reads the data from the file `/tmp/source.file` and transfers this data to the destination agent, `AGENT_MERCURY`. The destination agent, `AGENT_MERCURY`, writes the data to thirty-six 1 KB persistent messages on the queue `RECEIVING_QUEUE@QM_MERCURY`. These messages all have the same WebSphere MQ group ID and the last message in the group has the WebSphere MQ `LAST_MSG_IN_GROUP` flag set.

### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related tasks:

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring a single file to a single message” on page 228

You can specify a queue as the destination of a file transfer by using the `-dq` parameter with the **fteCreateTransfer** command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

“Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages” on page 232

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the `-dqdt` and `-qi` parameters of the **fteCreateTransfer** command.

“Example: Splitting a text file into multiple messages using a regular expression delimiter”

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression. To do this you use the `-dqdt` parameter of the **fteCreateTransfer** command.

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

You can use the `-qmp` parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer.

WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Example: Setting user-defined properties on a file-to-message transfer” on page 236

User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

### Related reference:

“Failure of a file to message transfer” on page 239

If a file-to-message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

## Example: Splitting a text file into multiple messages using a regular expression delimiter

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression. To do this you use the `-dqdt` parameter of the **fteCreateTransfer** command.

### About this task

The file is split into variable-length sections, each of which is written to an individual message. The text file is split at each point where the text in the file matches a given regular expression. The source file is called `/tmp/names.text` and has the following contents:

Jenny Jones,John Smith,Jane Brown

The regular expression that specifies where to split the file is the comma character (,).

The source file is located on the same system as the source agent *AGENT\_NEPTUNE*, which connects to the queue manager *QM\_NEPTUNE*. The destination queue, *RECEIVING\_QUEUE*, is located on the queue manager *QM\_MERCURY*. *QM\_MERCURY* is also the queue manager used by the destination agent *AGENT\_MERCURY*. The transfer splits the source file into sections and writes each of these sections to a message on *RECEIVING\_QUEUE*.

## Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE -da AGENT_MERCURY -dm QM_MERCURY  
-dq RECEIVING_QUEUE -t text -dqdp postfix -dqdt "," /tmp/names.text
```

The source agent, *AGENT\_NEPTUNE*, reads the data from the file */tmp/names.text* and transfers this data to the destination agent, *AGENT\_MERCURY*. The destination agent, *AGENT\_MERCURY*, writes the data to three persistent messages on the queue *RECEIVING\_QUEUE*. These messages all have the same WebSphere MQ group ID and the last message in the group has the WebSphere MQ *LAST\_MSG\_IN\_GROUP* flag set.

The data in the messages is as follows.

- First message:  
Jenny Jones
- Second message:  
John Smith
- Third message:  
Jane Brown

### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related tasks:

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring a single file to a single message” on page 228

You can specify a queue as the destination of a file transfer by using the **-dq** parameter with the **fteCreateTransfer** command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

“Example: Splitting a single file into multiple messages by length” on page 229

You can split a file into multiple WebSphere MQ messages by using the **-qs** parameter of the **fteCreateTransfer** command. The file is split into fixed-length sections, each of which is written to an individual message.

“Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages” on page 232

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the **-dqdt** and **-qi** parameters of the **fteCreateTransfer** command.

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235  
You can use the **-qmp** parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Example: Setting user-defined properties on a file-to-message transfer” on page 236  
User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Starting a new file transfer” on page 193  
You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

**Related reference:**

“Failure of a file to message transfer” on page 239  
If a file-to- message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746  
WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the **-dqdt** and **-qi** parameters of the **fteCreateTransfer** command.

### About this task

Transfer a single text file to multiple messages on a queue. The file is split into variable-length sections, each of which is written to an individual message. The text file is split at each point where the text in the file matches a given regular expression. The source file is called `/tmp/customers.text` and has the following contents:

```
Customer name: John Smith  
Customer contact details: john@example.net  
Customer number: 314
```

```
Customer name: Jane Brown  
Customer contact details: jane@example.com  
Customer number: 42
```

```
Customer name: James Jones  
Customer contact details: jjones@example.net  
Customer number: 26
```

The regular expression that specifies where to split the file is `Customer\number:\s\d+`, which matches the text “Customer number: ” followed by any number of digits. Regular expressions specified at the command line must be enclosed in double quotation marks to prevent the command shell evaluating the

regular expression. The regular expression is evaluated as a Java regular expression. For more information, see “Regular expressions used by WebSphere MQ File Transfer Edition” on page 746.

By default the number of characters that a regular expression can match is set to five. The regular expression used in this example matches strings that are longer than five characters. To enable matches that are longer than five characters edit the agent properties file to include the property **maxDelimiterMatchLength**.

By default, the text that matches the regular expression is not included in the messages. To include the text that matches the regular expression in the messages, as in this example, use the **-qi** parameter. The source file is located on the same system as the source agent AGENT\_NEPTUNE, which connects to the queue manager QM\_NEPTUNE. The destination queue, RECEIVING\_QUEUE, is located on the queue manager QM\_MERCURY. QM\_MERCURY is also the queue manager used by the destination agent AGENT\_MERCURY. The transfer splits the source file into sections and writes each of these sections to a message on RECEIVING\_QUEUE.

## Procedure

1. Stop the destination agent using the following command:

```
fteStopAgent AGENT_MERCURY
```

2. Add the following line to the agent properties file for AGENT\_MERCURY:

```
maxDelimiterMatchLength=25
```

**Note:** Increasing the value of **maxDelimiterMatchLength** can decrease performance.

3. Start the destination agent using the following command:

```
fteStartAgent AGENT_MERCURY
```

4. Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE -da AGENT_MERCURY -dm QM_MERCURY -dq RECEIVING_QUEUE  
-t text -dqdt "Customer\snumber:\s\d+" -qi -dqdp postfix /tmp/customers.text
```

The source agent, AGENT\_NEPTUNE, reads the data from the file /tmp/customers.text and transfers this data to the destination agent, AGENT\_MERCURY. The destination agent, AGENT\_MERCURY, writes the data to three persistent messages on the queue RECEIVING\_QUEUE. These messages all have the same WebSphere MQ group ID and the last message in the group has the WebSphere MQ LAST\_MSG\_IN\_GROUP flag set.

The data in the messages is as follows.

- First message:

```
Customer name: John Smith  
Customer contact details: john@example.net  
Customer number: 314
```

- Second message:

```
Customer name: Jane Brown  
Customer contact details: jane@example.com  
Customer number: 42
```

- Third message:

```
Customer name: James Jones  
Customer contact details: jjones@example.net  
Customer number: 26
```

### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related tasks:

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring a single file to a single message” on page 228

You can specify a queue as the destination of a file transfer by using the `-dq` parameter with the **`fteCreateTransfer`** command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

“Example: Splitting a single file into multiple messages by length” on page 229

You can split a file into multiple WebSphere MQ messages by using the `-qs` parameter of the **`fteCreateTransfer`** command. The file is split into fixed-length sections, each of which is written to an individual message.

“Example: Splitting a text file into multiple messages using a regular expression delimiter” on page 230

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression. To do this you use the `-dqdt` parameter of the **`fteCreateTransfer`** command.

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

You can use the `-qmp` parameter on the **`fteCreateTransfer`** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Example: Setting user-defined properties on a file-to-message transfer” on page 236

User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

### Related reference:

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

“Failure of a file to message transfer” on page 239

If a file-to-message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Example: Setting WebSphere MQ message properties on a file-to-message transfer

You can use the **-qmp** parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer.

WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

### About this task

Include the parameter **-qmp true** in the **fteCreateTransfer** command. In this example, the MQMD user ID of the user submitting the command is `larmer`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_JUPITER -da AGENT_SATURN -dq MY_QUEUE@MyQM -qmp true -t text /tmp/source_file.txt
```

The WebSphere MQ message properties of the first message written by the destination agent, `AGENT_SATURN`, to the queue, `MY_QUEUE`, on queue manager, `MyQM`, are set to these values:

```
usr.WMQFTETransferId=414cbaedefa234889d999a8ed09782395ea213ebbc9377cd
usr.WMQFTETransferMode=text
usr.WMQFTESourceAgent=AGENT_JUPITER
usr.WMQFTEDestinationAgent=AGENT_SATURN
usr.WMQFTEFileName=source_file.txt
usr.WMQFTEFileSize=1024
usr.WMQFTEFileLastModified=1273740879040
usr.WMQFTEFileIndex=0
usr.WMQFTEmqmdUser=larmer
```

### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related tasks:

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to `true`.

“Example: Transferring a single file to a single message” on page 228

You can specify a queue as the destination of a file transfer by using the **-dq** parameter with the **fteCreateTransfer** command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

“Example: Splitting a single file into multiple messages by length” on page 229

You can split a file into multiple WebSphere MQ messages by using the **-qs** parameter of the **fteCreateTransfer** command. The file is split into fixed-length sections, each of which is written to an individual message.

“Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages” on page 232

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the **-dqdt** and **-qi** parameters of the **fteCreateTransfer** command.

“Example: Splitting a text file into multiple messages using a regular expression delimiter” on page 230

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular

expression. To do this you use the **-dqdt** parameter of the **fteCreateTransfer** command.

“Example: Setting user-defined properties on a file-to-message transfer”

User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

#### **Related reference:**

“Failure of a file to message transfer” on page 239

If a file-to- message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

“WebSphere MQ message properties set on messages written to destination queues” on page 762

When transferring from file to message, WebSphere MQ File Transfer Edition can set WebSphere MQ message properties on the first message written to the destination queue. Additional WebSphere MQ message properties are set when a file to message transfer has failed.

## **Example: Setting user-defined properties on a file-to-message transfer**

User-defined metadata is set as a WebSphere MQ message property on the first message written to the destination queue by the transfer. WebSphere MQ message properties enable an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

### **About this task**

Include the parameters **-qmp true** and **-md account=123456** in the **fteCreateTransfer** command, to set the **usr.account** property to 123456 in the RFH2 header.

### **Procedure**

Type the following command:

```
fteCreateTransfer -sa AGENT_JUPITER -da AGENT_SATURN -dq MY_QUEUE@MyQM  
-qmp true -md account=123456 /tmp/source_file.txt
```

In addition to the standard set of WebSphere MQ message properties, the user-defined property is set in the message header of the first message written by the destination agent, **AGENT\_SATURN**, to the queue, **MY\_QUEUE**, on queue manager, **MyQM**. The header is set to the following value:

```
usr.account=123456
```

The prefix **usr** is added to the beginning of the name of the user-defined metadata.

### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related tasks:

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring a single file to a single message” on page 228

You can specify a queue as the destination of a file transfer by using the `-dq` parameter with the `fteCreateTransfer` command. The source file must be smaller than the maximum message length set on the destination queue. The destination queue does not have to be on the same queue manager as the queue manager that the destination agent connects to, but these two queue managers must be able to communicate.

“Example: Splitting a single file into multiple messages by length” on page 229

You can split a file into multiple WebSphere MQ messages by using the `-qs` parameter of the `fteCreateTransfer` command. The file is split into fixed-length sections, each of which is written to an individual message.

“Example: Splitting a text file with a regular expression delimiter and including the delimiter in the messages” on page 232

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression and include the regular expression match in the resulting messages. To do this you use the `-dqdt` and `-qi` parameters of the `fteCreateTransfer` command.

“Example: Splitting a text file into multiple messages using a regular expression delimiter” on page 230

Transfer a single text file to multiple messages by splitting the file at each match of a given Java regular expression. To do this you use the `-dqdt` parameter of the `fteCreateTransfer` command.

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

You can use the `-qmp` parameter on the `fteCreateTransfer` command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

### Related reference:

“WebSphere MQ message properties set on messages written to destination queues” on page 762

When transferring from file to message, WebSphere MQ File Transfer Edition can set WebSphere MQ message properties on the first message written to the destination queue. Additional WebSphere MQ message properties are set when a file to message transfer has failed.

### Example: adding a user-defined message property for a file-to-message transfer

If you are using WebSphere MQ File Transfer Edition with WebSphere MQ V7.0 for message-to-file managed transfers, you can include a user-defined message property for the resulting message.

### About this task

You can use any of the following methods to define a custom message property:

- Specify the `-md` parameter on the transfer request. For more information, see “Example: Setting user-defined properties on a file-to-message transfer” on page 236.
- Use an Ant task; you can use either `fte:filecopy` or `fte:filemove`. The following example is a `fte:filecopy` task:

```

<project xmlns:fte="antlib:com.ibm.wmqfte.ant.taskdefs" default="complete">
<!-- Initialise the properties used in this script.-->

<target name="init" description="initialise task properties">
    <property name="src.file" value="/home/user/file1.bin"/>
    <property name="dst.queue" value="TEST.QUEUE@qm2"/>
    <fte:uuid property="job.name" length="8"
prefix="copyjob#"/>
</target>
<target name="step1" depends="init" description="transfer file">

<fte:filecopy cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
src="agent1@qm1" dst="agent2@qm2"
rcproperty="copy.result">

<fte:metadata>
<fte:entry name="fileName" value="{FileName}"/>
</fte:metadata>

<fte:filespec srcfilespec="{src.file}" dstqueue="{dst.queue}"
dstmsgprops="true"/>

</fte:filecopy>

</target>
</project>

```

- Use a resource monitor and variable substitution. The following example shows some transfer task XML:

```

<?xml version="1.0" encoding="UTF-8"?>
<monitor:monitor
xmlns:monitor="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="5.00"
xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition ./Monitor.xsd">
    <name>METADATA</name>
    <pollInterval units="minutes">5</pollInterval>
    <batch maxSize="5"/>
    <agent>AGENT1</agent>
    <resources>
        <directory recursionLevel="0">e:\temp</directory>
    </resources>
    <triggerMatch>
        <conditions>
            <allOf>
                <condition>
                    <fileMatch>
                        <pattern>*.txt</pattern>
                    </fileMatch>
                </condition>
            </allOf>
        </conditions>
    </triggerMatch>
    <tasks>
        <task>
            <name/>
            <transfer>
                <request version="5.00"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
                    <managedTransfer>
                        <originator>
                            <hostName>mqjason.raleigh.ibm.com.</hostName>
                            <userID>administrator</userID>
                        </originator>
                        <sourceAgent QMgr="AGENTQM" agent="AGENT1"/>
                        <destinationAgent QMgr="AGENTQM" agent="AGENT2"/>
                    </managedTransfer>
                </request>
            </transfer>
        </task>
    </tasks>

```

```

    <transferSet priority="0">
      <metaDataSet>
        <metaData key="FileName">${FileName}</metaData>
      </metaDataSet>
      <item checksumMethod="MD5" mode="text">
        <source disposition="delete" recursive="false">
          <file>${FilePath}</file>
        </source>
        <destination type="queue">
          <queue persistent="true"
setMqProps="true">TEST.QUEUE@AGENTQM</queue>
        </destination>
      </item>
    </transferSet>
  </job>
  <name>Metadata_example</name>
</job>
</managedTransfer>
</request>
</transfer>
</task>
</tasks>
<originator>
  <hostName>mqjason.raleigh.ibm.com.</hostName>
  <userID>administrator</userID>
</originator>
</monitor:monitor>

```

#### Related tasks:

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

You can use the **-qmp** parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

#### Related reference:

“fte:filecopy” on page 995

The **fte:filecopy** task copies files between WebSphere MQ File Transfer Edition agents. The file is not deleted from the source agent.

“fte:filemove” on page 998

The **fte:filemove** task moves files between WebSphere MQ File Transfer Edition agents. When a file has been successfully transferred from the source agent to the destination agent, the file is deleted from the source agent.

## Failure of a file to message transfer

If a file-to- message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

The message written to the destination queue if a failure occurs:

- is blank
- has the same WebSphere MQ group ID as the previous message written to the destination queue by the agent
- has the WebSphere MQ LAST\_MSG\_IN\_GROUP flag set
- contains additional WebSphere MQ message properties, if message properties are enabled. For more information, see the topic “Failure properties” on page 763.

## Example

A transfer is requested by running the following command:

```
fteCreateTransfer -sa AGENT_JUPITER -da AGENT_SATURN -dq RECEIVING_QUEUE  
-qmp true -qs 1K /tmp/source1.txt
```

The file source1.txt is 48 KB. The transfer splits this file into 1 KB messages and writes these messages to the destination queue RECEIVING\_QUEUE.

While the transfer is in progress, after the agent has written 16 messages to RECEIVING\_QUEUE, a failure occurs at the source agent.

The agent writes a blank message to RECEIVING\_QUEUE. In addition to the standard set of message properties, the blank message has the following message properties set:

```
usr.WMQFTEResultCode = 40  
usr.WMQFTESupplement = BFGTR0036I: The transfer failed to complete successfully.
```

### Related concepts:

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related tasks:

“Configuring an agent to perform file-to-message transfers” on page 226

By default agents cannot perform file-to-message or message-to-file transfers. To enable this function you must set the agent property enableQueueInputOutput to true.

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, agent.properties, that must contain the information that an agent uses to connect to its queue manager. The agent.properties file can also contain properties that alter the behavior of the agent.

“WebSphere MQ message properties set on messages written to destination queues” on page 762

When transferring from file to message, WebSphere MQ File Transfer Edition can set WebSphere MQ message properties on the first message written to the destination queue. Additional WebSphere MQ message properties are set when a file to message transfer has failed.

---

## Transferring data from messages to files

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

To perform file-to-message and message-to-file transfers both the source and destination agent of the transfer must be Version 7.0.3 or later. For information about file-to-message transfers, see “Transfer data from files to messages” on page 224.

The source agent for a message-to-file transfer cannot be a protocol bridge agent or a Connect:Direct bridge agent.

You can transfer WebSphere MQ message data to a file. The following types of message-to-file transfer are supported:

- From a single message to a single file
- From multiple messages to a single file
- From multiple messages with the same WebSphere MQ group ID to a single file.
- From multiple messages to a single file, including a text or binary delimiter between the data from each message written to the file.

If you are transferring files from large messages, or many small messages, you might need to change some WebSphere MQ or WebSphere MQ File Transfer Edition properties. For more information about, see “Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size” on page 398.

#### Related tasks:

“Configuring an agent to perform message to file transfers” on page 242

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring from a queue to a single file” on page 243

You can specify a WebSphere MQ queue as the source of a file transfer by using the **-sq** parameter with the **fteCreateTransfer** command.

“Example: Transferring a group of messages from a queue to a single file” on page 244

You can specify a single complete group on a WebSphere MQ queue as the source of a file transfer by using the **-sq** and **-sqgi** parameters with the **fteCreateTransfer** command.

“Example: Inserting a text delimiter before the data from each message” on page 245

When you are transferring in text mode from a source queue to a file, you can specify that a text delimiter is inserted before the data from individual messages by using the **-sq**, **-sqdt** and **-sqdp** parameters with the **fteCreateTransfer** command.

“Example: Inserting a binary delimiter after the data from each message” on page 246

When transferring in binary mode from a source queue to a file, you can specify that a binary delimiter is inserted after the data from individual messages by using the **-sq**, **-sqdb**, and **-sqdp** parameters with the **fteCreateTransfer** command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

“Example: Failing a message to file transfer using WebSphere MQ message properties” on page 250

You can cause a message to file transfer to fail by setting the `usr.UserReturnCode` WebSphere MQ message property to a non-zero value. You can also specify supplementary information about the reason for the failure by setting the `usr.UserSupplement` WebSphere MQ message property.

“Example: Configuring a resource monitor to monitor a queue” on page 214

You can specify a WebSphere MQ queue as the resource to be monitored by a resource monitor by using the **-mq** parameter with the **fteCreateMonitor** command.

#### Related reference:

“WebSphere MQ message properties read from messages on source queues” on page 764

The agent reading messages from a source queue in a message to file transfer reads the WebSphere MQ message properties from the message. The value of these properties can be used to determine the behavior of a transfer.

“Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size” on page 398

You can change WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties to affect the behavior of WebSphere MQ File Transfer Edition when reading or writing messages of various sizes.

## Configuring an agent to perform message to file transfers

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property `enableQueueInputOutput` to `true`.

### About this task

If you attempt to perform a message to file transfer from a source agent that does not have the `enableQueueInputOutput` property set to `true`, the transfer fails. The transfer log message that is published to the coordination queue manager contains the following message:

```
BFGI00197E: An attempt to read from a queue was rejected by the source agent.  
The agent must have enableQueueInputOutput=true set in the agent.properties file  
to support transferring from a queue.
```

To enable the agent to write to and read from queues perform the following steps:

### Procedure

1. Stop the source agent using the **fteStopAgent** command.
2. Edit the `agent.properties` file to include the line `enableQueueInputOutput=true`. The `agent.properties` file is located in the directory `configuration_directory/coordination_qmgr/agents/source_agent_name`.
3. Start the source agent using the **fteStartAgent** command.

### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

### Related tasks:

“Example: Transferring from a queue to a single file” on page 243

You can specify a WebSphere MQ queue as the source of a file transfer by using the **-sq** parameter with the **fteCreateTransfer** command.

“Example: Transferring a group of messages from a queue to a single file” on page 244

You can specify a single complete group on a WebSphere MQ queue as the source of a file transfer by using the **-sq** and **-sqgi** parameters with the **fteCreateTransfer** command.

“Example: Inserting a text delimiter before the data from each message” on page 245

When you are transferring in text mode from a source queue to a file, you can specify that a text delimiter is inserted before the data from individual messages by using the **-sq**, **-sqdt** and **-sqdp** parameters with the **fteCreateTransfer** command.

“Example: Inserting a binary delimiter after the data from each message” on page 246

When transferring in binary mode from a source queue to a file, you can specify that a binary delimiter is inserted after the data from individual messages by using the **-sq**, **-sqdb**, and **-sqdp** parameters with the **fteCreateTransfer** command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

“Example: Failing a message to file transfer using WebSphere MQ message properties” on page 250

You can cause a message to file transfer to fail by setting the `usr.UserReturnCode` WebSphere MQ message property to a non-zero value. You can also specify supplementary information about the reason for the failure by setting the `usr.UserSupplement` WebSphere MQ message property.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Example: Transferring from a queue to a single file

You can specify a WebSphere MQ queue as the source of a file transfer by using the `-sq` parameter with the `fteCreateTransfer` command.

### About this task

The source data is contained in three messages on the queue `START_QUEUE`. This queue must be on the source agent's queue manager, `QM_NEPTUNE`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE
                  -da AGENT_VENUS -df /out/three_to_one.txt
                  -sq START_QUEUE
```

The data in the messages on the queue `START_QUEUE` is written to the file `/out/three_to_one.txt` on the system where `AGENT_VENUS` is running.

### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

### Related tasks:

“Configuring an agent to perform message to file transfers” on page 242

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property `enableQueueInputOutput` to `true`.

“Example: Transferring a group of messages from a queue to a single file” on page 244

You can specify a single complete group on a WebSphere MQ queue as the source of a file transfer by using the `-sq` and `-sqgi` parameters with the `fteCreateTransfer` command.

“Example: Inserting a text delimiter before the data from each message” on page 245

When you are transferring in text mode from a source queue to a file, you can specify that a text delimiter is inserted before the data from individual messages by using the `-sq`, `-sqdt` and `-sqdp` parameters with the `fteCreateTransfer` command.

“Example: Inserting a binary delimiter after the data from each message” on page 246

When transferring in binary mode from a source queue to a file, you can specify that a binary delimiter is inserted after the data from individual messages by using the `-sq`, `-sqdb`, and `-sqdp` parameters with the `fteCreateTransfer` command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the `fteCreateMonitor` command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

“Example: Failing a message to file transfer using WebSphere MQ message properties” on page 250  
You can cause a message to file transfer to fail by setting the `usr.UserReturnCode` WebSphere MQ message property to a non-zero value. You can also specify supplementary information about the reason for the failure by setting the `usr.UserSupplement` WebSphere MQ message property.

**Related reference:**

“WebSphere MQ message properties read from messages on source queues” on page 764  
The agent reading messages from a source queue in a message to file transfer reads the WebSphere MQ message properties from the message. The value of these properties can be used to determine the behavior of a transfer.

“`fteCreateTransfer` (create new file transfer)” on page 509

The `fteCreateTransfer` command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Example: Transferring a group of messages from a queue to a single file

You can specify a single complete group on a WebSphere MQ queue as the source of a file transfer by using the `-sq` and `-sqgi` parameters with the `fteCreateTransfer` command.

### About this task

In this example, there are ten messages on the queue `START_QUEUE`. This queue must be on the source agent's queue manager, `QM_NEPTUNE`. The first three messages belong to a group with the WebSphere MQ group ID `41424b3ef3a22020202020202020202020202020202020201111`; this group is not a complete group. The next five messages belong to a group with the WebSphere MQ group ID `41424b3ef3a22020202020202020202020202020202020202222`; this group is complete. The remaining two messages belong to a group with the WebSphere MQ group ID `41424b3ef3a22020202020202020202020202020202020203333`; this group is complete.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE -da AGENT_VENUS  
-df /out/group.txt -sqgi -sq START_QUEUE
```

The data in the messages belonging to the first complete group on the queue `START_QUEUE`, the group with WebSphere MQ group ID `41424b3ef3a22020202020202020202020202020202020202222`, is written to the file `/out/group.txt` on the system where `AGENT_VENUS` is running.

### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

### Related tasks:

“Configuring an agent to perform message to file transfers” on page 242

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring from a queue to a single file” on page 243

You can specify a WebSphere MQ queue as the source of a file transfer by using the `-sq` parameter with the `fteCreateTransfer` command.

“Example: Inserting a text delimiter before the data from each message”

When you are transferring in text mode from a source queue to a file, you can specify that a text delimiter is inserted before the data from individual messages by using the `-sq`, `-sqdt` and `-sqdp` parameters with the `fteCreateTransfer` command.

“Example: Inserting a binary delimiter after the data from each message” on page 246

When transferring in binary mode from a source queue to a file, you can specify that a binary delimiter is inserted after the data from individual messages by using the `-sq`, `-sqdb`, and `-sqdp` parameters with the `fteCreateTransfer` command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the `fteCreateMonitor` command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

“Example: Failing a message to file transfer using WebSphere MQ message properties” on page 250

You can cause a message to file transfer to fail by setting the `usr.UserReturnCode` WebSphere MQ message property to a non-zero value. You can also specify supplementary information about the reason for the failure by setting the `usr.UserSupplement` WebSphere MQ message property.

### Related reference:

“`fteCreateTransfer` (create new file transfer)” on page 509

The `fteCreateTransfer` command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Example: Inserting a text delimiter before the data from each message

When you are transferring in text mode from a source queue to a file, you can specify that a text delimiter is inserted before the data from individual messages by using the `-sq`, `-sqdt` and `-sqdp` parameters with the `fteCreateTransfer` command.

### About this task

In this example, there are four messages on the queue `START_QUEUE`. This queue is on the source agent's queue manager, `QM_NEPTUNE`. The text delimiter to be inserted before the data from each message can be expressed as a Java literal string, for example: `\n\u002D\u002D\u002D\n`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE -da AGENT_VENUS -df /out/output.txt  
-t text -sqdt "\n\u002D\u002D\u002D\n" -sqdp prefix -sq START_QUEUE
```

The text delimiter is added to the beginning of the data from each of the four messages on `START_QUEUE` by the source agent, `AGENT_NEPTUNE`. This data is written to the destination file, `/out/output.txt`.

#### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

#### Related tasks:

“Configuring an agent to perform message to file transfers” on page 242

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property `enableQueueInputOutput` to `true`.

“Example: Transferring from a queue to a single file” on page 243

You can specify a WebSphere MQ queue as the source of a file transfer by using the `-sq` parameter with the `fteCreateTransfer` command.

“Example: Transferring a group of messages from a queue to a single file” on page 244

You can specify a single complete group on a WebSphere MQ queue as the source of a file transfer by using the `-sq` and `-sqgi` parameters with the `fteCreateTransfer` command.

“Example: Inserting a binary delimiter after the data from each message”

When transferring in binary mode from a source queue to a file, you can specify that a binary delimiter is inserted after the data from individual messages by using the `-sq`, `-sqdb`, and `-sqdp` parameters with the `fteCreateTransfer` command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the `fteCreateMonitor` command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

“Example: Failing a message to file transfer using WebSphere MQ message properties” on page 250

You can cause a message to file transfer to fail by setting the `usr.UserReturnCode` WebSphere MQ message property to a non-zero value. You can also specify supplementary information about the reason for the failure by setting the `usr.UserSupplement` WebSphere MQ message property.

#### Related reference:

“`fteCreateTransfer` (create new file transfer)” on page 509

The `fteCreateTransfer` command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Example: Inserting a binary delimiter after the data from each message

When transferring in binary mode from a source queue to a file, you can specify that a binary delimiter is inserted after the data from individual messages by using the `-sq`, `-sqdb`, and `-sqdp` parameters with the `fteCreateTransfer` command.

### About this task

In this example, there are three messages on the queue `START_QUEUE`. This queue is on the source agent's queue manager, `QM_NEPTUNE`. The binary delimiter to be inserted after the data from each message must be expressed as a comma-separated list of hexadecimal bytes, for example: `x34,xE7,xAE`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_NEPTUNE -sm QM_NEPTUNE -da AGENT_VENUS -df /out/binary.file
                  -sqdp postfix -sqdb x34,xE7,xAE -sq START_QUEUE
```

The binary delimiter is appended to the data from each of the three messages on START\_QUEUE by the source agent, AGENT\_NEPTUNE. This data is written to the destination file, /out/binary.file.

#### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

#### Related tasks:

“Configuring an agent to perform message to file transfers” on page 242

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property enableQueueInputOutput to true.

“Example: Transferring from a queue to a single file” on page 243

You can specify a WebSphere MQ queue as the source of a file transfer by using the **-sq** parameter with the **fteCreateTransfer** command.

“Example: Transferring a group of messages from a queue to a single file” on page 244

You can specify a single complete group on a WebSphere MQ queue as the source of a file transfer by using the **-sq** and **-sqgi** parameters with the **fteCreateTransfer** command.

“Example: Inserting a text delimiter before the data from each message” on page 245

When you are transferring in text mode from a source queue to a file, you can specify that a text delimiter is inserted before the data from individual messages by using the **-sq**, **-sqdt** and **-sqdp** parameters with the **fteCreateTransfer** command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

“Example: Failing a message to file transfer using WebSphere MQ message properties” on page 250

You can cause a message to file transfer to fail by setting the `usr.UserReturnCode` WebSphere MQ message property to a non-zero value. You can also specify supplementary information about the reason for the failure by setting the `usr.UserSupplement` WebSphere MQ message property.

#### Related reference:

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Monitoring a queue and using variable substitution

You can monitor a queue and transfer messages from the monitored queue to a file using the **fteCreateMonitor** command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

### About this task

In this example, the source agent is called AGENT\_VENUS, which connects to QM\_VENUS. The queue that AGENT\_VENUS monitors is called START\_QUEUE and is located on QM\_VENUS. The agent polls the queue every 30 minutes.

When a complete group of messages is written to the queue the monitor task sends the group of messages to a file at one of a number of destination agents, all of which connect to the queue manager QM\_MARS. The name of the file that the group of messages is transferred to is defined by the WebSphere MQ message property `usr.fileName` on the first message in the group. The name of the agent that the group of messages is sent to is defined by the WebSphere MQ message property `usr.toAgent` on the first message in the group. If the `usr.toAgent` header is not set, the default value to be used for the destination agent is AGENT\_MAGENTA.

## Procedure

1. Create the task XML that defines the task that the monitor performs when it is triggered.

```
<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT_VENUS" QMgr="QM_VENUS" />
    <destinationAgent agent="{toAgent}" QMgr="QM_MARS" />
    <transferSet>
      <item mode="binary" checksumMethod="none">
        <source>
          <queue>START_QUEUE</queue>
        </source>
        <destination type="file" exist="overwrite">
          <file>/reports/{fileName}.rpt</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

The variables that are replaced with the values of WebSphere MQ message headers are highlighted in **bold**. This task XML is saved to the file `/home/USER1/task.xml`

2. Create a resource monitor to monitor the queue START\_QUEUE. Submit the following command:

```
ftCreateMonitor -ma AGENT_VENUS -mm QM_VENUS -mq START_QUEUE
                -mn myMonitor -mt /home/USER1/task.xml
                -tr completeGroups -pi 30 -pu minutes -dv toAgent=AGENT_MAGENTA
```

3. A user or program writes a group of messages to the queue START\_QUEUE. The first message in this group has the following WebSphere MQ message properties set:

```
usr.fileName=larmer
usr.toAgent=AGENT_VIOLET
```

4. The monitor is triggered when the complete group has been written. The agent substitutes the WebSphere MQ message properties into the task XML. This results in the task XML being transformed to:

```
<?xml version="1.0" encoding="UTF-8" ?>
<request version="4.00"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT_VENUS" QMgr="QM_VENUS" />
    <destinationAgent agent="AGENT_VIOLET" QMgr="QM_MARS" />
    <transferSet>
      <item mode="binary" checksumMethod="none">
        <source>
          <queue>START_QUEUE</queue>
        </source>
        <destination type="file" exist="overwrite">
          <file>/reports/larmer.rpt</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

```

        </source>
        <destination type="file" exist="overwrite">
          <file>/reports/larmer.rpt</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>

```

## Results

The transfer defined by the task XML is performed. The complete group of messages read from the START\_QUEUE by AGENT\_VENUS is written to a file called /reports/larmer.rpt located on the system where AGENT\_VIOLET is running.

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory.

When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer.

You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

### Related tasks:

“Configuring monitor tasks to start commands and scripts” on page 208

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

“Example: Configuring a resource monitor to monitor a queue” on page 214

You can specify a WebSphere MQ queue as the resource to be monitored by a resource monitor by using the **-mq** parameter with the **fteCreateMonitor** command.

### Related reference:

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

“WebSphere MQ message properties read from messages on source queues” on page 764

The agent reading messages from a source queue in a message to file transfer reads the WebSphere MQ message properties from the message. The value of these properties can be used to determine the behavior of a transfer.

“What to do if destination files created by a transfer started by a queue resource monitor contain the wrong data” on page 393

You can create a resource monitor to monitor a queue and transfer a message or a group of messages on a queue to a file. The file name can be specified by using the MQMD message descriptors on the message or the first message in a group. If a message-to-file transfer fails and the message or group is left on the queue, the next time the monitor is triggered it might result in files being created that contain the wrong data.

### Related information:



```

        total="1">
<item mode="binary">
  <source>
    <queue>INPUT_QUEUE@QM1</queue>
  </source>
  <destination exist="error">
    <file>/home/user/output.file</file>
  </destination>
  <status resultCode="1">
    <supplement>Cancelling transfer - sent wrong data.</supplement>
  </status>
</item>
</transferSet>
</transaction>

```

### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

### Related tasks:

“Configuring an agent to perform message to file transfers” on page 242

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Transferring from a queue to a single file” on page 243

You can specify a WebSphere MQ queue as the source of a file transfer by using the `-sq` parameter with the `fteCreateTransfer` command.

“Example: Transferring a group of messages from a queue to a single file” on page 244

You can specify a single complete group on a WebSphere MQ queue as the source of a file transfer by using the `-sq` and `-sqgi` parameters with the `fteCreateTransfer` command.

“Example: Inserting a text delimiter before the data from each message” on page 245

When you are transferring in text mode from a source queue to a file, you can specify that a text delimiter is inserted before the data from individual messages by using the `-sq`, `-sqdt` and `-sqdp` parameters with the `fteCreateTransfer` command.

“Example: Inserting a binary delimiter after the data from each message” on page 246

When transferring in binary mode from a source queue to a file, you can specify that a binary delimiter is inserted after the data from individual messages by using the `-sq`, `-sqdb`, and `-sqdp` parameters with the `fteCreateTransfer` command.

“Monitoring a queue and using variable substitution” on page 219

You can monitor a queue and transfer messages from the monitored queue to a file using the `fteCreateMonitor` command. The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted in the task XML definition and used to define the transfer behavior.

### Related reference:

“WebSphere MQ message properties read from messages on source queues” on page 764

The agent reading messages from a source queue in a message to file transfer reads the WebSphere MQ message properties from the message. The value of these properties can be used to determine the behavior of a transfer.

---

## Listing WebSphere MQ File Transfer Edition agents

You can list the agents registered with a particular queue manager using the command line or the WebSphere MQ Explorer.

## About this task

To list agents using the command line, see `fteListAgents` command.

To list agents using the WebSphere MQ Explorer, in the Navigator view click **Agents** below the coordination queue manager name.

If an agent is not listed by the **fteListAgents** command or is not displayed in the WebSphere MQ Explorer, use the diagnosis flowchart in the following topic to locate and fix the problem: If your agent is not listed by the **fteListAgents** command.

### Related reference:

“`fteListAgents` (list the WebSphere MQ File Transfer Edition agents for a coordination queue manager)” on page 540

Use the **fteListAgents** command to list all of the WebSphere MQ File Transfer Edition agents that are registered with a particular coordination queue manager from the command line.

“Agent status values” on page 721

The **fteListAgents** and **fteShowAgentDetails** commands produce agent status information. There are several possible values for this status.

“`fteShowAgentDetails` (display WebSphere MQ File Transfer Edition agent details)” on page 563

Use the **fteShowAgentDetails** command to display the details of a particular WebSphere MQ File Transfer Edition agent. These are the details that are stored by its WebSphere MQ File Transfer Edition coordination queue manager.

---

## Stopping a WebSphere MQ File Transfer Edition agent

You can stop an agent from the command line. When you stop an agent, you are quiescing the agent and allowing the agent to complete its current file transfer before stopping. You can also specify the **-i** parameter at the command line to stop an agent immediately. When the agent has stopped, you cannot use that agent to transfer files until you restart it.

### Before you begin

If you want to check the names of the agents associated with a queue manager, you can list agents by using the WebSphere MQ Explorer or the command line, see `fteListAgents` command.

## About this task

To stop an agent from the command line, see `fteStopAgent`.

If you have configured your agent to run as a Windows service, running the **fteStopAgent** command also stops the Windows service. Alternatively, you can stop the agent by stopping the service by using the Windows Services tool. For more information, see the topic “Starting an agent as a Windows service” on page 191.

### Related tasks:

“Starting a WebSphere MQ File Transfer Edition agent” on page 188

Before you can use a WebSphere MQ File Transfer Edition agent for a file transfer, you must first start the agent.

### Related reference:

“fteStopAgent (stop a WebSphere MQ File Transfer Edition agent)” on page 570

Use the **fteStopAgent** command to either stop a WebSphere MQ File Transfer Edition agent in a controlled way or to stop an agent immediately if necessary using the **-i** parameter.

“Stopping an agent on z/OS”

If you are running a WebSphere MQ File Transfer Edition agent on z/OS as a started task from JCL, the agent accepts the z/OS operator commands **MODIFY** and **STOP**, in addition to the **fteStopAgent** command.

## Stopping an agent on z/OS

If you are running a WebSphere MQ File Transfer Edition agent on z/OS as a started task from JCL, the agent accepts the z/OS operator commands **MODIFY** and **STOP**, in addition to the **fteStopAgent** command.

### Controlled agent shutdown by using the z/OS MODIFY command (F)

The **MODIFY** command allows you to stop an agent in a controlled way as an alternative to the **fteStopAgent** command. The agent completes any transfers currently in progress but the agent does not start any new transfers.

For example:

```
F job_name,APPL=STOP
```

where *job\_name* is the job that the agent process is running under. See “Starting an agent on z/OS” on page 189 and Using WebSphere MQ File Transfer Edition commands from JCL for more information.

### Immediate agent shutdown by using the z/OS STOP command (P)

The **STOP** command is equivalent to an immediate stop by using the **fteStopAgent** command with the **-i** parameter. The agent is stopped immediately even if the agent is currently transferring a file.

For example:

```
P job_name
```

where *job\_name* is the job that the agent process is running under. See Starting an agent on z/OS and Using WebSphere MQ File Transfer Edition commands from JCL for more information.

---

## The protocol bridge

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

The protocol bridge is available as part of the Server component. You can have multiple dedicated agents on a single system running WebSphere MQ File Transfer Edition Server that connect to different file servers.

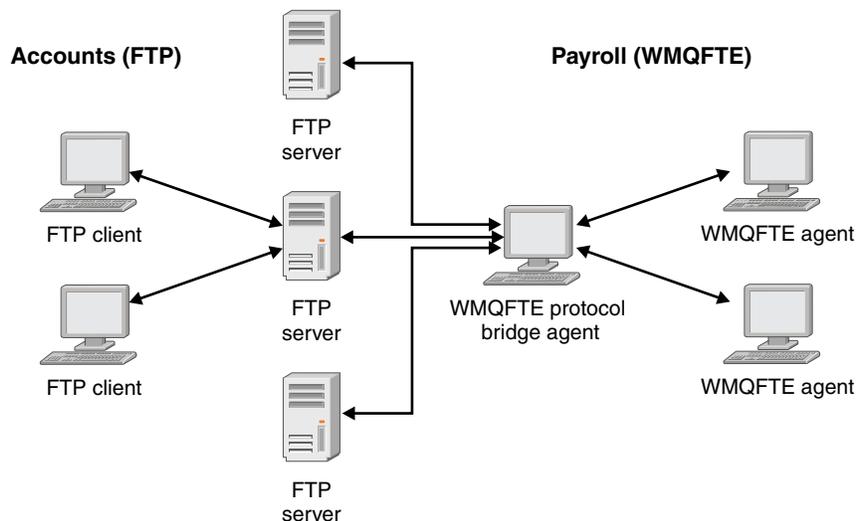
All agents involved in a transfer that includes a protocol file server must be at Version 7.0.1 or later. The protocol bridge agent must be at Version 7.0.2 or later. If the source agent is at Version 7.0.1 and the destination protocol bridge agent is at Version 7.0.2, the transfer log message generated by the source agent does not include the information that the destination agent is a protocol bridge agent.

If you enable the Version 7.0.4.1 function, you can use a protocol bridge agent to transfer files to multiple endpoints simultaneously. WMQFTE provides a file called `ProtocolBridgeProperties.xml` that you can edit to define the different protocol file servers that you want to transfer files to. The **fteCreateBridgeAgent** command adds the details of the default protocol file server to `ProtocolBridgeProperties.xml` for you. This file is described in “Protocol bridge properties file format” on page 626.

You can use the protocol bridge agent to perform the following actions:

- Upload files from the WMQFTE network to an FTP, FTPS, or SFTP server
- Download files from an FTP, FTPS, or SFTP server to the WMQFTE network

**Note:** The protocol bridge agent can support only FTP, FTPS, or SFTP servers that allow files to be accessed by their absolute file path. Those protocol servers that allow access to files based on the current directory are not supported by the protocol bridge agent.



The diagram shows a main FTP server that is located between the Accounts department, which uses FTP, and the Payroll department, which uses WebSphere MQ File Transfer Edition. The FTP server is used to exchange files between the two departments. The protocol bridge agent is between the FTP server and the rest of the WMQFTE network and is configured to communicate with three different FTP servers.

Ensure that you have another agent in your WMQFTE network in addition to the protocol bridge agent. The protocol bridge agent is a bridge to the FTP, FTPS, or SFTP server only and does not write transferred files to the local disk. If you want to transfer files to or from the FTP, FTPS, or SFTP server you must use the protocol bridge agent as the destination or source for the file transfer (representing the FTP, FTPS, or SFTP server) and another standard agent as the corresponding source or destination.

When you transfer files using the protocol bridge, the bridge must have permission to read the source or destination directory containing the files you want to transfer. For example, if you want to transfer files from the directory `/home/fte/bridge` that has execute permissions (`d--x--x--x`) only, any transfers you attempt from this directory fail with the following error message:

```
BFGBR0032E: Attempt to read filename from the protocol file server has failed with server error 550
Failed to open file.
```

## Configuring a protocol bridge agent

A protocol bridge agent is like a standard WMQFTE agent. Create a protocol bridge agent by using the **fteCreateBridgeAgent** command. If you have enabled the Version 7.0.4.1 function, you can configure a protocol bridge agent using the `ProtocolBridgeProperties.xml` file, which is described in “Protocol bridge properties file format” on page 626. If you are using an earlier version, configure the agent using the specific protocol bridge properties described in Advanced agent properties. For all versions, you can also configure a credential mapping as described in “Mapping credentials for a file server” on page 261. After you have configured a protocol bridge agent for a particular protocol file server, you can then use that agent for that purpose only.

## Protocol bridge recovery

If the protocol bridge agent is unable to connect to the file server because the file server is unavailable, all file transfer requests are queued until the file server becomes available. If the protocol bridge agent is unable to connect to the file server because the agent is using the wrong credentials, the transfer fails and the transfer log message reflects this error. If the protocol bridge agent is ended for any reason, all requested file transfers are retained and continue when the protocol bridge is restarted.

During file transfer, files are typically written as temporary files at the destination and are then renamed when the transfer is complete. However, if the transfer destination is a protocol file server that is configured as limited write (users can upload files to the protocol file server but cannot change those uploaded files in any way; effectively users can write once only), transferred files are written to the destination directly. This means that if a problem occurs during the transfer, the partially written files remain on the destination protocol file server and WebSphere MQ File Transfer Edition cannot delete or edit these files. In this situation, the transfer fails.

### Related tasks:

“Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server” on page 266

This example demonstrates how you can generate and configure the `ProtocolBridgeCredentials.xml` file. This example is a typical example and the details might vary according to your platform, but the principles remain the same.

“Defining properties for protocol file servers using the `ProtocolBridgeProperties.xml` file” on page 258  
Define the properties of one or more protocol file servers that you want to transfer files to and from using the `ProtocolBridgeProperties.xml` file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

### Related reference:

“`fteCreateBridgeAgent` (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481

The **`fteCreateBridgeAgent`** command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

“`ProtocolBridgeCredentialExit.java` interface” on page 1045

“Sample protocol bridge credential user exit” on page 366

“FTPS server support by the protocol bridge” on page 752

If you enable the Version 7.0.4.1 function, the protocol bridge supports a subset of the FTPS protocol as defined by RFC-2228, RFC-4217, and the Internet-Draft entitled *Secure FTP over SSL*.

### Related information:

“Mapping credentials for a file server” on page 261

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent or by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping.

## Upgrading a protocol bridge agent to use the V7.0.4.1 function

You can upgrade an existing protocol bridge agent that was created in V7.0.4 or earlier to use the new V7.0.4.1 function. This upgrade allows the agent to support multiple endpoints.

### About this task

To upgrade a protocol bridge agent, ensure you have enabled the new function for V7.0.4.1 and complete the following steps:

### Procedure

1. Generate a `ProtocolBridgeProperties.xml` file from the `ProtocolBridgeProperties.xsd` file in the `install_directory/samples/schema` directory.  
For more information about the content of the `ProtocolBridgeProperties.xml` file, see “Defining properties for protocol file servers using the `ProtocolBridgeProperties.xml` file” on page 258.
2. Put the generated `ProtocolBridgeProperties.xml` file into the `configuration_directory/coordination_queue_manager/agents/agent_name` directory.
3. Copy all protocol bridge properties for the agent you want to migrate from the `agent.properties` file to the `ProtocolBridgeProperties.xml` file. The properties that relate to the protocol bridge in the `agent.properties` file start with `protocol`.

You are recommended to delete the protocol bridge properties from the `agent.properties` file after you have successfully upgraded the protocol bridge agent. However, if you have a default protocol file server, consider keeping the protocol bridge properties in the `agent.properties` file in step with

the values in the `ProtocolBridgeProperties.xml` file. This means that if you choose to back out the V7.0.4.1 function, the values in the `agent.properties` file are not outdated.

4. Update the `ProtocolBridgeCredentials.xml` file so that it contains the required `<server>` elements for your protocol file servers. For more information about this file, see “Protocol bridge credentials file format” on page 622.

Ensure each protocol file server name meets the naming restrictions, that is, the name must be at least 2 characters in length, is not case sensitive, and is limited to alphanumeric characters and the following characters:

- period (.)
- underscore (\_)
- forward slash (/)
- percent sign (%)

#### **Related concepts:**

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

#### **Related tasks:**

“Backing out the V7.0.4.1 function on a protocol bridge agent”

If you have upgraded a protocol bridge agent from V7.0.4 or earlier to the new V7.0.4.1 function and want to back out the upgrade, you can return the agent to its original level of function. This means the agent returns to being able to transfer to a single endpoint only.

“Defining properties for protocol file servers using the `ProtocolBridgeProperties.xml` file” on page 258

Define the properties of one or more protocol file servers that you want to transfer files to and from using the `ProtocolBridgeProperties.xml` file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

### **Backing out the V7.0.4.1 function on a protocol bridge agent**

If you have upgraded a protocol bridge agent from V7.0.4 or earlier to the new V7.0.4.1 function and want to back out the upgrade, you can return the agent to its original level of function. This means the agent returns to being able to transfer to a single endpoint only.

#### **About this task**

To back out the V7.0.4.1 upgrade, complete the following steps:

#### **Procedure**

1. Move the protocol bridge properties from the `ProtocolBridgeProperties.xml` file for the agent you want to migrate to the `agent.properties` file. The agent properties file is located at `configuration_directory/coordination_queue_manager/agents/bridge_agent/agent.properties`. The protocol bridge properties are described in Protocol bridge properties.
2. Delete the `ProtocolBridgeProperties.xml` file from the `configuration_directory/coordination_qmgr/agents/agent_name` directory.

The properties in the `ProtocolBridgeProperties.xml` file always take precedence over the properties in the `agent.properties` file, so deleting `ProtocolBridgeProperties.xml` ensures this file is not used if you keep the V7.0.4.1 function enabled.

3. Update the `ProtocolBridgeCredentials.xml` file so that it has the required `<serverHost>` elements for your protocol file servers. For more information about this file, see “Protocol bridge credentials file format” on page 622.

## Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

## Related tasks:

“Upgrading a protocol bridge agent to use the V7.0.4.1 function” on page 256

You can upgrade an existing protocol bridge agent that was created in V7.0.4 or earlier to use the new V7.0.4.1 function. This upgrade allows the agent to support multiple endpoints.

“Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file”

Define the properties of one or more protocol file servers that you want to transfer files to and from using the ProtocolBridgeProperties.xml file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

## Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file

Define the properties of one or more protocol file servers that you want to transfer files to and from using the ProtocolBridgeProperties.xml file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

## About this task

The **fteCreateBridgeAgent** command creates the ProtocolBridgeProperties.xml file in the agent configuration directory *configuration\_directory/coordination\_queue\_manager/agents/bridge\_agent*. The command also creates an entry in the file for the default protocol file server, if a default was specified when the command was run.

If you want to add further non-default protocol servers, edit this file to define their properties. This example adds an additional FTP server.

## Procedure

1. Define a protocol file server by inserting the following lines into the file as a child element of `<tns:serverProperties>`:

```
<tns:ftpServer name="myserver" host="myhost.hursley.ibm.com" port="1234" platform="windows"
    timeZone="Europe/London" locale="en-GB" fileEncoding="UTF-8"
    listFormat="unix" limitedWrite="false" >
<tns:limits maxListFileNames="10" maxListDirectoryLevels="500"/>
```

2. Then change the value of the attributes:

- name is the name of your protocol file server
- host is the host name or IP address of the protocol file server
- port is the port number of the protocol file server
- platform is the platform that the protocol file server runs on
- timeZone is the time zone that the protocol file server runs in
- locale is the language used on the protocol file server
- fileEncoding is the character encoding of the protocol file server
- listFormat is the file listing format returned from the protocol file server
- limitedWrite determines whether to follow the default mode when writing to a file server, which is to create a temporary file and then rename that file when the transfer has completed. For a file server that is configured as write only, the file is created directly with its final name. The value of this property can be true or false.

- `maxListFileNames` is the maximum number of names collected when scanning a directory on the protocol file server for file names.
- `maxListDirectoryLevels` is the maximum number of directory levels to recurse when scanning a directory on the protocol file server for file names.

For more details about these attributes, including whether they are required or optional and their default values, see “Protocol bridge properties file format” on page 626.

**Related reference:**

“Protocol bridge properties file format” on page 626

The `ProtocolBridgeProperties.xml` file in the agent configuration directory defines properties for file protocol servers.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Looking up protocol file server properties by using exit classes

If you have a large number of protocol file servers and you have enabled the V7.0.4.1 function, you can implement the `com.ibm.wmqfte.exitroutine.api.ProtocolBridgePropertiesExit` interface to look up protocol file server properties that are referenced in transfers. You can implement this interface in preference to maintaining a `ProtocolBridgeProperties.xml` file. WebSphere MQ File Transfer Edition provides a sample user exit that looks up protocol file server properties.

## Configuring user exits that look up protocol bridge properties

### About this task

Any user exit that looks up protocol bridge properties must implement the interface `com.ibm.wmqfte.exitroutine.api.ProtocolBridgePropertiesExit`. For more information, see “ProtocolBridgePropertiesExit.java interface” on page 1048.

You can chain multiple protocol server properties exits together in a similar manner to other user exits. The exits are called in the order that they are specified in using the `protocolBridgePropertiesExitClasses` property in the agent properties file. The initialize methods all return separately and if one or more returns a value of false, the agent does not start. The error is reported in the agent event log.

Only one overall result is returned for the `getProtocolServerProperties` methods of all of the exits. If the method returns a properties object as the result code, this value is the returned result and the `getProtocolServerProperties` methods of the subsequent exits are not called. If the method returns a value of null as the result code, the `getProtocolServerProperties` method of the next exit is called. If there is no subsequent exit, the null result is returned. An overall result code of null is considered as a lookup failure by the protocol bridge agent.

To run your exit, complete the following steps:

### Procedure

1. Compile the protocol server properties user exit.
2. Create a Java archive (JAR) file containing the compiled exit and its package structure.
3. Put the JAR file containing the exit class in the `exits` directory of the protocol bridge agent. This directory is found in the `configuration_directory/coordination_queue_manager/agents/bridge_agent_name` directory.

4. Edit the property file of the protocol bridge agent to include the property `protocolBridgePropertiesExitClasses`. For the value of this property, specify a comma-separated list of classes that implement a protocol bridge server properties user exit. The exit classes are called in the order that they are specified in this list. For more information, see “The agent.properties file” on page 583.
5. You can optionally specify the `protocolBridgePropertiesConfiguration` property. The value you specify for this property is passed in as a `String` to the `initialize()` method of the exit classes specified by `protocolBridgePropertiesExitClasses`. For more information, see “The agent.properties file” on page 583.

## Using the sample user exit

### About this task

A sample user exit that looks up protocol bridge properties is provided in the `installation_directory/samples/protocolBridge` directory and in the topic “Sample protocol bridge properties user exit” on page 368.

The `SamplePropertiesExit.java` exit reads a properties file that contains properties for protocol servers. The format of each entry in the properties file is as follows:

```
serverName=type://host:port
```

The location of the properties file is taken from the protocol bridge agent property `protocolBridgePropertiesConfiguration`.

To run the sample user exit, complete the following steps:

### Procedure

1. Compile the `SamplePropertiesExit.java` file.
2. Create a JAR file containing the compiled exit and its package structure.
3. Put the JAR file in the `configuration_directory/coordination_queue_manager/agents/bridge_agent_name/exits` directory.
4. Edit the `configuration_directory/coordination_queue_manager/agents/bridge_agent_name/agent.properties` file to contain the line:  

```
protocolBridgePropertiesExitClasses=SamplePropertiesExit
```
5. Create a protocol bridge properties file, for example `protocol_bridge_properties.properties`, in the directory `configuration_directory/coordination_queue_manager/agents/bridge_agent`. Edit this file to include entries in the format:

```
serverName=type://host:port
```

6. Edit the `configuration_directory/coordination_queue_manager/agents/bridge_agent/agent.properties` file to contain the line:  

```
protocolBridgePropertiesConfiguration=configuration_directory/coordination_queue_manager/agents/bridge_agent/protocol_bridge_properties.properties
```

You must use the absolute path to the `protocol_bridge_properties.properties` file.

7. Start the protocol bridge agent by using the **fteStartAgent** command.

**Related concepts:**

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

**Related reference:**

“ProtocolBridgePropertiesExit.java interface” on page 1048

“Sample protocol bridge properties user exit” on page 368

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

“`fteCreateBridgeAgent` (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481

The `fteCreateBridgeAgent` command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

## Mapping credentials for a file server

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent or by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping.

**Related concepts:**

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

**Related tasks:**

“Mapping credentials for a file server using the `ProtocolBridgeCredentials.xml` file” on page 262

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

“Mapping credentials for a file server using exit classes” on page 264

If you do not want to use the default credential mapping function of the protocol bridge agent, you can map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping. If you configure credential mapping user exits, they take the place of the default credential mapping function.

“Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server” on page 266

This example demonstrates how you can generate and configure the `ProtocolBridgeCredentials.xml` file. This example is a typical example and the details might vary according to your platform, but the principles remain the same.

**Related reference:**

“ProtocolBridgeCredentialExit.java interface” on page 1045

“Sample protocol bridge credential user exit” on page 366

"The agent.properties file" on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Mapping credentials for a file server using the `ProtocolBridgeCredentials.xml` file

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

### About this task

The `fteCreateBridgeAgent` command creates the file `ProtocolBridgeCredentials.xml` in the agent configuration directory `configuration_directory/coordination_queue_manager/agents/bridge_agent_name`. Before you can use a protocol bridge agent, set up credential mapping by editing this file to include host, user, and credential information.

When you create the `ProtocolBridgeCredentials.xml` file on a z/OS platform, you must set a file tag before you edit the file. Run the following command to mark the file as having ASCII contents:

```
chtag -t -c ISO8859-1 ProtocolBridgeCredentials.xml
```

### Procedure

1.

- If you are using Version 7.0.4 or earlier, edit the line `<tns:serverHost name="file protocol server host">` to change the value of the name attribute to the host name or IP address of the system hosting the protocol file server. This value must be the same value that you specify for the `fteCreateBridgeAgent -bh` parameter.
- If you are using Version 7.0.4.1 or later with the new function enabled, edit the line `<tns:server name="server name">` to change the value of the name attribute to the server name in the `ProtocolBridgeProperties.xml` file. This value must be the same value that you specify for the `fteCreateBridgeAgent -bh` parameter.

Protocol bridge agents created for Version 7.0.4 and earlier do not have a `ProtocolBridgeProperties.xml` file (or related user exits), so for Version 7.0.4.1 and later the server name is automatically assigned the server's host name. Therefore, if you use an updated `ProtocolBridgeCredentials.xml` file with `<server>` entries, a name corresponding to the server's host name will match.

You can use the pattern attribute to specify that you have used a server name containing wildcards or regular expressions. For example,

```
<tns:server name="serverA*" pattern="wildcard">
```

2. Insert user ID and credential information into the file as child elements of `<tns:serverHost>` for Version 7.0.4 and earlier, and `<tns:server>` for Version 7.0.4.1 and later. You can insert one or many of the following elements into the file:

- If the protocol file server is an FTP, FTPS, or SFTP server you can use passwords to authenticate the user requesting the transfer. Insert the following lines into the file:

```
<tns:user name="FTE User ID" serverUserId="Server User ID" serverPassword="Server Password" >  
</tns:user>
```

Then change the value of the attributes.

- name is a Java regular expression to match the MQMD user ID associated with the WMQFTE transfer request
- serverUserId is the value passed to the protocol file server as the login user ID. If the serverUserId attribute is not specified, the MQMD user ID associated with the WMQFTE transfer request is used instead

– serverPassword is the password associated with the serverUserId.

The name attribute can contain a Java regular expression. The credential mapper attempts to match the MQMD user ID of the WMQFTE transfer request to this regular expression. The protocol bridge agent attempts to match the MQMD user ID to the regular expression in the name attribute of the <tns:user> elements in the order that the elements exist in the file. When a match has been found the protocol bridge agent does not look for additional matches. If a match is found, the corresponding serverUserId and serverPassword values are passed to the protocol file server as the login user ID and password. The MQMD user ID matches are case-sensitive.

- If the protocol file server is an SFTP server you can use public and private keys to authenticate the user requesting the transfer. Insert the following lines into the file and change the value of the attributes. The <tns:user> element can contain one or many <tns:privateKey> elements.

```
<tns:user name="FTE User ID" serverUserId="Server User ID" hostKey="Host Key">  
  <tns:privateKey associationName="association" keyPassword="Private key password">  
    Private key file text  </tns:privateKey>  
</tns:user>
```

– name is a Java regular expression to match the MQMD user ID associated with the WMQFTE transfer request

– serverUserId is the value passed to the protocol file server as the login user ID. If the serverUserId attribute is not specified, the MQMD user ID associated with the WMQFTE transfer request is used instead

– hostKey is the expected key returned from the server when logging on

– key is the private key of the serverUserId

– keyPassword is the password for the key to generate public keys

– associationName is a value used to identify for trace and logging purposes

The name attribute can contain a Java regular expression. The credential mapper attempts to match the MQMD user ID of the WMQFTE transfer request to this regular expression. The protocol bridge agent attempts to match the MQMD user ID to the regular expression in the name attribute of the <tns:user> elements in the order that the elements exist in the file. When a match has been found the protocol bridge agent does not look for additional matches. If a match is found, the corresponding serverUserId and key values are used to authenticate the WMQFTE user with the protocol file server. The MQMD user ID matches are case-sensitive.

For more information about using private keys with a protocol bridge agent, see “Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server” on page 266.

**Note:**

When the transfer request is written to the command queue, the MQMD user ID might be converted to uppercase if the source agent command queue is on a z/OS or IBM i system. As a result the MQMD user ID for the same originating user might arrive at the credentials exit in the original case or converted to uppercase depending on the source agent specified in the transfer request. The default credential mapping exit performs case-sensitive matches against the supplied MQMD user ID, which you might need to allow for in the mapping file.

### Related reference:

“Protocol bridge credentials file format” on page 622

The `ProtocolBridgeCredentials.xml` file in the agent configuration directory defines the user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server.

“Protocol bridge properties file format” on page 626

The `ProtocolBridgeProperties.xml` file in the agent configuration directory defines properties for file protocol servers.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Mapping credentials for a file server using exit classes

If you do not want to use the default credential mapping function of the protocol bridge agent, you can map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping. If you configure credential mapping user exits, they take the place of the default credential mapping function.

### Configuring protocol bridge credential user exits:

#### About this task

A user exit for mapping protocol bridge credentials must implement one of the following interfaces:

- `com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit`, which allows a protocol bridge agent to transfer files to and from one default protocol file server
- `com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit2`, which allows you to transfer files to and from multiple endpoints if you have enabled the Version 7.0.4.1 function

The `com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit2` interface contains the same function as `com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit` and also includes extended function. For more information, see “`ProtocolBridgeCredentialExit.java` interface” on page 1045 and “`ProtocolBridgeCredentialExit2.java` interface” on page 1047.

The credential exits can be chained together in a similar manner to other user exits. The exits are called in the order that they are specified in using the `protocolBridgeCredentialConfiguration` property in the agent properties file. The initialize methods all return separately and if one or more returns a value of false, the agent does not start. The error is reported in the agent event log.

Only one overall result is returned for the `mapMQUserId` methods of all of the exits as follows:

- If the method returns a value of `USER_SUCCESSFULLY_MAPPED` or `USER_DENIED_ACCESS` as the result code, this value is the returned result and the `mapMQUserId` methods of the subsequent exits are not called.
- If the method returns a value of `NO_MAPPING_FOUND` as the result code, the `mapMQUserId` method of the next exit is called.
- If there is no subsequent exit, the `NO_MAPPING_FOUND` result is returned.
- An overall result code of `USER_DENIED_ACCESS` or `NO_MAPPING_FOUND` is considered as a transfer failure by the bridge agent.

To run your exit, complete the following steps:

## Procedure

1. Compile the protocol bridge credential user exit.
2. Create a Java archive (JAR) file containing the compiled exit and its package structure.
3. Place the JAR file containing the exit class in the `exits` directory of the bridge agent. This directory is in the `configuration_directory/coordination_queue_manager/agents/bridge_agent_name` directory.
4. Edit the property file of the protocol bridge agent to include the property `protocolBridgeCredentialExitClasses`. For the value of this property, specify a comma-separated list of classes that implement a protocol bridge credential exit routine. The exit classes are called in the order that they are specified in this list. For more information, see “The agent.properties file” on page 583.
5. You can optionally specify the `protocolBridgeCredentialConfiguration` property. The value you specify for this property is passed in as a String object to the `initialize()` method of the exit classes specified by `protocolBridgeCredentialExitClasses`. For more information, see “The agent.properties file” on page 583.
6. Start the protocol bridge agent with the **fteStartAgent** command.

## Using the sample user exit:

### About this task

A sample protocol bridge credential exit is provided in the `installation_directory/samples/protocolBridge` directory and in the topic “Sample protocol bridge credential user exit” on page 366. This sample is based on the `com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit` interface.

The `SampleCredentialExit.java` exit reads a properties file that maps the MQMD user IDs associated with transfer requests to server user IDs and server passwords. The location of the properties file is taken from the protocol bridge agent property `protocolBridgeCredentialConfiguration`.

To run the sample user exit, complete the following steps:

## Procedure

1. Compile the `SampleCredentialExit.java` file.
2. Create a JAR file containing the compiled exit and its package structure.
3. Place the JAR file in the `configuration_directory/coordination_queue_manager/agents/bridge_agent/exits` directory.
4. Edit the `configuration_directory/coordination_queue_manager/agents/bridge_agent_name/agent.properties` file to contain the line:  
`protocolBridgeCredentialExitClasses=SampleCredentialExit`
5. Create a credential properties file (`credentials.properties`) in the directory `configuration_directory/coordination_queue_manager/agents/bridge_agent` and edit it to include entries in the format:  
`mqUserId=serverUserId,serverPassword`
6. Edit the `configuration_directory/coordination_queue_manager/agents/bridge_agent_name/agent.properties` file to contain the line:  
`protocolBridgeCredentialConfiguration=configuration_directory/coordination_queue_manager/agents/bridge_agent/credentials.properties`

You must use the absolute path to the `credentials.properties` file.

7. Start the protocol bridge agent by using the **fteStartAgent** command.

## Related concepts:

"The protocol bridge" on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

## Related reference:

"ProtocolBridgeCredentialExit.java interface" on page 1045

"ProtocolBridgeCredentialExit2.java interface" on page 1047

"Sample protocol bridge credential user exit" on page 366

"The agent.properties file" on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

"`fteCreateBridgeAgent` (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)" on page 481

The `fteCreateBridgeAgent` command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

## Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server

This example demonstrates how you can generate and configure the `ProtocolBridgeCredentials.xml` file. This example is a typical example and the details might vary according to your platform, but the principles remain the same.

### About this task

#### Procedure

1. On the SFTP client, log on with the login ID to be passed to the SFTP server by the protocol bridge agent and run the `ssh-keygen` command to create a public/private key sequence. Supply a pass phrase when asked for one. The `ssh-keygen` command generates the following two files: `id_rsa` and `id_rsa.pub`. If you need DSA format, use `-t dsa` when you run the `ssh-keygen` command
2. Copy the contents of the `id_rsa.pub` file into the `~/ssh/authorized_keys` file of the SFTP user on the SFTP server. Ensure that the SFTP file server process has read access to this file.
3. Run the following command to obtain the host ssh fingerprint of the SFTP server: `ssh-keygen -l -f /etc/ssh/ssh_host_rsa_key.pub`
4. On the protocol bridge agent system, edit the `ProtocolBridgeCredentials.xml` file in the agent properties directory. Substitute the values shown in italics in the following example with your own values:

```
<tns:credentials xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeCredentials"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://wmqfte.ibm.com/ProtocolBridgeCredentials ProtocolBridgeCredentials.xsd ">

  <tns:serverHost name="SFTP_host_name">

    <tns:user name="mq_User_ID" serverUserId="SFTP_user_ID" hostKey="ssh_host_finger">
    <tns:privateKey associationName="name" keyPassword="pass_phrase">
      Complete contents of the id_rsa file including the entries
      -----BEGIN RSA PRIVATE KEY-----

      -----END RSA PRIVATE KEY-----
```

```
</tns:privateKey>
</tns:user>

</tns:serverHost>
</tns:credentials>
```

where:

- *SFTP\_host\_name* is the name of the SFTP server as shown in the `agent.properties` file.
- *mq\_User\_ID* is the MQMD user ID associated with the transfer request.
- *SFTP\_user\_ID* is the SFTP user ID as used in step 2. It is the value passed to the SFTP server as the login user ID.
- *ssh\_host\_finger* is the fingerprint collected in step 3.
- *name* is a name that you can specify to be used for trace and logging purposes.
- *pass\_phrase* is the pass phrase you provided in the `ssh-keygen` in step 1.
- *Complete contents of the id\_rsa file* is the complete contents of the generated `id_rsa` file from step 1. To prevent a connection error, ensure that you include both of the following entries:

```
-----BEGIN RSA PRIVATE KEY-----
-----END RSA PRIVATE KEY-----
```

You can add additional keys by duplicating the `<tns:privatekey>` element.

5. Start the protocol bridge agent if the agent is not already started. Alternatively, the protocol bridge agent periodically polls the `ProtocolBridgeCredentials.xml` file and pick up the changes.

#### Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

#### Related reference:

“Protocol bridge credentials file format” on page 622

The `ProtocolBridgeCredentials.xml` file in the agent configuration directory defines the user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server.

“`fteCreateBridgeAgent` (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481

The `fteCreateBridgeAgent` command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

#### Related information:

“Mapping credentials for a file server” on page 261

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent or by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping.

## Configuring a protocol bridge for an FTPS server

Configure an FTPS server in a similar way as you configure an FTP server: create a bridge agent for the server, define the server properties, and map user credentials.

## About this task

To configure an FTPS server, complete the following steps:

### Procedure

1. Create a protocol bridge agent for the FTPS server using the **fteCreateBridgeAgent** command. The parameters that are applicable to FTP are also applicable to FTPS but there are also three required parameters specific to FTPS:
  - a. The **-bt** parameter. Specify FTPS as the value of this parameter.
  - b. The **-bts** parameter for the truststore file and the **-btsp** parameter for the truststore password. The command assumes that only server authentication is required and you must specify the location of the truststore file and the password.

The explicit form of the FTPS protocol is configured by the **fteCreateBridgeAgent** command by default but you can configure the implicit form by changing the protocol bridge properties file. The protocol bridge always connects to FTPS servers in passive mode.

For more information about the **fteCreateBridgeAgent** command, see “fteCreateBridgeAgent (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481.

2. Define the FTPS server properties within an <ftpsServer> element in the protocol bridge properties file: ProtocolBridgeProperties.xml. For more information, see “Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file” on page 258. You can also enable client authentication by editing the protocol bridge properties file. For details of all the configuration options, see “Protocol bridge properties file format” on page 626.
3. Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the FTPS server either by using the default credential mapping function of the protocol bridge agent or by writing your own user exit. For more information, see “Mapping credentials for a file server” on page 261.
4. By default, the truststore file is configured as having the JKS format; if you want to change the format, edit the protocol bridge properties file.

### Example

An example entry for an FTPS server in the protocol bridge properties file is shown below:

```
<tns:serverProperties xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeProperties"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/ProtocolBridgeProperties
  ProtocolBridgeProperties.xsd">
  <tns:defaultServer name="ftpsserver.mycompany.com" />

  <tns:ftpsServer name="ftpsserver.mycompany.com" host="ftpsserver.mycompany.com" port="990" platform="Windows"
    timeZone="Europe/London" locale="en_US" fileEncoding="UTF8"
    listFormat="unix" limitedWrite="false"
    trustStore="c:\mydirec\truststore.jks" trustStorePassword="password" />

  <!-- Define servers here -->
</tns:serverProperties>
```

### What to do next

For information about the parts of the FTPS protocol that are supported and which are not supported, see “FTPS server support by the protocol bridge” on page 752.

### Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

### Related tasks:

“Mapping credentials for a file server using the ProtocolBridgeCredentials.xml file” on page 262

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

“Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file” on page 258

Define the properties of one or more protocol file servers that you want to transfer files to and from using the ProtocolBridgeProperties.xml file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

### Related reference:

“fteCreateBridgeAgent (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481

The **fteCreateBridgeAgent** command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

“Protocol bridge credentials file format” on page 622

The ProtocolBridgeCredentials.xml file in the agent configuration directory defines the user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server.

“Protocol bridge properties file format” on page 626

The ProtocolBridgeProperties.xml file in the agent configuration directory defines properties for file protocol servers.

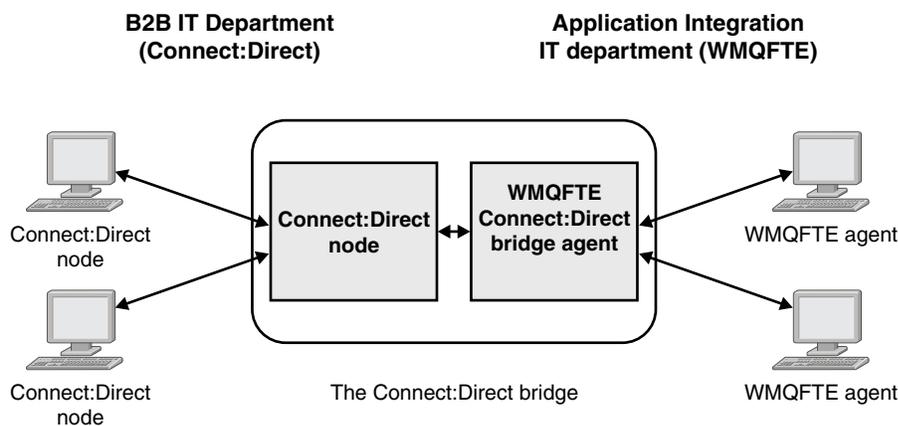
“FTPS server support by the protocol bridge” on page 752

If you enable the Version 7.0.4.1 function, the protocol bridge supports a subset of the FTPS protocol as defined by RFC-2228, RFC-4217, and the Internet-Draft entitled *Secure FTP over SSL*.

---

## The Connect:Direct bridge

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.



The diagram shows a WMQFTE Connect:Direct bridge between two departments, the B2B IT department and the Application Integration IT department. The B2B IT department uses Connect:Direct to transfer files to and from the company's business partners. The Application Integration IT department uses WebSphere MQ as its messaging infrastructure and so has recently chosen WebSphere MQ File Transfer Edition as its file transfer solution.

Using the WMQFTE Connect:Direct bridge, the two departments can transfer files between the Connect:Direct network in the B2B IT department and the WMQFTE network in the Application Integration IT department. The Connect:Direct bridge is a component of WebSphere MQ File Transfer Edition, which includes a WMQFTE agent that communicates with a Connect:Direct node. The WMQFTE agent is dedicated to transfers with the Connect:Direct node, and is known as the Connect:Direct bridge agent.

The Connect:Direct bridge is available as part of the Server and Client components of WebSphere MQ File Transfer Edition, and can be used for the following tasks:

1. Use WMQFTE commands to initiate a transfer of a file, or multiple files, from a WMQFTE agent to a Connect:Direct node.
2. Use WMQFTE commands to initiate a transfer of a file, or multiple files, from a Connect:Direct node to a WMQFTE agent.
3. Use WMQFTE commands to initiate a file transfer that starts a user-defined Connect:Direct process.
4. Use Connect:Direct process to submit a WMQFTE file transfer request.

A Connect:Direct bridge can transfer files to or from only Connect:Direct nodes. The Connect:Direct bridge can transfer files to or from its local file system only as part of a transfer submitted by a Connect:Direct process.

You can use the Connect:Direct bridge to transfer to or from a data set that is located on a Connect:Direct node on a z/OS system. There are some differences in behavior compared to data set transfers that only involve WebSphere MQ File Transfer Edition agents. For more information, see "Transferring data sets to and from Connect:Direct nodes" on page 726.

## Supported platforms

The Connect:Direct bridge is made up of a WMQFTE Connect:Direct bridge agent and a Connect:Direct node. The agent is supported on Windows and Linux for System x. The node is supported on the platforms that are supported for IBM Sterling Connect:Direct for Windows and IBM Sterling Connect:Direct for UNIX. For instructions on creating the Connect:Direct bridge agent and configuring a Connect:Direct node for the agent to communicate with, see "Configuring the Connect:Direct bridge" on page 176.

The Connect:Direct bridge can transfer files to and from Connect:Direct nodes that are running as part of a Connect:Direct for Windows, Connect:Direct for UNIX, or Connect:Direct for z/OS server installation. For details of the versions of Connect:Direct that are supported, see the web page WebSphere MQ File Transfer Edition System Requirements.

The agent and node that make up the Connect:Direct bridge must be on the same system, or have access to the same file system, for example through a shared NFS mount. This file system is used to temporarily store files during file transfers that involve the Connect:Direct bridge, in a directory defined by the **cdTmpDir** parameter. The Connect:Direct bridge agent and the Connect:Direct bridge node must be able to address this directory using the same path name. For example, if the agent and node are on separate Windows systems, the systems must use the same drive letter to mount the shared file system. The following configurations allow the agent and the node to use the same path name:

- The agent and node are on the same system, which is either running Windows or Linux for System x
- The agent is on Linux for System x, and the node is on UNIX
- The agent is on one Windows system, and the node is on another Windows system

The following configurations do not allow the agent and the node to use the same path name:

- The agent is on Linux for System x, and the node is on Windows
- The agent is on Windows, and the node is on UNIX

Consider this restriction when planning your installation of the Connect:Direct bridge.

#### **Related concepts:**

“Recovery and restart for transfers to and from Connect:Direct nodes” on page 279

WebSphere MQ File Transfer Edition might be unable to connect to your IBM Sterling Connect:Direct node during a transfer; for example, if the node becomes unavailable. Either WebSphere MQ File Transfer Edition attempts to recover the transfer, or the transfer fails and an error message is produced.

“Submitting a user-defined Connect:Direct process from a file transfer request” on page 280

You can submit a transfer request for a transfer that goes through the Connect:Direct bridge agent that calls a user-defined Connect:Direct process as part of the file transfer.

“Using Connect:Direct processes to submit WebSphere MQ File Transfer Edition transfer requests” on page 285

You can submit a transfer request to the Connect:Direct bridge agent from a Connect:Direct process.

WebSphere MQ File Transfer Edition provides commands that can be called from a **RUN TASK** statement in a Connect:Direct process.

“Troubleshooting the Connect:Direct bridge” on page 431

Use the following reference information and examples to help you diagnose errors returned from the Connect:Direct bridge.

#### **Related tasks:**

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

“Transferring a file to a Connect:Direct node” on page 272

You can transfer a file from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node using the Connect:Direct bridge. Specify a Connect:Direct node as the destination of the transfer by specifying the Connect:Direct bridge agent as the destination agent and specifying the destination file in the form *connect\_direct\_node\_name:file\_path*.

“Transferring a file from a Connect:Direct node” on page 273

You can transfer a file from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the transfer by specifying the Connect:Direct bridge agent as the source agent and specifying the source specification in the form *connect\_direct\_node\_name:file\_path*.

“Transferring multiple files to a Connect:Direct node” on page 275

You can transfer multiple files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node by using the Connect:Direct bridge. To use a Connect:Direct node as the destination of the multiple file transfer, specify the Connect:Direct bridge agent as the destination agent and specify the destination directory in the form *connect\_direct\_node\_name:directory\_path*.

“Transferring multiple files from a Connect:Direct node” on page 276

You can transfer multiple files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the multiple file transfer by specifying the Connect:Direct bridge agent as the source agent and specifying one or more source specifications in the form *connect\_direct\_node\_name:file\_path*.

“Transferring multiple files to Connect:Direct by using wildcards” on page 277

To transfer multiple files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, use the Connect:Direct bridge. You can use wildcard characters in the source specification that you provide to the **ftcCreateTransfer** command. As with all WebSphere MQ File Transfer Edition transfers involving wildcards, only the last part of the file path can contain a wildcard character. For example, */abc/def\** is a valid file path and */abc\*/def* is not valid.

### Related reference:

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“Restrictions of the Connect:Direct bridge agent” on page 751

The Connect:Direct bridge agent is configured to transfer files to and from Connect:Direct nodes. There are some functions that the Connect:Direct bridge agent is not capable of performing.

## Transferring a file to a Connect:Direct node

You can transfer a file from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node using the Connect:Direct bridge. Specify a Connect:Direct node as the destination of the transfer by specifying the Connect:Direct bridge agent as the destination agent and specifying the destination file in the form *connect\_direct\_node\_name:file\_path*.

### Before you begin

Before transferring a file, you must configure the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition. For more information, see “Configuring the Connect:Direct bridge” on page 176.

### About this task

In this example, the Connect:Direct bridge agent is called CD\_BRIDGE and is version 7.0.4 or later. The source agent is called FTE\_AGENT and can be any version of WMQFTE. The destination Connect:Direct node is called CD\_NODE1. The file to be transferred is located at the file path /home/helen/file.log on the system where FTE\_AGENT is located. The file is transferred to the file path /files/data.log on the system where CD\_NODE1 is running.

### Procedure

1. Use the fteCreateTransfer command with the value for the **-df** (destination file) parameter in the form *connect\_direct\_node\_name:file\_path* and the value of the **-da** (destination agent) parameter specified as the name of the Connect:Direct bridge agent.

**Note:** The Connect:Direct node specified by *connect\_direct\_node\_name* is the node that you want the file to be transferred to, not the Connect:Direct node that operates as part of the Connect:Direct bridge.

```
fteCreateTransfer -sa FTE_AGENT -da CD_BRIDGE  
-df CD_NODE1:/files/data.log /home/helen/file.log
```

For more information, see “fteCreateTransfer (create new file transfer)” on page 509.

2. The source agent FTE\_AGENT transfers the file to the Connect:Direct bridge agent CD\_BRIDGE. The file is temporarily stored on the system where the Connect:Direct bridge agent is running, in the location defined by the cdTmpDir agent property. The Connect:Direct bridge agent transfers the file to the Connect:Direct node CD\_NODE1.

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related tasks:

“Transferring a file from a Connect:Direct node”

You can transfer a file from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the transfer by specifying the Connect:Direct bridge agent as the source agent and specifying the source specification in the form *connect\_direct\_node\_name:file\_path*.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, *agent.properties*, that must contain the information that an agent uses to connect to its queue manager. The *agent.properties* file can also contain properties that alter the behavior of the agent.

## Transferring a file from a Connect:Direct node

You can transfer a file from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the transfer by specifying the Connect:Direct bridge agent as the source agent and specifying the source specification in the form *connect\_direct\_node\_name:file\_path*.

### Before you begin

Before transferring a file, you must configure the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition. See “Configuring the Connect:Direct bridge” on page 176.

### About this task

In this example, the Connect:Direct bridge agent is called *CD\_BRIDGE*. The Connect:Direct bridge agent must be version 7.0.4 or later. The destination agent is called *FTE\_AGENT* and can be any version of WMQFTE. The source Connect:Direct node is called *CD\_NODE1*. The file to be transferred is located at the file path */home/brian/in.file* on the system where *CD\_NODE1* is located. The file is transferred to the file path */files/out.file* on the system where *FTE\_AGENT* is running.

### Procedure

Use the **fteCreateTransfer** command with the value for the source specification in the form *connect\_direct\_node\_name:file\_path* and the value of the **-sa** parameter specified as the name of the Connect:Direct bridge agent.

**Note:** The Connect:Direct node specified by *connect\_direct\_node\_name* is the node that you want the file to be transferred from, not the Connect:Direct node that operates as part of the Connect:Direct bridge. For example:

```
fteCreateTransfer -sa CD_BRIDGE -da FTE_AGENT
                 -df /files/out.file CD_NODE1:/home/brian/in.file
```

For more information, see “**fteCreateTransfer** (create new file transfer)” on page 509.

### Results

The Connect:Direct bridge agent *CD\_BRIDGE* requests the file from the Connect:Direct node *CD\_NODE1*. The Connect:Direct node sends the file to the Connect:Direct bridge. While the file is being transferred

from the Connect:Direct node, the Connect:Direct bridge stores the file temporarily in the location defined by the `cdTmpDir` agent property. When the file has finished transferring from the Connect:Direct node to the Connect:Direct bridge, the Connect:Direct bridge then sends the file to the destination agent FTE\_AGENT and deletes the file from the temporary location.

#### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

#### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Transferring a data set to a Connect:Direct node on z/OS

You can transfer a data set from a WebSphere MQ File Transfer Edition agent on z/OS to a Connect:Direct node on z/OS by using a Connect:Direct bridge that is located on a Windows or Linux system.

### Before you begin

Before transferring a file, you must configure the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition. See “Configuring the Connect:Direct bridge” on page 176.

### About this task

In this example, the parameter `-df` is used to specify the destination of the transfer. The parameter `-df` is valid for use when the source agent of the transfer is any version of WebSphere MQ File Transfer Edition. If the source agent is v7.0.4 or later, you can use the `-ds` parameter instead. The source agent is called FTE\_ZOS1 and is a v7.0.3 agent. The Connect:Direct bridge agent is called CD\_BRIDGE and is located on a Linux system. The destination Connect:Direct node is called CD\_ZOS2. Both the source agent and the destination Connect:Direct node are located on z/OS systems. The data set to be transferred is located at `//FTEUSER.SOURCE.LIB` on the system where FTE\_ZOS1 is located. The data set is transferred to the data set `//CDUSER.DEST.LIB` on the system where CD\_ZOS2 is located.

### Procedure

1. Use the `fteCreateTransfer` command with the value for the `-df` parameter in the form: `connect_direct_node_name:data_set_name;attributes` and the value of the `-da` (destination agent) parameter specified as the name of the Connect:Direct bridge agent.

The Connect:Direct node specified by `connect_direct_node_name` is the node that you want the data set to be transferred to, not the Connect:Direct node that operates as part of the Connect:Direct bridge.

The data set name specified by `data_set_name` must be absolute, not relative. Connect:Direct does not prefix the data set name with the name of the user.

```
fteCreateTransfer -sa FTE_ZOS1 -sm QM_ZOS
                 -da CD_BRIDGE -dm QM_BRIDGE
                 -df CD_ZOS2:/'CDUSER.DEST.LIB;BLKSIZE(8000);LRECL(80)'
                 //'FTEUSER.SOURCE.LIB'
```

For more information, see “`fteCreateTransfer` (create new file transfer)” on page 509.

2. The source agent FTE\_ZOS1 transfers the data in the data set to the Connect:Direct bridge agent CD\_BRIDGE. The data is temporarily stored as a flat file on the system where the Connect:Direct bridge agent is running, in the location defined by the `cdTmpDir` agent property. The Connect:Direct

bridge agent transfers the data to the Connect:Direct node CD\_ZOS2. When the transfer is complete, the flat file is deleted from the system where the Connect:Direct bridge agent is running.

#### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

#### Related reference:

“Transferring data sets to and from Connect:Direct nodes” on page 726

You can transfer data sets between WebSphere MQ File Transfer Edition agents and IBM Sterling Connect:Direct nodes using the Connect:Direct bridge. You can specify a data set as the transfer source, transfer destination, or both.

“Mappings between Connect:Direct process statement parameters and BPXWDYN keys” on page 728

When you submit a transfer request for a data set where either the source or destination is a Connect:Direct node, any supported BPXWDYN keys that you provide are converted to a format that is accepted by Connect:Direct processes.

## Transferring multiple files to a Connect:Direct node

You can transfer multiple files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node by using the Connect:Direct bridge. To use a Connect:Direct node as the destination of the multiple file transfer, specify the Connect:Direct bridge agent as the destination agent and specify the destination directory in the form *connect\_direct\_node\_name:directory\_path*.

### Before you begin

Before transferring files, you must configure the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition. See “Configuring the Connect:Direct bridge” on page 176.

### About this task

In this example, the source agent is called FTE\_AGENT. The Connect:Direct bridge agent is called CD\_BRIDGE. The destination Connect:Direct node is called CD\_NODE1. The files to be transferred are /home/jack/data.log, /logs/log1.txt, and /results/latest on the system where FTE\_AGENT is located. The files are transferred to the directory /in/files on the system where CD\_NODE1 is running.

### Procedure

Use the `fteCreateTransfer` command with the value for the `-dd` (destination directory) parameter in the form *connect\_direct\_node\_name:directory\_path*. Specify the value of the `-da` (destination agent) parameter as the name of the Connect:Direct bridge agent.

**Note:** The Connect:Direct node specified by *connect\_direct\_node\_name* is the node that you want the files to be transferred to, not the Connect:Direct node that operates as part of the Connect:Direct bridge.

```
fteCreateTransfer -sa FTE_AGENT -da CD_BRIDGE
                  -dd CD_NODE1:/in/files /home/jack/data.log
                  /logs/log1.txt /results/latest
```

For more information, see “`fteCreateTransfer` (create new file transfer)” on page 509.

### Results

The source agent FTE\_AGENT transfers the first file to the Connect:Direct bridge agent CD\_BRIDGE. The Connect:Direct bridge agent temporarily stores the file in the location defined by the `cdTmpDir` property. When the file has been completely transferred from the source agent to the Connect:Direct bridge, the

Connect:Direct bridge agent sends the file to the Connect:Direct node that is defined by the cdNode agent property. This node sends the file to the destination Connect:Direct node CD\_NODE1. The Connect:Direct bridge agent deletes the file from the temporary location when the transfer between the two Connect:Direct nodes is complete. This process is repeated for each specified source file.

#### **Related concepts:**

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

#### **Related tasks:**

“Transferring a file to a Connect:Direct node” on page 272

You can transfer a file from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node using the Connect:Direct bridge. Specify a Connect:Direct node as the destination of the transfer by specifying the Connect:Direct bridge agent as the destination agent and specifying the destination file in the form *connect\_direct\_node\_name:file\_path*.

“Transferring multiple files to Connect:Direct by using wildcards” on page 277

To transfer multiple files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, use the Connect:Direct bridge. You can use wildcard characters in the source specification that you provide to the **fteCreateTransfer** command. As with all WebSphere MQ File Transfer Edition transfers involving wildcards, only the last part of the file path can contain a wildcard character. For example, */abc/def\** is a valid file path and */abc\*/def* is not valid.

“Transferring a file from a Connect:Direct node” on page 273

You can transfer a file from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the transfer by specifying the Connect:Direct bridge agent as the source agent and specifying the source specification in the form *connect\_direct\_node\_name:file\_path*.

“Transferring multiple files from a Connect:Direct node”

You can transfer multiple files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the multiple file transfer by specifying the Connect:Direct bridge agent as the source agent and specifying one or more source specifications in the form *connect\_direct\_node\_name:file\_path*.

#### **Related reference:**

“The agent.properties file” on page 583

Each agent has its own properties file, *agent.properties*, that must contain the information that an agent uses to connect to its queue manager. The *agent.properties* file can also contain properties that alter the behavior of the agent.

## **Transferring multiple files from a Connect:Direct node**

You can transfer multiple files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the multiple file transfer by specifying the Connect:Direct bridge agent as the source agent and specifying one or more source specifications in the form *connect\_direct\_node\_name:file\_path*.

### **Before you begin**

Before transferring a file, you must configure the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition. See “Configuring the Connect:Direct bridge” on page 176.

### **About this task**

In this example, the Connect:Direct bridge agent is called CD\_BRIDGE. The destination agent is called FTE\_Z, and is running on a z/OS system. The source Connect:Direct node is called CD\_NODE1. The files to be transferred are located at the file paths */in/file1*, */in/file2*, and */in/file3* on the system where

CD\_NODE1 is located. The files are transferred to the partitioned data set //OBJECT.LIB on the system where FTE\_Z is running.

## Procedure

Use the `fteCreateTransfer` command with the values for the source specifications in the form `connect_direct_node_name:file_path` and the value of the `-sa` parameter specified as the name of the Connect:Direct bridge agent.

**Note:** The Connect:Direct node specified by `connect_direct_node_name` is the node that you want the files to be transferred from, not the Connect:Direct node that operates as part of the Connect:Direct bridge.

```
fteCreateTransfer -sa CD_BRIDGE -da FTE_Z
                  -dp //OBJECT.LIB' CD_NODE1:/in/file1
                  CD_NODE1:/in/file2 CD_NODE1:/in/file3
```

For more information, see “`fteCreateTransfer` (create new file transfer)” on page 509.

## Results

The Connect:Direct bridge agent CD\_BRIDGE requests the first file from the Connect:Direct node CD\_NODE1. The Connect:Direct node sends the file to the Connect:Direct bridge. While the file is being transferred from the Connect:Direct node, the Connect:Direct bridge stores the file temporarily in the location defined by the `cdTmpDir` agent property. When the file has finished transferring from the Connect:Direct node to the Connect:Direct bridge, the Connect:Direct bridge sends the file to the destination agent FTE\_Z and then deletes the file from the temporary location. This process is repeated for each specified source file.

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Transferring multiple files to Connect:Direct by using wildcards

To transfer multiple files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, use the Connect:Direct bridge. You can use wildcard characters in the source specification that you provide to the `fteCreateTransfer` command. As with all WebSphere MQ File Transfer Edition transfers involving wildcards, only the last part of the file path can contain a wildcard character. For example, `/abc/def*` is a valid file path and `/abc*/def` is not valid.

## Before you begin

Before transferring a file, you must configure the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition. For more information, see “Configuring the Connect:Direct bridge” on page 176.

## About this task

In this example, the source agent is called FTE\_AGENT and the Connect:Direct bridge agent is called CD\_BRIDGE. The destination Connect:Direct node is called CD\_NODE1. The files to be transferred are

located in the directory /reports on the system where FTE\_AGENT is located. Only files with names that start with report, followed by two characters and the suffix .log, are transferred. For example, the file /reports/report01.log is transferred, but the file /reports/report1.log is not transferred. The files are transferred to the directory /home/fred on the system where CD\_NODE1 is running.

## Procedure

1. Use the `fteCreateTransfer` command with the value for the `-dd` (destination directory) parameter in the form `connect_direct_node_name:directory_path`. For the `-da` (destination agent) parameter, specify the Connect:Direct bridge agent.

**Note:** The Connect:Direct node specified by `connect_direct_node_name` is the node that you want the files to be transferred to, not the Connect:Direct node that operates as part of the Connect:Direct bridge.

```
fteCreateTransfer -sa FTE_AGENT -da CD_BRIDGE  
                 -dd CD_NODE1:/home/fred "/reports/report??.log"
```

For more information, see “`fteCreateTransfer` (create new file transfer)” on page 509.

2. The source agent FTE\_AGENT transfers the first file that matches the pattern /reports/report??.log to the Connect:Direct bridge agent CD\_BRIDGE. The Connect:Direct bridge agent temporarily stores the file in the location defined by the `cdTmpDir` property. When the file has been completely transferred from the source agent to the Connect:Direct bridge, the Connect:Direct bridge agent sends the file to the Connect:Direct node that is defined by the `cdNode` agent property. This node sends the file to the destination Connect:Direct node CD\_NODE1. The Connect:Direct bridge agent deletes the file from the temporary location when the transfer between the two Connect:Direct nodes is complete. This process is repeated for each source file that matches the wildcard pattern /reports/report??.log.

**Note:** The list of files that match the pattern /reports/report??.log varies depending on the operating system of the system where the source agent FTE\_AGENT is located.

- If the source agent is located on a system with a Windows operating system, the pattern matching is not case sensitive. The pattern matches all files in the /reports directory with a file name of the form report followed by two characters and a suffix of .log, regardless of the case that the letters are in. For example, Report99.Log is a match.
- If the source agent is located on a system with a Linux or UNIX operating system, the pattern matching is case sensitive. The pattern matches only those files in the /reports directory with a file name of the form report followed by two characters and a suffix of .log. For example, reportAB.log is a match, but reportAB.LOG and Report99.Log are not matches.

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related tasks:

“Transferring a file to a Connect:Direct node” on page 272

You can transfer a file from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node using the Connect:Direct bridge. Specify a Connect:Direct node as the destination of the transfer by specifying the Connect:Direct bridge agent as the destination agent and specifying the destination file in the form *connect\_direct\_node\_name:file\_path*.

“Transferring multiple files to a Connect:Direct node” on page 275

You can transfer multiple files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node by using the Connect:Direct bridge. To use a Connect:Direct node as the destination of the multiple file transfer, specify the Connect:Direct bridge agent as the destination agent and specify the destination directory in the form *connect\_direct\_node\_name:directory\_path*.

“Transferring multiple files from a Connect:Direct node” on page 276

You can transfer multiple files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the multiple file transfer by specifying the Connect:Direct bridge agent as the source agent and specifying one or more source specifications in the form *connect\_direct\_node\_name:file\_path*.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, *agent.properties*, that must contain the information that an agent uses to connect to its queue manager. The *agent.properties* file can also contain properties that alter the behavior of the agent.

“Using wildcard characters” on page 743

You can use wildcard characters when you specify source file names and source file paths for file transfers. This allows you to select multiple files simultaneously.

## Recovery and restart for transfers to and from Connect:Direct nodes

WebSphere MQ File Transfer Edition might be unable to connect to your IBM Sterling Connect:Direct node during a transfer; for example, if the node becomes unavailable. Either WebSphere MQ File Transfer Edition attempts to recover the transfer, or the transfer fails and an error message is produced.

### If the Connect:Direct node becomes unavailable

If the Connect:Direct node becomes unavailable; for example, due to a network or power outage, WebSphere MQ File Transfer Edition recovers a file transfer in the following ways:

- If WebSphere MQ File Transfer Edition has not previously successfully connected to the Connect:Direct node as part of this transfer request, the transfer is tried again for a length of time determined by the values of the **cdMaxConnectionRetries** and **recoverableTransferRetryInterval** properties. These properties are specified in the *agent.properties* file for the Connect:Direct bridge agent. The transfer fails, and an error message is produced, after the number of failed attempts reaches the value of the **cdMaxConnectionRetries** property. By default, the transfer is attempted indefinitely, with 60 seconds between attempts.
- If WebSphere MQ File Transfer Edition has previously successfully connected to the Connect:Direct node as part of this transfer request, the transfer is tried again for a length of time determined by the values of the **cdMaxPartialWorkConnectionRetries** and **recoverableTransferRetryInterval** properties. The transfer fails, and an error message is produced, after the number of failed attempts reaches the value of the **cdMaxPartialWorkConnectionRetries** property. By default, the transfer is attempted indefinitely, with 60 seconds between attempts.

- For certain types of Connect:Direct node failure, for example the node being forcibly stopped, Connect:Direct processes go into Held Due to Error (HE) status when the node recovers. After the node recovers, WebSphere MQ File Transfer Edition automatically resumes any Connect:Direct processes that are related to the file transfer and have a status of HE.
- If the transfer fails, any temporary files relating to the transfer are deleted from the system that hosts the Connect:Direct bridge. The location of these temporary files is defined by the `cdTmpDir` property.
- If the transfer is from WebSphere MQ File Transfer Edition to Connect:Direct, and a source disposition of delete is specified, then the source files are not deleted if the transfer fails.

## If the Connect:Direct node user credentials are invalid

If WebSphere MQ File Transfer Edition fails to connect to the Connect:Direct node because the credentials of the user are rejected by the node, the transfer fails and an error message is produced. In this situation, check that you have provided the correct user credentials for the Connect:Direct node. For more information, see “Mapping credentials for Connect:Direct” on page 179.

## If the Connect:Direct bridge agent becomes unavailable

If the Connect:Direct bridge agent becomes unavailable, any ongoing file transfers recover in the same way as standard WebSphere MQ File Transfer Edition transfers. For more information, see “Recovery and restart for WebSphere MQ File Transfer Edition” on page 290.

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

“Recovery and restart for WebSphere MQ File Transfer Edition” on page 290

If your agent or queue manager are unavailable for any reason, for example because of a power or network failure, WebSphere MQ File Transfer Edition recovers as follows in these scenarios:

### Related tasks:

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Submitting a user-defined Connect:Direct process from a file transfer request

You can submit a transfer request for a transfer that goes through the Connect:Direct bridge agent that calls a user-defined Connect:Direct process as part of the file transfer.

By default, when you submit a file transfer request for a transfer that goes through the Connect:Direct bridge, the Connect:Direct bridge agent generates the Connect:Direct process that is used to transfer the file to or from the remote Connect:Direct node.

However, you can configure the Connect:Direct bridge agent to instead call a user-defined Connect:Direct process by using the `ConnectDirectProcessDefinition.xml` file.

## The ConnectDirectProcessDefinition.xml file

The **fteCreateCDAgent** command creates the file `ConnectDirectProcessDefinitions.xml` in the agent configuration directory `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name`. Before you can call user-defined Connect:Direct processes from the Connect:Direct bridge agent, you must set up process definitions by editing this file.

The file defines one or more process sets that includes the location of one or more Connect:Direct processes that are called as part of a transfer. Each process set includes a number of conditions. If the transfer satisfies all of the conditions of the process set, the process set is used to specify which Connect:Direct processes are called by the transfer. For more information, see “Specifying the Connect:Direct process to start by using the ConnectDirectProcessDefinition.xml file” on page 184.

## Intrinsic symbolic variables

You can use the intrinsic symbolic variables that are defined by WebSphere MQ File Transfer Edition to substitute values into user-defined Connect:Direct processes. To follow the Connect:Direct naming convention, all intrinsic symbolic variables used by WebSphere MQ File Transfer Edition have the format %FTE followed by five uppercase alphanumeric characters.

When creating a process to transfer files from a Connect:Direct node to the Connect:Direct bridge system, you must use the intrinsic variable %FTETFILE as the value of TO FILE in the Connect:Direct process. When creating a process to transfer files to a Connect:Direct node from the Connect:Direct bridge system, you must use the intrinsic variable %FTEFFILE as the value of FROM FILE in the Connect:Direct process. These variables contain the temporary file paths that the Connect:Direct bridge agent uses for transfers into and out of the WebSphere MQ File Transfer Edition network.

For more information about intrinsic symbolic variables, see the Connect:Direct product documentation.

## Sample Connect:Direct processes

WebSphere MQ File Transfer Edition provides sample Connect:Direct processes. These samples are located in the following directory: `install_dir/samples/ConnectDirectProcessTemplates`.

### Related tasks:

“Specifying the Connect:Direct process to start by using the ConnectDirectProcessDefinition.xml file” on page 184

Specify which Connect:Direct process to start as part of a WebSphere MQ File Transfer Edition transfer. WebSphere MQ File Transfer Edition provides an XML file that you can edit to specify process definitions.

“Using intrinsic symbolic variables in Connect:Direct processes that are called by WebSphere MQ File Transfer Edition” on page 283

You can call a user-defined Connect:Direct process from a WebSphere MQ File Transfer Edition transfer and pass in information from the transfer to the Connect:Direct process by using intrinsic symbolic variables in the process definition.

### Related reference:

“Connect:Direct process definitions file format” on page 639

The `ConnectDirectProcessDefinitions.xml` file in the Connect:Direct bridge agent configuration directory specifies the user-defined Connect:Direct process to start as part of the file transfer.

“Substitution variables for use with user-defined Connect:Direct processes” on page 746

You can define values to substitute in to user-defined Connect:Direct processes by using intrinsic symbolic variables that are specific to WebSphere MQ File Transfer Edition.

## Specifying the Connect:Direct process to start by using the ConnectDirectProcessDefinition.xml file

Specify which Connect:Direct process to start as part of a WebSphere MQ File Transfer Edition transfer. WebSphere MQ File Transfer Edition provides an XML file that you can edit to specify process definitions.

### About this task

The **fteCreateCDAgent** command creates the file `ConnectDirectProcessDefinitions.xml` in the agent configuration directory `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name`. Before you can call user-defined Connect:Direct processes from the Connect:Direct bridge agent, you must set up process definitions by editing this file.

For each process that you want to specify to call as part of a transfer through the Connect:Direct bridge, perform the following steps:

### Procedure

1. Define the Connect:Direct process that you want the Connect:Direct bridge agent to call as part of the transfer and save the process template in a file.
2. Open the `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name/ConnectDirectProcessDefinitions.xml` file in a text editor.
3. Create a `<processSet>` element.
4. Inside the `<processSet>` element, create a `<condition>` element.
5. Inside the `<condition>` element, create one or more elements that define a condition that the transfer request must match to call the Connect:Direct process you defined in Step 1. These elements can be either `<match>` elements or `<defined>` elements.
  - Use a `<match>` element to specify that the value of a variable must match a pattern. Create the `<match>` element with the following attributes:
    - `variable` - the name of the variable whose value is compared. The variable is an intrinsic symbol. For more information, see “Substitution variables for use with user-defined Connect:Direct processes” on page 746.
    - `value` - the pattern to compare to the value of the specified variable.
    - Optional: `pattern` - the type of pattern used by the value of the `value` attribute. This pattern type can be `wildcard` or `regex`. This attribute is optional and the default is `wildcard`.
  - Use a `<defined>` element to specify that a variable must have a value defined. Create the `<defined>` element with the following attribute:
    - `variable` - the name of the variable that must have a value defined. The variable is an intrinsic symbol. For more information, see “Substitution variables for use with user-defined Connect:Direct processes” on page 746.
6. Inside the `<processSet>` element, create a `<process>` element.
7. Inside the `<process>` element, create a `<transfer>` element. The transfer element specifies the Connect:Direct process that the Connect:Direct bridge agent calls as part of the transfer. Create the `<transfer>` element with the following attribute:
  - `process` - the location of the Connect:Direct process that you defined in step 1. The location of this file is specified with an absolute path or relative to the `configuration_directory/coordination_queue_manager/agents/cd_bridge_agent_name` directory.

## Results

When searching for a condition match, the Connect:Direct bridge agent searches from the top to the bottom of the file. The first match that is found is the one that is used.

### Related tasks:

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

### Related reference:

“Connect:Direct process definitions file format” on page 639

The ConnectDirectProcessDefinitions.xml file in the Connect:Direct bridge agent configuration directory specifies the user-defined Connect:Direct process to start as part of the file transfer.

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

## Using intrinsic symbolic variables in Connect:Direct processes that are called by WebSphere MQ File Transfer Edition

You can call a user-defined Connect:Direct process from a WebSphere MQ File Transfer Edition transfer and pass in information from the transfer to the Connect:Direct process by using intrinsic symbolic variables in the process definition.

### About this task

This example uses intrinsic symbolic variables to pass information from a WebSphere MQ File Transfer Edition transfer in to a user-defined Connect:Direct process. For more information about intrinsic symbolic variables used by WebSphere MQ File Transfer Edition, see “Substitution variables for use with user-defined Connect:Direct processes” on page 746.

In this example, the file is transferred from a WebSphere MQ File Transfer Edition agent to a Connect:Direct bridge node. The first part of the transfer is performed by WebSphere MQ File Transfer Edition. The second part of the transfer is performed by a user-defined Connect:Direct process.

### Procedure

1. Create a Connect:Direct process that uses intrinsic symbolic variables.

```
%FTEPNAME PROCESS
SNODE=%FTESNODE
PNODEID=(%FTEPUSER,%FTEPPASS)
SNODEID=(%FTESUSER,%FTESPASS)
```

```
COPY001 COPY
FROM (
  FILE=%FTEFFILE
  DISP=%FTEFDISP
)
TO (
  FILE=%FTETFILE
  DISP=%FTETDISP
)
PEND
```

2. Save this process to a text file at the following location: *configuration\_directory/coordination\_queue\_manager/agents/cd\_bridge\_agent/Example.cdp*

3. Edit the `ConnectDirectProcessDefinition.xml` file to include a rule that calls the `Connect:Direct` process that you created in Step 1.

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:cdprocess xmlns:tns="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions ConnectDirectProcessDefinitions

  <tns:processSet>
    <tns:condition>
      <tns:match variable="%FTESNODE" value="TOBERMORY" pattern="wildcard" />
    </tns:condition>
    <tns:process>
      <tns:transfer process="Example.cdp" />
    </tns:process>
  </tns:processSet>

</tns:cdprocess>
```

In this example, if a transfer request is submitted to the `Connect:Direct` bridge agent that has `TOBERMORY` as its source or destination `Connect:Direct` node, the `Example.cdp` `Connect:Direct` process is called.

4. Submit a file transfer request that satisfies the conditions that you defined in the `ConnectDirectProcessDefinition.xml` file in Step 3. For example,

```
fteCreateTransfer -sa ORINOCO -da CD_BRIDGE
  -sm QM_WIMBLEDON -dm QM_COMMON
  -de overwrite -df TOBERMORY:/home/bulgaria/destination.txt
  -sd leave c:\bungo\source.txt
```

In this example, the destination `Connect:Direct` node is `TOBERMORY`. This node is the secondary node in the transfer and the value of `%FTESNODE` is set to `TOBERMORY`. This command matches the condition that is set in the `ConnectDirectProcessDefinition.xml` file.

5. WebSphere MQ File Transfer Edition transfers the source file to a temporary location on the same system as the `Connect:Direct` bridge agent.
6. The `Connect:Direct` bridge agent sets the values of the intrinsic symbolic variables from the information in the transfer request and configuration information. The intrinsic symbolic variables are set to the following values:
  - `%FTEPNAME=process_name` - This value is an 8 character process name generated by the `Connect:Direct` bridge agent.
  - `%FTESNODE=TOBERMORY` - This value is set from the `-df` parameter of the `fteCreateTransfer` command.
  - `%FTEPUSER,=primary_node_user` - This information is taken from the `ConnectDirectCredentials.xml` file.
  - `%FTEPPASS=primary_node_user_password` - This information is taken from the `ConnectDirectCredentials.xml` file.
  - `%FTESUSER,=secondary_node_user` - This information is taken from the `ConnectDirectCredentials.xml` file.
  - `%FTESPASS=secondary_node_user_password` - This information is taken from the `ConnectDirectCredentials.xml` file.
  - `%FTEFFILE =temporary_location` - This value is the temporary location of the file on the same system as the `Connect:Direct` bridge agent.
  - `%FTEFDISP=leave` - This value is set from the `-sd` parameter of the `fteCreateTransfer` command.
  - `%FTETFILE=/home/bulgaria/destination.txt` - This value is set from the `-df` parameter of the `fteCreateTransfer` command.
  - `%FTETDISP=overwrite` - This value is set from the `-de` parameter of the `fteCreateTransfer` command.

7. The Connect:Direct process is started on the Connect:Direct bridge node. Connect:Direct transfers the file from the temporary location on the Connect:Direct bridge system to the destination `/home/bulgaria/destination.txt` on the system where the Connect:Direct node TOBERMORY is running.

**Related concepts:**

“Submitting a user-defined Connect:Direct process from a file transfer request” on page 280

You can submit a transfer request for a transfer that goes through the Connect:Direct bridge agent that calls a user-defined Connect:Direct process as part of the file transfer.

**Related reference:**

“Substitution variables for use with user-defined Connect:Direct processes” on page 746

You can define values to substitute in to user-defined Connect:Direct processes by using intrinsic symbolic variables that are specific to WebSphere MQ File Transfer Edition.

## Using Connect:Direct processes to submit WebSphere MQ File Transfer Edition transfer requests

You can submit a transfer request to the Connect:Direct bridge agent from a Connect:Direct process. WebSphere MQ File Transfer Edition provides commands that can be called from a **RUN TASK** statement in a Connect:Direct process.

WebSphere MQ File Transfer Edition provides the following commands for use with Connect:Direct processes:

**ftetag** Specify this command in a step that precedes the **ftebxfer**, **ftecxfer**, or **ftejxfer** command to create the required audit information for the transfer. This command takes the source specification of the transfer as a parameter. For information about the format of source specification, see “**fteCreateTransfer** (create new file transfer)” on page 509.

**ftebxfer**

Specify this command to create a file transfer request when the queue manager that the transfer request is submitted to is located on the same system as the Connect:Direct node that submits the command. This command takes the same parameters as the **fteCreateTransfer** command. For information about these parameters, see “**fteCreateTransfer** (create new file transfer)” on page 509. This command also has an additional parameter:

**-qmgrname**

Required. The name of the queue manager to submit the command to.

**ftecxfer**

Specify this command to create a file transfer request when the queue manager that the transfer request is submitted to is located on a different system to the Connect:Direct node that submits the command. This command takes the same parameters as the **fteCreateTransfer** command. For information about the parameters, see “**fteCreateTransfer** (create new file transfer)” on page 509. This command also has three additional parameters:

**-qmgrname**

Required. The name of the queue manager to submit the command to.

**-connname**

Required. The host and port of the queue manager to submit the command to, specified in WebSphere MQ CONNAME format. For example, `host.example.com(1337)`.

**-channelname**

Optional. The name of the channel to use to connect to the queue manager to submit the command to. If this is not specified, a default of `SYSTEM.DEF.SVRCONN` is used.

## Related tasks:

“Creating and submitting a Connect:Direct process that calls WebSphere MQ File Transfer Edition by using the Connect:Direct Requester”

The Connect:Direct Requester is a graphical user interface that you can use to create and submit a Connect:Direct process that calls WebSphere MQ File Transfer Edition.

## Related reference:

“Example of a Connect:Direct process file that calls the `ftcxfer` command” on page 750

An example Connect:Direct process file that calls the WebSphere MQ File Transfer Edition `ftetag` command and the `ftcxfer` command.

## Creating and submitting a Connect:Direct process that calls WebSphere MQ File Transfer Edition by using the Connect:Direct Requester

The Connect:Direct Requester is a graphical user interface that you can use to create and submit a Connect:Direct process that calls WebSphere MQ File Transfer Edition.

## About this task

This task describes how to create a Connect:Direct process that calls the WebSphere MQ File Transfer Edition `ftcxfer` command. The `ftcxfer` command makes a client connection to the agent queue manager of the source agent of the transfer. Before calling the `ftcxfer` command, you must call the `ftetag` command and pass it the source specification information. This allows the process to be logged and audited in the same way as transfers initiated from WMQFTE.

## Procedure

1. Start the Connect:Direct Requester.
2. In the **Nodes** tab of the left panel, select the Connect:Direct node that is used as the primary node of the process.
3. Select **File > New > Process**. The Process Properties window opens.
4. In the **Name:** field, type the name of the process.
5. Select the secondary node from the **Snode > Name:** list.
6. Select the operating system of the secondary node from the **Snode > Operating System:** list.
7. Optional: Complete any further information in this window that you require.
8. Click **OK**. The Process Properties window closes.
9. Create a statement that runs the WMQFTE `ftetag` command.
  - a. Right-click in the Process window on the **End** statement.
  - b. Select **Insert > Run Task**. The Run Task Statement window opens.
  - c. In the **Label:** field, type Tag.
  - d. In the **Optional Parameters or Commands** field, type `pgm(wmqfte_installation_directory/bin/ftetag) args(source_specification)`. For more information about the format of `source_specification`, see “`fteCreateTransfer` (create new file transfer)” on page 509.
  - e. Click **OK**. The Run Task Statement window closes.
10. Create a statement that runs the WMQFTE `ftcxfer` command.
  - a. Right-click in the Process window on the **End** statement.
  - b. Select **Insert > Run Task**. The Run Task Statement window opens.
  - c. In the **Label:** field, type Transfer.
  - d. In the **Optional Parameters or Commands** field, type `pgm(wmqfte_installation_directory/bin/ftcxfer) args(parameters)`. The parameters used by the `ftcxfer` command are the same as the parameters used by the `fteCreateTransfer` command. For more information, see “`fteCreateTransfer` (create new file transfer)” on page 509.
  - e. Click **OK**. The Run Task Statement window closes.

11. Optional: Create any additional statements that you require.
12. Submit the process.
  - a. Right-click in the Process window.
  - b. Select **Submit**. The Connect:Direct Attach window opens.
  - c. Enter the user name and password to use to run the process.
  - d. Click **OK**.

#### **Related concepts:**

“Using Connect:Direct processes to submit WebSphere MQ File Transfer Edition transfer requests” on page 285

You can submit a transfer request to the Connect:Direct bridge agent from a Connect:Direct process.

WebSphere MQ File Transfer Edition provides commands that can be called from a **RUN TASK** statement in a Connect:Direct process.

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## **Working with WebSphere Message Broker**

You can work with WebSphere MQ File Transfer Edition from WebSphere Message Broker using the FTEOutput and FTEInput nodes.

- Use the FTEInput node to transfer a file across the network using WebSphere MQ File Transfer Edition and then process that file as part of a Message Broker flow.
- Use the FTEOutput node to transfer a file that has been output by a Message Broker flow to another location in the network.

The agents that transfer files to or from the broker agent can be at any level of WebSphere MQ File Transfer Edition V7.0.

For more information, refer to the WebSphere Message Broker product documentation here: [Managed file transfers using WebSphere MQ File Transfer Edition](#)

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## **WebSphere DataPower B2B Appliance XB60 sample**

This sample has been developed to demonstrate a potential solution for a B2B scenario using WebSphere MQ File Transfer Edition and WebSphere DataPower B2B Appliance XB60. The sample consists of this topic and a .zip file on the WebSphere MQ File Transfer Edition V7.0.2 Remote Tools and Documentation DVD. The sample is not certified for use in a production environment. Contact your local IBM representative if you require a B2B solution.

### **Prerequisites**

This sample requires the following prerequisites:

- Access to a WebSphere DataPower B2B Appliance XB60.
- A good understanding of an XB60 appliance.
- An understanding of WebSphere MQ File Transfer Edition concepts, in particular how to configure a WebSphere MQ network and how to create agents.

### **Sample description**

The sample provided demonstrates how a DataPower appliance can deal with an incoming request by routing a file onto an NFS mount and using WebSphere MQ File Transfer Edition to move that file between agents. The sample is a .zip file that contains all of the required objects. You must make some minor configuration changes, which are detailed below. To simulate the incoming AS2 request, use the NetTool tool that you can download from SourceForge: <http://sourceforge.net/projects/nettool/>

## Implementing the sample

Before you can use this sample you must have a WebSphere MQ File Transfer Edition network setup that is ready to use. The sample requires you to configure two agents correctly. The sample also requires that you have set up an NFS share on the source agent's host. This is because the DataPower appliance transfers the file using NFS to the source agent's file system, and then starts the transfer. For more information on NFS, refer to your operating system instructions.

1. Import the `wmqfte-export.zip` file into your DataPower XB60 appliance and accept all the imported files.
2. Alter the MQ Queue Manager Object `fte_queue_manager` to your own configuration. Change the host name, queue manager name, and, depending on your queue manager setup, the channel name.
3. Modify the B2B Partner Profile called `wmqfte-internal-partner`.
  - a. In the **Destinations** tab, change the Destination URL.
  - b. Change the `DestAgentName` property from `destination_agent` to your required agent name.
  - c. Change the `DestAgentQMgr` property to be your agent's queue manager. For example, if you have an agent called `B2B_DEST_AGENT` on queue manager `UTOPIA`, you have the following line:  
`http://127.0.0.1:10224/?DestAgentName=B2B_DEST_AGENT&DestAgentQMgr=UTOPIA`
4. Navigate to **Edit Multi-Protocol Gateway** via Services Multi-Protocol Gateway, and click `wmqfte-http-nfs-proxy`.
5. Edit the Multi-Protocol Gateway Policy called `wmqfte-http-proxy-policy` by clicking on the ellipsis (...).

You must make changes to the '`wmqfte-http-proxy-policy_rule_0_xform_0`' Transform object. Double click on the **Transform** icon. Click on the **Advanced** tab and edit the following properties:

### DestinationURL

Replace your `_nfs_server` with a fully-qualified host name. Replace `nfs/path` with the NFS mount that you want to use. Ensure there is a trailing forward slash (/) character otherwise this will not work correctly.

### HostName

Host name or IP address of the DataPower appliance

### MQFTENotificationTarget

Change the `SYSTEM.FTE.AGENTNAME.COMMAND` to be the command queue of the source agent

### SrcAgentName

Name of the source agent

### SrcAgentQMgr

Name of the source agent's queue manager

### UserID

User that you want the transfer to be associated with

When you have completed editing, click **Done**. Click **Apply Policy** and ensure you click **Apply** on the Multi-Protocol Gateway.

6. Enable NFS Dynamic Mounts. **Under Network Settings -> NFS Dynamic Mounts**, click **enabled** and **Apply**. Ensure that the default domain has this option enabled. Contact your DataPower administrator for more information.
7. Click **Save Config** in the top right corner.
8. Ensure that your source agent has a transfer root that is the same as the NFS share that you have configured. See the Properties for more information on how to set this up.

## Simulate AS2 incoming request

As mentioned previously, the tool to simulate the AS2 request is called NetTool. You can download NetTool from SourceForge at: <http://sourceforge.net/projects/nettool/>

1. Set the Request type to POST
2. Change the URL to the following: `http://XB60.IP.Address:10223`
3. Add the following Headers to the Request Headers:

Name	Value
Content-Type	application/xml
Content-Type	application/xml
Message-ID	<unique number>
AS2-To	IntPartner
AS2-From	ExtPartner

4. Add the following dummy XML to the body:

```
<tns:edi-info xmlns:tns="http://datapower.com/b2b/edi-info">
  <tns:envelope-type>EDIFACT</tns:envelope-type>
  <tns:sender-id>as2-out-sender</tns:sender-id>
  <tns:receiver-id>as2-out-receiver-mdn-async-unsigned</tns:receiver-id>
  <tns:transaction-type>IFTMAN</tns:transaction-type>
  <tns:transaction-type>IFTMAN</tns:transaction-type>
  <tns:transaction-type>IFTMAN</tns:transaction-type>
  <tns:transaction-type>IFTMAN</tns:transaction-type>
</tns:edi-info>
```

5. Click **Send**. The log at the bottom of the window indicates the outcome of the request. A Response Status value of 200 indicates that you successfully sent a request to the DataPower appliance.

When you send the HTTP Request, you should have a file transfer occur between the two agents that you configured above, and this will be reflected in the WebSphere MQ Explorer plug-in that WebSphere MQ File Transfer Edition supplies. You can also check for the existence of the file in the transfer root of the destination agent.

## Problem determination

To assist you with any problems you might have, here are some things to check, enable, or monitor that should help you understand the issues.

### Check the logs

The XB60 outputs information to its logs when it receives a request and traces the request route through the system. You can access the logs from the control panel page.

### Increase log verbosity

If you are still having problems with the setup, you can increase the log verbosity. From the control panel, click the **TroubleShooting** link.

### Enable the Multi-Protocol Gateway Probe

You can view more detailed information of your request by enabling a Probe for the Multi-Protocol Gateway `mqfte-http-nfs-proxy`.

1. From the control panel, click **TroubleShooting**
2. Click **Debug Probe**
3. Select the `mqfte-http-nfs-proxy` and click **Add Probe**
4. Resubmit an HTTP Request.
5. When you have enabled a probe and resubmitted the request, return to the **Debug Probe** page, and click on the magnifying glass to view the request in detail.

### WebSphere MQ Explorer plug-in

You can use the plug-in that WebSphere MQ File Transfer Edition uses in WebSphere MQ Explorer to see if the transfer request status.

### Other problems

- **Connection Refused using NetTool to send request:** check that your IP address is correct for sending the request and check the Port Status on the XB60 Appliance
- **NFS failure:** check the permissions on the exported file system and ensure that the DataPower appliance has been authorized to access the exported file system. See your platforms NFS instructions for how to do this.

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## Recovery and restart for WebSphere MQ File Transfer Edition

If your agent or queue manager are unavailable for any reason, for example because of a power or network failure, WebSphere MQ File Transfer Edition recovers as follows in these scenarios:

- Typically, if there is a problem while a file is in the process of being transferred, WebSphere MQ File Transfer Edition recovers and restarts that file transfer after the problem is repaired.
- If a file that was in the process of being transferred is deleted or changed while the agent or queue manager are unavailable, the transfer fails and you get a message in the transfer log that provides details about the failure.
- If an agent process fails during a file transfer, the transfer continues when you restart the agent.
- If an agent loses the connection to its agent queue manager, the agent waits in an infinite loop trying to reconnect to the queue manager. When the agent successfully reconnects to its queue manager, the current transfer continues.
- If the agent is stopped for any reason, any resource monitors associated with an agent stops polling. When the agent recovers, the monitors are also restarted, and resource polling resumes.

You can check the status of your transfers in the WebSphere MQ Explorer. If any transfers appear as **Stalled**, you might need to take corrective action because the stalled status denotes an issue either with the agent or between the two agents involved in the transfer.

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## Developing applications

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### Specifying programs to run

You can run programs on a system where a IBM WebSphere MQ File Transfer Edition agent is running. As part of a file transfer request, you can specify a program to run either before a transfer starts, or after it finishes. Additionally, you can start a program that is not part of a file transfer request by submitting a managed call request.

There are five scenarios in which you can specify a program to run:

- As part of a transfer request, at the source agent, before the transfer starts
- As part of a transfer request, at the destination agent, before the transfer starts
- As part of a transfer request, at the source agent, after the transfer completes
- As part of a transfer request, at the destination agent, after the transfer completes
- Not as part of a transfer request. You can submit a request to an agent to run a program. This scenario is sometimes referred to as a managed call.

There are several ways to specify a program that you want to run. These options are as follows:

#### Use an Apache Ant task

Use one of the `fte:filecopy`, `fte:filemove`, and `fte:call` Ant tasks to start a program. Using an Ant task, you can specify a program in any of the five scenarios, using the `fte:presrc`, `fte:predst`, `fte:postdst`, `fte:postsrc`, and `fte:command` nested elements. For more information, see “Program invocation nested elements” on page 1009. This option is available if you are using Version 7.0.1 or later.

#### Edit the file transfer request message

You can edit the XML that is generated by a transfer request. Using this method, you can run a program in any of the five scenarios, by adding `preSourceCall`, `postSourceCall`, `preDestinationCall`, `postDestinationCall`, and `managedCall` elements to the XML file. Then, use this modified XML file as the transfer definition for a new file transfer request, for example with the `fteCreateTransfer -td` parameter. For more information, see “Call request message examples” on page 896.

#### Use the `fteCreateTransfer` command

From Version 7.0.4.1, you can use the `fteCreateTransfer` command to specify programs to start. You can use the command to specify programs to run in the first four scenarios, as part of a transfer request, but you cannot start a managed call. For information about the parameters to use, see “`fteCreateTransfer` (create new file transfer)” on page 509. For examples of using this command, see “Examples of using `fteCreateTransfer` to start programs” on page 938. If you are using Version 7.0.4.1, you must enable the new function by following the instructions in “What’s new in Version 7.0.4.1?” on page 19.

#### Use the Web Gateway

If you have configured a Web Gateway, you can run programs at the destination agent after the transfer has completed. You cannot use this method to submit a managed call request, or to run programs at the source agent, or at the destination agent before the transfer starts. Specify the `x-fte-postdest` header or use the `postdest` form field in the HTTP request. This option is available if you are using Version 7.0.3 or later. For more information, see “HTTP headers and HTML form fields for using the Web Gateway” on page 941.

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## The WebSphere MQ File Transfer Edition Web Gateway

The Web Gateway provides a RESTful API, which you can use to interact with your WebSphere MQ File Transfer Edition network.

This section explains the concepts of the Web Gateway, and how the Web Gateway fits into your existing WebSphere MQ File Transfer Edition network. For more information see “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. For examples of HTTP requests that you can send to the Web Gateway, see “Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301.

For information about configuring and securing the Web Gateway in an application server, see “Configuring the Web Gateway” on page 149 and “Securing the Web Gateway” on page 87. To check your Web Gateway setup, see “Verifying your Web Gateway installation” on page 173.

For reference information about the Web Gateway RESTful API, see “Web Gateway API reference” on page 940.

To solve problems related to the Web Gateway, see “Troubleshooting the Web Gateway” on page 416.

### Related concepts:

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

### Related reference:

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

“Sample web page” on page 351

WebSphere MQ File Transfer Edition Web Gateway provides a sample web page. This sample uses Web Gateway API functions to upload files, view the status of file transfers, view the contents of a file space and download files from a file space.

“Database tables used by the Web Gateway” on page 987

The WebSphere MQ File Transfer Edition Web Gateway uses the following database tables to configure and secure user file spaces.

## Scenarios for the Web Gateway

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

The Web Gateway is useful if you have files on a system where you do not want to run an agent but where you can use an HTTP client. For example, you can use the Web Gateway for the following tasks:

- Sending files to a WebSphere MQ File Transfer Edition agent from a web page
- Monitoring the status of transfers from a web page
- Sending files from a portable device that is not capable of running the WebSphere MQ File Transfer Edition infrastructure but has HTTP capabilities
- Sending files from an operating system that the WebSphere MQ File Transfer Edition agent is not supported on

### Uploading a file using the Web Gateway

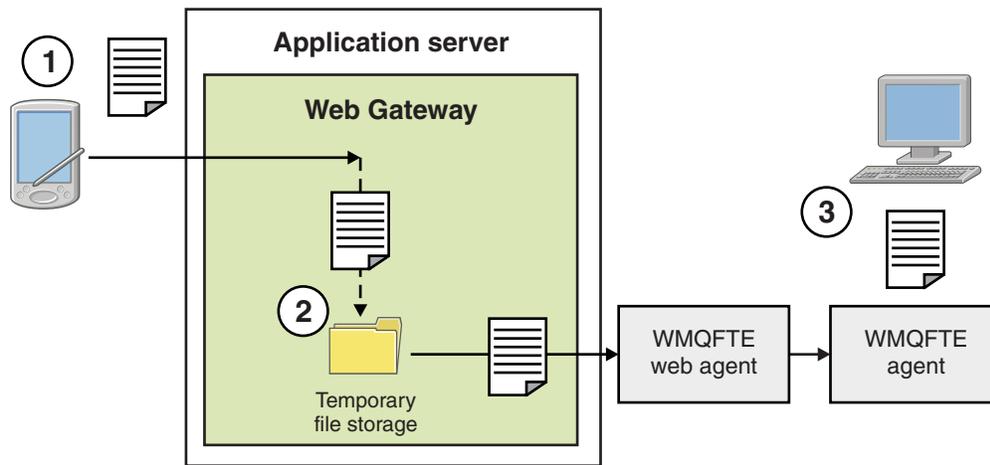


Figure 1. Uploading a file to your WebSphere MQ File Transfer Edition network using the Web Gateway

You can upload a file to the Web Gateway using an HTTP client. The application server that is hosting the Web Gateway application receives the HTTP request and the file is temporarily stored until the web agent starts to transfer it. The web agent transfers the file to the agent that was named as the destination agent in the original transfer request. As shown in Figure 1, there is no need for the HTTP client that submitted the transfer request to have an agent installed. The destination system must have an agent installed, and the system hosting the Web Gateway application must have a web agent installed.

### Downloading a file from a file space

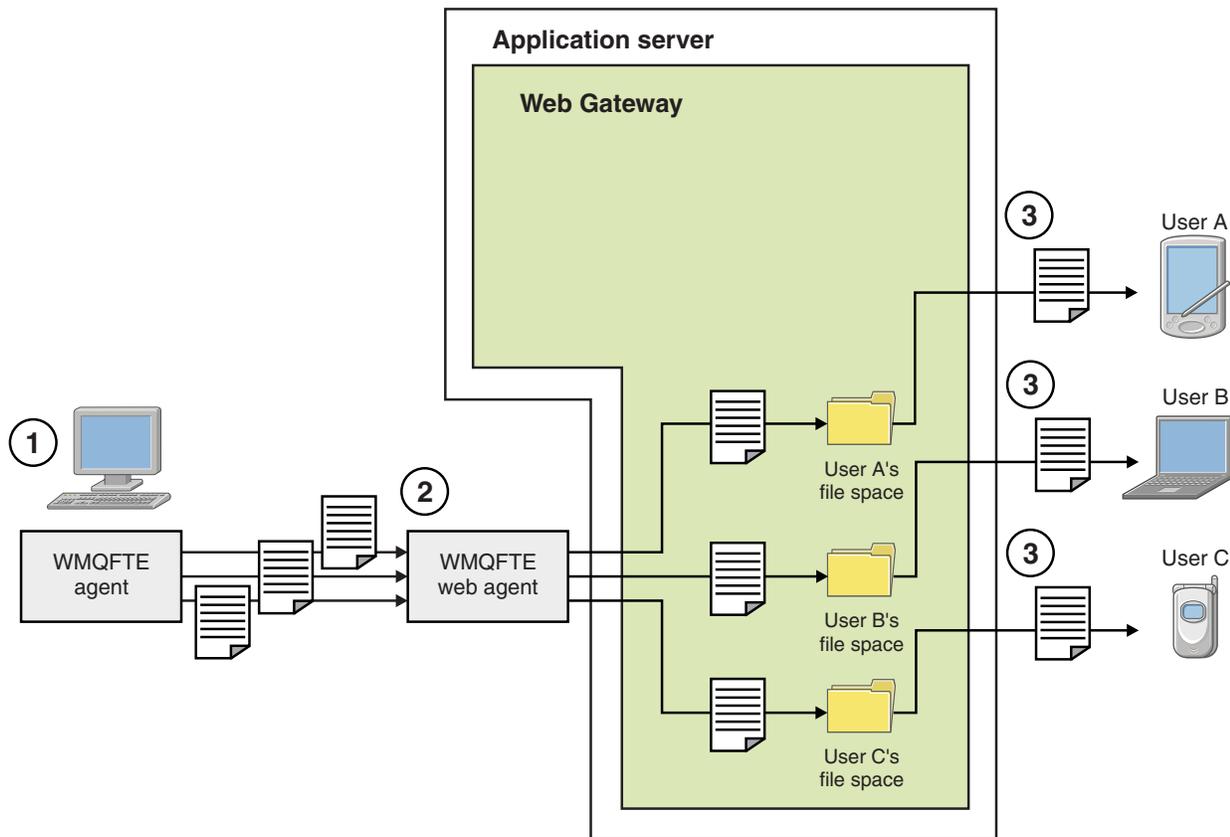


Figure 2. Downloading a file from a file space using the Web Gateway

You can use the Web Gateway to make files available to users in file spaces. A file space is a reserved area of file storage that is associated with a Web Gateway user. Use an agent to transfer a file to the Web Gateway. A web agent on the same system as the Web Gateway application transfers the file to the file space that you specified in the transfer request. A user who owns a file space can download files at their own convenience, and they do not need an agent or other WebSphere MQ File Transfer Edition infrastructure to download the file.

## How to use the Web Gateway

WebSphere MQ File Transfer Edition provides an administrative console. You can use the administrative console to create file spaces, modify the set of users who can access a file space, and map users to WebSphere MQ Message Descriptor (MQMD) user IDs. For more information about using the administrative console, see “Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320.

If you prefer, you can program directly to the application programming interface (API) that is provided with the Web Gateway to build a customized application. For more information, see “Web Gateway API reference” on page 940 and “Web Gateway administration API reference” on page 966. There are three principal ways of building an application to work with this API. These are:

### Web application

You can write a set of web pages or a web application, which uses Web Gateway API functions to perform the file-related part of its function. A sample application is shipped with the Web Gateway, which demonstrates one way of doing this. For more information, see “Sample web page” on page 351.

## Client application

You can write a program using a language such as Perl, Ruby, or Python that runs on client systems and communicates with WebSphere MQ File Transfer Edition by using Web Gateway API functions. Nearly all programming languages have HTTP facilities available. The benefit of this approach is that you can interact with WebSphere MQ File Transfer Edition from platforms where the WebSphere MQ File Transfer Edition agent cannot be deployed.

## System integration

This approach uses the same technology as the client application option, but integrates different systems in the datacenter. HTTP provides a common denominator for communication between disparate tools and systems.

## Related concepts:

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology”

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

## Related reference:

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

## How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

Use the Web Gateway to extend an existing WebSphere MQ File Transfer Edition network to support clients that use the HTTP protocol. The Web Gateway provides a link from clients that are using the HTTP protocol into a WebSphere MQ File Transfer Edition network that already exists. Transfers that use the Web Gateway are logged throughout the transfer. For more information about the purpose of the Web Gateway, see “Scenarios for the Web Gateway” on page 293.

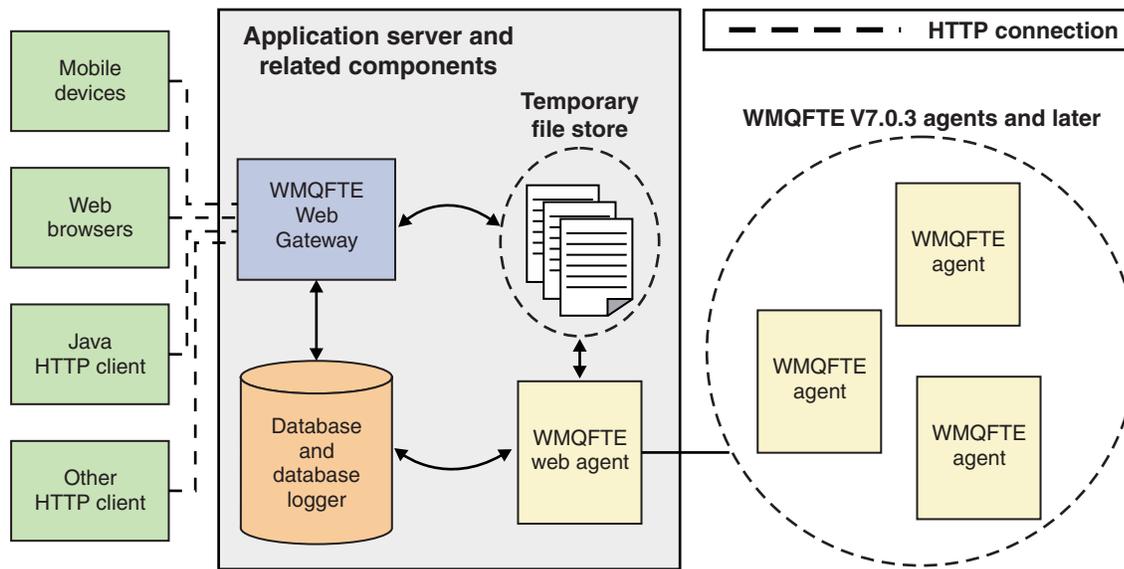


Figure 3. Overview of Web Gateway architecture

The Web Gateway application requires the following component, which is not provided with WebSphere MQ File Transfer Edition:

**A Java Platform, Enterprise Edition 5-compliant application server**

This application server hosts the Web Gateway application. HTTP requests from clients are directed to the application server, which passes the contents of the requests to the application.

A Web Gateway consists of several parts:

**The WMQFTE Web Gateway application**

The Web Gateway application handles both file uploads and transfer status requests.

When a file is uploaded, the Web Gateway application writes the file data to a temporary store on the file system of the system that the application is running on. The Web Gateway application then submits a file transfer request to the WMQFTE agent, which is running on the same system. For more information on this request, see “File transfer request message format” on page 881.

When a request for status information is received, the Web Gateway application connects to the WMQFTE database logger database (using the data access facilities provided by the application server) to retrieve the required information. The application then generates the response, which is passed to the client.

**A WMQFTE web agent**

The Web Gateway requires a WMQFTE agent installed on the same system as the application. This web agent can be created using the `fteCreateWebAgent` command; see “`fteCreateWebAgent` (create a WebSphere MQ File Transfer Edition web agent)” on page 528. This agent receives the file transfer request message described in the previous section. The request message refers to the file or files in the temporary store. The agent transfers the files to an existing agent in the WMQFTE network, reading the files from the file system store. The source disposition behavior is set to delete so that the files are removed after the transfer successfully completes, see `fteCreateTransfer` for more information.

You do not need to specially configure this agent, because the file transfer request is an ordinary message and not specific to the Web Gateway.

## The WMQFTE database logger and a supported database

To provide status information about transfers, started using the web or by other means, the Web Gateway application must be able to query a database that contains audit information for WMQFTE activity. This database is populated by the database logger component provided with the product. Database access is provided by the data access facilities included in each application server. The database does not need to be located on the same system as the other components.

## Components needed for Web Gateway scenarios

The following diagrams show the WebSphere MQ File Transfer Edition components, and other objects, that are involved in file transfer requests. All the Java Platform, Enterprise Edition (JEE) resources used in each scenario must be defined in your application server, regardless of which scenario you are using. For details of how to configure the JEE resources, see “Configuring the Web Gateway” on page 149.

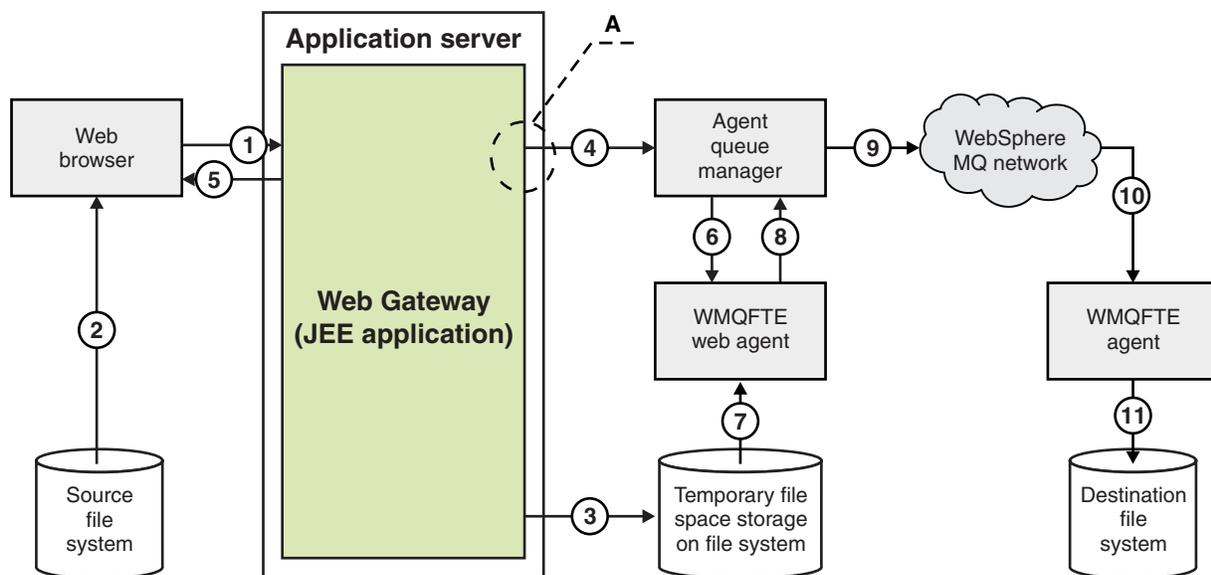


Figure 4. WebSphere MQ File Transfer Edition components involved in a file upload through the Web Gateway

1. A JavaScript application running in the user's web browser uses functions defined by the RESTful API provided by the Web Gateway to upload a file.
2. The file data is read from the file storage located on the same system as the web browser and sent using the HTTP protocol to the application server that hosts the Web Gateway application.
3. The Web Gateway Java Platform, Enterprise Edition (JEE) application receives the file data as the body of an HTTP request and writes it to file storage that is accessible from both the application server and the web agent. If the Web Gateway application and web agent are on the same system, this can be a directory on the system's file system.
4. The Web Gateway application sends a message to the agent queue manager to which the web agent is connected. This message contains instructions that identify both the file to move and the WebSphere MQ File Transfer Edition agent that the file data is sent to. This information is taken from the HTTP request in step 1.
5. The Web Gateway JEE application sends an HTTP response to the web browser.
6. The web agent receives the message that requests the transfer of the file data.
7. The web agent reads the file data, which corresponds to the uploaded file from step 1.

8. The web agent transfers the file data, as a sequence of messages, to the agent queue manager.
9. The agent queue manager transfers the messages, which correspond to the uploaded file from step 1, across the WebSphere MQ network. This might involve exchanging the file data between further queue managers until the data arrives at the queue manager to which the agent running on the destination system is connected.
10. The agent on the destination system receives the messages containing the file data and converts the data back into a file.
11. The file data is written to the file storage at the destination system.

**JEE resources used in this scenario:**

A - JMS Queue Connection Factory called WMQFTEWebAgentConnectionFactory with a JNDI name of jms/WMQFTEWebAgentConnectionFactory

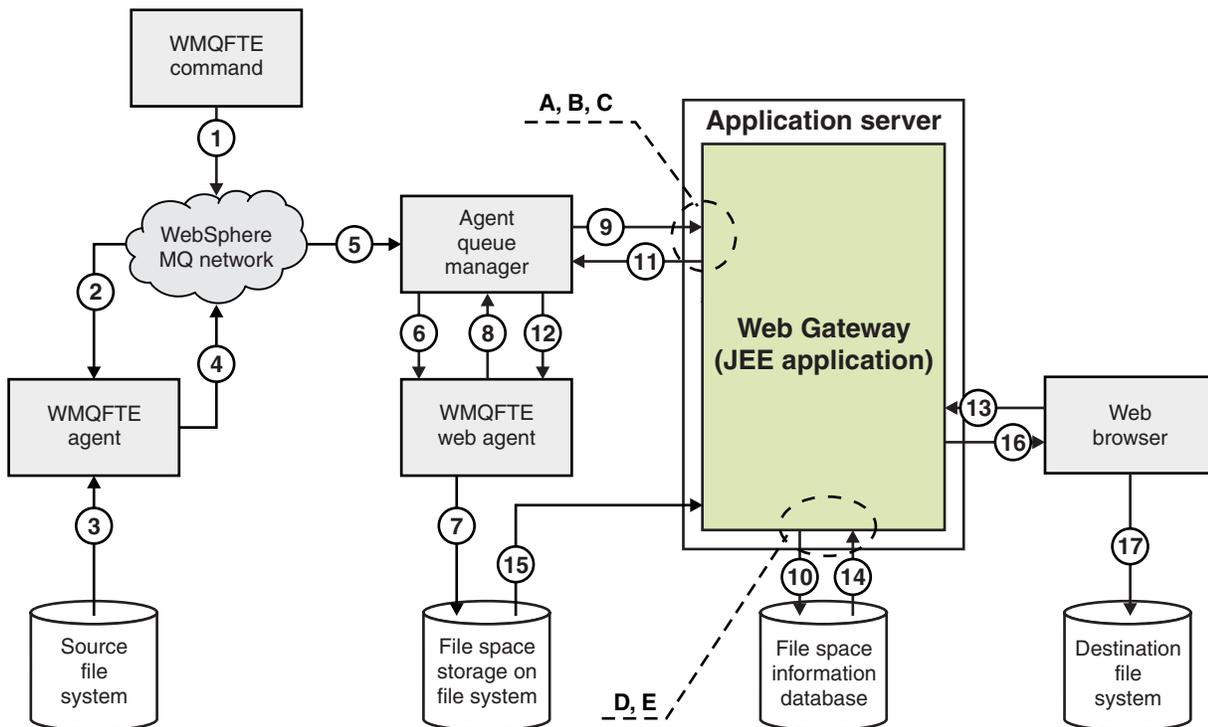


Figure 5. WebSphere MQ File Transfer Edition components involved in a file upload to a file space, and subsequent download from the file space

1. The user, or a process, sends a file transfer request (in the form of a WebSphere MQ message) into the WebSphere MQ network. This request can be sent from the command line or through another WMQFTE interface. The message is addressed to the queue manager to which the agent on the source system is connected.
2. The agent on the source system receives the message, which instructs it to perform a file transfer to the web agent.
3. The agent reads the file from the source file system and converts it to a sequence of WebSphere MQ messages.
4. The agent sends the sequence of messages to a queue manager in the WebSphere MQ network.
5. The WebSphere MQ network routes the messages, which contain the file data, to the agent queue manager.
6. The web agent receives the messages, which contain the file data, from the agent queue manager.

7. The web agent writes the file data, as a file, to the file space storage on a file system that is accessible to the Web Gateway JEE application.
8. The web agent sends a message to the agent queue manager, to inform the Web Gateway JEE application that a file has arrived.
9. The Web Gateway JEE application receives the notification message sent from the web agent via the agent queue manager.
10. The Web Gateway JEE application updates a database that contains information about the files that are stored in file spaces.
11. The Web Gateway JEE application sends a response, which is destined for the web agent, to the agent queue manager.
12. The web agent receives the response message and completes the file transfer operation.
13. At some later time, a user or process makes a RESTful HTTP request to the Web Gateway JEE application, to retrieve a file from the user's file space. In this diagram the request is made by a web browser. The request can be made by any HTTP client.
14. The Web Gateway JEE application receives the HTTP request, decodes it, and uses the file space information database to locate the file data.
15. The Web Gateway JEE application reads the file data from the file space storage, which is located on a file system that is accessible from the Web Gateway JEE application.
16. The Web Gateway JEE application sends the file data back to the web browser that requested it.
17. The web browser writes the file data to the file system on the destination system.

**JEE resources used in this scenario:**

A - JMS Queue called WMQFTEWebAgentRequestQueue with a JNDI name of jms/WMQFTEWebAgentRequestQueue

B - JMS Queue Connection Factory called WMQFTEWebAgentConnectionFactory with a JNDI name of jms/WMQFTEWebAgentConnectionFactory

C - Activation Spec called WMQFTEActivationSpec with a JNDI name of jms/WMQFTEActivationSpec, which is configured with the connection details for the web agent's queue manager

D - Data source called wmqfte-filespace with a JNDI name of jdbc/wmqfte-filespace

E - JDBC Provider referenced by the data source jdbc/wmqfte-filespace

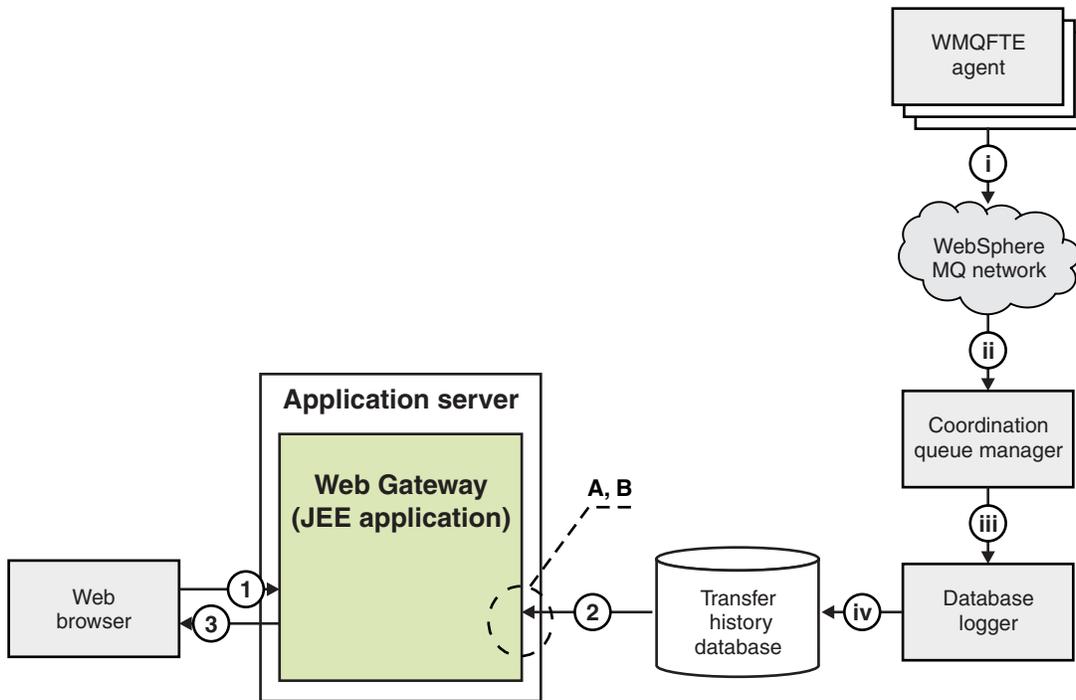


Figure 6. Requesting the status of file transfers through the Web Gateway

1. A JavaScript application running in the user's web browser sends a RESTful HTTP request to the Web Gateway application, requesting information about a transfer.
2. The Web Gateway application queries a database containing information about file transfers that have taken place in a network of WebSphere MQ File Transfer Edition agents.
3. The Web Gateway application returns the result of the query to the JavaScript application.

**Activities that occur during the above steps:**

- i - WebSphere MQ File Transfer Edition agents produce messages containing information about file transfers that are taking place.
- ii - The queue managers route these messages to a designated queue manager that is performing the coordination queue manager role.
- iii - The coordination queue manager is connected to the database logger component. The database logger receives a copy of each message that relates to a transfer being performed by an agent.
- iv - The database logger records the information about transfers in a transfer history database, so that it can be queried by other applications including the Web Gateway.

**JEE resources used in this scenario:**

- A - Data source called `wmqfte-fispace` with a JNDI name of `jdbc/wmqfte-database`
- B - JDBC provider referenced by the data source `wmqfte-database`

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway”

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

**Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

## Using the WebSphere MQ File Transfer Edition Web Gateway

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

You can customize your HTTP requests by using HTTP headers or HTML form fields to supply extended information with your request. For more information about the options available, see “HTTP headers and HTML form fields for using the Web Gateway” on page 941.

The following topics explain how to create HTTP requests to submit to the Web Gateway. For more information about the format of these requests and the Web Gateway API, see “Web Gateway API reference” on page 940.

You do not need administrative rights to use these examples. If you want to administer the Web Gateway, for example by creating or deleting file spaces for users, see the topic “Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320.

### Related concepts:

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

### Related tasks:

“Example: Transferring a file to a file space”

Transfer a single file to a WebSphere MQ File Transfer Edition file space. You can specify a file space as the destination of a file transfer by using the **-du** parameter with the **fteCreateTransfer** command.

“Example: Sending a file using an HTML form” on page 319

You can send a single text file to a destination file system by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway.

### Related reference:

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

## Example: Transferring a file to a file space

Transfer a single file to a WebSphere MQ File Transfer Edition file space. You can specify a file space as the destination of a file transfer by using the **-du** parameter with the **fteCreateTransfer** command.

### About this task

When transferring a file to a file space, the WebSphere MQ File Transfer Edition Web Gateway checks whether the transfer would cause the file space quota to be exceeded. If the quota would be exceeded, an error is produced and the file transfer fails. The Web Gateway administrator can increase the size of the file space quota by submitting an HTTP request. For an example request, see the topic “Example: Modifying file space configuration” on page 325.

The file space quota is checked before the transfer begins. If you are using more than one agent to transfer files to the same file space, or if the Web Gateway administrator reduces the file space quota while a file is being transferred to that file space, one or more transfers might succeed even though they cause the file space quota to be exceeded.

In this example, the source file is called `/tmp/Accounts.csv` and is located on the same system as the source agent, `AGENT_1`. The destination file space `john`, which belongs to the user `john`, is located on the same system as the agent `FS_AGENT`. The user requesting the transfer has write access to the file space `john`. The agent `FS_AGENT` uses the queue manager `FS_QM`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_1 -da FS_AGENT -dm FS_QM -du john /tmp/Accounts.csv
```

The file `/tmp/Accounts.csv` is transferred to the file space `john`. The user `john` can download this file from the file space when it is required.

**Related concepts:**

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

**Related tasks:**

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

**Example HTTP flows**

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

You can use various technologies to submit requests to, and interpret responses from, the Web Gateway. For example, you can write a web application. For information about the example web application which is included with the Web Gateway, see “Sample web page” on page 351.

If you want to communicate with the Web Gateway by using a web application, you can use either HTML forms or the Javascript XMLHttpRequest function. To upload a file, you must use an HTML form, because browsers prevent Javascript from accessing files from the local system, for security reasons. The form can be controlled and submitted by Javascript if you prefer. To request the status of a transfer, XMLHttpRequest is most likely to be appropriate, although other techniques are possible; loading content into an invisible iFrame element, for example.

You can also write a client application in a language such as Ruby or Perl to communicate with the Web Gateway API.

**Related tasks:**

“Example: Sending a file using an HTTP request” on page 304

You can send a single file to a destination agent file system by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway.

“Example: Viewing the status of a file transfer using an HTTP request” on page 305

You can view the status of your file transfer by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns information in XML format that describes the current status of the specified transfer. To view the status of file transfers by using the Web Gateway, you must have a database logger in your WebSphere MQ File Transfer Edition network.

“Example: Querying multiple file transfers using an HTTP request” on page 307

You can query the status of multiple file transfers by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns information in either XML or JSON format that describes the status of the transfers that match the query.

“Example: Listing all files in a file space” on page 314

You can list the contents of a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space. You are authorized to list the contents of a file space if you are the owner of the file space or you have the security role `wmqfte-admin`.

“Example: Checking the integrity of files in a file space” on page 328

You can check the integrity of the files in a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space with an additional attribute to indicate the result of an integrity check on each file.

“Example: Listing a specific subset of the files in a file space” on page 315

You can query the contents of a file space by submitting an HTTP request containing a query to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format describing only those files in the filespace that match the query.

“Example: Retrieving a file from a filespace” on page 317

You can retrieve a file from a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway provides the ability to download a file using the HTTP protocol.

“Example: Deleting a file from a file space” on page 318

You can delete a file from your file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. If you set the header `x-fte-include-file-in-response` to true, the contents of the file are returned in the HTTP response from the Web Gateway.

### Example: Sending a file using an HTTP request:

You can send a single file to a destination agent file system by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway.

### About this task

File contents may be uploaded to any standard WebSphere MQ File Transfer Edition agent as POST data using the multipart/form-data Content-Type. This should be submitted to a location containing the target agent and file destination in the following format: `/fte/file/agent/agent_name@queue_manager/filepath`. You can modify the file transfer request parameters using the custom HTTP headers described in “HTTP headers and HTML form fields for using the Web Gateway” on page 941.

When you submit a file transfer request using the Web Gateway, your user ID in the application server environment is checked to see if it is mapped to a WebSphere MQ Message Descriptor (MQMD) user ID. The mappings between application server user ID (web user ID) and MQMD user ID are created by your Web Gateway administrator. For more details, see the topic “Example: Mapping web user IDs to MQMD user IDs” on page 332. If there is no MQMD user ID defined for your web user ID, the value of the `defaultMQMDUserID` servlet initialization parameter is used. This parameter is defined during deployment of the Web Gateway application.

Use the following example to transfer a text file to the destination file path `destination-root-path/temp` and destination file name `myfile.txt` on the destination agent `ACCOUNTS`. Use an MD5 checksum to check the integrity of the transferred file. The content of the file is:

```
Account No, Balance
123456, 100.00
234567, 1022.00
345678, 2801.00
456789, 16.75
```

The server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`.

### Procedure

1. Create an HTTP request with this format:

```
POST HTTP/1.1 /fte/file/agent/ACCOUNTS@QM/temp
Host: example.com
Content-Type: multi-part/form-data; boundary=Aa6b74
x-fte-checksum: MD5

--Aa6b74
Content-Disposition: form-data; name="files"; filename="myfile.txt"
Content-Type: text/plain
```

```
Account No, Balance
123456, 100.00
234567, 1022.00
345678, 2801.00
456789, 16.75
--Aa6b74
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with this format.

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-Length: 0
x-fte-id: 4d63c28ae6e72eb9c51cd812736acd4362ef5
```

```
<transfers>
<submission id="4d63c28ae6e72eb9c51cd812736acd4362ef5">
</submission>
</transfers>
```

The value of `x-fte-id` is the transfer ID. You can use this transfer ID in an HTTP request for information about the status of the transfer. For an example request, see the topic “Example: Viewing the status of a file transfer using an HTTP request.”

#### Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

#### Example: Viewing the status of a file transfer using an HTTP request:

You can view the status of your file transfer by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns information in XML format that describes the current status of the specified transfer. To view the status of file transfers by using the Web Gateway, you must have a database logger in your WebSphere MQ File Transfer Edition network.

#### About this task

A successful request returns an HTTP status code of 200 and an XML payload that describes the current status of the transfer. You can use this XML to view details of the transfer including the status of the transfer, the transfer ID, source and destination agent details, and information about the transfer's source and destination files.

You can view the status of a file transfer if you initiated the upload or if you own the file space to which the file is transferred. If your user ID is associated with either of the WebSphere MQ File Transfer Edition security roles `wmqfte-audit` or `wmqfte-admin`, you can view the status of all file transfers in your WebSphere MQ File Transfer Edition network.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com` and the HTTP request is submitted using a web browser which identifies itself as `mozilla`.

#### Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /transfer/414d51205245444841542e434f4f5244ed60b44b03310020
Host: example.com
User-Agent: mozilla
```

The final part of the URL is the valid 48-character hexadecimal WebSphere MQ File Transfer Edition transfer ID of the transfer you want to view.

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-Length: 1664
Content-type: application/xml
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<transfers>
<transfer start-time="2010-04-01T13:10:04.209+01:00" status="Complete"
id="414d51205245444841542e434f4f5244ed60b44b03310020">
<source>
<agent qmgr="REDHAT.SOURCE.QM" name="REDHAT.SOURCE.AGENT" />
<metadata>
<key value="REDHAT.SOURCE.AGENT" name="com.ibm.wmqfte.SourceAgent" />
<key value="REDHAT.DEST.AGENT" name="com.ibm.wmqfte.DestinationAgent" />
<key value="192.168.243.133" name="com.ibm.wmqfte.OriginatingHost" />
<key value="fteuser" name="com.ibm.wmqfte.MqmdUser" />
<key value="414d51205245444841542e434f4f5244ed60b44b03310020"
name="com.ibm.wmqfte.TransferId" />
<key value="fteuser" name="com.ibm.wmqfte.OriginatingUser" />
</metadata>
</source>
<destination>
<agent qmgr="REDHAT.SOURCE.QM" name="REDHAT.SOURCE.AGENT" />
<metadata>
<key value="REDHAT.SOURCE.AGENT" name="com.ibm.wmqfte.SourceAgent" />
<key value="REDHAT.DEST.AGENT" name="com.ibm.wmqfte.DestinationAgent" />
<key value="fteuser" name="com.ibm.wmqfte.MqmdUser" />
<key value="192.168.243.133" name="com.ibm.wmqfte.OriginatingHost" />
<key value="fteuser" name="com.ibm.wmqfte.OriginatingUser" />
<key value="414d51205245444841542e434f4f5244ed60b44b03310020"
name="com.ibm.wmqfte.TransferId" />
</metadata>
</destination>
<stats retry-count="0" file-warnings="0" file-failures="0"
bytes-transferred="67" />
<transfer-set>
<file result-code="0" mode="text">
<source-file name="/home/fteuser/accounts.txt">
<attribute-values last-modified="2010-03-17T16:55:17.000Z"
file-size="67" disposition="leave" checksum-method="none" />
</source-file>
<destination-file name="/tmp/accounts.txt">
<attribute-values last-modified="2010-04-01T13:10:04.000+01:00"
file-size="67" exists-action="error" checksum-method="none" />
</destination-file>
</file>
</transfer-set>
</transfer>
</transfers>
```

An invalid request returns an HTTP error code and a WebSphere MQ File Transfer Edition error message. To identify the cause of the error, see [Troubleshooting the Web Gateway](#).

### Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

### Example: Querying multiple file transfers using an HTTP request:

You can query the status of multiple file transfers by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns information in either XML or JSON format that describes the status of the transfers that match the query.

### About this task

You can create a URI query that requests transfer information for all transfers that match the query. You can query transfers by their associated details, including the source agent, the destination agent, the source file, the destination file, the transfer status, the metadata, the transfer start time, the transfer end time, and the job name. You can sort the transfer information that is returned by agent, status, start time, end time, or job name, and you can specify the number of results to return. A successful request returns an HTTP status code of 200 and a payload that describes the status of the transfers that match the query.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is example.com. The query requests information that fulfills the following criteria:

- It is from transfers that completed before 1pm UTC on Thursday 26th August 2010, specified by the endbefore=2010-08-26T13:00:00 query
- It is from transfers that have AGENT\_TITAN as either the source agent or destination agent, specified by the agent=AGENT\_TITAN query
- It is sorted by job name in ascending order, specified by the sortby=jobname and sort=ascending queries
- It includes only the first three transfers that match the full query, specified by the count=3 query
- It is returned in JSON format, specified by the Accept: application/json header.

For more information about query parameters, see “Query parameters” on page 947. For more information about the parameters used to sort the results, see “Result format parameters” on page 950.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is example.com and the HTTP request is submitted using a web browser which identifies itself as mozilla.

### Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /transfer/?endbefore=2010-08-26T13:00:00&agent=AGENT_TITAN
&sortby=jobname&sort=ascending&count=3
Host: example.com
User-Agent: mozilla
Accept: application/json
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
{
  "transfers" : {
```

```

"transfer" : {
  "end-time" : "2010-08-23T14:13:03.260Z",
  "status" : "Complete",
  "start-time" : "2010-08-23T14:12:39.076Z",
  "id" : "414d51205745422e46544520202020c1a1a34b03720120",
  "result" : {
    "code" : "0",
    "text" : "BFGRP0032I: The file transfer request has successfully completed."
  }
},
"destination" : {
  "metadata" : {
    "key" : [
      {
        "name" : "com.ibm.wmqfte.JobName",
        "value" : "ALPHA"
      },
      {
        "name" : "com.ibm.wmqfte.SourceAgent",
        "value" : "AGENT_TITAN"
      },
      {
        "name" : "com.ibm.wmqfte.DestinationAgent",
        "value" : "AGENT_MIMAS"
      },
      {
        "name" : "com.ibm.wmqfte.MqmdUser",
        "value" : "rich"
      },
      {
        "name" : "com.ibm.wmqfte.OriginatingHost",
        "value" : "iceman.example.com."
      },
      {
        "name" : "com.ibm.wmqfte.OriginatingUser",
        "value" : "rich"
      },
      {
        "name" : "com.ibm.wmqfte.TransferId",
        "value" : "414d51205745422e465445202020c1a1a34b03720120"
      }
    ]
  },
  "agent" : {
    "name" : "AGENT_MIMAS",
    "qmgr" : "QM_SATURN"
  },
  "stats" : {
    "bytes-transferred" : "259354303",
    "retry-count" : "0",
    "file-warnings" : "0",
    "file-failures" : "0"
  }
},

```

```

"transfer-set" : {
  "file" : {
    "result-code" : "0",
    "mode" : "text",
    "source-file" : {
      "name" : "\/home\/rich\/file.zip",
      "attribute-values" : {
        "last-modified" : "2010-08-19T14:16:57.000Z",
        "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
        "checksum-method" : "MD5",
        "file-size" : "259354303",
        "disposition" : "leave"
      }
    }
  },
  "destination-file" : {
    "name" : "\/tmp\/file.zip",
    "attribute-values" : {
      "exists-action" : "error",
      "last-modified" : "2010-08-23T14:13:02.000Z",
      "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
      "checksum-method" : "MD5",
      "file-size" : "259354303"
    }
  }
}
}
}
"source" : {
  "metadata" : {
    "key" : [
      {
        "name" : "com.ibm.wmqfte.JobName",
        "value" : "ALPHA"
      },
      {
        "name" : "com.ibm.wmqfte.SourceAgent",
        "value" : "AGENT_TITAN"
      },
      {
        "name" : "com.ibm.wmqfte.DestinationAgent",
        "value" : "AGENT_MIMAS"
      },
      {
        "name" : "com.ibm.wmqfte.OriginatingHost",
        "value" : "iceman.example.com."
      },
      {
        "name" : "com.ibm.wmqfte.MqmdUser",
        "value" : "rich"
      },
      {
        "name" : "com.ibm.wmqfte.TransferId",
        "value" : "414d51205745422e46544520202020c1a1a34b03720120"
      },
      {
        "name" : "com.ibm.wmqfte.OriginatingUser",
        "value" : "rich"
      }
    ]
  }
}
}

```

```

    }
  ]
}
,
"agent" : {
  "name" : "AGENT_TITAN",
  "qmgr" : "QM_SATURN"
}
}
}
}
"transfer" : {
  "end-time" : "2010-08-25T15:20:03.260Z",
  "status" : "Complete",
  "start-time" : "2010-08-25T15:19:39.076Z",
  "id" : "414d51205745422e46544520202020c1a1a34b03720120",
  "result" : {
    "code" : "0",
    "text" : "BFGRP0032I: The file transfer request has successfully completed."
  }
}
,
"destination" : {
  "metadata" : {
    "key" : [
      {
        "name" : "com.ibm.wmqfte.JobName",
        "value" : "BRAVO"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.SourceAgent",
        "value" : "AGENT_RHEA"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.DestinationAgent",
        "value" : "AGENT_TITAN"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.MqmdUser",
        "value" : "rich"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.OriginatingHost",
        "value" : "iceman.example.com."
      }
      ,
      {
        "name" : "com.ibm.wmqfte.OriginatingUser",
        "value" : "rich"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.TransferId",
        "value" : "414d51205745422e46544520202020c1a1a34b03720120"
      }
    ]
  }
}
,
"agent" : {

```

```

        "name" : "AGENT_TITAN",
        "qmgr" : "QM_SATURN"
    }
}
,
"stats" : {
    "bytes-transferred" : "259354303",
    "retry-count" : "0",
    "file-warnings" : "0",
    "file-failures" : "0"
}
,
"transfer-set" : {
    "file" : {
        "result-code" : "0",
        "mode" : "text",
        "source-file" : {
            "name" : "\home\rich\file2.zip",
            "attribute-values" : {
                "last-modified" : "2010-08-19T14:16:57.000Z",
                "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
                "checksum-method" : "MD5",
                "file-size" : "259354303",
                "disposition" : "leave"
            }
        }
    }
    ,
    "destination-file" : {
        "name" : "\tmp\file2.zip",
        "attribute-values" : {
            "exists-action" : "error",
            "last-modified" : "2010-08-25T15:120:02.000Z",
            "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
            "checksum-method" : "MD5",
            "file-size" : "259354303"
        }
    }
}
,
"source" : {
    "metadata" : {
        "key" : [
            {
                "name" : "com.ibm.wmqfte.JobName",
                "value" : "BRAVO"
            }
            ,
            {
                "name" : "com.ibm.wmqfte.SourceAgent",
                "value" : "AGENT_RHEA"
            }
            ,
            {
                "name" : "com.ibm.wmqfte.DestinationAgent",
                "value" : "AGENT_TITAN"
            }
            ,
            {
                "name" : "com.ibm.wmqfte.OriginatingHost",
                "value" : "iceman.example.com."
            }
            ,
            {

```

```

        "name" : "com.ibm.wmqfte.MqmdUser",
        "value" : "rich"
    }
    ,
    {
        "name" : "com.ibm.wmqfte.TransferId",
        "value" : "414d51205745422e46544520202020c1a1a34b03720120"
    }
    ,
    {
        "name" : "com.ibm.wmqfte.OriginatingUser",
        "value" : "rich"
    }
    ]
}
"agent" : {
    "name" : "AGENT_RHEA",
    "qmgr" : "QM_SATURN"
}
}
}
"transfer" : {
    "end-time" : "2010-08-21T14:13:03.260Z",
    "status" : "Complete",
    "start-time" : "2010-08-21T14:12:39.076Z",
    "id" : "414d51205745422e46544520202020c1a1a34b03720120",
    "result" : {
        "code" : "0",
        "text" : "BFGRP0032I: The file transfer request has successfully completed."
    }
}
"destination" : {
    "metadata" : {
        "key" : [
            {
                "name" : "com.ibm.wmqfte.JobName",
                "value" : "CHARLIE"
            }
            ,
            {
                "name" : "com.ibm.wmqfte.SourceAgent",
                "value" : "AGENT_TITAN"
            }
            ,
            {
                "name" : "com.ibm.wmqfte.DestinationAgent",
                "value" : "AGENT_DIONE"
            }
            ,
            {
                "name" : "com.ibm.wmqfte.MqmdUser",
                "value" : "rich"
            }
            ,
            {
                "name" : "com.ibm.wmqfte.OriginatingHost",
                "value" : "iceman.example.com."
            }
            ,
            {
                "name" : "com.ibm.wmqfte.OriginatingUser",
                "value" : "rich"
            }
        ]
    }
}

```

```

    }
    ,
    {
      "name" : "com.ibm.wmqfte.TransferId",
      "value" : "414d51205745422e46544520202020c1a1a34b03720120"
    }
  ]
}
,
"agent" : {
  "name" : "AGENT_DIONE",
  "qmgr" : "QM_SATURN"
}
}
,
"stats" : {
  "bytes-transferred" : "259354303",
  "retry-count" : "0",
  "file-warnings" : "0",
  "file-failures" : "0"
}
,
"transfer-set" : {
  "file" : {
    "result-code" : "0",
    "mode" : "text",
    "source-file" : {
      "name" : "\home\rich\file3.zip",
      "attribute-values" : {
        "last-modified" : "2010-08-19T14:16:57.000Z",
        "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
        "checksum-method" : "MD5",
        "file-size" : "259354303",
        "disposition" : "leave"
      }
    }
  }
  ,
  "destination-file" : {
    "name" : "\tmp\file3.zip",
    "attribute-values" : {
      "exists-action" : "error",
      "last-modified" : "2010-08-21T14:13:02.000Z",
      "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
      "checksum-method" : "MD5",
      "file-size" : "259354303"
    }
  }
}
}
,
"source" : {
  "metadata" : {
    "key" : [
      {
        "name" : "com.ibm.wmqfte.JobName",
        "value" : "CHARLIE"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.SourceAgent",
        "value" : "AGENT_TITAN"
      }
    ]
  }
}

```



files. The header 'Accept: application/xml' specifies that the Web Gateway should return the results in XML format. For more information about the formats that are returned by a file space list request, see “File space query response formats” on page 961.

## Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /filespace/john
Host: example.com
User-Agent: mozilla
Accept: application/xml
```

2. Submit the request to the Web Gateway.

## Results

The Web Gateway returns an HTTP response with the following format:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<fileSpaces xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="WebFileSpaceList.xsd">
  <fileSpace size="2" name="john">
    <file fileLink="/wmqfte/filespace/john/414d51205745422e46544520202020c1a1a34b03720120/filename"
      fsLocation="/var/ibm/WMQFTE/web/fte/transfer/414d51205745422e46544520202020c1a1a34b03720120/file-0"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b03720120"
      transferID="414d51205745422e46544520202020c1a1a34b03720120">
      <attribute-values mode="text" created="2010-08-26T11:45:02.000Z" size="259354303"
        checksum-value="98611a272a27d373f92d73a08cf0d4f4" checksum-method="MD5"/>
    </file>
    <file fileLink="/wmqfte/filespace/john/414d51205745422e46544520202020c1a1a34b06520120/filename"
      fsLocation="/var/ibm/WMQFTE/web/fte/transfer/414d51205745422e46544520202020c1a1a34b06520120/file-0"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b06520120"
      transferID="414d51205745422e46544520202020c1a1a34b06520120">
      <attribute-values mode="text" created="2010-08-26T12:15:02.260Z" size="259554303"
        checksum-value="98611a272a27d37bf22d73a08cf0d4f4" checksum-method="MD5"/>
    </file>
  </fileSpace>
</fileSpaces>
```

## Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“File space query response formats” on page 961

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the Accept: header.

## Example: Listing a specific subset of the files in a file space:

You can query the contents of a file space by submitting an HTTP request containing a query to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format describing only those files in the filespace that match the query.

## About this task

You can append a query to your HTTP request that requests information about the files in a file space that match the query. You can query files by their associated details, including the originating user, the

transfer start time, the transfer end time, and the transfer ID of the transfer that sent the file to the file space. You can specify the number of results to return.

A successful request returns an HTTP status code of 200 and a payload that describes the files that match the query. You can request that the details of the files are returned in either XML or JSON format. You can write a web application to parse the content of the response and display it in an appropriate format to a web user.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is example.com. The user requesting the information is authorized to access the file space that is being queried. The query requests information that is returned in JSON format, specified by the accept=json query. The query requests a list of files that fulfill the following criteria:

- The file are in the file space james.
- The files were sent to the file space by the user bob, specified by the originatoruser=bob query.
- The files were sent to the file space after 13:00 (UTC) on 26 August 2010, specified by the startafter=2010-08-26T13:00 query.

### Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /fileSpace/james/?originatoruser=bob&startafter=2010-08-26T13:00&accept=json
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format. In this example, only one file matches the query.

```
{
  "fileSpaces" : {
    "fileSpace" : {
      "name" : "james",
      "size" : "1",
      "file" : {
        "transferLink" : "\\wmqfte\transfer\414d51205745422e46544520202020c1a1a34b03720120",
        "fileLink" : "\\wmqfte\fileSpace\james\414d51205745422e46544520202020c1a1a34b03720120\wibble",
        "name" : "\\tmp\bobs_file.zip",
        "transferID" : "414d51205745422e46544520202020c1a1a34b03720120",
        "attribute-values" : {
          "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
          "checksum-method" : "none",
          "time" : "2010-08-26T14:13:02.000Z",
          "file-size" : "259354303",
          "mode" : "text"
        }
      }
    }
  }
}
```

**Related reference:**

“File space query response formats” on page 961

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the `Accept:` header.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

**Example: Retrieving a file from a file space:**

You can retrieve a file from a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway provides the ability to download a file using the HTTP protocol.

**About this task**

To download a file from a file space, you must be the owner of the file space or have the security role `wmqfte-admin`. A successful request returns an HTTP status code of 200 and the file.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The file that is downloaded is `Accounts.csv` and the transfer ID of the transfer that sent the file to the file space is `4142452b345f4d2e3c2a333d4ed3e4de43453bc2344a2020`. The name of the file space that contains the file is `john`, and the user requesting the information is authorized to access this file space.

**Procedure**

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /fileSpace/john/4142452b345f4d2e3c2a333d4ed3e4de43453bc2344a2020/Accts.csv
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. The Web Gateway returns the file in the HTTP response. The following headers are set in the HTTP response:
  - `Content-Type: application/x-download`
  - `Content-MD5: 98611a272a27d373f92d73a08cf0d4f4`
  - `Content-Disposition: attachment; filename="Accts.csv"`
  - `Content-Length: 8786`

**Related reference:**

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

**Example: Deleting a file from a file space:**

You can delete a file from your file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. If you set the header `x-fte-include-file-in-response` to `true`, the contents of the file are returned in the HTTP response from the Web Gateway.

**About this task**

A successful deletion request returns an HTTP status code of 200 and, if specified in the request, the contents of the deleted file. The request will fail if the user submitting the request is not the owner of the file space.

**Note:** The security role `wmqfte-admin` can delete a file from a file space, but cannot receive the contents of the deleted file. If a user with the security role `wmqfte-admin` attempts to delete a file and request the file contents, the request fails with a resource error. For more information, see “User roles for the Web Gateway” on page 88.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The name of the file space is `jack`, it contains a file `report.txt`, and the user requesting the file deletion is the owner of the file space. The transfer ID `414d5120514d5f67617265746862202067732c4c20c25a03` is the hexadecimal ID of the transfer that put the file in the file space, and this ID is returned when you list the contents of a file space. For more information about the format of file space query responses, see “File space query response formats” on page 961.

The header `x-fte-include-file-in-response:true` specifies that the contents of `report.txt` is returned in the body of the response. If you do not specify the value of this header, it defaults to `false` and the file is deleted but its contents are not returned.

**Procedure**

1. Create an HTTP request with the following format:

```
DELETE HTTP/1.1 /filespace/jack/414d5120514d5f67617265746862202067732c4c20c25a03/report.txt
Host: example.com
User-Agent: mozilla
x-fte-include-file-in-response:true
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-Length: 1762
Content-MD5: 9608f0d8cdcb804d185ab3cb959dba6f
Content-type: text/plain; charset=Cp1252
Content-Disposition: attachment; filename="report.txt"
```

Account No, Balance

123456, 100.00  
234567, 1022.00  
345678, 2801.00  
456789, 16.75

#### Related reference:

“User roles for the Web Gateway” on page 88

WebSphere MQ File Transfer Edition has defined several different roles that control the actions a user can take.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

#### Example: Sending a file using an HTML form

You can send a single text file to a destination file system by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway.

#### About this task

This task demonstrates how to use an HTML form to submit a file transfer request to the Web Gateway. Using an HTML form is an alternative to submitting an HTTP request, which is described in “Example: Sending a file using an HTTP request” on page 304.

The example below uses several optional HTML form fields. For more information on the use of HTML form fields, see “HTTP headers and HTML form fields for using the Web Gateway” on page 941.

#### Procedure

1. Create an HTML file that includes a form in the following format:

```
<form enctype="multipart/form-data"
  action="http://example.org/wmqfte/file/agent/AGENT1@QM1/webuploads"
  method="POST">
  <input type="HIDDEN" name="action" value="overwrite"/>
  <input type="HIDDEN" name="type" value="text"/>
  <input type="HIDDEN" name="jobname" value="TEST"/>
  <input type="HIDDEN" name="priority" value="1"/>
  <input type="HIDDEN" name="checksum" value="NONE"/>
  <input type="HIDDEN" name="metadata" value="fred=awesome,bob=cool"/>
  <input type="HIDDEN" name="metadata" value="lewis=fast,niall=slow"/>
  <input type="HIDDEN" name="postdest"
    value="[command=D:\postdest.cmd,type=executable,successrc=0]"/>
  <input type="HIDDEN" name="postdest-args" value="[fred]"/>
  File: <input type="FILE" name="file"/>
  <input type="submit" name="Upload" value="Upload" />
</form>
```

2. Open this HTML file in a web browser.
3. Enter a file name in the **File** field, or click **Browse** to navigate to it.
4. Click **Upload** to submit the upload request. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-Length: 0
x-fte-id: 4d63c28ae6e72eb9c51cd812736acd4362ef5
```

```
<transfers>
  <submission id="4d63c28ae6e72eb9c51cd812736acd4362ef5">
  </submission>
</transfers>
```

The value of `x-fte-id` is the transfer ID. You can use this transfer ID in an HTTP request for information about the status of the transfer. For an example request, see the topic “Example: Viewing the status of a file transfer using an HTTP request” on page 305.

## Administering the WebSphere MQ File Transfer Edition Web Gateway

You can create and delete file spaces and control the users that have access to individual file spaces.

The Web Gateway can be administered in the following ways:

- By using the Web Gateway administrative console
- By using the RESTful administration API and constructing HTTP requests manually

The examples in this section demonstrate how to create HTTP requests to administer Web Gateway artifacts. For more information about the format of these requests and the Web Gateway administration API, see the topic “Web Gateway administration API reference” on page 966.

These examples are for users with administrative rights. If you are looking for examples of using the Web Gateway for users without administrative rights, for example to upload files or query the files in a file space, see the topic “Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301.

Before configuring or using the Web Gateway, refer to “Scenarios for the Web Gateway” on page 293 and “How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295. These topics explain the purpose and components of the Web Gateway.

### Related concepts:

“Web Gateway administrative console”

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

## Web Gateway administrative console

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

## Using the administrative console

When you have deployed the Web Gateway to your application server, you can access the administrative console by opening a web browser and typing `http://host:port/wmqfteconsole`. If you changed the context root from the default of `wmqfteconsole` when you deployed the Web Gateway, you must use that value instead of `wmqfteconsole`.

If you are using WebSphere Application Server Community Edition, you might see the following error: `ssl_error_no_cypher_overlap`. To fix this problem, change the value of the `sslProtocol` setting of the `TomcatWebSSLConnector` to `SSL` then restart the connector.

## Tasks you can perform using the administrative console

You can use the Web Gateway administrative console to administer two types of resource: file spaces and user mappings. You can use the administrative console to perform the following tasks:

### Create a file space

You can create a file space by clicking the **File spaces** tab, and then clicking **Add**.

### Edit the properties of a file space

You can edit the properties of a file space by clicking the **File spaces** tab, and then clicking **Edit**. The properties that you can edit are: quota, authorized users, and unauthorized users.

### Remove a file space

You can remove a file space by clicking the **File spaces** tab, and then clicking **Remove**. Ensure that no transfers are in progress to or from the file space before deleting the file space.

### Check the integrity of all file spaces

You can check the integrity of all file spaces associated with the Web Gateway by clicking the **File spaces** tab, and then clicking **Check integrity**.

### Map web user IDs to MQMD user IDs

You can map web user IDs to MQMD user IDs by clicking the **MQMD user ID** tab, and then clicking **Add**. If you do not specify a mapping between a web user and an MQMD user ID, the value specified by the `defaultMQMDUserID` parameter is used.

### Related concepts:

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

### Related tasks:

“Example: Creating a file space” on page 323

Before a file can be transferred to a user file space, you must create a file space for that user. You can create a file space by using the WebSphere MQ File Transfer Edition Web Gateway.

“Example: Deleting a file space” on page 331

You can delete an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The file space is not deleted if a file transfer is in progress into the file space.

“Example: Modifying file space configuration” on page 325

You can modify an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. You can change the file space quota and the list of users who can access the file space if you have the necessary security role associated with your user account.

“Example: Checking the integrity of all file spaces” on page 329

You can check the integrity of all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, and an attribute to indicate whether the file space entry matches the files in the file system.

“Example: Mapping web user IDs to MQMD user IDs” on page 332

When you submit file uploads to the WebSphere MQ File Transfer Edition Web Gateway, the Web Gateway determines which WebSphere MQ Message Descriptor (MQMD) user ID to use for the transfer. You can define a set of mappings between web user ID and MQMD user ID by using the Web Gateway.

## **Example HTTP flows for administration**

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

You can use various technologies to submit requests to, and interpret responses from, the Web Gateway. For example, you can write a web application. For information about the example web application which is included with the Web Gateway, see “Sample web page” on page 351.

If you want to communicate with the Web Gateway by using a web application, you can use either HTML forms or the Javascript XMLHttpRequest function. To upload a file, you must use an HTML form, because browsers prevent Javascript from accessing files from the local system, for security reasons. The form can be controlled and submitted by Javascript if you prefer. To request the status of a transfer, XMLHttpRequest is most likely to be appropriate, although other techniques are possible; loading content into an invisible iFrame element, for example.

You can also write a client application in a language such as Ruby or Perl to communicate with the Web Gateway API.

### **Related tasks:**

“Example: Creating a file space” on page 323

Before a file can be transferred to a user file space, you must create a file space for that user. You can create a file space by using the WebSphere MQ File Transfer Edition Web Gateway.

“Example: Modifying file space configuration” on page 325

You can modify an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. You can change the file space quota and the list of users who can access the file space if you have the necessary security role associated with your user account.

“Example: Listing all file spaces” on page 326

You can list all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, the quota of each file space, and the users who are authorized and not authorized to write to each file space.

“Example: Checking the integrity of all file spaces” on page 329

You can check the integrity of all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, and an attribute to indicate whether the file space entry matches the files in the file system.

“Example: Deleting a file space” on page 331

You can delete an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The file space is not deleted if a file transfer is in progress into the file space.

“Example: Mapping web user IDs to MQMD user IDs” on page 332

When you submit file uploads to the WebSphere MQ File Transfer Edition Web Gateway, the Web Gateway determines which WebSphere MQ Message Descriptor (MQMD) user ID to use for the transfer.

You can define a set of mappings between web user ID and MQMD user ID by using the Web Gateway.

### Example: Creating a file space:

Before a file can be transferred to a user file space, you must create a file space for that user. You can create a file space by using the WebSphere MQ File Transfer Edition Web Gateway.

### About this task

Use the Web Gateway administration API to request the creation of a user file space. For more information about the format of a file space creation request, see “File space create or alter request format” on page 977. A successful request returns an HTTP status code of 200.

You must have either the `wmqfte-filespace-create` role or the `wmqfte-admin` role associated with your user account to create a file space. For more information about security roles for the Web Gateway, see “User roles for the Web Gateway” on page 88 and “Attempting to create a file space without the required authority” on page 426.

If you have the security role `wmqfte-admin`, you can also create a file space by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

The following steps describe how to submit a POST request to create a file space. In this example, the server hosting the Web Gateway is `example.com` and the HTTP request is submitted using a web browser that identifies itself as `mozilla`. The name of the file space and the name of the user who owns the file space is `andrew` and the file space can take up a maximum of 1,048,576 bytes on the file system. The user `bill` and any user whose user name matches the regular expression pattern `fte.*` are authorized to send files to the file space. The user `clive` is not authorized to access the user file space. You can use Java regular expressions to pattern-match either or both sets of the users in the authorized and unauthorized XML sections. For more information, see “Regular expressions used by WebSphere MQ File Transfer Edition” on page 746.

In the following example, one of the `agent-user` entries in the authorized section uses the regular expression `fte.*`. This regular expression matches any user names starting with `fte`. In the situation that you wanted to authorize all user names starting with `fte` apart from `fteuser`, you could add an additional `agent-user` entry with a value of `fteuser` in the unauthorized section. This element would take precedence over the `fte.*` regular expression, because unauthorized entries overrule authorized entries when they evaluate to the same value.

In the following example, one of the `agent-user` entries in the authorized section is the user name `accounts1`. One of the `agent-user` entries in the unauthorized section is the regular expression `accounts*`, this overrides the authorization given to the user name `accounts1`. All users that match the regular expression `accounts*`, including the user `accounts1`, are not authorized on this file space.

### Procedure

1. Create an HTTP request with the following format:

```
POST HTTP/1.1 /admin/filespace/andrew
Host: example.com
User-Agent: mozilla
Content-Type: application/xml
Content-Length: 266

<?xml version="1.0" encoding="UTF-8"?>
<filespaces>
  <filespace>
    <quota bytes="1048576"/>
    <writers>
      <authorized>
        <agent-user>bill</agent-user>
```

```

    <agent-user>accounts1</agent-user>
    <agent-user>fte.*</agent-user>
  </authorized>
  <unauthorized>
    <agent-user>fteuser</agent-user>
    <agent-user>accounts*</agent-user>
  </unauthorized>
</writers>
</fileSpace>
</fileSpaces>

```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```

HTTP/1.1 200 OK
Server: WAS/7.0
Content-Length: 0

```

A file space called `andrew` now exists and files can be transferred to it. The users `andrew`, `bill`, and any user whose name begins with `fte`, except for the user `fteuser`, can transfer files to the file space. No users that match the regular expression `accounts*` can transfer files to the file space.

For information about how to transfer files to a file space, see “Example: Transferring a file to a file space” on page 302.

The request to create a file space is logged to the application server event log. For more information, see “File space administration logging format” on page 982.

An invalid request returns an HTTP error code and a WebSphere MQ File Transfer Edition error message. To identify the cause of the error, see “Troubleshooting the Web Gateway” on page 416.

#### Related concepts:

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

#### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Example: Modifying file space configuration:

You can modify an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. You can change the file space quota and the list of users who can access the file space if you have the necessary security role associated with your user account.

### About this task

The WebSphere MQ File Transfer Edition roles `wmqfte-admin` and `wmqfte-filespace-modify` can change both the file space quota and the list of users who can access the file space. For more information about securing the Web Gateway, see “User roles for the Web Gateway” on page 88.

If you have the security role `wmqfte-admin`, you can also modify a file space by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

If you change a file space quota while file transfers to the file space are in progress, the transfers might succeed even if they cause the new quota value to be exceeded. Any file transfers that are started after the quota has been changed are successful only if they do not cause the new quota value to be exceeded.

The following examples show how to change the quota of the file space, add users to the list of people authorized to access the file space, and remove users from the list of people who are not authorized to access the file space. In this example, the server hosting the Web Gateway is `example.com`. The name of the file space, which has already been created, is `finlay`. The name of the file space is denoted by the final part of the URI used by the POST request.

For more information about the format of the XML request to modify a file space, see “File space create or alter request format” on page 977.

### Procedure

1. If you want to add to or remove from the existing lists of users, use the `add` action or `remove` action on the `authorized` and `unauthorized` elements. For example, the following request adds two users to the `authorized` list and removes one user from the `unauthorized` user:

```
POST HTTP/1.1 /admin/filespace/finlay
Host: example.com
User-Agent: mozilla
Content-Type: application/xml

<?xml version="1.0" encoding="UTF-8"?>
<filespace>
  <filespace>
    <quota bytes="100000000"/>
    <writers>
      <authorized action="add">
        <agent-user>jonathan</agent-user>
        <agent-user>lauren</agent-user>
      </authorized>
      <unauthorized action="remove">
        <agent-user>marley</agent-user>
      </unauthorized>
    </writers>
  </filespace>
</filespace>
```

If you want to overwrite the current lists of users, rather than add to or remove from the existing lists, use the `overwrite` action on the `authorized` and `unauthorized` elements. For example, the following request overwrites the current `authorized` list:

```
POST HTTP/1.1 /admin/filespace/finlay
Host: example.org
User-Agent: mozilla
```

```

Content-Type: application/xml

<?xml version="1.0" encoding="UTF-8"?>
<filespaces>
  <fileSpace>
    <writers>
      <authorized action="overwrite">
        <agent-user>fte.*</agent-user>
        <agent-user>ella</agent-user>
        <agent-user>jonathan</agent-user>
        <agent-user>lauren</agent-user>
      </authorized>
    </writers>
  </fileSpace>
</filespaces>

```

You can use Java regular expressions to match multiple user names. For example, one of the `agent-user` entries in the example above has the value `fte.*`, which will match any user with a name that starts with `fte`.

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```

HTTP/1.1 200 OK
Server: WAS/7.0
Content-Length: 0

```

The request to modify a file space is logged to the application server event log. For more information, see “File space administration logging format” on page 982. An invalid request returns an HTTP error code and a WMQFTE error message. To identify the cause of the error, see “Troubleshooting the Web Gateway” on page 416.

#### Related concepts:

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

#### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

#### Example: Listing all file spaces:

You can list all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, the quota of each file space, and the users who are authorized and not authorized to write to each file space.

## About this task

A successful request returns an HTTP status code of 200 and a payload that describes, at most, 100 file spaces.

In this example, the server hosting the Web Gateway is `example.com`. There are currently three file spaces, belonging to the users `richard`, `suzanne` and `hamilton`. There are no file transfers currently in progress into the file space `richard`. There is one transfer in progress into the file space `hamilton`, and two transfers into the file space `suzanne`. The user who is requesting the information is associated with the security role `wmqfte-admin`. The header `Accept: application/xml` specifies that the query returns the results in XML format.

## Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /admin/filespace/  
Host: example.com  
User-Agent: mozilla  
Accept: application/xml
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK  
Server: Apache-Coyote/1.1  
Content-Type: application/xml
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
<filesystems xsi:noNamespaceSchemaLocation="FileSpaceInfo.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">  
  <filesystem transfers="0" location="/mnt/gateway/richard" name="richard">  
    <quota bytes="1048576"/>  
    <writers>  
      <authorized>  
        <agent-user>charlene</agent-user>  
        <agent-user>alan</agent-user>  
      </authorized>  
    </writers>  
  </filesystem>  
  <filesystem transfers="2" location="/mnt/gateway/suzanne" name="suzanne">  
    <quota bytes="20489878"/>  
    <writers>  
      <authorized>  
        <agent-user>charlene</agent-user>  
        <agent-user>sammy</agent-user>  
      </authorized>  
      <unauthorized>  
        <agent-user>arnold</agent-user>  
        <agent-user>frank</agent-user>  
      </unauthorized>  
    </writers>  
  </filesystem>  
  <filesystem transfers="1" location="/mnt/gateway/hamilton" name="hamilton">  
    <quota bytes="666999"/>  
    <writers>  
      <authorized>  
        <agent-user>joseph</agent-user>  
      </authorized>  
      <unauthorized>  
        <agent-user>junior</agent-user>  
      </unauthorized>  
    </writers>  
  </filesystem>  
</filesystems>
```

### Related concepts:

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“File space information response format” on page 975

When you request information about the definition and attributes of a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in XML format or in JSON format. The XML response conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

### Example: Checking the integrity of files in a file space:

You can check the integrity of the files in a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space with an additional attribute to indicate the result of an integrity check on each file.

### About this task

A successful request returns an HTTP status code of 200 and a payload that lists the first 100 files in the file space. You can request that the details of the files are returned in either XML or JSON format. You can write a web application to parse the content of the response and display it in an appropriate format to a web user. Only an administrator is authorized to list the files in a file space with the integrity-check attribute.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The name of the file space to list is `john` and it contains two files. The header `Accept: application/xml` specifies that the query returns the results in XML format. The header `x-fte-check-integrity` specifies that the query returns the results with the additional integrity check attribute included for each file.

### Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /fileSpace/john
Host: example.com
User-Agent: mozilla
Accept: application/xml
x-fte-check-integrity: true
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
<fileSpaces xsi:noNamespaceSchemaLocation="WebTransferStatus.xsd">
  <fileSpace size="2" name="john">
    <file fileLink="/wmqfte/fileSpace/john/414d51205745422e46544520202020c1a1a34b03720120/ar5erh"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b03720120"
      transferID="414d51205745422e46544520202020c1a1a34b03720120"
      name="/tmp/file1.zip"
      fsLocation="/fileSpaces/john/414d51205745422e46544520202020c1a1a34b03720120/file-0">
```

```

    <attribute-values mode="text" time="2010-08-26T11:45:02.000Z" file-size="259354303"
        checksum-value="98611a272a27d373f92d73a08cf0d4f4" checksum-method="none"
        integrity-check-result="OK"/>
</file>
<file fileLink="/wmqfte/filespace/john/414d51205745422e46544520202020c1a1a34b06520120/ar5erh"
    transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b06520120"
    transferID="414d51205745422e46544520202020c1a1a34b06520120"
    name="/tmp/file2.zip"
    fsLocation="/filespaces/john/414d51205745422e46544520202020c1a1a34b06520120/file-0">
    <attribute-values mode="text" time="2010-08-26T12:15:02.260Z" file-size="259554303"
        checksum-value="98611a272a27d37bf22d73a08cf0d4f4" checksum-method="none"
        integrity-check-result="MISSING-FILESYSTEM"/>
</file>
</fileSpace>
</fileSpaces>

```

## Results

This example result indicates that the first file has passed the integrity check. The `integrity-check-result` attribute value of `OK` shows that the file exists in the Web Gateway database and that the matching file has been found on the file system. The second file has failed the integrity check. The `integrity-check-result` attribute value of `MISSING-FILESYSTEM` shows that the file exists in the Web Gateway database but that the file cannot be found on the file system in the location given by the `fsLocation` attribute. In this case it might be necessary for an administrator to delete the file from the file space, or restore the file space directory from a backup.

For the possible values of the `integrity-check-result` attribute, see “File space information response format” on page 975.

### Related concepts:

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

### Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

### Example: Checking the integrity of all file spaces:

You can check the integrity of all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, and an attribute to indicate whether the file space entry matches the files in the file system.

### About this task

Use the Web Gateway administration API to request a list of all the file spaces that currently exist. A successful request returns an HTTP status code of 200 and a payload that describes at most 100 file

spaces. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is example.com. There are currently three file spaces, belonging to the users richard, suzanne and hamilton. The user who is requesting the information is associated with the security role wmqfte-admin. The header Accept: application/xml specifies that the query returns the results in XML format. The header x-fte-check-integrity specifies that every file space should be checked to ensure a matching directory exists on the file system.

## Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /admin/filespace/
Host: example.com
User-Agent: mozilla
Accept: application/xml
x-fte-check-integrity: true
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Content-Type: application/xml
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<filespaces xsi:noNamespaceSchemaLocation="FileSpaceInfo.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <filespace transfers="0" location="/mnt/gateway/richard" name="richard" integrity-check-result="OK">
    <quota bytes="1048576"/>
    <writers>
      <authorized>
        <agent-user>charlene</agent-user>
        <agent-user>alan</agent-user>
      </authorized>
    </writers>
  </filespace>
  <filespace transfers="2" location="/mnt/gateway/suzanne" name="suzanne" integrity-check-result="MISSING-FILESYSTEM">
    <quota bytes="20489878"/>
    <writers>
      <authorized>
        <agent-user>charlene</agent-user>
        <agent-user>sammy</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>arnold</agent-user>
        <agent-user>frank</agent-user>
      </unauthorized>
    </writers>
  </filespace>
  <filespace transfers="1" location="/mnt/gateway/hamilton" name="hamilton" integrity-check-result="OK">
    <quota bytes="666999"/>
    <writers>
      <authorized>
        <agent-user>joseph</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>junior</agent-user>
      </unauthorized>
    </writers>
  </filespace>
</filespaces>
```

## Results

This example result indicates that the first and third file spaces in the set of results have passed the integrity check. The integrity-check-result attribute value of OK shows that the file spaces exist in the Web Gateway database and that matching directories have been found on the file system. The second file

space has failed the integrity check. The `integrity-check-result` attribute value of `MISSING-FILESYSTEM` shows that the file space exists in the Web Gateway database but that the directory indicated by the `location` attribute cannot be found on the file system. In this case it might be necessary for an administrator to delete the file space, or restore the file space root directory from a backup.

If you have the security role `wmqfte-admin`, you can also check the integrity of all file spaces by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

For the possible values of the `integrity-check-result` attribute, see “File space information response format” on page 975.

**Related concepts:**

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

**Related tasks:**

“Example: Checking the integrity of files in a file space” on page 328

You can check the integrity of the files in a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space with an additional attribute to indicate the result of an integrity check on each file.

**Example: Deleting a file space:**

You can delete an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The file space is not deleted if a file transfer is in progress into the file space.

**About this task**

To delete a file space, you must have the appropriate security role associated with your user account. Users associated with the WebSphere MQ File Transfer Edition roles `wmqfte-admin` and `wmqfte-file-space-delete` can delete file spaces. For more information about securing the Web Gateway, see “User roles for the Web Gateway” on page 88.

If you have the security role `wmqfte-admin`, you can also delete a file space by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

*Successful deletion of a file space:*

**About this task**

In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The file space belongs to the user `richard`. There are no file transfers currently in progress into the file space `richard`. You can find out the number of transfers in progress to the file spaces in your Web Gateway environment by listing the file spaces. For more information, see “Example: Listing all file spaces” on page 326.

**Procedure**

1. To delete the file space `richard`, create an HTTP request with the following format:

```
DELETE HTTP/1.1 /admin/file-space/richard
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/7.0
```

The file space richard and any files it contains are deleted. The deletion of a file space is logged to the application server event log. For more information, see “File space administration logging format” on page 982.

*Possible problems when deleting a file space:*

#### **About this task**

In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is example.com. The file space belongs to the user suzanne. There are two transfers in progress into the file space suzanne. You can find out the number of transfers in progress to the file spaces in your Web Gateway environment by listing the file spaces. For more information, see “Example: Listing all file spaces” on page 326.

#### **Procedure**

1. To delete the file space suzanne, create an HTTP request with the following format:

```
DELETE HTTP/1.1 /admin/filespace/suzanne
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. This request fails because there are transfers in progress into the file space. You therefore receive the following response from the Web Gateway:

```
HTTP/1.1 409 Conflict
Server: WAS/7.0
```

```
BFGWI0060E: The file space 'suzanne' is currently in use, and cannot be deleted.
```

You must wait for the transfers to the file space to complete before you can delete the file space.

To identify the cause of any other errors you might receive, see “Troubleshooting the Web Gateway” on page 416.

#### **Related concepts:**

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role wmqfte-admin you can use the administrative console to complete administrative tasks.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

#### **Related reference:**

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

#### **Example: Mapping web user IDs to MQMD user IDs:**

When you submit file uploads to the WebSphere MQ File Transfer Edition Web Gateway, the Web Gateway determines which WebSphere MQ Message Descriptor (MQMD) user ID to use for the transfer. You can define a set of mappings between web user ID and MQMD user ID by using the Web Gateway.

## About this task

Submit an HTTP request to the Web Gateway, with XML in the body of the request that maps web user IDs to MQMD user IDs. For more information about the format of the XML, see “XML format for mapping web user ID to an MQMD user ID” on page 980. A successful request returns an HTTP status code of 200.

You must have the `wmqfte-admin` role associated with your user account to create a set of mappings. For more information about security roles for the Web Gateway, see “User roles for the Web Gateway” on page 88.

If you have the security role `wmqfte-admin`, you can also map web user IDs to MQMD user IDs by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

The following steps describe how to submit a POST request to create a set of mappings. In this example, the server hosting the Web Gateway is `example.com` and the HTTP request is submitted using a web browser that identifies itself as `mozilla`. The request contains information for two users who have the web user IDs `jim` and `rachel`.

## Procedure

1. Create an HTTP request with the following format:

```
POST HTTP/1.1 /admin/user
Host: example.com
User-Agent: mozilla
Content-Type: application/xml
```

```
<?xml version="1.0" encoding="UTF-8"?>
<users>
  <user>
    <userID>jim</userID>
    <mqmdUserID>mqjim</mqmdUserID>
  </user>
  <user>
    <userID>rachel</userID>
    <mqmdUserID>mqrachel</mqmdUserID>
  </user>
</users>
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/7.0
Content-Length: 0
```

An invalid request returns an HTTP error code and a WebSphere MQ File Transfer Edition error message. To identify the cause of the error, see “Troubleshooting the Web Gateway” on page 416.

## Results

When one of the users `jim` or `rachel` submits a file upload request through the Web Gateway, the appropriate MQMD user ID, `mqjim` or `mqrachel`, is used for the transfer. If a user who does not have an MQMD user ID defined submits a file upload request, the value of the `defaultMQMDUserID` parameter is used. In this situation, if this parameter was not defined during Web Gateway deployment, the transfer fails. For more information, see “Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169 and “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152.

### Related concepts:

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

### Related reference:

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“User roles for the Web Gateway” on page 88

WebSphere MQ File Transfer Edition has defined several different roles that control the actions a user can take.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term `/admin`.

## File spaces

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

You can send files from an agent to a user's file space. The files are stored in the file space and can be downloaded using an HTTP client that submits a request to the Web Gateway API. File spaces can be used to make files available to users who do not have access to a system hosting an agent. Transfers into a file space and downloads from a file space are logged in the same way as a normal file transfer.

You do not need a file space to upload a file to a WMQFTE agent using the Web Gateway. If you want to make a file available for a user to collect using an HTTP client, you do need to create a file space. For more information about the behavior of file uploads and downloads using the Web Gateway, see “Scenarios for the Web Gateway” on page 293.

### Related tasks:

“Example: Creating a file space” on page 323

Before a file can be transferred to a user file space, you must create a file space for that user. You can create a file space by using the WebSphere MQ File Transfer Edition Web Gateway.

“Example: Deleting a file space” on page 331

You can delete an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The file space is not deleted if a file transfer is in progress into the file space.

“Example: Modifying file space configuration” on page 325

You can modify an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. You can change the file space quota and the list of users who can access the file space if you have the necessary security role associated with your user account.

“Example: Transferring a file to a file space” on page 302

Transfer a single file to a WebSphere MQ File Transfer Edition file space. You can specify a file space as the destination of a file transfer by using the `-du` parameter with the `fteCreateTransfer` command.

“Example: Listing all files in a file space” on page 314

You can list the contents of a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space. You are authorized to list the contents of a file space if you are the owner of the file space or you have the security role `wmqfte-admin`.

“Example: Checking the integrity of files in a file space” on page 328

You can check the integrity of the files in a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space with an additional attribute to indicate the result of an integrity check on each file.

“Example: Listing a specific subset of the files in a file space” on page 315

You can query the contents of a file space by submitting an HTTP request containing a query to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format describing only those files in the file space that match the query.

“Example: Retrieving a file from a file space” on page 317

You can retrieve a file from a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway provides the ability to download a file using the HTTP protocol.

“Example: Deleting a file from a file space” on page 318

You can delete a file from your file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. If you set the header `x-fte-include-file-in-response` to `true`, the contents of the file are returned in the HTTP response from the Web Gateway.

“Example: Listing all file spaces” on page 326

You can list all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, the quota of each file space, and the users who are authorized and not authorized to write to each file space.

“Example: Checking the integrity of all file spaces” on page 329

You can check the integrity of all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, and an attribute to indicate whether the file space entry matches the files in the file system.

“Setting up a database for use with file spaces” on page 150

Before you can use file spaces you must set up database tables for the Web Gateway to store file space information in. You can create these tables in your existing log database, or create a new database to contain the tables.

#### **Related reference:**

“Attempting to create a file space that already exists” on page 427

File spaces that you create through the WebSphere MQ File Transfer Edition Web Gateway must have unique names. If you attempt to create a file space with a name that is already in use, this will be treated as an attempt to modify the file space. If you do not have permission to modify the file space, you receive an HTTP error code and a WebSphere MQ File Transfer Edition error message.

### **Example: Creating a file space**

Before a file can be transferred to a user file space, you must create a file space for that user. You can create a file space by using the WebSphere MQ File Transfer Edition Web Gateway.

#### **About this task**

Use the Web Gateway administration API to request the creation of a user file space. For more information about the format of a file space creation request, see “File space create or alter request format” on page 977. A successful request returns an HTTP status code of 200.

You must have either the `wmqfte-filespace-create` role or the `wmqfte-admin` role associated with your user account to create a file space. For more information about security roles for the Web Gateway, see “User roles for the Web Gateway” on page 88 and “Attempting to create a file space without the required authority” on page 426.

If you have the security role `wmqfte-admin`, you can also create a file space by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

The following steps describe how to submit a POST request to create a file space. In this example, the server hosting the Web Gateway is `example.com` and the HTTP request is submitted using a web browser that identifies itself as `mozilla`. The name of the file space and the name of the user who owns the file space is `andrew` and the file space can take up a maximum of 1,048,576 bytes on the file system. The user `bill` and any user whose user name matches the regular expression pattern `fte.*` are authorized to send files to the file space. The user `clive` is not authorized to access the user file space. You can use Java regular expressions to pattern-match either or both sets of the users in the authorized and unauthorized XML sections. For more information, see “Regular expressions used by WebSphere MQ File Transfer Edition” on page 746.

In the following example, one of the agent-user entries in the authorized section uses the regular expression `fte.*`. This regular expression matches any user names starting with `fte`. In the situation that you wanted to authorize all user names starting with `fte` apart from `fteuser`, you could add an additional agent-user entry with a value of `fteuser` in the unauthorized section. This element would take precedence over the `fte.*` regular expression, because unauthorized entries overrule authorized entries when they evaluate to the same value.

In the following example, one of the agent-user entries in the authorized section is the user name `accounts1`. One of the agent-user entries in the unauthorized section is the regular expression `accounts*`, this overrides the authorization given to the user name `accounts1`. All users that match the regular expression `accounts*`, including the user `accounts1`, are not authorized on this file space.

## Procedure

1. Create an HTTP request with the following format:

```
POST HTTP/1.1 /admin/filespace/andrew
Host: example.com
User-Agent: mozilla
Content-Type: application/xml
Content-Length: 266

<?xml version="1.0" encoding="UTF-8"?>
<filespaces>
  <filespace>
    <quota bytes="1048576"/>
    <writers>
      <authorized>
        <agent-user>bill</agent-user>
        <agent-user>accounts1</agent-user>
        <agent-user>fte.*</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>fteuser</agent-user>
        <agent-user>accounts*</agent-user>
      </unauthorized>
    </writers>
  </filespace>
</filespaces>
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/7.0
Content-Length: 0
```

A file space called `andrew` now exists and files can be transferred to it. The users `andrew`, `bill`, and any user whose name begins with `fte`, except for the user `fteuser`, can transfer files to the file space. No users that match the regular expression `accounts*` can transfer files to the file space.

For information about how to transfer files to a file space, see “Example: Transferring a file to a file space” on page 302.

The request to create a file space is logged to the application server event log. For more information, see “File space administration logging format” on page 982.

An invalid request returns an HTTP error code and a WebSphere MQ File Transfer Edition error message. To identify the cause of the error, see “Troubleshooting the Web Gateway” on page 416.

#### **Related concepts:**

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

#### **Related reference:**

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

### **Example: Deleting a file space**

You can delete an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The file space is not deleted if a file transfer is in progress into the file space.

#### **About this task**

To delete a file space, you must have the appropriate security role associated with your user account. Users associated with the WebSphere MQ File Transfer Edition roles `wmqfte-admin` and `wmqfte-file-space-delete` can delete file spaces. For more information about securing the Web Gateway, see “User roles for the Web Gateway” on page 88.

If you have the security role `wmqfte-admin`, you can also delete a file space by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

## Successful deletion of a file space:

### About this task

In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The file space belongs to the user `richard`. There are no file transfers currently in progress into the file space `richard`. You can find out the number of transfers in progress to the file spaces in your Web Gateway environment by listing the file spaces. For more information, see “Example: Listing all file spaces” on page 326.

### Procedure

1. To delete the file space `richard`, create an HTTP request with the following format:

```
DELETE HTTP/1.1 /admin/filespace/richard
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/7.0
```

The file space `richard` and any files it contains are deleted. The deletion of a file space is logged to the application server event log. For more information, see “File space administration logging format” on page 982.

## Possible problems when deleting a file space:

### About this task

In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The file space belongs to the user `suzanne`. There are two transfers in progress into the file space `suzanne`. You can find out the number of transfers in progress to the file spaces in your Web Gateway environment by listing the file spaces. For more information, see “Example: Listing all file spaces” on page 326.

### Procedure

1. To delete the file space `suzanne`, create an HTTP request with the following format:

```
DELETE HTTP/1.1 /admin/filespace/suzanne
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. This request fails because there are transfers in progress into the file space. You therefore receive the following response from the Web Gateway:

```
HTTP/1.1 409 Conflict
Server: WAS/7.0
```

```
BFGWI0060E: The file space 'suzanne' is currently in use, and cannot be deleted.
```

You must wait for the transfers to the file space to complete before you can delete the file space.

To identify the cause of any other errors you might receive, see “Troubleshooting the Web Gateway” on page 416.

## Related concepts:

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

## Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

## Example: Modifying file space configuration

You can modify an existing file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. You can change the file space quota and the list of users who can access the file space if you have the necessary security role associated with your user account.

## About this task

The WebSphere MQ File Transfer Edition roles `wmqfte-admin` and `wmqfte-filespace-modify` can change both the file space quota and the list of users who can access the file space. For more information about securing the Web Gateway, see “User roles for the Web Gateway” on page 88.

If you have the security role `wmqfte-admin`, you can also modify a file space by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

If you change a file space quota while file transfers to the file space are in progress, the transfers might succeed even if they cause the new quota value to be exceeded. Any file transfers that are started after the quota has been changed are successful only if they do not cause the new quota value to be exceeded.

The following examples show how to change the quota of the file space, add users to the list of people authorized to access the file space, and remove users from the list of people who are not authorized to access the file space. In this example, the server hosting the Web Gateway is `example.com`. The name of the file space, which has already been created, is `finlay`. The name of the file space is denoted by the final part of the URI used by the POST request.

For more information about the format of the XML request to modify a file space, see “File space create or alter request format” on page 977.

## Procedure

1. If you want to add to or remove from the existing lists of users, use the add action or remove action on the authorized and unauthorized elements. For example, the following request adds two users to the authorized list and removes one user from the unauthorized user:

```
POST HTTP/1.1 /admin/filespace/finlay
Host: example.com
User-Agent: mozilla
Content-Type: application/xml
```

```
<?xml version="1.0" encoding="UTF-8"?>
```

```

<filespaces>
  <filepace>
    <quota bytes="100000000"/>
    <writers>
      <authorized action="add">
        <agent-user>jonathan</agent-user>
        <agent-user>lauren</agent-user>
      </authorized>
      <unauthorized action="remove">
        <agent-user>marley</agent-user>
      </unauthorized>
    </writers>
  </filepace>
</filespaces>

```

If you want to overwrite the current lists of users, rather than add to or remove from the existing lists, use the `overwrite` action on the `authorized` and `unauthorized` elements. For example, the following request overwrites the current `authorized` list:

```

POST HTTP/1.1 /admin/filepace/finlay
Host: example.org
User-Agent: mozilla
Content-Type: application/xml

```

```

<?xml version="1.0" encoding="UTF-8"?>
<filespaces>
  <filepace>
    <writers>
      <authorized action="overwrite">
        <agent-user>fte.*</agent-user>
        <agent-user>ella</agent-user>
        <agent-user>jonathan</agent-user>
        <agent-user>lauren</agent-user>
      </authorized>
    </writers>
  </filepace>
</filespaces>

```

You can use Java regular expressions to match multiple user names. For example, one of the `agent-user` entries in the example above has the value `fte.*`, which will match any user with a name that starts with `fte`.

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```

HTTP/1.1 200 OK
Server: WAS/7.0
Content-Length: 0

```

The request to modify a file space is logged to the application server event log. For more information, see “File space administration logging format” on page 982. An invalid request returns an HTTP error code and a WMQFTE error message. To identify the cause of the error, see “Troubleshooting the Web Gateway” on page 416.

### Related concepts:

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

### Example: Transferring a file to a file space

Transfer a single file to a WebSphere MQ File Transfer Edition file space. You can specify a file space as the destination of a file transfer by using the `-du` parameter with the `fteCreateTransfer` command.

### About this task

When transferring a file to a file space, the WebSphere MQ File Transfer Edition Web Gateway checks whether the transfer would cause the file space quota to be exceeded. If the quota would be exceeded, an error is produced and the file transfer fails. The Web Gateway administrator can increase the size of the file space quota by submitting an HTTP request. For an example request, see the topic “Example: Modifying file space configuration” on page 325.

The file space quota is checked before the transfer begins. If you are using more than one agent to transfer files to the same file space, or if the Web Gateway administrator reduces the file space quota while a file is being transferred to that file space, one or more transfers might succeed even though they cause the file space quota to be exceeded.

In this example, the source file is called `/tmp/Accounts.csv` and is located on the same system as the source agent, `AGENT_1`. The destination file space `john`, which belongs to the user `john`, is located on the same system as the agent `FS_AGENT`. The user requesting the transfer has write access to the file space `john`. The agent `FS_AGENT` uses the queue manager `FS_QM`.

### Procedure

Type the following command:

```
fteCreateTransfer -sa AGENT_1 -da FS_AGENT -dm FS_QM -du john /tmp/Accounts.csv
```

The file `/tmp/Accounts.csv` is transferred to the file space `john`. The user `john` can download this file from the file space when it is required.

## Related concepts:

“File spaces” on page 334

A file space is a reserved area of file storage that is associated with a Web Gateway user. A file space has an allocated quota of storage. Access to the file space is restricted to users with authorization to read from it or write to it.

## Related tasks:

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

## Example: Listing all files in a file space

You can list the contents of a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space. You are authorized to list the contents of a file space if you are the owner of the file space or you have the security role `wmqfte-admin`.

## About this task

A successful request returns an HTTP status code of 200 and a payload that lists the first 100 files in the file space. This response is returned in either XML (the default) or JSON format dependent on the 'Accept' header specified in the request.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com` and the HTTP request is submitted using a web browser which identifies itself as `mozilla`. The name of the file space to list is `john` and it contains two files. The header `Accept: application/xml` specifies that the Web Gateway should return the results in XML format. For more information about the formats that are returned by a file space list request, see “File space query response formats” on page 961.

## Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /fileSpace/john
Host: example.com
User-Agent: mozilla
Accept: application/xml
```

2. Submit the request to the Web Gateway.

## Results

The Web Gateway returns an HTTP response with the following format:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<fileSpaces xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="WebFileSpaceList.xsd">
  <fileSpace size="2" name="john">
    <file fileLink="/wmqfte/fileSpace/john/414d51205745422e46544520202020c1a1a34b03720120/filename"
      fsLocation="/var/ibm/WMQFTE/web/fte/transfer/414d51205745422e46544520202020c1a1a34b03720120/file-0"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b03720120"
      transferID="414d51205745422e46544520202020c1a1a34b03720120">
      <attribute-values mode="text" created="2010-08-26T11:45:02.000Z" size="259354303"
        checksum-value="98611a272a27d373f92d73a08cf0d4f4" checksum-method="MD5"/>
    </file>
    <file fileLink="/wmqfte/fileSpace/john/414d51205745422e46544520202020c1a1a34b06520120/filename"
      fsLocation="/var/ibm/WMQFTE/web/fte/transfer/414d51205745422e46544520202020c1a1a34b06520120/file-0"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b06520120"
      transferID="414d51205745422e46544520202020c1a1a34b06520120">
      <attribute-values mode="text" created="2010-08-26T12:15:02.260Z" size="259554303">
```

```

checksum-value="98611a272a27d37bf22d73a08cf0d4f4" checksum-method="MD5"/>
</file>
</fileSpace>
</fileSpaces>

```

### Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“File space query response formats” on page 961

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the Accept: header.

### Example: Checking the integrity of files in a file space

You can check the integrity of the files in a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space with an additional attribute to indicate the result of an integrity check on each file.

### About this task

A successful request returns an HTTP status code of 200 and a payload that lists the first 100 files in the file space. You can request that the details of the files are returned in either XML or JSON format. You can write a web application to parse the content of the response and display it in an appropriate format to a web user. Only an administrator is authorized to list the files in a file space with the integrity-check attribute.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is example.com. The name of the file space to list is john and it contains two files. The header Accept: application/xml specifies that the query returns the results in XML format. The header x-fte-check-integrity specifies that the query returns the results with the additional integrity check attribute included for each file.

### Procedure

1. Create an HTTP request with the following format:

```

GET HTTP/1.1 /fileSpace/john
Host: example.com
User-Agent: mozilla
Accept: application/xml
x-fte-check-integrity: true

```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```

<fileSpaces xsi:noNamespaceSchemaLocation="WebTransferStatus.xsd">
  <fileSpace size="2" name="john">
    <file fileLink="/wmqfte/fileSpace/john/414d51205745422e46544520202020c1a1a34b03720120/ar5erh"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b03720120"
      transferID="414d51205745422e46544520202020c1a1a34b03720120"
      name="/tmp/file1.zip"
      fsLocation="/fileSpaces/john/414d51205745422e46544520202020c1a1a34b03720120/file-0">
    <attribute-values mode="text" time="2010-08-26T11:45:02.000Z" file-size="259354303"
      checksum-value="98611a272a27d373f92d73a08cf0d4f4" checksum-method="none"
      integrity-check-result="OK"/>
  </fileSpace>
</fileSpaces>

```

```

</file>
<file fileLink="/wmqfte/filespace/john/414d51205745422e46544520202020c1a1a34b06520120/ar5erh"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b06520120"
      transferID="414d51205745422e46544520202020c1a1a34b06520120"
      name="/tmp/file2.zip"
      fsLocation="/filesystems/john/414d51205745422e46544520202020c1a1a34b06520120/file-0">
  <attribute-values mode="text" time="2010-08-26T12:15:02.260Z" file-size="259554303"
                    checksum-value="98611a272a27d37bf22d73a08cf0d4f4" checksum-method="none"
                    integrity-check-result="MISSING-FILESYSTEM"/>
</file>
</fileSpace>
</fileSpaces>

```

## Results

This example result indicates that the first file has passed the integrity check. The `integrity-check-result` attribute value of `OK` shows that the file exists in the Web Gateway database and that the matching file has been found on the file system. The second file has failed the integrity check. The `integrity-check-result` attribute value of `MISSING-FILESYSTEM` shows that the file exists in the Web Gateway database but that the file cannot be found on the file system in the location given by the `fsLocation` attribute. In this case it might be necessary for an administrator to delete the file from the file space, or restore the file space directory from a backup.

For the possible values of the `integrity-check-result` attribute, see “File space information response format” on page 975.

### Related concepts:

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

### Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

## Example: Listing a specific subset of the files in a file space

You can query the contents of a file space by submitting an HTTP request containing a query to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format describing only those files in the file space that match the query.

### About this task

You can append a query to your HTTP request that requests information about the files in a file space that match the query. You can query files by their associated details, including the originating user, the transfer start time, the transfer end time, and the transfer ID of the transfer that sent the file to the file space. You can specify the number of results to return.

A successful request returns an HTTP status code of 200 and a payload that describes the files that match the query. You can request that the details of the files are returned in either XML or JSON format. You can write a web application to parse the content of the response and display it in an appropriate format to a web user.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is example.com. The user requesting the information is authorized to access the file space that is being queried. The query requests information that is returned in JSON format, specified by the accept=json query. The query requests a list of files that fulfill the following criteria:

- The file are in the file space james.
- The files were sent to the file space by the user bob, specified by the originatoruser=bob query.
- The files were sent to the file space after 13:00 (UTC) on 26 August 2010, specified by the startafter=2010-08-26T13:00 query.

## Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /fileSpace/james/?originatoruser=bob&startafter=2010-08-26T13:00&accept=json
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format. In this example, only one file matches the query.

```
{
  "fileSpaces" : {
    "fileSpace" : {
      "name" : "james",
      "size" : "1",
      "file" : {
        "transferLink" : "\\wmqfte\transfer\414d51205745422e46544520202020c1a1a34b03720120",
        "fileLink" : "\\wmqfte\fileSpace\james\414d51205745422e46544520202020c1a1a34b03720120\wibble",
        "name" : "\\tmp\bobs_file.zip",
        "transferID" : "414d51205745422e46544520202020c1a1a34b03720120",
        "attribute-values" : {
          "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
          "checksum-method" : "none",
          "time" : "2010-08-26T14:13:02.000Z",
          "file-size" : "259354303",
          "mode" : "text"
        }
      }
    }
  }
}
```

**Related reference:**

“File space query response formats” on page 961

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the `Accept:` header.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

**Example: Retrieving a file from a file space**

You can retrieve a file from a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway provides the ability to download a file using the HTTP protocol.

**About this task**

To download a file from a file space, you must be the owner of the file space or have the security role `wmqfte-admin`. A successful request returns an HTTP status code of 200 and the file.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The file that is downloaded is `Accounts.csv` and the transfer ID of the transfer that sent the file to the file space is `4142452b345f4d2e3c2a333d4ed3e4de43453bc2344a2020`. The name of the file space that contains the file is `john`, and the user requesting the information is authorized to access this file space.

**Procedure**

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /fileSpace/john/4142452b345f4d2e3c2a333d4ed3e4de43453bc2344a2020/Accts.csv
Host: example.com
User-Agent: mozilla
```

2. Submit the request to the Web Gateway. The Web Gateway returns the file in the HTTP response. The following headers are set in the HTTP response:
  - `Content-Type: application/x-download`
  - `Content-MD5: 98611a272a27d373f92d73a08cf0d4f4`
  - `Content-Disposition: attachment; filename="Accts.csv"`
  - `Content-Length: 8786`

## Related reference:

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

## Example: Deleting a file from a file space

You can delete a file from your file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. If you set the header `x-fte-include-file-in-response` to `true`, the contents of the file are returned in the HTTP response from the Web Gateway.

## About this task

A successful deletion request returns an HTTP status code of 200 and, if specified in the request, the contents of the deleted file. The request will fail if the user submitting the request is not the owner of the file space.

**Note:** The security role `wmqfte-admin` can delete a file from a file space, but cannot receive the contents of the deleted file. If a user with the security role `wmqfte-admin` attempts to delete a file and request the file contents, the request fails with a resource error. For more information, see “User roles for the Web Gateway” on page 88.

The following steps describe how to submit a request. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. The name of the file space is `jack`, it contains a file `report.txt`, and the user requesting the file deletion is the owner of the file space. The transfer ID `414d5120514d5f67617265746862202067732c4c20c25a03` is the hexadecimal ID of the transfer that put the file in the file space, and this ID is returned when you list the contents of a file space. For more information about the format of file space query responses, see “File space query response formats” on page 961.

The header `x-fte-include-file-in-response:true` specifies that the contents of `report.txt` is returned in the body of the response. If you do not specify the value of this header, it defaults to `false` and the file is deleted but its contents are not returned.

## Procedure

1. Create an HTTP request with the following format:

```
DELETE HTTP/1.1 /filespace/jack/414d5120514d5f67617265746862202067732c4c20c25a03/report.txt
Host: example.com
User-Agent: mozilla
x-fte-include-file-in-response:true
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-Length: 1762
Content-MD5: 9608f0d8cdcb804d185ab3cb959dba6f
Content-type: text/plain; charset=Cp1252
Content-Disposition: attachment; filename="report.txt"
```

```
Account No, Balance
123456, 100.00
234567, 1022.00
345678, 2801.00
456789, 16.75
```

## Related reference:

“User roles for the Web Gateway” on page 88

WebSphere MQ File Transfer Edition has defined several different roles that control the actions a user can take.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

## Example: Listing all file spaces

You can list all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, the quota of each file space, and the users who are authorized and not authorized to write to each file space.

## About this task

A successful request returns an HTTP status code of 200 and a payload that describes, at most, 100 file spaces.

In this example, the server hosting the Web Gateway is example.com. There are currently three file spaces, belonging to the users richard, suzanne and hamilton. There are no file transfers currently in progress into the file space richard. There is one transfer in progress into the file space hamilton, and two transfers into the file space suzanne. The user who is requesting the information is associated with the security role wmqfte-admin. The header Accept: application/xml specifies that the query returns the results in XML format.

## Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /admin/filespace/  
Host: example.com  
User-Agent: mozilla  
Accept: application/xml
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK  
Server: Apache-Coyote/1.1  
Content-Type: application/xml
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
<filespaces xsi:noNamespaceSchemaLocation="FileSpaceInfo.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">  
  <filespace transfers="0" location="/mnt/gateway/richard" name="richard">  
    <quota bytes="1048576"/>  
    <writers>  
      <authorized>  
        <agent-user>charlene</agent-user>  
        <agent-user>alan</agent-user>  
      </authorized>  
    </writers>  
  </filespace>  
  <filespace transfers="2" location="/mnt/gateway/suzanne" name="suzanne">  
    <quota bytes="20489878"/>  
    <writers>  
      <authorized>  
        <agent-user>charlene</agent-user>
```

```

        <agent-user>sammy</agent-user>
    </authorized>
    <unauthorized>
        <agent-user>arnold</agent-user>
        <agent-user>frank</agent-user>
    </unauthorized>
</writers>
</fileSpace>
<fileSpace transfers="1" location="/mnt/gateway/hamilton" name="hamilton">
    <quota bytes="666999"/>
    <writers>
        <authorized>
            <agent-user>joseph</agent-user>
        </authorized>
        <unauthorized>
            <agent-user>junior</agent-user>
        </unauthorized>
    </writers>
</fileSpace>
</fileSpaces>

```

### Related concepts:

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“File space information response format” on page 975

When you request information about the definition and attributes of a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in XML format or in JSON format. The XML response conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

### Example: Checking the integrity of all file spaces

You can check the integrity of all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, and an attribute to indicate whether the file space entry matches the files in the file system.

### About this task

Use the Web Gateway administration API to request a list of all the file spaces that currently exist. A successful request returns an HTTP status code of 200 and a payload that describes at most 100 file spaces. In this example, the server hosting the WebSphere MQ File Transfer Edition Web Gateway is `example.com`. There are currently three file spaces, belonging to the users `richard`, `suzanne` and `hamilton`. The user who is requesting the information is associated with the security role `wmqfte-admin`. The header `Accept: application/xml` specifies that the query returns the results in XML format. The header `x-fte-check-integrity` specifies that every file space should be checked to ensure a matching directory exists on the file system.

### Procedure

1. Create an HTTP request with the following format:

```
GET HTTP/1.1 /admin/filespace/
Host: example.com
User-Agent: mozilla
Accept: application/xml
x-fte-check-integrity: true
```

2. Submit the request to the Web Gateway. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Content-Type: application/xml
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<filespaces xsi:noNamespaceSchemaLocation="FileSpaceInfo.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <filespace transfers="0" location="/mnt/gateway/richard" name="richard" integrity-check-result="OK">
    <quota bytes="1048576"/>
    <writers>
      <authorized>
        <agent-user>charlene</agent-user>
        <agent-user>alan</agent-user>
      </authorized>
    </writers>
  </filespace>
  <filespace transfers="2" location="/mnt/gateway/suzanne" name="suzanne" integrity-check-result="MISSING-FILESYSTEM">
    <quota bytes="20489878"/>
    <writers>
      <authorized>
        <agent-user>charlene</agent-user>
        <agent-user>sammy</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>arnold</agent-user>
        <agent-user>frank</agent-user>
      </unauthorized>
    </writers>
  </filespace>
  <filespace transfers="1" location="/mnt/gateway/hamilton" name="hamilton" integrity-check-result="OK">
    <quota bytes="666999"/>
    <writers>
      <authorized>
        <agent-user>joseph</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>junior</agent-user>
      </unauthorized>
    </writers>
  </filespace>
</filespaces>
```

## Results

This example result indicates that the first and third file spaces in the set of results have passed the integrity check. The `integrity-check-result` attribute value of `OK` shows that the file spaces exist in the Web Gateway database and that matching directories have been found on the file system. The second file space has failed the integrity check. The `integrity-check-result` attribute value of `MISSING-FILESYSTEM` shows that the file space exists in the Web Gateway database but that the directory indicated by the `location` attribute cannot be found on the file system. In this case it might be necessary for an administrator to delete the file space, or restore the file space root directory from a backup.

If you have the security role `wmqfte-admin`, you can also check the integrity of all file spaces by using the administrative console. For more information, see “Web Gateway administrative console” on page 320.

For the possible values of the `integrity-check-result` attribute, see “File space information response format” on page 975.

## Related concepts:

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

## Related tasks:

“Example: Checking the integrity of files in a file space” on page 328

You can check the integrity of the files in a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. For example, if you are restoring a file system after data loss, you can check that the files in a file space exist in the correct location on the file system. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space with an additional attribute to indicate the result of an integrity check on each file.

## Sample web page

WebSphere MQ File Transfer Edition Web Gateway provides a sample web page. This sample uses Web Gateway API functions to upload files, view the status of file transfers, view the contents of a file space and download files from a file space.

The sample application file name is `com.ibm.wmqfte.web.samples.war`. You can find this WAR file in the `install-directory/samples/web/servlet` directory of the WebSphere MQ File Transfer Edition Server installation.

Before setting up the sample, you must have the Web Gateway application deployed and running in an application server. For instructions, see “Configuring the Web Gateway” on page 149.

## Installing the sample

1. Deploy the sample application into an application server.

If you deploy the sample into WebSphere Application Server Version 7.0:

- Define a context root for the sample application. For example, if you use a context root of `/wmqftesamples` then the sample Web page is accessible through the URI `/wmqftesamples`.
- You must configure the sample application with security roles and users. The sample application uses the same security realm that you defined for the Web Gateway. For more information, see “Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169.

If you deploy the sample into WebSphere Application Server Community Edition:

- The application uses the context root defined in the `geronimo-web.xml` deployment plan that is located in the Web Gateway EAR file. This context root is `/wmqftesamples`.
- You must configure the sample application with security roles and users. The sample application uses the same security realm that you defined for the Web Gateway. For more information, see “Defining a security realm” on page 157.

2. Open a web browser and type in the URI of the sample, based on the context root that you defined when deploying the sample. The URI of the sample is `host:port/context_root`.

**Note:** The value of `port` depends on the application server that you are using. For example, for WebSphere Application Server Version 7.0, the default port used by applications is 9080.

3. Log in to the sample application using a user name and password that you configured when defining the security realm.
4. If you defined a context root for the Web Gateway other than the default value of `wmqfte`, use the **Settings** section in the sample application to specify the Web Gateway context root.
5. Use the sample application to upload files to the Web Gateway, view the files in your file space, download and delete files from your file space, and view the status of file transfers.

### Related concepts:

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Web Gateway administrative console” on page 320

The Web Gateway administrative console, which is provided with WebSphere MQ File Transfer Edition, provides a graphical interface for you to use to administer file spaces and user mappings. If you have the security role `wmqfte-admin` you can use the administrative console to complete administrative tasks.

### Related tasks:

“Deploying the WebSphere MQ File Transfer Edition Web Gateway” on page 168

The WebSphere MQ File Transfer Edition Web Gateway must be deployed to an application server that is compatible with Java Platform, Enterprise Edition 5. The deployment process for different application servers varies. This section outlines the deployment process for two application servers.

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## Using Apache Ant with WebSphere MQ File Transfer Edition

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

You can use the **fteAnt** command to run Ant tasks in a WebSphere MQ File Transfer Edition environment that you have already configured. You can use file transfer Ant tasks from your Ant scripts to coordinate complex file transfer operations from an interpreted scripting language.

For more information about Apache Ant, see the Apache Ant project web page: <http://ant.apache.org/>

### Related concepts:

“Getting started using Ant scripts with WebSphere MQ File Transfer Edition”

Using Ant scripts with WebSphere MQ File Transfer Edition allows you to coordinate complex file transfer operations from an interpreted scripting language.

### Related reference:

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

“**fteAnt** (run Ant tasks in a WebSphere MQ File Transfer Edition environment)” on page 468

The **fteAnt** command runs Ant scripts in an environment that has WebSphere MQ File Transfer Edition Ant tasks available.

“Sample Ant tasks” on page 354

There are a number of sample Ant scripts provided with your installation of WebSphere MQ File Transfer Edition. These samples are located in the directory `install_dir/samples/fteant`. Each sample script contains an `init` target, edit the properties set in the `init` target to run these scripts with your configuration.

## Getting started using Ant scripts with WebSphere MQ File Transfer Edition

Using Ant scripts with WebSphere MQ File Transfer Edition allows you to coordinate complex file transfer operations from an interpreted scripting language.

## Ant scripts

Ant scripts (or build files) are XML documents defining one or more targets. These targets contain task elements to run. WebSphere MQ File Transfer Edition provides tasks which you can use to integrate file transfer function into Apache Ant. To learn about Ant scripts, see the Apache Ant project web page: <http://ant.apache.org/>

Examples of Ant scripts that use WebSphere MQ File Transfer Edition tasks are provided with your product installation in the directory *install\_dir/samples/fteant*

On protocol bridge agents, Ant scripts are run on the protocol bridge agent system. These Ant scripts do not have direct access to the files on the FTP or SFTP server.

## Namespace

A namespace is used to differentiate the file transfer Ant tasks from other Ant tasks that might share the same name. You define the namespace in the project tag of your Ant script.

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns:fte="antlib:com.ibm.wmqfte.ant.taskdefs" default="do_ping">

  <target name="do_ping">
    <fte:ping cmdqm="qm@localhost@1414@SYSTEM.DEF.SVRCONN" agent="agent1@qm1" rcproperty="ping.rc" timeout="15"/>
  </target>

</project>
```

The attribute `xmlns:fte="antlib:com.ibm.wmqfte.ant.taskdefs"` tells Ant to look for the definitions of tasks prefixed by `fte` in the library `com.ibm.wmqfte.ant.taskdefs`.

You do not need to use `fte` as your namespace prefix; you can use any value. The namespace prefix `fte` is used in all examples and sample Ant scripts.

## Running Ant scripts

To run Ant scripts that contain the file transfer Ant tasks use the **fteAnt** command. For example:

```
fteAnt -file ant_script_location/ant_script_name
```

For more information, see “**fteAnt** (run Ant tasks in a WebSphere MQ File Transfer Edition environment)” on page 468.

## Return codes

The file transfer Ant tasks return the same return codes as the WebSphere MQ File Transfer Edition commands. For more information, see Return codes for WebSphere MQ File Transfer Edition.

## Related reference:

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

“**fteAnt** (run Ant tasks in a WebSphere MQ File Transfer Edition environment)” on page 468

The **fteAnt** command runs Ant scripts in an environment that has WebSphere MQ File Transfer Edition Ant tasks available.

“Sample Ant tasks”

There are a number of sample Ant scripts provided with your installation of WebSphere MQ File Transfer Edition. These samples are located in the directory *install\_dir/samples/fteant*. Each sample script contains an `init` target, edit the properties set in the `init` target to run these scripts with your configuration.

## Sample Ant tasks

There are a number of sample Ant scripts provided with your installation of WebSphere MQ File Transfer Edition. These samples are located in the directory *install\_dir/samples/fteant*. Each sample script contains an `init` target, edit the properties set in the `init` target to run these scripts with your configuration.

## Samples

### email

The email sample demonstrates how to use Ant tasks to transfer a file and send an email to a specified email address if the transfer fails. The script checks that the source and destination agents are active and able to process transfers by using the WebSphere MQ File Transfer Edition ping task. If both agents are active, the script uses the WebSphere MQ File Transfer Edition filecopy task to transfer a file between the source and destination agents, without deleting the original file. If the transfer fails the script sends an email containing information about the failure by using the standard Ant email task.

### hub

The hub sample is made up of two scripts: `hubcopy.xml` and `hubprocess.xml`. The `hubcopy.xml` script shows how you can use Ant scripting to build 'hub and spoke' style topologies. In this sample, two files are transferred from agents running on spoke machines to an agent running on the hub machine. Both files are transferred at the same time, and when the transfers are complete the `hubprocess.xml` Ant script is run on the hub machine to process the files. If both files transfer correctly, the Ant script concatenates the contents of the files. If the files do not transfer correctly, the Ant script cleans up by deleting any file data that was transferred. For this example to work correctly, you must put the `hubprocess.xml` script on the command path of the hub agent. For more information about setting the command path of an agent, see `commandPath`.

### librarytransfer (IBM i platform only)

The librarytransfer sample demonstrates how to use Ant tasks to transfer an IBM i library on one IBM i system to a second IBM i system.

WebSphere MQ File Transfer Edition V7.0.2 on IBM i does not include direct support for transfers of native IBM i library objects. The librarytransfer sample uses the native save file support on IBM i with predefined Ant Tasks available in WebSphere MQ File Transfer Edition to transfer native library objects between two IBM i systems. The sample uses a `<presrc>` nested element in a WebSphere MQ File Transfer Edition filecopy task to invoke an executable script `librarysave.sh` that saves the requested library on the source agent system into a temporary save file. The save file is moved by the filecopy ant task to the destination agent system where a `<postdst>` nested element is used to invoke the executable script `libraryrestore.sh` to restore the library saved in the save file to the destination system.

Before you run this sample, you need to complete some configuration as described in the `librarytransfer.xml` file. You must also have a working WebSphere MQ File Transfer Edition environment on two IBM i machines. The setup must consist of a source agent running on the first IBM i machine and a destination agent running on the second IBM i machine. The two agents must be able to communicate with each other.

The `librarytransfer` sample consists of the following three files:

- `librarytransfer.xml`
- `librarysave.sh` (<presrc> executable script)
- `libraryrestore.sh` (<postdst> executable script)

The sample files are located in the following directory: `/QIBM/ProdData/WMQFTE/V7/samples/fteant/ibmi/librarytransfer`

To run this sample the user must complete the following steps:

1. Start a Qshell session. At an IBM i command window type: `STRQSH`
2. Change directory to the `bin` directory as follows:  
`cd /QIBM/ProdData/WMQFTE/V7/bin`
3. After completing the required configuration, run the sample by using the following command:  
`fteant -f /QIBM/ProdData/WMQFTE/V7/samples/fteant/ibmi/librarytransfer/librarytransfer.xml`

### **physicalfiletransfer (IBM i platform only)**

The `physicalfiletransfer` sample demonstrates how to use Ant tasks to transfer a Source Physical or Database file from a library on one IBM i system to a library on a second IBM i system.

WebSphere MQ File Transfer Edition V7.0.2 on IBM i does not include direct support for transfers of native Source Physical or Database files on IBM i. The `physicalfiletransfer` sample uses the native save file support on IBM i with predefined Ant Tasks available in WebSphere MQ File Transfer Edition to transfer complete Source Physical and Database files between two IBM i systems. The sample uses a <presrc> nested element within a WebSphere MQ File Transfer Edition `filecopy` task to invoke an executable script `physicalfilesave.sh` to save the requested Source Physical or Database file from a library on the source agent system into a temporary save file. The save file is moved by the `filecopy` ant task to the destination agent system where a <postdst> nested element is used to invoke the executable script `physicalfilerestore.sh` then restores the file object inside the save file into a specified library on the destination system.

Before you run this sample, you must complete some configuration as described in the `physicalfiletransfer.xml` file. You must also have a working WebSphere MQ File Transfer Edition environment on two IBM i systems. The setup must consist of a source agent running on the first IBM i system and a destination agent running on the second IBM i system. The two agents must be able to communicate with each other.

The `physicalfiletransfer` sample consists of the following three files:

- `physicalfiletransfer.xml`
- `physicalfilesave.sh` (<presrc> executable script)
- `physicalfilerestore.sh` (<postdst> executable script)

The sample files are located in the following directory: `/QIBM/ProdData/WMQFTE/V7/samples/fteant/ibmi/physicalfiletransfer`

To run this sample the user must complete the following steps:

1. Start a Qshell session. At an IBM i command window type: `STRQSH`
2. Change directory to the `bin` directory as follows:

```
cd /QIBM/ProdData/WMQFTE/V7/bin
```

3. After completing the required configuration, run the sample by using the following command:

```
fteant -f /QIBM/ProdData/WMQFTE/V7/samples/fteant/ibmi/physicalfiletransfer/physicalfiletransfer.xml
```

### **timeout**

The timeout sample demonstrates how to use Ant tasks to attempt a file transfer and to cancel the transfer if it takes longer than a specified timeout value. The script initiates a file transfer by using the WebSphere MQ File Transfer Edition filecopy task. The outcome of this transfer is deferred. The script uses the WebSphere MQ File Transfer Edition “fte:awaitoutcome” on page 991 task to wait a given number of seconds for the transfer to complete. If the transfer does not complete in the given time, the WebSphere MQ File Transfer Edition “fte:cancel” on page 994 task is used to cancel the file transfer.

### **vsamtransfer**

The vsamtransfer sample demonstrates how to use Ant tasks to transfer from a VSAM data set to another VSAM data set by using WebSphere MQ File Transfer Edition. WebSphere MQ File Transfer Edition currently does not support transferring VSAM data sets. The sample script unloads the VSAM data records to a sequential data set by using the presrc nested element to call the executable file datasetcopy.sh. The script uses the WebSphere MQ File Transfer Edition “fte:filemove” on page 998 task to transfer the sequential data set from the source agent to the destination agent. The script then uses the postdst nested element to call the loadvsam.jcl script. This JCL script loads the transferred data set records into a destination VSAM data set. This sample uses JCL for the destination call to demonstrate this language option. The same result can also be achieved by using a second shell script instead.

This sample does not require the source and destination data sets to be VSAM. The sample works for any data sets if the source and destination data sets are of the same type.

For this sample to work correctly, you must put the datasetcopy.sh script on the command path of the source agent and the loadvsam.jcl script on the command path of the destination agent. For more information about setting the command path of an agent, see commandPath.

### **zip**

The zip sample is made up of two scripts: zip.xml and zipfiles.xml. The sample demonstrates how to use the presrc nested element inside the WebSphere MQ File Transfer Edition “fte:filemove” on page 998 task to run an Ant script before performing a file transfer move operation. The zipfiles.xml script called by the presrc nested element in the zip.xml script compresses the contents of a directory. The zip.xml script transfers the compressed file. This sample requires that the zipfiles.xml Ant script is present on the command path of the source agent. This is because the zipfiles.xml Ant script contains the target used to compress the contents of the directory at the source agent. For more information about setting the command path of an agent, see commandPath.

**Related concepts:**

“Getting started using Ant scripts with WebSphere MQ File Transfer Edition” on page 352  
 Using Ant scripts with WebSphere MQ File Transfer Edition allows you to coordinate complex file transfer operations from an interpreted scripting language.

**Related reference:**

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352  
 WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989  
 WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

## Customizing WebSphere MQ File Transfer Edition with user exit routines

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

WebSphere MQ File Transfer Edition provides points in the code where WebSphere MQ File Transfer Edition can pass control to a program that you have written (a user exit routine). These points are known as user exit points. WebSphere MQ File Transfer Edition can then resume control when your program has finished its work. You do not have to use any of the user exits, but they are useful if you want to extend and customize the function of your WebSphere MQ File Transfer Edition system to meet your specific requirements.

There are two points during file transfer processing where you can invoke a user exit at the source system and two points during file transfer processing where you can invoke a user exit at the destination system. The following table summarizes each of these user exit points and the Java interface that you must implement to use the exit points.

*Table 5. Summary of source-side and destination-side exit points and Java interfaces*

Exit point	Java interface to implement
<b>Source-side exit points:</b>	
Before the entire file transfer starts	SourceTransferStartExit.java
After the entire file transfer is complete	SourceTransferEndExit.java
<b>Destination-side exit points:</b>	
Before the entire file transfer starts	DestinationTransferStartExit.java
After the entire file transfer is complete	DestinationTransferEndExit.java

The user exits are invoked in the following order:

1. SourceTransferStartExit
2. DestinationTransferStartExit
3. DestinationTransferEndExit
4. SourceTransferEndExit

Changes made by the SourceTransferStartExit and DestinationTransferStartExit exits are propagated as input to subsequent exits. For example if the SourceTransferStartExit exit modifies the transfer metadata, the changes are reflected in the input transfer metadata to the other exits.

## Building your user exit

The interfaces to build a user exit are contained in *WMQFTE\_install\_directory/lib/com.ibm.wmqfte.exitroutines.api.jar*. You must include this .jar file in the class path when you build your exit. To run the exit, extract the exit as a .jar file and place this .jar file in a directory as described in the following section.

### User exit locations

You can store your user exit routines in two possible locations:

- The `exits` directory. There is an `exits` directory under each agent directory. For example: `C:\Program Files\IBM\WMQFTE\config\QM_JUPITER\agents\AGENT1\exits`
- You can set the `exitClassPath` property to specify an alternative location. If there are exit classes in both the `exits` directory and the class path set by `exitClassPath`, the classes in the `exits` directory take priority, which means that if there are classes in both locations with the same name, the classes in the `exits` directory take priority.

### Configuring an agent to use user exits

There are four agent properties that can be set to specify the user exits that an agent invokes. These agent properties are `sourceTransferStartExitClasses`, `sourceTransferEndExitClasses`, `destinationTransferStartExitClasses`, and `destinationTransferEndExitClasses`. For information about how to use these properties, see “Agent properties for user exits” on page 1020.

### Running user exits on protocol bridge agents

If you run user exits on a protocol bridge agent, the exits have access to only the system where the bridge agent is located. The exits do not have direct access to the files on the FTP or SFTP server.

### Running user exits on Connect:Direct bridge agents

You cannot run user exits on Connect:Direct bridge agents.

#### Related concepts:

“WebSphere MQ File Transfer Edition source and destination user exit routines” on page 359

“Metadata for user exit routines” on page 1013

There are three different types of metadata that can be supplied to user exit routines for WebSphere MQ File Transfer Edition: environment, transfer, and file metadata. This metadata is presented as maps of Java key-value pairs.

“Java interfaces for user exit routines” on page 1022

Use the topics in this section for reference information about Java interfaces for user exit routines.

#### Related reference:

“Enabling remote debugging for user exits” on page 364

While you are developing your user exits, you might want to use a debugger to help locate problems in your code.

“Sample source transfer end user exit” on page 365

“Sample protocol bridge credential user exit” on page 366

“Resource monitor user exits” on page 1015

Resource monitor user exits allow you to configure custom code to run when a monitor's trigger condition is satisfied, before the associated task is started.

“Agent properties for user exits” on page 1020

In addition to the standard properties in the `agent.properties` file, there are several advanced properties specifically for user exit routines. These properties are not included by default so if you want to use any of them, you must manually edit the `agent.properties` file. If you make a change to `agent.properties` file while that agent is running, stop and restart the agent to pick up the changes.

## WebSphere MQ File Transfer Edition source and destination user exit routines

### Directory separators

Directory separators in source file specifications are always represented using forward slash (/) characters, regardless of how you have specified directory separators in the `fteCreateTransfer` command or in the WebSphere MQ Explorer. You must take this into account when you write an exit. For example, if you want to check that the following source file exists: `c:\a\b.txt` and you have specified this source file using the `fteCreateTransfer` command or the WebSphere MQ Explorer, note the file name is actually stored as: `c:/a/b.txt`. So if you search for the original string of `c:\a\b.txt`, you will not find a match.

### Source side exit points

#### Before the entire file transfer starts

This exit is called by the source agent when a transfer request is next in the list of pending transfers and the transfer is about to start.

Example uses of this exit point are to send files in stages to a directory that the agent has read/write access to using an external command, or to rename the files on the destination system.

Pass the following arguments to this exit:

- Source agent name
- Destination agent name
- Environment metadata
- Transfer metadata
- File specifications (including file metadata)

The data returned from this exit is as follows:

- Updated transfer metadata. Entries can be added, modified, and deleted.
- Updated list of file specifications, which consists of source file name and destination file name pairs. Entries can be added, modified, and deleted
- Indicator that specifies whether to continue the transfer
- String to insert to the Transfer Log.

Implement the `SourceTransferStartExit.java` interface to call user exit code at this exit point.

#### After the entire file transfer is complete

This exit is called by the source agent after the entire file transfer has completed.

An example use of this exit point is to perform some completion tasks, such as sending an e-mail or a WebSphere MQ message to flag that the transfer has completed.

Pass the following arguments to this exit:

- Transfer exit result
- Source agent name
- Destination agent name
- Environment metadata
- Transfer metadata

- File results

The data returned from this exit is as follows:

- Updated string to insert to the Transfer Log.

Implement the `SourceTransferEndExit.java` interface to call user exit code at this exit point.

## Destination side exit points

### Before the entire file transfer starts

An example use of this exit point is to validate the permissions at the destination.

Pass the following arguments to this exit:

- Source agent name
- Destination agent name
- Environment metadata
- Transfer metadata
- File specifications

The data returned from this exit is as follows:

- Updated set of destination file names. Entries can be modified but not added or deleted.
- Indicator that specifies whether to continue the transfer
- String to insert into the Transfer Log.

Implement the `DestinationTransferStartExit.java` interface to call user exit code at this exit point.

### After the entire file transfer is complete

An example use of this user exit is to start a batch process that uses the transferred files or to send an e-mail if the transfer has failed.

Pass the following arguments to this exit:

- Transfer exit result
- Source agent name
- Destination agent name
- Environment metadata
- Transfer metadata
- File results

The data returned from this exit is as follows:

- Updated string to insert to the Transfer Log.

Implement the `DestinationTransferEndExit.java` interface to call user exit code at this exit point.

**Related concepts:**

“Java interfaces for user exit routines” on page 1022

Use the topics in this section for reference information about Java interfaces for user exit routines.

**Related reference:**

“Enabling remote debugging for user exits” on page 364

While you are developing your user exits, you might want to use a debugger to help locate problems in your code.

“Sample source transfer end user exit” on page 365

## Using WebSphere MQ File Transfer Edition transfer I/O user exits

You can use WebSphere MQ File Transfer Edition transfer I/O user exits to configure custom code to perform the underlying file system I/O work for WebSphere MQ File Transfer Edition transfers.

Usually for WMQFTE transfers, an agent selects from one of the built-in I/O providers to interact with the appropriate file systems for the transfer. Built-in I/O providers support the following types of file system:

- Regular UNIX-type and Windows-type file systems
- z/OS sequential and partitioned data sets (on z/OS only)
- IBM i native save files (on IBM i only)
- WebSphere MQ queues
- Remote FTP and SFTP protocol servers (for protocol bridge agents only)
- Remote Connect:Direct nodes (for Connect:Direct bridge agents only)

For file systems that are not supported, or where you require custom I/O behavior, you can write a transfer I/O user exit.

Transfer I/O user exits use the existing infrastructure for user exits. However, these transfer I/O user exits differ from other user exits because their function is accessed multiple times throughout the transfer for each file.

Use the agent property `IOExitClasses` (in the `agent.properties` file) to specify which I/O exit classes to load. Separate each exit class with a comma, for example:

```
IOExitClasses=testExits.TestExit1,testExits.testExit2
```

The Java interfaces for the transfer I/O user exits are as follows:

**IOExit** The main entry point used to determine if the I/O exit is used. This instance is responsible for making `IOExitPath` instances.

You need specify only the `IOExit` I/O exit interface for the agent property `IOExitClasses`.

**IOExitPath**

Represents an abstract interface; for example, a data container or wildcard representing a set of data containers. You cannot create a class instance that implements this interface. The interface allows the path to be examined and derived paths to be listed. The `IOExitResourcePath` and `IOExitWildcardPath` interfaces extend `IOExitPath`.

**IOExitChannel**

Enables data to be read from or written to an `IOExitPath` resource.

**IOExitRecordChannel**

Extends the `IOExitChannel` interface for record-oriented `IOExitPath` resources, which enables data to be read from or written to an `IOExitPath` resource in multiples of records.

**IOExitLock**

Represents a lock on an IOExitPath resource for shared or exclusive access.

**IOExitRecordResourcePath**

Extends the IOExitResourcePath interface to represent a data container for a record-oriented file; for example, a z/OS data set. You can use the interface to locate data and to create IOExitRecordChannel instances for read or write operations.

**IOExitResourcePath**

Extends the IOExitPath interface to represent a data container; for example, a file or directory. You can use the interface to locate data. If the interface represents a directory, you can use the listPaths method to return a list of paths.

**IOExitWildcardPath**

Extends the IOExitPath interface to represent a path that denotes a wildcard. You can use this interface to match multiple IOExitResourcePaths.

**IOExitProperties**

Specifies properties that determine how WebSphere MQ File Transfer Edition handles IOExitPath for certain aspects of I/O. For example, whether to use intermediate files or whether to reread a resource from the beginning if a transfer is restarted.

**Related concepts:**

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

**Related reference:**

“IOExit.java interface” on page 1026

“IOExitChannel.java interface” on page 1028

“IOExitLock.java interface” on page 1030

“IOExitPath.java interface” on page 1031

“IOExitProperties.java interface” on page 1032

“IOExitRecordChannel.java interface” on page 1036

“IOExitRecordResourcePath.java interface” on page 1037

“IOExitResourcePath.java interface” on page 1039

“IOExitWildcardPath.java interface” on page 1044

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

**Sample IBM i user exits**

WebSphere MQ File Transfer Edition provides sample user exits specific to IBM i with your installation. The samples are in the directories `WMQFTE_install_dir/samples/ioexit-IBMi` and `WMQFTE_install_dir/samples/userexit-IBMi`.

### **com.ibm.wmqfte.exit.io.ibm.qdls.FTEQDLSExit**

The `com.ibm.wmqfte.exit.io.ibm.qdls.FTEQDLSExit` sample user exit transfers files in the QDLS file system on IBM i. After the exit is installed, any transfers to files that begin with /QDLS automatically use the exit.

To install this exit, complete the following steps:

1. Copy the `com.ibm.wmqfte.samples.ibm.ioexits.jar` file from the `WMQFTE_install_dir/samples/ioexit-IBMi` directory to the agent's `exits` directory.
2. Add `com.ibm.wmqfte.exit.io.ibm.qdls.FTEQDLSExit` to the `IOExitClasses` property.
3. Restart the agent.

### **com.ibm.wmqfte.exit.user.ibm.FileMemberMonitorExit**

The `com.ibm.wmqfte.exit.user.ibm.FileMemberMonitorExit` sample user exit behaves like a WMQFTE file monitor and automatically transfers physical file members from an IBM i library.

To run this exit, specify a value for the "library.qsys.monitor" metadata field (using the `-md` parameter, for example). This parameter takes an IFS-style path to a file member and can contain file and member wildcards. For example, `/QSYS.LIB/FOO.LIB/BAR.FILE/*.MBR`, `/QSYS.LIB/FOO.LIB/*.FILE/BAR.MBR`, `/QSYS.LIB/FOO.LIB/*.FILE/*.MBR`.

This sample exit also has an optional metadata field "naming.scheme.qsys.monitor", which you can use to determine the naming scheme that is used during the transfer. By default, this field is set to "unix," which causes the destination file to be called `F00.MBR`. You can also specify the value "ibmi" to use the IBM i FTP `FILE.MEMBER` scheme, for example, `/QSYS.LIB/FOO.LIB/BAR.FILE/BAZ.MBR` is transferred as `BAR.BAZ`.

To install this exit, complete the following steps:

1. Copy the `com.ibm.wmqfte.samples.ibm.userexits.jar` file from the `WMQFTE_install_dir/samples/userexit-IBMi` directory to the agent's `exits` directory.
2. Add `com.ibm.wmqfte.exit.user.ibm.FileMemberMonitorExit` to the `sourceTransferStartExitClasses` property in the `agent.properties` file.
3. Restart the agent.

### **com.ibm.wmqfte.exit.user.ibm.EmptyFileDeleteExit**

The `com.ibm.wmqfte.exit.user.ibm.EmptyFileDeleteExit` sample user exit deletes an empty file object when the source file member is deleted as part of the transfer. Because IBM i file objects can potentially hold many members, file objects are treated like directories by WMQFTE. Therefore, you cannot perform a move operation on a file object using WMQFTE; move operations are supported at the member level only. Consequently, when you perform a move operation on a member, the now empty file is left behind. Use this sample exit if you want to delete these empty files as part of the transfer request.

If you specify "true" for the "empty.file.delete" metadata and transfer an `FTEFileMember`, the sample exit deletes the parent file if the file is empty.

To install this exit, complete the following steps:

1. Copy the `com.ibm.wmqfte.samples.ibm.userexits.jar` file from `WMQFTE_install_dir/samples/userexit-IBMi` to the agent's `exits` directory.
2. Add `com.ibm.wmqfte.exit.user.ibm.EmptyFileDeleteExit` to the `sourceTransferStartExitClasses` property in the `agent.properties` file.
3. Restart the agent.

### Related reference:

“Using WebSphere MQ File Transfer Edition transfer I/O user exits” on page 361

You can use WebSphere MQ File Transfer Edition transfer I/O user exits to configure custom code to perform the underlying file system I/O work for WebSphere MQ File Transfer Edition transfers.

“Agent properties for user exits” on page 1020

In addition to the standard properties in the `agent.properties` file, there are several advanced properties specifically for user exit routines. These properties are not included by default so if you want to use any of them, you must manually edit the `agent.properties` file. If you make a change to `agent.properties` file while that agent is running, stop and restart the agent to pick up the changes.

## Enabling remote debugging for user exits

While you are developing your user exits, you might want to use a debugger to help locate problems in your code.

Because exits run inside the Java virtual machine that runs the agent, you cannot use the direct debugging support that is typically included in an integrated development environment. However, you can enable remote debugging of the JVM and then connect a suitable remote debugger.

To enable remote debugging, use the standard JVM parameters `-Xdebug` and `-Xrunjdwp`. These properties are passed to the JVM that runs the agent by the `FTE_JVM_PROPERTIES` environment variable. For example, on UNIX the following commands start the agent and cause the JVM to listen for debugger connections on TCP port 8765.

```
export FTE_JVM_PROPERTIES="-Xdebug -Xrunjdwp:transport=dt_socket,server=y,address=8765"  
fteStartAgent -F TEST_AGENT
```

The agent does not start until the debugger connects. Use the `set` command on Windows instead of the `export` command.

You can also use other communication methods between the debugger and JVM. For example, the JVM can open the connection to the debugger instead of vice versa, or you can use shared memory instead of TCP. See the Java Platform Debugger Architecture documentation for further details.

You must use the `-F` (foreground) parameter when you start the agent in remote debug mode.

## Using the Eclipse debugger

The following steps apply to the remote debugging capability in the Eclipse development environment. You can also use other remote debuggers that are JPDA-compatible.

1. Click **Run > Open Debug Dialog** (or **Run > Debug Configurations** or **Run > Debug Dialog** depending on your version of Eclipse).
2. Double-click **Remote Java Application** in the left pane to create a debug configuration.
3. Complete the configuration fields and save the debug configuration. If you have already started the agent JVM in debug mode, you can connect to the JVM now.

## Sample source transfer end user exit

```
/*
 * A Sample Source Transfer End Exit that prints information about a transfer to standard output.
 * If the agent is run in the background the output will be sent to the agent's event log file. If
 * the agent is started in the foreground by specifying the -F parameter on the fteStartAgent
 * command the output will be sent to the console.
 *
 * To run the exit execute the following steps:
 *
 * Compile and build the exit into a jar file. You need the following in the class path:
 * {WMQFTE install dir}\lib\com.ibm.wmqfte.exitroutines.api.jar
 *
 * Put the jar in your agent's exits directory:
 * {WMQFTE configuration dir}\<coordQmgrName>\agents\<agentName>\exits\
 *
 * Update the agent's properties file:
 * {WMQFTE configuration dir}\<coordQmgrName>\agents\<agentName>\agent.properties
 * to include the following property:
 * sourceTransferEndExitClasses=[<packageName>.]SampleEndExit
 *
 * Restart agent to pick up the exit
 *
 * Send the agent a transfer request:
 * For example: fteCreateTransfer -sa myAgent -da YourAgent -df output.txt input.txt
 */
```

```
import java.util.List;
import java.util.Map;
import java.util.Iterator;

import com.ibm.wmqfte.exitroutine.api.SourceTransferEndExit;
import com.ibm.wmqfte.exitroutine.api.TransferExitResult;
import com.ibm.wmqfte.exitroutine.api.FileTransferResult;

public class SampleEndExit implements SourceTransferEndExit {

    public String onSourceTransferEnd(TransferExitResult transferExitResult,
        String sourceAgentName,
        String destinationAgentName,
        Map<String, String>environmentMetaData,
        Map<String, String>transferMetaData,
        List<FileTransferResult>fileResults) {

        System.out.println("Environment Meta Data: " + environmentMetaData);
        System.out.println("Transfer Meta Data: " + transferMetaData);

        System.out.println("Source agent: " +
            sourceAgentName);
        System.out.println("Destination agent: " +
            destinationAgentName);

        if (fileResults.isEmpty()) {
            System.out.println("No files in the list");
            return "No files";
        }
        else {

            System.out.println("File list: ");

            final Iterator<FileTransferResult> iterator = fileResults.iterator();

            while (iterator.hasNext()){
                final FileTransferResult thisFileSpec = iterator.next();
                System.out.println("Source file spec: " +
                    thisFileSpec.getSourceFileSpecification() +
                    ", Destination file spec: " +
```

```

        thisFileSpec.getDestinationFileSpecification());
    }
}
return "Done";
}
}

```

## Sample protocol bridge credential user exit

For information about how to use this sample user exit, see “Mapping credentials for a file server using exit classes” on page 264

```

import java.io.File;
import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.io.IOException;
import java.util.Enumeration;
import java.util.HashMap;
import java.util.Map;
import java.util.Properties;
import java.util.StringTokenizer;

import com.ibm.wmqfte.exitroutine.api.CredentialExitResult;
import com.ibm.wmqfte.exitroutine.api.CredentialExitResultCode;
import com.ibm.wmqfte.exitroutine.api.CredentialPassword;
import com.ibm.wmqfte.exitroutine.api.CredentialUserId;
import com.ibm.wmqfte.exitroutine.api.Credentials;
import com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit;

/**
 * A sample protocol bridge credential exit
 *
 * This exit reads a properties file that maps mq user ids to server user ids
 * and server passwords. The format of each entry in the properties file is:
 *
 * mqUserId=serverUserId,serverPassword
 *
 * The location of the properties file is taken from the protocol bridge agent
 * property protocolBridgeCredentialConfiguration.
 *
 * To install the sample exit compile the class and export to a jar file.
 * Place the jar file in the exits subdirectory of the agent data directory
 * of the protocol bridge agent on which the exit is to be installed.
 * In the agent.properties file of the protocol bridge agent set the
 * protocolBridgeCredentialExitClasses to SampleCredentialExit
 * Create a properties file that contains the mqUserId to serverUserId and
 * serverPassword mappings applicable to the agent. In the agent.properties
 * file of the protocol bridge agent set the protocolBridgeCredentialConfiguration
 * property to the absolute path name of this properties file.
 * To activate the changes stop and restart the protocol bridge agent.
 *
 * For further information on protocol bridge credential exits refer to
 * the WebSphere MQ File Transfer Edition documentation online at:
 * https://www.ibm.com/support/knowledgecenter/SSEP7X_7.0.4/welcome/WelcomePagev7r0.html
 */
public class SampleCredentialExit implements ProtocolBridgeCredentialExit {

    // The map that holds mq user id to serverUserId and serverPassword mappings
    final private Map<String,Credentials> credentialsMap = new HashMap<String, Credentials>();

    /* (non-Javadoc)
     * @see com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit#initialize(java.util.Map)
     */
    public synchronized boolean initialize(Map<String, String> bridgeProperties) {

        // Flag to indicate whether the exit has been successfully initialized or not

```

```

boolean initialisationResult = true;

// Get the path of the mq user id mapping properties file
final String propertiesFilePath = bridgeProperties.get("protocolBridgeCredentialConfiguration");

if (propertiesFilePath == null || propertiesFilePath.length() == 0) {
    // The properties file path has not been specified. Output an error and return false
    System.err.println("Error initializing SampleCredentialExit.");
    System.err.println("The location of the mqUserId mapping properties file has not been specified in the protocolBridge");
    initialisationResult = false;
}

if (initialisationResult) {

    // The Properties object that holds mq user id to serverUserId and serverPassword
    // mappings from the properties file
    final Properties mappingProperties = new Properties();

    // Open and load the properties from the properties file
    final File propertiesFile = new File (propertiesFilePath);
    FileInputStream inputStream = null;
    try {
        // Create a file input stream to the file
        inputStream = new FileInputStream(propertiesFile);

        // Load the properties from the file
        mappingProperties.load(inputStream);
    }
    catch (FileNotFoundException ex) {
        System.err.println("Error initializing SampleCredentialExit.");
        System.err.println("Unable to find the mqUserId mapping properties file: " + propertiesFilePath);
        initialisationResult = false;
    }
    catch (IOException ex) {
        System.err.println("Error initializing SampleCredentialExit.");
        System.err.println("Error loading the properties from the mqUserId mapping properties file: " + propertiesFilePath);
        initialisationResult = false;
    }
    finally {
        // Close the inputStream
        if (inputStream != null) {
            try {
                inputStream.close();
            }
            catch (IOException ex) {
                System.err.println("Error initializing SampleCredentialExit.");
                System.err.println("Error closing the mqUserId mapping properties file: " + propertiesFilePath);
                initialisationResult = false;
            }
        }
    }

    if (initialisationResult) {
        // Populate the map of mqUserId to server credentials from the properties
        final Enumeration<?> propertyNames = mappingProperties.propertyNames();
        while ( propertyNames.hasMoreElements() ) {
            final Object name = propertyNames.nextElement();
            if (name instanceof String ) {
                final String mqUserId = ((String)name).trim();
                // Get the value and split into serverUserId and serverPassword
                final String value = mappingProperties.getProperty(mqUserId);
                final StringTokenizer valueTokenizer = new StringTokenizer(value, ",");
                String serverUserId = "";
                String serverPassword = "";
                if (valueTokenizer.hasMoreTokens() ) {
                    serverUserId = valueTokenizer.nextToken().trim();
                }
            }
        }
    }
}

```

```

        if (valueTokenizer.hasMoreTokens()) {
            serverPassword = valueTokenizer.nextToken().trim();
        }
        // Create a Credential object from the serverUserId and serverPassword
        final Credentials credentials = new Credentials(new CredentialUserId(serverUserId), new CredentialPassword(serverPas
        // Insert the credentials into the map
        credentialsMap.put(mqUserId, credentials);
    }
}

}

return initialisationResult;
}
/* (non-Javadoc)
 * @see com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit#mapMQUserId(java.lang.String)
 */
public synchronized CredentialExitResult mapMQUserId(String mqUserId) {
    CredentialExitResult result = null;
    // Attempt to get the server credentials for the given mq user id
    final Credentials credentials = credentialsMap.get(mqUserId.trim());
    if (credentials == null) {
        // No entry has been found so return no mapping found with no credentials
        result = new CredentialExitResult(CredentialExitResultCode.NO_MAPPING_FOUND, null);
    }
    else {
        // Some credentials have been found so return success to the user along with the credentials
        result = new CredentialExitResult(CredentialExitResultCode.USER_SUCCESSFULLY_MAPPED, credentials);
    }
    return result;
}
/* (non-Javadoc)
 * @see com.ibm.wmqfte.exitroutine.api.ProtocolBridgeCredentialExit#shutdown(java.util.Map)
 */
public void shutdown(Map<String, String> bridgeProperties) {
    // Nothing to do in this method because there are no resources that need to be released
}
}
}

```

## Sample protocol bridge properties user exit

For information about how to use this sample user exit, see “Looking up protocol file server properties by using exit classes” on page 259

```

import java.io.File;
import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.io.IOException;
import java.util.HashMap;
import java.util.Map;
import java.util.Properties;
import java.util.Map.Entry;

import com.ibm.wmqfte.exitroutine.api.ProtocolBridgePropertiesExit;
import com.ibm.wmqfte.exitroutine.api.ProtocolServerPropertyConstants;

/**
 * A sample protocol bridge properties exit. This exit reads a properties file
 * that contains properties for protocol servers.
 * <p>
 * The format of each entry in the properties file is: {@literal
 * <serverName>=<type>://<host>:<port>}
 * <p>
 * The location of the properties file is taken from the protocol bridge agent
 * property {code protocolBridgePropertiesConfiguration}.

```

```

* <p>
* To install the sample exit:
* <ol>
* <li>Compile the class and export to a jar file.
* <li>Place the jar file in the {@code exits} subdirectory of the agent data
* directory of the protocol bridge agent on which the exit is to be installed.
* <li>In the {@code agent.properties} file of the protocol bridge agent set the
* {code protocolBridgePropertiesExitClasses} to {@code SampleCredentialExit}.
* <li>Create a properties file that contains the appropriate properties to
* specify the required servers.
* <li>In the {@code agent.properties} file of the protocol bridge agent set the
* <code>protocolBridgePropertiesConfiguration</code> property to the absolute
* path name of this properties file.
* <li>To activate the changes stop and restart the protocol bridge agent.
* </ol>
* <p>
* For further information on protocol bridge properties exits refer to the
* WebSphere MQ File Transfer Edition documentation online at:
* <p>
* {@link https://www.ibm.com/support/knowledgecenter/SSEP7X_7.0.4/welcome/WelcomePagev7r0.html}
*/
public class SamplePropertiesExit implements ProtocolBridgePropertiesExit {

    /**
     * Helper class to encapsulate protocol server information.
     */
    private static class ServerInformation {
        private final String type;
        private final String host;
        private final int port;

        public ServerInformation(String url) {
            int index = url.indexOf("://");
            if (index == -1)
                throw new IllegalArgumentException("Invalid server URL: " + url);
            type = url.substring(0, index);

            int portIndex = url.indexOf(":", index + 3);
            if (portIndex == -1) {
                host = url.substring(index + 3);
                port = -1;
            } else {
                host = url.substring(index + 3, portIndex);
                port = Integer.parseInt(url.substring(portIndex + 1));
            }
        }

        public String getType() {
            return type;
        }

        public String getHost() {
            return host;
        }

        public int getPort() {
            return port;
        }
    }

    /** A {@code Map} that holds information for each configured protocol server */
    final private Map<String, ServerInformation> servers = new HashMap<String, ServerInformation>();

    /**
     * (non-Javadoc)
     *
     * @see com.ibm.wmqfte.exitroutine.api.ProtocolBridgePropertiesExit#

```

```

* getProtocolServerProperties(java.lang.String)
*/
public Properties getProtocolServerProperties(String protocolServerName) {
    // Attempt to get the protocol server information for the given protocol
    // server name
    final ServerInformation info;
    if (protocolServerName != null && protocolServerName.length() > 0) {
        info = servers.get(protocolServerName);
    } else {
        info = null;
    }

    // Build the return set of properties from the collected protocol server
    // information, when available.
    // The properties set here is the minimal set of properties to be a
    // valid set.
    final Properties result;
    if (info != null) {
        result = new Properties();
        result.setProperty(ProtocolServerPropertyConstants.SERVER_NAME,
            protocolServerName);
        result.setProperty(ProtocolServerPropertyConstants.SERVER_TYPE,
            info.getType());
        result.setProperty(
            ProtocolServerPropertyConstants.SERVER_HOST_NAME, info
                .getHost());
        if (info.getPort() != -1)
            result.setProperty(
                ProtocolServerPropertyConstants.SERVER_PORT_VALUE, ""
                    + info.getPort());
        result.setProperty(ProtocolServerPropertyConstants.SERVER_PLATFORM,
            "UNIX");
        if (info.getType().equalsIgnoreCase("FTP")) {
            result.setProperty(
                ProtocolServerPropertyConstants.SERVER_TIMEZONE,
                "Europe/London");
            result.setProperty(
                ProtocolServerPropertyConstants.SERVER_LOCALE, "en-GB");
        }
        result.setProperty(
            ProtocolServerPropertyConstants.SERVER_FILE_ENCODING,
            "UTF-8");
    } else {
        result = null;
    }

    return result;
}

/*
 * (non-Javadoc)
 *
 * @see
 * com.ibm.wmqfte.exitroutine.api.ProtocolBridgePropertiesExit#initialize
 * (java.util.Map)
 */
public boolean initialize(Map<String, String> bridgeProperties) {
    // Flag to indicate whether the exit has been successfully initialized
    // or not
    boolean initialisationResult = true;

    // Get the path of the properties file
    final String propertiesFilePath = bridgeProperties
        .get("protocolBridgePropertiesConfiguration");
    if (propertiesFilePath == null || propertiesFilePath.length() == 0) {
        // The protocol server properties file path has not been specified.
        // Output an error and return false

```

```

System.err.println("Error initializing SamplePropertiesExit.");
System.err
    .println("The location of the protocol server properties file has not been specified in the protocolBridgeProperties
initialisationResult = false;
}

if (initialisationResult) {
// The Properties object that holds protocol server information
final Properties mappingProperties = new Properties();

// Open and load the properties from the properties file
final File propertiesFile = new File(propertiesFilePath);
FileInputStream inputStream = null;
try {
// Create a file input stream to the file
inputStream = new FileInputStream(propertiesFile);

// Load the properties from the file
mappingProperties.load(inputStream);
} catch (final FileNotFoundException ex) {
System.err.println("Error initializing SamplePropertiesExit.");
System.err
    .println("Unable to find the protocol server properties file: "
        + propertiesFilePath);
initialisationResult = false;
} catch (final IOException ex) {
System.err.println("Error initializing SamplePropertiesExit.");
System.err
    .println("Error loading the properties from the protocol server properties file: "
        + propertiesFilePath);
initialisationResult = false;
} finally {
// Close the inputStream
if (inputStream != null) {
try {
inputStream.close();
} catch (final IOException ex) {
System.err
        .println("Error initializing SamplePropertiesExit.");
System.err
        .println("Error closing the protocol server properties file: "
            + propertiesFilePath);
initialisationResult = false;
}
}
}

if (initialisationResult) {
// Populate the map of protocol servers from the properties
for (Entry<Object, Object> entry : mappingProperties.entrySet()) {
final String serverName = (String) entry.getKey();
final ServerInformation info = new ServerInformation(
    (String) entry.getValue());
servers.put(serverName, info);
}
}
}

return initialisationResult;
}

/*
 * (non-Javadoc)
 *
 * @see
 * com.ibm.wmqfte.exitroutine.api.ProtocolBridgePropertiesExit#shutdown(
 * java.util.Map)

```

```

*/
public void shutdown(Map<String, String> bridgeProperties) {
    // Nothing to do in this method because there are no resources that need
    // to be released
}
}

```

---

## Controlling WebSphere MQ File Transfer Edition by putting messages on the agent command queue

You can write an application that controls WebSphere MQ File Transfer Edition by putting messages on agent command queues.

You can put a message on the command queue of an agent to request that the agent performs one of the following actions:

- Create a file transfer
- Create a scheduled file transfer
- Cancel a file transfer
- Cancel a scheduled file transfer
- Call a command
- Create a monitor
- Delete a monitor
- Return a ping to indicate that the agent is active

To request that the agent performs one of these actions, the message must be in an XML format that complies with one of the following schema:

### **FileTransfer.xsd**

Messages in this format can be used to create a file transfer or scheduled file transfer, to call a command, or to cancel a file transfer or scheduled file transfer. For more information, see “File transfer request message format” on page 881.

### **Monitor.xsd**

Messages in this format can be used to create or delete a resource monitor. For more information, see “Monitor request message formats” on page 898.

### **PingAgent.xsd**

Messages in this format can be used to ping an agent to check that it is active. For more information, see “Ping agent request message format” on page 912.

The agent returns a reply to the request messages. The reply message is put to a reply queue that is defined in the request message. The reply message is in an XML format defined by the following schema:

### **Reply.xsd**

For more information, see “Reply message format” on page 913.

---

## Troubleshooting WebSphere MQ File Transfer Edition

Use the following reference information to help you to diagnose errors in WebSphere MQ File Transfer Edition:

### Related concepts:

“Troubleshooting the installer”

Use the following reference information and examples to help you diagnose errors returned from the WebSphere MQ File Transfer Edition installation.

“General troubleshooting” on page 378

Use the following reference information to help you to diagnose errors in WebSphere MQ File Transfer Edition:

“Troubleshooting the Web Gateway” on page 416

Use the following reference information and examples to help you diagnose errors returned from the Web Gateway.

“Troubleshooting the Connect:Direct bridge” on page 431

Use the following reference information and examples to help you diagnose errors returned from the Connect:Direct bridge.

### Related reference:

“Tracing WebSphere MQ File Transfer Edition commands” on page 380

You can trace any of the WebSphere MQ File Transfer Edition commands to help with problem determination from the command line.

---

## Troubleshooting the installer

Use the following reference information and examples to help you diagnose errors returned from the WebSphere MQ File Transfer Edition installation.

- “Dealing with common installation problems”
- “Return codes from the installer” on page 375
- “What to do if the WebSphere MQ Explorer plug-in is not installed into the WebSphere MQ Explorer” on page 377

## Dealing with common installation problems

Use the advice given here to help you to resolve problems when installing WebSphere MQ File Transfer Edition.

### Delays when installing

When you install WebSphere MQ File Transfer Edition, you might experience a delay while the installer checks the available space on your system. If you are using the graphical installer, the delay occurs while you are waiting for the **Pre-Installation Summary** page to display. This delay might be several minutes long depending on your operating system and network drive configuration. The delay is caused by the installer checking available space on your system, which can take longer if you have configured network drives. This delay does not indicate a problem with the installation process; wait for the installation to complete as normal.

### Errors when installing

- If you install V7.0.3 or earlier, you might see one of the following errors:
  - The installer is either corrupt or has not been launched from the original media. Ensure that the original media is being used.
  - Please insert WMQFTE or type its location.

These errors can occur when you extract installation files from the eAssembly image but change the original directory structure. You must maintain the following directory structure:

```
Disk1/version.ini
Disk1/InstData/Resource.zip
Disk1/InstData/MediaId.properties
Disk1/InstData/VM/install.bin
```

If you are installing V7.0.4 or later, there is no requirement to maintain a specific directory structure.

- On UNIX, if the console or silent installer produces the following error message:  
[-----Invocation of this Java Application has caused an InvocationTargetException.  
This application will now exit. (LAX).

Stack Trace:

```
java.lang.NoClassDefFoundError: sun.awt.X11GraphicsEnvironment (initialization failure)
at java.lang.J9VMInternals.initialize(J9VMInternals.java:132)
```

this generally indicates that one or more of the X client libraries that are required for the installer to run could not be found on the system. These must be present even though you are not using the graphical installer.

**Note:** On 64-bit systems, install the 32-bit version of the library if it is available.

Ensure that the following libraries are installed (where applicable to your platform), typically in /usr/lib/:

- libXp.so.6
- libstdc++.so.5
- libX11.so.6
- libXtst.so.6

- On Linux, if the console or silent installer produces the following error message:  
[-----Invocation of this Java Application has caused an InvocationTargetException. This application will now exit

Stack Trace:

```
java.lang.UnsatisfiedLinkError: fontmanager (libX11.so.6: cannot open shared object file: No such file or directory)
at java.lang.ClassLoader.loadLibraryWithPath(ClassLoader.java:986)
```

this indicates that a required library libX11.so.6 could not be found on the system, however this library is needed for the installer to run. Even if you are installing on 64-bit Linux (x86-64) and or if you are running in console mode, the 32-bit version of the library is still required.

To resolve this error, ensure that the 32-bit version of the library libX11.so.6 is present on the system.

This library is provided by the packages with names of the format in the following examples:

- For example, for RedHat Enterprise Linux: libX11-x.x.x-x.xxx.i686
- For example, for SLES 11 Linux: xorg-x11-libX11-32bit-x.x-x.x.x

- If the installer defaults to a console installation even though the graphical mode is available, check that the DISPLAY environment variable is set to point to a valid, accessible X Windows server and that the above X client libraries are installed.

## Return codes from the installer

The WebSphere MQ File Transfer Edition installer provides return codes to indicate whether installation tasks have successfully completed.

### Retrieving the return codes

When the installer has completed, you can find the return code by one of the following methods:

- Look in the installation log file. This file is located at *install\_directory/IBM\_WebSphere\_MQ\_File\_Transfer\_Edition\_-\_component\_InstallLog.log*
- If you are using the console or silent installer, type the following command immediately after installation has completed to determine the return code:
  - On Windows  
echo %ERRORLEVEL%
  - On Linux or UNIX  
echo \$?

If you receive a return code from your installation that is not included in the following tables, see the documentation for your operating system.

### Return codes on Windows platforms

The following table lists the installer return codes with their meanings:

Table 6.

Return code	Description
0	Success: The installation completed successfully without any warnings or errors.
1	The installation completed successfully, but one or more of the actions from the installation sequence caused a warning or a non-fatal error.
-1	One or more of the actions from the installation sequence caused an unrecoverable error.
1000	The installation was canceled by the user.
1001	The installation includes an invalid command-line option.
2000	Unhandled error.
2001	The installation failed the authorization check, this error might indicate an expired version.
2002	The installation failed a rules check. A rule placed on the installer itself failed.
2003	An unresolved dependency in silent mode caused the installer to exit.
2004	The installation failed because not enough disk space was detected during the execution of the Install action.
2005	The installation failed while trying to install on a Windows 64-bit system, but installation did not include support for Windows 64-bit systems.
2006	The installation failed because it was launched in a UI mode that is not supported by this installer.
3000	Unhandled error specific to a launcher.
3001	The installation failed due to an error specific to the <code>lax.main.class</code> property.
3002	The installation failed due to an error specific to the <code>lax.main.method</code> property.
3003	The installation was unable to access the method specified in the <code>lax.main.method</code> property.
3004	The installation failed due to an exception error caused by the <code>lax.main.method</code> property.
3005	The installation failed because no value was assigned to the <code>lax.application.name</code> property.

Table 6. (continued)

Return code	Description
3006	The installation was unable to access the value assigned to the <code>lax.nl.java.launcher.main.class</code> property.
3007	The installation failed due to an error specific to the <code>lax.nl.java.launcher.main.class</code> property.
3008	The installation failed due to an error specific to the <code>lax.nl.java.launcher.main.method</code> property.
3009	The installation was unable to access the method specified in the <code>lax.nl.launcher.java.main.method</code> property.
4000	A Java executable can not be found at the directory specified by the <code>java.home</code> system property.
4001	An incorrect path to the installer jar file caused the relauncher to launch incorrectly.

## Return codes on Linux and UNIX platforms

The following table lists the installer return codes with their meanings:

Table 7.

Return code	Description
0	Success: The installation completed successfully without any warnings or errors.
1	The installation completed successfully, but one or more of the actions from the installation sequence caused a warning or a non-fatal error.
3	The license agreement was declined. The installation did not complete.
160	A Java executable can not be found at the directory specified by the <code>java.home</code> system property.
161	An incorrect path to the installer jar file caused the relauncher to launch incorrectly.
184	Unhandled error specific to a launcher.
185	The installation failed due to an error specific to the <code>lax.main.class</code> property.
186	The installation failed due to an error specific to the <code>lax.main.method</code> property.
187	The installation was unable to access the method specified in the <code>lax.main.method</code> property.
188	The installation failed due to an exception error caused by the <code>lax.main.method</code> property.
189	The installation failed because no value was assigned to the <code>lax.application.name</code> property.
190	The installation was unable to access the value assigned to the <code>lax.nl.java.launcher.main.class</code> property.
191	The installation failed due to an error specific to the <code>lax.nl.java.launcher.main.class</code> property.
192	The installation failed due to an error specific to the <code>lax.nl.java.launcher.main.method</code> property.
193	The installation was unable to access the method specified in the <code>lax.nl.launcher.java.main.method</code> property.
208	Unhandled error.
209	The installation failed the authorization check, this error might indicate an expired version.
210	The installation failed a rules check. A rule placed on the installer itself failed.
211	An unresolved dependency in silent mode caused the installer to exit.
212	The installation failed because not enough disk space was detected during the execution of the Install action.

Table 7. (continued)

Return code	Description
213	The installation failed while trying to install on a Windows 64-bit system, but installation did not include support for Windows 64-bit systems.
214	The installation failed because it was launched in a UI mode that is not supported by this installer.
232	The installation was canceled by the user.
233	The installation includes an invalid command-line option.
255	One or more of the actions from the installation sequence caused an unrecoverable error.

## What to do if the WebSphere MQ Explorer plug-in is not installed into the WebSphere MQ Explorer

If the WebSphere MQ Explorer plug-in is not displayed in your WebSphere MQ Explorer automatically after installation, you can complete the steps here to enable the plug-in in WebSphere MQ Explorer.

### About this task

When the WebSphere MQ Explorer plug-in is not displayed in your WebSphere MQ Explorer automatically after installation, this can be because of one of the following causes:

- WebSphere MQ Explorer was installed after the WebSphere MQ File Transfer Edition Remote Tools and Documentation installation. If so, the following message might be displayed by the installer:  
WebSphere MQ Explorer could not be located on this system.
- The user that installed WebSphere MQ File Transfer Edition Remote Tools and Documentation does not have permission to write to the WebSphere MQ Explorer eclipse directory. If so, the following message might be displayed by the installer:  
Installer is unable to write to *mq\_install\_directory/eclipseSDK33/eclipse/links/com.ibm.wmqfte.link*

To enable the plug-in in WebSphere MQ Explorer, complete the following steps:

### Procedure

1. Install WebSphere MQ Explorer, if it is not already installed.
2. For WebSphere MQ V7.0, copy the link file *install\_directory/com.ibm.wmqfte.link* to the WebSphere MQ Explorer link directory *mq\_install\_directory/eclipseSDK33/eclipse/links*. For WebSphere MQ V7.1, copy the link file *install\_directory/tools/com.ibm.wmqfte.link* to the WebSphere MQ Explorer link directory *mq\_install\_directory/MQExplorer/eclipse/links*

---

## General troubleshooting

Use the following reference information to help you to diagnose errors in WebSphere MQ File Transfer Edition:

### Related concepts:

“Hints and tips for using WebSphere MQ File Transfer Edition” on page 397

Here are some suggestions to help you to make best use of WebSphere MQ File Transfer Edition:

“Guidance for running an agent or database logger as a Windows service” on page 402

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

### Related tasks:

“If you receive an error when updating your database schema on an Oracle database” on page 404

You might receive the following error message when updating your database schema to the latest level by using the `ftelog_tables_oracle_702_703.sql` file: `ERROR at line 1: ORA-02289: sequence does not exist`. This error occurs because the sequences and triggers used by the tables are not in the same schema as the tables.

### Related reference:

“Running trace on WebSphere MQ File Transfer Edition” on page 379

You can trace WebSphere MQ File Transfer Edition by using the following methods:

“Common problems” on page 386

Common problems that might occur in your WebSphere MQ File Transfer Edition network.

“What to do if your agent is not listed by the `ftelListAgents` command” on page 389

If your agent is not listed by the `ftelListAgents` command or is not displayed in the WebSphere MQ Explorer, or your file transfers are not displayed in the Transfer Log of the WebSphere MQ Explorer, you can carry out a number of problem determination steps to investigate the cause.

“What to do if your agent process disappears but no diagnostic information is logged” on page 390

On UNIX platforms, if an agent process has disappeared but the agent log files do not contain any explanation, this might be caused by the way the agent has been started.

“What to do if you think that your transfer is stuck” on page 391

On a heavily loaded system or when there are network problems between the source and destination agents, transfers can occasionally appear to be stuck in a queued or recovering state. There are a number of factors that can cause this.

“What to do if your protocol bridge agent reports that a file is not found” on page 392

When the protocol bridge agent reports that the SFTP or FTP server that the protocol bridge connects to returns a File not found error message, this message can mean that one of a number of different error cases has occurred.

“What to do if destination files created by a transfer started by a queue resource monitor contain the wrong data” on page 393

You can create a resource monitor to monitor a queue and transfer a message or a group of messages on a queue to a file. The file name can be specified by using the MQMD message descriptors on the message or the first message in a group. If a message-to-file transfer fails and the message or group is left on the queue, the next time the monitor is triggered it might result in files being created that contain the wrong data.

“What to do if messages are building up on your SYSTEM.MANAGED.DURABLE queues or filling your file system” on page 395

If your WebSphere MQ Explorer plug-in uses a durable subscription on the coordination queue manager, messages can build up on the SYSTEM.MANAGED.DURABLE queues. If you have a high-volume WebSphere MQ File Transfer Edition network, use the WebSphere MQ Explorer plug-in infrequently, or both, this message data can fill the local file system.

“Examining messages before publication” on page 395

Because agents can connect to WebSphere MQ Version 6 queue managers, agents do not use the direct publication approach introduced in WebSphere MQ Version 7. Instead, agents send ordinary messages to the coordination queue manager that contain an MQRFH header. The MQRFH header requests that the message's payload is published. These messages are sent to the SYSTEM.FTE queue on the coordination queue manager, and the messages are typically published immediately from that queue. If error conditions stop this publication, you can examine the messages on the queue before publication is attempted to help with diagnosis. You can do this by completing these following steps:

“Possible errors when transferring IBM i save files” on page 398

If you use IBM WebSphere MQ File Transfer Edition to transfer the same IBM i save file several times, the transfer might fail.

“Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size” on page 398

You can change WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties to affect the behavior of WebSphere MQ File Transfer Edition when reading or writing messages of various sizes.

“Database logger error handling and rejection” on page 405

The database logger identifies two types of error: per-message errors and general errors.

“If the database logger is started, but no transfer information is being logged to the database” on page 406

The database tables used by the WebSphere MQ File Transfer Edition version 7.0.3 or later database logger require the database to have a page size of 8 KB or larger. If the page size of the database is not large enough, the tables are not created properly and you see the error SQLSTATE=42704.

“fteDisplayVersion (display the version of WebSphere MQ File Transfer Edition)” on page 407

Use the **fteDisplayVersion** command to display the version of WebSphere MQ File Transfer Edition that you have installed.

“Return codes for WebSphere MQ File Transfer Edition” on page 409

WebSphere MQ File Transfer Edition commands, Ant tasks, and log messages provide return codes to indicate whether functions have successfully completed.

## Running trace on WebSphere MQ File Transfer Edition

You can trace WebSphere MQ File Transfer Edition by using the following methods:

- Dynamically change the current level of agent trace by using the **fteSetAgentTraceLevel** command.
- Dynamically change the current level of logger trace by using the **fteSetLoggerTraceLevel** command.
- Trace the WebSphere MQ File Transfer Edition plug-in by completing the steps in Tracing the WebSphere MQ Explorer.
- Trace any of the **fte** commands by using the **-trace** parameter. For more information, see Tracing commands.
- Configure an agent to start with trace enabled by setting the trace properties in the `agent.properties` file. For more information, see Advanced agent properties.

### Related tasks:

“Tracing the WebSphere MQ File Transfer Edition plug-in for the WebSphere MQ Explorer” on page 386  
You can trace WebSphere MQ File Transfer Edition plug-in in the WebSphere MQ Explorer to help with problem determination.

### Related reference:

“Tracing WebSphere MQ File Transfer Edition commands”

You can trace any of the WebSphere MQ File Transfer Edition commands to help with problem determination from the command line.

“fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.3 or later)” on page 382

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.3 or later.

“fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.2 or earlier)” on page 384

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.2 or earlier.

“fteDisplayVersion (display the version of WebSphere MQ File Transfer Edition)” on page 407

Use the **fteDisplayVersion** command to display the version of WebSphere MQ File Transfer Edition that you have installed.

“fteBatch, fteCommon, and ftePlatform scripts” on page 470

The fteBatch, fteCommon, and ftePlatform are scripts that are provided by WebSphere MQ File Transfer Edition in the *install\_directory/bin* directory as helper scripts. Not all of these scripts are present on every platform.

## Tracing WebSphere MQ File Transfer Edition commands

You can trace any of the WebSphere MQ File Transfer Edition commands to help with problem determination from the command line.

### Purpose

Use the **-trace** parameter for any command to enable trace at a specified level. The trace files produced are located in your current working directory.

Because running trace can affect your performance significantly and can produce a large amount of trace data, run trace with care and only when necessary. Typically, enable trace only when asked to do so by your IBM service representative.

You can set further trace properties, for example trace file size and the number of trace files to keep, in the *agent.properties* file. These properties are described in Advanced agent properties.

### Syntax

```
▶▶ fteCommandName --trace (classes=level) --tracePath (directory path) ▶▶
```

### Parameters

**-trace** *(classes=level)*

Required. Level to set the trace and which classes to apply the trace to. Specify the following format:  
*classes=level*

For example:

```
com.ibm.wmqfte=all
```

which traces all WebSphere MQ File Transfer Edition classes.

Specify a colon-separated list of class specifications that you want the level of trace to apply to. If you do not specify this parameter, the trace level is applied to all agent classes.

If (*classes*) start with a plus sign (+), the list of trace classes following the plus sign are added to any existing trace classes currently being traced.

The valid trace level options are as follows and are listed in ascending order of trace file size and detail:

**off** Switches the agent trace off but continues to write information to the log files. This is the default option.

**flow** Captures data for trace points associated with processing flow in the agent.

**moderate**  
Captures a moderate amount of diagnostic information in the trace.

**verbose**  
Captures a verbose amount of diagnostic information in the trace.

**all** Sets agent trace to run on all agent classes.

#### **-tracePath** (*directory path*)

Optional and available only if you have enabled the Version 7.0.4.1 function. Specify the directory that you want the trace to be written to. For example, c:\temp.

If you do not specify this parameter, the value is the directory that the command was issued from.

This parameter is valid only when the **-trace** parameter is specified.

## **Example**

In this example the trace level is set to all, meaning that all of the classes belonging to AGENT.NAME are traced for the **fteStartAgent** command:

```
fteStartAgent -trace com.ibm.wmqfte=all AGENT.NAME
```

In this example the trace level is set to moderate for the com.ibm.wmqfte.common classes for the agent AGENT.NAME. A moderate amount of trace is captured for the **ftePingAgent** command:

```
ftePingAgent -trace com.ibm.wmqfte.common=moderate AGENT.NAME
```

In this example the trace level is set to moderate for the com.ibm.wmqfte.common classes for the agent AGENT.NAME, and the trace is written to the c:\\$user directory. A moderate amount of trace is captured for the **ftePingAgent** command:

```
ftePingAgent -trace com.ibm.wmqfte.common=moderate -tracePath c:\$user AGENT.NAME
```

## Related reference:

“Troubleshooting WebSphere MQ File Transfer Edition” on page 373

Use the following reference information to help you to diagnose errors in WebSphere MQ File Transfer Edition:

## **fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.3 or later)**

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.3 or later.

### Purpose

Use this command to switch agent trace on and off or change the level of agent trace that is set. When you use the **fteSetAgentTraceLevel** command, you do not have to shut down and restart an agent to modify the trace level. The trace files produced are located in *configuration\_directory/coordination\_qmgr\_name/agents/agent\_name/logs*.

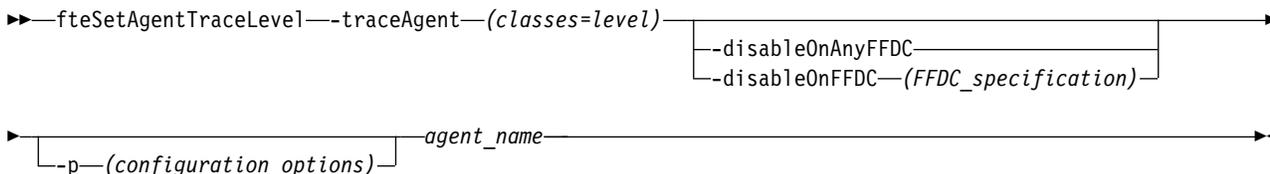
Because running trace can affect your performance significantly and can produce a large amount of trace data, run trace with care and only when necessary. Typically, enable trace only when asked to do so by your IBM service representative.

You can set further trace properties, for example trace file size and the number of trace files to keep, in the *agent.properties* file. These properties are described in Advanced agent properties.

Specify the optional *-p* parameter for this command only if you want to use a set of configuration options different from your default set. See Properties files for WebSphere MQ File Transfer Edition for more information.

### Syntax

#### **fteSetAgentTraceLevel**



### Parameters

#### **-traceAgent (classes=level)**

Required. Level to set the agent trace and which classes to apply the trace to. Specify the following format:

*classes=level*

For example:

```
com.ibm.wmqfte=all
```

Specify a comma-separated list of class specifications that you want the level of trace to apply to. If you do not specify this parameter, the trace level is applied to all agent classes.

If (*classes*) start with a plus sign (+), the list of trace classes following the plus sign are added to any existing trace classes currently being traced.

The valid trace level options are as follows and are listed in ascending order of trace file size and detail:

**off** Switches the agent trace off but continues to write information to the log files. This is the default option.

**flow** Captures data for trace points associated with processing flow in the agent.

**moderate**

Captures a moderate amount of diagnostic information in the trace.

**verbose**

Captures a verbose amount of diagnostic information in the trace.

**all** Sets agent trace to run on all agent classes.

**-disableOnAnyFFDC**

Optional. If this parameter is specified, trace is disabled on the agent when it generates a First Failure Data Capture (FFDC) file.

You can specify only one of the **-disableOnAnyFFDC** and **-disableOnFFDC** parameters.

**-disableOnFFDC (FFDC\_specification)**

Optional. If this parameter is specified, trace is disabled on the agent when it generates a First Failure Data Capture (FFDC) file that matches the *FFDC\_specification*. *FFDC\_specification* is a comma-separated list of values. The format of the values can be either:

*class\_name*

The name of the class where the FFDC originated. For example, `com.ibm.wmqfte.classA`.

*class\_name:probe\_ID*

The name of the class and the probe ID of the location in the class that the FFDC originated from. For example, `com.ibm.wmqfte.classB:1`.

You can specify only one of the **-disableOnAnyFFDC** and **-disableOnFFDC** parameters.

**-p (configuration\_options)**

Optional. This parameter determines the set of configuration options that is used to set the agent trace level. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

*agent\_name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to set the trace level for.

**-? or -h**

Optional. Displays command syntax.

## Deprecated parameters

The **-traceLevel** and **-traceClasses** parameters are not used by V7.0.3 and later. For information about using these parameters with V7.0.2 and earlier, see “`fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.2 or earlier)`” on page 384.

## Example

In this example, the trace level is set to `all` for all classes for `AGENT1`:

```
fteSetAgentTraceLevel -traceAgent com.ibm.wmqfte=all AGENT1
```

In this example, the trace level is set to `all` for the classes `com.ibm.wmqfte.agent.Agent` and `com.ibm.wmqfte.cmdhandler` for `AGENT1`:

```
fteSetAgentTraceLevel -traceAgent com.ibm.wmqfte.agent.Agent,com.ibm.wmqfte.cmdhandler=moderate
AGENT1
```

In this example, subclasses are excluded from the trace because the **-traceLevel** parameter is set to off. All classes starting with com.ibm.outer are traced at verbose level except classes starting with com.ibm.outer.inner:

```
fteSetAgentTraceLevel -traceAgent com.ibm.outer=verbose AGENT1
fteSetAgentTraceLevel -traceAgent +com.ibm.outer.inner=off AGENT1
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

## Related reference:

“fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.2 or earlier)”  
Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.2 or earlier.

## fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.2 or earlier)

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.2 or earlier.

Use this command to switch agent trace on and off or change the level of agent trace that is set. When you use the **fteSetAgentTraceLevel** command, you do not have to shut down and restart an agent to modify the trace level. The trace files produced are located in *configuration\_directory/coordination\_qmgr\_name/agents/agent\_name/logs*.

Because running trace can affect your performance significantly and can produce a large amount of trace data, run trace with care and only when necessary. Typically, enable trace only when asked to do so by your IBM service representative.

You can set further trace properties, for example trace file size and the number of trace files to keep, in the *agent.properties* file. These properties are described in Advanced agent properties.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Properties files for WebSphere MQ File Transfer Edition for more information.

## Syntax

### fteSetAgentTraceLevel

```
▶▶ fteSetAgentTraceLevel --traceLevel (trace_level) [ --traceClasses (trace_classes) ]
▶ [ --agentQMGR (agent_qmgr_name) ] [ --p (configuration_options) ] agent_name ▶▶
```

## Parameters

### **-traceLevel** *(trace\_level)*

Required. Level to set the agent trace to. The valid trace options are as follows and are listed in ascending order of trace file size and detail:

**off** Switches the agent trace off but continues to write information to the log files. This is the default option.

**flow** Captures data for trace points associated with processing flow in the agent.

**moderate**

Captures a moderate amount of diagnostic information in the trace.

**verbose**

Captures a verbose amount of diagnostic information in the trace.

**all** Sets agent trace to run on all agent classes.

**-traceClasses** (*trace\_classes*)

Optional. The classes to apply the agent trace to. Specify a comma-separated list of class specifications. If you do not specify this parameter, the trace level is applied to all agent classes.

If (*trace\_classes*) start with a plus sign (+), the list of trace classes following the plus sign are added to any existing trace classes currently being traced.

**-agentQMgr** (*agent\_qmgr\_name*)

Optional. The name of the agent queue manager. If you do not specify this parameter, the value is determined from the set of configuration options in use.

**-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to set the agent trace level. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

*agent\_name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to set the trace level for.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example, the trace level is set to all for all classes for AGENT1:

```
fteSetAgentTraceLevel -traceLevel all AGENT1
```

In this example, the trace level is set to all for the classes `com.ibm.wmqfte.agent.Agent` and `com.ibm.wmqfte.cmdhandler` for AGENT1:

```
fteSetAgentTraceLevel -traceLevel moderate  
-traceClasses com.ibm.wmqfte.agent.Agent,com.ibm.wmqfte.cmdhandler AGENT1
```

In this example, subclasses are excluded from the trace because the **-traceLevel** parameter is set to off. All classes starting with `com.ibm.outer` are traced at verbose level except classes starting with `com.ibm.outer.inner`:

```
fteSetAgentTraceLevel -traceClasses com.ibm.outer -traceLevel verbose AGENT1  
fteSetAgentTraceLevel -traceClasses +com.ibm.outer.inner -traceLevel off AGENT1
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related reference:

“`fteSetAgentTraceLevel` (set WebSphere MQ File Transfer Edition agent trace level V7.0.3 or later)” on page 382

Use the `fteSetAgentTraceLevel` command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.3 or later.

## Tracing the WebSphere MQ File Transfer Edition plug-in for the WebSphere MQ Explorer

You can trace WebSphere MQ File Transfer Edition plug-in in the WebSphere MQ Explorer to help with problem determination.

### About this task

To enable trace, complete the following steps:

### Procedure

1. Create a `.options` file that contains your trace options in `MQ_installation_directory\MQ Explorer\Eclipse\.options` on Windows, or in `/opt/mqm/eclipseSDK33/eclipse/.options` on Linux.
2. Start the WebSphere MQ Explorer from that directory using the following command: `strmqcfg -x`. This command starts the WebSphere MQ Explorer in debug mode and loads the `.options` file. The trace is then output to the following location: `configuration_directory\wmqfte\config\gui\logs\output0.log` on Windows (this is not the same location as an agent trace).

### Example

The following example shows a `.options` file.

```
# WebSphere Managed File Transfer
#
# GUI Trace Options:
# Turn on debugging for the com.ibm.wmqfte.explorer plugin.
com.ibm.wmqfte.explorer/debug=true

# Trace level for com.ibm.wmqfte.explorer plugin
com.ibm.wmqfte.explorer/debug/level=com.ibm.wmqfte=all:=warning
com.ibm.wmqfte.explorer/debug=true
com.ibm.wmqfte.explorer/debug/level=all
```

### Related reference:

“`fteSetAgentTraceLevel` (set WebSphere MQ File Transfer Edition agent trace level V7.0.3 or later)” on page 382

Use the `fteSetAgentTraceLevel` command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.3 or later.

## Common problems

Common problems that might occur in your WebSphere MQ File Transfer Edition network.

- If you see the following output from the `fteCreateAgent` command:  
BFGMQ1007I: The coordination queue manager cannot be contacted or has refused a connection attempt. The WebSphere MQ reason code was 2058. The agent's presence will not be published.

it indicates that the coordination queue manager cannot be contacted and provides the WebSphere MQ reason code for why. This information message can indicate that the coordination queue manager is currently unavailable or that you have defined the configuration incorrectly.

- If you run the `fteStartAgent` command and see the following error message, your environment probably has additional library paths that conflict with WebSphere MQ File Transfer Edition:

```
BFGCL0001E: An internal error has occurred. The exception was: 'CC=2;RC=2495;AMQ8568: The native JNI library 'mqjbnf' was
```

If the LD\_LIBRARY\_PATH or LIBPATH environment variable is set to reference a 64-bit version of the library before the 32-bit version when the agent is running with a 32-bit version of Java (as is currently the case for most platforms), this error occurs.

To resolve this issue, set the WebSphere MQ File Transfer Edition agent property javaLibraryPath to reference the correct location for the library. For example, for mqjbn on AIX, set to: /usr/mqm/java/lib. For mqjbn on Linux, set to: /opt/mqm/java/lib

- If you are using bindings mode to connect to a WebSphere MQ Version 6.0 queue manager for either an agent or for commands and are having problems:
  - Ensure that you have applied fix pack at least 6.0.2.5 to WebSphere MQ Version 6.0.
- If a text transfer fails with the following error:  
BFGI00060E: Text data conversion has failed

This can occur for one of two reasons:

1. One or more characters in the source file cannot be converted from the source file code page to the destination file code page. This problem can occur when code pages have different character sets and certain characters cannot be converted between them.  
  
If it is acceptable for conversion of some characters to not be converted, a replacement character sequence can be defined at the destination agent so that the transfer does not fail. Specify the agent property **textReplacementCharacterSequence** to define a replacement character sequence. For more information, see Table 29 on page 585.
2. The source file encoding does not match the default encoding of the source agent. In this case performing a text transfer by using the default settings corrupts the character data. To transfer a source file that does not have the same encoding as the source agent, perform one of the following steps:
  - a. Specify the file encoding in a transfer definition file. For more information, see “Using transfer definition files” on page 195.
  - b. Specify the file encoding by using the **-sce** parameter with the **fteCreateTransfer** command. For more information, see the topic “**fteCreateTransfer** (create new file transfer)” on page 509.
  - c. Specify the file encoding as part of an Ant move or copy task. For more information, see “Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352.

To check that you have selected the correct source file encoding for a transfer perform the following steps:

1. Set the destination file encoding to UTF-8.
  2. Transfer the file in text mode.
  3. Use a UTF-8 file viewer to view the contents of the file. If all characters in the file are correctly displayed, the source file encoding is correct.
- If you are using user exit routines and there is a failure while the user exit is being called or just after the exit has been called, for example a product failure or power cut, it is possible the user exit will be called more than once.
  - If you have an agent with a queue manager on a system with an IP address that is assigned by DHCP (rather than a static IP address), *and* the agent connects to that system by using a client TCP/IP connection, you must start the agent with the following system environment variable set:
    - On Windows:  
set FTE\_JVM\_PROPERTIES="-Dsun.net.inetaddr.ttl=<value>"
    - On UNIX:  
export FTE\_JVM\_PROPERTIES="-Dsun.net.inetaddr.ttl=<value>"

where <value> is the time interval in seconds between each flush of the cached DNS values of the JVM. If the IP address of the queue manager system is reassigned for any reason (for example, because of a network outage, an IP lease expiry, or a system reboot), the agent reports its lost connection to the queue manager. After the JVM DNS cache is flushed, the agent can successfully reconnect. If this

environment variable is not set, the agent cannot reconnect in this scenario without a JVM restart. This behavior is because the JVM internally caches the IP addresses of host names and does not refresh them by default.

- If you have enabled user authority checking by specifying `authorityChecking=true` in the agent property file and all authority checks are failing even if the user has the required authority on the relevant authority queue:
  - Ensure that the user that runs the agent has `ALT_USER` access control on the agent queue manager.
- If you have enabled user authority checking by specifying `authorityChecking=true` in the agent property file and WebSphere MQ error messages are written to the agent `output0.log` file perform one of the following actions:
  - Ignore the messages, the agent is not affected.
  - Grant the user who runs the agent GET authority on the `SYSTEM.FTE.AUTH*` queues belonging to the agent.
- If you have edited the agent property file and the agent has not picked them up:
  - Restart the agent, to ensure that the agent reads the new properties.
- In Version 7.0.4 or earlier, the dead letter queue might fill up with messages from the **ftePingAgent** command when the agent is unable to service the **ftePingAgent** request in time. These messages can be deleted. Version 7.0.4.1 and later changes this behavior so that if a wait time has been set, **ftePingAgent** command messages will time out rather than going to the designated dead letter queue. The command messages will not time out if the command has been set to wait indefinitely. For information about the **ftePingAgent** command, see “ftePingAgent (checks whether a WebSphere MQ File Transfer Edition agent is active)” on page 552.

## z/OS

- If you are using the agent on z/OS to transfer to a PDS or PDSE data set and an abend occurs, your system might have limited disk space. The abend is likely to have a system completion code of B14 with a return code of 0C, indicating there is no space left.

If you are transferring to a sequential data set, the transfer fails and indicates the out-of-space condition, but the agent remains operational.

- If you are using the agent on z/OS, and the WMQFTEP task generates some Java core dumps before becoming unresponsive, apply OMVS system services APAR OA43472.
- If you see the following output when running a configuration or administration script on z/OS:

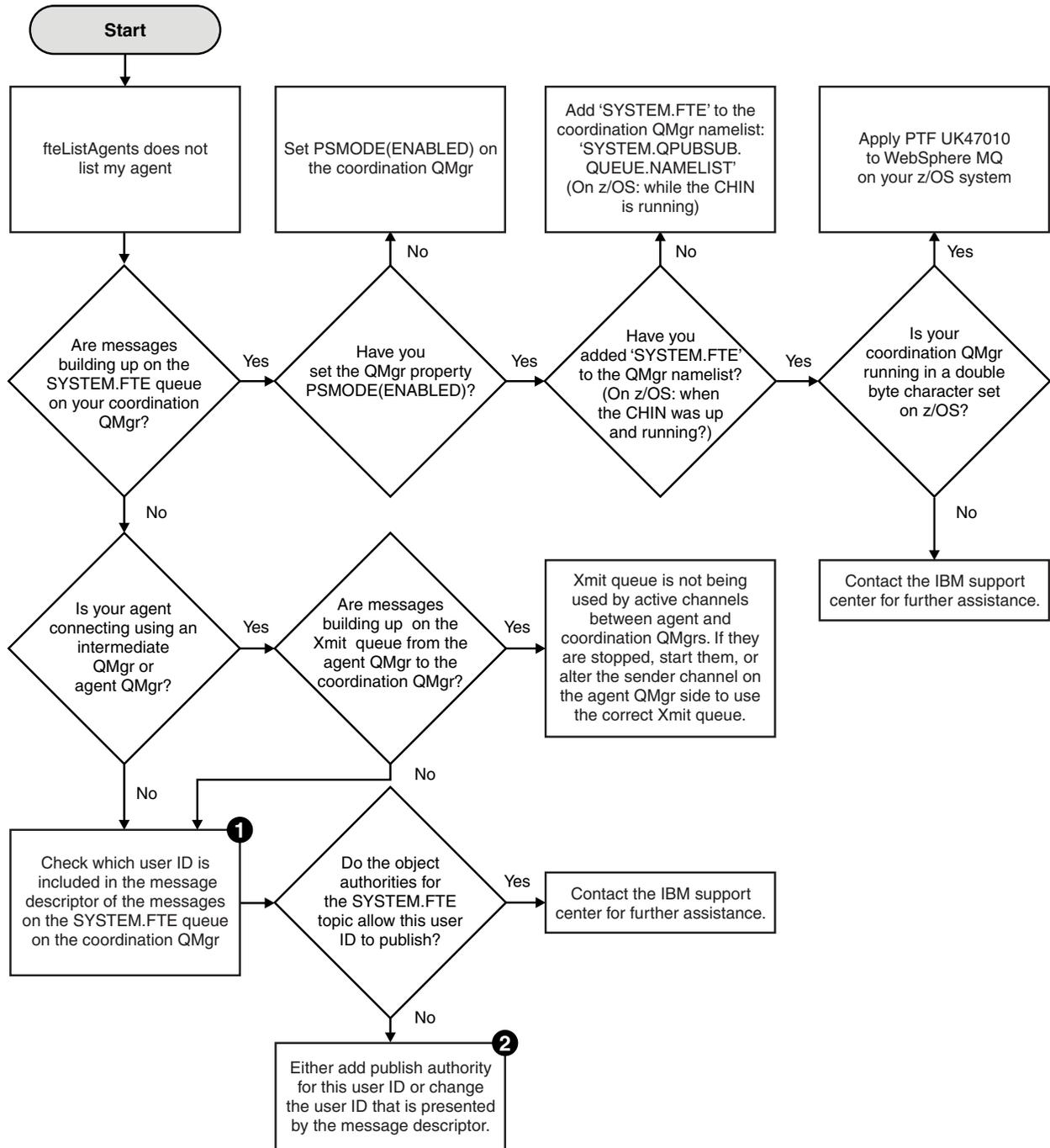
```
FSUM7332 syntax error: got (, expecting Newline
```

this output indicates that the environment variable `_BPXK_AUTOCVT=ON` has not been set in the environment where the configuration or administration script is being run. For more information about this environment variable and how to set it, see “Environment variables for WebSphere MQ File Transfer Edition for z/OS” on page 120.

# What to do if your agent is not listed by the `ftelListAgents` command

If your agent is not listed by the `ftelListAgents` command or is not displayed in the WebSphere MQ Explorer, or your file transfers are not displayed in the Transfer Log of the WebSphere MQ Explorer, you can carry out a number of problem determination steps to investigate the cause.

Use the following flowchart to help you to diagnose problems and decide what action to take next:



Flowchart key:

1. For more information about how to check the user ID that is presented, see “Examining messages before publication” on page 395.
2. For more information about the authority needed for the SYSTEM.FTE queue, see “Authority to publish log and status messages” on page 460.

## What to do if your agent process disappears but no diagnostic information is logged

On UNIX platforms, if an agent process has disappeared but the agent log files do not contain any explanation, this might be caused by the way the agent has been started.

You can check for agent diagnostic information in the following ways:

- Check whether the agent’s log files state that the agent has been stopped.
- Check whether the agent lock file `agent.lock` still exists.

If you start the agent from a shell script for example, all child processes associated with that script are removed when the script completes (including the agent process). To keep the agent running past the duration of the script that called the agent, complete the following step:

1. Prefix the **fteStartAgent** command with the **nohup** command to disassociate the **fteStartAgent** process (and any children) from the script.

In future when the script terminates, the agent now continues to run.

## What to do if the fteListAgents command shows an agent status of UNREACHABLE

Your agent is running and responds successfully to the **ftePingAgent** command, and files are being transferred normally, but the agent is listed as UNREACHABLE by the **fteListAgents** command.

### Why this problem occurs

Periodically, the agent publishes its status to the coordination queue manager. The frequency that the agent publishes its status is controlled by the following two agent properties:

#### **agentStatusPublishRateLimit**

The maximum rate in seconds that the agent republishes its status because of a change in file transfer status.

#### **agentStatusPublishRateMin**

The minimum rate in seconds that the agent publishes its status. This value must be greater than or equal to the value of the `agentStatusPublishRateLimit` property.

Using the default settings, clocks that are out-of-sync between the agent system and the coordination queue manager system cause this issue, if the difference between the times is greater than 303 seconds. Agent status messages are considered stale if the message was sent more than the value of `agentStatusPublishRateMin` + the value of `agentStatusJitterTolerance` seconds ago. An agent with a stale status message is reported as UNREACHABLE by the **fteListAgents** command.

By default, the value of the `agentStatusJitterTolerance` property is 3000 milliseconds and the value of the `agentStatusPublishRateMin` property is 300 seconds. If the time difference between the machines plus the effective publish rate is greater than the sum of `agentStatusPublishRateMin` + `agentStatusJitterTolerance`, the time difference causes the UNREACHABLE agent status.

## Resolving the problem

You can resolve this problem in either of the following ways:

- Correct the time setting differences between the agent host machine and the machine hosting the coordination queue manager, so that they are in sync.
- Increase the value of the `agentStatusJitterTolerance` property to account for the time difference. When you run the `fteListAgents` command, the value of `agentStatusJitterTolerance` is determined by the `coordination.properties` configuration file in the WMQFTE configuration directory. Therefore, set the property in the `coordination.properties` file of the WMQFTE installation that the `fteListAgents` command is being run on.

**Related reference:**

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## What to do if keystore properties failed to be read from the keystore configuration file in AMS

The keystore configuration file location, if not present in the default location, must be specified by the `MQS_KEystore_CONF` variable in order for the Java AMS to run in client mode. If the location is not specified, the WebSphere MQ File Transfer Edition agent logs will show the error message: "Failed to read keystore properties from the keystore configuration file."

The default location for the keystore configuration file is `<home_directory>/mqm/keystore.conf`. If the location of the keystore configuration file is not the default location, complete the following steps:

1. Start the FTE agent in client mode.
2. Apply AMS security to `SYSTEM.FTE.DATA.<agent name>` queue. If the keystore configuration file is not in this location, all transfers will fail with no acknowledgment.
3. Set the system variable `FTE_JVM_PROPERTIES` to `FTE_JVM_PROPERTIES=-DMQS_KEystore_CONF=<path to keystore_config file>` for the `fteStartAgent` command.
4. Set the system variable `MQS_KEystore_CONF` to `MQS_KEystore_CONF=<path to keystore_config file>` for the `fteStartAgent` command must also be set to ensure all agents run, regardless of the mode they are running in

**Note:** If the Java AMS is running in bindings mode, error AMQ9062 will be shown in the queue manager's error log if the keystore configuration file is not in the default location.

## What to do if you think that your transfer is stuck

On a heavily loaded system or when there are network problems between the source and destination agents, transfers can occasionally appear to be stuck in a queued or recovering state. There are a number of factors that can cause this.

Complete the following checks to determine the cause of the problem:

1. Use the `ftePingAgent` command, or in the WebSphere MQ Explorer **Agents** panel right-click on the agent name and select **Ping**, to check whether the source and destination agents are active and responding to new requests. Look at the agent logs to see if there is a current network connection problem.
2. Check whether the destination agent is running at capacity. It might be that there are numerous source agents all requesting file transfers to the same destination agent. Use the `fteShowAgentDetails` command with the `-v` (verbose) parameter, or in the WebSphere MQ Explorer **Agents** panel right-click on the agent name and select **Properties**, to see the current transfer activity for an agent. If the number of running destination transfers is at or close to the agent's maximum number of destination transfers, that can explain why some transfers for source agents appear to be stuck.
3. Transfers to and from protocol bridge agents enter a recovering state if there is a problem contacting the protocol file server. Look at the agent logs to see if there is a current connection problem.

4. Transfers are processed by an agent in priority order. Therefore in a loaded system, a low-priority transfer can remain in the queued state for some time while the agent is loaded with higher priority transfers. Eventually a low-priority transfer is started if that transfer has been queued for a while, even though there are newer higher priority transfers.

## What to do if your scheduled transfer does not run or is delayed

If you have a scheduled transfer that does not run when it is due or is delayed, it might be because the agent is processing commands on its command queue. Because the agent is busy, scheduled transfers are not checked and are therefore not run.

To work around this problem, use one of the following steps:

- Configure the `maxSchedulerRunDelay` property in the `agent.properties` file to set the maximum interval in minutes that the agent waits to check for scheduled transfers. Setting this property ensures that the agent keeps checking for scheduled transfers even when the agent is busy. For more information about the property, see “The `agent.properties` file” on page 583.
- Alternatively, use a resource monitor instead of a scheduled transfer. Resource monitors work differently from scheduled transfers and are not affected by the agent being busy. For example, if you want an up-to-date file on the destination system, resource monitors reduce network traffic. This is because the file is transferred only when a new version becomes available, rather than the file being transferred automatically. However, resource monitoring is not supported on protocol bridge agents or Connect:Direct bridge agents.

For more information, see “Resource monitoring” on page 204.

## What to do if your protocol bridge agent reports that a file is not found

When the protocol bridge agent reports that the SFTP or FTP server that the protocol bridge connects to returns a File not found error message, this message can mean that one of a number of different error cases has occurred.

The following possible scenarios can result in a File not found error being returned by the SFTP or FTP server.

- The file does not exist. Check that the file you are attempting to transfer exists on the system hosting the SFTP or FTP server.
- The file path does not exist. Check that the file path exists on the system hosting the SFTP or FTP server. Check that you have entered the file path correctly into the transfer request. If necessary, correct the file path and submit the transfer request again.
- The file is locked by another application. Check whether the file is locked by another application. Wait until the file is no longer locked then submit the transfer request again.
- The file permissions do not allow the file to be read. Check whether the file has the correct file permissions. If necessary, change the file permissions and submit the transfer request again.
- The SFTP or FTP server uses a virtualized root path. The WebSphere MQ File Transfer Edition protocol bridge agent can support only SFTP or FTP servers that allow files to be accessed by their absolute file path. Those protocol servers that allow access to files based on the current directory are not supported by the protocol bridge agent.

## Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

## What to do if destination files created by a transfer started by a queue resource monitor contain the wrong data

You can create a resource monitor to monitor a queue and transfer a message or a group of messages on a queue to a file. The file name can be specified by using the MQMD message descriptors on the message or the first message in a group. If a message-to-file transfer fails and the message or group is left on the queue, the next time the monitor is triggered it might result in files being created that contain the wrong data.

### Why this problem occurs

1. A message-to-file transfer fails and the message or group is left on the queue.
2. A new message or group arrives on the queue.
3. The new message or group triggers the resource monitor.
4. The resource monitor creates a new transfer that uses the MQMD message descriptors from the new message or group and the data from the first message or group on the queue.
5. Files are created that contain the wrong data.

### Avoiding this problem

To avoid experiencing this problem, you must manually create a transfer definition file by using the **fteCreateTransfer** command and edit the <queue> element of the file to include the attribute `groupId="{GROUPID}"`. Then submit the transfer definition file by using the **fteCreateMonitor** command.

### Example

In this example: the source agent, which is also the monitoring agent, is called AGENT\_MON; the destination agent is called AGENT\_DEST; the destination file name is `/out/files/{WMQFTEFileName}`. This example requires that the message has the MQMD message descriptor `WMQFTEFileName` set. The queue being monitored is `LIVE_QUEUE`.

1. Create a transfer definition file by running the following command:

```
fteCreateTransfer -sa AGENT_MON -da AGENT_DEST -df "/out/files/{WMQFTEFileName}"  
-de error -gt /tmp/TransferDefinition1.xml -sqgi -sq LIVE_QUEUE
```

The transfer definition file `/tmp/TransferDefinition1.xml` is generated.

2. Edit the <queue> element to include the attribute `groupId="{GROUPID}"`. Change the line `<queue useGroups="true">LIVE_QUEUE</queue>`

to

```
<queue useGroups="true" groupId="{GROUPID}">LIVE_QUEUE</queue>
```

This attribute is required so that the transfer reads the group or message that triggered the transfer from the queue instead of the first group or message on the queue.

3. Create the monitor by running the following command:

```
fteCreateMonitor -ma AGENT_MON -mq LIVE_QUEUE -mn QueueMon1 -mt /tmp/TransferDefinition1.xml  
-tr completeGroups -dv WMQFTEFileName=UNKNOWN
```

This monitor polls the queue every 60 seconds to see if a new group or message has arrived on the queue.

## What to do if the destination queue is a clustered queue, or an alias to a clustered queue

When using WebSphere MQ File Transfer Edition to transfer a file into a queue, if you use a destination that is a clustered queue, or an alias to a clustered queue, you get reason code 2085, or 2082.

### Why this problem occurs

The queue manager name of the destination agent is being appended to the queue name of the **-dq** parameter, when there is no explicit queue manager name on the **-dq**. The reason code 2085, or 2082, occurs because the queueManager object cannot be specified on an MQOPEN call when connecting to a clustered MQ queueManager that does not have that local clustered queue.

### Avoiding this problem

1. Create a clustered queue on the queue manager.
2. Set up a remote queue definition that points to a clustered queue.

### Example

This example uses a remote queue definition.

Configuration:

- Source Agent: *SAGENT*
- Source Agent Queue Manager: *SQM*
- Destination Agent: *DAGENT*
- Destination Agent Queue Manager: *DQM*
- The destination queue of the transfer is *CQ6* on queue manager *SQM*

To define remote queue definition *Q6\_SQM* on *DQM* to clustered queue *CQ6* in *SQM* (assuming that the clustered queue *CQ6* is already defined in *SQM*), issue the MQSC command on the *DQM* queue manager:

```
define qremote(Q6_SQM) rname(CQ6) rqmname(SQM) xmitq(SQM)
```

**Note:** *rname* points to the clustered queue.

You can now transfer to the queue, for example:

```
ftcCreateTransfer -sa SAGENT -sm SQM -da DAGENT -dm DQM -dq Q6_SQM /tmp/single_record.txt
```

## What to do if messages are building up on your SYSTEM.MANAGED.DURABLE queues or filling your file system

If your WebSphere MQ Explorer plug-in uses a durable subscription on the coordination queue manager, messages can build up on the SYSTEM.MANAGED.DURABLE queues. If you have a high-volume WebSphere MQ File Transfer Edition network, use the WebSphere MQ Explorer plug-in infrequently, or both, this message data can fill the local file system.

To remove the buildup of messages on the SYSTEM.MANAGED.DURABLE queues, you can perform one of the following actions:

- Start the WebSphere MQ Explorer that uses the durable subscription. The WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer consumes the messages from the queue.
- Delete the messages from the queues manually.

To avoid this happening, you can specify that the WebSphere MQ Explorer plug-in use a non-durable subscription to the coordination queue manager. Perform the following steps in your WebSphere MQ Explorer:

1. Select **Window > Preferences > WebSphere MQ File Transfer Edition**
2. From the **Transfer Log subscriber type** list, choose NON\_DURABLE.

## Examining messages before publication

Because agents can connect to WebSphere MQ Version 6 queue managers, agents do not use the direct publication approach introduced in WebSphere MQ Version 7. Instead, agents send ordinary messages to the coordination queue manager that contain an MQRFH header. The MQRFH header requests that the message's payload is published. These messages are sent to the SYSTEM.FTE queue on the coordination queue manager, and the messages are typically published immediately from that queue. If error conditions stop this publication, you can examine the messages on the queue before publication is attempted to help with diagnosis. You can do this by completing these following steps:

### 1. Disable the publish/subscribe engine in the coordination queue manager

You can either complete this step using the WebSphere MQ Explorer or using MQSC commands. Be aware that this temporarily stops all publish/subscribe activity on the queue manager, including activity unrelated to WebSphere MQ File Transfer Edition if your coordination queue manager is also used for other purposes.

#### WebSphere MQ Explorer:

1. In the Navigator view, right-click the coordination queue manager in the Content pane and select **Properties**.
2. From the left pane, select **Publish/Subscribe**.
3. Select **Compatibility** from the **Publish/Subscribe mode** list.

#### MQSC:

```
ALTER QMGR PSMODE(COMPAT)
```

### 2. Send another message

Perform the WebSphere MQ File Transfer Edition action that has publication problems. For example, for agent registration, a message is sent whenever the agent is started (you do not need to repeatedly delete and create the agent to generate registration messages). Because the publish/subscribe engine is disabled, no publication takes place.

### 3. Browse the SYSTEM.FTE queue on the coordination queue manager

You are recommended to use the WebSphere MQ Explorer to browse your coordination queue manager's SYSTEM.FTE queue.

#### WebSphere MQ Explorer:

1. In the Navigator view, expand the coordination queue manager and click **Queues**. In the Content view, right-click the SYSTEM.FTE queue and select **Browse Messages**. The **Message browser** window opens and shows the messages that would have been published.
2. The **User identifier** column shows the user ID contained in the message descriptor. A common reason for publication failure is that this user ID does not have publish authorization on the SYSTEM.FTE topic.
3. You can find out more information about each message (including the XML that will be published) by right-clicking the message and selecting **Properties**.

There is no MQSC command to inspect the contents of messages. If you do not have the WebSphere MQ Explorer, you must use a different program that can browse queues and display all aspects of the messages found. You can use the amqsbcg sample program, if installed, as described in the following topic: [Browsing queues](#). The `UserIdentifier` line shows the user ID. Alternatively, you can use SupportPac MO03 (Queue Load/Unload Utility); the user ID for a message is found in lines like:

```
A RTM MQ24
A USR HUGHSON
A ACC 1A0FD4D8F2F4C3C8C9D5F1F9C6F7C1C3F3F00019F7AC3000000000000000000
```

The second line in the above example is the message descriptor user ID for that message.

### 4. Re-enable the coordination queue manager publish/subscribe engine

You can either complete this step using the WebSphere MQ Explorer or using MQSC commands. After you have re-enabled the publish/subscribe engine in the coordination queue manager, any messages on the SYSTEM.FTE queue are processed immediately.

#### WebSphere MQ Explorer:

1. In the Navigator view, right-click the coordination queue manager in the Content pane and select **Properties**.
2. From the left pane, select **Publish/Subscribe**.
3. Select **Enabled** from the **Publish/Subscribe mode** list.

#### MQSC:

```
ALTER QMGR PSMODE(ENABLED)
```

## Hints and tips for using WebSphere MQ File Transfer Edition

Here are some suggestions to help you to make best use of WebSphere MQ File Transfer Edition:

- If you change the `agent.properties` file, stop and restart the agent to pick up the changes.
- If you start a file transfer and there is no sign of transfer progress and no errors are reported, check that the source agent is running. If the transfer is shown but does not progress, check that the destination agent is also running. You can check the current state of agents in the agent log or verify that the agent is active with an `ftePingAgent` command.
- When you cancel an individual transfer using the `fteCancelTransfer` command, you can use either the source or destination agent in the `-agentName` parameter. However, when you delete a transfer schedule using the `fteDeleteScheduledTransfer` command, you must use the source agent name in the `-agentName` parameter.
- When you create a file transfer the source and destination file paths, either absolute or relative, are significant only on the source and destination agents. The system and directory that the `fteCreateAgent` command is issued from has no relevance to the file being transferred.
- Your default environment setup might not be able to fully support WebSphere MQ File Transfer Edition, particularly if you are running multiple concurrent transfers. If an agent has an error indicating it has run out of memory, check and update the following parameters as required:
  - For UNIX-type platforms: run the command: `ulimit -m 1048576` (or approximately 1 GB). This maximum resident set size is enough to allow a maximum of 25 concurrent transfers (25 concurrent transfers is the default for the maximum number of transfers for an agent).
  - For all platforms: set the `FTE_JVM_PROPERTIES` environment variable as follows:  
`FTE_JVM_PROPERTIES="-Xmx1024M"`

If you want to allow numbers of concurrent transfers greater than the maximum default of 25, use larger sizes for `ulimit` and `FTE_JVM_PROPERTIES` than those suggested.

**Note:** For Connect:Direct bridge agents the default for the maximum number of concurrent transfers is 5.

- When you use WebSphere MQ File Transfer Edition to transfer files in text mode between different platforms, the default file encoding of the source platform might not be supported by the destination platform. This causes a transfer to fail with the following error:  
BFGI00058E: The transfer source encoding xxx is illegal or for an unsupported character set.

You can resolve this error by setting the source encoding to one that is supported by the destination platform using an environment variable. Set the `FTE_JVM_PROPERTIES` system environment variable on the source system as follows: `FTE_JVM_PROPERTIES="-Dfile.encoding=xxx"`, where `xxx` is an encoding supported by the destination platform. For example, if you are transferring files in text mode from a Sun Solaris platform to a different platform and the source locale is set to `"ja"`, set `FTE_JVM_PROPERTIES` as follows: `FTE_JVM_PROPERTIES="-Dfile.encoding=EUC-JP"`. If the source locale is set to `"ja_JP.PCK"`, set `FTE_JVM_PROPERTIES` as follows: `FTE_JVM_PROPERTIES="-Dfile.encoding=Shift_JIS"`.

You can also resolve this error for an individual transfer by using the `-sce` parameter when you start a new transfer. For more information, see the topic "`fteCreateTransfer` (create new file transfer)" on page 509.

## Possible errors when transferring IBM i save files

If you use IBM WebSphere MQ File Transfer Edition to transfer the same IBM i save file several times, the transfer might fail.

IBM WebSphere MQ File Transfer Edition might produce one or both of the following errors:

- BFGII0003E: Unable to open file "/qsys.lib/library.lib/SAVF.FILE" for reading
- BFGII0082E: A file open for read failed due to a Java IOException with message text "Sharing violation occurred"

These errors can occur if you issue several concurrent requests for a WMQFTE agent to transfer the same IBM i save file. If you want to concurrently transfer the same save file several times, you must use several source agents. Use a different source agent for each concurrent transfer.

To transfer the same save file several times with a single source agent, you must wait until the previous transfer request is complete before submitting each new transfer request.

### Related tasks:

“Configuring a basic WebSphere MQ File Transfer Edition scenario on IBM i systems” on page 117  
WebSphere MQ File Transfer Edition supports the transfer of files that are located on an IBM i platform. You can set up a basic client/server environment to support file transfer operations between IBM i systems using the steps in this example.

“Configuring WebSphere MQ File Transfer Edition on IBM i systems after you have installed” on page 69  
To start using WebSphere MQ File Transfer Edition after you have installed it, you must complete some configuration for your coordination queue manager and agent.

### Related reference:

“Transferring files to or from IBM i systems” on page 737

If you transfer files to or from IBM i systems using WebSphere MQ File Transfer Edition in text mode and you want to convert the data in the files, consider the information in this topic.

“Transferring save files that are located in the QSYS.LIB file system on IBM i systems” on page 741  
WebSphere MQ File Transfer Edition supports the transfer of save files located in the QSYS.LIB file system between two IBM i systems. Consider the following information when requesting file transfers of save files.

## Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size

You can change WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties to affect the behavior of WebSphere MQ File Transfer Edition when reading or writing messages of various sizes.

If the size of messages being read from a source queue or written to a destination queue exceeds 1048576 bytes (1 MB), you must increase the value of the WebSphere MQ File Transfer Edition agent property **maxInputOutputMessageLength** to a value that is greater than or equal to the maximum message size to be read or written.

If the messages on the source queue are greater than 1048576 bytes you must set the **maxInputOutputMessageLength** property on the source agent. If the messages on the destination queue are greater than 1048576 bytes you must set the **maxInputOutputMessageLength** property on the destination agent. For more information about the **maxInputOutputMessageLength** parameter, see Advanced agent properties.

In addition to changing the **maxInputOutputMessageLength** agent property, you might also have to change some of the WebSphere MQ queue manager properties.

- | • If the queue that the agent is writing to or reading from is local to the agent queue manager, you might have to change the WebSphere MQ queue manager, queue, and channel **MAXMSGL** attributes.

Ensure that the value of the maximum message size of the source or destination queue is greater than or equal to the value of the **maxInputOutputMessageLength** agent property.

Consider each of the following WebSphere MQ attributes:

- The maximum message size of the agent queue manager
- The maximum message size of the SYSTEM.FTE.STATE.*agent\_name* queue
- The client channel maximum message size, if your agent connects to the queue manager in client mode

Ensure that the value of each of these attributes, in bytes, is greater than or equal to the result of the following calculation:

**For a file-to-message transfer (which supports a file size of up to 100 MB):**

The value of **maxInputOutputMessageLength**

**For a message-to-file transfer:**

The value of  $3 * (\text{maxInputOutputMessageLength}) + 1048576$

This formula is used to calculate the number of checkpoint records that can be held in a single FTE state message for the SYSTEM.FTE.STATE.*agent\_name* queue. This calculation is derived from the following facts:

- Three checkpoints can be stored in a state message.
- Each checkpoint might have to buffer up to the maximum size of a message amount of data.

Because the maximum message size that WebSphere MQ can process is 100 MB, the maximum value that can be set in the **maxInputOutputMessageLength** property for a message-to-file transfer is 33 MB (34603008 bytes).

- If the queue that the agent is writing to is a remote queue, you might have to change the WebSphere MQ queue manager, queue, and channel **MAXMSGL** attributes.

Ensure that the value of each of the following WebSphere MQ attributes is greater than or equal to the value of the **maxInputOutputMessageLength** agent property:

- The maximum message size of the remote queue manager transmission queue on the agent queue manager
- The maximum message size of the channel from the agent queue manager to the remote queue manager
- The maximum message size of the destination queue on the remote queue manager
- The maximum message size of the remote queue manager

Consider each of the following WebSphere MQ attributes:

- The maximum message size of the agent queue manager
- The maximum message size of the SYSTEM.FTE.STATE.*agent\_name* queue
- The client channel maximum message size, if your agent connects to the queue manager in client mode

Ensure that the value of each of these attributes, in bytes, is greater than or equal to the result of the following calculation:

**For a file-to-message transfer (which supports a file size of up to 100 MB):**

The value of **maxInputOutputMessageLength**

**For a message-to-file transfer:**

The value of  $3 * (\text{maxInputOutputMessageLength}) + 1048576$

This formula is used to calculate the number of checkpoint records that can be held in a single FTE state message for the SYSTEM.FTE.STATE.*agent\_name* queue. This calculation is derived from the following facts:

- Three checkpoints can be stored in a state message.
- Each checkpoint might have to buffer up to the maximum size of a message amount of data.

Because the maximum message size that WebSphere MQ can process is 100 MB, the maximum value that can be set in the **maxInputOutputMessageLength** property for a message-to-file transfer is 33 MB (34603008 bytes).

If you exceed the value of one of these properties, the agent stops with the following error in the agent event log:

```
BFGUT0002E: An internal error has occurred. Product failure data was captured in file "FFDC.FTE.20100928170828514.817276602
BFGSS0025E: An internal error has occurred. The exception is: cc=2 rc=2010 op=put - MQPUT to SYSTEM.FTE.STATE.agent_name
BFGAG0061E: The agent ended abnormally
```

The following WebSphere MQ reason codes might be included in this message in the agent event log:

- rc=2010 This reason code maps to MQRC\_DATA\_LENGTH\_ERROR and indicates that the value of the client channel maximum message size was exceeded. To resolve this problem ensure that the client channel maximum message size of the agent queue manager is greater than or equal to the result of the following calculation:

$$3 * (\text{maxInputOutputMessageLength}) + 1048576$$

- rc=2030 This reason code maps to MQRC\_MSG\_TOO\_BIG\_FOR\_Q and indicates that the value of the maximum message size of the SYSTEM.FTE.STATE.agent\_name queue was exceeded. To resolve this problem ensure that the maximum message size of the SYSTEM.FTE.STATE.agent\_name queue is greater than or equal to the result of the following calculation:

$$3 * (\text{maxInputOutputMessageLength}) + 1048576$$

- rc=2031 This reason code maps to MQRC\_MSG\_TOO\_BIG\_FOR\_Q\_MGR and indicates that the value of the maximum message size of the agent queue manager was exceeded. To resolve this problem ensure that the maximum message size of the agent queue manager is greater than or equal to the result of the following calculation:

$$3 * (\text{maxInputOutputMessageLength}) + 1048576$$

## If you are transferring many small messages

If the average size of the messages that the agent is reading from or writing to a queue is less than 1310 bytes and the agent is reading or writing more than 10000 messages, you must increase the maximum number of uncommitted messages property on the queue manager or reduce the amount of data in a checkpoint interval.

When the agent is reading messages from or writing messages to a queue the corresponding **GETs** or **PUTs** are grouped together into transactions. The number of **GETs** or **PUTs** in a transaction is determined by the number required to process all of the data within a checkpoint interval. The approximate amount of the data in a checkpoint interval is determined from agent properties using the following calculation:

$$\text{Checkpoint interval data size (in bytes)} = \text{agentCheckpointInterval} * \text{agentFrameSize} * \text{agentWindowSize} * \text{agentChunkSize}.$$

The default checkpoint data size is  $1 * 5 * 10 * 262144$  bytes = 13107200 bytes (12.5MB). The maximum number of uncommitted messages in a transaction that a queue manager supports is controlled by the **MaxUncommittedMsgs** queue manager attribute. The default value of this attribute is 10000 messages. If the average message size is less than approximately 1310 bytes the default maximum number of uncommitted messages is exceeded if there are more than 10000 messages to be written.

If you exceed the **MaxUncommittedMsgs** limit, the agent stops with the following error in the agent event log:

```
BFGSS0024E: The agent has received a reason code of '2024' from the message queue interface (MQI). The agent cannot continue
BFGAG0139I: The agent has suspended its current transfers and is now stopping.
```

The reason code 2024 maps to: MQRC\_SYNCPOINT\_LIMIT\_REACHED.

To resolve this problem perform one of the following actions

- Increase the value of the **MaxUncommittedMsgs** queue manager property of the queue manager that the agent reading from or writing to a queue connects to. For information about how change this value, see MaximumUncommittedMessages property in the WebSphere MQ V7.1.0 product documentation.
- Reduce the amount of data in a checkpoint interval. To do this, decrease the value of one or more of the following agent properties:
  - agentCheckpointInterval
  - agentFrameSize
  - agentWindowSize
  - agentChunkSize

For information about these agent properties, see Advanced agent properties.

## If you are writing messages to a queue persistently

If you are transferring to a queue and writing the messages to the queue persistently, you might have to increase the size of the queue manager log file space to be able to log all of the data in a checkpoint interval.

If you exceed the queue manager log file space, the agent stops with the following error in the agent event log:

```
BFGSS0024E: The agent has received a reason code of '2102' from the message queue interface (MQI). The agent cannot cont
BFGAG0062E: The agent has received MQI reason code '2102'. The agent cannot continue processing and will now end.
BFGAG0061E: The agent ended abnormally
```

The reason code '2102' maps to: MQRC\_RESOURCE\_PROBLEM.

To resolve this problem increase the size of the destination agent queue manager log file space. For information about how change this value, see the Managing log files.

## If you are transferring files to or from messages on z/OS queue managers - Version 7.0.3 or later

On z/OS, you must ensure that the size of the queue manager page sets are sufficient for the size of the messages on the SYSTEM.FTE.STATE.*agent\_name* queue, in addition to the messages on the source and destination queues. For "In progress" transfers, the maximum size that the messages on the SYSTEM.FTE.STATE.*agent\_name* queue can be is as follows:

$$3 \times (\text{maxInputOutputMessageLength}) + 1048576 \text{ bytes}$$

Each "In progress" source and destination transfer has a message on the SYSTEM.FTE.STATE.*agent\_name* queue. The number of concurrent source transfers is limited by the **maxSourceTransfers** agent property and the number of concurrent destination transfers is limited by the **maxDestinationTransfers** agent property.

For further details on sizing page sets and setting their values, see Managing page sets.

### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Guidance for running an agent or database logger as a Windows service

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

For information about configuring your agent or database logger to run as a Windows service, see “Starting an agent as a Windows service” on page 191 and “fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550.

### Location of log files

When you use the **fteCreateAgent**, **fteCreateWebAgent**, **fteCreateCDAgent**, **fteCreateBridgeAgent**, **fteModifyAgent**, or **fteModifyDatabaseLogger** command to run an agent or database logger as a Windows service, you can choose the level of logging by using the **-s1** parameter. The possible values for this parameter are `error`, `info`, `warn`, and `debug`. The default value is `info`.

The log file for the Windows service has the file name `servicedate.log`, where *date* is the date when the service was started. The file for an agent is written to the directory `configuration_directory\coordination_qmgr_name\agents\agent_name\logs`. This directory is the same directory that WebSphere MQ File Transfer Edition agent trace files are written to. The file for the database logger is written to the directory `configuration_directory\coordination_qmgr_name\logs`.

If you have problems starting an agent or database logger as a Windows service, try setting the logging level to `debug` using the **-s1** parameter. Additional information is written to the `servicedate.log` file.

**Note:** When the logging level is set to `debug`, the user account and password that you are using to run the Windows service are shown in the log file in plain text.

### Number of log files

When you use the **fteCreateAgent**, **fteCreateWebAgent**, **fteCreateCDAgent**, **fteCreateBridgeAgent**, **fteModifyAgent**, or **fteModifyDatabaseLogger** command to run an agent or database logger as a Windows service, you can choose the number of log files by using the **-sj** parameter. Specify the following text as part of your command to change the number of log files: `-sj -Dcom.ibm.wmqfte.daemon.windows.windowsServiceLogFile=number`, where *number* is the number of log files that you want expressed as a positive integer. If you do not specify the number of log files, the default is five.

## "Log on as a service" authority

The Windows account that you use to run the service must have the **Log on as a service** right. If you try to start the service, either with the **fteStartAgent** command or with the Windows **Sc.exe** command, and you are using a user account that does not have this right, a Services window opens. If the service you wanted to start was to run an agent, this window contains the following message:

```
Could not start the IBM WMQFTE agent AGENT@QMGR service on Local Computer.  
Error 1069: The service did not start due to a logon failure.
```

In this message, *AGENT* is your agent name and *QMGR* is your agent queue manager name. If you are trying to run the database logger as a service, a similar message is produced, which refers to the database logger rather than an agent.

To prevent this error, give the Windows account that you use to run the service the **Log on as a service** right. For example, on Windows XP Professional or Vista, carry out the following steps:

1. From the **Control Panel**, open **Administrative Tools**, and then open **Local Security Policy**.
2. In the left pane, expand **Local Policies**, and then click **User Rights Assignments**.
3. In the right pane, double-click **Log on as a service**.
4. Click **Add User or Group**, and then add the user that you want to run the service to the list of users that have the **Log on as a service** right. You provided this user name when you ran the **fteCreateAgent**, **fteCreateWebAgent**, **fteCreateCDAgent**, **fteCreateBridgeAgent**, **fteModifyAgent**, or **fteModifyDatabaseLogger** command.

**Note:** The error Error 1069: The service did not start due to a logon failure. can also be caused by an incorrect password.

## Hiding your Windows account password

When you configure your agent or database logger to run as a Windows service, you specify a user name and password to use. In the following example, the agent AGENT1 is created, which has an agent queue manager QMGR1 and is configured to run as a Windows service:

```
fteCreateAgent -agentName AGENT1 -agentQMGR QMGR1 -s -su fteuser -sp ftepassword
```

In this example, the Windows service runs with a user name of *fteuser*, which has an associated password *ftepassword*. When you run the **fteCreateAgent** command, or one of the other commands that accepts the **-s** parameter, you specify the password for the Windows account in plain text. If you prefer not to display your password, carry out the following steps:

1. Run the command (**fteCreateAgent**, **fteCreateWebAgent**, **fteCreateCDAgent**, **fteCreateBridgeAgent**, **fteModifyAgent**, or **fteModifyDatabaseLogger**) without specifying the **-sp** parameter. For example:

```
fteCreateAgent -agentName AGENT1 -agentQMGR QMGR1 -s -su fteuser
```

**Note:** The command produces a message that warns you that you must set the password by using the Windows Services tool before the service starts successfully.

2. Open the Windows Services window.
3. In the list of services, right-click the agent or database logger service and select **Properties**. The agent service display name is IBM WMQFTE agent *AGENT @ QMGR*, where *AGENT* is the agent name and *QMGR* is your agent queue manager name. The database logger service display name is IBM WMQFTE database logger for property set *coordination\_qmgr\_name*, where *coordination\_qmgr\_name* is the coordination queue manager that you specified for the database logger to use as its property set. For more information about the property set, see “*fteStartDatabaseLogger* (start the stand-alone database logger)” on page 569 and “*fteModifyDatabaseLogger* (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550.
4. In the **Properties** window, select the **Log On** tab.

5. Enter the password for the user account that runs the service in the **Password** and **Confirm password** fields. The password characters are hidden as you enter them.
6. Click **OK**.

## Known issues

### Error when stopping the service (applies to WebSphere MQ File Transfer Edition V7.0.3 only)

If you use the Windows Services tool to stop the service, Windows might produce an error that starts Windows could not stop the IBM WMQFTE agent service. Despite this error, the agent has stopped successfully. This behavior is a known limitation with the Java runtime environment that is used by WebSphere MQ File Transfer Edition.

### Related tasks:

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

### Related reference:

“fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)” on page 478

The **fteCreateAgent** command creates an agent and its associated configuration.

“fteModifyAgent (modify a WebSphere MQ File Transfer Edition agent)” on page 548

The **fteModifyAgent** command modifies an existing agent so that it can be run as a Windows service. This command is only available on Windows.

“fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The **fteCreateCDAgent** command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“fteCreateBridgeAgent (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481

The **fteCreateBridgeAgent** command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

“fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

## If you receive an error when updating your database schema on an Oracle database

You might receive the following error message when updating your database schema to the latest level by using the `ftelog_tables_oracle_702_703.sql` file: `ERROR at line 1: ORA-02289: sequence does not exist`. This error occurs because the sequences and triggers used by the tables are not in the same schema as the tables.

### About this task

To fix this problem, you must edit the contents of the `ftelog_tables_oracle_702_703.sql` before running it.

### Procedure

1. Find out which schema the sequences and triggers used by the WebSphere MQ File Transfer Edition database logger tables are located in.
  - On Db2, you can use the Control Center to view the tables and schema.

- On Oracle, you can use the Enterprise Manager to view the tables and schema.
2. Open the `ftelog_tables_oracle_702_703.sql` file in a text editor.
  3. In each occurrence of the text `SELECT FTELOG.sequence_name.nextval` replace the text `FTELOG` with the name of the schema where your existing sequences are located.
  4. Before each occurrence of the text `CREATE OR REPLACE TRIGGER FTELOG.trigger_name`, insert the text `DROP TRIGGER schema_name.trigger_name`, where `schema_name` is the name of the schema where your existing triggers are located.
  5. Use the edited `ftelog_tables_oracle_702_703.sql` file to update the database tables.

**Related tasks:**

“Migrating the stand-alone database logger” on page 33

You can migrate the stand-alone database logger software by stopping the logger and installing the new version to the same location. Back up your database before migration. Before you restart the database logger, update the database schema to store the new information produced by the later version of WebSphere MQ File Transfer Edition.

## Database logger error handling and rejection

The database logger identifies two types of error: per-message errors and general errors.

Per-message errors are likely to be caused by a problem with one or a few individual messages. Some examples of situations, which are identified as per-message errors are as follows:

- The result code, which is a required item of data, is missing from a message
- A transfer specifies a job name that is 3000 characters long and too large for the associated database column
- A progress message is received for a transfer, but there is no record of the transfer having been started (perhaps because of a misrouted or delayed transfer start message)
- A message is received, which is not a WebSphere MQ File Transfer Edition log message

General errors are all those errors that are not per-message errors. These are likely to be because of configuration problems or program errors.

When a per-message error is encountered, the database logger rejects the message by placing the message on the reject queue. Nothing is written to the output log, so periodically inspect or continuously monitor the reject queue to detect rejected messages.

If too many messages are rejected consecutively, without any messages being successfully written to the database, this is treated as a general error. For example, consider a site that always uses 10 character codes as job names, but which has inadvertently reconfigured the job name column to be two characters wide. Although data that is too wide is usually a per-message error, in this case the configuration problem is general and is detected as a general error. You can tune the number of consecutive per-message errors needed to cause a general error using the `wmqfte.max.consecutive.reject` property.

If a general error is detected the database logger rolls back any messages not yet committed to the queue manager, and then retries periodically. A message identifying the problem is written to the output log and to the console if the database logger was started in foreground mode with the `-F` parameter.

The location of the output logs for the database logger is dependent on whether it is a stand-alone or JEE database logger. For a stand-alone database logger it is located in the directory `config_directory/coordination_qmgr_name/logs`. For a JEE database logger it is located in the standard output log of the application server.

## The reject queue

Messages that result in per-message errors are moved to the reject queue. On each rejected message, a message property is set to indicate why the message was rejected. The full name of the property is **usr.WMQFTE\_ReasonForRejection**, although **usr.** is omitted in some contexts (including JMS and the WebSphere MQ Explorer).

If you are using WebSphere MQ Explorer, you can view the contents of the reject queue by right-clicking the queue and clicking **Browse Messages**. To see why a message was rejected, double-click the message to open its properties dialog, then select the Named Properties page. You will see a property called **WMQFTE\_ReasonForRejection**. Alternatively, you could write or configure a monitoring tool to obtain this information automatically.

Sometimes, you might want to reprocess messages from the reject queue. In the example described previously in this topic, with a two-character job name column in the database, the messages could be successfully processed after the width of the database column had been increased. As another example, when a transfer-complete message is rejected because its associated transfer-start was missing, the transfer-start message might be received later. Reprocessing the transfer-complete will then be successful.

To reprocess messages, move them from the reject queue to the input queue. In a normal installation, where the database logger created its own managed subscription, the input queue is defined by the queue manager and has a name like **SYSTEM.MANAGED.DURABLE.49998CFF20006204**. You can identify the input queue by looking at the **Destination name** in the properties for the subscription **SYSTEM.FTE.DATABASELogger.AUTO**, or using the following MQSC command:

```
DISPLAY SUB(SYSTEM.FTE.DATABASELogger.AUTO) DEST
```

One way of moving messages between queues is to use the MA01 SupportPac , for example:

```
q -IFTE.REJECT -oSYSTEM.MANAGED.DURABLE.49998CFF20006204
```

The reject queue might contain messages rejected for various reasons, only some of which have been resolved. In this case you can still reprocess all the messages; those messages that can now be accepted are consumed, and those messages that cannot be again moved to the reject queue.

Malformed log messages in the transfer log are not logged by the database logger. These messages are not viewed as being significant and so these messages are sent to the reject queue. For more information about transfer log messages, see "File transfer log message formats" on page 675.

## If the database logger is started, but no transfer information is being logged to the database

The database tables used by the WebSphere MQ File Transfer Edition version 7.0.3 or later database logger require the database to have a page size of 8 KB or larger. If the page size of the database is not large enough, the tables are not created properly and you see the error **SQLSTATE=42704**.

If you are using the Java Platform, Enterprise Edition database logger, you might see the following message in the WebSphere Application Server system out log; if you are using the stand-alone database logger, you might see the following error in the **output0.log** file:

```
DB2 SQL Error: SQLCODE=-204, SQLSTATE=42704  
SQLERRMC=FTELOG.TRANSFER_EVENT, DRIVER=3.40.152
```

The **SQLSTATE** value of 42704 indicates that a table that the database logger expected to exist, in this case **FTELOG.TRANSFER\_EVENT**, does not exist.

To fix this problem perform the following steps:

1. Check that the table exists and is complete. For information about the tables that the database logger uses and their columns, see "Database logger tables" on page 753.

2. If the table does not exist or is incomplete, check the page size of the database.
3. If the database size is less than 8 KB, increase the page size of your database.
  - If your database is on a test system or has no data in it, you can drop the tables and re-create the database with a page size greater than 8 KB.
  - If the database is on a production system and contains data, you must migrate the data to the 7.0.3 tables. For information about how to increase the page size and migrate your data to version 7.0.3 tables, see “Increasing the page size of the log database on Db2 on Windows, UNIX or Linux” on page 37 or “Migrating the database tables on Db2 on z/OS” on page 35.

## fteDisplayVersion (display the version of WebSphere MQ File Transfer Edition)

Use the **fteDisplayVersion** command to display the version of WebSphere MQ File Transfer Edition that you have installed.

### Purpose

You might be asked to run the **fteDisplayVersion** command by an IBM Service Representative to help with problem determination.

### Syntax

#### fteDisplayVersion



### Parameters

**-v** Optional. Displays a verbose amount of information about the product version.

The precise details that are displayed when you specify the **-v** parameter might vary between product releases. You are not recommended to rely on specific information being available in the output from the **fteDisplayVersion -v** command.

**-? or -h**

Optional. Displays command syntax.

### Example

In this example, the **fteDisplayVersion** command is specified with no parameters.

```
fteDisplayVersion
```

The output from this command is the product version level as follows:

```
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED
Name:      WebSphere MQ File Transfer Edition Server
Version:   7.0.4
```

In this example, the **fteDisplayVersion** command is specified with the **-v** parameter.

```
fteDisplayVersion -v
```

The output from this command is the following more detailed information about the product version:

```
C:\Program Files\IBM\wmqfte\bin>fteDisplayVersion.cmd -v
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED
Name:      WebSphere MQ File Transfer Edition Server
Version:   7.0.4
```

Level: f000-20110208-1704  
Platform: Windows XP (5.1 build 2600 Service Pack 3)  
Architecture: x86  
JVM: JRE 1.6.0 IBM J9 2.4 Windows XP x86-32 jvmwi3260sr7-20091214\_4939  
8 (JIT enabled, AOT enabled)  
J9VM - 20091214\_049398  
JIT - r9\_20091123\_13891  
GC - 20091111\_AA  
Product: C:\Program Files\IBM\wmqfte  
Configuration: C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\confignfig

WebSphere MQ Components:

Name: Common Services for Java Platform, Standard Edition  
Version: 7.0.1.3  
Level: k701-103-100812

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

## BFGSS0023E errors and how to avoid them

If you uninstall a Fix Pack from an installation in order to move back to a previous version of the product, and an agent associated with the installation was involved with managed transfers at the time the uninstall took place, then that agent cannot start and will report an BFGSS0023E error. You can avoid this error by completing a number of steps that should prevent BFGSS0023E messages from appearing when the agents are restarted.

For every in-flight managed transfer that an agent is currently involved in, there is a message on the agent's SYSTEM.FTE.STATE.*agent\_name* queue. This message stores checkpoint information on the managed transfer, and is used if the managed transfer goes into recovery. Once a managed transfer has finished, then the corresponding message on the SYSTEM.FTE.STATE.*agent\_name* queue is removed.

Each state message contains some internal header information indicating which version of IBM WebSphere MQ File Transfer Edition was being used by an agent when the managed transfer was running. The version information shows the specific Fix Pack level, so, for example, if a Version 7.0.4.6 agent was running a managed transfer, then the state message for that managed transfer would contain a reference to Version 7.0.4.5.

If a Fix Pack is uninstalled from an installation, and an agent associated with that installation has in-flight transfers associated with it, then the agent fails to start and reports the following error:

```
BFGSS0023E: The agent is configured to use WebSphere MQ queues that contain data created using a later version of the product. The agent cannot run in this configuration and will end.
```

For example, if a Version 7.0.4.6 agent has some in-flight transfers running when it is stopped and then downgraded to the Version 7.0.4.5 level, the next time the agent is started, it checks the messages on its SYSTEM.FTE.STATE.*agent\_name* queue and finds that they were written when it was using Version 7.0.4.5. As it is now using Version 7.0.4.5, the agent reports the BFGSS0023E error described in the previous paragraph and shuts itself down.

As a general rule, if you want to remove a Fix Pack to the IBM WebSphere MQ File Transfer Edition product, completing the following steps should prevent the BFGSS0023E messages from appearing when the agents are restarted:

1. Ensure that all of their agents have completed their managed transfers.
2. Stop the agents.

3. Remove the Fix Pack.
4. Restart the agents.

**Related tasks:**

“Starting a WebSphere MQ File Transfer Edition agent” on page 188

Before you can use a WebSphere MQ File Transfer Edition agent for a file transfer, you must first start the agent.

**Related reference:**

“Agent queues for WebSphere MQ File Transfer Edition” on page 717

The MQSC command scripts generated by the **fteCreateAgent** command create the agent queues with parameters set to the following values. If you do not use the MQSC scripts provided to create the queues, but create the queues manually, ensure you set the following parameters to the values given.

**Related information:**

BFGSS0001 - BFGSS9999

## Return codes for WebSphere MQ File Transfer Edition

WebSphere MQ File Transfer Edition commands, Ant tasks, and log messages provide return codes to indicate whether functions have successfully completed.

The following table lists the product return codes with their meanings:

*Table 8. Return codes*

Return code	Short name	Description
0	Success	The command was successful
1	Command unsuccessful	The command ended unsuccessfully.
2	Command timed out	The agent did not reply with the status of the command within a specified timeout. By default, this timeout is unlimited for managed call and transfer commands. For example, when you specify the <b>-w</b> parameter with the <b>fteCreateTransfer</b> command. By default, this timeout is 5 seconds for other commands.
3	Acknowledgement timed out	The agent did not acknowledge receipt of the command within a specified timeout. By default, this timeout is 5 seconds.
4	Wrong agent	The command was sent to the wrong agent. The agent specified in the command XML is not the agent that is reading the command queue, on which the message was placed.
20	Transfer partially successful	The transfer completed with partial success and some files were transferred
21	Transfer stopped	The transfer was stopped by one of the user exits.
22	Cancel transfer timed out	The agent received a request to cancel a transfer but the cancellation could not be completed within 30 seconds. The transfer was not canceled.

Table 8. Return codes (continued)

Return code	Short name	Description
26	Cancel ID not found	The agent received a request to cancel a transfer but the transfer cannot be found. This might be because the transfer completed before the cancel request was processed by the agent. It might also be caused because you supplied an incorrect transfer ID to the <b>fteCancelTransfer</b> command. The cancel request was ignored.
27	Cancel in progress	The agent received a request to cancel a transfer, but the transfer is already in the process of being canceled. The new cancel transfer request was ignored.
40	Failed	The transfer failed and none of the files specified were transferred.
41	Cancelled	The transfer was canceled.
42	Trigger failed	The transfer did not take place because the transfer was conditional and the required condition was not met.
43	Malformed XML	An XML message was malformed.
44	Source agent capacity exceeded	The source agent did not have sufficient capacity to carry out the transfer.
45	Destination agent capacity exceeded	The destination agent did not have sufficient capacity to carry out the transfer.
46	Source agent maximum number of files exceeded	The number of files being transferred exceeded the limit of the source agent.
47	Destination agent maximum number of files exceeded	The number of files transferred exceeded the limit of the destination agent.
48	Invalid log message attributes	A log message is malformed. This error is an internal error. If you receive this return code contact the IBM support center for further assistance.
49	Destination unreachable	The source agent is unable send a message to the destination agent due to a WebSphere MQ problem. For example if the source agent queue manager has not been configured correctly to communicate with the destination agent queue manager.
50	Trial version violation	An attempt was made by a trial version agent to communicate with an agent that is not a trial version agent.

Table 8. Return codes (continued)

Return code	Short name	Description
51	Source transfer not permitted	The maxSourceTransfers agent property has been set to 0. It is not permitted for this agent to be the source of any transfers.
52	Destination transfer not permitted	The maxDestinationTransfers agent property has been set to 0. It is not permitted for this agent to be the destination for any transfers.
53	Not authorized	The user is not authorized to perform the operation. See the accompanying message for further details.
54	Authority levels do not match	The authorityChecking agent property value of the source agent and destination agent do not match.
55	Trigger not supported	An attempt has been made to create a transfer with a trigger on a protocol bridge agent. This behavior is not supported.
56	Destination file to message not supported	The destination agent does not support writing the file to a destination queue.
57	File space not supported	The destination agent does not support file spaces.
58	File space rejected	The file space transfer was rejected by the destination agent.
59	Destination message to file not supported	The destination agent does not support message-to-file transfers.
60	File space lookup exception	The Web Gateway agent file space lookup was unsuccessful.
61	File space not found exception	The Web Gateway agent found no data in the database.
62	File space not authorized exception	The Web Gateway agent file space user is not authorized by the permissions database to complete the transfer.
63	File space delete action exception	The Web Gateway agent file space is being deleted by the gateway.
64	Both queues disallowed	The source and destination of a transfer is a queue.
65	General data queue error	An error occurred when the WebSphere MQ File Transfer Edition agent data queue was accessed.
66	Data queue put authorization error	An error occurred when the WebSphere MQ File Transfer Edition agent data queue was accessed. WebSphere MQAdvanced Message Security is not enabled.

Table 8. Return codes (continued)

Return code	Short name	Description
67	Data queue put AMS error	An authorization error occurred when the WebSphere MQ File Transfer Edition agent data queue was accessed. WebSphere MQ Advanced Message Security is enabled.
68	Transfer not supported	An attempt has been made to create a transfer that is not supported by a web agent. A web agent supports only transfers where it acts as the destination agent and the destination is a file space.
100	Monitor substitution not valid	The format of a variable substitution within a monitor task XML script was malformed.
101	Monitor resource incorrect	The number of monitor resource definitions was not valid.
102	Monitor trigger incorrect	The number of monitor trigger definitions was not valid.
103	Monitor task incorrect	The number of monitor task definitions was not valid.
104	Monitor missing	The requested monitor is not present
105	Monitor already present	The requested monitor is already present.
106	Monitor user exit error	A monitor user exit has generated an error during a resource monitor poll.
107	Monitor user exit cancelled	A monitor user exit has requested a transaction to be canceled.
108	Monitor task failed	A monitor task has failed to complete due to error in processing the task.
109	Monitor resource failed	A monitor resource definition cannot be applied to the given resource.
110	Monitor task variable substitution failed	A variable has been specified in a monitor task but no matching name has been found in the metadata. Therefore the variable cannot be substituted with a value.
111	Monitor task source agent not valid	The source agent of the monitor transfer task does not match the agent of the resource monitor.
112	Monitor task source queue manager not valid	The source agent queue manager of the monitor transfer task does not match the agent queue manager of the resource monitor.
113	Monitor not supported	An attempt has been made to create or delete a resource monitor on a protocol bridge agent or web agent. This behavior is not supported.
114	Monitor resource denied	The directory that is scanned by the monitor resource is denied access.

Table 8. Return codes (continued)

Return code	Short name	Description
115	Monitor resource queue in use	The monitor resource queue is already open, and is not compatible for input with shared access.
116	Monitor resource queue unknown	The monitor resource queue does not exist on the associated queue manager of the monitor.
118	Monitor resource expression invalid	An error occurred evaluating the XPath expression. The XPath expression is evaluated to access the user defined properties in the header of the message. The message is on a queue which is monitored by a resource monitor.
119	Monitor task source agent queue manager missing	The source agent queue manager of the monitor cannot be found.
120	Monitor queue not enabled	The monitor resource queue is not enabled.
122	Monitor command queue not enabled for context id	The monitor agent command queue is not enabled for set context identification.

The following table lists the product intermediate reply codes with their meanings:

Table 9. Intermediate reply codes

Reply code	Short name	Description
-2	ACK	The request has been received but is pending completion.
-3	PROGRESS	The request is for a number of files and some are still pending completion.

**Related reference:**

“Return codes for files in a transfer”

Individual files within a transfer have their own result codes which have different meanings to the overall return code from a command.

“HTTP response codes” on page 414

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

**Return codes for files in a transfer**

Individual files within a transfer have their own result codes which have different meanings to the overall return code from a command.

In a transfer log progress message that has an <action> element set to a value of "progress", each file reported has a <status> element with a resultCode. For example:

```
<action time="2009-11-23T21:28:09.593Z">progress</action>
```

```
...
  <status resultCode="1">
    <supplement>BFGI00006E: File &quot;C:\destinationfiles\dest1.doc&quot;
      already exists.</supplement>
  </status>
```

The following table describes the possible values for resultCode:

Table 10. File result codes in a transfer

Result code value	Description
0	Success. The file transferred successfully.
1	Failed. The file failed to transfer. See the <supplement> element for more details of the error.
2	Warning. The file transferred but a warning message has been reported. For example, the source file cannot be deleted although the source disposition is set to delete. See the <supplement> element for more details of the warning.

## HTTP response codes

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

The header of a response returned by the Web Gateway contains an HTTP response code. The HTTP header in the following example contains the HTTP response code 200 OK:

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-length: 0
```

The following table describes the possible values for the HTTP response code and an example of an associated WebSphere MQ File Transfer Edition error code that can be returned. For more information about the WebSphere MQ File Transfer Edition error codes, see Diagnostic messages.

Table 11. HTTP response codes

HTTP response code	Example WebSphere MQ File Transfer Edition error code	Example description
200 OK	None	A valid request has been handled correctly and optionally a response has been provided to the user.
202 Accepted	None	A valid request has been handled correctly but WebSphere MQ File Transfer Edition does not guarantee that the requested action has completed.  For example, a file upload transfer request has been handled and submitted to a WebSphere MQ File Transfer Edition agent but the transfer has not yet taken place.
400 Bad Request	BFGWI0001	The URI is not valid because it is missing a resource type.
403 Forbidden	BFGWI0056	There is no WebSphere MQ Message Descriptor (MQMD) user identifier defined for the user.
404 Not Found	BFGWI0015	The requested resource cannot be found.

Table 11. HTTP response codes (continued)

HTTP response code	Example WebSphere MQ File Transfer Edition error code	Example description
405 Method Not Allowed	BFGWI0016	The requested resource does not support the HTTP verb that has been used in the request.  For example, a GET has been used against a resource that only allows POST or DELETE.
410 Resource Gone	BFGWI0031	The requested resource is no longer available. For example, the requested file has been deleted from the file space.
413 Request Entity Too Large	BFGWI0026	The request contains a file that is too large to be handled by the server.
415 Unsupported Media Type	BFGWI0017	A request has been received with a media type, specified by the Content-type HTTP header, that is not supported.
500 Internal Server Error	BFGWI0018	An internal error has been encountered when handling the request. An FFDC or ABEND file has been produced.
502 Bad Gateway	BFGWI0019	The request cannot be completed because an error occurred outside WebSphere MQ File Transfer Edition. For example, a WebSphere MQ queue manager is not available.
503 Service Unavailable	BFGWI0020	The destination is temporarily unavailable. For example, a WebSphere MQ queue is full.
504 Gateway Timeout	BFGWI0021	An attempt to complete the request has timed out because of time limits imposed by WebSphere MQ File Transfer Edition, or because of time limits imposed by the HTTP client.

**Related concepts:**

“Troubleshooting the Web Gateway”

Use the following reference information and examples to help you diagnose errors returned from the Web Gateway.

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“Content types for using the Web Gateway” on page 952

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of `application/xml` or `application/json`.

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

---

## Troubleshooting the Web Gateway

Use the following reference information and examples to help you diagnose errors returned from the Web Gateway.

### Related concepts:

“The Web Gateway installation verification application” on page 174  
WebSphere MQ File Transfer Edition provides a Web Gateway installation verification application. Use this application to view configuration values for your Web Gateway installation and test basic Web Gateway functions.

### Related tasks:

“Verifying your Web Gateway installation” on page 173  
Follow these instructions to check that your WebSphere MQ File Transfer Edition Web Gateway application is deployed correctly.

### Related reference:

“Enabling trace for the Web Gateway” on page 420  
Enable trace on the application server hosting the Web Gateway to diagnose problems with the Web Gateway.  
“Common problems” on page 422  
The following reference and task information includes examples of errors returned by the Web Gateway and tips about how to avoid causing errors.

## Verifying your Web Gateway installation

Follow these instructions to check that your WebSphere MQ File Transfer Edition Web Gateway application is deployed correctly.

### Before you begin

Before verifying your Web Gateway configuration, you must follow the instructions to deploy the Web Gateway application. See “Configuring the Web Gateway” on page 149.

### About this task

#### Procedure

1. Ensure that you are logged on to the application server environment with a user ID that has the `wmqfte-admin` security role. For more information, see “User roles for the Web Gateway” on page 88.
2. In a web browser, type the following URI:

```
http://host/wmqfte/ivt?logdbschema=FTELOG&webdbschema=FTEWEB
```

If you defined a context root for the Web Gateway application other than the default value of `wmqfte`, use the following URI:

```
http://host/context_root/ivt?logdbschema=FTELOG&webdbschema=FTEWEB
```

**Note:** During configuration of the Web Gateway, you set up database tables for storing information about file spaces and transfer history. The Web Gateway installation verification application assumes that you used the default values for the database schema names. If you defined database schema names other than the default values of `FTELOG` for the transfer history database and `FTEWEB` for the file space information database, you must change the schema names that are specified in the URI. Use the following query terms to specify the database schema names:

#### **logdbschema**

Schema name for the transfer history database

#### **webdbschema**

Schema name for the file space information database

For example, if your transfer history database has a schema name of `MYLOG` and your file space information database has a schema name of `MYWEB`, use the following URI:

```
http://host/wmqfte/ivt?logdbschema=MYLOG&webdbschema=MYWEB
```

For more information about setting up databases, see “Setting up a database for use with file spaces” on page 150 and “Configuring the database logger for use with the Web Gateway” on page 172.

## Results

The web browser displays a page that lists configuration information for your Web Gateway installation, and the results of testing some basic Web Gateway functions. For more information, see “The Web Gateway installation verification application” on page 174.

## The Web Gateway installation verification application

WebSphere MQ File Transfer Edition provides a Web Gateway installation verification application. Use this application to view configuration values for your Web Gateway installation and test basic Web Gateway functions.

For information about how to access the installation verification application, see “Verifying your Web Gateway installation” on page 173. The application displays two types of information: configuration values for your Web Gateway installation, and the results of testing basic Web Gateway functions.

## Configuration values

When you deploy the Web Gateway in an application server, you provide values for several initialization parameters. If you are using WebSphere Application Server Version 7.0, you provide these values using the **Initialize parameters for servlets** step in the administration console. If you are using WebSphere Application Server Community Edition, you set these values in the `web.xml` file.

Under the heading **Web Gateway configuration information**, the application lists the values for the following Web Gateway settings:

### Servlet information

The name and version of the Web Gateway servlet that you have deployed.

### Web Gateway name

The name of the Web Gateway that you deployed. You provided this value for the **webGatewayName** initialization parameter.

### Context root

The context root that you defined for the Web Gateway application. In WebSphere Application Server Community Edition, this is the value of the `<web:context-root>` element in the `WEB-INF/geronimo-web.xml` file. In WebSphere Application Server Version 7.0, this value is set in the **Map context roots for Web modules** step when you install the Web Gateway application. The default value is `wmqfte`.

### File space root directory

The root directory path for file spaces created and managed by the Web Gateway. You provided this value for the **fileSpaceRoot** initialization parameter.

### Temporary file upload root directory

The directory path for the storage of temporary files related to Web Gateway-initiated transfers. You provided this value for the **tempFileUploadDir** initialization parameter.

### Maximum size of temporary file upload directory

The maximum amount of space, in MB, that a user is allowed for storing temporary files related to Web Gateway-initiated transfers. You provided this value for the **maxTempFileUploadSpace** initialization parameter.

### WMQFTE web agent name

The name of the WebSphere MQ File Transfer Edition agent that acts as the source for Web

Gateway-initiated transfers. You provided this value for the **agentName** initialization parameter. This is the name that you specified for your web agent, using the **-agentName** parameter, when you ran the **fteCreateWebAgent** command.

#### **Coordination queue manager name**

The name of the coordination queue manager that is used by the Web Gateway for logging of transfer information. You provided this value for the **coordinationQMGr** initialization parameter.

#### **Default MQMD user ID**

The default WebSphere MQ Message Descriptor (MQMD) user ID to associate with a requesting user when there is no specific MQMD user ID defined for the user. You provided this value for the **defaultMQMDUserID** initialization parameter.

#### **Application server information**

The name and version of the application server hosting the Web Gateway application.

### **Web Gateway tests**

Under the heading **Results of Web Gateway tests**, the installation verification application shows the results of several tests. If a test fails, a WebSphere MQ File Transfer Edition error code and message are displayed in the **Information** column. For more information about error messages, see Diagnostic messages. The following tests are listed:

#### **Upload file to temporary storage**

Tests the directory that is named in the **Temporary file upload root directory** field. The application tests that the directory exists and is readable and writeable, and that data written to the directory can be read back.

#### **Upload file to file space storage**

Tests the directory that is named in the **File space root directory** field. The application tests that the directory exists and is readable and writeable, and that data written to the directory can be read back.

#### **Transfer history database access**

Tests that the connection to the transfer history database exists. If you are using WebSphere Application Server Version 7, the application tests the data source that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163. If you are using WebSphere Application Server Community Edition, the application tests the database pool that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152. The application checks that the database can be accessed using the credentials that you supplied when you set up the data source or database pool.

The application also checks that the required database tables exist. For more information, see “Setting up a database for use with file spaces” on page 150 and “Configuring the database logger for use with the Web Gateway” on page 172.

The final part of the test checks that Java Persistence API (JPA) objects have been correctly defined.

#### **File space information database access**

Tests that the connection to the file space information database exists. If you are using WebSphere Application Server Version 7, the application tests the data source that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163. If you are using WebSphere Application Server Community Edition, the application tests the database pool that you configured when deploying the Web Gateway. For more information, see “Preparing to deploy

the Web Gateway with WebSphere Application Server Community Edition” on page 152. The application checks that the database can be accessed using the credentials that you supplied when you set up the data source or database pool.

The application also checks that the required database tables exist. For more information, see “Setting up a database for use with file spaces” on page 150 and “Configuring the database logger for use with the Web Gateway” on page 172.

The final part of the test checks that Java Persistence API (JPA) objects have been correctly defined.

## Enabling trace for the Web Gateway

Enable trace on the application server hosting the Web Gateway to diagnose problems with the Web Gateway.

### Related tasks:

“Enabling trace with WebSphere Application Server Community Edition”

If the Web Gateway application is running in WebSphere Application Server Community Edition, follow these instructions to enable trace of the Web Gateway application. Trace is produced by the Web Gateway application when it receives and processes requests.

“Enabling trace with WebSphere Application Server Version 7.0” on page 421

If the Web Gateway application is running in WebSphere Application Server Version 7.0, follow these instructions to enable trace of the Web Gateway application. Trace is produced by the Web Gateway application when it receives and processes requests.

## Enabling trace with WebSphere Application Server Community Edition

If the Web Gateway application is running in WebSphere Application Server Community Edition, follow these instructions to enable trace of the Web Gateway application. Trace is produced by the Web Gateway application when it receives and processes requests.

### About this task

Trace files are written to the application server standard output (STDOUT) file. To enable trace in WebSphere Application Server Community Edition perform the following steps:

### Procedure

1. Open the `logging.properties` file for the application server Java Runtime Environment in a text editor. The `logging.properties` file can be found in the `<WASCE_JRE>/jre/lib` directory, where `WASCE_JRE` is the location of the Java Runtime Environment that is used by WebSphere Application Server Community Edition.
2. Add the following lines to the `logging.properties` file:

```
com.ibm.wmqfte.level=FINEST
com.ibm.wmqfte.handlers=com.ibm.wmqfte.ras.container.EventLogFileHandler,com.ibm.wmqfte.ras.container.TraceLogFileHandl
java.util.logging.ConsoleHandler.level=FINEST
```
3. Save the `logging.properties` file.
4. Restart WebSphere Application Server Community Edition.

### Related tasks:

“Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152

Use these instructions to set up your environment before deploying the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Community Edition. Customize the example deployment plan for your environment.

## Enabling trace with WebSphere Application Server Version 7.0

If the Web Gateway application is running in WebSphere Application Server Version 7.0, follow these instructions to enable trace of the Web Gateway application. Trace is produced by the Web Gateway application when it receives and processes requests.

### About this task

You do not need to restart the application server to enable trace. Trace files are written to the application server log directory. To enable trace in WebSphere Application Server Version 7.0 perform the following steps:

### Procedure

1. Select **Troubleshooting-> Logs and Trace** from the WebSphere Application Server Version 7.0 administration console.
2. On the **Logging and Tracing** panel, click the name of the application server that the Web Gateway application is deployed on. A new panel opens.
3. Click **Change Log Detail Levels** to view the current logging levels for the application server.
4. Select the **Runtime** tab to enable trace on the currently running instance of the application server.
  - a. Add the trace level `com.ibm.wmqfte.*=all` to the existing configuration. If existing trace levels are configured, use a colon to separate the trace level. For example, if your server is already configured with the trace level `*=info`, add Web Gateway trace by setting `*=info:com.ibm.wmqfte.*=all`.
  - b. Click **OK** to save the changes.
5. Optional: If you want trace to be enabled when the application server is restarted, select the **Configuration** tab.
  - a. Add the trace level `com.ibm.wmqfte.*=all` to the existing configuration. If existing trace levels are configured, use a colon to separate the trace level. For example, if your server is already configured with the trace level `*=info`, add Web Gateway trace by setting `*=info:com.ibm.wmqfte.*=all`.
  - b. Click **OK** to save the changes.

### Related tasks:

“Preparing to deploy the Web Gateway with WebSphere Application Server Version 7.0” on page 163  
Use these instructions to define required resources before deploying the WebSphere MQ File Transfer Edition Web Gateway enterprise application to WebSphere Application Server Version 7.0. You must customize the example deployment plan for your environment.

## Common problems

The following reference and task information includes examples of errors returned by the Web Gateway and tips about how to avoid causing errors.

### Related tasks:

“Configuring the database logger for use with the Web Gateway” on page 172

To be able to query the status of transfers and the contents of file spaces you must have a WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger in your WebSphere MQ File Transfer Edition network and a database that contains the Version 7.0.3, or later, tables.

“Request fails because of an encoding problem” on page 429

If the WebSphere Application Server Version 7.0 is running on a machine where either the default encoding is not UTF-8 or the default encoding does not map to UTF-8 (for example, cp1252), the Web Gateway cannot complete the request.

“Setting the native library path in WebSphere Application Server Version 7.0” on page 167

If you deploy the Web Gateway application or the Java Platform, Enterprise Edition database logger application on WebSphere Application Server Version 7.0, and you want to use bindings mode connections between the application and WebSphere MQ, you must configure the WebSphere MQ messaging provider with the location of the WebSphere MQ native libraries on the system.

### Related reference:

“Case-sensitivity of Uniform Resource Identifiers” on page 423

The URI of a request through the Web Gateway has some parts that are case-sensitive and some parts that are not case-sensitive.

“Invalid requests for viewing transfer status” on page 424

When you are submitting a request through the Web Gateway to view the status of a file transfer, you might receive an HTTP error code and a WebSphere MQ File Transfer Edition error message. The following example shows the result of requesting the status of an invalid transfer ID.

“Problems with uploading files” on page 425

When you are submitting a request through the Web Gateway to upload a file, you might receive an HTTP error code and a WebSphere MQ File Transfer Edition error message. The following examples show some possible causes of errors received when requesting a file upload.

“Attempting to create a file space without the required authority” on page 426

To create a file space through the WebSphere MQ File Transfer Edition Web Gateway, your user ID must be associated with the appropriate WMQFTE security roles. If you attempt to create a file space without the correct authority, you receive an HTTP error code and a WebSphere MQ File Transfer Edition error message. The following example shows a user who does not have the appropriate authority attempting to create a file space.

“Attempting to create a file space that already exists” on page 427

File spaces that you create through the WebSphere MQ File Transfer Edition Web Gateway must have unique names. If you attempt to create a file space with a name that is already in use, this will be treated as an attempt to modify the file space. If you do not have permission to modify the file space, you receive an HTTP error code and a WebSphere MQ File Transfer Edition error message.

“Web agent fails to start” on page 428

If you receive an error from the **fteStartAgent** command, and you are attempting to start a web agent, check that the `SYSTEM.FTE.WEB.gateway_name` queue exists.

“Timeout when sending a file to a file space” on page 428

When sending a file from a source agent to a destination file space, you might see the return code 58 and the following message: BFGFS0008E: Failed to look up a file space '*file\_space\_name*' for user '*user\_name*' due to a timeout. This problem occurs only when the Web Gateway is deployed on WebSphere Application Server Version 7.0.

## Case-sensitivity of Uniform Resource Identifiers

The URI of a request through the Web Gateway has some parts that are case-sensitive and some parts that are not case-sensitive.

For more information, see “Uniform Resource Identifier syntax for using the Web Gateway” on page 945. The following example shows the result of addressing a *transfer* resource using uppercase in the URI.

1. This HTTP request submits a request for information about a transfer:

```
GET HTTP/1.1 /TRANSFER/414d51204d554e474f4e474f4d55474d512474f4e4ca74f2
Host: example.com
User-Agent: mozilla
```

2. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 404 Not Found
Content-Type text/html;charset=ISO-8859-1
Content-Language en-US
Content-Length 97
Connection Close
Date Wed, 28 Apr 2010 15:34:28 GMT
Server WebSphere Application Server/7.0
Error 404: SRVE0190E:
File not found: /TRANSFER/414d51204d554e474f4e474f4d55474d512474f4e4ca74f2
```

The error message is returned from the application server. The exact wording of the error message depends on the application server that you have deployed the Web Gateway into.

To make the request valid specify the resource name in the URI of the request in lowercase, as shown in the following example:

1. GET HTTP/1.1 /**transfer**/414d51204d554e474f4e474f4d55474d512474f4e4ca74f2  
Host: example.com  
User-Agent: mozilla

If you receive an HTTP response with a status code other than 200, see the HTTP Response Codes topic for more information.

## Configuring the database logger for use with the Web Gateway

To be able to query the status of transfers and the contents of file spaces you must have a WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger in your WebSphere MQ File Transfer Edition network and a database that contains the Version 7.0.3, or later, tables.

### About this task

The following example shows the result of requesting the status of a transfer when the database logger is not correctly configured:

1. This HTTP request submits a transfer query:

```
GET HTTP/1.1 /transfer/414d51204d554e474f2afed834435bc6edaf323520204cee
Host: example.com
User-Agent: mozilla
```

2. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 500 Internal Server Error
Server: WAS/6.0
Content-length: 93
```

Content-type: text/plain

BFGWI0018E: The request could not be completed due to an internal web application server error.

To configure the database logger so that the request is processed correctly, perform the following steps:

## Procedure

1. Install the WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger. This is located on the Remote Tools and Documentation install DVD. For more information on how to install and configure the database logger, see “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.
2. If you already have the WebSphere MQ File Transfer Edition Version 7.0.3, or later, database logger installed, ensure that your database tables are up to date. Use the SQL files provided in the following directories to update your database tables:
  - On distributed platforms: `<install_directory>/tools/sql`
  - On z/OS: `<install_directory>/sql`

## Related tasks:

“Installing the WebSphere MQ File Transfer Edition JEE database logger” on page 136  
Follow these instructions to install and configure the JEE database logger.

“Installing the WebSphere MQ File Transfer Edition stand-alone database logger” on page 124  
Follow these instructions to install and configure the stand-alone database logger.

## Invalid requests for viewing transfer status

When you are submitting a request through the Web Gateway to view the status of a file transfer, you might receive an HTTP error code and a WebSphere MQ File Transfer Edition error message. The following example shows the result of requesting the status of an invalid transfer ID.

1. This HTTP request submits a transfer ID which has been truncated:

```
GET HTTP/1.1 /transfer/414d51204d554e474f2
Host: example.com
User-Agent: mozilla
```

2. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 400 Bad Request
Server: WAS/6.0
Content-length: 64
Content-type: text/plain
```

BFGWI0022E: The supplied transfer ID did not have a length of 48 characters.  
This is not a valid transfer ID.

If you receive an HTTP response with a status code other than 200, see the HTTP Response Codes topic for more information.

## Problems with uploading files

When you are submitting a request through the Web Gateway to upload a file, you might receive an HTTP error code and a WebSphere MQ File Transfer Edition error message. The following examples show some possible causes of errors received when requesting a file upload.

### Failing to specify an MQMD user ID

If you request a file upload using the Web Gateway and there is no WebSphere MQ Message Descriptor (MQMD) user ID defined, the transfer fails with an HTTP response code of 403. For more information about the HTTP response codes returned by the Web Gateway, see the topic “HTTP response codes” on page 414. If you have enabled trace for the application server hosting the Web Gateway, the following information is written to the trace file:

```
BFGWI0056E: User fte-user is not permitted to access the system due to an MQMD user identifier not being available.
```

In the example above, *fte-user* is the user submitting the file upload request. For instructions on configuring trace in your application server, see “Enabling trace for the Web Gateway” on page 420.

To successfully submit file transfer requests through the Web Gateway, you must define the MQMD user ID to use for the transfer. You can either define a specific MQMD user ID for each user, or define a default MQMD user ID.

To define a set of mappings between web user ID and MQMD user ID, use the Web Gateway administration API. For more details, see the topics “Example: Mapping web user IDs to MQMD user IDs” on page 332 and “XML format for mapping web user ID to an MQMD user ID” on page 980. If a user who does not have an MQMD user ID defined submits a file upload request, the value of the **defaultMQMDUserID** parameter is used. For instructions on setting this parameter, see the topics “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152 and “Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169.

### Failing to specify a destination agent

1. This HTTP request submits a request to upload a file without specifying a destination agent:

```
POST HTTP/1.1 /file/agent/  
Host: example.com  
User-Agent: mozilla  
Content-Type: multi-part/form-data; boundary=Aa6b74  
x-fte-checksum: MD5  
  
--Aa6b74  
Content-Disposition: form-data; name="files"; filename="myfile.txt"  
Content-Type: text/plain  
  
Account No, Balance  
123456, 100.00  
234567, 1022.00  
345678, 2801.00  
456789, 16.75  
--Aa6b74
```

2. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 400 Bad Request  
Server: WAS/6.0  
Content-length: 62  
Content-type: text/plain
```

```
BFGWI0002E: URI is incomplete: missing destination agent name.
```

To make the request valid specify the destination agent name in the URI of the request, as shown in the following example:

```
1. POST HTTP/1.1 /file/agent/ACCOUNTS
Host: example.com
User-Agent: mozilla
Content-Type: multi-part/form-data; boundary=Aa6b74
x-fte-checksum: MD5

--Aa6b74
Content-Disposition: form-data; name="files"; filename="myfile.txt"
Content-Type: text/plain

Account No, Balance
123456, 100.00
234567, 1022.00
345678, 2801.00
456789, 16.75
--Aa6b74
```

If you receive an HTTP response with a status code other than 200, see the HTTP Response Codes topic for more information.

### Attempting to create a file space without the required authority

To create a file space through the WebSphere MQ File Transfer Edition Web Gateway, your user ID must be associated with the appropriate WMQFTE security roles. If you attempt to create a file space without the correct authority, you receive an HTTP error code and a WebSphere MQ File Transfer Edition error message. The following example shows a user who does not have the appropriate authority attempting to create a file space.

1. This HTTP request follows the required format for creating a file space. The user submitting the request is jill, who is a member of the group employees. The employees group is defined in the application server environment that hosts the Web Gateway. The group employees is not associated with either the wmqfte-filespace-create role or the wmqfte-admin role. The user jill is attempting to create a file space named kevin, into which the users jill and lakshmi can transfer files.

```
POST HTTP/1.1 /admin/filespace/kevin
Host: example.com
User-Agent: mozilla
Content-Type: application/xml

<?xml version="1.0" encoding="UTF-8"?>
<filespaces>
  <filespace>
    <quota bytes="1048576"/>
    <writers>
      <authorized action="add">
        <agent-user>jill</agent-user>
        <agent-user>lakshmi</agent-user>
      </authorized>
      <unauthorized action="add">
        <agent-user>mary</agent-user>
      </unauthorized>
    </writers>
  </filespace>
</filespaces>
```

2. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 401 Unauthorized
Server: Apache-Coyote/1.1
Content-Type: text/plain;charset=ISO-8859-1

BFGWI0014E: User not authorized to perform the request.
```

To make the request valid, the user `jill` must be added to an application server group that is associated with one of the WMQFTE roles `wmqfte-admin` or `wmqfte-fileSPACE-create`. The example deployment plan provided with the Web Gateway shows a sample security configuration for WebSphere Application Server Community Edition. This plan associates the `wmqfte-admin` role with the `administrators` group and the `wmqfte-fileSPACE-create` role with the `managers` and `administrators` groups. The user `jill` does not belong to either of these groups and so cannot create a file space.

For more information about configuring security permissions in your application server, see the topics “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152 and “Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169.

For more information about the error codes returned by the Web Gateway administration API, see the HTTP Response Codes topic.

**Related concepts:**

“Securing the Web Gateway” on page 87

There are a number of ways that you can secure the Web Gateway. You must perform some of these security steps before you can use the Web Gateway. The other steps are optional and can increase the security of your Web Gateway and WebSphere MQ File Transfer Edition network, but they are not required for you to use the Web Gateway.

**Related reference:**

“User roles for the Web Gateway” on page 88

WebSphere MQ File Transfer Edition has defined several different roles that control the actions a user can take.

## Attempting to create a file space that already exists

File spaces that you create through the WebSphere MQ File Transfer Edition Web Gateway must have unique names. If you attempt to create a file space with a name that is already in use, this will be treated as an attempt to modify the file space. If you do not have permission to modify the file space, you receive an HTTP error code and a WebSphere MQ File Transfer Edition error message.

1. This HTTP request submits a request to create a file space called `murray`. In this example, the file space `murray` already exists and the user submitting the request does not have permission to modify this file space.

```
POST HTTP/1.1 /admin/fileSPACE/murray
Host: example.com
User-Agent: mozilla
Content-Type: application/xml
Content-Length: 266
```

```
<?xml version="1.0" encoding="UTF-8"?>
<fileSpaces>
  <fileSPACE>
    <quota bytes="1048576"/>
    <writers>
      <authorized>
        <agent-user>neerav</agent-user>
        <agent-user>SYS.ADMIN.*</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>olivia</agent-user>
      </unauthorized>
    </writers>
  </fileSPACE>
</fileSpaces>
```

2. The Web Gateway returns an HTTP response with the following format:

```
HTTP/1.1 400 Bad Request
Server: Apache-Coyote/1.1
Content-Type: text/plain;charset=ISO-8859-1
```

BFGWI0014E: User not authorized to perform the request.

To make the request valid, specify a file space name that is not already in use. For information about listing the file spaces in your WebSphere MQ File Transfer Edition environment, see the topics “Example: Listing all file spaces” on page 326 and “Web Gateway administration API reference” on page 966.

For more information about the error codes returned by the Web Gateway administration API, see the HTTP Response Codes topic.

## Web agent fails to start

If you receive an error from the **fteStartAgent** command, and you are attempting to start a web agent, check that the `SYSTEM.FTE.WEB.gateway_name` queue exists.

### Example error

When you run the **fteCreateWebAgent** command, several WebSphere MQ queues are created. When you run the **fteStartAgent** command with a web agent, the agent can only start if these queues exist. If one of these queues is missing, the agent fails to start and a message is written to the agent log:

```
The agent received MQI reason code 2085 when opening queue 'SYSTEM.FTE.WEB.WG1_GTWY' on local queue manager 'QM1'. The agent
00000001 AgentRuntime E BFGAG0061E: The agent ended abnormally
```

If you see this error, check that both the `SYSTEM.FTE.WEB.RESP.agent_name` and `SYSTEM.FTE.WEB.gateway_name` queues exist. The `SYSTEM.FTE.WEB.gateway_name` queue is shared between all web agents associated with that Web Gateway and so is not deleted when you run the **fteDeleteAgent** command, in case another web agent is still running. Users must manually delete this queue, so another user of the Web Gateway might have deleted the queue without realizing that another web agent had been created.

## Timeout when sending a file to a file space

When sending a file from a source agent to a destination file space, you might see the return code 58 and the following message: `BFGFS0008E: Failed to look up a file space 'file_space_name' for user 'user_name' due to a timeout.` This problem occurs only when the Web Gateway is deployed on WebSphere Application Server Version 7.0.

This problem might be caused by **Support distributed two phase commit protocol** not being selected in the application server. To enable this behavior perform the following steps:

1. Select **Resources > JMS > Queue connection factories** from the WebSphere Application Server Version 7.0 administration console navigation.
2. On the **Queue connections factories** panel, select the resource named `jms/WMQFTEWebAgentConnectionFactory`.
3. In the **Advanced** section, ensure that the **Support distributed two phase commit protocol** check box is selected.

## Request fails because of an encoding problem

If the WebSphere Application Server Version 7.0 is running on a machine where either the default encoding is not UTF-8 or the default encoding does not map to UTF-8 (for example, cp1252), the Web Gateway cannot complete the request.

### About this task

The request fails with the following error:

```
BFGWI0018E:(WEBGATEWAY) The request could not be completed due to an internal web application server error. Caused by: Invalid byte 2 of 4-byte UTF-8 sequence.
```

To resolve this problem, set the Java file.encoding system property on the JVM by completing the following steps:

### Procedure

1. Open the WebSphere Application Server administration console and navigate to: **Application servers** > *server name where the Web Gateway is located* > **Process definition** > **Java Virtual Machine**.
2. Add the following argument to the **Generic JVM arguments**:  
-Dfile.encoding=UTF8
3. Shut down and restart WebSphere Application Server to refresh the configuration.

## HTTP response codes

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

The header of a response returned by the Web Gateway contains an HTTP response code. The HTTP header in the following example contains the HTTP response code 200 OK:

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-length: 0
```

The following table describes the possible values for the HTTP response code and an example of an associated WebSphere MQ File Transfer Edition error code that can be returned. For more information about the WebSphere MQ File Transfer Edition error codes, see Diagnostic messages.

Table 12. HTTP response codes

HTTP response code	Example WebSphere MQ File Transfer Edition error code	Example description
200 OK	None	A valid request has been handled correctly and optionally a response has been provided to the user.
202 Accepted	None	A valid request has been handled correctly but WebSphere MQ File Transfer Edition does not guarantee that the requested action has completed.  For example, a file upload transfer request has been handled and submitted to a WebSphere MQ File Transfer Edition agent but the transfer has not yet taken place.
400 Bad Request	BFGWI0001	The URI is not valid because it is missing a resource type.

Table 12. HTTP response codes (continued)

HTTP response code	Example WebSphere MQ File Transfer Edition error code	Example description
403 Forbidden	BFGWI0056	There is no WebSphere MQ Message Descriptor (MQMD) user identifier defined for the user.
404 Not Found	BFGWI0015	The requested resource cannot be found.
405 Method Not Allowed	BFGWI0016	The requested resource does not support the HTTP verb that has been used in the request.  For example, a GET has been used against a resource that only allows POST or DELETE.
410 Resource Gone	BFGWI0031	The requested resource is no longer available. For example, the requested file has been deleted from the file space.
413 Request Entity Too Large	BFGWI0026	The request contains a file that is too large to be handled by the server.
415 Unsupported Media Type	BFGWI0017	A request has been received with a media type, specified by the Content-type HTTP header, that is not supported.
500 Internal Server Error	BFGWI0018	An internal error has been encountered when handling the request. An FFDC or ABEND file has been produced.
502 Bad Gateway	BFGWI0019	The request cannot be completed because an error occurred outside WebSphere MQ File Transfer Edition. For example, a WebSphere MQ queue manager is not available.
503 Service Unavailable	BFGWI0020	The destination is temporarily unavailable. For example, a WebSphere MQ queue is full.
504 Gateway Timeout	BFGWI0021	An attempt to complete the request has timed out because of time limits imposed by WebSphere MQ File Transfer Edition, or because of time limits imposed by the HTTP client.

**Related concepts:**

“Troubleshooting the Web Gateway” on page 416

Use the following reference information and examples to help you diagnose errors returned from the Web Gateway.

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“Content types for using the Web Gateway” on page 952

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of `application/xml` or `application/json`.

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

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## Troubleshooting the Connect:Direct bridge

Use the following reference information and examples to help you diagnose errors returned from the Connect:Direct bridge.

- “Tracing the Connect:Direct bridge” on page 432
- “Log information for the Connect:Direct bridge” on page 432
- “Solving permissions issues with Connect:Direct nodes” on page 433
- “What to do if text transfers to or from Connect:Direct nodes are not converting the data correctly” on page 433
- “What to do if transfers to PDS or PDS members through the Connect:Direct bridge are failing” on page 434

- “Connect:Direct file paths specified with a double forward slash” on page 434
- “Increasing the number of concurrent transfers for the Connect:Direct bridge” on page 435
- “Debugging a Connect:Direct process that is called by a file transfer” on page 436

## Tracing the Connect:Direct bridge

You can capture trace from the Connect:Direct node that is part of the Connect:Direct bridge to help with problem determination.

### About this task

To enable trace, complete the following steps:

#### Procedure

1. Stop the Connect:Direct bridge agent.
2. Edit the Connect:Direct bridge agent properties file to include the line:  

```
cdTrace=true
```
3. Start the Connect:Direct bridge agent.

#### Results

The trace information is written to the `output0.log` file in the Connect:Direct bridge agent configuration directory.

#### Related reference:

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Log information for the Connect:Direct bridge

You can use a Connect:Direct bridge agent to transfer files between WMQFTE agents and Connect:Direct nodes. Log information about the Connect:Direct nodes and processes involved in these transfers is displayed in the WebSphere MQ Explorer plug-in and is stored in your log database.

The Connect:Direct bridge agent must be WebSphere MQ File Transfer Edition v7.0.4 or later. The other agent involved in the transfer can be any version of WebSphere MQ File Transfer Edition. However, for information about Connect:Direct nodes and processes to be logged, all WMQFTE agents involved in the transfer must be v7.0.4 or later. For this information to be displayed in the WebSphere MQ Explorer plug-in, the plug-in must be v7.0.4 or later. For this information to be stored in the log database, the database logger and database schema must be v7.0.4 or later.

Log information about the Connect:Direct nodes and Connect:Direct processes involved in a file transfer is included in the log messages that are published to the `SYSTEM.FTE` topic on the coordination queue manager. For more information, see “File transfer log message formats” on page 675.

The following information is included in the published message:

- Connect:Direct bridge node name
- Primary node (PNODE) name
- Secondary node (SNODE) name
- Process name
- Process ID number

The Connect:Direct bridge node is the same node as either the primary node or the secondary node.

The value of the Connect:Direct bridge node name is the name that the bridge node is known to the WMQFTE Connect:Direct bridge agent by. The primary and secondary node names are the names that are used to refer to the nodes in the network map of the Connect:Direct bridge node.

**Related reference:**

“Connect:Direct bridge transfer message examples” on page 700

The destinationAgent or sourceAgent element contains additional attributes when the destination agent or source agent is a Connect:Direct bridge agent. The Started log message contains only a subset of the information about the Connect:Direct transfer. The Progress and Completed log messages contain full information about the Connect:Direct transfer.

## Solving permissions issues with Connect:Direct nodes

Use the information in this topic if your transfers between IBM WebSphere MQ File Transfer Edition and Connect:Direct fail with an error about insufficient permissions.

For transfers involving the Connect:Direct bridge, the user ID that connects to the Connect:Direct node is determined by which WebSphere MQ Message Descriptor (MQMD) user ID is associated with the transfer request. You can map specific MQMD user IDs to specific Connect:Direct user IDs. For more information, see “Mapping credentials for Connect:Direct” on page 179.

You might see transfers failing with one of the following errors:

- BFGCD0001E: This task was rejected by the Connect:Direct API with the following error message: Connect:Direct Node detected error.  
LCCA000I The user has no functional authority to issue the selp command
- BFGCD0026I: Connect:Direct messages: The submit of the process succeeded. Process number 1092 (name F35079AE, SNODE MYNODE) executing. User fteuser does not have permission to override SNODEID. User fteuser does not have permission to override SNODEID. User fteuser does not have permission to override SNODEID.

If you see either of these errors, determine which Connect:Direct user ID is associated with the MQMD user ID that was used for the transfer request. This Connect:Direct user ID must have authority to perform the Connect:Direct operations required by the Connect:Direct bridge. For the list of functional authorities needed, and guidance on how to grant these authorities, see “Mapping credentials for Connect:Direct by using the ConnectDirectCredentials.xml file” on page 179.

## What to do if text transfers to or from Connect:Direct nodes are not converting the data correctly

When you transfer files in text mode between a WMQFTE agent and a Connect:Direct node, code page and end-of-line character conversion is performed. The transfer uses the operating system information in the network map of the Connect:Direct bridge node to determine the end-of-line characters of a remote node. If the information in the network map is incorrect, the end-of-line character conversion might be performed incorrectly.

Ensure that the network map of the Connect:Direct bridge node and any Connect:Direct nodes that are used as a transfer destination include the correct platform description.

- If your Connect:Direct bridge node is on a Windows system, ensure that for each remote node in your network map you select the correct value from the **Operating System** list.
  - If the remote node is on a Windows system, select Windows.
  - If the remote node is on a UNIX or Linux system, select UNIX.
  - If the remote node is on a z/OS system, select OS/390.

Transfers to remote nodes on other operating systems are not supported by the Connect:Direct bridge.

- Ensure that for each remote node you transfer a file to or from, you specify the operating system type of the remote Connect:Direct node in the ConnectDirectNodeProperties.xml file in the Connect:Direct

bridge agent configuration directory. For more information, see “Configure the ConnectDirectNodeProperties.xml file to include information about the remote Connect:Direct nodes” on page 177 and “Connect:Direct node properties file format” on page 637.

**Related reference:**

“Transferring text files between Connect:Direct and WebSphere MQ File Transfer Edition” on page 736  
Text transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return line feed) characters between systems. This topic summarizes text file transfer behavior in transfers between a WMQFTE agent and a Connect:Direct node.

## What to do if transfers to PDS or PDS members through the Connect:Direct bridge are failing

If the destination of a transfer is a Connect:Direct node on z/OS and is a PDS or PDS member, the transfer fails if the **-de** parameter has not been specified with a value of overwrite.

### About this task

If you submitted the transfer by using the **fteCreateTransfer** or **fteCreateTemplate** command, perform the following steps:

#### Procedure

1. Change the command that you submitted to include **-de** overwrite.
2. Submit the command again.

### About this task

If you submitted the transfer by using the WebSphere MQ Explorer plug-in, perform the following steps:

#### Procedure

1. Specify the source and destination information in the Create New Managed File Transfer wizard.
2. Select **Overwrite files on the destination file system that have the same name**.
3. Submit the command again.

## Connect:Direct file paths specified with a double forward slash

If, as part of a file transfer, you specify a file located on a Connect:Direct node by using a file path that starts with a double forward slash (//), the file is treated as a data set.

Sources and destinations on a Connect:Direct node are specified in the format *cd\_node\_name:file\_path*. If the *file\_path* starts with a double forward slash (//), the source or destination is treated as a data set. This is the case even when the Connect:Direct node is not on z/OS. This can cause transfer failures if the file path is accidentally specified with a double forward slash (//) at the start and the file is not a data set.

Ensure that you do not specify a *file\_path* that starts with a double forward slash (//) if you do not want the file that you specify to be treated as a data set.

### Related concepts:

“Troubleshooting the Connect:Direct bridge” on page 431

Use the following reference information and examples to help you diagnose errors returned from the Connect:Direct bridge.

### Related reference:

“Transferring data sets to and from Connect:Direct nodes” on page 726

You can transfer data sets between WebSphere MQ File Transfer Edition agents and IBM Sterling Connect:Direct nodes using the Connect:Direct bridge. You can specify a data set as the transfer source, transfer destination, or both.

## Increasing the number of concurrent transfers for the Connect:Direct bridge

To increase the number of concurrent transfers that the Connect:Direct bridge agent can process, you must change three agent properties. You must also increase the maximum number of connections that the Connect:Direct node accepts.

The maximum number of concurrent transfers that a Connect:Direct bridge agent can process depends on the values of certain agent properties. The **maxSourceTransfers** and **maxDestinationTransfers** agent properties have a default value of five transfers for a Connect:Direct bridge agent. This default value is lower than the default of 25 transfers for other types of agent. A Connect:Direct bridge, where the agent is configured with the default values of **maxSourceTransfers** and **maxDestinationTransfers**, can process a maximum of 10 transfers at any one time: five transfers where the agent is the source, and five transfers where the agent is the destination.

These default values ensure that the Connect:Direct bridge agent does not exceed the maximum number of API connections to the Connect:Direct node. A Connect:Direct bridge agent with the default configuration uses a maximum of 10 API connections to the Connect:Direct node. The maximum number of connections accepted by a Connect:Direct node on UNIX is controlled by the **api.max.connects** Connect:Direct parameter. For a Connect:Direct node on Windows, the equivalent parameter is **max.api.connects**.

If the rate at which your Connect:Direct bridge carries out large numbers of file transfers is not sufficient, you can increase the number of concurrent transfers that the Connect:Direct bridge agent processes. Change the following agent properties for the Connect:Direct bridge agent:

### **maxSourceTransfers**

Set this property to a value that is larger than 5, but smaller than or equal to 25. If you choose a value that is larger than 25, the agent might run out of memory unless you increase the amount of memory that is available to the JVM used by the agent.

### **maxDestinationTransfers**

Set this property to a value that is larger than 5, but smaller than or equal to 25. If you choose a value that is larger than 25, the agent might run out of memory unless you increase the amount of memory that is available to the JVM used by the agent.

### **ioThreadPoolSize**

The default value of **ioThreadPoolSize** is 10. This property restricts the number of Connect:Direct node API connections for transfers where the Connect:Direct bridge agent is the source agent. These transfers are from Connect:Direct to WebSphere MQ File Transfer Edition. Use the following guidance to set the value of this property:

- If the value of **maxSourceTransfers** is smaller than the value of **maxDestinationTransfers**, set **ioThreadPoolSize** to double the value of **maxSourceTransfers** or 10, whichever is the larger
- If the value of **maxSourceTransfers** is larger than the value of **maxDestinationTransfers**, set **ioThreadPoolSize** to the sum of **maxSourceTransfers** and **maxDestinationTransfers**

In addition to these agent properties, you must also change the maximum number of concurrent API connections for the Connect:Direct node that is part of the Connect:Direct bridge. The Connect:Direct parameter that controls this number is **api.max.connects** if your node is on UNIX, or **max.api.connects** if your node is on Windows. Make the following changes to the appropriate parameter:

**api.max.connects (if the node in your Connect:Direct bridge is on UNIX)**

Set this parameter to a value larger than the sum of **maxSourceTransfers** and **maxDestinationTransfers**. The default value of the **api.max.connects** parameter is 16. For more information about how to set this parameter, see the Connect:Direct documentation.

**max.api.connects (if the node in your Connect:Direct bridge is on Windows)**

Set this parameter to a value larger than the sum of **maxSourceTransfers** and **maxDestinationTransfers**. The default value of the **max.api.connects** parameter is 10. For more information about how to set this parameter, see the Connect:Direct documentation.

**Related tasks:**

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

**Related reference:**

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Debugging a Connect:Direct process that is called by a file transfer

You can configure the Connect:Direct bridge agent to write log information about the Connect:Direct process that is called by a file transfer to the `output0.log` file in the Connect:Direct bridge agent configuration directory.

### About this task

To configure logging of the Connect:Direct processes, complete the following steps:

#### Procedure

1. Stop the Connect:Direct bridge agent.
2. Edit the `agent.properties` file in the `configuration_directory/coordination_queue_manager/agents/bridge_agent_name` directory to include the property `logCDProcess`. The `logCDProcess` property can have one of the following values:
  - None - No information is logged. This is the default.
  - Failures - Information about failed Connect:Direct processes is logged.
  - All - Information about all Connect:Direct processes is logged.
3. Start the Connect:Direct bridge agent.

#### Results

Information about Connect:Direct processes is logged to the Connect:Direct bridge agent's `output0.log` file. The information that is logged comprises:

- WMQFTE transfer ID
- Connect:Direct process name
- Connect:Direct process number
- Generated process definition

- File name of the process template, if the Connect:Direct process is user-defined

**Related concepts:**

“Troubleshooting the Connect:Direct bridge” on page 431

Use the following reference information and examples to help you diagnose errors returned from the Connect:Direct bridge.

**Related reference:**

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.



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## Reference

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### Product overview

#### Using the WebSphere MQ File Transfer Edition documentation

The information center is supplied as part of the WebSphere MQ File Transfer Edition Remote Tools and Documentation DVD. Install the information center on your computer (either before or after installing the WebSphere MQ File Transfer Edition Server DVD or the WebSphere MQ File Transfer Edition Client DVD).

#### Obtaining the most current information

For the latest version of this information, see the online version here: [IBMWebSphere MQ File Transfer Edition V7.0.4 documentation](#).

#### Running the WebSphere MQ File Transfer Edition Information Center

You can run the WebSphere MQ File Transfer Edition Information Center in stand-alone mode directly from the installation directory. In stand-alone mode, the information center is available only to the user who is logged on to the workstation that is running the information center.

1. Change to the *install\_directory/tools/help/* directory.  
To start the WebSphere MQ File Transfer Edition Information Center:
  - On Windows, run `help_start.bat`
  - On Linux, run `./help_start.sh`
2. To stop the help system, close the browser and change to the *install\_directory/tools/help/* directory. Then run one of the following files:
  - On Windows, run `help_end.bat`
  - On Linux, run `./help_end.sh`.

#### Updating the information center installed from the DVD

When newer versions of the documentation in the information center that you have installed from the DVD are available, you can download the updated content while you are using the information center.

The latest information center updates available have the version number 7.0.4.6 for US English. This version number applies to the information center only: you can apply these documentation updates to any previous version of the WebSphere MQ File Transfer Edition Information Center.

To check whether there are any updates available and download them to your local system, use the following steps:

- Click **Update**  on the toolbar. A list of installed document sets is displayed.
- Click **Find Updates** on the bottom of the list to start finding available updates. The information center searches for updates at a server location. A progress bar is displayed while updates are being located.
- When updates have been located, in the search results for the latest updates, two lists are displayed:
  - Updates for existing documentation
  - New documentation

Select the check boxes corresponding to the documentation sets that you want to install.

- Click **Install Updates** to install the documentation sets you have selected.

- Click **Finish** when the installation is done.

You do not need to restart the information center. The information center automatically refreshes to show the updated content.

## Displaying context-sensitive help in the WebSphere MQ Explorer

Context-sensitive help (also known as pop-up help) is provided in the WebSphere MQ Explorer for Windows and Linux. You can access context-sensitive help from any part of the GUI.

You can:

- Click a folder
- Click a properties page
- Click a view
- Click a dialog

Then on Windows installations, press F1 and on Linux installations, press Ctrl+F1 or Shift+F1. By default, help information that typically contains one or more links to more detailed information, is displayed in a new panel in WebSphere MQ Explorer.

You can change the help preferences by clicking **Window > Preferences > Help**. The Help Preferences dialog opens.

## Displaying command-line help for the WebSphere MQ File Transfer Edition commands

Command-line help is available for all WebSphere MQ File Transfer Edition commands. To access the command-line help type either **-h** or **-?** after the name of command you want help for in the directory where the commands are installed. For example:

```
command_name -h
```

```
command_name -?
```

### Syntax diagrams: available types

The syntax for commands is presented in the form of a diagram. The diagram tells you what you can do with the command and indicates relationships between different options and, sometimes, different values of an option. There are two types of syntax diagrams: railroad diagrams and dotted decimal diagrams. Railroad diagrams are a visual format suitable for sighted users. Dotted decimal diagrams are text-based diagrams that are more helpful for blind or partially-sighted users.

To select which type of syntax diagram you use, click the appropriate button above the syntax diagram in the topic that you are viewing.

**Related reference:**

“How to read railroad (syntax) diagrams”

“How to read dotted decimal diagrams” on page 443

**How to read railroad (syntax) diagrams:**

Each railroad diagram begins with a double right arrow and ends with a right and left arrow pair. Lines beginning with a single right arrow are continuation lines. You read a railroad diagram from left to right and from top to bottom, following the direction of the arrows.

Other conventions used in railroad diagrams are:

*Table 13. How to read railroad diagrams*

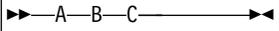
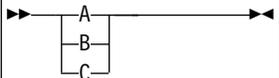
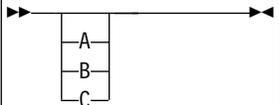
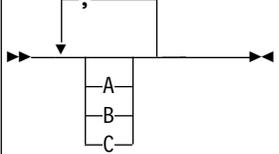
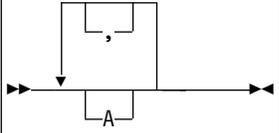
Convention	Meaning
	<p>You must specify values A, B, and C. Required values are shown on the main line of a railroad diagram.</p>
	<p>You may specify value A. Optional values are shown below the main line of a railroad diagram.</p>
	<p>Values A, B, and C are alternatives, one of which you must specify.</p>
	<p>Values A, B, and C are alternatives, one of which you might specify.</p>
	<p>You might specify one or more of the values A, B, and C. Any required separator for multiple or repeated values (in this example, the comma (,)) is shown on the arrow.</p>
	<p>You might specify value A multiple times. The separator in this example is optional.</p>

Table 13. How to read railroad diagrams (continued)

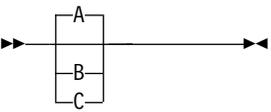
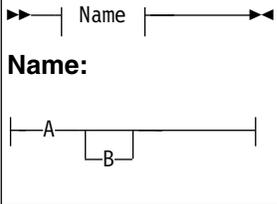
Convention	Meaning
	<p>Values A, B, and C are alternatives, one of which you might specify. If you specify none of the values shown, the default A (the value shown above the main line) is used.</p>

Table 13. How to read railroad diagrams (continued)

Convention	Meaning
 <p><b>Name:</b></p>	The railroad fragment Name is shown separately from the main railroad diagram.
Punctuation and uppercase values	Specify exactly as shown.
Lowercase values (for example, <i>name</i> )	Supply your own text in place of the <i>name</i> variable.

### How to read dotted decimal diagrams:

In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), they can appear on the same line, because they can be considered as a single compound syntax element.

Each line starts with a dotted decimal number, for example 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1) are mutually exclusive alternatives. For example, if you hear the lines 3.1 USERID, 3.1 SYSTEMID, you know that your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with the dotted decimal number 3 is followed by a series of syntax elements with the dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Characters such as commas that are used to separate a string of syntax elements are shown in the syntax just before the items that they separate. They can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line might also show another symbol giving information about the syntax elements; all these symbols are explained below. For example, the lines 5.1\* ,, 5.1 LASTRUN, 5.1 DELETE mean that if you use more than one of the syntax elements LASTRUN and DELETE, they must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, this indicates a reference that is defined elsewhere. The string following the % is the name of a syntax fragment, rather than a literal. For example, the line 2.1 %OP1 means that, at this point, you must refer to the separate syntax fragment OP1. OP1, in the syntax from which this example was taken, gave a list of further options.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the escape character, which is a \ (backslash). For example, the \* symbol can be used next to a dotted decimal number to mean that this syntax element can be repeated. If a syntax element actually starts with the \* symbol, for example a syntax element \* FILE with the dotted decimal number 3, it is given in the format 3 \\* FILE. If the format is 3\* FILE, this means that there is a syntax element FILE, which can be repeated. If the format is 3\* \\* FILE, this means that there is a syntax element \* FILE, which can be repeated.

The words and symbols used next to the dotted decimal numbers are as follows:

- **? means an optional syntax element.** If a dotted decimal number is followed by the ? symbol, this means that all the syntax elements with that dotted decimal number, and any subordinate syntax elements that they each have, are optional. If there is only one syntax element with that dotted decimal number, the ? symbol appears on the same line as the syntax element, for example 5? NOTIFY. If there is more than one syntax element with that dotted decimal number, the ? symbol appears on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, 5 UPDATE, you know that the syntax elements NOTIFY and UPDATE are optional; you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.
- **! means a default syntax element.** If a dotted decimal number is followed by the ! symbol, appended to the last digit of the dotted decimal number, this means that this syntax element is the default of all the elements with the same dotted decimal number. Only one of the syntax elements that share the same dotted decimal number can specify a !. For example, if you hear the lines 2? FILE, 2.1! (KEEP), 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. If you include the FILE keyword, but do not state your choice of option, the default option KEEP is applied. As well as the particular syntax element marked with the ! symbol, the default also applies to the next higher dotted decimal number. In the example above, the default applies to 2? FILE as well as to 2.1! (KEEP), meaning that, if you omit the word FILE, the default FILE(KEEP) is used. However, you might instead hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), 2.1.1 (DELETE). As the default only applies to the next higher dotted decimal number, which in this case is 2.1, it does not apply to 2? FILE. In this case, if you omit the word FILE, nothing is used.
- **\* means a syntax element that is optional and can be repeated.** If a dotted decimal number is followed by the \* symbol, this means that this syntax element is optional, and can be repeated. For example, if you hear the line 5.1\* data-area, you know that you can include more than one data area, or you can include none. If you hear the lines 3\*, 3 HOST, 3 STATE, you know that you can include HOST, STATE, both, or nothing. If a dotted decimal number has an asterisk next to it, and there is only one item with that dotted decimal number, you can repeat that same item more than once. If a dotted decimal number has an asterisk next to it, and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the example above, you could write HOST STATE, but you could not write HOST HOST. The \* symbol is equivalent to a loopback line in a railroad syntax diagram.
- **+ means a syntax element that must be included at least once, and can be repeated.** If a dotted decimal number is followed by the + symbol, this means that this syntax element must be included at least once, and can be repeated. For example, if you hear the line 6.1+ data-area, you know that you must include at least one data area, and you can include more than one. If you hear the lines 2+, 2 HOST, 2 STATE, you know that you must include HOST, STATE, or both. As for the + symbol, you can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the \* symbol, is equivalent to a loopback line in a railroad syntax diagram.

## Accessibility features for WebSphere MQ File Transfer Edition

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products successfully. IBM strives to provide products with usable access for everyone, regardless of age or ability.

### Accessibility features

The following list includes the major accessibility features in WebSphere MQ File Transfer Edition. You can use screen-reader software to hear what is displayed on the screen.

- Supports keyboard-only operation
- Supports interfaces commonly used by screen readers
- Fully-functional command line interface
- Respects system font and color scheme options
- Text-only (console) installation

- Supports all accessibility features of the Eclipse interface (applies to the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer)

## Keyboard navigation

This product uses standard operating system-defined navigation keys, as well as Eclipse standard navigation keys.

Visit the *IBM Accessibility Center* for more information about IBM's commitment to accessibility.

## How does WebSphere MQ File Transfer Edition work?

WebSphere MQ File Transfer Edition interacts in a number of ways with WebSphere MQ. This topic describes how the two products interact.

- WebSphere MQ File Transfer Edition transfers files between agent processes by dividing each file into one or more messages and transmitting the messages through your WebSphere MQ network.
- The agent processes move file data by using nonpersistent messages to minimize the impact on your WebSphere MQ logs. By communicating with one another the agent processes regulate the flow of messages containing file data. This prevents messages containing file data building up on WebSphere MQ transmission queues and ensures that if any of the nonpersistent messages are not delivered, the file data is sent again.
- WebSphere MQ File Transfer Edition agents use a number of WebSphere MQ queues. For more information, see *System queues and the system topic*.
- Although some of these queues are strictly for internal use, an agent can accept requests in the form of specially formatted command messages sent to a specific queue that the agent reads from. Both the command-line commands and the WebSphere MQ Explorer plug-in send WebSphere MQ messages to the agent to instruct the agent to perform the wanted action. You can write WebSphere MQ applications that interact with the agent in this way. For more information, see “Controlling WebSphere MQ File Transfer Edition by putting messages on the agent command queue” on page 372.
- WebSphere MQ File Transfer Edition agents send information about their state and the progress and outcome of transfers to a WebSphere MQ queue manager that has been designated as the coordination queue manager. This information is published by the coordination queue manager and can be subscribed to by applications that want to monitor transfer progress or keep records of the transfers that have occurred. Both the command-line commands and the WebSphere MQ Explorer plug-in can use the information that is published. You can write WebSphere MQ applications that use this information. For more information about the topic that the information is published to, see “The SYSTEM.FTE topic” on page 656.
- Key components of WebSphere MQ File Transfer Edition take advantage of the capability of WebSphere MQ queue managers to store and forward messages. This means that if you suffer an outage, unaffected parts of your infrastructure can continue to transfer files. This extends to the coordination queue manager, where a combination of store and forward and durable subscriptions allow the coordination queue manager to tolerate becoming unavailable without losing key information about the file transfers that have taken place.

---

## Installing

### WebSphere MQ File Transfer Edition hardware and software prerequisites

Before you install WebSphere MQ File Transfer Edition, check that your system meets both the hardware and software requirements of the product. For all platforms, you must have one WebSphere MQ Version 7.0 queue manager available in your WebSphere MQ File Transfer Edition network to use as the coordination queue manager.

See the web page WebSphere MQ File Transfer Edition System Requirements for hardware and software prerequisites.

## Media included in each product offering

WebSphere MQ File Transfer Edition can be installed as three different types of offering, depending on your platform and overall setup. The following table lists the media that are included with each product offering.

Table 14. Summary of the media provided with each WebSphere MQ File Transfer Edition offering

CD, DVD, or tape included	Content	WebSphere MQ File Transfer Edition Client, Version 7.0	WebSphere MQ File Transfer Edition Server, Version 7.0	WebSphere MQ File Transfer Edition for z/OS, Version 7.0
Client DVD	For all distributed platforms: <ul style="list-style-type: none"> <li>Agent code that allows the agent to connect to queue managers in client transport mode only.</li> <li>Client command set. For more information, see "Installed command sets" on page 447.</li> </ul>	X		
Server DVD	For all distributed platforms: <ul style="list-style-type: none"> <li>Agent code that allows the agent to connect to queue managers in client and bindings transport mode.</li> <li>Server command set. For more information, see "Installed command sets" on page 447.</li> </ul>		X	
Tools DVD	For AIX, HP-UX, Solaris, Linux on Power Systems™, and Linux on System z: <ul style="list-style-type: none"> <li>Tools command set. For more information, see "Installed command sets" on page 447.</li> </ul> For Linux and Windows on x86 only: <ul style="list-style-type: none"> <li>Tools command set. For more information, see "Installed command sets" on page 447.</li> <li>A WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer</li> <li>WebSphere MQ File Transfer Edition Information Center (in Brazilian Portuguese, German, Japanese, Korean, Spanish, and US English).</li> </ul> For supported distributed platforms: <ul style="list-style-type: none"> <li>WebSphere MQ File Transfer Edition database logger. See WebSphere MQ File Transfer Edition System Requirements to see which platforms support the database logger.</li> </ul>	X	X	X
Quick Start CD	PDF files of the Quick Start Guide in all languages (Brazilian Portuguese, Czech, French, German, Hungarian, Japanese, Korean, Polish, Russian, Simplified Chinese, Spanish, and US English).	X	X	X
WebSphere MQ Version 7.0 CDs	WebSphere MQ Version 7.0 Server and Client CDs for all supported distributed platforms.		X	

Table 14. Summary of the media provided with each WebSphere MQ File Transfer Edition offering (continued)

CD, DVD, or tape included	Content	WebSphere MQ File Transfer Edition Client, Version 7.0	WebSphere MQ File Transfer Edition Server, Version 7.0	WebSphere MQ File Transfer Edition for z/OS, Version 7.0
z/OS tape	<ul style="list-style-type: none"> <li>Agent code that allows the agent to connect to queue managers in bindings transport mode only.</li> <li>Server command set. For more information, see “Installed command sets.”</li> <li>WebSphere MQ File Transfer Edition database logger, and <b>fteStartDatabaseLogger</b> and <b>fteStopDatabaseLogger</b> commands.</li> </ul>			X

## Installation location on Linux platforms

The default installation directory and default configuration directory for WebSphere MQ File Transfer Edition on Linux is different depending on the circumstances.

- If you install WebSphere MQ File Transfer Edition V7.0.3 or earlier, the default installation directory is /opt/IBM/WMQFTE and the default configuration directory is /var/IBM/WMQFTE.
- If you install WebSphere MQ File Transfer Edition V7.0.4 or later on a system that does not have an existing WMQFTE installation, the default installation directory is /opt/ibm/WMQFTE and the default configuration directory is /var/ibm/WMQFTE.
- If you install WebSphere MQ File Transfer Edition V7.0.4 or later on a system that does have an existing WMQFTE installation, one of the following situations occurs:
  - If the existing installation is V7.0.4 or later and is installed at the default location, for the new installation the default installation directory is /opt/ibm/WMQFTE and the default configuration directory is /var/ibm/WMQFTE.
  - If the existing installation is V7.0.3 or earlier and is installed at the default location, for the new installation the default installation directory is /opt/IBM/WMQFTE and the default configuration directory is /var/IBM/WMQFTE.
  - If the existing installation is not installed at the default location, for the new installation the default installation directory is /opt/ibm/WMQFTE and the default configuration directory is /var/ibm/WMQFTE.

## Installed command sets

The following table shows which commands are installed with each product offering.

Table 15. WebSphere MQ File Transfer Edition commands available in each command set

Command	Client command set	Server and z/OS command set	Tools command set
fteAnt	X	X	X
fteCancelTransfer	X	X	X
fteChangeDefaultConfigurationOptions	X	X	X
fteCleanAgent	X	X	
fteCreateAgent	X	X	
fteCreateBridgeAgent		X	
fteCreateCDAgent	X	X	

Table 15. WebSphere MQ File Transfer Edition commands available in each command set (continued)

Command	Client command set	Server and z/OS command set	Tools command set
fteCreateMonitor	X	X	X
fteCreateTemplate	X	X	X
fteCreateTransfer	X	X	X
fteCreateWebAgent		X	
fteDeleteAgent	X	X	
fteDeleteMonitor	X	X	X
fteDeleteScheduledTransfer	X	X	X
fteDeleteTemplates	X	X	X
fteDisplayVersion	X	X	X
fteListAgents	X	X	X
fteListMonitors	X	X	X
fteListScheduledTransfers	X	X	X
fteListTemplates	X	X	X
fteModifyAgent	X (Windows only)	X (Windows only)	
fteModifyDatabaseLogger			X (Windows only)
ftePingAgent	X	X	X
fteSetAgentTraceLevel	X	X	X
fteSetupCommands	X	X	X
fteSetupCoordination	X	X	X
fteShowAgentDetails	X	X	X
fteStartAgent	X	X	
fteStartDatabaseLogger			X
fteStopAgent	X	X	
fteStopDatabaseLogger			X

## Example response files

When you perform a silent installation you pass in a response file that specifies variables, for example, installation directory and configuration directory.

The following topics contain examples of response files:

- “Server installation response file” on page 449
- “Client installation response file” on page 449
- “Remote Tools and Documentation installation response file” on page 450
- “Uninstallation response file” on page 450

## Server installation response file

Sample silent installation script for the WebSphere MQ File Transfer Edition Server installation.

```
# Sample silent installation script for the WebSphere MQ File Transfer Edition
# server.

# Has the license been accepted?
# Possible values:
#   TRUE - the license has been accepted - proceed with the install.
#   FALSE - the license has not been accepted - do not proceed with the install.
#-----
LICENSE_ACCEPTED=TRUE

# Product installation folder :
# The location that the product binaries will be installed into.
#-----
USER_INSTALL_DIR=C:\\Program Files\\IBM\\WMQFTE

# Configuration folder :
# The location that the product configuration will be installed into.
#-----
USER_TEMP_DATA_DIR=C:\\Documents and Settings\\All Users\\Application Data\\IBM\\WMQFTE\\config

# Skip configuration
# Skip further configuration steps.
#-----
Skip_configuration="Yes\\",\\""
```

## Client installation response file

Sample silent installation script for the WebSphere MQ File Transfer Edition Client installation.

```
# Sample silent installation script for the WebSphere MQ File Transfer Edition
# client.

# Has the license been accepted?
# Possible values:
#   TRUE - the license has been accepted - proceed with the install.
#   FALSE - the license has not been accepted - do not proceed with the install.
#-----
LICENSE_ACCEPTED=TRUE

# Product installation folder :
# The location that the product binaries will be installed into.
#-----
USER_INSTALL_DIR=C:\\Program Files\\IBM\\WMQFTE

# Configuration folder :
# The location that the product configuration will be installed into.
#-----
USER_TEMP_DATA_DIR=C:\\Documents and Settings\\All Users\\Application Data\\IBM\\WMQFTE\\config

# Skip configuration
# Skip further configuration steps.
#-----
Skip_configuration="Yes\\",\\""
```

## Remote Tools and Documentation installation response file

Sample silent installation script for the WebSphere MQ File Transfer Edition Remote Tools and Documentation installation.

```
# Sample silent installation script for the WebSphere MQ File Transfer Edition
# Remote Tools and Documentation.

# Has the license been accepted?
# Possible values:
#   TRUE - the license has been accepted - proceed with the install.
#   FALSE - the license has not been accepted - do not proceed with the
#           install.
#-----
LICENSE_ACCEPTED=TRUE

# Select set of features to install
# Both the CHOSEN_INSTALL_SET and CHOSEN_INSTALL_BUNDLE properties must be set
# to the same value.
# Possible values:
#   Complete - complete installation.
#   Database - install the stand-alone database logger component only.
#   Remote - install the remote command-line tools component only.
#-----
CHOSEN_INSTALL_SET=Complete
CHOSEN_INSTALL_BUNDLE=Complete

# Product installation folder :
# The location that the product binaries will be installed into.
#-----
USER_INSTALL_DIR=C:\Program Files\IBM\WMQFTE

# Configuration folder :
# The location that the product configuration will be installed into.
#-----
USER_TEMP_DATA_DIR=C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config

# Skip configuration
# Skip further configuration steps.
#-----
Skip_configuration="Yes",\""
```

## Uninstallation response file

Sample silent uninstallation script for a WebSphere MQ File Transfer Edition installation.

```
# Sample silent uninstallation script for WebSphere MQ File Transfer Edition

# Remove the configuration directory and its subdirectories.
#
# Do not enable this if you have data at this location that is not associated
# with IBM WebSphere MQ File Transfer Edition, or if you want to reuse the
# existing data.
# Possible values:
#   \"Remove configuration directory\",\"\" - remove config directory on uninstall
#   \"\", \"Leave configuration directory\" - keep config directory on uninstall
#-----

USER_REMOVE_CONFIG=\"\", \"Leave configuration directory\"
#USER_REMOVE_CONFIG=\"Remove configuration directory\",\"\"
```

---

## Security

### Authorities for resources specific to WebSphere MQ File Transfer Edition

For any file transfer request, the agent processes require some level of access to their local file systems. In addition, both the user identifier associated with the agent process, and the user identifiers associated with users performing file transfer operations must have the authority to use certain WebSphere MQ objects.

Commands are issued by users, who might be in an operational role where they typically start a file transfer. Alternatively, they might be in an administrative role where they can additionally control when agents are created, started, deleted, or cleaned (that is, when messages from all agent system queues are removed). Messages containing command requests are placed on an agent's SYSTEM.FTE.COMMAND queue when a user issues a command. The agent process retrieves messages containing command requests from the SYSTEM.FTE.COMMAND queue. The agent process also uses four other system queues, which are as follows:

- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

If an agent is a web agent it has two additional queues. These queues have the following names:

- SYSTEM.FTE.WEB.RESP.*agent\_name*
- SYSTEM.FTE.WEB.gateway\_*name*

Because users issuing commands use the above queues in different ways to the agent process, assign different WebSphere MQ authorities to the user identifiers or user groups associated with each. See “Group authorities for resources specific to WebSphere MQ File Transfer Edition” on page 452 for more information.

The agent has additional queues that can be used to grant users the authority to perform certain actions. See “User authorities on WebSphere MQ File Transfer Edition actions” on page 456 for information about how to use the authority queues. The agent does not put or get messages on these queues. However, you must ensure that the queues are assigned the correct WebSphere MQ authorities both for the user identifier used to run the agent process as well as the user identifiers associated with users who are being authorized to perform certain actions. The authority queues are as follows:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*
- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*

If you are migrating from an earlier version of WebSphere MQ File Transfer Edition to Version 7.0.2 or later, and are keeping existing agent configurations you will need to create the authority queues manually. Use the following MQSC command to create the queues:

```
DEFINE QLOCAL(authority_queue_name) DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +  
  MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(999999999) SHARE NOTRIGGER +  
  USAGE(NORMAL) REPLACE
```

The agent process also publishes messages to the SYSTEM.FTE topic on the coordination queue manager using the SYSTEM.FTE queue. Depending on whether the agent process is in the role of the source agent or destination agent, the agent process might require authority to read, write, update, and delete files.

You can create and modify authority records for WebSphere MQ objects using the WebSphere MQ Explorer. Right-click the object and then click **Object Authorities > Manage Authority Records**. You can also create authority records using the `setmqaut` (grant or revoke authority) command.

**Related reference:**

“Group authorities for resources specific to WebSphere MQ File Transfer Edition”

Instead of granting authority to individual users for all of the various objects that might be involved, configure two security groups for the purposes of administering WebSphere MQ File Transfer Edition access control: FTEUSER and FTEAGENT. It is the responsibility of the WebSphere MQ administrator to create and populate these groups. The administrator can choose to extend or modify the proposed configuration described here.

“User authorities on WebSphere MQ File Transfer Edition actions” on page 456

In addition to using groups to manage access to resources, you can enable an additional level of security to restrict the agent actions that a user can take. Grant authorities on an agent authority queue to a user to give the user permission to perform specific agent actions.

“Authorities for the database logger” on page 459

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the SYSTEM.FTE topic.

## Group authorities for resources specific to WebSphere MQ File Transfer Edition

Instead of granting authority to individual users for all of the various objects that might be involved, configure two security groups for the purposes of administering WebSphere MQ File Transfer Edition access control: FTEUSER and FTEAGENT. It is the responsibility of the WebSphere MQ administrator to create and populate these groups. The administrator can choose to extend or modify the proposed configuration described here.

## Authority to connect to queue managers

Commands that are run by operational users, administrative users, and the WebSphere MQ Explorer need to be able to connect to the command queue manager and coordination queue manager. The agent process and commands that are run to create, alter, or delete the agent need to be able to connect to the agent queue manager. Grant the FTEUSER group connect authority for the command queue manager and coordination queue manager. Grant the FTEAGENT group connect authority to the agent queue manager.

For information about which command directly connects to which queue manager, see Issuing commands.

## Authority to put a message on the COMMAND queue that belongs to the agent

The agent command queue must be available to any user who is authorized to request that the agent performs an action. To satisfy this requirement:

- Grant the FTEUSER group solely put access to the SYSTEM.FTE.COMMAND.*agent\_name* queue. For example:

**For UNIX, Linux, and Windows systems:**

```
setmqaut -m QM1 -n SYSTEM.FTE.COMMAND.agent_name -t queue -g FTEUSER +put
```

**For IBM i:**

```
GRTMQMAUT OBJ('SYSTEM.FTE.COMMAND.agent_name') OBJTYPE(*Q) USER(FTEUSER) AUT(*PUT) MQMNAME('QM1')
```

**For z/OS:**

```
RDEFINE MQQUEUE QM1.SYSTEM.FTE.COMMAND.agent_name UACC(NONE)  
PERMIT QM1.SYSTEM.FTE.COMMAND.agent_name CLASS(MQQUEUE) ID(FTEUSER) ACCESS(UPDATE)
```

- Grant the FTEAGENT group put, get, and setid access to the SYSTEM.FTE.COMMAND.*agent\_name* queue. For example:

**For UNIX, Linux, and Windows systems:**

```
setmqaut -m QM1 -n SYSTEM.FTE.COMMAND.agent_name -t queue -g FTEAGENT +put +get +setid
```

**For IBM i:**

```
GRTMQMAUT OBJ('SYSTEM.FTE.COMMAND.agent_name') OBJTYPE(*Q) USER(FTEAGENT) AUT(*PUT) MQMNAME('QM1')
GRTMQMAUT OBJ('SYSTEM.FTE.COMMAND.agent_name') OBJTYPE(*Q) USER(FTEAGENT) AUT(*GET) MQMNAME('QM1')
GRTMQMAUT OBJ('SYSTEM.FTE.COMMAND.agent_name') OBJTYPE(*Q) USER(FTEAGENT) AUT(*SETID) MQMNAME('QM1')
```

**For z/OS:**

```
RDEFINE MQQUEUE QM1.SYSTEM.FTE.COMMAND.agent_name UACC(NONE)
PERMIT QM1.SYSTEM.FTE.COMMAND.agent_name CLASS(MQQUEUE) ID(FTEAGENT) ACCESS(UPDATE)
RDEFINE MQADMIN QM1.CONTEXT.SYSTEM.FTE.COMMAND.agent_name UACC(NONE)
PERMIT QM1.CONTEXT.SYSTEM.FTE.COMMAND.agent_name CLASS(MQADMIN) ID(FTEAGENT) ACCESS(UPDATE)
```

Agents need access to put messages to other agents' command queues. If there are agents connected to remote queue managers, you might need to grant additional authorization to allow the channel to put messages to this queue.

### Authority to put messages on the DATA, STATE, EVENT, and REPLY queues that belong to the agent

Only WebSphere MQ File Transfer Edition agents need to be able to use these system queues, therefore only grant the group FTEAGENT put and get access. The names of these system queues are as follows:

- DATA - SYSTEM.FTE.DATA.*agent\_name*
- STATE - SYSTEM.FTE.STATE.*agent\_name*
- EVENT - SYSTEM.FTE.EVENT.*agent\_name*
- REPLY - SYSTEM.FTE.REPLY.*agent\_name*

For example, for the SYSTEM.FTE.DATA.*agent\_name* queue, use a command like the following:

**For UNIX, Linux, and Windows systems:**

```
setmqaut -m QM1 -n SYSTEM.FTE.DATA.agent_name -t queue -g FTEAGENT +put +get +inq
```

**For IBM i:**

```
GRTMQMAUT OBJ('SYSTEM.FTE.DATA.agent_name') OBJTYPE(*Q) USER(FTEAGENT) AUT(*PUT) MQMNAME('QM1')
GRTMQMAUT OBJ('SYSTEM.FTE.DATA.agent_name') OBJTYPE(*Q) USER(FTEAGENT) AUT(*GET) MQMNAME('QM1')
```

**For z/OS:**

```
RDEFINE MQQUEUE QM1.SYSTEM.FTE.DATA.agent_name UACC(NONE)
PERMIT QM1.SYSTEM.FTE.DATA.agent_name CLASS(MQQUEUE) ID(FTEAGENT) ACCESS(UPDATE)
```

Agents need access to put messages to other agents' data and reply queues. If there are agents connected to remote queue managers, you might need to grant additional authorization to allow the channel to put messages to these queues.

### Authority that the agent process runs under

The authority that the agent process runs under affects the files the agent can read and write from the file system, and the queues and topics the agent can access. How the authority is configured is system-dependent. Add the user ID that the agent process runs under to the FTEAGENT group.

### Authority that the commands and WebSphere MQ Explorer run under

Administrative commands, for example the **fteStartAgent** command, and the WebSphere MQ File Transfer Edition plug-in for the WebSphere MQ Explorer need to be able to put messages to the SYSTEM.FTE.COMMAND.*agent\_name* queue and retrieve published information from that queue. Add the user IDs that are authorized to run the commands or the WebSphere MQ Explorer to the FTEUSER

group. This originator user ID is recorded in the transfer log.

## Authority to put messages on the SYSTEM.FTE queue and SYSTEM.FTE topic

| Only the agent process needs to be able to place messages on the SYSTEM.FTE queue and SYSTEM.FTE  
| topic. Grant put, get and inquire authority to the FTEAGENT group on the SYSTEM.FTE queue, and  
| grant publish and subscribe authority to the FTEAGENT group on the SYSTEM.FTE topic. For example:

### | For UNIX, Linux, and Windows systems:

```
| setmqaut -m QM1 -n SYSTEM.FTE -t queue -g FTEAGENT +put +get +inq  
| setmqaut -m QM1 -n SYSTEM.FTE -t topic -g FTEAGENT +pub +sub +inq
```

### | For IBM i:

```
| GRTRMQMAUT OBJ('SYSTEM.FTE') OBJTYPE(*Q) USER(FTEAGENT) AUT(*PUT) MQMNAME('QM1')  
| GRTRMQMAUT OBJ('SYSTEM.FTE') OBJTYPE(*Q) USER(FTEAGENT) AUT(*GET) MQMNAME('QM1')  
| GRTRMQMAUT OBJ('SYSTEM.FTE') OBJTYPE(*TOPIC) USER(FTEAGENT) AUT(*PUB) MQMNAME('QM1')  
| GRTRMQMAUT OBJ('SYSTEM.FTE') OBJTYPE(*TOPIC) USER(FTEAGENT) AUT(*SUB) MQMNAME('QM1')
```

### | For z/OS:

```
| RDEFINE MQQUEUE QM1.SYSTEM.FTE UACC(NONE)  
| PERMIT QM1.SYSTEM.FTE CLASS(MQQUEUE) ID(FTEAGENT) ACCESS(UPDATE)  
| RDEFINE MXTOPIC QM1.PUBLISH.SYSTEM.FTE UACC(NONE)  
| PERMIT QM1.PUBLISH.SYSTEM.FTE CLASS(MXTOPIC) ID(FTEAGENT) ACCESS(UPDATE)
```

| If there are agents connected to remote queue managers, additional authorization might also need to be  
| granted to allow the channel to put messages to the SYSTEM.FTE queue.

| For a message to get published to the SYSTEM.FTE topic, the authority records of the SYSTEM.FTE topic  
| must allow publication by the user ID contained in the message descriptor structure (MQMD) of the  
| message. This is described in Authority to publish log and status messages.

| To allow a user to publish to the SYSTEM.FTE topic on z/OS, you must grant the channel initiator user  
| ID access to publish to the SYSTEM.FTE topic. If the RESLEVEL security profile causes two user IDs to  
| be checked for the channel initiator connection, you also need to grant access to the user ID contained in  
| the message descriptor structure (MQMD) of the message. For more information, see The RESLEVEL  
| Security Profile

## Authority to receive publications on the SYSTEM.FTE topic

Transfer log messages, progress messages, and status messages are intended for general use, so grant the FTEUSER group authority to subscribe to the SYSTEM.FTE topic. For example:

### | For UNIX, Linux, and Windows systems:

```
| setmqaut -m QM1 -n SYSTEM.FTE -t topic -g FTEUSER +sub
```

### | For IBM i:

```
| GRTRMQMAUT OBJ('SYSTEM.FTE') OBJTYPE(*TOPIC) USER(FTEUSER) AUT(*SUB) MQMNAME('QM1')
```

### | For z/OS:

```
| RDEFINE MXTOPIC QM1.SUBSCRIBE.SYSTEM.FTE UACC(NONE)  
| PERMIT QM1.SUBSCRIBE.SYSTEM.FTE CLASS(MXTOPIC) ID(FTEUSER) ACCESS(ALTER)
```

## Authority to connect to remote queue managers using transmission queues

In a topology of multiple queue managers, the agent requires put authority on the transmission queues used to connect to the remote queue managers.

## Authority to create a temporary reply queue for file transfers

File transfer requests wait for the transfer to complete and rely on a temporary reply queue being created and populated. Therefore grant any user that can run a file transfer command DISPLAY, PUT, GET, and BROWSE authorities on the temporary model queue definition as it is known to the agent. For example:

**For UNIX, Linux, and Windows systems:**

```
setmqaut -m QM1 -n SYSTEM.DEFAULT.MODEL.QUEUE -t queue -g FTEUSER +dsp +put +get +browse
```

**For IBM i:**

```
GRTMQMAUT OBJ('SYSTEM.DEFAULT.MODEL.QUEUE') OBJTYPE(*Q) USER(FTEUSER) AUT(*ADM DSP) MQMNAME('QM1')
GRTMQMAUT OBJ('SYSTEM.DEFAULT.MODEL.QUEUE') OBJTYPE(*Q) USER(FTEUSER) AUT(*PUT) MQMNAME('QM1')
GRTMQMAUT OBJ('SYSTEM.DEFAULT.MODEL.QUEUE') OBJTYPE(*Q) USER(FTEUSER) AUT(*GET) MQMNAME('QM1')
GRTMQMAUT OBJ('SYSTEM.DEFAULT.MODEL.QUEUE') OBJTYPE(*Q) USER(FTEUSER) AUT(*BROWSE) MQMNAME('QM1')
```

**For z/OS:**

```
RDEFINE MQQUEUE QM1.SYSTEM.DEFAULT.MODEL.QUEUE UACC(NONE)
PERMIT QM1.SYSTEM.DEFAULT.MODEL.QUEUE CLASS(MQQUEUE) ID(FTEUSER) ACCESS(UPDATE)
```

By default, this queue is SYSTEM.DEFAULT.MODEL.QUEUE, but you can configure the name by setting values for the properties 'modelQueueName' and 'dynamicQueuePrefix' in the command.properties file.

On z/OS, you must also grant authority to access the temporary queues to FTEUSER. For example:

```
RDEFINE MQQUEUE QM1.WMQFTE.** UACC(NONE)
PERMIT QM1.WMQFTE.** CLASS(MQQUEUE) ID(FTEUSER) ACCESS(UPDATE)
```

By default the name of each temporary queue on z/OS starts with WMQFTE.

The following table summarizes the access control configuration for FTEUSER and FTEAGENT in the security scheme described:

Table 16. Summary of access control configuration for FTEUSER and FTEAGENT

Object	Object type	FTEUSER	FTEAGENT
Agent queue manager	Queue manager		CONNECT, INQ, and SETID, ALT_USER is also required to enable user authority checking.
Coordination queue manager	Queue manager		
Command queue manager	Queue manager	CONNECT	CONNECT
SYSTEM.FTE	Local queue		GET and PUT
SYSTEM.FTE.COMMAND.agent_name	Local queue	PUT	GET, PUT, and SETID  BROWSE access is also required, if you have enabled the Version 7.0.4.1 function.
SYSTEM.FTE.DATA.agent_name	Local queue		GET and PUT
SYSTEM.FTE.EVENT.agent_name	Local queue		GET and PUT  BROWSE access is also required, if you have enabled the Version 7.0.4.1 function.
SYSTEM.FTE.REPLY.agent_name	Local queue		GET and PUT

Table 16. Summary of access control configuration for FTEUSER and FTEAGENT (continued)

Object	Object type	FTEUSER	FTEAGENT
SYSTEM.FTE.STATE. <i>agent_name</i>	Local queue		GET, INQ, and PUT  BROWSE access is also required, if you have enabled the Version 7.0.4.1 function.
SYSTEM.FTE.WEB. <i>gateway_name</i>	Local queue		PUT
SYSTEM.FTE.WEB.RESP. <i>agent_name</i>	Local queue		GET
SYSTEM.FTE	Local topic	SUBSCRIBE	PUBLISH and SUBSCRIBE
SYSTEM.DEFAULT.MODEL.QUEUE  (or the model queue defined in WebSphere MQ File Transfer Edition that is used to create a temporary reply queue.)	Model queue	BROWSE, DISPLAY, GET, and PUT	BROWSE, DISPLAY, GET, and PUT
Transmission queues to communicate with remote queue managers	Local queue		PUT

**Related reference:**

“User authorities on WebSphere MQ File Transfer Edition actions”

In addition to using groups to manage access to resources, you can enable an additional level of security to restrict the agent actions that a user can take. Grant authorities on an agent authority queue to a user to give the user permission to perform specific agent actions.

“Authorities for the database logger” on page 459

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the SYSTEM.FTE topic.

**User authorities on WebSphere MQ File Transfer Edition actions**

In addition to using groups to manage access to resources, you can enable an additional level of security to restrict the agent actions that a user can take. Grant authorities on an agent authority queue to a user to give the user permission to perform specific agent actions.

**Enabling user authority management**

To turn on user authority checking on agent actions, complete the following steps:

1. In the agent.properties file, set the authorityChecking value to true.
2. Ensure that the user who runs the agent has the WebSphere MQ ALT\_USER authority to the agent queue manager.

Both agents involved in a transfer must have the same level of security enabled, that is, authorityChecking must be set to the same value in the property files of both agents. Transfers between agents that have different values for the authorityChecking property will fail.

**Agent authority queues**

The agent has authority queues that are used to manage which users have the authority to perform certain agent actions. The agent does not put or get messages to these queues. The agent authority queues are as follows:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*

- SYSTEM.FTE.AUTHMON1.agent\_name
- SYSTEM.FTE.AUTHOPS1.agent\_name
- SYSTEM.FTE.AUTHSCH1.agent\_name
- SYSTEM.FTE.AUTHTRN1.agent\_name

If you are upgrading from an earlier version of WebSphere MQ File Transfer Edition to Version 7.0.2 and are keeping existing agent configurations you must create the authority queues manually. Use the following MQSC command to create the queues:

```
DEFINE QLOCAL(authority_queue_name) DEFPRTY(0) DEFSOPT(SHARED) GET(ENABLED) MAXDEPTH(0) +
  MAXMSGL(0) MSGDLVSQ(PRIORITY) PUT(ENABLED) RETINTVL(99999999) SHARE NOTRIGGER +
  USAGE(NORMAL) REPLACE
```

The authorities that a user has on the agent authority queues specify the actions that the user is authorized to take.

Table 17. The level of WebSphere MQ access authority that a user or group requires on an agent authority queue to perform specific actions.

User action	WebSphere MQ File Transfer Edition access authority	Authority queues	WebSphere MQ access authority (Distributed platforms)	RACF® access level (z/OS only)
Shut down the agent	Administration	SYSTEM.FTE.AUTHADM1.agent_name	BROWSE	READ
Enable trace on the agent				
Start a transfer of files from this agent	Transfer source	SYSTEM.FTE.AUTHTRN1.source_agent_name	BROWSE	READ
Cancel a transfer of files from this agent started by the same user				
Start a transfer of files to this agent	Transfer destination	SYSTEM.FTE.AUTHTRN1.destination_agent_name	PUT	UPDATE
Cancel a transfer of files to this agent started by the same user				
Create a resource monitor	Monitor	SYSTEM.FTE.AUTHMON1.monitor_agent_name	BROWSE	READ
Delete a resource monitor created by the same user				
Delete a resource monitor created by any user	Monitor operations	SYSTEM.FTE.AUTHOPS1.agent_name	SET	ALTER
Create a schedule	Schedule	SYSTEM.FTE.AUTHSCH1.source_agent_name	BROWSE	READ
Delete a schedule created by the same user				

Table 17. The level of WebSphere MQ access authority that a user or group requires on an agent authority queue to perform specific actions. (continued)

User action	WebSphere MQ File Transfer Edition access authority	Authority queues	WebSphere MQ access authority (Distributed platforms)	RACF® access level (z/OS only)
Delete a schedule created by any user or group	Schedule operations	SYSTEM.FTE.AUTHOPS1.agent_name	PUT	UPDATE
Cancel a transfer created by any user or group	Transfer operations	SYSTEM.FTE.AUTHOPS1.source_agent_name	BROWSE SYSTEM.FTE.AUTHOPS1.destination_agent_name	UPDATE

**Note:** To give a user or group permission to set up a resource monitor or schedule that starts a transfer the user needs both the **Monitor** or **Schedule** authority and **Transfer source** and **Transfer destination** authorities.

The authorities that a user who starts an agent has on another agent authority queues specify how the two agents can interact.

Table 18. The level of WebSphere MQ access authority that the user that starts an agent requires on another agent authority queue so that files can be transferred between the agents.

Agent action	WebSphere MQ File Transfer Edition access authority	Authority queues	WebSphere MQ access authority (Distributed platforms)	RACF access level (z/OS only)
Receive a transfer from <source_agent>	Agent source	SYSTEM.FTE.AUTHAGT1.source_agent_name	BROWSE	READ
Send a transfer to <destination_agent>	Agent destination	SYSTEM.FTE.AUTHAGT1.destination_agent_name	PUT	UPDATE

## Configuring user authority management

To authorize a user to be able to perform an action on an agent, grant the user the appropriate authority on the relevant authority queue. To grant authorities to a user, complete the following steps:

1. Create a user on the system where the agent queue manager is located that has the same name as the user you want to give authority to perform agent actions. This user does not have to be active.
2. Grant the user the appropriate authority on the relevant authority queue. If you are using Linux, UNIX, or Windows, you can use the WebSphere MQ V7.0.1 `setmqaut` command.
3. Refresh the security configuration of the queue manager. You can use the WebSphere MQ V7.0.1 `REFRESH SECURITY MQSC` command.

### Example

The `setmqaut` command is not used on z/OS or IBM i systems. For z/OS, instead use RACF. For more information see Using RACF® classes and profiles. For IBM i, see Access authorities for WebSphere MQ objects, which describes how authorization for WebSphere MQ objects is done. There are three relevant

CL commands available on IBM i: **Grant MQ Object Authority (GRMQMAUT)**, **Revoke MQ Object Authority (RVKMQMAUT)**, and **Refresh WebSphere MQ Authority (RFRMQMAUT)**.

A user, who is a member of the group `requestor_group`, wants to set up a resource monitor on AGENT1 that transfers a file from AGENT1, which is running under the user `user1`, who is a member of the group `user1_group`, to AGENT2, which is running under the user `user2`, who is a member of the group `user2_group`. AGENT1 connects to QM1; AGENT2 connects to QM2. Both agents have authority checking enabled. To make this possible take the following steps:

1. requestor must have **Monitor** authority on AGENT1. Set this authority by running the following command on the system where QM1 is running:

```
setmqaut -m QM1 -t queue -n SYSTEM.FTE.AUTHMON1.AGENT1 -g requestor_group +browse
```

2. requestor must have **Transfer source** authority on AGENT1. Set this authority by running the following command on the system where QM1 is running:

```
setmqaut -m QM1 -t queue -n SYSTEM.FTE.AUTHTRN1.AGENT1 -g requestor_group +browse
```

3. requestor must have **Transfer destination** authority on AGENT2. Set this authority by running the following command On the system where QM2 is running:

```
setmqaut -m QM2 -t queue -n SYSTEM.FTE.AUTHTRN1.AGENT2 -g requestor_group +put
```

4. user2 must have **Agent source** authority on AGENT1. Set this authority by running the following command on the system where QM1 is running:

```
setmqaut -m QM1 -t queue -n SYSTEM.FTE.AUTHAGT1.AGENT1 -g user2_group +browse
```

5. user1 must have **Agent destination** authority on AGENT2. Set this authority by running the following command on the system where QM2 is running:

```
setmqaut -m QM2 -t queue -n SYSTEM.FTE.AUTHAGT1.AGENT2 -g user1_group +put
```

## Logging

If user authority checking is enabled, failed authority checks cause a not authorized log message to be published to the coordination queue manager. See “Message formats for security” on page 915 for more information.

Messages about user authority can be written to the agent event log. You can configure the amount of information written to the agent event log by setting the `logAuthorityChecks` property in the agent property file. By default the level of authority check logging is `None`. You can also set the value of `logAuthorityChecks` to `Failures`, which specifies that only failed authorization checks are reported, or `All` which specifies that failed and successful authorization checks are reported.

See “The agent.properties file” on page 583 for more information.

### Related reference:

“Group authorities for resources specific to WebSphere MQ File Transfer Edition” on page 452  
Instead of granting authority to individual users for all of the various objects that might be involved, configure two security groups for the purposes of administering WebSphere MQ File Transfer Edition access control: `FTEUSER` and `FTEAGENT`. It is the responsibility of the WebSphere MQ administrator to create and populate these groups. The administrator can choose to extend or modify the proposed configuration described here.

“Authorities for the database logger”

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the `SYSTEM.FTE` topic.

## Authorities for the database logger

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the `SYSTEM.FTE` topic.

The operating system user who runs the database logger requires the following WebSphere MQ authorities:

- CONNECT and INQUIRE on the coordination queue manager.
- SUBSCRIBE permission on the SYSTEM.FTE topic.
- PUT permission on the SYSTEM.FTE.DATABASELOGGER.REJECT queue.
- GET permission on the SYSTEM.FTE.DATABASELOGGER.COMMAND queue.

**Related reference:**

“Group authorities for resources specific to WebSphere MQ File Transfer Edition” on page 452  
Instead of granting authority to individual users for all of the various objects that might be involved, configure two security groups for the purposes of administering WebSphere MQ File Transfer Edition access control: FTEUSER and FTEAGENT. It is the responsibility of the WebSphere MQ administrator to create and populate these groups. The administrator can choose to extend or modify the proposed configuration described here.

“User authorities on WebSphere MQ File Transfer Edition actions” on page 456

In addition to using groups to manage access to resources, you can enable an additional level of security to restrict the agent actions that a user can take. Grant authorities on an agent authority queue to a user to give the user permission to perform specific agent actions.

## Authority to publish log and status messages

Agents issue various log, progress, and status messages that are published on the coordination queue manager. The publication of these messages is subject to the WebSphere MQ security model, and in some cases you might have to perform further configuration to enable publication.

For more information about WebSphere MQ security, see the information starting with Security.

WebSphere MQ File Transfer Edition agents flow messages for publication to the SYSTEM.FTE queue on the coordination queue manager. Each message carries a user ID in its message descriptor (MQMD). Messages are published using a topic object that is also called SYSTEM.FTE. For the publication of a given message to take place, the authority records of the SYSTEM.FTE topic must permit publication by the user ID contained in the MQMD of the message.

The user ID initially contained in the message depends on how the agent is connected to its own queue manager. Messages from bindings-connected agents contain the user ID that the agent is running under. Messages from client-connected agents contain an internal WebSphere MQ user ID.

You can change the user ID in a message. For both client- and bindings-connected agents, you can use the property `publicationMDUser` (in the `agent.properties` file) to specify a user ID, which is used in all log and status messages from that agent. The agent must be given permission by its own queue manager to use this alternative user ID; give this permission by granting `setid` authority to the user ID that the agent runs under.

You can also change the user ID contained in all messages from a client-connected agent using the `MCAUSER` property on the channel that the agent uses to connect to its queue manager.

You can change the user ID in messages using a channel exit, for example on the receiver channel bringing messages into the coordination queue manager.

Depending on the WebSphere MQ topology and policies, there are a number of ways an WebSphere MQ administrator can use the information in this topic to ensure that the publication of status and log messages takes place. Two examples are:

- Determine all the user IDs used by agents in the network. Explicitly grant an authority record for each of these IDs.

- Create one or more common user names to publish log and status messages. Create authority records for these user names on the coordination queue manager. Set the publicationMDUser property for each agent to a common user name. On each agent queue manager, grant setid authority to the user ID that the agent runs under to allow it to honor the publicationMDUser property.

## Authorities to access file systems

For any file transfer request, the agent processes require some level of access to their local file systems.

- To transfer from a source file, the user ID that the source agent runs under must have read access to the source file. Additionally, you might need to give the source agent delete or write authority depending on the source disposition attribute.
- To transfer to a file or directory, the user ID that the destination agent runs under must have write authority to the specified path. Additionally, you might need to give the destination agent update authority, depending on the destination exists attribute.
- In addition to the file access authority that you grant to the agent process, you can also use sandboxing to specify and enforce a restricted file path area. For more information, see “Sandboxes” on page 79.
- If the files that you want to transfer to or from are not in a location accessible to the agent, for example a VSAM data set or in a location that is restricted by the sandboxing capability, you can use WebSphere MQ File Transfer Edition user exits to move the file to or from a location that can be accessed by the agent. For more information, see “Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357.

## The commandPath property

Use the commandPath property to restrict the locations that WebSphere MQ File Transfer Edition can run commands from.

You can specify a command to be run on the system where the agent is running from the managed transfer and managed call functions of WebSphere MQ File Transfer Edition. See Program invocation for information. However, commands must be on paths referenced by the commandPath agent property.

If the command specified is not fully qualified, WebSphere MQ File Transfer Edition attempts to find a matching command on the command path. If there is more than one matching command on the command path, the first match is used.

By default, the commandPath property is empty so that the agent cannot call any commands. Take extreme care when you set this property because any command in one of the specified commandPaths can effectively be called from a remote client system that is able to send commands to the agent. For this reason, by default, when you specify a commandPath, sandboxing is configured so that all commandPath directories are automatically denied access for a transfer. You can set the sandboxRoot property to override this default behavior, but you are not recommended to do so, because this effectively enables a client to transfer any command to the agent's system and call that command.

Specify the commandPath agent property as follows:

```
commandPath=command_directory_name separator...command_directory_name
```

Or for z/OS only, specify:

```
commandPath=command_directory_name_or_data_set_name_prefix separator...command_directory_name_or_data_set_name_prefix
```

where:

- *command\_directory\_name* is a directory path for commands that can be run.
- *command\_directory\_name\_or\_data\_set\_name\_prefix* is a z/OS UNIX System Services directory path for commands that can be run, or a data set name prefix, that starts with //. You can choose to use a fully

qualified or unqualified data set name prefix (that is, in the form: `//'HLQ...'` or `//HLQ...`). Specify partitioned data sets in the form `//'HLQ()...'` or `//HLQ()...`. Use data sets to specify JCL script commands only.

- *separator* is the platform-specific separator.

For example, on a UNIX system if you want to run commands that are located in the directories `/home/user/cmds1` and `/home/user/cmds2`, set the `commandPath` agent property as follows:

```
commandPath=/home/user/cmds1:/home/user/cmds2
```

For example, on a Windows system if you want to run commands that are located in the directories `C:\File Transfer\commands` and `C:\File Transfer\agent commands`, set the `commandPath` agent property as follows:

```
commandPath=C:\\File Transfer\\commands;C:\\File Transfer\\agent commands
```

On a Windows system the separator character, backslash (`\`), must be escaped and be entered as a double backslash (`\\`). The backslash character (`\`) can also be replaced with a forward slash (`/`).

For example, on z/OS if you want to run commands that are:

- In the directories `/home/user/cmds1` and `/home/user/cmds2`
- In data sets that start with `//'USER.CMD1'`, `//CMD2`,
- Members of a fully qualified PDS named `//'USER.CMDS'`

set the `commandPath` agent property as follows:

```
commandPath=/home/user/cmds1:/home/user/cmds2://'USER.CMD1'://CMD2://'USER.CMDS()'
```

The `commandPath` property is described in advanced agent properties.

---

## Summary of the WebSphere MQ File Transfer Edition commands

All WebSphere MQ File Transfer Edition commands are listed with links to their detailed descriptions.

*Table 19. WebSphere MQ File Transfer Edition commands and their purpose*

Command name	Purpose
<b>Commands for configuration:</b>	
<code>fteChangeDefaultConfigurationOptions</code>	Change the default configuration options that you want WebSphere MQ File Transfer Edition to use
<code>fteCreateAgent</code>	Create a WebSphere MQ File Transfer Edition agent
<code>fteCreateWebAgent</code>	Create a WebSphere MQ File Transfer Edition web agent
<code>fteCreateBridgeAgent</code>	Create a WebSphere MQ File Transfer Edition protocol bridge agent
<code>fteCreateCDAgent</code>	Create a WebSphere MQ File Transfer Edition Connect:Direct bridge agent
<code>fteModifyAgent</code>	Windows only. Modify an agent, web agent, Connect:Direct bridge agent, or protocol bridge agent to run as a Windows service.
<code>fteDeleteAgent</code>	Delete a particular WebSphere MQ File Transfer Edition agent
<code>fteSetupCommands</code>	Specify the details of the queue manager that connects to the WebSphere MQ network when you issue commands
<code>fteSetupCoordination</code>	Configure a WebSphere MQ File Transfer Edition coordination queue manager

Table 19. WebSphere MQ File Transfer Edition commands and their purpose (continued)

Command name	Purpose
fteModifyDatabaseLogger	Windows only. Modify the stand-alone database logger to run as a Windows service.
<b>Commands for administration:</b>	
fteAnt	Run an Ant script in an environment with file transfer Ant tasks available.
fteCancelTransfer	Cancel a file transfer
fteCleanAgent	Clean up the queues used by an agent
fteCreateMonitor	Create and start a new resource monitor
fteCreateTemplate	Create a transfer template for future use
fteCreateTransfer	Create and start a new file transfer
fteDeleteMonitor	Stop and remove an existing resource monitor
fteDeleteTemplates	Delete existing file transfer templates
fteDeleteScheduledTransfer	Delete a particular file transfer that you have previously scheduled
fteListAgents	List all of the agents registered against a particular coordination queue manager
fteListMonitors	List all of the resource monitors registered against a particular coordination queue manager
fteListScheduledTransfers	List the available file transfer templates on a coordination queue manager
fteListTemplates	List all the file transfer templates for a coordination queue manager
ftePingAgent	Pings an agent to determine whether the agent is active and able to process transfers.
fteShowAgentDetails	Display the details of a particular agent
fteStartAgent	Start a particular agent before using it to transfer files
fteStartDatabaseLogger	Start database logger
fteStopAgent	Stop a particular agent
fteStopDatabaseLogger	Stop database logger
<b>Commands for troubleshooting:</b>	
fteSetAgentTraceLevel	Set the level of agent trace to run
fteDisplayVersion	Display the product version

See “Installed command sets” on page 447 for a table showing which commands are installed with which WebSphere MQ File Transfer Edition offering.

**Related concepts:**

“Authority to use WebSphere MQ File Transfer Edition commands”

“Object naming conventions for WebSphere MQ File Transfer Edition” on page 719

**Related reference:**

“Which WebSphere MQ File Transfer Edition command connects to which queue manager” on page 467  
Different WebSphere MQ File Transfer Edition commands connect to different queue managers when you run the command.

“Using WebSphere MQ File Transfer Edition commands from JCL” on page 465  
On z/OS, you can invoke WebSphere MQ File Transfer Edition commands from JCL (Job Control Language) for integration into batch suites.

“fteBatch, fteCommon, and ftePlatform scripts” on page 470  
The fteBatch, fteCommon, and ftePlatform are scripts that are provided by WebSphere MQ File Transfer Edition in the *install\_directory/bin* directory as helper scripts. Not all of these scripts are present on every platform.

## Authority to use WebSphere MQ File Transfer Edition commands

Your user ID must be a member of the mqm group if you want to issue WebSphere MQ File Transfer Edition commands, unless you have already configured WebSphere MQ to allow users who are not in the mqm group to issue commands. For more information, see Authority to administer WebSphere MQ. If you are using IBM i, start with the following topic: WebSphere MQ authorities.

A subset of the WebSphere MQ File Transfer Edition commands can be issued using the WebSphere MQ Explorer.

## Issuing commands from Windows and UNIX systems

Note the following environment-specific information for issuing commands:

### WebSphere MQ File Transfer Edition for Windows

All commands can be issued from a command line. Command names are not case-sensitive: You can enter them in uppercase, lowercase, or a combination of uppercase and lowercase. However, arguments to control commands (such as queue names) and parameters (such as **-m** for queue manager name) are case-sensitive.

In the syntax descriptions, the hyphen (-) is used as a flag indicator.

### WebSphere MQ File Transfer Edition for UNIX systems

All WebSphere MQ File Transfer Edition commands can be issued from a shell. All commands are case-sensitive.

## Issuing commands from z/OS systems

The WebSphere MQ File Transfer Edition commands are installed in the bin subdirectory of the location chosen when the product was installed. The commands can be executed by specifying the path to the command or including the bin subdirectory in the user command path.

Note the following environment-specific information for issuing commands on z/OS:

- You must set the environment variable `_BPXK_AUTOCVT` to ON because the WebSphere MQ File Transfer Edition command scripts are tagged as ASCII-encoded and must be converted to the local code page before they can run. For more information, see “Environment variables for WebSphere MQ File Transfer Edition for z/OS” on page 120.

## Issuing commands from the IBM i platform

Note the following environment-specific information for issuing commands on IBM i:

- You can start WebSphere MQ File Transfer Edition commands using the Qshell interpreter. To start the Qshell interpreter, issue the **STRQSH** command from an IBM i system command line.
- When you run commands in the Qshell environment, command names are not case-sensitive: You can enter them in uppercase, lowercase, or a combination of uppercase and lowercase. However, arguments to control commands (such as queue names) and parameters (such as **-m** for queue manager name) are case-sensitive.

### Related reference:

“Return codes for WebSphere MQ File Transfer Edition” on page 409

WebSphere MQ File Transfer Edition commands, Ant tasks, and log messages provide return codes to indicate whether functions have successfully completed.

## Using WebSphere MQ File Transfer Edition commands from JCL

On z/OS, you can invoke WebSphere MQ File Transfer Edition commands from JCL (Job Control Language) for integration into batch suites.

The following example shows a file transfer being run by using the JZOS Batch Launcher. See JZOS Batch Launcher And Toolkit User's Guide (SA23-2245) for more details about this function. You can also use BPXBATCH to run the commands, but BPXBATCH does not integrate as well with normal JCL usage.

```
//WMQFTE EXEC PGM=JVMLDM50,REGION=0M,PARM='+T'
//STEPLIB DD DSN=FTEUSER.SIEALNKE,DISP=SHR JVMLDM50
// DD DSN=MQM.V700.SCSQAUTH,DISP=SHR MQ Bindings
// DD DSN=MQM.V700.SCSQANLE,DISP=SHR MQ Bindings
// DD DSN=MQM.V700.SCSQLOAD,DISP=SHR MQ Bindings
//SYSOUT DD SYSOUT=H
//SYSPRINT DD SYSOUT=H
//STDOUT DD SYSOUT=H
//STDERR DD SYSOUT=H
//STDENV DD *
# This is a shell script that configures
# any environment variables for the Java JVM.
# Variables must be exported to be seen by the launcher.
# Use PARM='+T' and set -x to debug environment script problems
set -x
. /etc/profile
#
# Java configuration (including MQ Java interface)
#
export JAVA_HOME="/u/fteuser/J5.0"
export PATH="/bin:${JAVA_HOME}/bin"
LIBPATH="/lib:/usr/lib:${JAVA_HOME}/bin:${JAVA_HOME}/bin/classic"
LIBPATH="${LIBPATH}:/mqm/V7R0M0/java/lib"
export LIBPATH

#
# FTE configuration
#
export FTE_PROD="/u/fteuser/wmqfte"
export FTE_CONFIG="/u/fteuser/ftedata"
export _BPXK_AUTOCVT="ON"
#
# Select function to be executed (script names without fte prefix)
#
. ${FTE_PROD}/bin/fteBatch CreateTransfer
#
# Set JZOS parameters to FTE values
#
export IBM_JAVA_OPTIONS="${FTE_JAVA_OPTIONS}"
export JZOS_MAIN_ARGS="${FTE_MAIN_ARGS}"
```

```
//MAINARGS DD *
-w
-sa Z1
-da Z1 -ds "'FTEUSER.XFERED.JUPITER'" -de overwrite
"'FVTUSER.FVT.JUPITER01'"
```

```
/*
```

In this example the EXEC statement invokes the JZOS Batch Launcher. The parameter value +T produces details of the environment setup script execution to SYSOUT. If you do not need diagnostic information, omit this parameter. The STEPLIB DD statement provides access to JVMLDM50, the batch launcher, and WebSphere MQ bindings routines. STDOUT and STDERR contain any output from the executed function. STDENV contains a script that sets up the execution environment for the batch launcher. The first section sets up the Java execution environment, which is unique to each site.

The FTE configuration section exports the required variables and invokes the fteBatch script to complete the configuration for the function requested. The function is supplied as a not case-sensitive parameter to the script. The function values are the script command names without the fte prefix, for example fteCreateTransfer becomes CreateTransfer. Finally, the script exports the resulting values into the JZOS Batch Launcher environment variables.

The final MAINARGS DD statement provides the command parameters. In the example, a single data set is transferred from agent Z1 to agent Z1. The -w parameter is included so that the step waits for the transfer command to complete. The step return code contains the return code from the invoked function.

Trace any of the **fte** commands by using the **-trace** parameter in the final MAINARGS DD statement. For more information, see Tracing commands.

## Installed command sets

The following table shows which commands are installed with each product offering.

Table 20. WebSphere MQ File Transfer Edition commands available in each command set

Command	Client command set	Server and z/OS command set	Tools command set
fteAnt	X	X	X
fteCancelTransfer	X	X	X
fteChangeDefaultConfigurationOptions	X	X	X
fteCleanAgent	X	X	
fteCreateAgent	X	X	
fteCreateBridgeAgent		X	
fteCreateCDAgent	X	X	
fteCreateMonitor	X	X	X
fteCreateTemplate	X	X	X
fteCreateTransfer	X	X	X
fteCreateWebAgent		X	
fteDeleteAgent	X	X	
fteDeleteMonitor	X	X	X
fteDeleteScheduledTransfer	X	X	X
fteDeleteTemplates	X	X	X
fteDisplayVersion	X	X	X

Table 20. WebSphere MQ File Transfer Edition commands available in each command set (continued)

Command	Client command set	Server and z/OS command set	Tools command set
fteListAgents	X	X	X
fteListMonitors	X	X	X
fteListScheduledTransfers	X	X	X
fteListTemplates	X	X	X
fteModifyAgent	X (Windows only)	X (Windows only)	
fteModifyDatabaseLogger			X (Windows only)
ftePingAgent	X	X	X
fteSetAgentTraceLevel	X	X	X
fteSetupCommands	X	X	X
fteSetupCoordination	X	X	X
fteShowAgentDetails	X	X	X
fteStartAgent	X	X	
fteStartDatabaseLogger			X
fteStopAgent	X	X	
fteStopDatabaseLogger			X

## Which WebSphere MQ File Transfer Edition command connects to which queue manager

Different WebSphere MQ File Transfer Edition commands connect to different queue managers when you run the command.

The following table summarizes which queue manager each WebSphere MQ File Transfer Edition command directly connects to when the command is run.

If there are no X characters for a command, the command does not connect to any queue manager when it is run.

Table 21. Summary of which WebSphere MQ File Transfer Edition commands connect to which queue manager

Command name	Agent queue manager	Command queue manager	Coordination queue manager
fteAnt			
fteCancelTransfer		X	
fteChangeDefaultConfigurationOptions			
fteCleanAgent	X		
fteCreateAgent	X		
fteCreateBridgeAgent	X		
fteCreateCDAgent	X		
fteCreateWebAgent	X		
fteCreateMonitor		X	
fteCreateTemplate			X
fteCreateTransfer		X	
fteDeleteAgent	X		

Table 21. Summary of which WebSphere MQ File Transfer Edition commands connect to which queue manager (continued)

Command name	Agent queue manager	Command queue manager	Coordination queue manager
fteDeleteMonitor		X	
fteDeleteScheduledTransfer		X	
fteDeleteTemplates			X
fteDisplayVersion			
fteListAgents			X
fteListMonitors			X
fteListScheduledTransfers			X
fteListTemplates			X
fteModifyAgent			
fteModifyDatabaseLogger			
ftePingAgent		X	
fteSetAgentTraceLevel		X	
fteSetupCommands			
fteSetupCoordination			
fteShowAgentDetails			X
fteStartAgent	X		
fteStartDatabaseLogger			
fteStopAgent		X	
fteStopDatabaseLogger			X
WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer		X	X
WebSphere MQ File Transfer Edition database logger			X

**Related reference:**

“Installed command sets” on page 447

The following table shows which commands are installed with each product offering.

## **fteAnt (run Ant tasks in a WebSphere MQ File Transfer Edition environment)**

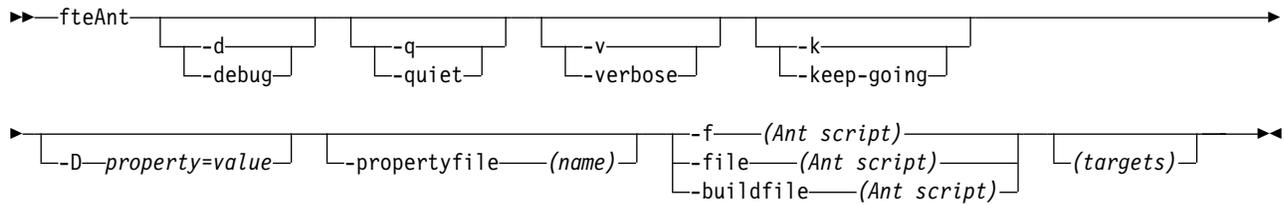
The **fteAnt** command runs Ant scripts in an environment that has WebSphere MQ File Transfer Edition Ant tasks available.

### **Purpose**

Use the **fteAnt** command to run an Ant script in an environment with WebSphere MQ File Transfer Edition. Unlike the standard **ant** command, **fteAnt** requires that you define a script file.

### **Syntax**

## fteAnt



## Parameters

### -debug or -d

Optional. Generate debugging output.

### -quiet or -q

Optional. Generate minimal output.

### -verbose or -v

Optional. Generate verbose output.

### -keep-going or -k

Optional. Execute all targets that do not depend on failed targets.

### -D *property=value*

Optional. Use *value* for a given *property*. Properties set with **-D** take precedence over those set in a properties file.

The **com.ibm.wmqfte.propertyset** property is available only if you have enabled the new function included with Version 7.0.4.1. Use the property **com.ibm.wmqfte.propertyset** to specify the set of configuration options used for Ant tasks. Use the name of a non-default coordination queue manager as the value for this property. Ant tasks then use the set of configuration options associated with this non-default coordination queue manager. If you do not specify this property, the default set of configuration options based on the default coordination queue manager is used. If you specify the **cmdqm** attribute for an Ant task, this attribute takes precedence over the set of configuration options specified for the **fteAnt** command. This behavior applies regardless of whether you are using the default set of configuration options or specifying a set with the **com.ibm.wmqfte.propertyset** property.

### -propertyfile (*name*)

Optional. Load all properties from a file with **-D** properties taking precedence.

### -f (*Ant script*), -file (*Ant script*), or -buildfile (*Ant script*)

Required. Specifies the name of the Ant script to run.

### *targets*

Optional. The name of one or more targets to run from the Ant script. If you do not specify a value for this parameter, the default target for the script is run.

### -version

Optional. Displays the WebSphere MQ File Transfer Edition command and Ant versions.

### -? or -h

Optional. Displays command syntax.

## Example

In this example, the target **copy** in Ant script `fte_script.xml` is run and the command writes debugging output to standard out.

```
fteAnt -d -f fte_script.xml copy
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

Other status return codes can also be specified from Ant scripts, for example by using the Ant fail task.

### Related concepts:

“Getting started using Ant scripts with WebSphere MQ File Transfer Edition” on page 352  
Using Ant scripts with WebSphere MQ File Transfer Edition allows you to coordinate complex file transfer operations from an interpreted scripting language.

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352  
WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989  
WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

“Sample Ant tasks” on page 354

There are a number of sample Ant scripts provided with your installation of WebSphere MQ File Transfer Edition. These samples are located in the directory *install\_dir/samples/fteant*. Each sample script contains an *init* target, edit the properties set in the *init* target to run these scripts with your configuration.

## fteBatch, fteCommon, and ftePlatform scripts

The *fteBatch*, *fteCommon*, and *ftePlatform* are scripts that are provided by WebSphere MQ File Transfer Edition in the *install\_directory/bin* directory as helper scripts. Not all of these scripts are present on every platform.

### fteBatch script (z/OS only)

*fteBatch* is a helper script for running WebSphere MQ File Transfer Edition from the JZOS Batch Launcher. *fteBatch* is installed on z/OS only. Typically WebSphere MQ File Transfer Edition is started by using the supplied command shell scripts, which perform some environment configuration before it starts the Java class appropriate to that function. When WebSphere MQ File Transfer Edition is started by using the JZOS Batch Launcher, the Java class is started directly from the Launcher. *fteBatch* can be called as part of the launcher setup to place the required class name into an environment variable and performs the setup work that the normal command shell scripts perform before it starts Java. This provides a level of isolation between your jobs and the internal class names that are used by WebSphere MQ File Transfer Edition.

You can find examples of the use of *fteBatch* in WebSphere MQ File Transfer Edition in the following JZOS Batch Launcher sample jobs: BFGZSAG, BFGZTR, and BFGZPAG. The references to *fteBatch* are in the BFGZENVS, BFGZENVT, and BFGZENVP members that are used by these jobs.

### fteCommon

*fteCommon* is a helper script started by the other WebSphere MQ File Transfer Edition command scripts to perform common setup processing before it starts Java.

### ftePlatform

*ftePlatform* is a helper script started by the *fteCommon* script to perform platform-specific setup processing.

### Related reference:

“Using WebSphere MQ File Transfer Edition commands from JCL” on page 465  
On z/OS, you can invoke WebSphere MQ File Transfer Edition commands from JCL (Job Control Language) for integration into batch suites.

## **fteCancelTransfer (cancel a WebSphere MQ File Transfer Edition transfer)**

Use the **fteCancelTransfer** command to cancel a WebSphere MQ File Transfer Edition transfer. You can issue this command against either the source or destination agent for the transfer.

### Purpose

If you issue the **fteCancelTransfer** command while that transfer is currently in progress, any files already transferred as part of that transfer remain on the destination system and are not deleted. Any files partially transferred as part of that transfer are deleted from the destination system. The destination side of the transfer logs that transfer as “cancelled”.

If a transfer to a Connect:Direct node is canceled, any files partially transferred as part of the canceled transfer remain on the destination system and are not deleted.

You can run the **fteCancelTransfer** command from any system that can connect to the WebSphere MQ network and then route to the agent queue manager. Specifically for the command to run, you must have installed a WebSphere MQ File Transfer Edition component (either Server, Client, or Remote Tools and Documentation) on this system and you must have configured WebSphere MQ File Transfer Edition on this system to communicate with the WebSphere MQ network. If no connectivity details are available, the agent queue manager details are used for connection instead, provided these details are available.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Configuration options for more information.

### Syntax

#### **fteCancelTransfer**

```
▶▶ fteCancelTransfer -m (agent_qmgr_name) -p (configuration_options) -a agent_name -transfer_ID▶▶
```

### Parameters

#### **-m (agent\_qmgr\_name)**

Optional. The name of the agent queue manager. This agent must be either the source or destination agent for the transfer you want to cancel. If you do not specify this parameter, the cancel request is sent to the queue manager identified by the set of configuration options you are using.

#### **-p (configuration\_options)**

Optional. This parameter determines the set of configuration options to use to cancel the transfer. By convention use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

**-a** (*agent\_name*)

Required. The name of either the source or destination agent of the transfer that you want to cancel.

*transfer\_ID*

Required. The ID of the transfer you want to cancel. The transfer ID (also known as the request ID) is displayed at the command line after you issue the **fteCreateTransfer** command. Transfer IDs are also included in file transfer log messages or are displayed in the WebSphere MQ Explorer Transfer Log panel.

**-?** or **-h**

Optional. Displays command syntax.

## Example

In this example AGENT1 is the source agent for the transfer to be canceled.

```
fteCancelTransfer -a AGENT1 414d5120514d5f4c4d343336303920201159c54820027102
```

## Return codes

0

Either the command completed successfully or the specified transfer ID is unknown to the agent. If the transfer ID is unknown to the agent, the most likely reason is that the transfer has already completed or has been canceled.

1 Command ended unsuccessfully.

### Related reference:

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## **fteChangeDefaultConfigurationOptions** (change the default configuration options)

Use the **fteChangeDefaultConfigurationOptions** command to change the default configuration options that you want WebSphere MQ File Transfer Edition to use. The value of the configuration options defines the group of properties files that WebSphere MQ File Transfer Edition uses.

## Purpose

Your default WebSphere MQ File Transfer Edition configuration options are established during installation and are based on your default coordination queue manager. By using the **fteChangeDefaultConfigurationOptions** command you can change the default coordination queue manager that is defined in the `wmqfte.properties` file. If you change this coordination queue manager, WebSphere MQ File Transfer Edition uses the configuration options given by the structured set of directories and property files contained in the directory you used as input for *configuration\_options* by default. This directory name is the same as the coordination queue manager used by agents under this configuration.

See “Configuration options” on page 98 for more information about the `wmqfte.properties` file.

## Syntax

## **fteChangeDefaultConfigurationOptions**

►—fteChangeDefaultConfigurationOptions—*configuration\_options*—◄

### **Parameters**

*configuration\_options*

Required. This parameter specifies the default configuration options that you want to change to. Use the name of a non-default coordination queue manager as the input for this parameter.

**-? or -h**

Optional. Displays command syntax.

### **Example**

In this example, the default configuration options are changed to QM\_COORD2:

```
fteChangeDefaultConfigurationOptions QM_COORD2
```

### **Return codes**

0 Command completed successfully.

1 Command ended unsuccessfully.

#### **Related concepts:**

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

## **fteCleanAgent (cleans up a WebSphere MQ File Transfer Edition agent)**

Use the **fteCleanAgent** command to clean up the queues that a WebSphere MQ File Transfer Edition agent uses, by deleting messages from the persistent and non-persistent queues used by the agent. Use the **fteCleanAgent** command if you are having problems starting an agent, which might be caused by information remaining on the queues used by the agent.

### **Purpose**

Use the **fteCleanAgent** command to delete messages from the persistent and non-persistent queues used by the agent. Specifically, this command can carry out the following actions:

- Remove any transfers that were in progress to this agent or from this agent before the transfer was stopped. These transfers are *not* resumed when the agent restarts
- Remove any commands that have already been submitted to the agent, but have not yet been carried out
- Delete all resource monitors stored on the agent
- Delete all scheduled transfers stored on the agent
- Delete all invalid messages stored on the agent

If the agent is a Connect:Direct bridge agent, the **-ms**, **-ss**, and **-ims** parameters are not valid. For Connect:Direct bridge agents the command also carries out the following actions:

- Deletes all files from the directory where the Connect:Direct bridge agent temporarily stores files while they are being transferred. The location of this directory is defined by the **cdTmpDir** parameter
- Displays information about the Connect:Direct processes that are associated with any ongoing transfers

Run this command on an agent that has been stopped. If you try to run the **fteCleanAgent** command on an agent that is currently running, you receive an error. This command does not start the agent. The **fteCleanAgent** command cleans up an agent on the system where you issue the command. You cannot clean up an agent on a remote system. To run the **fteCleanAgent** command you must have write access to the agent lock file, which is located at *configuration\_directory\coordination\_QMgr\_name\agents\agent\_name\agent.lck*

If you have enabled the Version 7.0.4.1 function, the FTEAGENT group must have BROWSE authority on the following queues to run **fteCleanAgent** successfully:

- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

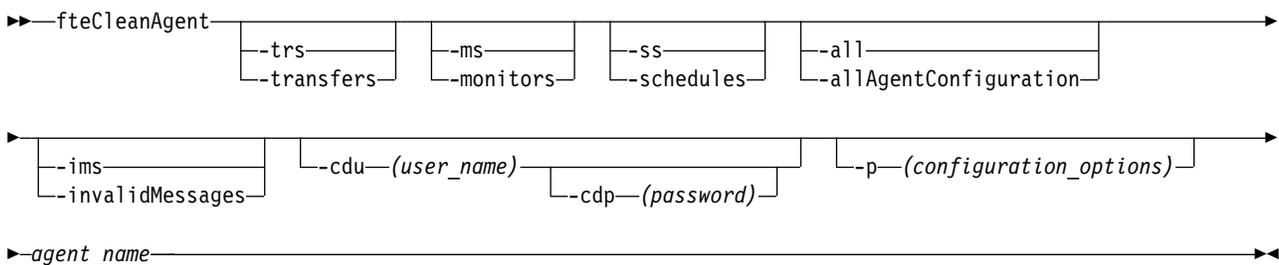
If you are running the **fteCleanAgent** command on an agent that is connected to its queue manager in bindings mode, and the agent has recently stopped running, the **fteCleanAgent** command might report messaging problem: MQRC 2042. This MQRC occurs because a queue handle for the agent still exists in the queue manager. After a short delay the queue manager removes this handle, and you can reissue **fteCleanAgent**.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Configuration options for more information.

**Note:** When cleaning a Connect:Direct bridge agent, the user ID used to run the **fteCleanAgent** command must have read and write access to the Connect:Direct bridge agent temporary directory.

## Syntax

### fteCleanAgent



## Parameters

The syntax of this command depends on whether you are using Version 7.0.4 and earlier, or Version 7.0.4.1 and later. The **-trs**, **-ms**, **-ss**, **-ims**, and **-all** parameters were introduced at Version 7.0.4.1, so if you have enabled the Version 7.0.4.1 function you can use the **fteCleanAgent** command to delete specific artifacts. For example, you can specify the **-trs** command to delete pending transfers but not change any resource monitors and scheduled transfers. For V7.0.4 and earlier versions, you can only use the **fteCleanAgent** command to delete all artifacts.

### **-trs** or **-transfers**

Optional. Available only if you have enabled the Version 7.0.4.1 function. Specifies that in-progress and pending transfers are to be deleted from the agent. You cannot specify this parameter with **-all** or **-ims** parameters.

**-ms or -monitors**

Optional. Available only if you have enabled the Version 7.0.4.1 function. Specifies that all resource monitor definitions are to be deleted from the agent. You cannot specify this parameter with **-all** or **-ims** parameters.

**-ss or -schedules**

Optional. Available only if you have enabled the Version 7.0.4.1 function. Specifies that all scheduled transfer definitions are to be deleted from the agent. You cannot specify this parameter with the **-all** or **-ims** parameters.

**-all or -allAgentConfiguration**

Optional. Available only if you have enabled the Version 7.0.4.1 function. Specifies that all transfers, resource monitor definitions and scheduled transfer definitions are to be deleted from the agent. You cannot specify this parameter with the **-trs,-ss,-ms,** or **-ims** parameters.

**-ims or -invalidMessages**

Optional. Available only if you have enabled the Version 7.0.4.1 function. Specifies that all invalid messages are to be deleted from the agent. You cannot specify this parameter with the **-trs,-ss,-ms,** or **-all** parameters.

**-cdu** (*user\_name*)

Optional. Only valid if the agent being cleaned is a Connect:Direct bridge agent. If this parameter is specified, the command uses the user name provided to make a connection to the Connect:Direct bridge node and retrieve additional information about existing Connect:Direct processes. If you do not specify this parameter, the agent is cleaned but information about Connect:Direct processes is not displayed.

**-cdp** (*password*)

Optional. Valid only if the agent being cleaned is a Connect:Direct bridge agent and you have specified the **-cdu** parameter. If you specify the **-cdp** parameter, the command uses the password provided to make a connection to the Connect:Direct bridge node and retrieve additional information about existing Connect:Direct processes. If you do not specify this parameter, and the **-cdu** parameter has been specified, you are asked to provide the password interactively.

**-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to clean up an agent. By convention use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

*agent\_name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to clean up.

**-? or -h**

Optional. Displays command syntax.

## Examples

In this basic example, for Version 7.0.4 and earlier, the queues used by AGENT2 are cleaned up:

```
fteCleanAgent AGENT2
```

In this example, for Version 7.0.4 and earlier, the queues used by the Connect:Direct bridge agent, AGENT\_CD\_BRIDGE, are cleaned up. There is one incomplete transfer associated with this agent, and the Connect:Direct processes associated with this transfer are displayed in the command output:

```
fteCleanAgent -cdu cduser01 AGENT_CD_BRIDGE
```

State Queue Entries:

Transfer Identifier: 414d5120514d312020202020202020900006e4d20013903  
Source Agent Name: AGENT\_CD\_BRIDGE  
Destination Agent Name: AGENT1  
Connect:Direct PNODE Name: CDNODE1  
Connect:Direct SNODE Name: CDNODE2  
Connect:Direct Current Processes: Name=FC52D700, Number=21  
Name=FC52D700, Number=22

Command Queue New Transfer Entries:

Scheduler Queue Schedule Entries:

BFGCL0149I: The agent 'AGENT\_CD\_BRIDGE' has been cleaned.

In this basic example, for Version 7.0.4.1 and later, all the queues used by AGENT2 are cleaned up:

```
C:\Documents and Settings\Administrator>fteCleanAgent -all AGENT2  
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED
```

All messages will be deleted from all queues

State Queue Entries:

Transfer Identifier: 414d5120716d3120202020202020202786de4d20485b03  
Source Agent Name: AGENT2  
Destination Agent Name: AGENT3

Transfer Identifier: 414d5120716d3120202020202020202786de4d20487203  
Source Agent Name: AGENT2  
Destination Agent Name: AGENT3

Command Queue New Transfer Entries:

Scheduler Queue Schedule Entries:

Directory Monitor Configuration for "MONITOR1" has been cleared from the Agent.

Schedule Identifier: 1  
Source Agent Name: AGENT2  
Destination Agent Name: AGENT3

BFGCL0149I: The agent 'AGENT2' has been cleaned.

In this example, for Version 7.0.4.1 and later, the invalid messages queue used by AGENT2 are cleaned up:

```
C:\Documents and Settings\Administrator>fteCleanAgent -ims AGENT2  
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED
```

Invalid messages will be deleted from all queues

State Queue Entries:

Warning - Invalid message found on the queue

Command Queue New Transfer Entries:



the setup work that the normal command shell scripts perform before it starts Java. This provides a level of isolation between your jobs and the internal class names that are used by WebSphere MQ File Transfer Edition.

You can find examples of the use of `fteBatch` in WebSphere MQ File Transfer Edition in the following JZOS Batch Launcher sample jobs: BFGZSAG, BFGZTR, and BFGZPAG. The references to `fteBatch` are in the BFGZENVS, BFGZENVT, and BFGZENVP members that are used by these jobs.

## fteCommon

`fteCommon` is a helper script started by the other WebSphere MQ File Transfer Edition command scripts to perform common setup processing before it starts Java.

## ftePlatform

`ftePlatform` is a helper script started by the `fteCommon` script to perform platform-specific setup processing.

### Related reference:

“Using WebSphere MQ File Transfer Edition commands from JCL” on page 465

On z/OS, you can invoke WebSphere MQ File Transfer Edition commands from JCL (Job Control Language) for integration into batch suites.

## fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)

The `fteCreateAgent` command creates an agent and its associated configuration.

### Purpose

Use the `fteCreateAgent` command to create an agent. This command provides you with the MQSC commands that you must run against your agent queue manager to create the following agent queues:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*
- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*
- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

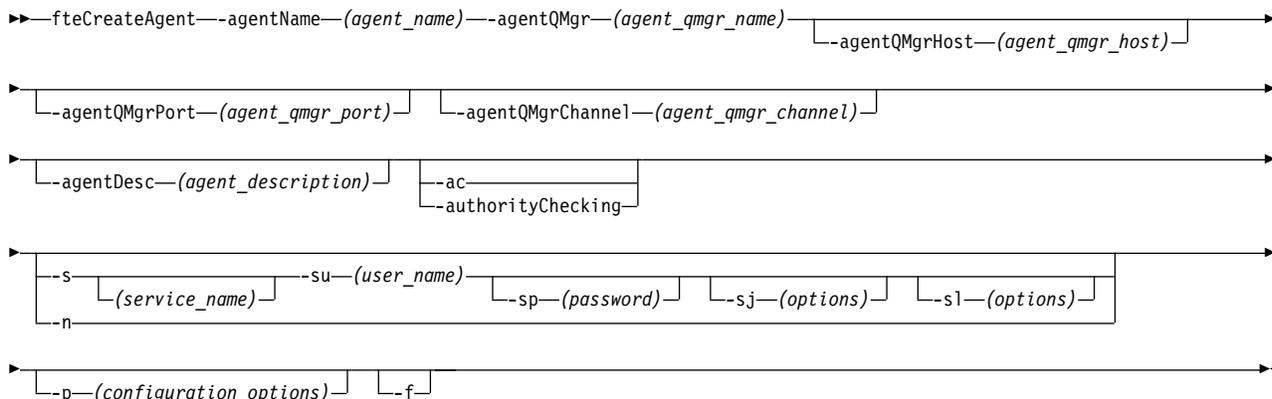
These queues are internal system queues that you must not modify, delete, or read messages from unless you are deleting the agent. The MQSC commands to run are also supplied in a file in the following location: `configuration_directory\coordination_qmgr_name\agents\agent_name\agent_name_create.mqsc`.

If you later want to delete the agent, this command also provides you with the MQSC commands you must run to clear then delete the queues used by the agent. The MQSC commands are in a file in the following location: `configuration_directory\coordination_qmgr_name\agents\agent_name\agent_name_delete.mqsc`.

WebSphere MQ File Transfer Edition provides advanced agent properties that help you configure agents. These properties are described in The `agent.properties` file.

## Syntax

### fteCreateAgent



## Parameters

### -agentName (agent\_name)

Required. The name of the agent you want to create. The agent name must be unique to its coordination queue manager.

For more information about naming agents, see Object naming conventions .

### -agentQMGr (agent\_qmgr\_name)

Required. The name of the agent queue manager.

### -agentQMGrHost (agent\_qmgr\_host)

Optional. The host name or IP address of the agent queue manager.

### -agentQMGrPort (agent\_qmgr\_port)

Optional. The port number used for client connections to the agent queue manager.

### -agentQMGrChannel (agent\_qmgr\_channel)

Optional. The channel name used to connect to the agent queue manager.

### -agentDesc (agent\_description)

Optional. A description of the agent, which is displayed in WebSphere MQ Explorer.

### -ac or -authorityChecking

Optional. This parameter enables authority checking. If you specify this parameter, the agent checks that users who are submitting requests are authorized to perform the requested action. For more information, see “User authorities on WebSphere MQ File Transfer Edition actions” on page 456.

### -s (service\_name)

Optional (Windows only). Indicates that the agent is to run as a Windows service. If you do not specify *service\_name*, the service is named `fteAgent<AGENT><QMGR>`, where `<AGENT>` is the agent name and `<QMGR>` is your agent queue manager name.

The display name for the service, which is shown in the Windows **Services** window in the **Name** column, is always **IBM WMQFTE agent <AGENT>@<QMGR>**.

### -su (user\_name)

Optional (Windows only). When the agent is to run as a Windows service, this parameter specifies the name of the account under which the service runs. To run the agent using a Windows domain user account specify the value in the form `DomainName\UserName`. To run the service using an account from the local built-in domain specify the value in the form `UserName`.

The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to grant this right, see “Guidance for running an agent or database logger as a Windows service” on page 402.

Required when **-s** specified. Equivalent to **-serviceUser**.

**-sp** (*password*)

Optional (Windows only). Password for the user account set by **-su** or **-serviceUser** parameter.

This parameter is only valid when **-s** is specified. Equivalent to **-servicePassword**. If you do not specify this parameter when you specify the **-s** parameter, a warning message is produced. This message warns you that you must set the password using the Windows Services tool before the service starts successfully.

**-sj** (*options*)

Optional (Windows only). When the agent is started as a Windows service, defines a list of options in the form of **-D** or **-X** that are passed to the JVM. The options are separated using a number sign (#) or semicolon (;) character. If you must embed any # or semicolon (;) characters, put them inside single quotation marks.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceJVMOptions**.

**-sl** (*options*)

Optional (Windows only). Sets the Windows service log level. Valid options are: error, info, warn, debug. The default is info. This option can be useful if you are having problems with the Windows service. Setting it to debug gives more detailed information in the service log file.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceLogLevel**.

**-n** Optional (Windows only). Indicates that the agent is to be run as a normal process. This is mutually exclusive with the **-s** option. If neither one of the **-s** parameter and the **-n** parameter is specified, then the agent is configured as a normal Windows process.

Equivalent to **-normal**.

**-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to create an agent. By convention use the name of a non-default coordination queue manager as the input for this parameter. The **fteCreateAgent** command then uses the set of properties files associated with this non-default coordination queue manager.

Specify the optional **-p** parameter only if you want to use configuration options different from your defaults. If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

**-f** Optional. Forces the command to overwrite the existing configuration.

**-?** or **-h**

Optional. Displays command syntax.

## Example

In this example, AGENT3 is created with an agent queue manager QM\_NEPTUNE and uses the default coordination queue manager:

```
fteCreateAgent -agentName AGENT3 -agentQMGr QM_NEPTUNE  
-agentQMGrHost myhost.ibm.com -agentQMGrPort 1415 -agentQMGrChannel CHANNEL1
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related concepts:

“Guidance for running an agent or database logger as a Windows service” on page 402

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

### Related tasks:

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

### Related reference:

“**fteStartAgent** (start a WebSphere MQ File Transfer Edition agent)” on page 567

The **fteStartAgent** command starts a WebSphere MQ File Transfer Edition agent from the command line.

“**fteCreateWebAgent** (create a WebSphere MQ File Transfer Edition web agent)” on page 528

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

## **fteCreateBridgeAgent (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)**

The **fteCreateBridgeAgent** command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

### Purpose

Use the **fteCreateBridgeAgent** command to create a protocol bridge agent. For an overview of how to use the protocol bridge, see “The protocol bridge” on page 254. This **fteCreateBridgeAgent** command provides you with the MQSC commands that you must run against your agent queue manager to create the following agent queues:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*
- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*
- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

These queues are internal system queues that you must not modify, delete, or read messages from unless you are deleting the agent. The MQSC commands to run are also supplied in a file in the following location: *configuration\_directory\coordination\_qmgr\_name\agents\agent\_name\agent\_name\_create.mqsc*

If you later want to delete the agent, this command also provides you with the MQSC commands you must run to clear then delete the queues use by the agent. The MQSC commands are in a file in the following location: *configuration\_directory\coordination\_qmgr\agents\agent\_name\agent\_name\_delete.mqsc*.

The **fteCreateBridgeAgent** command also creates two XML files:

- ProtocolBridgeCredentials.xml

- ProtocolBridgeProperties.xml (if you have enabled Version 7.0.4.1 or later)

in the following directory: *configuration\_directory\coordination\_qmgr\_name\agents\agent\_name*. The ProtocolBridgeCredentials.xml file allows you to define user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server and the ProtocolBridgeProperties.xml file allows you to define multiple protocol file servers so you can transfer to multiple endpoints. For more information, see “Protocol bridge credentials file format” on page 622 and “Protocol bridge properties file format” on page 626. If you run the **fteCreateBridgeAgent** command and specify a default protocol file server, this default server is contained in the ProtocolBridgeProperties.xml file and its hostname is used for the server name. If you do not specify a default server, there are no entries in the ProtocolBridgeProperties.xml file; you must add at least one server manually before transfers can take place.

WebSphere MQ File Transfer Edition provides advanced agent properties that help you configure protocol bridge agents. The properties that relate to the protocol bridge start with protocol. These properties are described in The agent.properties file. If you see unexpected behavior in the protocol bridge, review these protocol properties and ensure that you have set these properties correctly for your system.

If you see the following output from the **fteCreateBridgeAgent** command:

```
BFGMQ1007I: The coordination queue manager cannot be contacted or has refused a connection attempt.
The WebSphere MQ reason code was 2058. The agent's presence will not be published.
```

it indicates that the coordination queue manager can not be contacted and provides the WebSphere MQ reason code for why. This information message can indicate that the coordination queue manager is currently unavailable or that you have defined the configuration incorrectly.

## Syntax

### fteCreateBridgeAgent

```

▶▶ fteCreateBridgeAgent --agentName— —(agent_name)— --agentQMGr— —(agent_qmgr_name)—
▶
┌-bt— —(protocol_file_server_type)┐ ┌-bh— —(server_host_name)┐
▶
┌-btz— —(server_time_zone)┐ ┌-bm— —(server_platform_type)┐
▶
┌-bsl— —(server_locale)┐ ┌-bfe— —(server_file_encoding)┐ -bts— —(truststore_file)— --btsp— —(password)—
▶
┌-bp— —(server_port_number)┐ ┌-blw┐ ┌-agentQMGrHost— —(agent_qmgr_host_name)┐
▶
┌-agentQMGrPort— —(agent_qmgr_port)┐ ┌-agentQMGrChannel— —(agent_qmgr_channel)┐
▶
┌-agentDesc— —(agent_description)┐ ┌-ac—
└-authorityChecking┘
▶
┌-s┐ ┌(service_name)┐ ┌-su—(user_name)┐ ┌-sp—(password)┐ ┌-sj—(options)┐ ┌-sl—(options)┐
└-n┘
▶
┌-p— —(configuration-options)┐ ┌-f┐
▶▶

```

## Parameters

### **-agentName** (*agent\_name*)

Required. The name of the agent you want to create. The agent name must be unique in its administrative domain.

For more information about naming agents, see Object naming conventions.

### **-agentQMgr** (*agent\_qmgr\_name*)

Required. The name of the agent queue manager.

### **-bt** (*protocol\_file\_server\_type*)

Required, if you specify a default protocol file server. The type of protocol file server you are using. Specify one of the following options:

**FTP** Standard FTP server

**SFTP** SSH FTP server

**FTPS** FTP server secured using SSL or TLS (applies only if you have enabled the new function available in Version 7.0.4.1 or later)

### **-bh** (*server\_host\_name*)

Required, if you specify a default protocol file server. The IP host name or IP address of the protocol file server.

### **-btz** (*server\_time\_zone*)

Required for FTP servers only. The time zone of the protocol file server. Specify the time zone in the following format: Area/Location. For example: Europe/London.

You can use the **-htz** parameter to list the possible values for **-btz**. For example:  
fteCreateBridgeAgent -htz

### **-bm** (*server\_platform*)

Required, if you specify a default protocol file server. The platform type of the protocol file server. Specify one of the following options:

**UNIX** Generic UNIX platform

**WINDOWS**

Generic Windows platform

### **-bsl** (*server\_locale*)

Required for FTP servers only. The locale of the protocol file server. Specify the locale in the following format: *xx\_XX*. For example: en\_GB.

- *xx* is the ISO Language Code. For a list of valid values, see Codes for the Representation of Names of Languages
- *XX* is the ISO Country Code. For a list of valid values, see Country names and code elements

### **-bfe** (*server\_file\_encoding*)

Required, if you specify a default protocol file server. The character encoding format of the files stored on the protocol file server. For example: UTF-8.

You can use the **-hcs** parameter to list the possible values for **-bfe**. For example:  
fteCreateBridgeAgent -hcs

### **-bts** (*truststore\_file*)

Required for FTPS servers only. Specifies the path to a truststore that is used to validate the certificate presented by the FTPS server.

You can specify the **-bts** parameter only if you have also specified the FTPS option on the **-bt** parameter.

**-btsp** (*password*)

Required for FTPS servers only. Specifies the password to use to access the truststore that contains information used to validate the identity of the FTPS server.

You can specify the **-btsp** parameter only if you have also specified the FTPS option on the **-bt** parameter.

**-bp** (*server\_port*)

Optional. The IP port that the protocol file server is connected to. Specify this parameter only if your protocol file server does not use the default port for that protocol. If you do not specify this parameter, WebSphere MQ File Transfer Edition uses the default port for the protocol type of file server.

**-blw**

Optional. Defines the protocol file server as having limited write abilities. By default a protocol bridge agent expects the protocol file server to permit file deletion, file renaming, and file opening for append writing. Specify this parameter to indicate that the protocol file server does not permit these file actions. Instead the file server permits read from and write to file only. If you specify this parameter, any transfers might not be recoverable if they are interrupted and might result in a failure for the file currently being transferred.

**-agentQMGrHost** (*agent\_qmgr\_host*)

Optional. The host name or IP address of the agent queue manager.

**-agentQMGrPort** (*agent\_qmgr\_port*)

Optional. The port number used for client connections to the agent queue manager.

**-agentQMGrChannel** (*agent\_qmgr\_channel*)

Optional. The channel name used to connect to the agent queue manager.

**-agentDesc** (*agent\_description*)

Optional. A description of the agent, which is displayed in the WebSphere MQ Explorer.

**-ac** or **-authorityChecking**

Optional. This parameter enables authority checking. If you specify this parameter, the agent checks that users who are submitting requests are authorized to perform the requested action. For more information, see “User authorities on WebSphere MQ File Transfer Edition actions” on page 456.

**-s** (*service\_name*)

Optional (Windows only). Indicates that the agent is to run as a Windows service. If you do not specify *service\_name*, the service is named `fteAgent<AGENT><QMGR>`, where `<AGENT>` is the agent name and `<QMGR>` is your agent queue manager name.

The display name for the service, which is shown in the Windows **Services** window in the **Name** column, is always **IBM WMQFTE agent <AGENT>@<QMGR>**.

**-su** (*user\_name*)

Optional (Windows only). When the agent is to run as a Windows service, this parameter specifies the name of the account under which the service runs. To run the agent using a Windows domain user account specify the value in the form `DomainName\UserName`. To run the service using an account from the local built-in domain specify the value in the form `UserName`.

The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to grant this right, see “Guidance for running an agent or database logger as a Windows service” on page 402.

Required when **-s** specified. Equivalent to **-serviceUser**.

**-sp** (*password*)

Optional (Windows only). Password for the user account set by **-su** or **-serviceUser** parameter.

This parameter is only valid when **-s** is specified. Equivalent to **-servicePassword**. If you do not specify this parameter when you specify the **-s** parameter, a warning message is produced. This message warns you that you must set the password using the Windows Services tool before the service starts successfully.

**-sj** (*options*)

Optional (Windows only). When the agent is started as a Windows service, defines a list of options in the form of **-D** or **-X** that are passed to the JVM. The options are separated using a number sign (#) or semicolon (;) character. If you must embed any # or semicolon (;) characters, put them inside single quotation marks.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceJVMOptions**.

**-sl** (*options*)

Optional (Windows only). Sets the Windows service log level. Valid options are: error, info, warn, debug. The default is info. This option can be useful if you are having problems with the Windows service. Setting it to debug gives more detailed information in the service log file.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceLogLevel**.

**-n** Optional (Windows only). Indicates that the agent is to be run as a normal process. This is mutually exclusive with the **-s** option. If neither one of the **-s** parameter and the **-n** parameter is specified, then the agent is configured as a normal Windows process.

Equivalent to **-normal**.

**-p** (*configuration-options*)

Optional. This parameter determines the set of configuration options that is used to create an agent. By convention use the name of a non-default coordination queue manager as the input for this parameter. The **fteCreateBridgeAgent** command then uses the set of properties files associated with this non-default coordination queue manager.

Specify the optional **-p** parameter only if you want to use configuration options different from your defaults. If you do not specify **-p**, the configuration options defined in the `wmqfte.properties` file are used. See "Configuration options" on page 98 for more information.

**-f** Optional. Forces the command to overwrite the existing configuration.

**-htz**

Optional. Displays a list of supported time zones that you can use as input for the **-btz** parameter.

**-hcs**

Optional. Displays a list of supported character sets that you can use as input for the **-bfe** parameter. Run the **fteCreateBridgeAgent -hcs** command to list the known code pages for the JVM. This information is not available from an external source because the known code pages vary between JVMs.

**-? or -h**

Optional. Displays command syntax.

## Deprecated parameters

The following parameters have been deprecated and are not supported on WebSphere MQ File Transfer Edition V7.0.2, or later.

**-brd** (*reconnect\_delay*)

Deprecated. Optional. Specifies in seconds the delay period between attempts to re-establish a lost connection with the protocol file server. The default value is 10 seconds.

**-brr** (*reconnect\_retries*)

Deprecated. Optional. Specifies the maximum number of times to try again when attempting to re-establish a lost connection with a protocol file server. When this maximum number is reached, the current file transfer is classed as failed. The default value is 2.

## Example

In this example, a new protocol bridge agent ACCOUNTS1 is created with an agent queue manager QM\_ACCOUNTS and uses the default coordination queue manager. ACCOUNTS1 connects to the FTP server accountshost.ibm.com. This FTP server runs on Windows using a time zone of Europe/Berlin, a locale of de\_DE, and a file encoding of UTF-8. The number of reconnect retries is 4:

```
fteCreateBridgeAgent -agentName ACCOUNTS1 -agentQMGr QM_ACCOUNTS -bt FTP
-bh accountshost.ibm.com -bm WINDOWS -btz Europe/Berlin -bsl de_DE -bfe UTF8
-agentQMGrHost myhost.ibm.com -agentQMGrPort 1415 -agentQMGrChannel CHANNEL1
```

In this example, a new protocol bridge agent ACCOUNTS2 is created with an agent queue manager QM\_ACCOUNTS and uses the default coordination manager. ACCOUNTS2 is created without a default protocol file server, which you can only do when you have enabled the new function available in Version 7.0.4.1 or later.

```
fteCreateBridgeAgent -agentName ACCOUNTS2 -agentQMGr QM_ACCOUNTS
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

### Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

## fteCreateCDAgent (create a Connect:Direct bridge agent)

The `fteCreateCDAgent` command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

## Purpose

Use the `fteCreateCDAgent` command to create a Connect:Direct bridge agent. This type of agent is dedicated to transferring files to and from Connect:Direct nodes. For more information, see “The Connect:Direct bridge” on page 269. For details of the supported operating system versions for the Connect:Direct bridge, see the web page [WebSphere MQ File Transfer Edition System Requirements](#).

This command provides you with the MQSC commands that you must run against your agent queue manager to create the following agent queues:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*
- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*
- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*



**-agentQMgrChannel** (*agent\_qmgr\_channel*)

Optional. The channel name used to connect to the agent queue manager.

**-agentDesc** (*agent\_description*)

Optional. A description of the agent, which is displayed in WebSphere MQ Explorer.

**-ac** or **-authorityChecking**

Optional. This parameter enables authority checking. If you specify this parameter, the agent checks that users who are submitting requests are authorized to perform the requested action. For more information, see “User authorities on WebSphere MQ File Transfer Edition actions” on page 456.

**-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to create an agent. By convention use the name of a non-default coordination queue manager as the input for this parameter. The **fteCreateCDAgent** command then uses the set of properties files associated with this non-default coordination queue manager.

Specify the optional **-p** parameter only if you want to use configuration options different from your defaults. If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

**-f** Optional. Forces the command to overwrite the existing configuration.

**-cdNodeHost** (*cd\_node\_host\_name*)

Optional. The host name or IP address of the system where the Connect:Direct node, specified by the **-cdNode** parameter, is located. If you do not specify the **-cdNodeHost** parameter, a default of the host name or IP address of the local system is used.

In most cases, the Connect:Direct node is on the same system as the Connect:Direct bridge agent. In these cases, the default value of this property, which is the IP address of the local system, is correct. If your system has multiple IP addresses, or your Connect:Direct node is on a different system to your Connect:Direct bridge agent and their systems share a file system, use this property to specify the correct host name for the Connect:Direct node.

**-cdNodePort** (*cd\_node\_port\_name*)

Optional. The port number of the Connect:Direct node that client applications use to communicate with the node that is specified by the **-cdNode** parameter. In Connect:Direct product documentation, this port is referred to as the API port. If you do not specify the **-cdNodePort** parameter, a default port number of 1363 is assumed.

**-cdTmpDir** (*cd\_tmp\_directory*)

Optional. The directory to be used by this agent to store files temporarily before they are transferred to the destination Connect:Direct node. This parameter specifies the full path of the directory where files are temporarily stored. For example, if **cdTmpDir** is set to /tmp then the files are temporarily placed in the /tmp directory. If you do not specify the **-cdTmpDir** parameter, the files are stored temporarily in a directory named *cdbridge-agent\_name*. This default directory is created in the location that is defined by the value of the `java.io.tmpdir` property.

The Connect:Direct bridge agent and the Connect:Direct bridge node must be able to access the directory specified by this parameter using the same path name. Consider this when planning the installation of your Connect:Direct bridge. If possible, create the agent on the system where the Connect:Direct node that is part of the Connect:Direct bridge is located. If your agent and node are on separate systems, the directory must be on a shared file system and be accessible from both systems using the same path name. For more information about the supported configurations, see “The Connect:Direct bridge” on page 269.

**Note:** If you run the **fteCleanAgent** command, all files in this directory are deleted.

**-s** (*service\_name*)

Optional (Windows only). Indicates that the agent is to run as a Windows service. If you do not specify *service\_name*, the service is named `fteAgent<AGENT><QMGR>`, where `<AGENT>` is the agent name and `<QMGR>` is your agent queue manager name.

The display name for the service, which is shown in the Windows **Services** window in the **Name** column, is always **IBM WMQFTE agent <AGENT>@<QMGR>**.

**-su** (*user\_name*)

Optional (Windows only). When the agent is to run as a Windows service, this parameter specifies the name of the account under which the service runs. To run the agent using a Windows domain user account specify the value in the form `DomainName\UserName`. To run the service using an account from the local built-in domain specify the value in the form `UserName`.

The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to grant this right, see “Guidance for running an agent or database logger as a Windows service” on page 402.

Required when **-s** specified. Equivalent to **-serviceUser**.

**-sp** (*password*)

Optional (Windows only). Password for the user account set by **-su** or **-serviceUser** parameter.

This parameter is only valid when **-s** is specified. Equivalent to **-servicePassword**. If you do not specify this parameter when you specify the **-s** parameter, a warning message is produced. This message warns you that you must set the password using the Windows Services tool before the service starts successfully.

**-sj** (*options*)

Optional (Windows only). When the agent is started as a Windows service, defines a list of options in the form of `-D` or `-X` that are passed to the JVM. The options are separated using a number sign (`#`) or semicolon (`:`) character. If you must embed any `#` or semicolon (`:`) characters, put them inside single quotation marks.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceJVMOptions**.

**-sl** (*options*)

Optional (Windows only). Sets the Windows service log level. Valid options are: `error`, `info`, `warn`, `debug`. The default is `info`. This option can be useful if you are having problems with the Windows service. Setting it to `debug` gives more detailed information in the service log file.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceLogLevel**.

**-n** Optional (Windows only). Indicates that the agent is to be run as a normal process. This is mutually exclusive with the **-s** option. If neither one of the **-s** parameter and the **-n** parameter is specified, then the agent is configured as a normal Windows process.

Equivalent to **-normal**.

## Example

In this example, a new Connect:Direct bridge agent `CD_BRIDGE` is created with an agent queue manager `QM_NEPTUNE`. The agent uses the Connect:Direct node `BRIDGE_NODE` to transfer files to other Connect:Direct nodes. The `BRIDGE_NODE` node is located on the same system as the agent and uses the default port for client connections. Files that are transferred to or from Connect:Direct are temporarily stored in the directory `/tmp/cd-bridge`.

```
fteCreateCDAgent -agentName CD_BRIDGE -agentQMGr QM_NEPTUNE
                 -cdNode BRIDGE_NODE -cdTmpDir /tmp/cd-bridge
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related tasks:

“Configuring the Connect:Direct bridge” on page 176

Configure the Connect:Direct bridge to transfer files between a WebSphere MQ File Transfer Edition network and a Connect:Direct network. The components of the Connect:Direct bridge are a Connect:Direct node and a WebSphere MQ File Transfer Edition agent that is dedicated to communicating with that node. This agent is referred to as the Connect:Direct bridge agent.

“Transferring a file to a Connect:Direct node” on page 272

You can transfer a file from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node using the Connect:Direct bridge. Specify a Connect:Direct node as the destination of the transfer by specifying the Connect:Direct bridge agent as the destination agent and specifying the destination file in the form *connect\_direct\_node\_name:file\_path*.

“Transferring a file from a Connect:Direct node” on page 273

You can transfer a file from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent by using the Connect:Direct bridge. You can specify a Connect:Direct node as the source of the transfer by specifying the Connect:Direct bridge agent as the source agent and specifying the source specification in the form *connect\_direct\_node\_name:file\_path*.

## fteCreateMonitor (create new resource monitor)

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

### fteCreateMonitor Purpose

The **fteCreateMonitor** command is supported on WebSphere MQ File Transfer Edition Version 7.0.1 and later.

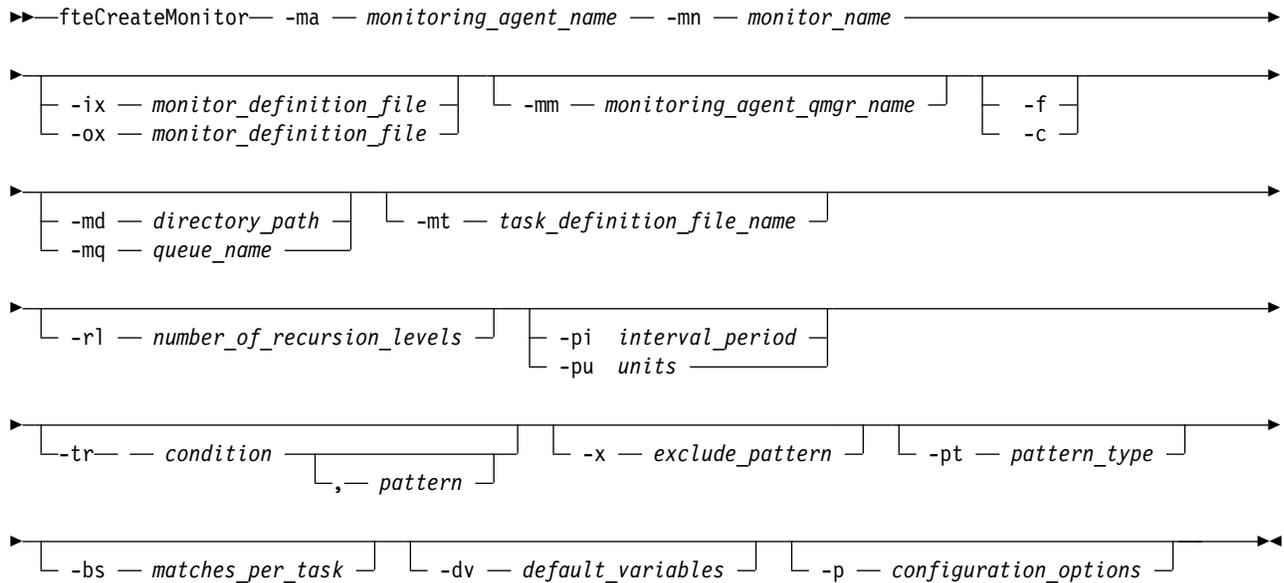
Use the **fteCreateMonitor** command to create and then start a new resource monitor using a WebSphere MQ File Transfer Edition agent. For example, you can use a resource monitor in the following way: An external application puts one or more files in a known directory and when processing is complete, the external application places a trigger file in a monitored directory. The trigger file is then detected and a defined file transfer starts, which copies the files from the known directory to a destination agent.

For Version 7.0.4.1 and later, you can use the **-ox** and **-ix** parameters to export and import a resource monitor configuration to an XML file. Importing this file with the **fteCreateMonitor** command creates a new resource monitor with the same parameters as the resource monitor given in the **fteCreateMonitor** command to export to the XML file. You can also use the **fteListMonitor** command to export a resource monitor configuration to an XML file. Additionally for Version 7.0.4.1 and later, you can use the **-f** and **-c** parameters to overwrite a monitor configuration dynamically.

The **fteCreateMonitor** command is not supported on protocol bridge agents.

## Syntax

## fteCreateMonitor



## Parameters

- ix** (*xml\_filename*)  
Optional. Imports the resource monitor configuration from an XML file.
- ox** (*xml\_filename*)  
Optional. This parameter must be specified with the **-ma** and **-mn** parameters. Exports the resource monitor configuration to an XML file.
- ma** (*monitoring\_agent\_name*)  
Optional. The name of the agent to perform the resource monitoring. This monitoring agent must be the source agent for the monitor task that you want to trigger.
- mn** (*monitor\_name*)  
Required. The name that you assign to this monitor. The monitor name must be unique to the monitoring agent. However, you can delete a monitor and then create a monitor with the same name.  
  
Resource monitor names are not case-sensitive. Resource monitor names entered in lowercase or mixed case are converted to uppercase. Resource monitor names must not contain asterisk (\*), percent (%) or question mark (?) characters.
- mm** (*monitoring\_agent\_qmgr\_name*)  
Optional. The name of the queue manager that the monitoring agent is connected to. Because the monitoring agent and the source agent must be same, this queue manager is also your source agent queue manager.
- f** Optional. Use this parameter to overwrite a resource monitor configuration. For example, when the resource monitor name you have chosen already exists on the resource monitoring agent and you want to update it rather than delete and re-create a monitor with the same name. Using this parameter causes the agent to restart the monitor process.
- c** Optional. This parameter clears the history of an updated resource monitor, which causes the resource monitor to check the trigger conditions again. You can use this parameter with the **-f** parameter only.
- md** (*directory\_path*)  
Optional. The absolute name of the directory path that you want to monitor. Unless you are using the **-ix** or **-ox** parameters you must specify one of the **-md** or **-mq** parameters.

**-mq** (*queue\_name*)

Optional. The name of the queue that you want to monitor. This queue must be located on the monitoring agent queue manager. Unless you are using the **-ix** or **-ox** parameters you must specify one of the **-md** or **-mq** parameters.

**-mt** (*task\_definition\_file\_name*)

Optional. The name of the XML document that contains the task definition that you want to carry out when the trigger condition is satisfied. The path to the transfer definition XML document must be on the local file system that you run the **fteCreateMonitor** command from. Unless you are using the **-ix** or **-ox** parameters this will be a required parameter.

You can use the **-gt** parameter on the **fteCreateTransfer** command to generate a template XML document that contains your file transfer request. The monitor uses the transfer template as its task definition.

On z/OS, you must store the task definition document in a UNIX file on z/OS UNIX System Services. You cannot store task definition documents in z/OS sequential files or PDS members.

On IBM i, you must store the task definition document in the integrated file system.

**-r1** (*number\_of\_recursion\_levels*)

Optional. The level of monitoring recursion of the root monitoring directory, that is how many levels of subdirectory to go down into. For example in a directory structure like the following example with C:\wmqfte\monitor set as the root monitoring directory:

```
C:\wmqfte\monitor
C:\wmqfte\monitor\reports
C:\wmqfte\monitor\reports\2009
C:\wmqfte\monitor\reports\2009\April
```

If you specify **-r1 2**, WebSphere MQ File Transfer Edition only searches as far down as the C:\wmqfte\monitor\reports\2009 directory and its sibling directories. The C:\wmqfte\monitor\reports\2009\April directory is ignored. By default, recursion is set to none.

**-pi** (*interval\_period*)

Optional. The interval period between each monitor of a directory. The poll interval must be a positive integer value. The default value for **-pi** is 1.

**-pu** (*units*)

Optional. The time units for the monitor poll interval. If you specify the **-pu** parameter, you must also specify the **-pi** parameter. The default value for **-pu** is minutes. Specify one of the following options:

**seconds**

**minutes**

**hours**

**days**

**-tr**

Optional. Specifies the trigger condition that must be satisfied for the defined task to take place. If the condition is not satisfied, according to the source agent, the monitor task (for example the file transfer) is not started. A trigger condition consists of two optional parts, condition and pattern, separated by a comma. Specify one of the following formats:

- *condition,pattern*

where *condition* is one of the following values:

**match** For each trigger that is satisfied, the defined task is performed. **match** is the default value.

For example, if the match is \*.go and the files LONDON.go and MANCHESTER.go are present, the task is performed for LONDON.go and another task is performed for MANCHESTER.go.

If the same trigger file is present from a previous poll (that is, the file has not been modified), this file has a not satisfied trigger condition. That is, the match trigger file must be new and must have been modified since last the poll before the defined task is performed.

#### **noMatch**

No files in the monitored directory match the pattern. That is, if *any* of the files in the monitored directory do not exist, the condition is satisfied. If no files match the trigger condition at the time the monitor is created, the monitor starts instantly, but does not start again until a file match is found, and then removed.

#### **noSizeChange=*n***

A minimum of one of the files in the directory matches the pattern and has a file size that does not change for *n* polling intervals. The value of *n* is a positive integer.

#### **fileSize>=*size***

A minimum of one of the files in the directory matches the pattern and has a minimum file size greater or equal to *size*. The value *size* is a combination of an integer with an optional size unit of B, KB, MB, or GB. For example, `fileSize">"=10KB`. If you do not specify a size unit, the default size used is bytes. On all operating systems, you must enclose the greater than symbol (>) in double quotation marks when you specify the `fileSize` option on the command line, as shown in this example.

The pattern is a file pattern match sequence in wildcard or Java regular expression format. The default value for the pattern is `*`, or match any file, and the default format is wildcard format. Use the `-pt` to specify the format of the pattern.

For example, the following trigger condition is satisfied when a file exists in the monitored directory with the suffix `.go`.

```
-tr match,*.go
```

The following trigger condition is satisfied when there are no files in the monitored directory which have the suffix `.stop`.

```
-tr noMatch,*.stop
```

You can only specify *condition*,*pattern* if you have also specified the `-md` parameter.

- *condition*

where *condition* is one of the following values:

#### **queueNotEmpty**

The monitored queue is not empty. That is, if there are *any* WebSphere MQ messages on the monitored queue, the condition is satisfied. A single task is run for all of the messages on the queue.

#### **completeGroups**

There is a complete group on the monitored queue. That is, if *any* of the WebSphere MQ message groups on the monitored queue are complete, the condition is satisfied. An individual task is run for each complete group on the queue.

If a single message that is not in a group is put on the queue, it is treated as if it is a complete group and a task is run for the single message.

You can only specify *condition* if you have also specified the `-mq` parameter.

For each monitor that you create, you can specify the `-tr` parameter once only.

#### **-x (*exclude\_pattern*)**

Optional. Specifies files that are excluded from the trigger pattern match. The trigger pattern is specified by the `-tr` parameter.

The pattern is a file pattern match sequence in wildcard or Java regular expression format. The default format is wildcard format. Use the `-pt` parameter to specify the format of the pattern.

**-pt** (*pattern\_type*)

Optional. The type of pattern that is used by the **-tr** and **-x** parameters. Valid values are:

**wildcard**

The patterns are evaluated as wildcard patterns. An asterisk (\*) matches zero or more characters and a question mark (?) matches exactly one character. This is the default.

**regex** The patterns are evaluated as Java regular expressions. For more information, see "Regular expressions used by WebSphere MQ File Transfer Edition" on page 746.

**-bs** (*matches\_per\_task*)

Optional. The maximum number of trigger matches to include in a single task. For example, if a value of 5 is specified for *matches\_per\_task* and nine trigger matches occur in a single poll interval, two tasks are performed. The first task corresponds to triggers 1-5 inclusive, and the second task corresponds to triggers 6-9. The default value of *matches\_per\_task* is 1.

The **-bs** parameter is supported only when the task definition XML that you supply to the **-mt** parameter is a managedTransfer. A managedCall is not supported with the **-bs** parameter.

**-dv** (*default\_variables*)

Optional. A comma-separated list of default variables that can be used in variable substitution when monitoring a queue. The values are in the format of a key-value pair. For example:

```
-dv size=medium,color=blue
```

For more information about variable substitution, see "Customizing tasks with variable substitution" on page 215. You can only specify the **-dv** parameter if you have also specified the **-mq** parameter.

**-? or -h**

Optional. Displays command syntax.

## Examples

In this example, a new resource monitor is created called MYMONITOR using the monitoring agent MYAGENT. Provided the trigger condition that a file larger than 5 MB is present in the directory C:\wmqfte\monitors, the file transfer defined in the file C:\templates\transfer\_reports.xml is started. MYAGENT is also the source agent for the file transfer defined in C:\templates\transfer\_reports.xml:

```
fteCreateMonitor -ma MYAGENT -md C:\wmqfte\monitors -mn MYMONITOR -mt C:\templates\transfer_reports.xml  
-tr fileSize">"=5MB,*.go
```

In this example for Version 7.0.4.1. and later, a resource monitor called MONITOR1 using the agent AGENT1 is created to transfer files greater than 5MB and is exported to the XML file monitor.xml.

```
fteCreateMonitor -ox monitor.xml -ma AGENT1 -mn MONITOR1 -mt task.xml -tr "fileSize>=5MB,*.zip"
```

Then the XML file is imported and changed to exclude any files greater than 10MB.

```
fteCreateMonitor -ix monitor.xml -x "fileSize>=10MB,*.zip" -f
```

In this example for Version 7.0.4.1. and later, a new resource monitor is created called MYMONITOR using the agent MYAGENT.

```
fteCreateMonitor -ma MYAGENT -md c:\wmqfte -mn MYMONITOR -mt c:\templates\transfer_reports.xml -tr "fileSize>=5MB,*.go"
```

However the trigger is initially incorrectly set to monitor c:\wmqfte rather than c:\wmqfte\monitors. The **fteCreateMonitor** request is immediately re-issued with the monitor directory corrected and the **-f** (overwrite) and **-c** (clear history) parameters used to update the monitor.

```
fteCreateMonitor -ma MYAGENT -md c:\wmqfte\monitors -mn MYMONITOR -mt c:\templates\transfer_reports.xml -tr "fileSize>=5MB,*.go"
```

## Return codes

Return code	Description
0	Command completed successfully.
1	Command ended unsuccessfully.

#### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

#### Related tasks:

“Configuring monitor tasks to start commands and scripts” on page 208

Resource monitors are not limited to performing file transfers as their associated task. You can also configure the monitor to call other commands from the monitoring agent, including executable programs, Ant scripts or JCL jobs. To call commands, edit the monitor task definition XML to include one or more command elements with corresponding command call parameters, such as arguments and properties.

#### Related reference:

“fteListMonitors (list WebSphere MQ File Transfer Edition resource monitors)” on page 542

Use the **fteListMonitors** command to list all of the existing resource monitors in a WebSphere MQ File Transfer Edition network using the command line.

“fteDeleteMonitor (delete a WebSphere MQ File Transfer Edition resource monitor)” on page 534

Use the **fteDeleteMonitor** command to stop and delete an existing WebSphere MQ File Transfer Edition resource monitor using the command line. Issue this command against the resource monitoring agent.

#### Related information:

“Customizing tasks with variable substitution” on page 215

When the trigger conditions of an active resource monitor are satisfied, the defined task is called. In addition to calling the transfer or command task with the same destination agent or the same destination file name every time, you can also modify the task definition at run time. You do this by inserting variable names into the task definition XML. When the monitor determines the trigger conditions are satisfied, and that the task definition contains variable names, it substitutes the variable names with the variable values, and then calls the task.

## fteCreateTemplate (create new file transfer template)

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

### fteCreateTemplate

#### Purpose

Use the **fteCreateTemplate** command to create a file transfer template that stores your transfer details until you want to use them at a later date. Use transfer templates to store common file transfer settings for repeated or complex transfers. After you have created a transfer template, submit the template using the WebSphere MQ Explorer. You cannot submit a transfer template from the command line.

The transfer template that you create using the **fteCreateTemplate** command is not the same as the XML message that you create using the **-gt** parameter on the **fteCreateTransfer** command. You cannot use the two different types of template interchangeably.

You can run the **fteCreateTemplate** command from any system that can connect to the WebSphere MQ network and then route to the coordination queue manager. Specifically for the command to run, you must have installed a WebSphere MQ File Transfer Edition component (either Server, Client, or Remote Tools and Documentation) on this system and you must have configured the WebSphere MQ File Transfer Edition component on this system to communicate with the WebSphere MQ network.

This command uses the `command.properties` file to connect to the WebSphere MQ network. If the `command.properties` file does not contain property information, a bindings mode connection is made to the default queue manager on the local system. If the `command.properties` file does not exist, an error is generated. For more information, see “The `command.properties` file” on page 580.

You can specify multiple source files for a file transfer but only one destination agent; transferring one file to multiple destination agents is not supported. However, you can transfer multiple source files to multiple destination files on a single destination agent.

For guidance about how to transfer files, see “Guidelines for transferring files” on page 721.

## Special characters

Take care when you use parameters that contain special characters so that you avoid the command shell interpreting the characters in a way you do not expect. For example, fully qualified data set names that contain single quotation marks and source specifications that contain asterisk characters might be interpreted by the command shell rather than being passed through in the transfer request. To avoid characters being interpreted by the command shell, enclose the entire parameter in double quotation marks as shown in the final two examples “Examples” on page 508, or escape the special characters using the escape sequence of the command shell.

## Relative paths

The **fteCreateTemplate** command supports the use of relative file paths. On distributed systems and z/OS UNIX System Services, by default paths are considered to be relative to the home directory of the user that the agent is running as. To change the directory that path names are evaluated relative to, set the `transferRoot` property in the `agent.properties` file. This file is located in the `configuration_directory/coordination_qmgr/agents/agent_name` directory. Add the following line to the file:

```
transferRoot=directory_name
```

You must escape Windows paths or write them in UNIX format. For example, specify `C:\TransferRoot` as `C:\\TransferRoot` or `C:/TransferRoot`

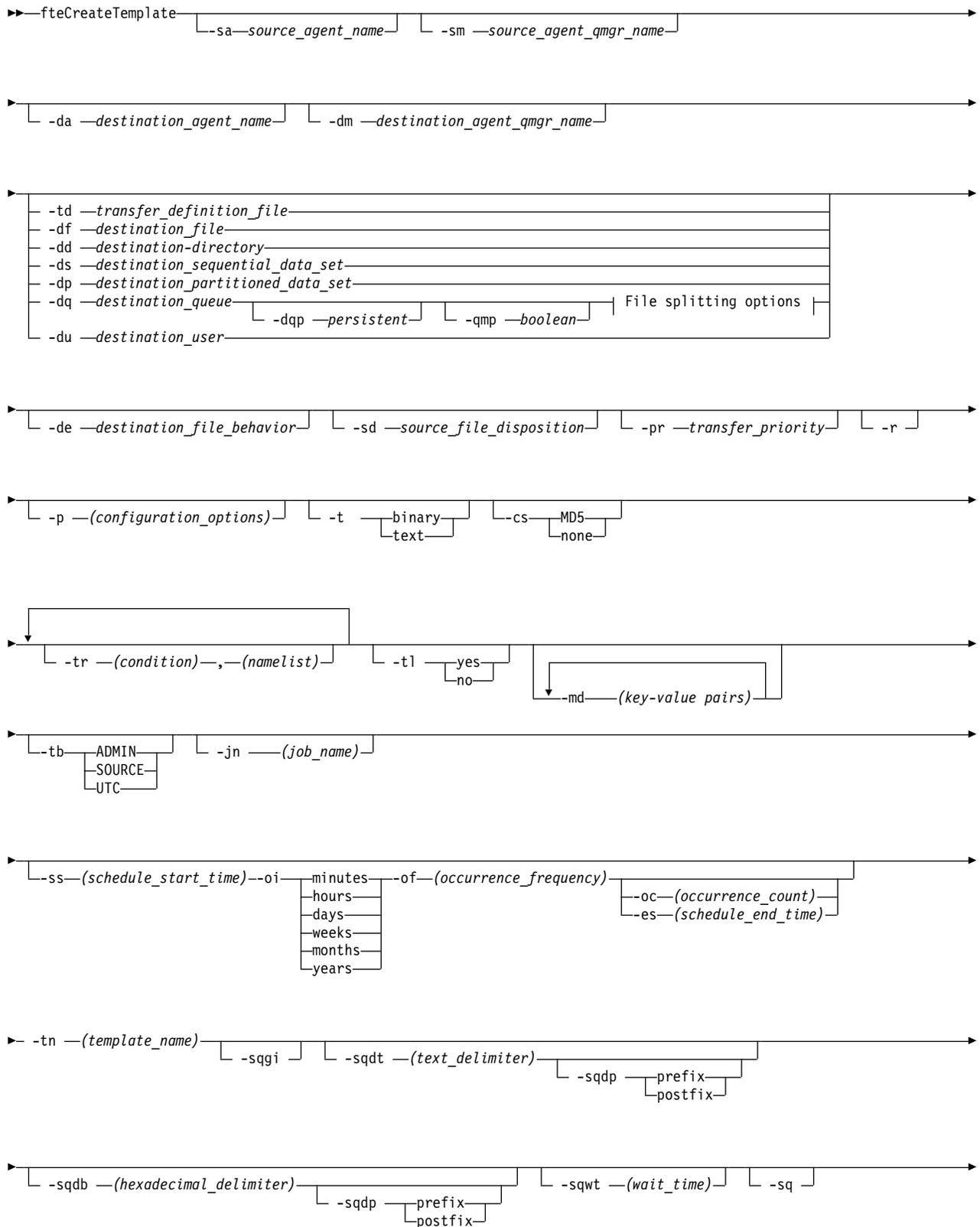
On z/OS, by default the user name that the agent is currently running under is added as a high-level qualifier prefix to data set specifications that have not been fully qualified. For example: `//ABC.DEF`. To change the value that is added as a prefix to the data set name, set the `transferRootHLQ` property in the `agent.properties` file. This file is located in the `configuration_directory/coordination_qmgr/agents/agent_name` directory. Add the following line to the file:

```
transferRootHLQ=prepend_value
```

However, note that for transfers involving a Connect:Direct node on a z/OS system, the data set specification is interpreted as a fully qualified name. No high-level qualifier is added to the data set name.

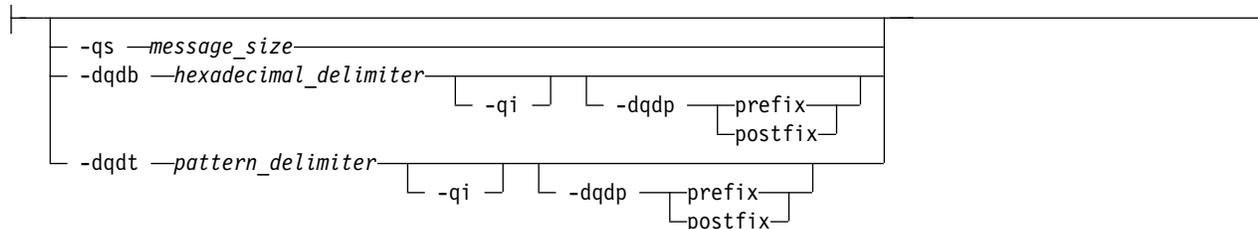
## Syntax

## fteCreateTemplate





## File splitting options:



## Parameters

### **-sa** (*source\_agent\_name*)

Optional. The name of the agent that the source file is transferred from. If you do not specify this agent name when you create the template, you must specify the source agent name when you use the template.

### **-sm** (*source\_agent\_qmgr\_name*)

Optional. The name of the queue manager that the source agent is connected to.

If you do not specify the **-sm** parameter, the queue manager used is determined by the set of configuration options in use, based on the source agent name. If the queue manager name cannot be determined using these options, the transfer template creation fails. For example, the template creation fails if the `agent.properties` file for the source agent cannot be found.

### **-da** (*destination\_agent\_name*)

Optional. The name of the agent that the file is transferred to. If you do not specify the destination agent name when you create the template, you must specify the destination agent name when you use the template.

### **-dm** (*destination\_agent\_qmgr\_name*)

Optional. The name of the queue manager that the destination agent is connected to.

If you do not specify the **-dm** parameter, the queue manager used is determined by the set of configuration options in use, based on the destination agent name. If the queue manager name cannot be determined using these options, the transfer template creation fails. For example, the template creation fails if the `agent.properties` file for the destination agent cannot be found.

### **-td** (*transfer\_definition\_file*)

Optional. The name of the XML document that defines one or more source and destination file specifications for the transfer.

One of the **-td**, **-df**, **-dd**, **-ds**, **-dq**, **-du**, and **-dp** parameters is required. If you specify the **-td** parameter, you cannot specify source files, or specify the **-df**, **-dd**, **-ds**, **-dp**, **-dq**, **-du**, **-sd**, **-r**, **-de**, **-t**, or **-cs** parameters.

The **fteCreateTemplate** command locates the transfer definition file in relation to your current directory. If you cannot use relative path notation to specify the location of the transfer definition file, use the fully qualified path and file name of the transfer definition file instead.

On z/OS, you must store the transfer definition file in a UNIX file on z/OS UNIX System Services. You cannot store transfer definition files in z/OS sequential files or PDS members.

On IBM i, you must store the transfer definition file in the integrated file system.

For more information, see Using transfer definition files.

**-df** (*destination\_file*)

Optional. The name of the destination file. Specify a file name that is valid on the system where the destination agent is running.

If the destination agent is a Connect:Direct bridge agent, the destination file is specified in the format *connect\_direct\_node\_name:file\_path*. The Connect:Direct bridge agent accepts only file paths specified in this format. If the destination agent is a Connect:Direct bridge agent and the destination is a PDS member, you must also specify the **-de** parameter with a value of overwrite.

One of the **-td**, **-df**, **-dd**, **-ds**, **-dq**, **-du**, and **-dp** parameters is required. If you specify the **-df** parameter, you cannot specify the **-td**, **-dd**, **-dp**, **-dq**, **-du**, or **-ds** parameters because these parameters are mutually exclusive.

**-dd** (*destination\_directory*)

Optional. The name of the directory the file is transferred to. Specify a directory name that is valid on the system where the destination agent is running.

If the destination agent is a Connect:Direct bridge agent, the destination directory is specified in the format *connect\_direct\_node\_name:directory\_path*. If the destination agent is a Connect:Direct bridge agent and the destination is a PDS, you must also specify the **-de** parameter with a value of overwrite.

One of the **-td**, **-df**, **-dd**, **-ds**, **-dq**, **-du**, and **-dp** parameters is required. If you specify the **-dd** parameter, you cannot specify the **-td**, **-df**, **-dp**, **-dq**, **-du**, or **-ds** parameters because these parameters are mutually exclusive.

**-ds** (*destination\_sequential\_data\_set*)

z/OS only. Optional. The name of the sequential data set or PDS member that files are transferred into. Specify a sequential data set name or a partitioned data set member.

One of the **-td**, **-df**, **-dd**, **-ds**, **-dq**, **-du**, and **-dp** parameters is required. If you specify the **-ds** parameter, you cannot specify the **-td**, **-dd**, **-df**, **-dq**, **-du**, or **-dp** parameters because these parameters are mutually exclusive.

The syntax for the data set name is as follows:

```
//data_set_name{;attribute;..;attribute}
```

or

```
//pds_data_set_name(member_name){;attribute;..;attribute}
```

That is, a data set name specifier prefixed with // and optionally followed by a number of attributes separated by semicolons.

If the data set is located at a Connect:Direct node, you must prefix the data set name with the node name. For example:

```
CD_NODE1://'OBJECT.LIB';RECFM(F,B);BLKSIZE(800);LRECL(80)
```

If the destination agent is a Connect:Direct bridge agent and the destination is a PDS member, you must also specify the **-de** parameter with a value of overwrite. For more information about data set transfers to or from Connect:Direct nodes, see "Transferring data sets to and from Connect:Direct nodes" on page 726.

For transfers that only involve WebSphere MQ File Transfer Edition agents, if the data set name part is enclosed by single quotation mark characters, it specifies a fully qualified data set name. If the data set name is not enclosed by single quotation mark characters, the system adds the default high-level qualifier for the destination agent (either the value for the transferRootHLQ agent property or the user ID that the agent runs under, if you have not set transferRootHLQ).

**Note:** However, note that for transfers involving a Connect:Direct node on a z/OS system, the data set specification is interpreted as a fully qualified name. No high-level qualifier is added to the data set name. This is the case even if the data set name is enclosed by single quotation mark characters.

The data set attributes are used either to create a data set or to ensure that an existing data set is compatible. The specification of data set attributes is in a form suitable for BPXWDYN (see Requesting dynamic allocation for more information). When the agent is to create a destination data set, the following BPXWDYN attributes are automatically specified: DSN(*data\_set\_name*) NEW CATALOG MSG(*numeric\_file\_descriptor*), where *numeric\_file\_descriptor* is a file descriptor generated by WebSphere MQ File Transfer Edition. For a data set to data set transfer, the attributes of RECFM, LRECL, and BLKSIZE from the source are selected for a new destination data set. Note the SPACE setting for a new destination data set is not set by WebSphere MQ File Transfer Edition and system defaults are used. Therefore, you are recommended to specify the SPACE attribute when a new data set is to be created. You can use the **bpxwdynAllocAdditionalProperties** property in the agent.properties file to set BPXWDYN options that apply to all transfers. For more information, see “The agent.properties file” on page 583.

Some BPXWDYN options must not be specified when using the **fteCreateTemplate** command, the **fteCreateTransfer** command or the **bpxwdynAllocAdditionalProperties** property in the agent.properties file. For a list of these properties, see “BPXWDYN properties you must not use with WebSphere MQ File Transfer Edition” on page 733.

When you transfer a file or data set to tape, any existing data set that is already on the tape is replaced. The attributes for the new data set are set from attributes passed in the transfer definition. If no attributes are specified, attributes are set to the same as the source data set or to the default values when the source is a file. The attributes of an existing tape data set are ignored.

The **-ds** parameter is not supported when the destination agent is a protocol bridge agent.

#### **-dp** (*destination\_partitioned\_data\_set*)

z/OS only. Optional. The name of the destination PDS that files are transferred into. Specify a partitioned data set name. If a PDS is created as a result of the transfer, this PDS is created as a PDSE by default. You can override the default by specifying DSNTYPE=PDS.

One of the **-td**, **-df**, **-dd**, **-ds**, **-dq**, **-du**, and **-dp** parameters is required. If you specify the **-dp** parameter, you cannot specify the **-td**, **-dd**, **-df**, **-dq**, **-du**, or **-ds** parameters because these parameters are mutually exclusive.

The syntax for the PDS data set name is as follows:

```
//pds_data_set_name{;attribute;..;attribute}
```

The syntax for the data set name is the same as described for the **-ds** (*destination\_sequential\_data\_set*) parameter. All the syntax details for specifying data sets that are located on Connect:Direct nodes also apply to the **-dp** parameter. If the destination agent is a Connect:Direct bridge agent, you must also specify the **-de** parameter with a value of overwrite.

The **-dp** parameter is not supported when the destination agent is a protocol bridge agent.

#### **-du** (*destination\_user*)

Optional. The name of the user whose destination file space the files are transferred into. For more information about file spaces, see “File spaces” on page 334.

One of the **-td**, **-df**, **-dd**, **-ds**, **-dp**, **-du**, and **-dq** parameters is required. If you specify the **-du** parameter, you cannot specify the **-td**, **-dd**, **-df**, **-dp**, **-dq**, or **-ds** parameters because these parameters are mutually exclusive.

The **-du** parameter is not supported when the destination agent is a protocol bridge agent or a Connect:Direct bridge agent.

#### **-dq** (*destination\_queue*)

Optional. The name of a destination queue that files are transferred onto. You can optionally include a queue manager name in this specification, using the format `QUEUE@QUEUEMANAGER`. If you do not specify a queue manager name the destination agent queue manager name is used. You must specify a valid queue name that exists on the queue manager.

One of the `-td`, `-df`, `-dd`, `-ds`, `-dp`, `-du`, and `-dq` parameters is required. If you specify the `-dq` parameter, you cannot specify the `-td`, `-dd`, `-df`, `-dp`, `-du`, or `-ds` parameters because these parameters are mutually exclusive.

The `-dq` parameter is not supported when the destination agent is a protocol bridge agent or a Connect:Direct bridge agent, or when the source specification is a queue.

#### **-dqp** (*persistent*)

Optional. Specifies whether messages written to the destination queue are persistent. The valid options are as follows:

- true** Writes persistent messages to the destination queue. This is the default value.
- false** Writes non-persistent messages to the destination queue.
- qdef** The persistence value is taken from the DefPersistence attribute of the destination queue.

You can only specify the `-dqp` parameter if you have also specified the `-dq` parameter.

#### **-qmp** (*boolean*)

Optional. Specifies whether the first message written to the destination queue by the transfer has WebSphere MQ message properties set. The valid options are as follows:

- true** Sets message properties on the first message created by the transfer.
- false** Does not set message properties on the first message created by the transfer. This is the default value.

You can only specify the `-qmp` parameter if you have also specified the `-dq` parameter. For more information, see “WebSphere MQ message properties set on messages written to destination queues” on page 762

#### **-qs** (*message\_size*)

Optional. Specifies whether to split the file into multiple fixed-length messages. All the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ `LAST_MSG_IN_GROUP` flag set. The size of the messages is specified by the value of *message\_size*. The format of *message\_size* is `<length><units>`, where *length* is a positive integer value and *units* is one of the following values:

- B** Bytes. The minimum value allowed is two times the maximum bytes-per-character value of the code page of the destination messages.
- K** This is equivalent to 1024 bytes.
- M** This is equivalent to 1048576 bytes.

If you specify the value `text` for the `-t` parameter and the file is in a double byte character set or multibyte character set, the file is split into messages on the closest character boundary to the specified message size.

You can only specify the `-qs` parameter if you have also specified the `-dq` parameter. You can only specify one of the `-qs`, `-dqdb`, and `-dqdt` parameters.

#### **-dqdb** (*hexadecimal\_delimiter*)

Optional. Specifies the hexadecimal delimiter to use when splitting a binary file into multiple messages. All the messages have the same WebSphere MQ group ID; the last message in the group

has the WebSphere MQ LAST\_MSG\_IN\_GROUP flag set. The format for specifying a hexadecimal byte as a delimiter is xNN, where N is a character in the range 0-9 or a-f. You can specify a sequence of hexadecimal bytes as a delimiter by specifying a comma-separated list of hexadecimal bytes, for example: x3e,x20,x20,xbf.

You can only specify the **-dqdb** parameter if you have also specified the **-dq** parameter and the transfer is in binary mode. You can only specify one of the **-qs**, **-dqdb**, and **-dqdt** parameters.

#### **-dqdt** (*pattern*)

Optional. Specifies the regular expression to use when splitting a text file into multiple messages. All the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ LAST\_MSG\_IN\_GROUP flag set. The format for specifying a regular expression as a delimiter is a regular expression enclosed in parentheses, (*regular\_expression*). The value of this parameter is evaluated as a Java regular expression. For more information, see "Regular expressions used by WebSphere MQ File Transfer Edition" on page 746.

By default, the length of the string that the regular expression can match is limited by the destination agent to five characters. You can change this behavior using the **maxDelimiterMatchLength** agent property. For more information, see "Advanced agent properties" on page 584.

You can only specify the **-dqdt** parameter if you have also specified the **-dq** parameter and the value text for the **-t** parameter. You can specify only one of the **-qs**, **-dqdb**, and **-dqdt** parameters.

#### **-dqdp**

Optional. Specifies the expected position of destination text and binary delimiters when splitting files. You can only specify the **-dqdp** parameter if you have also specified one of the **-dqdt** and **-dqdb** parameters.

Specify one of the following options:

**prefix** The delimiters are expected at the beginning of each line.

**postfix**  
The delimiters are expected at the end of each line. This is the default option.

#### **-qi**

Optional. Specifies whether to include the delimiter that is used to split the file into multiple messages in the messages. If **-qi** is specified, the delimiter is included at the end of the message that contains the file data preceding the delimiter. By default the delimiter is not included in the messages.

You can only specify the **-qi** parameter if you have also specified one of the **-dqdt** and **-dqdb** parameters.

#### **-de** (*destination\_file\_behavior*)

Optional. Specifies the action that is taken if a destination file exists on the destination system. The valid options are as follows:

**error** Reports an error and the file is not transferred. This is the default value.

**overwrite**  
Overwrites the existing destination file.

If you specify the **-de** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive.

#### **-sd** (*source\_file\_disposition*)

Optional. Specifies the action that is taken on a source file when that source file has successfully been transferred to its destination. The valid options are as follows:

**leave** The source files are left unchanged. This is the default value.

**delete** The source file is deleted from the source system after the source file is successfully transferred.

On z/OS, if the source is a tape data set and you specify the delete option, the tape is remounted to delete the data set. This behavior is because of the behavior of the system environment.

If the source is a queue and you specify the leave option, the command returns an error and a transfer is not requested.

If the source agent is a Connect:Direct bridge agent and you specify the delete option, the behavior is different to the usual source disposition behavior. One of the following cases occurs:

- If Connect:Direct uses a process generated by WebSphere MQ File Transfer Edition to move the file or data set from the source, specifying the delete option causes the transfer to fail. To specify that the source file is deleted, you must submit a user-defined Connect:Direct process. For more information, see “Submitting a user-defined Connect:Direct process from a file transfer request” on page 280.
- If Connect:Direct uses a user-defined process to move the file or data set from the source, this parameter is passed to the process through the %FTEFDISP intrinsic symbolic variable. The user-defined process determines whether the source is deleted. The result that the transfer returns depends on the result returned by the user-defined process.

If you specify the **-sd** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify source disposition behavior in the transfer definition file.

**-pr** (*transfer\_priority*)

Optional. Specifies the priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the priority level of the source agent.

This value matches the message priority value used by WebSphere MQ. See Priority in the WebSphere MQ V7.0.1 product information. Message traffic for file transfer data defaults to a priority level of 0, which allows your WebSphere MQ message traffic to take priority.

**-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to create the transfer template. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

**-r**

Optional. Recursively transfer files in subdirectories when *source\_specification* contains wildcard characters. When WebSphere MQ File Transfer Edition is presented with a wildcard character as a *source\_specification*, any directories that match the wildcard character are transferred only if you have specified the **-r** parameter. When *source\_specification* matches a subdirectory, all files in that directory and its subdirectories (including hidden files) are always transferred.

For more information about how WebSphere MQ File Transfer Edition handles wildcard characters, see Using wildcard characters

If you specify the **-r** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify recursive behavior in the transfer definition file.

**-t** Optional. Specifies the type of file transfer: binary mode or text mode.

**binary** The data in the file is transferred without any conversion. This is the default value.

**text** The code page and end-of-line characters of the file are converted. The exact conversions performed depend on the operating systems of the source agent and destination agent.

For example, a file transferred from Windows to z/OS has its code page converted from ASCII to EBCDIC. When a file is converted from ASCII to EBCDIC, the end-of-line characters are converted from ASCII carriage return (CR) and line feed (LF) character pairs to an EBCDIC new line (NL) character.

For more information about how z/OS data sets are transferred, see *Transferring files and data sets between z/OS and distributed systems* and *Transferring between data sets*.

If you specify the **-t** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify transfer mode behavior in the transfer definition file.

#### **-cs**

Optional. Specifies whether a checksum algorithm is run on the file transfer data to check the integrity of the transferred files. Specify one of the following options:

**MD5** Computes an MD5 checksum for the data. The resulting checksum for the source and destination files is written to the transfer log for validation purposes. By default, WebSphere MQ File Transfer Edition computes MD5 checksums for all file transfers.

**none** No MD5 checksum is computed for the file transfer data. The transfer log records that checksum was set to none and the value for the checksum is blank. For example:

```
<checksum method="none"></checksum>
```

If you use the none option, you might improve file transfer performance, depending on your environment. However, selecting this option means that there is no validation of the source or destination files.

If you specify the **-cs** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify checksum behavior in the transfer definition file.

#### **-tr**

Optional. Specifies a condition that must be true for this file transfer to take place. If the condition is not true, according to the source agent, the file transfer is discarded and no transfer takes place. Specify the following format:

```
condition,namelist
```

where *condition* is one of the following values:

##### **file=exist**

A minimum of one of the files in the namelist exists. That is, if *any* of the files in the namelist exists, the condition is true.

##### **file!=exist**

A minimum of one of the files in the namelist does not exist. That is, if *any* of the files in the namelist do not exist, the condition is true.

##### **filesize>=size**

A minimum of one of the files in the namelist exists and has a minimum size as specified by *size*. The value of *size* is an integer with an optional size unit of KB, MB, or GB. For example, `filesize">"=10KB`. If you do not specify a size unit, the size is assumed to be bytes. On all operating systems, you must enclose the greater than symbol (>) in double quotation marks when you specify the `filesize` option on the command line, as shown in this example.

And where *namelist* is a comma-separated list of file names located on the source system. Depending on your operating system, if you want to use path names or file names in a namelist that contain spaces, you might have to enclose the path names and file names in double quotation marks. You can specify more than one trigger condition by using the **-tr** parameter more than once. However in that case, every separate trigger condition must be true for the file transfer to take place.

**Note:** To continually monitor a resource for a trigger condition to be true, you are recommended to use resource monitoring. You can create a resource monitor using the `fteCreateMonitor` command.

In the following example, the file `file1.doc` is transferred from AGENT1 to AGENT2, on condition that either file `A.txt`, or file `B.txt`, or both files exist on AGENT1 *and* that either file `A.txt`, or file `B.txt`, or both files are equal to or larger than 1 GB:

```
fteCreateTemplate -tn JUPITER_AGENT_TRIGGER_TEST_TEMPLATE -sa AGENT1 -sm QM_JUPITER -da AGENT2 -dm QM_NEPTUNE
-tr file=exist,C:\export\A.txt,C:\export\B.txt
-tr filesize">"=1GB,C:\export\A.txt,C:\export\B.txt
-df C:\import\file1.doc C:\export\file1.doc
```

You can combine triggering parameters with scheduling parameters. If you do specify both types of parameters, the trigger conditions are applied to the file transfer created by the scheduling parameters.

#### **-tl**

Optional. Specifies whether trigger failures are logged. Specify one of the following options:

**yes** Log entries are created for failed triggered transfers. This is the default behavior even if you do not specify the **-tl** parameter.

**no** No log entries are created for failed triggered transfers.

#### **-md**

Optional. Specifies the user-defined metadata that is passed to the exit points of the agent. The **-md** parameter can take one or more key-value pairs separated by commas. Each name pair consists of `<name>=<value>`. You can use the **-md** parameter more than once in a command.

#### **-tb**

Optional. Specifies the time base you want to use for the scheduled file transfer. That is, whether you want to use a system time or Coordinated Universal Time (UTC). You must use this parameter with the **-ss** parameter only. Specify one of the following options:

**admin** The start and end times used for the scheduled transfer are based on the time and date of the system used by the administrator. This is the default value.

**source** The start and end times used for the scheduled transfer are based on the time and date of the system where the source agent is located.

**UTC** The start and end times used for the scheduled transfer are based on Coordinated Universal Time (UTC).

#### **-jn** (*job\_name*)

Optional. A user-defined job name identifier that is added to the log message when the transfer has started.

#### **-ss** (*schedule\_start\_time*)

Optional. Specifies the time and date that you want the scheduled transfer to take place. Use one of the following formats to specify the time and date. Specify the time using the 24-hour clock:

`yyyy-MM-ddThh:mm`

`hh:mm`

Scheduled file transfers start within a minute of the schedule start time, if there are no problems that might affect the transfer. For example, there might be issues with your network or agent that prevent the scheduled transfer starting.

#### **-oi**

Optional. Specifies the interval that the scheduled transfer occurs at. You must use this parameter with the **-ss** parameter only. Specify one of the following options:

**minutes**

**hours**

**days**

**weeks**

**months**

**years**

**-of** (*occurrence\_frequency*)

Optional. Specifies the frequency that the scheduled transfer occurs at. For example, every 5 weeks or every 2 months. You must specify this parameter with the **-oi** and **-ss** parameters only. If you do not specify this parameter, a default value of 1 is used.

**-oc** (*occurrence\_count*)

Optional. Specifies how many times you want this scheduled transfer to occur. After the occurrence count has been met, the scheduled transfer is deleted.

Specify this parameter with the **-oi** and **-ss** parameters only.

If you specify the **-oc** parameter, you cannot specify the **-es** parameter because these parameters are mutually exclusive.

You can omit both the **-oc** and **-es** parameters to create a transfer that repeats indefinitely.

**-es** (*schedule\_end\_time*)

Optional. The time and date that a repeating scheduled transfer ends.

You must specify this parameter with the **-oi** and **-ss** parameters only.

If you specify the **-es** parameter, you cannot specify the **-oc** parameter because these parameters are mutually exclusive.

You can omit both the **-es** and **-oc** parameters to create a transfer that repeats indefinitely.

Use one of the following formats to specify the end time and date. Specify the time using the 24-hour clock:

yyyy-MM-ddThh:mm

hh:mm

**-tn** (*template\_name*)

Required. The name of the template that you want to create. Use a descriptive string that allows you to select the correct template for transfers at a later date. There is no specific limit to the length of this string, but be aware that excessively long names might not be displayed properly in some user interfaces.

Do not create multiple templates with the same name.

**-sqgi**

Optional. Specifies that the messages are grouped by WebSphere MQ group ID. The first complete group is written to the destination file. If this parameter is not specified, all messages on the source queue are written to the destination file.

You can only specify the **-sqgi** parameter if you have also specified the **-sq** parameter.

**-sqdt** (*text\_delimiter*)

Optional. Specifies a sequence of text to insert as the delimiter when appending multiple messages to a text file. You can include Java escape sequences for String literals in the delimiter. For example, `-sqdt \u007d\n`.

You can only specify the **-sqdt** parameter if you have also specified the **-sq** parameter and the value text for the **-t** parameter.

**-sqdb** (*hexadecimal\_delimiter*)

Optional. Specifies one or more byte values to insert as the delimiter when appending multiple messages to a binary file. Each value must be specified as two hexadecimal digits in the range 00-FF, prefixed by x. Multiple bytes must be comma-separated. For example, `-sqdb x08,xA4`.

You can only specify the `-sqdb` parameter if you have also specified the `-sq` parameter. You cannot specify the `-sqdb` parameter if you have also specified the value text for the `-t` parameter.

#### **-sqdp**

Optional. Specifies the position of insertion of source text and binary delimiters. You can only specify the `-sqdp` parameter if you have also specified one of the `-sqdt` and `-sqdb` parameters.

Specify one of the following options:

**prefix** The delimiters are inserted at the start of each message

#### **postfix**

The delimiters are inserted at the end of each message. This is the default option.

#### **-sqwt** (*wait\_time*)

Optional. Specifies the time, in seconds, to wait for one of the following conditions to be met:

- For a new message to be put on the queue
- If the `-sqgi` parameter was specified, for a complete group to be put on the queue

If neither of these conditions are met within the time specified by *wait\_time*, the source agent stops reading from the queue and completes the transfer. If the `-sqwt` parameter is not specified, the source agent stops reading from the source queue immediately if the source queue is empty or, in the case where the `-sqgi` parameter is specified, if there is no complete group on the queue.

You can only specify the `-sqwt` parameter if you have also specified the `-sq` parameter.

#### **-sq**

Optional. Specifies that the source of a transfer is a queue.

#### *source\_specification*

Required if you have specified one of the `-df`, `-dd`, `-dp`, `-dp`, or `-ds` parameters. If you specify the `-td` parameter, do not specify *source\_specification*.

- If you have not specified the `-sq` parameter, *source\_specification* is one or more file specifications that determine the source, or sources, for the file transfer. File specifications are space delimited. File specifications can take one of five forms and can include wildcard characters. For more information about wildcard characters in WMQFTE, see "Using wildcard characters" on page 743. You can escape asterisks that are part of the file specification by using two asterisk characters (\*\*) in the file specification.

To transfer files containing spaces in their file names, place double quotation marks around the file names that contain spaces. For example to transfer file a b.txt to file c d.txt specify the following text as part of the **fteCreateTemplate** command:

```
-df "c d.txt" "a b.txt"
```

Each file specification must be in one of the following formats:

#### **File names**

The name of a file, expressed using the appropriate notation for the system where the source agent is running. When a file name is specified as a source file specification, the contents of the file are copied.

#### **Directories**

The name of a directory, expressed using the appropriate notation for the system where the source agent is running. When a directory is specified as a source file specification, the contents of the directory are copied. More precisely, all files in the directory and in all its subdirectories, including hidden files, are copied.

For example, to copy the contents of DIR1 to DIR2 only, specify DIR1/\* DIR2

### Sequential data set

(z/OS only). The name of a sequential data set or partitioned data set member. Denote data sets by preceding the data set name with two forward slash characters (//).

### Partitioned data set

(z/OS only). The name of a partitioned data set. Denote data set names by preceding the data set name with two forward slash characters (//).

### File name or directory at a Connect:Direct node

(Connect:Direct bridge agent only). The name of a Connect:Direct node, a colon character (:), and a file or directory path on the system hosting the Connect:Direct node. For example, *connect\_direct\_node\_name:file\_path*.

If the source agent is a Connect:Direct bridge agent, it will only accept source specifications in this form.

**Note:** Wildcard characters are not supported in file paths when the source agent is a Connect:Direct bridge agent.

- If you have specified the **-sq** parameter, *source\_specification* is the name of a local queue on the source agent queue manager. You can specify only one source queue. The source queue is specified in the format:

QUEUE\_NAME

The queue manager name is not included in the source queue specification, because the queue manager must be the same as the source agent queue manager.

**-? or -h**

Optional. Displays command syntax.

## Examples

In this example, a transfer template called payroll accounts monthly report template is created. When submitted, this template transfers any file with the extension .xls from the agent PAYROLL1 to the agent ACCOUNTS in the directories specified:

```
fteCreateTemplate -tn "payroll accounts monthly report template" -sa PAYROLL -sm QM_PAYROLL1 -da ACCOUNTS -dm QM_ACCOUNTS -
```

In this example, a transfer template called jupiter\_neptune\_sched\_template is created. When submitted, the template transfers the file originalfile.txt from the system where QM\_JUPITER is located to the system where QM\_NEPTUNE is located. The file transfer is scheduled to take place at 09:00 based on the system time of the system where the source agent is located and occurs every two hours four times:

```
fteCreateTemplate -tn jupiter_neptune_sched_template -sa AGENT1 -sm QM_JUPITER -da AGENT2 -dm QM_NEPTUNE  
-tb source -ss 09:00 -oi hours -of 2 -oc 4  
-df C:\import\transferredfile.txt C:\export\originalfile.txt
```

In this example, a transfer template called jupiter neptune trigger template is created. When the template is submitted, the file originalfile.txt is transferred from AGENT1 to AGENT2, on condition that the file A.txt exists on AGENT1:

```
fteCreateTemplate -tn "jupiter neptune trigger template" -sa AGENT1 -sm QM_JUPITER -da AGENT2 -dm QM_NEPTUNE  
-tr file=exist,C:\export\A.txt -df C:\import\transferredfile.txt C:\export\originalfile.txt
```

In this example, a template called ascii\_ebcdic\_template is created. When the template is submitted, the file originalfile.txt is transferred from the system where AGENT1 is located to a data set // 'USERID.TRANS.FILE.TXT' on the system where AGENT2 is located. Text mode has been selected to convert data from ASCII to EBCDIC.

```
fteCreateTemplate -tn ascii_ebcidic_template -t text -sa AGENT1 -da AGENT2
-ds "//TRANS.FILE.TXT;RECFM(V,B);BLKSIZE(6144);LRECL(1028);
SPACE(5,1)" C:\export\originalfile.txt
```

In this example, a template called `ebcidic_ascii_template` is created. When the template is submitted, a member of a fully qualified data set on the system where `AGENT1` is located is transferred to a file on the system where `AGENT2` is located. Text mode has been selected to convert the file from EBCDIC to ASCII.

```
fteCreateTemplate -tn ebcidic_ascii_template -t text -sa AGENT1 -da AGENT2 -df /tmp/IEEUJV.txt "'/SYS1.SAMPLIB(IEEUJV)'
```

## Return codes

Return code	Description
0	Command completed successfully.
1	Command ended unsuccessfully.

### Related tasks:

“Working with transfer templates” on page 222

You can use file transfer templates to store common file transfer settings for repeated or complex transfers. Either create a transfer template from the command line by using the **fteCreateTemplate** command or use the WebSphere MQ Explorer to create a transfer template by using the **Create New Template for Managed File Transfer** wizard, or save a template while you are creating a file transfer by selecting the **Save transfer settings as a template** check box. The **Transfer Templates** window displays all of the transfer templates that you have created in your WebSphere MQ File Transfer Edition network.

“Creating a file transfer template using the WebSphere MQ Explorer” on page 223

You can create a file transfer template from the WebSphere MQ Explorer or from the command line. You can then use that template to create new file transfers using the template details or submit the template to start the file transfer.

### Related reference:

“fteListTemplates (list WebSphere MQ File Transfer Edition templates)” on page 545

Use the **fteListTemplates** command to list the available WebSphere MQ File Transfer Edition transfer templates on a coordination queue manager.

“fteDeleteTemplates (delete WebSphere MQ File Transfer Edition templates)” on page 537

Use the **fteDeleteTemplates** command to delete an existing WebSphere MQ File Transfer Edition template from a coordination queue manager.

## fteCreateTransfer (create new file transfer)

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

### fteCreateTransfer Purpose

Use the **fteCreateTransfer** command to create and then start a new file transfer from a WebSphere MQ File Transfer Edition agent. For guidance about how to transfer files, including text files, data sets, and generation data groups (GDGs), see “Guidelines for transferring files” on page 721. This topic also contains information about transferring files between different operating systems such as IBM i and z/OS.

You can run the **fteCreateTransfer** command from any system that can connect to the WebSphere MQ network and then route to the source agent queue manager. Specifically for the command to run, you must have installed a WebSphere MQ File Transfer Edition component (either Server, Client, or Remote

Tools and Documentation) on this system and you must have configured the WebSphere MQ File Transfer Edition component on this system to communicate with the WebSphere MQ network.

This command uses a properties file called `command.properties` to connect to the WebSphere MQ network. If the `command.properties` file does not contain property information, a bindings mode connection is made to the default queue manager on the local system. If the `command.properties` file does not exist, an error is generated. For more information, see “The `command.properties` file” on page 580.

You can specify multiple source files for a file transfer but they must originate from a single source agent and terminate at a single destination agent. Transferring a single source file to multiple destination files on the same agent or multiple different agents is not supported within a single transfer. Ant scripting can be used to send the same source file to multiple destinations at one or more agents. For more information, see “Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352.

## Special characters

Take care when you use parameters that contain special characters so that you avoid the command shell interpreting the characters in a way you do not expect. For example, fully qualified data set names that contain single quotation marks and source specifications that contain asterisk characters might be interpreted by the command shell rather than being passed through in the transfer request. To avoid characters being interpreted by the command shell, enclose the entire parameter in double quotation marks as shown in the final two examples “Examples” on page 526, or escape the special characters by using the escape sequence of the command shell.

## Relative paths

The **`fteCreateTransfer`** command supports the use of relative file paths. On distributed systems and z/OS UNIX System Services, by default paths are considered to be relative to the home directory of the user that the agent is running as. To change the directory that path names are evaluated relative to, set the `transferRoot` property in the `agent.properties` file. This file is located in the `configuration_directory/coordination_qmgr/agents/agent_name` directory. Add the following line to the file:

```
transferRoot=directory_name
```

You must escape Windows paths or write them in UNIX format. For example, specify `C:\TransferRoot` as `C:\\TransferRoot` or `C:/TransferRoot`

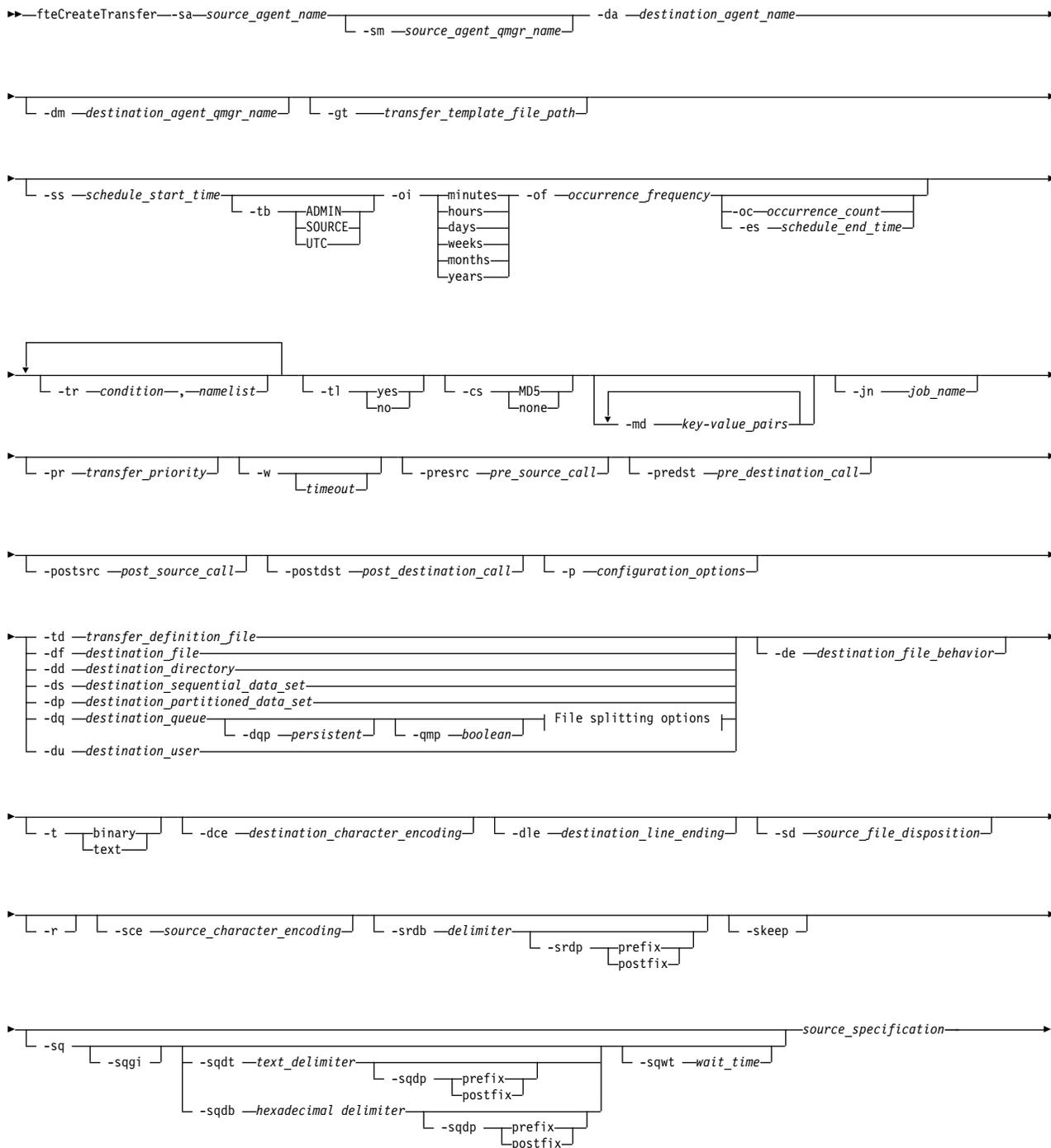
On z/OS, by default the user name that the agent is currently running under is added as a high-level qualifier prefix to data set specifications that have not been fully qualified. For example: `//ABC.DEF`. To change the value that is added as a prefix to the data set name, set the `transferRootHLQ` property in the `agent.properties` file. This file is located in the `configuration_directory/coordination_qmgr/agents/agent_name` directory. Add the following line to the file:

```
transferRootHLQ=prepend_value
```

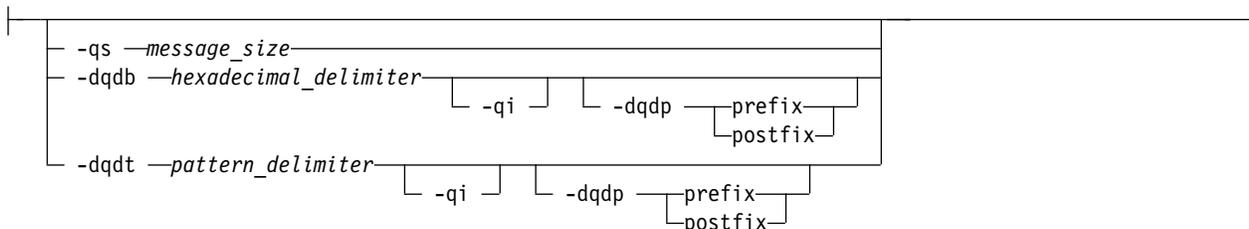
However, note that for transfers involving a Connect:Direct node on a z/OS system, the data set specification is interpreted as a fully qualified name. No high-level qualifier is added to the data set name.

## Syntax

## fteCreateTransfer



### File splitting options:



## Parameters for agent specification

### **-sa** *source\_agent\_name*

Required. The name of the agent that the source files are transferred from.

If you specify a protocol bridge agent as your source agent, you cannot then specify a data set as the source file specification.

If you specify the **-td** parameter and the transfer definition file contains the source agent that you want to use for the transfer, do not specify the **-sa** parameter.

### **-sm** *source\_agent\_qmgr\_name*

Optional. The name of the queue manager that the source agent is connected to.

If you do not specify the **-sm** parameter, the queue manager used is determined by the set of configuration options in use, based on the source agent name. If the `agent.properties` file for the source agent cannot be found, the file transfer fails.

### **-da** *destination\_agent\_name*

Required. The name of the agent that the files are transferred to.

If you specify the **-td** parameter and the transfer definition file contains the destination agent that you want to use for the transfer, do not specify the **-da** parameter.

### **-dm** *destination\_agent\_qmgr\_name*

Optional. The name of the queue manager that the destination agent is connected to.

If you do not specify the **-dm** parameter, the queue manager used is determined by the set of configuration options in use, based on the destination agent name. If the `agent.properties` file for the destination agent cannot be found, the file transfer fails.

## Parameters for generating transfer templates

### **-gt** *transfer\_template\_file\_path*

Optional. Generates a transfer template XML message and writes this message to a file. If you specify this parameter, no transfer request is sent to WebSphere MQ File Transfer Edition. Instead the contents of the transfer request message are written to the named XML document. You can then use this XML document to define the task for resource monitoring. See `fteCreateMonitor` command for information about how to create a resource monitor. If you do not specify this parameter, the default behavior takes place and an actual transfer request is carried out.

You must provide the full path and name of an XML output file as input for this parameter, for example `C:\templates\transfer_reports.xml`

On z/OS, you must store the transfer template document in a UNIX file on z/OS UNIX System Services. You cannot store transfer template documents in z/OS sequential files or PDS members.

On IBM i, you must store the transfer template document in the integrated file system.

The transfer template XML message that you create by using the **-gt** parameter is not the same as the transfer you create by using the **fteCreateTemplate** command, which means you cannot use the two different types of template interchangeably.

## Parameters for scheduling transfers

### **-ss** *schedule\_start\_time*

Optional. Specifies the time and date that you want the scheduled transfer to take place. Use one of the following formats to specify the time and date. Specify the time by using the 24-hour clock:

yyyy-MM-ddThh:mm

hh:mm

Scheduled file transfers start within a minute of the schedule start time, if there are no problems that might affect the transfer. For example, there might be issues with your network or agent that prevent the scheduled transfer starting.

### **-tb**

Optional. Specifies the time base you want to use for the scheduled file transfer. That is, whether you want to use a system time or Coordinated Universal Time (UTC). You must use this parameter with the **-ss** parameter only. Specify one of the following options:

**admin** The start and end times used for the scheduled transfer are based on the time and date of the system used by the local administrator. This is the default value.

**source** The start and end times used for the scheduled transfer are based on the time and date of the system where the source agent is located.

**UTC** The start and end times used for the scheduled transfer are based on Coordinated Universal Time (UTC).

### **-oi**

Optional. Specifies the interval that the scheduled transfer occurs at. You must use this parameter with the **-ss** parameter only. Specify one of the following options:

**minutes**

**hours**

**days**

**weeks**

**months**

**years**

### **-of** *occurrence\_frequency*

Optional. Specifies the frequency that the scheduled transfer occurs at. For example, every 5 weeks or every 2 months. You must specify this parameter with the **-oi** and **-ss** parameters only. If you do not specify this parameter, a default value of 1 is used.

### **-oc** *occurrence\_count*

Optional. Specifies how many times you want this scheduled transfer to occur. After the occurrence count has been met, the scheduled transfer is deleted.

Specify this parameter with the **-oi** and **-ss** parameters only.

If you specify the **-oc** parameter, you cannot specify the **-es** parameter because these parameters are mutually exclusive.

You can omit both the **-oc** and **-es** parameters to create a transfer that repeats indefinitely.

### **-es** *schedule\_end\_time*

Optional. The time and date that a repeating scheduled transfer ends.

You must specify this parameter with the **-oi** and **-ss** parameters only.

If you specify the **-es** parameter, you cannot specify the **-oc** parameter because these parameters are mutually exclusive.

You can omit both the **-es** and **-oc** parameters to create a transfer that repeats indefinitely.

Use one of the following formats to specify the end time and date. Specify the time by using the 24-hour clock:

yyyy-MM-ddThh:mm

hh:mm

## Parameters for triggering transfers

### **-tr**

Optional. Specifies a condition that must be true for this file transfer to take place. If the condition is not true, according to the source agent, the file transfer is discarded and no transfer takes place. Specify the following format:

*condition,namelist*

where *condition* is one of the following values:

#### **file=exist**

A minimum of one of the files in the namelist exists. That is, if *any* of the files in the namelist exists, the condition is true.

#### **file!=exist**

A minimum of one of the files in the namelist does not exist. That is, if *any* of the files in the namelist do not exist, the condition is true.

#### **filesize>=size**

A minimum of one of the files in the namelist exists and has a minimum size as specified by *size*. *size* is an integer with an optional size unit of KB, MB, or GB. For example, `filesize">"=10KB`. If you do not specify a size unit, the size is assumed to be bytes. On all operating systems, you must enclose the greater than symbol (>) in double quotation marks when you specify the `filesize` option on the command line, as shown in this example.

And where *namelist* is a comma-separated list of file names located on the same system as the source agent. Depending on your operating system, if you want to use path names or file names in a namelist that contain spaces, you might have to enclose the path names and file names in double quotation marks. You can specify more than one trigger condition by using the **-tr** parameter more than once. However in that case, every separate trigger condition must be true for the file transfer to take place.

**Note:** To continually monitor a resource for a trigger condition to be true, you are strongly recommended to use resource monitoring. You can create a resource monitor by using the `ftCreateMonitor` command.

In the following example, the file `file1.doc` is transferred from AGENT1 to AGENT2, on condition that either file `A.txt`, or file `B.txt`, or both files exist on AGENT1 *and* that either file `A.txt`, or file `B.txt`, or both files are equal to or larger than 1 GB:

```
ftCreateTransfer -sa AGENT1 -sm QM_JUPITER -da AGENT2 -dm QM_NEPTUNE
-tr file=exist,C:\export\A.txt,C:\export\B.txt
-tr filesize">"=1GB,C:\export\A.txt,C:\export\B.txt
-df C:\import\file1.doc C:\export\file1.doc
```

You can combine triggering parameters with scheduling parameters. If you do specify both types of parameters, the trigger conditions are applied to the file transfer created by the scheduling parameters.

The **-tr** parameter is not supported on protocol bridge agents.

### **-tl**

Optional. Specifies whether trigger failures are written to the transfer log. Specify one of the following options:

- yes** Transfer log entries are created for failed triggered transfers. This is the default behavior even if you do not specify the **-tl** parameter.
- no** No transfer log entries are created for failed triggered transfers.

## Parameters for specifying transfer options

### **-jn** *job\_name*

Optional. A user-defined job name identifier that is added to the transfer log message when the transfer has started.

### **-md**

Optional. Specifies the user-defined metadata that is passed to the exit points run by the agent. The **-md** parameter can take one or more key-value pairs separated by commas. Each name pair consists of *key=value*. You can use the **-md** parameter more than once in a command.

When the agent property `enableUserMetadataOptions` is set to a value of `true`, certain user-defined metadata keys provide additional options to the transfer. For more information about the user-defined metadata keys that are currently supported, see “Supported user-defined metadata keys” on page 620. When the `enableUserMetadataOptions` property is set to `true`, key names starting with `com.ibm.wmqfte.` are not supported for user-defined use.

### **-cs**

Optional. Specifies whether a checksum algorithm is run on the file transfer data to check the integrity of the transferred files. Specify one of the following options:

**MD5** Computes an MD5 checksum for the data. The resulting checksum for the source and destination files is written to the transfer log for validation purposes. By default, WebSphere MQ File Transfer Edition computes MD5 checksums for all file transfers.

**none** No MD5 checksum is computed for the file transfer data. The transfer log records that checksum was set to none and the value for the checksum is blank. For example:

```
<checksum method="none"></checksum>
```

If you use the `none` option, you might improve file transfer performance, depending on your environment. However, selecting this option means that there is no validation of the source or destination files.

If you specify the **-cs** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify checksum behavior in the transfer definition file.

### **-pr** *transfer\_priority*

Optional. Specifies the priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is the priority level of the source agent.

This value matches the message priority value of WebSphere MQ, see `Priority` for more information. Message traffic for file transfer data defaults to a priority level of 0, which allows your WebSphere MQ message traffic to take priority.

### **-qmp** *boolean*

Optional. Specifies whether the first message written to the destination queue by the transfer has WebSphere MQ message properties set. The valid options are as follows:

**true** Sets message properties on the first message created by the transfer.

**false** Does not set message properties on the first message created by the transfer. This is the default value.

You can specify the **-qmp** parameter only if you have also specified the **-dq** parameter. For more information, see “WebSphere MQ message properties set on messages written to destination queues” on page 762

### **-qs** *message\_size*

Optional. Specifies whether to split the file into multiple fixed-length messages. All the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ `LAST_MSG_IN_GROUP` flag set. The size of the messages is specified by the value of *message\_size*. The format of *message\_size* is `<length><units>`, where *length* is a positive integer value and *units* is one of the following values:

- B** Bytes. The minimum value allowed is two times the maximum bytes-per-character value of the code page of the destination messages.
- K** This is equivalent to 1024 bytes.
- M** This is equivalent to 1048576 bytes.

If the file is transferred in text mode, and is in a double-byte character set or multibyte character set, the file is split into messages on the closest character boundary to the specified message size.

You can specify the **-qs** parameter only if you have also specified the **-dq** parameter. You can specify only one of the **-qs**, **-dqdb**, and **-dqdt** parameters.

### **-qi**

Optional. Specifies whether to include the delimiter that is used to split the file into multiple messages in the messages. The delimiter is included at the beginning or at the end of the message, depending on the **-dqdp** parameter (which specifies prefix or postfix). By default the delimiter is not included in the messages.

You can specify the **-qi** parameter only if you have also specified one of the **-dqdt** and **-dqdb** parameters.

### **-p** *configuration\_options*

Optional. This parameter determines the set of configuration options that is used to create the file transfer. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

### **-w** *timeout*

Optional. Specifying the **-w** parameter causes the **fteCreateTransfer** command to wait for the requested transfer to complete before returning. If you do not specify this parameter, the **fteCreateTransfer** command waits a maximum of five seconds to receive an acknowledgment from the source agent for the transfer that the agent has received the transfer request. If no acknowledgment is received during the five-second wait, the **fteCreateTransfer** command returns the following warning message:

```
BFGCL0253W: No acknowledgment to command from agent within timeout.
```

The *timeout* argument is optional. If you specify *timeout*, the **fteCreateTransfer** command waits for up to *timeout* seconds for the agent to respond. If the agent does not respond before the time limit is reached, the command produces a warning and ends with a return code of 2. If you do not specify a *timeout* value, or you specify a *timeout* value of -1, then the command waits until the agent responds. The *timeout* argument is available if you have enabled the new function included with Version 7.0.4.1.

## Parameters for invoking programs

For more information about how you can start a program from WebSphere MQ File Transfer Edition, see “Specifying programs to run” on page 291. For examples of specifying a program to invoke using the parameters described in this section, see “Examples of using `fteCreateTransfer` to start programs” on page 938.

**-presrc** *pre\_source\_call*

Optional. Specifies a program to invoke at the source agent before the transfer starts. Use the following format for *pre\_source\_call*:

*[type:]commandspec* [, [*retrycount*] [, [*retrywait*] [, *successrc*]]]

In this syntax, the variables are:

**type**

Optional. Valid values are **executable**, **antscript**, and **jcl**. The default value is **executable**.

**commandspec**

Required. The command specification. Use one of the following formats:

- Type **executable**: *command* [(*arg1*, *arg2*, ...)]
- Type **antscript**: *command* [(*name1=var1* | *target1*, *name2=var2* | *target2*, ...)]
- Type **jcl**: *command*

where:

**command**

Required. The name of the program to call.

Arguments in square brackets are optional and syntax depends on command type. Parentheses, commas (,) and backslash characters (\) that appear within the command or parameters must be escaped with a back slash character.

**retrycount**

Optional. The number of times to retry calling the program if the program does not return a successful return code. Default value is 0.

**retrywait**

Optional. The time to wait, in seconds, before trying the program invocation again. Default value is 0 (no wait between retries).

**successrc**

Optional. Expression used to determine when the program invocation successfully runs. This expression can be composed of one or more expressions. Combine these expressions with a vertical bar character (|) to represent Boolean OR, or an ampersand (&) character to represent Boolean AND. Each expression is of the following form:

[>|<|!] *value*

where

- > Optional. A greater-than test of the *value*.
- < Optional. A less-than test of the *value*.
- ! Optional. A not-equal-to test of the *value*.

**value**

Required. A valid integer.

**-predst** *pre\_destination\_call*

Optional. Specifies a program to invoke at the destination agent before the transfer starts. *pre\_destination\_call* has the same format as *pre\_source\_call*.

**-postsrc** *post\_source\_call*

Optional. Specifies a program to invoke at the source agent after the transfer has completed. *post\_source\_call* has the same format as *pre\_source\_call*.

**-postdst** *post\_destination\_call*

Optional. Specifies a program to invoke at the destination agent after the transfer has completed. *post\_destination\_call* has the same format as *pre\_source\_call*.

## Parameters for specifying the destination

One of the **-td**, **-df**, **-dd**, **-ds**, **-dq**, **-du**, and **-dp** parameters is required. You cannot specify more than one of these parameters in a transfer request; they are mutually exclusive.

**-td** *transfer\_definition\_file*

Optional. The name of the XML document that defines one or more source and destination file specifications for the transfer. Alternatively, the name of the XML document that contains a managed transfer request (which might have been generated by the **-gt** parameter). If you specify the **-td** parameter and also specify any other parameters on the command line, these other parameters override the corresponding value from the transfer definition file.

The **fteCreateTransfer** command locates the transfer definition file in relation to your current directory. If you cannot use relative path notation to specify the location of the transfer definition file, use the fully qualified path and file name of the transfer definition file instead.

On z/OS, you must store the transfer definition file in a UNIX file on z/OS UNIX System Services. You cannot store transfer definition files in z/OS sequential files or PDS members.

On IBM i, you must store the transfer definition file in the integrated file system.

For more information, see Using transfer definition files.

**-df** *destination\_file*

Optional. The name of the destination file.

If the destination agent is a Connect:Direct bridge agent, the destination file is specified in the format *connect\_direct\_node\_name:file\_path*. The Connect:Direct bridge agent accepts only file paths specified in this format. If the destination agent is a Connect:Direct bridge agent and the destination is a PDS member, you must also specify the **-de** parameter with a value of overwrite.

If you have enabled the Version 7.0.4.1 function for the destination agent, note the following information:

- If the destination agent is a protocol bridge agent and you want to specify an endpoint for a file, use the following format:

*protocol\_server:file\_path*

where *protocol\_server* is the name of the protocol server (which is optional) and where *file\_path* is the path to the file on the protocol server system. If you do not specify a protocol server, the default protocol server is used.

- If you want to invoke any of the WebSphere MQ File Transfer Edition transfer I/O user exits that you have defined against the destination agent, you can use the **-df** parameter in a transfer.
- When the destination agent is on z/OS, if the file specified starts with //, it is assumed to be a partitioned z/OS data set.

**-dd** *destination\_directory*

Optional. The name of the directory the file is transferred to. Specify a valid directory name on the system where the destination agent is running.

If the destination agent is a Connect:Direct bridge agent, the destination directory is specified in the format *connect\_direct\_node\_name:directory\_path*. If the destination agent is a Connect:Direct bridge agent and the destination is a PDS, you must also specify the **-de** parameter with a value of overwrite.

If you have enabled the Version 7.0.4.1 function for the destination agent, note the following information:

- If the destination agent is a protocol bridge agent and you want to specify a directory at a particular endpoint, use the following format:

```
protocol_server:directory_path
```

where *protocol\_server* is the name of the protocol server (which is optional) and where *directory\_path* is the path to the directory on the protocol server system. If you do not specify a protocol server, the default protocol server is used.

- If you want to invoke any of the WebSphere MQ File Transfer Edition transfer I/O user exits that you have defined against the destination agent, you can use the **-dd** parameter in a transfer.
- When the destination agent is on z/OS, if the file specified starts with //, it is assumed to be a z/OS partitioned data set.

#### **-ds** *destination\_sequential\_data\_set*

z/OS only. Optional. The name of the sequential data set or PDS member that files are transferred into. Specify a sequential data set name or a partitioned data set member. For information about transferring data sets, see “Guidelines for transferring files” on page 721.

The syntax for the data set name is as follows:

```
//data_set_name{;attribute(value);..;attribute(value)}
```

or

```
//pds_data_set_name(member_name){;attribute(value);..;attribute(value)}
```

That is, a data set name specifier prefixed with // and optionally followed by a number of attributes separated by semicolons.

#### **For example:**

```
//'TEST.FILE.NAME';DSNTYPE(PDS);RECFM(F,B);BLKSIZE(800);LRECL(80);CYL;SPACE(2,2)
```

If the data set is located at a Connect:Direct node, you must prefix the data set name with the node name. For example:

```
CD_NODE1:/'OBJECT.LIB';RECFM(F,B);BLKSIZE(800);LRECL(80)
```

If the destination agent is a Connect:Direct bridge agent and the destination is a PDS member, you must also specify the **-de** parameter with a value of overwrite. For more information about data set transfers to or from Connect:Direct nodes, see “Transferring data sets to and from Connect:Direct nodes” on page 726.

For transfers that only involve WebSphere MQ File Transfer Edition agents, if the data set name part is enclosed by single quotation mark characters, it specifies a fully qualified data set name. If the data set name is not enclosed by single quotation mark characters, the system adds the default high-level qualifier for the destination agent (either the value for the transferRootHLQ agent property or the user ID that the agent runs under, if you have not set transferRootHLQ).

**Note:** However, note that for transfers involving a Connect:Direct node on a z/OS system, the data set specification is interpreted as a fully qualified name. No high-level qualifier is added to the data set name. This is the case even if the data set name is enclosed by single quotation mark characters.

When you transfer a file or data set to tape, any existing data set that is already on the tape is replaced. The attributes for the new data set are set from attributes passed in the transfer definition. If no attributes are specified, attributes are set to the same as the source data set or to the default values when the source is a file. The attributes of an existing tape data set are ignored.

The data set attributes are used either to create a data set or to ensure that an existing data set is compatible. The specification of data set attributes is in a form suitable for BPXWDYN (see Requesting dynamic allocation for more information). When the agent is to create a destination data set, the following BPXWDYN attributes are automatically specified: DSN(*data\_set\_name*) NEW CATALOG MSG(*numeric\_file\_descriptor*). The value of *numeric\_file\_descriptor* is generated by

WebSphere MQ File Transfer Edition. For a data set to data set transfer, the attributes of RECFM, LRECL, and BLKSIZE from the source are selected for a new destination data set. The SPACE setting for a new destination data set is not set by WebSphere MQ File Transfer Edition and system defaults are used. Therefore, you are recommended to specify the SPACE attribute when a new data set is to be created. You can use the **bpxwdynAllocAdditionalProperties** property in the agent.properties file to set BPXWDYN options that apply to all transfers. For more information, see “The agent.properties file” on page 583.

Some BPXWDYN options must not be specified when using the **fteCreateTemplate** command, the **fteCreateTransfer** command or the **bpxwdynAllocAdditionalProperties** property in the agent.properties file. For a list of these properties, see “BPXWDYN properties you must not use with WebSphere MQ File Transfer Edition” on page 733.

The **-ds** parameter is not supported when the destination agent is a protocol bridge agent.

If you want to invoke any of the WebSphere MQ File Transfer Edition transfer I/O user exits that you have defined against an agent, do not specify the **-ds** parameter in a transfer. Using the **-ds** parameter prevents the transfer I/O user exits from being invoked for the destination and means that the standard WebSphere MQ File Transfer Edition I/O is used instead.

**-dp** *destination\_partitioned\_data\_set*

z/OS only. Optional. The name of the destination PDS that files are transferred into. Specify a partitioned data set name. If a PDS is created as a result of the transfer, this PDS is created as a PDSE by default. You can override the default by specifying DSNTYPE=PDS.

The syntax for the PDS data set name is as follows:

```
//pds_data_set_name{;attribute;..;attribute}
```

The syntax for the data set name is the same as described for the **-ds** (*destination\_sequential\_data\_set*) parameter. All the syntax details for specifying data sets that are located on Connect:Direct nodes also apply to the **-dp** parameter. If the destination agent is a Connect:Direct bridge agent, you must also specify the **-de** parameter with a value of overwrite.

The **-dp** parameter is not supported when the destination agent is a protocol bridge agent.

If you want to invoke any of the WebSphere MQ File Transfer Edition transfer I/O user exits that you have defined against an agent, do not specify the **-dp** parameter in a transfer. Using the **-dp** parameter prevents the transfer I/O user exits from being invoked for the destination and means that the standard WebSphere MQ File Transfer Edition I/O is used instead.

**-du** *destination\_user*

Optional. The name of the user whose destination file space the files are transferred into. For more information about file spaces, see “File spaces” on page 334.

The **-du** parameter is not supported when the destination agent is a protocol bridge agent or a Connect:Direct bridge agent.

If you want to invoke any of the WebSphere MQ File Transfer Edition transfer I/O user exits that you have defined against an agent, do not specify the **-du** parameter in a transfer. Using the **-du** parameter prevents the transfer I/O user exits from being invoked for the destination and means that the standard WebSphere MQ File Transfer Edition I/O is used instead.

**-dq** *destination\_queue*

Optional. The name of a destination queue that files are transferred onto. You can optionally include a queue manager name in this specification, by using the format QUEUE@QUEUEMANAGER. If you do not specify a queue manager name the destination agent queue manager name is used. You must specify a valid queue name that exists on the queue manager.

The **-dq** parameter is not supported when the destination agent is a protocol bridge agent or a Connect:Direct bridge agent, or when the source specification is a queue.

If you want to invoke any of the WebSphere MQ File Transfer Edition transfer I/O user exits that you have defined against an agent, do not specify the **-dq** parameter in a transfer. Using the **-dq** parameter prevents the transfer I/O user exits from being invoked for the destination and means that the standard WebSphere MQ File Transfer Edition I/O is used instead.

#### **-dqp** *persistent*

Optional. Specifies whether messages written to the destination queue are persistent. The valid options are as follows:

- true** Writes persistent messages to the destination queue. This is the default value.
- false** Writes non-persistent messages to the destination queue.
- qdef** The persistence value is taken from the DefPersistence attribute of the destination queue.

You can specify the **-dqp** parameter only if you have also specified the **-dq** parameter.

#### **-dqdb** *hexadecimal\_delimiter*

Optional. Specifies the hexadecimal delimiter to use when splitting a binary file into multiple messages. All the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ LAST\_MSG\_IN\_GROUP flag set. The format for specifying a hexadecimal byte as a delimiter is xNN, where N is a character in the range 0-9 or a-f. You can specify a sequence of hexadecimal bytes as a delimiter by specifying a comma-separated list of hexadecimal bytes, for example: x3e,x20,x20,xbf.

You can specify the **-dqdb** parameter only if you have also specified the **-dq** parameter and the transfer is in binary mode. You can specify only one of the **-qs**, **-dqdb**, and **-dqdt** parameters.

#### **-dqdt** *pattern*

Optional. Specifies the Java regular expression to use when splitting a text file into multiple messages. All the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ LAST\_MSG\_IN\_GROUP flag set. The format for specifying a regular expression as a delimiter is a regular expression enclosed in parentheses, (*regular\_expression*), or enclosed in double quotation marks, "*regular\_expression*". For more information, see "Regular expressions used by WebSphere MQ File Transfer Edition" on page 746.

By default, the length of the string that the regular expression can match is limited by the destination agent to five characters. You can change this behavior by editing the **maxDelimiterMatchLength** agent property. For more information, see "Advanced agent properties" on page 584.

You can specify the **-dqdt** parameter only if you have also specified the **-dq** parameter and the value text for the **-t** parameter. You can specify only one of the **-qs**, **-dqdb**, and **-dqdt** parameters..

#### **-dqdp** *position*

Optional. Specifies the expected position of destination text and binary delimiters when splitting files. You can specify the **-dqdp** parameter only if you have also specified one of the **-dqdt** and **-dqdb** parameters.

Specify one of the following options:

- prefix** The delimiters are expected at the beginning of each line.
- postfix**  
The delimiters are expected at the end of each line. This is the default option.

#### **-de** *destination\_file\_behavior*

Optional. Specifies the action that is taken if a destination file exists on the destination system. The valid options are as follows:

- error** Reports an error and the file is not transferred. This is the default value.

**overwrite**

Overwrites the existing destination file.

If you specify the **-de** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify destination file exists behavior in the transfer definition file.

**-t** Optional. Specifies the type of file transfer: binary mode or text mode.

**binary** The data in the file is transferred without any conversion. This is the default value.

**text** The code page and end-of-line characters of the file are converted. You can specify which code page and line ending to use for the conversion with the **-sce**, **-dce** or **-dle** parameters. If you do not specify the **-sce**, **-dce** or **-dle** parameters, the exact conversions performed depend on the operating system of the source agent and destination agent.

For example, a file transferred from Windows to z/OS has its code page converted from ASCII to EBCDIC. When a file is converted from ASCII to EBCDIC, the end-of-line characters are converted from ASCII carriage return (CR) and line feed (LF) character pairs to an EBCDIC new line (NL) character.

For more information about how z/OS data sets are transferred, see *Transferring files and data sets between z/OS and distributed systems* and *Transferring between data sets*.

If you specify the **-t** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify transfer mode behavior in the transfer definition file.

**-dce** *destination\_character\_encoding*

Optional. Specifies which character encoding to use to write the file at the destination. This option is only applicable to text files and so **-t text** must also be specified. The code pages available for conversion depend on the platform of the destination agent. For a list of available code pages, see the topic "Available code pages" on page 769.

**-dle** *destination\_line\_ending*

Optional. Specifies the end-of-line characters that are used when the file is written at the destination. This option is applicable to text files only and so you must also specify the **-t text** parameter. The valid options are:

**LF** Line feed. This is the default for UNIX platforms and for z/OS UNIX System Services files. Note that when you use the standard EBCDIC code pages supplied with WebSphere MQ File Transfer Edition for EBCDIC files, the end-of-line characters are mapped to a NL character (0x15) and not to a LF character (0x25).

**CRLF** Carriage return followed by line feed. This is the default for Microsoft Windows.

If the destination of the transfer is a z/OS data set, this option is ignored.

## Parameters for specifying the source

**-sd** *source\_file\_disposition*

Optional. Specifies the action that is taken on a source file when that source file has successfully been transferred to its destination. The valid options are as follows:

**leave** The source files are left unchanged. This is the default value.

**delete** The source files are deleted from the source system after the source files have been successfully transferred.

On z/OS, if the source is a tape data set and you specify the delete option, the tape is remounted to delete the data set. This behavior is because of the behavior of the system environment.

If the source is a queue and you specify the leave option, the command returns an error and a transfer is not requested.

If the source agent is a Connect:Direct bridge agent and you specify the delete option, the behavior is different to the usual source disposition behavior. One of the following cases occurs:

- If Connect:Direct uses a process generated by WebSphere MQ File Transfer Edition to move the file or data set from the source, specifying the delete option causes the transfer to fail. To specify that the source file is deleted, you must submit a user-defined Connect:Direct process. For more information, see “Submitting a user-defined Connect:Direct process from a file transfer request” on page 280.
- If Connect:Direct uses a user-defined process to move the file or data set from the source, this parameter is passed to the process through the **%FTEFDISP** intrinsic symbolic variable. The user-defined process determines whether the source is deleted. The result that the transfer returns depends on the result returned by the user-defined process.

If you specify the **-sd** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify source disposition behavior in the transfer definition file.

**-r**

Optional. Recursively transfer files in subdirectories when *source\_specification* contains wildcard characters. When WebSphere MQ File Transfer Edition is presented with a wildcard character as a *source\_specification*, any subdirectories that match the wildcard character are transferred only if you have specified the **-r** parameter. When *source\_specification* matches a subdirectory, all files in that directory and its subdirectories (including hidden files) are always transferred.

For more information about how WebSphere MQ File Transfer Edition handles wildcard characters, see Using wildcard characters

If you specify the **-r** parameter, you cannot specify the **-td** parameter because these parameters are mutually exclusive. However, you can specify recursive behavior in the transfer definition file.

**-sce** *source\_character\_encoding*

Optional. Specifies which character encoding to use to read the source file when performing character conversion. This option is only applicable to text files and so **-t text** must also be specified. The code pages available for conversion depend on the platform of the destination agent, because the conversion is performed on the destination system. For a list of available code pages, see the topic “Available code pages” on page 769.

**-skeep**

Optional. Specifies that trailing spaces are kept on source records read from a fixed-length-format record-oriented file (for example, a z/OS data set) as part of a text mode transfer. If you do not specify this parameter, trailing spaces are stripped from source records.

This parameter is available only if you have enabled the V7.0.4.1 function.

**-srdb** *delimiter*

Optional. For source files that are record oriented (for example, z/OS data sets), specifies one or more byte values to insert as the delimiter when appending records into a binary file. You must specify each value as two hexadecimal digits in the range 00-FF, prefixed by x. Separate multiple bytes with commas. For example:

`-srdb x0A`

or

`-srdb x0D,x0A`

You must configure the transfer in binary mode.

This parameter is available only if you have enabled the V7.0.4.1 function.

**-srdp** *position*

Optional. Specifies the position to insert source record delimiters. You can specify the **-srdp** parameter only if you have also specified the **-srdb** parameter.

Specify one of the following options:

**prefix** The delimiters are inserted at the start of each record.

**postfix**

The delimiters are inserted at the end of each record. This is the default option.

This parameter is available only if you have enabled the V7.0.4.1 function.

#### **-sq**

Optional. Specifies that the source of a transfer is a queue.

If you want to invoke any of the WebSphere MQ File Transfer Edition transfer I/O user exits that you have defined against an agent, do not specify the **-sq** parameter in a transfer. Using the **-sq** parameter prevents the transfer I/O user exits from being invoked for the source and means that the standard WebSphere MQ File Transfer Edition I/O is used instead.

#### **-sqgi**

Optional. Specifies that the messages are grouped by WebSphere MQ group ID. The first complete group is written to the destination file. If this parameter is not specified, all messages on the source queue are written to the destination file.

You can specify the **-sqgi** parameter only if you have also specified the **-sq** parameter.

#### **-sqdt** *text\_delimiter*

Optional. Specifies a sequence of text to insert as the delimiter when appending multiple messages to a text file. You can include Java escape sequences for String literals in the delimiter. For example, `-sqdt \u007d\n`.

The text delimiter is encoded to binary format by using the source encoding of the transfer. Each message is read in binary format, the encoded delimiter is prepended or appended in binary format to the message (as specified by the **-sqdp** parameter) and the result is transferred in binary format to the destination agent. If the source agent code page includes shift-in and shift-out states, the agent assumes that each message is in the shift-out state at the end of the message. At the destination agent the binary data is converted in the same way as a file to file text transfer.

You can specify the **-sqdt** parameter only if you have also specified the **-sq** parameter and the value text for the **-t** parameter.

#### **-sqdb** *hexadecimal\_delimiter*

Optional. Specifies one or more byte values to insert as the delimiter when appending multiple messages to a binary file. Each value must be specified as two hexadecimal digits in the range 00-FF, prefixed by x. Multiple bytes must be comma-separated. For example, `-sqdb x08,xA4`.

You can specify the **-sqdb** parameter only if you have also specified the **-sq** parameter. You cannot specify the **-sqdb** parameter if you have also specified the value text for the **-t** parameter.

#### **-sqdp** *position*

Optional. Specifies the position of insertion of source text and binary delimiters. You can specify the **-sqdp** parameter only if you have also specified one of the **-sqdt** and **-sqdb** parameters.

Specify one of the following options:

**prefix** The delimiters are inserted at the start of each message

**postfix**

The delimiters are inserted at the end of each message. This is the default option.

#### **-sqwt** *wait\_time*

Optional. Specifies the time, in seconds, to wait for one of the following conditions to be met:

- For a new message to appear on the queue
- If the **-sqgi** parameter was specified, for a complete group to appear on the queue

If neither of these conditions are met within the time specified by *wait\_time*, the source agent stops reading from the queue and completes the transfer. If the **-sqwt** parameter is not specified, the source agent stops reading from the source queue immediately if the source queue is empty or, in the case where the **-sqgi** parameter is specified, if there is no complete group on the queue.

For information about using the **-sqwt** parameter, see “Guidance for specifying a wait time on a message-to-file transfer” on page 769.

You can specify the **-sqwt** parameter only if you have also specified the **-sq** parameter.

#### *source\_specification*

One or more file specifications that determine the source, or sources, for the file transfer.

Required if you have specified one of the **-df**, **-dd**, **-dp**, **-dq**, **-du**, or **-ds** parameters. If you specify the **-td** parameter, do not specify *source\_specification*.

- If you have not specified the **-sq** parameter, *source\_specification* is one or more file specifications that determine the source, or sources, for the file transfer. File specifications can take one of five forms and can include wildcard characters. For more information about wildcard characters, see “Using wildcard characters” on page 743. You can escape asterisks that are part of the file specification by using two asterisk characters (\*\*) in the file specification.

You can specify multiple source file specifications separated by the space character. However, if you specify multiple source specifications for the **-df** or **-ds** parameters and also specify **-de overwrite**, the destination will contain only the data for the source file that you specified last. If you do not specify **-de overwrite** the transfer can only be partially successful. If the destination file did not previously exist, it will contain the data for the source file that you specified first.

To transfer files containing spaces in their file names, for example a b.txt to file c d.txt, place double quotation marks around the file names that contain spaces. Specify the following text as part of the **fteCreateTransfer** command:

```
-df "c d.txt" "a b.txt"
```

Each file specification must be in one of the following categories:

#### **File names**

The name of a file, expressed in the appropriate notation for the system where the source agent is running. When a file name is specified as a source file specification, the contents of the file are copied.

#### **Directories**

The name of a directory, expressed in the appropriate notation for the system where the source agent is running. When a directory is specified as a source file specification, the contents of the directory are copied. More precisely, all files in the directory and in all its subdirectories, including hidden files, are copied.

For example, to copy the contents of DIR1 to DIR2 only, specify **fteCreateTransfer ...**

```
-dd DIR2 DIR1/*
```

#### **Sequential data set**

(z/OS only). The name of a sequential data set or partitioned data set member. Denote data sets by preceding the data set name with two forward slash characters (//).

If you specify a protocol bridge agent as your source agent, you cannot then specify a data set as the source file specification.

#### **Partitioned data set**

(z/OS only). The name of a partitioned data set. Denote data set names by preceding the data set name with two forward slash characters (//).

If you specify a protocol bridge agent as your source agent, you cannot then specify a data set as the source file specification.

#### File name or directory at a Connect:Direct node

(Connect:Direct bridge agent only). The name of a Connect:Direct node, a colon character (:), and a file or directory path on the system hosting the Connect:Direct node. For example, *connect\_direct\_node\_name:file\_path*.

If the source agent is a Connect:Direct bridge agent, it will only accept source specifications in this form.

**Note:** Wildcard characters are not supported in file paths when the source agent is a Connect:Direct bridge agent.

#### File name or directory on a protocol file server

(Applicable to the protocol bridge agent with new Version 7.0.4.1 function enabled only). The name of a protocol file server, a colon character (:), and a file or directory path on the protocol server system. For example, *protocol\_server:file\_path*.

If you do not specify a protocol server, the default protocol server is used.

- If you have specified the **-sq** parameter, *source\_specification* is the name of a local queue on the source agent queue manager. You can specify only one source queue. The source queue is specified in the format:

QUEUE\_NAME

The queue manager name is not included in the source queue specification, because the queue manager must be the same as the source agent queue manager.

- If you have enabled the Version 7.0.4.1 function and the source agent is on z/OS, source files that start with // are assumed to be z/OS partitioned data sets.

## Other parameters

**-? or -h**

Optional. Displays command syntax.

## Examples

In this basic example, the file *originalfile.txt* is transferred from AGENT1 to AGENT2 on the same system and renamed to *transferredfile.txt*

```
fteCreateTransfer -sa AGENT1 -da AGENT2 -df C:\import\transferredfile.txt C:\export\originalfile.txt
```

In this example, the files *originalfile.txt* and *originalfile2.txt* are transferred from AGENT1 to AGENT2 on the same system, to the directory *C:\import*

```
fteCreateTransfer -sa AGENT1 -da AGENT2 -dd C:\import C:\export\originalfile.txt C:\export\originalfile2.txt
```

In this example, the file *originalfile.txt* is transferred from AGENT1's system to AGENT2's system. The file transfer is scheduled to take place at 09:00 based on the system time of the source agent's system and will occur every two hours four times:

```
fteCreateTransfer -sa AGENT1 -sm QM_JUPITER -da AGENT2 -dm QM_NEPTUNE  
-tb source -ss 09:00 -oi hours -of 2 -oc 4  
-df C:\import\transferredfile.txt C:\export\originalfile.txt
```

In this example, the file *originalfile.txt* is transferred from AGENT1 to AGENT2, on condition that the file *A.txt* exists on AGENT1:

```
fteCreateTransfer -sa AGENT1 -sm QM_JUPITER -da AGENT2 -dm QM_NEPTUNE  
-tr file=exist,C:\export\A.txt -df C:\import\transferredfile.txt C:\export\originalfile.txt
```

In this example, the file `originalfile.txt` is transferred from AGENT1's system to a data set `/'USERID.TRANS.FILE.TXT'` on AGENT2's system. Text mode has been selected to convert data from ASCII to EBCDIC.

```
fteCreateTransfer -t text -sa AGENT1 -da AGENT2
-ds "///TRANS.FILE.TXT;RECFM(V,B);BLKSIZE(6144);LRECL(1028);
SPACE(5,1)" C:\export\originalfile.txt
```

In this example, a member of a fully qualified data set on AGENT1's system is transferred to a file on AGENT2's system. Text mode has been selected to convert the file from EBCDIC to the default code page of AGENT2's system.

```
fteCreateTransfer -t text -sa AGENT1 -da AGENT2 -df /tmp/IEEUJV.txt "///'SYS1.SAMPLIB(IEEUJV)'"
```

In this example, a file called `file.bin` on agent AGENT1 is transferred to a destination file called `file.bin` on the protocol file server `accountshost.ibm.com` using the destination agent BRIDGE1.

```
fteCreateTransfer -sa AGENT1 -da BRIDGE1 -df accountshost.ibm.com:/tmp/file.bin /tmp/file.bin
```

## Return codes

Return code	Description
0	Command completed successfully.
1	Command ended unsuccessfully.
2	Command ended with a timeout. The command sent a message to the agent, but the agent did not respond within the time specified.
20	Command completed with partial success and some files were transferred.
21	The queue manager that the <b>fteCreateTransfer</b> command was connected to was stopped before the transfer result was determined.
40	Failed. None of the files specified were transferred.
41	The transfer was canceled.
42	The transfer did not take place because the transfer was conditional and the required condition was not met.
43	The transfer request message was malformed.
44	The source agent did not have sufficient capacity to carry out the transfer.
45	The destination agent did not have sufficient capacity to carry out the transfer. (This return code appears only if the source agent for the transfer is Version 7.0.1 or earlier.)
46	The number of files being transferred exceeded the source agent's limit.
47	The number of files transferred exceeded the destination agent's limit.

### Related concepts:

“Using transfer definition files” on page 195

You can specify a transfer definition file which can be used to create a file transfer. The transfer definition file is an XML file that defines some or all of the information required to create the transfer.

### Related tasks:

“Starting a new file transfer” on page 193

You can start a new file transfer from the WebSphere MQ Explorer or from the command line and you can choose to transfer either a single file or multiple files in a group.

“Creating a scheduled file transfer” on page 197

You can schedule a new file transfer either from the WebSphere MQ Explorer or from the command line. The scheduled transfer can contain single files or multiple files in a group. You can perform a scheduled file transfer once or repeat the transfer multiple times.

“Triggering a file transfer” on page 199

You can set certain trigger conditions on a file transfer that must be true before that transfer can take place. If the triggering conditions are not true, the file transfer does not take place and a log message is optionally submitted to record the fact the transfer did not happen. The file transfer request is then discarded. For example, you can set up a file transfer that takes place only if a named file on the system where the source agent is located is over a specified size, or if a particular named file exists on the system where the source agent is located. You can set up a triggered file transfer from either the WebSphere MQ Explorer or from the command line.

## **fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)**

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

### **Purpose**

Use the **fteCreateWebAgent** command to create a web agent. This command provides you with the MQSC commands that you must run on the queue manager that is used by the agent to create the following agent queues:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*
- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*
- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

Because the agent is for use with the Web Gateway, two queues are created in addition to the above list:

- SYSTEM.FTE.WEB.RESP.*agent\_name*
- SYSTEM.FTE.WEB.gateways.*gateway\_name*

These queues are internal system queues that you must not modify, delete, or read messages from unless you are deleting the agent. The MQSC commands to run are also supplied in a file in the following location: *configuration\_directory\coordination\_qmgr\_name\agents\agent\_name\agent\_name\_create.mqsc*.

If you later want to delete the agent, this command also provides you with the MQSC commands you must run to clear then delete the queues belonging to the agent. The MQSC commands are in a file in the following location: *configuration\_directory\coordination\_qmgr\_name\agents\agent\_name\agent\_name\_delete.mqsc*.

WebSphere MQ File Transfer Edition provides advanced agent properties that help you configure agents. These properties are described in Properties files for WebSphere MQ File Transfer Edition.

**Note:** The user that your web agent runs as must be the same as, or in the same group as, the user that your application server runs as.

## Limitations of the web agent

- A web agent can be only the source agent for transfers initiated by a Web Gateway. If you attempt to perform a transfer with a web agent as the source by another method, the transfer fails with return code 68 (TRANSFER\_NOT\_SUPPORTED).
- A web agent can only be the destination agent for a transfer when the destination is specified as a file space. If you attempt to perform a transfer with a web agent as the destination agent but a different destination type the transfer will fail with the following error message: BFGCH0103: The transfer request specifies Web Gateway agent '*web\_agent\_name*' as the destination agent. Web Gateway agents can be the destination only for a transfer to a file space.
- A web agent cannot monitor a resource. If you attempt to create a resource monitor for a web agent, the command fails with return code 113 (MONITOR\_NOT\_SUPPORTED).

## Syntax

### fteCreateWebAgent

```

fteCreateWebAgent --agentName (agent_name) --agentQMGr (agent_qmgr_name) --webGatewayName (gateway_name)
    [ --agentQMGrHost (agent_qmgr_host) ] [ --agentQMGrPort (agent_qmgr_port) ]
    [ --agentQMGrChannel (agent_qmgr_channel) ] [ --agentDesc (agent_description) ] [ --ac ]
    [ --authorityChecking ]
    [ --p (configuration_options) ] [ --f ]
    [ --s (service_name) ] [ --su (user_name) ] [ --sp (password) ] [ --sj (options) ] [ --sl (options) ]
    [ --n ]

```

## Parameters

**-agentName** (*agent\_name*)  
 Required. The name of the agent to create. The agent name must be unique to its coordination queue manager.

For more information about naming agents, see Object naming conventions .

**-agentQMGr** (*agent\_qmgr\_name*)  
 Required. The name of the agent queue manager.

**-webGatewayName** (*gateway\_name*)  
 Required. The name of the Web Gateway that the agent is a component of.

For more information about naming Web Gateways, see Object naming conventions .

**-agentQMgrHost** (*agent\_qmgr\_host*)

Optional. The host name or IP address of the agent queue manager. If you do not specify this parameter, a bindings mode connection is assumed.

**-agentQMgrPort** (*agent\_qmgr\_port*)

Optional. The port number used for client connections to the agent queue manager. This parameter is used only if you have also specified the **agentQMgrHost** parameter. If you do not specify the **agentQMgrPort** parameter, a default port of 1414 is used.

**-agentQMgrChannel** (*agent\_qmgr\_channel*)

Optional. This parameter is used only if you have also specified the **agentQMgrHost** parameter. If you do not specify the **agentQMgrChannel** parameter, a default channel of SYSTEM.DEF.SVRCONN is used.

**-agentDesc** (*agent\_description*)

Optional. A description of the agent, which is displayed in WebSphere MQ Explorer.

**-ac** or **-authorityChecking**

Optional. This parameter enables authority checking. If you specify this parameter, the agent checks that users who are submitting requests are authorized to perform the requested action.

**-p** (*configuration\_options*)

Optional. The name of the set of configuration options that is used to create the agent. By convention, this is the name of a coordination queue manager. If you do not specify this parameter, the default set of configuration options is used.

**-f** Optional. Forces the command to overwrite the existing configuration.

**-s** (*service\_name*)

Optional (Windows only). Indicates that the agent is to run as a Windows service. If you do not specify *service\_name*, the service is named `fteAgent<AGENT><QMGR>`, where *AGENT* is the agent name and *QMGR* is your agent queue manager name.

The display name for the service, which is shown in the Windows **Services** window in the **Name** column, is always **IBM WMQFTE agent <AGENT>@<QMGR>**.

**-su** (*user\_name*)

Optional (Windows only). When the agent is to run as a Windows service, this parameter specifies the name of the account under which the service should run. To run the agent using a Windows domain user account specify the value in the form `DomainName\UserName`. To run the service using an account from the local built-in domain specify the value in the form `UserName`.

The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to grant this right, see "Guidance for running an agent or database logger as a Windows service" on page 402.

Required when **-s** specified. Equivalent to **-serviceUser**.

**-sp** (*password*)

Optional (Windows only). Password for the user account set by **-su** or **-serviceUser** parameter.

This parameter is only valid when **-s** is specified. Equivalent to **-servicePassword**. If you do not specify this parameter when you specify the **-s** parameter, a warning message is produced. This message warns you that you must set the password using the Windows Services tool before the service will start successfully.

**-sj** (*options*)

Optional (Windows only). When the agent is started as a Windows service, defines a list of options in the form of **-D** or **-X** that will be passed to the JVM. The options are separated using a number sign (#) or semicolon (;) character. If you need to embed any # or ; characters, put them inside single quotation marks.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceJVMOptions**.

**-sl (options)**

Optional (Windows only). Sets the Windows service log level. Valid options are: error, info, warn, debug. The default is info. This option can be useful if you are having problems with the Windows service. Setting it to debug gives more detailed information in the service log file.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceLogLevel**.

**-n** Optional (Windows only). Indicates that the agent is to be run as a normal process. This is mutually exclusive with the **-s** option. If neither the **-s** nor the **-n** option is specified, then the agent is configured as a normal Windows process.

Equivalent to **-normal**.

**-? or -h**

Optional. Displays the command syntax.

**Example**

In this example, the agent WEBAGENT1 is created with an agent queue manager QM\_NEPTUNE and the Web Gateway GATEWAY\_ONE. The agent uses the default coordination queue manager:

```
fteCreateWebAgent -agentName WEBAGENT1 -webGatewayName GATEWAY_ONE -agentQMGr QM_NEPTUNE  
-agentQMGrHost myhost.ibm.com -agentQMGrPort 1415 -agentQMGrChannel CHANNEL1
```

**Return codes**

0 Command completed successfully.

1 Command ended unsuccessfully.

**Related concepts:**

“The WebSphere MQ File Transfer Edition Web Gateway” on page 22

The Web Gateway provides a RESTful API, which you can use to interact with your WebSphere MQ File Transfer Edition network.

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Guidance for running an agent or database logger as a Windows service” on page 402

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

**Related tasks:**

“Preparing to deploy the Web Gateway” on page 152

Before deploying the WebSphere MQ File Transfer Edition Web Gateway, you must set up your application server environment and dependent modules. This section describes the setup tasks for WebSphere MQ and two different application servers.

“Deploying the WebSphere MQ File Transfer Edition Web Gateway” on page 168

The WebSphere MQ File Transfer Edition Web Gateway must be deployed to an application server that is compatible with Java Platform, Enterprise Edition 5. The deployment process for different application servers varies. This section outlines the deployment process for two application servers.

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

**Related reference:**

“Web agent fails to start” on page 428

If you receive an error from the **fteStartAgent** command, and you are attempting to start a web agent, check that the `SYSTEM.FTE.WEB.gateway_name` queue exists.

## **fteDeleteAgent (delete a WebSphere MQ File Transfer Edition agent)**

The **fteDeleteAgent** command deletes a WebSphere MQ File Transfer Edition agent and its configuration. If the agent is protocol a bridge agent, the user credentials file is left on the file system.

### **Purpose**

Stop the agent with the `fteStopAgent` command before running the **fteDeleteAgent** command.

If you have configured your agent to run as a Windows service, running the **fteDeleteAgent** command deletes the service definition.

The **fteDeleteAgent** command provides you with the MQSC commands that you must run against your agent's queue manager to clear and delete the agent's system queues. These queues are as follows:

- `SYSTEM.FTE.AUTHADM1.agent_name`
- `SYSTEM.FTE.AUTHAGT1.agent_name`
- `SYSTEM.FTE.AUTHMON1.agent_name`
- `SYSTEM.FTE.AUTHOPS1.agent_name`
- `SYSTEM.FTE.AUTHSCH1.agent_name`
- `SYSTEM.FTE.AUTHTRN1.agent_name`
- `SYSTEM.FTE.COMMAND.agent_name`
- `SYSTEM.FTE.DATA.agent_name`
- `SYSTEM.FTE.EVENT.agent_name`
- `SYSTEM.FTE.REPLY.agent_name`
- `SYSTEM.FTE.STATE.agent_name`

If your agent is a web agent there are two additional queues that must be deleted. The **fteDeleteAgent** command clears and deletes the following queue:

- `SYSTEM.FTE.WEB.RESP.agent_name`

The **fteDeleteAgent** command does not delete the `SYSTEM.FTE.WEB.<gateway_name>` queue, because this queue is shared between multiple web agents. After running the **fteDeleteAgent** command for a web agent, you must manually delete the `SYSTEM.FTE.WEB.gateway_name` queue.

**Note:** Delete the `SYSTEM.FTE.WEB.gateway_name` queue only if all web agents associated with this Web Gateway have been deleted.

The **fteCreateAgent** command also provides these commands in a file in the following location:

`configuration_directory/coordination_qmgr_name/agents/agent_name/agent_name_delete.mqsc`

### **Syntax**

## fteDeleteAgent

► fteDeleteAgent -p (configuration\_options) -f agent\_name ►

### Parameters

#### **-p** (*configuration\_options*)

Optional. If you have more than one coordination queue manager, use this parameter to explicitly specify which agent configuration you want to delete. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the configuration options associated with this non-default coordination queue manager.

Specify the optional **-p** parameter only if you want to use configuration options different from your defaults. If you do not specify **-p**, the configuration options defined in the `wmqfte.properties` file are used. See “Configuration options” on page 98 for more information.

- f** Optional. Forces the command to deregister the agent from the coordination queue manager even if the agent's configuration files cannot be found. Because information about the agent's queue manager is not available in this situation, the command will connect directly to the coordination queue manager instead of using the agent queue manager as it normally would.

#### *agent\_name*

Required. The name of the agent that you want to delete.

#### **-?** or **-h**

Optional. Displays command syntax.

### Example

In this example, AGENT3 and its configuration on coordination queue manager QM\_COORD1 are deleted:

```
fteDeleteAgent -p QM_COORD1 AGENT3
```

This example command outputs the following MQSC commands to delete the agent's three queues:

```
CLEAR QLOCAL(SYSTEM.FTE.COMMAND.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.COMMAND.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.DATA.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.DATA.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.REPLY.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.REPLY.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.STATE.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.STATE.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.EVENT.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.EVENT.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.AUTHADM1.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.AUTHADM1.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.AUTHAGT1.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.AUTHAGT1.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.AUTHTRN1.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.AUTHTRN1.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.AUTHOPS1.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.AUTHOPS1.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.AUTHSCH1.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.AUTHSCH1.AGENT3)
CLEAR QLOCAL(SYSTEM.FTE.AUTHMON1.AGENT3)
DELETE QLOCAL(SYSTEM.FTE.AUTHMON1.AGENT3)
```

### Return codes

**0** Command completed successfully.

1 Command ended unsuccessfully.

**Related reference:**

“fteStopAgent (stop a WebSphere MQ File Transfer Edition agent)” on page 570

Use the **fteStopAgent** command to either stop a WebSphere MQ File Transfer Edition agent in a controlled way or to stop an agent immediately if necessary using the **-i** parameter.

“fteCleanAgent (cleans up a WebSphere MQ File Transfer Edition agent)” on page 473

Use the **fteCleanAgent** command to clean up the queues that a WebSphere MQ File Transfer Edition agent uses, by deleting messages from the persistent and non-persistent queues used by the agent. Use the **fteCleanAgent** command if you are having problems starting an agent, which might be caused by information remaining on the queues used by the agent.

“fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)” on page 478

The **fteCreateAgent** command creates an agent and its associated configuration.

“fteStartAgent (start a WebSphere MQ File Transfer Edition agent)” on page 567

The **fteStartAgent** command starts a WebSphere MQ File Transfer Edition agent from the command line.

## fteDeleteMonitor (delete a WebSphere MQ File Transfer Edition resource monitor)

Use the **fteDeleteMonitor** command to stop and delete an existing WebSphere MQ File Transfer Edition resource monitor using the command line. Issue this command against the resource monitoring agent.

### Purpose

The **fteDeleteMonitor** command is supported on WebSphere MQ File Transfer Edition Version 7.0.1 and later.

Use the **fteDeleteMonitor** command to stop monitoring a resource and remove the monitor's definition from the monitoring agent. When you run this command, no more polls of the resource occur and no further tasks are started.

You can run the **fteDeleteMonitor** command from any system that can connect to the WebSphere MQ network and subsequently route to the agent's queue manager. Specifically for the command to run, you must have installed a WebSphere MQ File Transfer Edition component (either Server, Client, or Remote Tools and Documentation) on this system and you must have configured this system's WebSphere MQ File Transfer Edition to communicate with the WebSphere MQ network. If no connectivity details are available, the agent queue manager details are used for connection instead, provided these details are available.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Configuration options for more information.

### Syntax

#### fteDeleteMonitor

```
▶▶ fteDeleteMonitor -ma (monitoring_agent_name) -mn (monitor_name)
└─ -mm (monitoring_agent_qmgr_name) ─┘ └─ -p (configuration_options) ─┘
```

## Parameters

**-ma** (*monitoring\_agent\_name*)

Required. The name of the agent that performs the resource monitoring. This monitoring agent must also have been the source agent for the file transfer that you wanted to trigger.

**-mn** (*monitor\_name*)

Required. The name that you assigned to this resource monitor. You can delete a resource monitor and then create a new monitor with the same name.

**-mm** (*monitoring\_agent\_qmgr\_name*)

Optional. The name of the monitoring agent's queue manager. Because the monitoring agent and the source agent of the transfer the monitor triggered must be same, this queue manager is also your source agent's queue manager.

**-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options to use to cancel the transfer. By convention use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example, the resource monitor MONITOR1 with a monitoring (and file transfer source agent) AGENT1 is deleted:

```
fteDeleteMonitor -ma AGENT1 -mm QM_JUPITER -mn MONITOR1
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory.

When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer.

You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

### Related reference:

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

“**fteListMonitors** (list WebSphere MQ File Transfer Edition resource monitors)” on page 542

Use the **fteListMonitors** command to list all of the existing resource monitors in a WebSphere MQ File Transfer Edition network using the command line.

## fteDeleteScheduledTransfer (delete a scheduled file transfer)

### Purpose

Use the **fteDeleteScheduledTransfer** command to delete a WebSphere MQ File Transfer Edition scheduled transfer that you have previously created either using the command line or the WebSphere MQ Explorer.

Specify the optional **-p** parameter for this command only if you want to use configuration options different from your defaults. If you do not specify **-p**, the configuration options defined in `wmqfte.properties` are used. See “Configuration options” on page 98 for more information.

### Syntax

#### fteDeleteScheduledTransfer

```
►--fteDeleteScheduledTransfer--┬--p--(configuration_options)┬--m--(agent_qmgr_name)┬--agentName--(agent_name)--schedule_ID--►
```

### Parameters

#### **-p** (*configuration\_options*)

Optional. If you have more than one coordination queue manager, use this parameter to explicitly specify which scheduled transfer you want to delete. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the configuration options associated with this non-default coordination queue manager.

If you do not specify this parameter, the configuration options based on the default coordination queue manager are used.

#### **-m** (*agent\_qmgr\_name*)

Optional. The name of the queue manager that the source agent is connected to. If you do not specify this parameter, the agent's queue manager is determined from the configuration options in use.

#### **-agentName** (*agent\_name*)

Required. The name of the source agent that you want to delete the scheduled transfer from.

#### *schedule\_ID*

Required. The ID of the scheduled transfer that you want to delete.

You can find the schedule ID by running the `fteListScheduledTransfers` command against the name of the source agent.

#### **-?** or **-h**

Optional. Displays command syntax.

### Example

In this example, a scheduled transfer on source agent AGENT2 with the ID 27 is deleted:

```
fteDeleteScheduledTransfer -agentName AGENT2 27
```

### Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

### Related tasks:

“Creating a scheduled file transfer” on page 197

You can schedule a new file transfer either from the WebSphere MQ Explorer or from the command line. The scheduled transfer can contain single files or multiple files in a group. You can perform a scheduled file transfer once or repeat the transfer multiple times.

### Related reference:

“fteListScheduledTransfers (list scheduled file transfers)” on page 544

## **fteDeleteTemplates (delete WebSphere MQ File Transfer Edition templates)**

Use the **fteDeleteTemplates** command to delete an existing WebSphere MQ File Transfer Edition template from a coordination queue manager.

### **Purpose**

The **fteDeleteTemplates** command is supported on WebSphere MQ File Transfer Edition Version 7.0.3 and later.

The **fteDeleteTemplates** command removes one or more file transfer templates from a coordination queue manager. When you run this command a request is passed to the WebSphere MQ system to remove the templates from the coordination queue manager so that the templates are no longer available to the WebSphere MQ Explorer or the command line. The templates you are deleting might continue to be accessed for a brief interval after the command completes until the WebSphere MQ system actions the request.

You can run the **fteDeleteTemplates** command from any system that can connect to the WebSphere MQ network and subsequently route to the coordination queue manager. Specifically for the command to run, you must have installed a WebSphere MQ File Transfer Edition component (either Server, Client, or Remote Tools and Documentation) on this system and you must have configured this system's WebSphere MQ File Transfer Edition to communicate with the WebSphere MQ network. If no connectivity details are available, the agent queue manager details are used for connection instead, provided these details are available.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Configuration options for more information.

### **Syntax**

#### **fteDeleteTemplates**

```
►► fteDeleteTemplates [ -p (configuration_options) ] (template_names) ►►
```

### **Parameters**

#### **-p (configuration\_options)**

Optional. This parameter determines the set of configuration options to use to delete the template. By convention use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

*(template\_names)*

Required. Specify one or more template names that you want to delete. Specify the name as displayed by the **fteListTemplates** command.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example, the template STANDBY is deleted:

```
fteDeleteTemplates STANDBY
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related tasks:

“Working with transfer templates” on page 222

You can use file transfer templates to store common file transfer settings for repeated or complex transfers. Either create a transfer template from the command line by using the **fteCreateTemplate** command or use the WebSphere MQ Explorer to create a transfer template by using the **Create New Template for Managed File Transfer** wizard, or save a template while you are creating a file transfer by selecting the **Save transfer settings as a template** check box. The **Transfer Templates** window displays all of the transfer templates that you have created in your WebSphere MQ File Transfer Edition network.

“Creating a file transfer template using the WebSphere MQ Explorer” on page 223

You can create a file transfer template from the WebSphere MQ Explorer or from the command line. You can then use that template to create new file transfers using the template details or submit the template to start the file transfer.

### Related reference:

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

“**fteListTemplates** (list WebSphere MQ File Transfer Edition templates)” on page 545

Use the **fteListTemplates** command to list the available WebSphere MQ File Transfer Edition transfer templates on a coordination queue manager.

## **fteDisplayVersion (display the version of WebSphere MQ File Transfer Edition)**

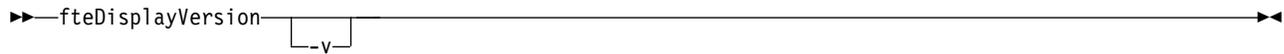
Use the **fteDisplayVersion** command to display the version of WebSphere MQ File Transfer Edition that you have installed.

### Purpose

You might be asked to run the **fteDisplayVersion** command by an IBM Service Representative to help with problem determination.

### Syntax

## fteDisplayVersion



### Parameters

**-v** Optional. Displays a verbose amount of information about the product version.

The precise details that are displayed when you specify the **-v** parameter might vary between product releases. You are not recommended to rely on specific information being available in the output from the `fteDisplayVersion -v` command.

**-? or -h**

Optional. Displays command syntax.

### Example

In this example, the **fteDisplayVersion** command is specified with no parameters.

```
fteDisplayVersion
```

The output from this command is the product version level as follows:

```
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED
Name:      WebSphere MQ File Transfer Edition Server
Version:   7.0.4
```

In this example, the **fteDisplayVersion** command is specified with the **-v** parameter.

```
fteDisplayVersion -v
```

The output from this command is the following more detailed information about the product version:

```
C:\Program Files\IBM\wmqfte\bin>fteDisplayVersion.cmd -v
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED
Name:      WebSphere MQ File Transfer Edition Server
Version:   7.0.4
Level:     f000-20110208-1704
Platform:  Windows XP (5.1 build 2600 Service Pack 3)
Architecture: x86
JVM:      JRE 1.6.0 IBM J9 2.4 Windows XP x86-32 jvmwi3260sr7-20091214_4939
8 (JIT enabled, AOT enabled)
          J9VM - 20091214_049398
          JIT - r9_20091123_13891
          GC  - 20091111_AA
Product:   C:\Program Files\IBM\wmqfte
Configuration: C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\c
onfig
```

WebSphere MQ Components:

```
Name:      Common Services for Java Platform, Standard Edition
Version:   7.0.1.3
Level:     k701-103-100812
```

### Return codes

**0** Command completed successfully.

**1** Command ended unsuccessfully.

## **fteListAgents (list the WebSphere MQ File Transfer Edition agents for a coordination queue manager)**

Use the **fteListAgents** command to list all of the WebSphere MQ File Transfer Edition agents that are registered with a particular coordination queue manager from the command line.

### **Purpose**

You can run the **fteListAgents** command from any system that can connect to the coordination queue manager. The following details for each agent are directed to the standard output device (STDOUT):

- Agent name
- Agent queue manager
- If the agent is a protocol bridge agent, the agent name is appended with either (FTP bridge) or (SFTP bridge)
- If the agent is a web agent, the agent name is appended with (Web Gateway)
- If the agent is a Connect:Direct bridge agent, the agent name is appended with (Connect:Direct bridge)
- Agent status

This command uses the `coordination.properties` file to connect to the coordination queue manager. For more information, see “The `coordination.properties` file” on page 577.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. For more information, see “Configuration options” on page 98.

If an agent is not listed by the **fteListAgents** command, use the diagnosis flowchart in the following topic to locate and fix the problem: If your agent is not listed by the **fteListAgents** command.

The agent status information produced by this command is generated from the status messages that the agent publishes to the `SYSTEM.FTE` topic. These messages are described in the topic “Agent status message format” on page 658. The status information produced by the **fteListAgents** command gives the agent status at the time when the last status message was published. The frequency of these status messages depends on the value of the `agentStatusPublishRateLimit` property. For more details about this property, see the topic “The `agent.properties` file” on page 583.

### **Syntax**

#### **fteListAgents**

```
►► fteListAgents [ -p (configuration_options) ] [ -v ] [ pattern ] ►►
```

### **Parameters**

#### **-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to issue the request to list agents. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

#### **-v**

Optional. Specifies verbose mode. Verbose mode generates additional output for each agent,

including the current number of transfers in the form Source/Destination, where Source is the current number of source transfers and Destination is the current number of destination transfers.

The current transfer information is obtained from the agent status publication, which is described in the following topic: "Agent status message format" on page 658. As a result, this transfer information is only accurate to within the setting for the agentStatusPublishRateLimit agent property value (which defaults to 30 seconds).

#### *pattern*

Optional. The pattern to use to filter the list of WebSphere MQ File Transfer Edition agents. This pattern is matched against the agent name. Asterisk (\*) characters are interpreted as wildcards, that match any value, including zero characters.

On UNIX and Linux systems, you must escape special characters like the asterisk (\*) and the number sign (#) with quotation marks ( ' ') or double quotation marks ( " ") if you want them to be handled as literals. If you do not escape these characters, they are interpreted according to their meaning on the specific UNIX or Linux system.

If you do not specify this parameter, all agents registered with the coordination queue manager are listed.

#### **-? or -h**

Optional. Displays command syntax.

## **Example**

In this example, all of the agents registered on the queue manager detailed in the configuration options with names beginning with B are listed:

```
fteListAgents "B*"
```

In this example, agents that are registered with the coordination queue manager QM\_EUROPE (the non-default coordination queue manager) are listed in verbose mode:

```
fteListAgents -p QM_EUROPE -v
```

The output from this command is as follows:

Agent Name:	Queue Manager Name:	Transfers: (Source/Destination)	Status:
BERLIN	QM_BERLIN	7/0	RUNNING
LONDON	QM_LONDON	0/0	RUNNING
MADRID	QM_MADRID	0/1	UNREACHABLE

For a list of the possible agent status values and their meanings, see the topic "Agent status values" on page 721.

In this example, all agents that are registered with the coordination queue manager and that have names beginning with BRIDGE are listed in verbose mode:

```
fteListAgents -v "BRIDGE*"
```

The output from this command is as follows:

```
C:\Program Files\IBM\WMQFTE\bin>fteListAgents -v
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED
Agent Name:                               Queue Manager Name:   Transfers:   Status:
                                           (Source/Destination)
BRIDGE_FTP (FTP bridge)                   QM_JUPITER           0/0         STOPPED
BRIDGE_CD1 (Connect:Direct bridge)       QM_JUPITER           0/0         STOPPED
```

## **Return codes**

**0** Command completed successfully.

1 Command ended unsuccessfully.

**Related tasks:**

“Listing WebSphere MQ File Transfer Edition agents” on page 251

You can list the agents registered with a particular queue manager using the command line or the WebSphere MQ Explorer.

**Related reference:**

“Agent status values” on page 721

The **fteListAgents** and **fteShowAgentDetails** commands produce agent status information. There are several possible values for this status.

“fteShowAgentDetails (display WebSphere MQ File Transfer Edition agent details)” on page 563

Use the **fteShowAgentDetails** command to display the details of a particular WebSphere MQ File Transfer Edition agent. These are the details that are stored by its WebSphere MQ File Transfer Edition coordination queue manager.

“What to do if the fteListAgents command shows an agent status of UNREACHABLE” on page 390

Your agent is running and responds successfully to the **ftePingAgent** command, and files are being transferred normally, but the agent is listed as UNREACHABLE by the **fteListAgents** command.

“fteStopAgent (stop a WebSphere MQ File Transfer Edition agent)” on page 570

Use the **fteStopAgent** command to either stop a WebSphere MQ File Transfer Edition agent in a controlled way or to stop an agent immediately if necessary using the **-i** parameter.

“fteShowAgentDetails (display WebSphere MQ File Transfer Edition agent details)” on page 563

Use the **fteShowAgentDetails** command to display the details of a particular WebSphere MQ File Transfer Edition agent. These are the details that are stored by its WebSphere MQ File Transfer Edition coordination queue manager.

## **fteListMonitors (list WebSphere MQ File Transfer Edition resource monitors)**

Use the **fteListMonitors** command to list all of the existing resource monitors in a WebSphere MQ File Transfer Edition network using the command line.

### **Purpose**

The **fteListMonitors** command is supported on WebSphere MQ File Transfer Edition Version 7.0.1 and later.

The **fteListMonitors** command lists existing resource monitors. You can filter the command output by specifying an agent name and a resource monitor name.

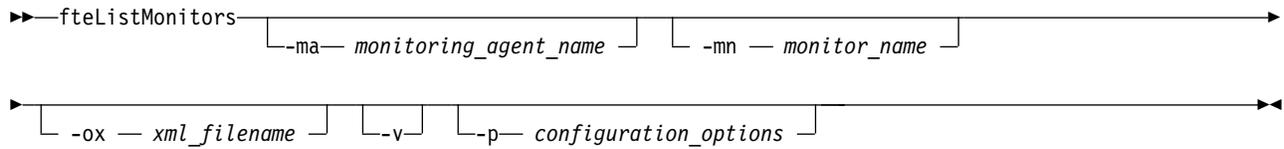
This command uses the `coordination.properties` file to connect to the coordination queue manager. For more information, see “The `coordination.properties` file” on page 577.

From Version 7.0.4.1 you can use the **-ox** parameter to export a resource monitor to an XML file. See “**fteCreateMonitor** (create new resource monitor)” on page 490 for information on how to use this XML file.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Configuration options for more information.

### **Syntax**

## fteListMonitors



## Parameters

### **-ma** (*monitoring\_agent\_name*)

Optional. Filters resource monitors by agent name using the pattern you provide as input. Asterisk (\*) characters are interpreted as wildcards that match zero or more characters. If you do not specify the **-ma** parameter, all resource monitors associated with all agents for the default coordination queue manager are listed by default.

### **-mn** (*monitor\_name*)

Optional. Filters resource monitors by monitor name using the pattern you provide as input. Asterisk (\*) characters are interpreted as wildcards that match zero or more characters. If you do not specify the **-mn** parameter, all resource monitors associated with all agents for the default coordination queue manager are listed by default.

### **-ox** (*xml\_filename*)

Optional. You must specify this parameter with the **-ma** and **-mn** parameters. Exports the resource monitor to an XML file which can then be used by the **fteCreateMonitor** command.

**-v** Optional. Generates verbose output which includes additional information about the status of the monitor, including whether the monitor is started or stopped, the directory resource path being monitored and the trigger conditions.

### **-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options to use to cancel the transfer. By convention use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

### **-?** or **-h**

Optional. Displays command syntax.

## Examples

In this example, all resource monitors associated with the monitoring agent (and source agent for the file transfers associated with the monitor) AGENT1 are listed:

```
fteListMonitors -ma AGENT1
```

In this example the resource monitor MONITOR1 on AGENT1 is exported to the XML file filename1.xml:

```
fteListMonitors -ma AGENT1 -mn MONITOR1 -ox filename1.xml
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

## Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

## Related reference:

“**fteCreateMonitor** (create new resource monitor)” on page 490

The **fteCreateMonitor** command creates and starts a new resource monitor from the command line. You can monitor a resource (for example, the contents of a directory) using WebSphere MQ File Transfer Edition so that when a trigger condition is satisfied, a specified task, such as a file transfer, is started.

“**fteDeleteMonitor** (delete a WebSphere MQ File Transfer Edition resource monitor)” on page 534

Use the **fteDeleteMonitor** command to stop and delete an existing WebSphere MQ File Transfer Edition resource monitor using the command line. Issue this command against the resource monitoring agent.

## fteListScheduledTransfers (list scheduled file transfers)

### Purpose

Use the **fteListScheduledTransfers** command to list all of the WebSphere MQ File Transfer Edition transfers that you previously created either using the command line or the WebSphere MQ Explorer. You can either list all scheduled transfers based on source agent names or based on the coordination queue manager.

Specify the optional **-p** parameter for this command only if you want to use configuration options different from your defaults. If you do not specify **-p**, the configuration options defined in `wmqfte.properties` are used. See “Configuration options” on page 98 for more information.

### Syntax

#### fteListScheduledTransfers

```
►► fteListScheduledTransfers [-p (configuration_options)] [pattern] ►►
```

### Parameters

#### **-p** (*configuration\_options*)

Optional. If you have more than one coordination queue manager, use this parameter to explicitly specify which agents you want to list scheduled transfers for. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the configuration options associated with this non-default coordination queue manager.

If you do not specify this parameter, the configuration options based on the default coordination queue manager are used.

#### *pattern*

Optional. The pattern to use to filter the list of WebSphere MQ File Transfer Edition scheduled transfers. This pattern is matched against the source agent name. Asterisk (\*) characters are interpreted as wildcards that match zero or more characters.

If you do not specify this parameter, all of the scheduled transfers registered with the coordination queue manager are listed by default.

#### **-?** or **-h**

Optional. Displays command syntax.

## Example

In this example, all of the scheduled transfers with source agents that match the pattern \*2 are listed:  
`fteListScheduledTransfers "*2"`

This example command produces the following output. The schedule start time and next transfer time are displayed in Coordinated Universal Time (UTC):

```
Schedule Identifier:      1
Source Agent Name:       AGENT2
Source File Name:        C:/export/Test/workspace/A.exe
Conversion Type:         binary
Destination File Name:   C:/import/Test/workspace/B001.zzx
Destination Agent Name:  AGENT1
Schedule Start Time:     2008-10-23T16:08+0100
Next Transfer:           2008-10-23T16:08+0100
Schedule Time Base:      source
Repeat Interval:         minutes
Repeat Frequency:        1
Repeat Count:            30
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

### Related tasks:

“Creating a scheduled file transfer” on page 197

You can schedule a new file transfer either from the WebSphere MQ Explorer or from the command line. The scheduled transfer can contain single files or multiple files in a group. You can perform a scheduled file transfer once or repeat the transfer multiple times.

### Related reference:

“fteDeleteScheduledTransfer (delete a scheduled file transfer)” on page 536

## fteListTemplates (list WebSphere MQ File Transfer Edition templates)

Use the `fteListTemplates` command to list the available WebSphere MQ File Transfer Edition transfer templates on a coordination queue manager.

## Purpose

The `fteListTemplates` command is supported on WebSphere MQ File Transfer Edition Version 7.0.3 and later.

This command lists either all template names or a filtered selection of template names. The output format of the list can be any of the following:

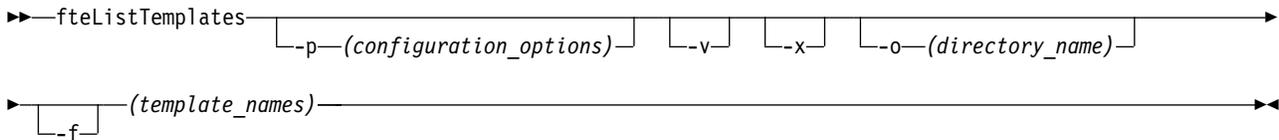
- Template names only (default behavior)
- Template names with a summary of the templates (verbose mode)
- Complete XML message describing the templates (`-x` and `-o` parameters)

This command uses the `coordination.properties` file to connect to the coordination queue manager. For more information, see “The `coordination.properties` file” on page 577.

Specify the optional `-p` parameter for this command only if you want to use a set of configuration options different from your default set. See Configuration options for more information.

## Syntax

## fteListTemplates



## Parameters

- p** Optional. This parameter determines the set of configuration options to use to delete the template. By convention use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

- v** Optional. Specifies verbose mode and provides a short summary of each matching template. This parameter is ignored if you have also specified the **-x** parameter.

The **-v** parameter includes a summary of each template. For example:

```
Template Name: STANDBY
Source Agent Name: AGENT1
Source QMgr: QM_JUPITER
Destination Agent Name: AGENT2
Destination QMgr: QM_NEPTUNE
Transfer Priority: 0
Transfer file specification
File Item Details
  Mode: binary
  Checksum: MD5
  Source File:
    C:\payroll_reports\*.xls
    Recursive: false
    Disposition: leave
  Destination File:
    C:\payroll_backup\*.xls
  Type: file
  Exist: error
```

If you do not specify the **-v** parameter, the default output mode is to list the matching templates names.

- x** Optional. Provides an XML-formatted message for each matching template. This parameter is ignored unless you also specify the **-o** parameter.
- o (directory\_name)** Optional. Sends the XML formatted-message to files in the named directory. One file for each template is created and each file has the same name as the template with an `.xml` suffix. This parameter is ignored unless you also specify the **-x** parameter.
- f** Optional. Forces any existing output file to be overwritten. This parameter is ignored unless you also specify the **-o** parameter. If you do not specify **-f** but you do specify the name of an existing output file, the default behavior is to report an error and continue.

### *template\_names*

Optional. A list of one or more template names to be listed. A template name can include an asterisk as a wildcard that matches zero or more characters. Depending on your operating system, you might need to enclose any template names that include wildcard character in quotation marks (" ") or single quotation marks ( ' ') to avoid shell expansion. Shell expansion can cause unexpected behavior.

If you do not specify anything for *template\_names*, the default is to list all templates.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example, all the templates with names starting with ST are listed:

```
fteListTemplates "ST*"
```

This example creates the template STANDBY as an XML-formatted message to the file STANDBY.xml in the current directory:

```
fteListTemplates -x -o . STANDBY
```

This command creates the following output in STANDBY.xml:

```
<?xml version="1.0" encoding="UTF-8" ?>
- <transferTemplate id="1864c1dd-ba02-4b34-bda9-dc6862448418" version="3.00">
  <name>STANDBY</name>
  <sourceAgentName>AGENT1</sourceAgentName>
  <sourceAgentQMgr>QM_JUPITER</sourceAgentQMgr>
  <sourceAgentQMgrHost>null</sourceAgentQMgrHost>
  <sourceAgentQMgrPort>-1</sourceAgentQMgrPort>
  <sourceAgentQMgrChannel>null</sourceAgentQMgrChannel>
  <destinationAgentName>AGENT2</destinationAgentName>
  <destinationAgentQMgr>QM_NEPTUNE</destinationAgentQMgr>
- <fileSpecs>
  - <item checksumMethod="MD5" mode="binary">
    - <source disposition="leave" recursive="false">
      <file>C:\payroll_reports\*.xls</file>
    </source>
    - <destination exist="error" type="file">
      <file>C:\payroll_backup\*.xls</file>
    </destination>
  </item>
</fileSpecs>
  <priority>0</priority>
</transferTemplate>
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

## Related tasks:

“Working with transfer templates” on page 222

You can use file transfer templates to store common file transfer settings for repeated or complex transfers. Either create a transfer template from the command line by using the **fteCreateTemplate** command or use the WebSphere MQ Explorer to create a transfer template by using the **Create New Template for Managed File Transfer** wizard, or save a template while you are creating a file transfer by selecting the **Save transfer settings as a template** check box. The **Transfer Templates** window displays all of the transfer templates that you have created in your WebSphere MQ File Transfer Edition network.

“Creating a file transfer template using the WebSphere MQ Explorer” on page 223

You can create a file transfer template from the WebSphere MQ Explorer or from the command line. You can then use that template to create new file transfers using the template details or submit the template to start the file transfer.

## Related reference:

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

“**fteDeleteTemplates** (delete WebSphere MQ File Transfer Edition templates)” on page 537

Use the **fteDeleteTemplates** command to delete an existing WebSphere MQ File Transfer Edition template from a coordination queue manager.

## fteModifyAgent (modify a WebSphere MQ File Transfer Edition agent)

The **fteModifyAgent** command modifies an existing agent so that it can be run as a Windows service. This command is only available on Windows.

## Syntax

### fteModifyAgent

```
ftemodifyagent --agentName (agent_name) [-p (configuration_options)]
[-s (service_name)] [-su (user_name)] [-sp (password)] [-sj (options)] [-sl (options)] [-n]
```

## Parameters

### -agentName (*agent\_name*)

Required. The name of the agent you want to modify.

### -p (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to modify the agent. By convention use the name of a non-default coordination queue manager as the input for this parameter. The **fteModifyAgent** command then uses the set of properties files associated with this non-default coordination queue manager.

Specify the optional **-p** parameter only if you want to use configuration options different from your defaults. If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

### -s (*service\_name*)

Optional. Indicates that the agent is to run as a Windows service. If you do not specify *service\_name*, the service is named **fteAgent<AGENT><QMGR>**, where *AGENT* is the agent name and *QMGR* is your agent queue manager name.

The display name for the service, which is shown in the Windows **Services** window in the **Name** column, is always **IBM WMQFTE agent <AGENT>@<QMGR>**.

**-su** (*user\_name*)

Optional. When the agent is to run as a Windows service, this parameter specifies the name of the account under which the service should run. To run the agent using a Windows domain user account specify the value in the form `DomainName\UserName`. To run the service using an account from the local built-in domain specify the value in the form `UserName`.

The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to grant this right, see “Guidance for running an agent or database logger as a Windows service” on page 402.

This parameter is required when **-s** is specified. Equivalent to **-serviceUser**.

**-sp** (*password*)

Optional. Password for the user account set by the **-su** or **-serviceUser** parameter.

This parameter is only valid when **-s** is specified. Equivalent to **-servicePassword**. If you do not specify this parameter when you specify the **-s** parameter, a warning message is produced. This message warns you that you must set the password using the Windows Services tool before the service will start successfully.

**-sj** (*options*)

Optional. When the agent is started as a Windows service, defines a list of options in the form of **-D** or **-X** that will be passed to the JVM. The options are separated using the number sign (#) or semicolon (;) character. If you need to embed any # or ; characters, put them inside single quotation marks.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceJVMOptions**.

**-sl** (*options*)

Optional. Sets the Windows service log level. Valid options are: `error`, `info`, `warn`, `debug`. The default is `info`. This option can be useful if you are having problems with the Windows service. Setting it to `debug` gives more detailed information in the service log file.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceLogLevel**.

**-n** Optional. Indicates that the agent is to be run as a normal process. This is mutually exclusive with the **-s** option. If neither the **-s** nor the **-n** option is specified, then the agent is configured as a normal Windows process.

Equivalent to **-normal**.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example, AGENT1 is modified to run as a Windows service:

```
fteModifyAgent -agentName AGENT1 -s -su fteuser -sp ftepassword
```

You must stop the agent you want to modify, using the `fteStopAgent` command, before you can run the `fteModifyAgent` command.

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

## Related concepts:

“Guidance for running an agent or database logger as a Windows service” on page 402

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

## Related tasks:

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

## Related reference:

“fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)” on page 478

The **fteCreateAgent** command creates an agent and its associated configuration.

“fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)”

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

## fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

The stand-alone database logger is shown as “IBM WMQFTE database logger for property set *qmgr unique\_ID*” in the **Name** column of the Services application. The value of *qmgr* is the name of the coordination queue manager. The value of *unique\_ID* is blank if the default properties file is used. If a non-default properties file is used, the value of *unique\_ID* is a randomly generated value.

## Syntax

### fteModifyDatabaseLogger

```
fteModifyDatabaseLogger [-p (configuration_options)]
                        [-s (service_name) -su (user_name) [-sp (password) [-sj (options) [-sl (options)]]]]
                        [-b (bits) [(properties file)]]
```

## Parameters

### -p (configuration\_options)

Optional. This parameter determines the set of configuration options that is used to modify the database logger. By convention use the name of a non-default coordination queue manager as the input for this parameter. The **fteModifyDatabaseLogger** command then uses the set of properties files associated with this non-default coordination queue manager.

Specify the optional **-p** parameter only if you want to use configuration options different from your defaults. If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

### -s (service\_name)

Optional. Indicates that the database logger is to run as a Windows service. If you do not specify *service\_name*, the service is named *fteDBLoggerQMGRRuniqueID*. The value of *QMGR* is the name of the

coordination queue manager. The value of *unique\_ID* is blank if the default properties file is used. If a non-default properties file is used, the value of *unique\_ID* is a randomly generated value.

**-su** (*user\_name*)

Optional. When the database logger is to run as a Windows service, this parameter specifies the name of the account under which the service should run. To run the agent using a Windows domain user account specify the value in the form `DomainName\UserName`. To run the service using an account from the local built-in domain specify the value in the form `UserName`.

The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to grant this right, see “Guidance for running an agent or database logger as a Windows service” on page 402.

This parameter is required when **-s** is specified. Equivalent to **-serviceUser**.

**-sp** (*password*)

Optional. Password for the user account set by the **-su** or **-serviceUser** parameter.

This parameter is only valid when **-s** is specified. Equivalent to **-servicePassword**. If you do not specify this parameter when you specify the **-s** parameter, a warning message is produced. This message warns you that you must set the password using the Windows Services tool before the service will start successfully.

**-sj** (*options*)

Optional. When the database logger is started as a Windows service, defines a list of options in the form of **-D** or **-X** that will be passed to the JVM. The options are separated using the number sign (#) or semicolon (;) character. If you need to embed any # or ; characters, put them inside single quotation marks.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceJVMOptions**.

**-sl** (*options*)

Optional. Sets the Windows service log level. Valid options are: `error`, `info`, `warn`, `debug`. The default is `info`. This option can be useful if you are having problems with the Windows service. Setting it to `debug` gives more detailed information in the service log file.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceLogLevel**.

**-n** Optional. Indicates that the database logger is to be run as a normal process. This is mutually exclusive with the **-s** option. If neither the **-s** nor the **-n** option is specified, then the database logger is configured as a normal Windows process.

Equivalent to **-normal**.

**-b** (*bits*)

Optional. Equivalent to **-bitMode**. Selects whether the database logger runs as a 32-bit or 64-bit process. Valid values are:

- 32 - run the database logger as a 32-bit process
- 64 - run the database logger as a 64-bit process

If this parameter is not specified, then the value of the **FTE\_BITMODE** environment variable is used to determine whether the database logger runs as a 32-bit or a 64-bit process. If the **FTE\_BITMODE** environment variable is not set and this parameter is not specified, then the default is to run the database logger as a 32-bit process.

*properties file*

Optional. By default, the stand-alone database logger properties file is assumed to be located in the directory `config_directory/coordination_qmgr_name`. You can optionally supply your own fully qualified path to a properties file containing the required properties for the stand-alone database logger to run. The log output is located under the default coordination queue manager directory in a folder called `logs` irrespective of where the properties file is located. You can alter the default configuration set by specifying the **-p** parameter on the command line.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example, the database logger is modified to run as a Windows service:

```
fteModifyDatabaseLogger -s -su fteuser -sp ftepassword
```

You must stop the database logger, using the `fteStopDatabaseLogger` command, before you can run the `fteModifyDatabaseLogger` command.

## Return codes

**0** Command completed successfully.

**1** Command ended unsuccessfully.

### Related concepts:

“Guidance for running an agent or database logger as a Windows service” on page 402

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

### Related tasks:

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

### Related reference:

“`fteStartDatabaseLogger` (start the stand-alone database logger)” on page 569

The **`fteStartDatabaseLogger`** command starts the stand-alone database logger.

“`fteStopDatabaseLogger` (stop the stand-alone database logger)” on page 572

The **`fteStopDatabaseLogger`** command stops the stand-alone database logger.

## **ftePingAgent (checks whether a WebSphere MQ File Transfer Edition agent is active)**

The **`ftePingAgent`** command pings a WebSphere MQ File Transfer Edition agent to determine whether the agent is active and able to process transfers.

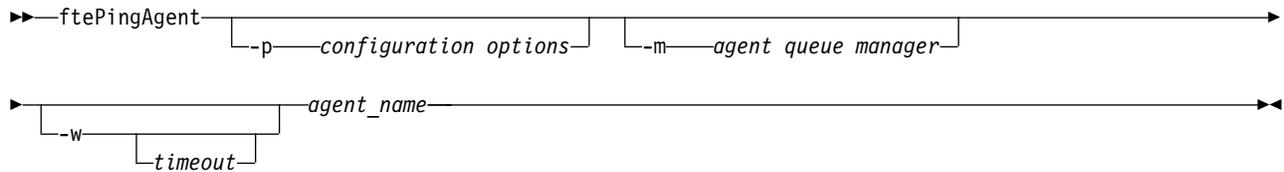
## Purpose

The **`ftePingAgent`** command is supported on WebSphere MQ File Transfer Edition Version 7.0.1 and later.

Use the **`ftePingAgent`** command to check the status of a WebSphere MQ File Transfer Edition agent. Specify the optional **`-p`** parameter for this command only if you want to use a set of configuration options different from your default set. See Configuration options for more information.

## Syntax

## ftePingAgent



## Parameters

### **-p** *configuration options*

Optional. This parameter determines the set of configuration options that is used to issue the request to ping an agent. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager. If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used. See Configuration options for more information.

### **-m** *queue manager*

Optional. The name of the queue manager that the agent you want to ping is connected to. If you do not specify the **-m** parameter the queue manager used is determined from the set of configuration options in use.

### **-w** *timeout*

Optional. Specifies that the command should wait for up to *timeout* seconds for the agent to respond. If you do not specify a timeout, or specify a timeout value of **-1**, then the command waits indefinitely until the agent responds. If you do not specify this option then the default is to wait up to five seconds for the agent to respond.

In Version 7.0.4 or earlier, the dead letter queue might fill up with messages from **ftePingAgent**, when the agent is unable to service the **ftePingAgent** request in time. Version 7.0.4.1 and later changes this behavior so that if *timeout* has been specified, **ftePingAgent** command messages will time out after double the value of *timeout* rather than going to the designated dead letter queue. The command messages will not time out if the command has been set to wait indefinitely.

### *agent name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to ping.

### **-?** or **-h**

Optional. Displays command syntax.

## Example

In this example, the command pings the agent AGENT1, which is connected to QM\_MERCURY. The command waits for up to 40 seconds for AGENT1 to respond before returning.

```
ftePingAgent -m QM_MERCURY -w 40 AGENT1
```

## Return codes

- 0 Command completed successfully. The agent is active and able to process transfers.
- 1 Command ended unsuccessfully. The command was not able to send a message to the agent.
- 2 Command ended with a timeout. The command sent a message to the agent, but the agent did not respond within the time.

**Related reference:**

“fteListAgents (list the WebSphere MQ File Transfer Edition agents for a coordination queue manager)” on page 540

Use the **fteListAgents** command to list all of the WebSphere MQ File Transfer Edition agents that are registered with a particular coordination queue manager from the command line.

“fteShowAgentDetails (display WebSphere MQ File Transfer Edition agent details)” on page 563

Use the **fteShowAgentDetails** command to display the details of a particular WebSphere MQ File Transfer Edition agent. These are the details that are stored by its WebSphere MQ File Transfer Edition coordination queue manager.

“What to do if you think that your transfer is stuck” on page 391

On a heavily loaded system or when there are network problems between the source and destination agents, transfers can occasionally appear to be stuck in a queued or recovering state. There are a number of factors that can cause this.

## **fteBatch, fteCommon, and ftePlatform scripts**

The **fteBatch**, **fteCommon**, and **ftePlatform** are scripts that are provided by WebSphere MQ File Transfer Edition in the *install\_directory/bin* directory as helper scripts. Not all of these scripts are present on every platform.

### **fteBatch script (z/OS only)**

**fteBatch** is a helper script for running WebSphere MQ File Transfer Edition from the JZOS Batch Launcher. **fteBatch** is installed on z/OS only. Typically WebSphere MQ File Transfer Edition is started by using the supplied command shell scripts, which perform some environment configuration before it starts the Java class appropriate to that function. When WebSphere MQ File Transfer Edition is started by using the JZOS Batch Launcher, the Java class is started directly from the Launcher. **fteBatch** can be called as part of the launcher setup to place the required class name into an environment variable and performs the setup work that the normal command shell scripts perform before it starts Java. This provides a level of isolation between your jobs and the internal class names that are used by WebSphere MQ File Transfer Edition.

You can find examples of the use of **fteBatch** in WebSphere MQ File Transfer Edition in the following JZOS Batch Launcher sample jobs: BFGZSAG, BFGZTR, and BFGZPAG. The references to **fteBatch** are in the BFGZENVS, BFGZENVT, and BFGZENVP members that are used by these jobs.

### **fteCommon**

**fteCommon** is a helper script started by the other WebSphere MQ File Transfer Edition command scripts to perform common setup processing before it starts Java.

### **ftePlatform**

**ftePlatform** is a helper script started by the **fteCommon** script to perform platform-specific setup processing.

**Related reference:**

“Using WebSphere MQ File Transfer Edition commands from JCL” on page 465  
On z/OS, you can invoke WebSphere MQ File Transfer Edition commands from JCL (Job Control Language) for integration into batch suites.

## **fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.3 or later)**

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.3 or later.

### **Purpose**

Use this command to switch agent trace on and off or change the level of agent trace that is set. When you use the **fteSetAgentTraceLevel** command, you do not have to shut down and restart an agent to modify the trace level. The trace files produced are located in *configuration\_directory/coordination\_qmgr\_name/agents/agent\_name/logs* .

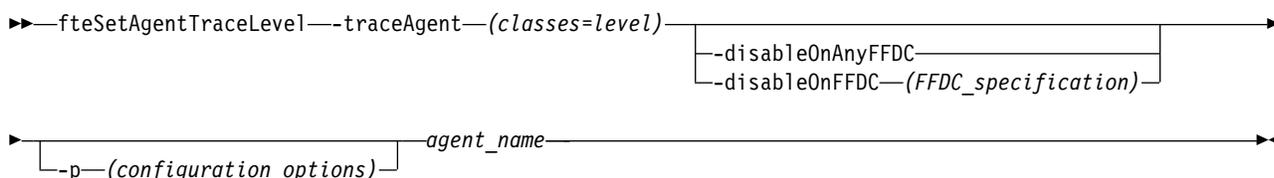
Because running trace can affect your performance significantly and can produce a large amount of trace data, run trace with care and only when necessary. Typically, enable trace only when asked to do so by your IBM service representative.

You can set further trace properties, for example trace file size and the number of trace files to keep, in the *agent.properties* file. These properties are described in Advanced agent properties.

Specify the optional *-p* parameter for this command only if you want to use a set of configuration options different from your default set. See Properties files for WebSphere MQ File Transfer Edition for more information.

### **Syntax**

#### **fteSetAgentTraceLevel**



### **Parameters**

#### **-traceAgent (classes=level)**

Required. Level to set the agent trace and which classes to apply the trace to. Specify the following format:

`classes=level`

For example:

`com.ibm.wmqfte=all`

Specify a comma-separated list of class specifications that you want the level of trace to apply to. If you do not specify this parameter, the trace level is applied to all agent classes.

If (*classes*) start with a plus sign (+), the list of trace classes following the plus sign are added to any existing trace classes currently being traced.

The valid trace level options are as follows and are listed in ascending order of trace file size and detail:

**off** Switches the agent trace off but continues to write information to the log files. This is the default option.

**flow** Captures data for trace points associated with processing flow in the agent.

**moderate**  
Captures a moderate amount of diagnostic information in the trace.

**verbose**  
Captures a verbose amount of diagnostic information in the trace.

**all** Sets agent trace to run on all agent classes.

#### **-disableOnAnyFFDC**

Optional. If this parameter is specified, trace is disabled on the agent when it generates a First Failure Data Capture (FFDC) file.

You can specify only one of the **-disableOnAnyFFDC** and **-disableOnFFDC** parameters.

#### **-disableOnFFDC** (*FFDC\_specification*)

Optional. If this parameter is specified, trace is disabled on the agent when it generates a First Failure Data Capture (FFDC) file that matches the *FFDC\_specification*. *FFDC\_specification* is a comma-separated list of values. The format of the values can be either:

##### *class\_name*

The name of the class where the FFDC originated. For example, `com.ibm.wmqfte.classA`.

##### *class\_name:probe\_ID*

The name of the class and the probe ID of the location in the class that the FFDC originated from. For example, `com.ibm.wmqfte.classB:1`.

You can specify only one of the **-disableOnAnyFFDC** and **-disableOnFFDC** parameters.

#### **-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to set the agent trace level. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

##### *agent\_name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to set the trace level for.

#### **-? or -h**

Optional. Displays command syntax.

## **Deprecated parameters**

The **-traceLevel** and **-traceClasses** parameters are not used by V7.0.3 and later. For information about using these parameters with V7.0.2 and earlier, see “`fteSetAgentTraceLevel` (set WebSphere MQ File Transfer Edition agent trace level V7.0.2 or earlier)” on page 384.

## **Example**

In this example, the trace level is set to `all` for all classes for `AGENT1`:

```
fteSetAgentTraceLevel -traceAgent com.ibm.wmqfte=all AGENT1
```

In this example, the trace level is set to all for the classes `com.ibm.wmqfte.agent.Agent` and `com.ibm.wmqfte.cmdhandler` for AGENT1:

```
fteSetAgentTraceLevel -traceAgent com.ibm.wmqfte.agent.Agent,com.ibm.wmqfte.cmdhandler=moderate AGENT1
```

In this example, subclasses are excluded from the trace because the **-traceLevel** parameter is set to off. All classes starting with `com.ibm.outer` are traced at verbose level except classes starting with `com.ibm.outer.inner`:

```
fteSetAgentTraceLevel -traceAgent com.ibm.outer=verbose AGENT1  
fteSetAgentTraceLevel -traceAgent +com.ibm.outer.inner=off AGENT1
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related reference:

“`fteSetAgentTraceLevel` (set WebSphere MQ File Transfer Edition agent trace level V7.0.2 or earlier)” on page 384

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.2 or earlier.

## fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.2 or earlier)

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.2 or earlier.

Use this command to switch agent trace on and off or change the level of agent trace that is set. When you use the **fteSetAgentTraceLevel** command, you do not have to shut down and restart an agent to modify the trace level. The trace files produced are located in *configuration\_directory/coordination\_qmgr\_name/agents/agent\_name/logs*.

Because running trace can affect your performance significantly and can produce a large amount of trace data, run trace with care and only when necessary. Typically, enable trace only when asked to do so by your IBM service representative.

You can set further trace properties, for example trace file size and the number of trace files to keep, in the `agent.properties` file. These properties are described in Advanced agent properties.

Specify the optional `-p` parameter for this command only if you want to use a set of configuration options different from your default set. See Properties files for WebSphere MQ File Transfer Edition for more information.

## Syntax

### fteSetAgentTraceLevel

```
►► fteSetAgentTraceLevel --traceLevel—(trace_level) —————►  
└──traceClasses—(trace_classes)┘  
  
└──agentQMGr—(agent_qmgr_name)┘ └──p—(configuration_options)┘ —agent_name—►
```

## Parameters

### **-traceLevel** (*trace\_level*)

Required. Level to set the agent trace to. The valid trace options are as follows and are listed in ascending order of trace file size and detail:

**off** Switches the agent trace off but continues to write information to the log files. This is the default option.

**flow** Captures data for trace points associated with processing flow in the agent.

### **moderate**

Captures a moderate amount of diagnostic information in the trace.

### **verbose**

Captures a verbose amount of diagnostic information in the trace.

**all** Sets agent trace to run on all agent classes.

### **-traceClasses** (*trace\_classes*)

Optional. The classes to apply the agent trace to. Specify a comma-separated list of class specifications. If you do not specify this parameter, the trace level is applied to all agent classes.

If (*trace\_classes*) start with a plus sign (+), the list of trace classes following the plus sign are added to any existing trace classes currently being traced.

### **-agentQMgr** (*agent\_qmgr\_name*)

Optional. The name of the agent queue manager. If you do not specify this parameter, the value is determined from the set of configuration options in use.

### **-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to set the agent trace level. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

### *agent\_name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to set the trace level for.

### **-? or -h**

Optional. Displays command syntax.

## Example

In this example, the trace level is set to all for all classes for AGENT1:

```
fteSetAgentTraceLevel -traceLevel all AGENT1
```

In this example, the trace level is set to all for the classes com.ibm.wmqfte.agent.Agent and com.ibm.wmqfte.cmdhandler for AGENT1:

```
fteSetAgentTraceLevel -traceLevel moderate  
-traceClasses com.ibm.wmqfte.agent.Agent,com.ibm.wmqfte.cmdhandler AGENT1
```

In this example, subclasses are excluded from the trace because the **-traceLevel** parameter is set to off. All classes starting with com.ibm.outer are traced at verbose level except classes starting with com.ibm.outer.inner:

```
fteSetAgentTraceLevel -traceClasses com.ibm.outer -traceLevel verbose AGENT1  
fteSetAgentTraceLevel -traceClasses +com.ibm.outer.inner -traceLevel off AGENT1
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

### Related reference:

“fteSetAgentTraceLevel (set WebSphere MQ File Transfer Edition agent trace level V7.0.3 or later)” on page 382

Use the **fteSetAgentTraceLevel** command to modify the current trace level for an agent dynamically. The command syntax described in this topic is valid for WebSphere MQ File Transfer Edition V7.0.3 or later.

## fteSetupCommands (create the command.properties file)

The **fteSetupCommands** command creates the `command.properties` file. This properties file specifies the details of the queue manager that connects to the WebSphere MQ network when you issue commands.

### Purpose

Use the **fteSetupCommands** command to create a `command.properties` file in the coordination queue manager directory. The command uses the `install.properties` and `wmqfte.properties` files to determine where to locate the `command.properties` file. Ensure that you have already created and configured a coordination queue manager before you issue the **fteSetupCommands** command.

For more information about properties files, see [Properties files for WebSphere MQ File Transfer Edition](#).

### Syntax

#### fteSetupCommands

```
fteSetupCommands -connectionQMgr (connection_qmgr_name)
                 [-connectionQMGrHost (connection_qmgr_host)] [-connectionQMGrPort (connection_qmgr_port)]
                 [-connectionQMGrChannel (connection_qmgr_channel)] [-p (configuration_options)] [-f]
```

### Parameters

#### **-connectionQMGr** (*connection\_qmgr\_name*)

Required. The name of the queue manager used to connect to the WebSphere MQ network to issue commands.

#### **-connectionQMGrHost** (*connection\_qmgr\_host*)

Optional. The host name or IP address of the connection queue manager.

If you do not specify the **-connectionQMGrHost** parameter, a bindings mode connection is assumed.

If you specify a value for the **-connectionQMGrHost** parameter but do not specify values for the **-connectionQMGrPort** and **-connectionQMGrChannel** properties, a port number of 1414 and a channel of `SYSTEM.DEF.SVRCONN` are used by default.

#### **-connectionQMGrPort** (*connection\_qmgr\_port*)

Optional. The port number used to connect to the connection queue manager in client mode. If you specify the **-connectionQMGrPort** parameter, you must also specify the **-connectionQMGrHost** parameter.

#### **-connectionQMGrChannel** (*connection\_qmgr\_channel*)

Optional. The channel name used to connect to the connection queue manager. If you specify the **-connectionQMGrChannel** parameter, you must also specify the **-connectionQMGrHost** parameter.

**-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to set up a command queue manager. Use the name of a non-default coordination queue manager as the input for this parameter. The **fteSetupCommands** command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

**-f** Optional. Forces an overwrite of the existing `command.properties` file with the details specified in this command.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example

```
fteSetupCommands -connectionQMGr QM_NEPTUNE -connectionQMGrHost 9.146.157.241  
-connectionQMGrPort 1414 -connectionQMGrChannel SYSTEM.DEF.SVRCONN
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related reference:

“The `command.properties` file” on page 580

The `command.properties` file specifies the command queue manager to connect to when you issue commands and the information that WebSphere MQ File Transfer Edition requires to contact that queue manager.

“`fteSetupCoordination` (set up coordination details)”

The **fteSetupCoordination** command creates properties files and the coordination queue manager directory for WebSphere MQ File Transfer Edition.

## fteSetupCoordination (set up coordination details)

The **fteSetupCoordination** command creates properties files and the coordination queue manager directory for WebSphere MQ File Transfer Edition.

## Purpose

Use the **fteSetupCoordination** command to create the following WebSphere MQ File Transfer Edition objects:

- Coordination queue manager directory
- Data directory (if this does not exist)
- `wmqfte.properties` file
- `coordination.properties` file

This command also provides you with the following MQSC commands that you must run against your coordination queue manager to configure WebSphere MQ File Transfer Edition. The MQSC commands create a topic, a topic string, the `SYSTEM.FTE` queue, and the default database logger queues. These commands also update a namelist and set the `PSMODE` attribute of the coordination queue manager to `ENABLED`:

```
DEFINE TOPIC('SYSTEM.FTE') TOPICSTR('SYSTEM.FTE') REPLACE  
ALTER TOPIC('SYSTEM.FTE') NPMSGDLV(ALLAVAIL) PMSGDLV(ALLAVAIL)  
DEFINE QLOCAL(SYSTEM.FTE) LIKE(SYSTEM.BROKER.DEFAULT.STREAM) REPLACE  
ALTER QLOCAL(SYSTEM.FTE) DESCR('Stream for WMQFTE Pub/Sub interface')
```

```

* Altering namelist: SYSTEM.QPUBSUB.QUEUE.NAMELIST
* Value prior to alteration:
DISPLAY NAMELIST(SYSTEM.QPUBSUB.QUEUE.NAMELIST)
ALTER NAMELIST(SYSTEM.QPUBSUB.QUEUE.NAMELIST) +
  NAMES(SYSTEM.BROKER.DEFAULT.STREAM+
    ,SYSTEM.BROKER.ADMIN.STREAM,SYSTEM.FTE)
* Altering PSMODE. Value prior to alteration:
DISPLAY QMGR PSMODE
ALTER QMGR PSMODE(ENABLED)
DEFINE QLOCAL(SYSTEM.FTE.DATABASELOGGER.REJECT) +
  DESCR('Messages rejected by the FTE database logger.') +
  DEFPRTY(0) +
  DEFSOPT(SHARED) +
  GET(ENABLED) +
  MAXDEPTH(999999999) +
  MAXMSGL(4194304) +
  MSGDLVSQ(PRIORITY) +
  PUT(ENABLED) +
  RETINTVL(999999999) +
  SHARE +
  NOTRIGGER +
  USAGE(NORMAL) +
  REPLACE
DEFINE QLOCAL(SYSTEM.FTE.DATABASELOGGER.COMMAND) +
  DESCR('Command messages to control the FTE database logger.') +
  DEFPRTY(0) +
  DEFSOPT(SHARED) +
  GET(ENABLED) +
  MAXDEPTH(999999999) +
  MAXMSGL(4194304) +
  MSGDLVSQ(PRIORITY) +
  PUT(ENABLED) +
  RETINTVL(5000) +
  SHARE +
  NOTRIGGER +
  USAGE(NORMAL) +
  REPLACE

```

For more information about properties files, see Configuration options.

If you are using z/OS, you can issue the **fteSetupCoordination** command and other commands from JCL. See Using WebSphere MQ File Transfer Edition commands from JCL for more information.

## Syntax

### fteSetupCoordination

```

▶▶ fteSetupCoordination --coordinationQMGr--(coordination_qmgr_name)
└─┬─coordinationQMGrHost--(coordination_qmgr_host)
└─┬─coordinationQMGrPort--(coordination_qmgr_port)
└─┬─coordinationQMGrChannel--(coordination_qmgr_channel) ┌─f─┐ ┌─default─┐

```

## Parameters

**-coordinationQMgr** (*coordination\_qmgr\_name*)

Required. The name of the coordination queue manager. This queue manager must be a WebSphere MQ Version 7.0 or later queue manager.

**-coordinationQMgrHost** (*coordination\_qmgr\_host*)

Optional. The host name or IP address of the coordination queue manager.

If you do not specify the **-coordinationQMgrHost** parameter, a bindings mode connection is assumed.

If you specify a value for the **-coordinationQMgrHost** parameter but do not specify values for the **-coordinationQMgrPort** and **-coordinationQMgrChannel** parameters, a port number of 1414 and a channel of SYSTEM.DEF.SVRCONN are used by default.

**-coordinationQMgrPort** (*coordination\_qmgr\_port*)

Optional. The port number used for client connections to the coordination queue manager. If you specify the **-coordinationQMgrPort** parameter, you must also specify the **-coordinationQMgrHost** parameter.

**-coordinationQMgrChannel** (*coordination\_qmgr\_channel*)

Optional. The channel name used to connect to the coordination queue manager. If you specify the **-coordinationQMgrChannel** parameter, you must also specify the **-coordinationQMgrHost** parameter.

**-f** Optional. Forces an overwrite of the existing coordination queue manager configuration with the details specified in this command.

**-default**

Optional. Updates the default configuration options to the options associated with the coordination queue manager specified in this command.

**-? or -h**

Optional. Displays command syntax.

## Example

In this example, the required objects are set up for a coordination queue manager called QM\_SATURN, which is connected to in client mode:

```
fteSetupCoordination -coordinationQMgr QM_SATURN  
-coordinationQMgrHost myhost.ibm.com -coordinationQMgrPort 1415  
-coordinationQMgrChannel SYSTEM.DEF.SVRCONN
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

### Related concepts:

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

### Related tasks:

“Configuring the coordination queue manager” on page 106

After installation, run the *coordination\_qmgr\_name.mqsc* script in the *config\_directory/coordination\_qmgr\_name* directory to perform the necessary configuration for the coordination queue manager. For example, on Linux the *coordination\_qmgr\_name.mqsc* file is in the */var/ibm/WMQFTE* or */var/IBM/WMQFTE* directory by default. However, if you want to do this configuration manually, complete the following steps on the coordination queue manager.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, *agent.properties*, that must contain the information that an agent uses to connect to its queue manager. The *agent.properties* file can also contain properties that alter the behavior of the agent.

## **fteShowAgentDetails (display WebSphere MQ File Transfer Edition agent details)**

Use the **fteShowAgentDetails** command to display the details of a particular WebSphere MQ File Transfer Edition agent. These are the details that are stored by its WebSphere MQ File Transfer Edition coordination queue manager.

### **Purpose**

You can run the **fteShowAgentDetails** command from any system that can connect to the coordination queue manager. The agent details are directed to the standard output device (STDOUT). The **fteShowAgentDetails** command lists the following details for a particular WebSphere MQ File Transfer Edition agent:

- Agent name
- Agent type
- Agent description
- Operating system
- Agent time zone
- Agent availability status
- Agent queue manager
- Agent queue manager transport type
- Agent queue manager host name
- Agent queue manager port (applies to client transport mode only)
- Agent queue manager channel (applies to client transport mode only)
- If the agent is a protocol bridge agent, its protocol bridge server host name or IP address. From Version 7.0.4.1 with the new function enabled, this entry displays the host server of the default protocol bridge server, if a default server has been configured.
- From Version 7.0.4.1 with the new function enabled, if the agent is a protocol bridge agent this entry indicates whether the agent can have multiple endpoints.
- If the agent is a web agent, the name of the Web Gateway that the agent is a component of
- If the agent is a Connect:Direct bridge agent, the name of the node it connects to
- If the agent is a Connect:Direct bridge agent, the host name or IP address of the system where the node is located and the port number that the node listens on

When specified with the **-v** parameter the command also lists the following details for the WebSphere MQ File Transfer Edition agent:

- Agent host name
- Agent product version
- Agent build level
- Agent trace First Failure Data Capture (FFDC) specification
- Maximum number of source transfers
- Maximum number of queued transfers
- Maximum number of destination transfers
- Current source transfer states
- Current destination transfer states

This command uses the `coordination.properties` file to connect to the coordination queue manager.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Properties files for WebSphere MQ File Transfer Edition for more information.

The agent status information produced by this command is generated from the status messages that the agent publishes to the `SYSTEM.FTE` topic. These messages are described in “Agent status message format” on page 658. The status information produced by the **fteShowAgentDetails** command gives the agent status at the time when the last status message was published. The frequency of these status messages depends on the value of the `agentStatusPublishRateLimit` property. For more details about this property, see “The `agent.properties` file” on page 583.

For a list of the possible agent status values and their meanings, see “Agent status values” on page 721.

For a list of agent trace values and FFDC specifications and their meanings, see “`fteSetAgentTraceLevel` (set WebSphere MQ File Transfer Edition agent trace level V7.0.3 or later)” on page 382

## Syntax

### **fteShowAgentDetails**

```
▶▶ fteShowAgentDetails [-b] [-p configuration_options] [-v] agent_name ▶▶
```

## Parameter

### **-b**

Optional. Additionally outputs the product build level for the agent.

### **-p** *configuration\_options*

Optional. This parameter determines the set of configuration options that is used to issue the request to display the details of an agent. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

### **-v**

Optional. Specifies verbose mode, which generates additional output for the agent, including the product build level and a list of transfer states for each of the current source and destination transfers.



Status Details: The agent is running and is publishing its status at regular intervals. The last update was received within the expected time period.

Queue Manager Information:

Name: QM\_JUPITER  
Transport: Bindings

Maximum Number of Running Source Transfers: 25  
Maximum Number of Queued Source Transfers: 1000  
Source Transfer States:  
No current transfers

Maximum Number of Running Destination Transfers: 25  
Destination Transfer States:

TransferId	State
414d51204d49414f572020202020202020822c5b4a648c0b20	progress
414d51204d49414f572020202020202020822c5b4a346c0b20	progress

In this example, the results for a Connect:Direct bridge agent are displayed.

fteShowAgentDetails AG\_CD1

5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2018. ALL RIGHTS RESERVED

Agent Information:

Name: AG\_CD1  
Type: Connect:Direct bridge  
Description:  
Connect:Direct Node Name: CDNODE  
Connect:Direct Node Host: localhost:1363  
Operating System: Windows Server 2003  
Time Zone: Greenwich Mean Time

Agent Availability Information:

Status: STOPPED  
Status Details: The agent has been stopped. It was shut down in a controlled manner.

Queue Manager Information:

Name: QM\_JUPITER  
Transport: Bindings

In this example for Version 7.0.4.1 (with the new function enabled) and later, the verbose details for agent AGENT1 are displayed.

fteShowAgentDetails -v AGENT1

The output from this command for an agent that connects to its queue manager in client mode is as follows:

Agent Information:

Name: AGENT1  
Type: Standard  
Description: Test Agent  
Operating System: Linux  
Host Name: HOSTNAME1  
Time Zone: Greenwich Mean Time  
Product Version: 7.0.4.1  
Build Level: f000-xyz-20110711-1701  
Trace Level: com.ibm.wmqfte.Agent=all  
com.ibm.wmqfte.common=all  
Trace FFDC: com.ibm.wmqfte.common:Any  
com.ibm.wmqfte.Agent:1

Agent Availability Information:

Status: RUNNING  
Status Details: The agent is running and is publishing its status at regular intervals. The last update was received

within the expected time period.

Queue Manager Information:

Name: QM\_JUPITER  
Transport: Client  
Host: dhcp-9-20-98-97.hursley.ibm.com  
Port: 1414  
Channel: SYSTEM.DEF.SVRCONN

Maximum Number of Running Source Transfers: 25  
Maximum Number of Queued Source Transfers: 1000  
Source Transfer States:  
No current transfers

Maximum Number of Running Destination Transfers: 25  
Destination Transfer States:  
No current transfers

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related reference:

“fteListAgents (list the WebSphere MQ File Transfer Edition agents for a coordination queue manager)” on page 540

Use the **fteListAgents** command to list all of the WebSphere MQ File Transfer Edition agents that are registered with a particular coordination queue manager from the command line.

“Agent status values” on page 721

The **fteListAgents** and **fteShowAgentDetails** commands produce agent status information. There are several possible values for this status.

“fteListAgents (list the WebSphere MQ File Transfer Edition agents for a coordination queue manager)” on page 540

Use the **fteListAgents** command to list all of the WebSphere MQ File Transfer Edition agents that are registered with a particular coordination queue manager from the command line.

## fteStartAgent (start a WebSphere MQ File Transfer Edition agent)

The **fteStartAgent** command starts a WebSphere MQ File Transfer Edition agent from the command line.

### Purpose

Use the **fteStartAgent** command to start a WebSphere MQ File Transfer Edition agent. You must start an agent before you can use it to perform file transfers. The **fteStartAgent** command starts an agent on the system where you issue the command; you cannot start an agent on a remote system.

If you have configured the agent to run as a Windows service by using the **fteCreateAgent** or **fteModifyAgent** command, running the **fteStartAgent** command starts the Windows service.

This command returns an error if the agent does not start or is already started. The agent communicates with its queue manager based on the values defined in the `agent.properties` file.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Properties files for WebSphere MQ File Transfer Edition for more information.

### Syntax

## fteStartAgent

► fteStartAgent `-F` `-p (configuration_options)` *agent\_name* ►

### Parameter

**-F** Optional. This parameter runs the agent daemon as a foreground process. The default is for the agent daemon to run in the background.

If you are running on Windows, and you have configured the agent to run as a Windows service by using the **fteCreateAgent** or **fteModifyAgent** commands, the **-F** parameter overrides this configuration.

**-p (configuration\_options)**

Optional. This parameter determines the set of configuration options that is used to issue the request to start an agent. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

*agent\_name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to start.

**-? or -h**

Optional. Displays command syntax.

### Example

In this example, AGENT2 is started and runs in the foreground.

```
fteStartAgent -F AGENT2
```

In the following example (for UNIX and Linux systems), AGENT2 is started with a non-default coordination queue manager, QM\_SATURN:

```
./fteStartAgent -p QM_SATURN AGENT2
```

You can also run the command by specifying the path to **fteStartAgent** as follows:

```
<path>/fteStartAgent agentname
```

### Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Responses

In some circumstances, you might see error messages after running the **fteStartAgent** command:

- If you run the **fteStartAgent** command and see the following error message, your environment probably has additional library paths that conflict with WebSphere MQ File Transfer Edition:

```
BFGCL0001E: An internal error has occurred. The exception was: 'CC=2;RC=2495;AMQ8568: The native JNI library 'mqjbn' was
```

If the LD\_LIBRARY\_PATH or LIBPATH environment variable is set to reference a 64-bit version of the library before the 32-bit version when the agent is running with a 32-bit version of Java (as is currently the case for most platforms), this error occurs.

To resolve this issue, set the WebSphere MQ File Transfer Edition agent property `javaLibraryPath` to reference the correct location for the library. For example, for `mqjbnd` on AIX, set to: `/usr/mqm/java/lib`. For `mqjbnd` on Linux, set to: `/opt/mqm/java/lib`

#### Related tasks:

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

“Listing WebSphere MQ File Transfer Edition agents” on page 251

You can list the agents registered with a particular queue manager using the command line or the WebSphere MQ Explorer.

“Stopping a WebSphere MQ File Transfer Edition agent” on page 252

You can stop an agent from the command line. When you stop an agent, you are quiescing the agent and allowing the agent to complete its current file transfer before stopping. You can also specify the `-i` parameter at the command line to stop an agent immediately. When the agent has stopped, you cannot use that agent to transfer files until you restart it.

#### Related reference:

“Starting an agent on z/OS” on page 189

On z/OS in addition to running the `fteStartAgent` command from a UNIX System Services session, you can start an agent as a started task from JCL without the need for an interactive session. A started task is used because it runs under a specific user ID and is not affected by end users logging off.

## fteStartDatabaseLogger (start the stand-alone database logger)

The `fteStartDatabaseLogger` command starts the stand-alone database logger.

### Purpose

The `fteStartDatabaseLogger` command is supported on WebSphere MQ File Transfer Edition Version 7.0.1 and later.

Use the `fteStartDatabaseLogger` command to start the stand-alone database logger. The stand-alone database logger is a Java application that runs on the same system as the coordination queue manager. For more information, see the topic “Configuring a WebSphere MQ File Transfer Edition logger” on page 123.

If you have configured the stand-alone database logger to run as a Windows service by using the `fteModifyDatabaseLogger` command, running the `fteStartDatabaseLogger` command starts the Windows service.

### Syntax

#### fteStartDatabaseLogger

```
▶▶ fteStartDatabaseLogger [-p configuration options] [-F] [-b bits] [properties file] ▶▶
```

### Parameters

`-p configuration options`

Optional. Determines the set of configuration options that is used to start the stand-alone database logger. Use the name of a set of configuration options as the value for the `-p` parameter. By convention this value is the name of a coordination queue manager. If you do not specify this parameter, the default set of configuration options is used.

`-F` Optional. Runs the stand-alone database logger as a foreground process (rather than as the default

background process). If you have configured the stand-alone database logger to run as a Windows service by using the **fteModifyDatabaseLogger** command, the **-F** parameter overrides this configuration.

**-b** *bits*

Optional. Equivalent to **-bitMode**. Selects whether the stand-alone database logger runs as a 32-bit or 64-bit process. Valid values are:

- 32 - run the stand-alone database logger as a 32-bit process
- 64 - run the stand-alone database logger as a 64-bit process

If this parameter is not specified, then the value of the **FTE\_BITMODE** environment variable is used to determine whether the stand-alone database logger runs as a 32-bit or a 64-bit process. If the **FTE\_BITMODE** environment variable is not set and this parameter is not specified, then the default is to run the stand-alone database logger as a 32-bit process.

*properties file*

Optional. By default, the stand-alone database logger properties file is assumed to be located in the directory *config\_directory/coordination\_qmgr\_name*. You can optionally supply your own fully qualified path to a properties file containing the required properties for the stand-alone database logger to run. The log output is located under the default coordination queue manager directory in a folder called logs irrespective of where the properties file is located. You can alter the default configuration set by specifying the **-p** parameter on the command line.

**-?** or **-h**

Optional. Displays command syntax.

## Example

In this example, the stand-alone database logger is started as a foreground process with the property set defined in the file */wmqfte/config/COORDQM/logger1.properties*.

```
fteStartDatabaseLogger -F /wmqfte/config/COORDQM/logger1.properties
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related concepts:

“Configuring a WebSphere MQ File Transfer Edition logger” on page 123

### Related reference:

“fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

“fteStopDatabaseLogger (stop the stand-alone database logger)” on page 572

The **fteStopDatabaseLogger** command stops the stand-alone database logger.

“Database logger error handling and rejection” on page 405

The database logger identifies two types of error: per-message errors and general errors.

## fteStopAgent (stop a WebSphere MQ File Transfer Edition agent)

Use the **fteStopAgent** command to either stop a WebSphere MQ File Transfer Edition agent in a controlled way or to stop an agent immediately if necessary using the **-i** parameter.

## Purpose

When you stop an agent by using the **fteStopAgent** command, you can either allow the agent to complete its current file transfer before stopping, or stop the agent immediately even if the agent is currently transferring a file. When the agent has stopped, you cannot use that agent to transfer files until you restart the agent.

You can run the **fteStopAgent** command from any system that can connect to the WebSphere MQ network and then route to the agent queue manager. Specifically for the command to run, you must have installed a WebSphere MQ File Transfer Edition component (either Server, Client, or Remote Tools and Documentation) on this system and you must have configured the WebSphere MQ File Transfer Edition on this system to communicate with the WebSphere MQ network. If no connectivity details are available, then a bindings mode connection is made to the default queue manager on the local system. If `command.properties` does not exist then an error is generated.

Specify the optional **-p** parameter for this command only if you want to use a set of configuration options different from your default set. See Properties files for WebSphere MQ File Transfer Edition for more information.

If your agent is running as a Windows service, running the **fteStopAgent** command stops the Windows service. For more information, see “Starting an agent as a Windows service” on page 191.

## Syntax

### fteStopAgent

```
►► fteStopAgent [-m (agent_qmgr_name)] [-p (configuration_options)] [-i] agent_name ►►
```

## Parameters

### **-m** (*agent\_qmgr\_name*)

Optional. The name of the queue manager that the agent that you want to stop is connected to. If you do not specify this parameter, the stop request is sent to the queue manager identified by the set of configuration options you are using.

### **-p** (*configuration\_options*)

Optional. This parameter determines the set of configuration options that is used to issue the request to stop an agent. Use the name of a non-default coordination queue manager as the input for this parameter. The command then uses the set of properties files associated with this non-default coordination queue manager.

If you do not specify this parameter, the set of configuration options based on the default coordination queue manager is used.

### **-i**

Optional. Immediately stops the agent. The agent does not complete any transfers that are currently in progress.

If you do not specify the **-i** parameter, the agent completes any transfers currently in progress but the agent does not start any new transfers.

### *agent\_name*

Required. The name of the WebSphere MQ File Transfer Edition agent that you want to stop.

### **-?** or **-h**

Optional. Displays command syntax.

## Example

In this example the agent AGENT2 on queue manager QM\_JUPITER is stopped. The -m parameter is used because this queue manager that AGENT2 is connected to differs from the queue manager specified by the set of configuration options.

```
fteStopAgent -m QM_JUPITER AGENT2
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

### Related tasks:

“Stopping a WebSphere MQ File Transfer Edition agent” on page 252

You can stop an agent from the command line. When you stop an agent, you are quiescing the agent and allowing the agent to complete its current file transfer before stopping. You can also specify the **-i** parameter at the command line to stop an agent immediately. When the agent has stopped, you cannot use that agent to transfer files until you restart it.

### Related reference:

“**fteStartAgent** (start a WebSphere MQ File Transfer Edition agent)” on page 567

The **fteStartAgent** command starts a WebSphere MQ File Transfer Edition agent from the command line.

“Stopping an agent on z/OS” on page 253

If you are running a WebSphere MQ File Transfer Edition agent on z/OS as a started task from JCL, the agent accepts the z/OS operator commands **MODIFY** and **STOP**, in addition to the **fteStopAgent** command.

## fteStopDatabaseLogger (stop the stand-alone database logger)

The **fteStopDatabaseLogger** command stops the stand-alone database logger.

### Purpose

The **fteStopDatabaseLogger** command is supported on WebSphere MQ File Transfer Edition Version 7.0.1 and later.

Use the **fteStopDatabaseLogger** command to stop the stand-alone database logger. The stand-alone database logger is a stand-alone Java application that runs on the same system as the coordination queue manager and the database.

### Additional notes about stopping the stand-alone database logger

The **fteStopDatabaseLogger** command sends a message to the command queue used by the stand-alone database logger. If you run **fteStopDatabaseLogger** while the stand-alone database logger is not running, a command message is still placed on the queue. When the stand-alone database logger is next started, the logger immediately receives this command message, and shuts down. If you have issued many stop commands to a stand-alone database logger that is not running, you must repeatedly start the logger until all the stop commands have been consumed. Alternatively, you can clear the command queue to remove all pending commands.

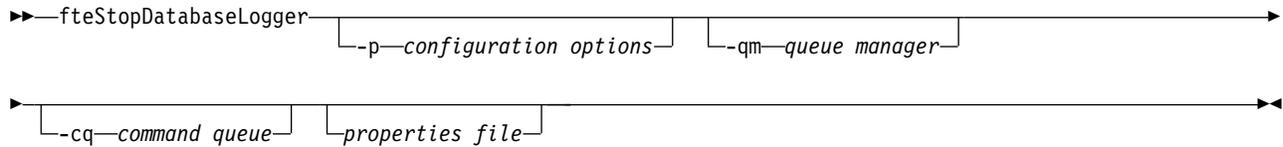
If your stand-alone database logger is running as a Windows service, running the **fteStopDatabaseLogger** command stops the Windows service.

Some error conditions, typically accompanied by message BFGDB0038E, prevent the stand-alone database logger from reading commands. To stop a stand-alone database logger in this state, use your operating system facilities to end the process (for example, the UNIX **kill** command or the Windows Task

Manager). The XA transaction protocol used by the stand-alone database logger ensures that no messages are lost when the process is ended.

## Syntax

### **fteStopDatabaseLogger**



## Parameters

### **-p** (*configuration options*)

Optional. Determines the set of configuration options that is used to stop the stand-alone database logger. Use the name of a set of configuration options as the value for the **-p** parameter. By convention this value is the name of a coordination queue manager. If you do not specify this parameter, the default set of configuration options is used.

### **-qm** (*queue manager*)

Optional. By default, the command queue used by the stand-alone database logger is assumed to be on the coordination queue manager specified by the **-p** parameter (or its default). If it is necessary to send stand-alone database logger commands to a command queue located elsewhere, the **-qm** parameter can be used to specify an alternative destination. In all cases, note that the command connects to the command queue manager implied by the **-p** parameter, regardless of the ultimate destination of the message.

### **-cq** (*command queue*)

Optional. Specifies the command queue to which the stop message is sent. In most cases, stand-alone database loggers use the default queue name and this parameter is not necessary.

### *properties file*

Optional. By default, the stand-alone database logger's properties file is assumed to be located in the coordination queue manager's directory. You can optionally supply your own fully qualified path to a properties file containing the required properties for the stand-alone database logger to run. If you specified a properties file for the **fteStartDatabaseLogger** command, specify the same properties file for this command.

### **-?** or **-h**

Optional. Displays command syntax.

## Example

In this example, a stand-alone database logger with command queue, FTE.LOGGER2.COMMAND on queue manager PLUTO, is stopped.

```
fteStopDatabaseLogger -qm PLUTO -cq FTE.LOGGER2.COMMAND
```

## Return codes

- 0 Command completed successfully.
- 1 Command ended unsuccessfully.

**Related concepts:**

“Configuring a WebSphere MQ File Transfer Edition logger” on page 123

**Related reference:**

“fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)” on page 550

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

“fteStartDatabaseLogger (start the stand-alone database logger)” on page 569

The **fteStartDatabaseLogger** command starts the stand-alone database logger.

## Configuring

### The install.properties file

The `install.properties` file specifies the path to your WebSphere MQ File Transfer Edition configuration directory. This data directory contains configuration files and log files. If you administer WebSphere MQ File Transfer Edition from the WebSphere MQ Explorer, WebSphere MQ File Transfer Edition uses the information in the `install.properties` file to set the path to your configuration directory.

The `install.properties` file is located in your WebSphere MQ File Transfer Edition installation directory. By default, the file is located in the following directory:

- On Windows, `C:\Program Files\IBM\WMQFTE\`
- On UNIX, `/opt/IBM/WMQFTE/`
- On Linux, `/opt/ibm/WMQFTE/`

z/OS systems have the `FTE_CONFIG` environment variable instead of the `install.properties` file.

The `install.properties` file contains the following values:

*Table 22. Basic properties*

Property name	Description	Default value
<code>dataDirectory</code>	The name of the directory containing configuration information for WebSphere MQ File Transfer Edition.	The configuration directory you specified when you installed the product.

The following text is an example of the contents of a `install.properties` file.

```
dataDirectory=/var/ibm/WMQFTE/config
```

The directory `/var/ibm/WMQFTE/config` is the name of your configuration directory. This directory contains directories and properties files that describe one or many sets of configuration options.

### Related concepts:

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

## The `wmqfte.properties` file

The `wmqfte.properties` file specifies the name of your default set of configuration options. This entry points WebSphere MQ File Transfer Edition to a structured set of directories and property files that contain the configuration to use. Typically the name of a set of configuration options is the name of the associated coordination queue manager.

This file is created by the installer, and can be changed by using the **`fteChangeDefaultConfigurationOptions`** command.

The `wmqfte.properties` file is located in your *config\_directory* directory. For example on Windows XP Professional, the default file location is `C:\Documents and Settings\All Users\Application Data\IBM\WMQFTE\config` and on UNIX and Linux systems, the default file location is `/var/IBM/WMQFTE/config`.

The `wmqfte.properties` file contains the following values:

Table 23. Basic properties

Property name	Description	Default value
commandMessagePriority	<p>This property is available only if you have enabled the function for Version 7.0.4.3, or later.</p> <p>Sets the priority of both internal messages and command messages for the <b>fteStopAgent</b>, <b>fteCancelTransfer</b>, <b>ftePingAgent</b> and <b>fteSetAgentTraceLevel</b> commands. If you submit a large number of transfer requests to transfer many small files in quick succession, for example, the new transfer requests can become queued on the source agent's command queue. The external and internal messages have the default WebSphere MQ message priority so the internal messages are blocked by the new transfer requests. This can cause the transfer negotiation time to be exceeded and for the transfers to go into recovery.</p> <p>You can also use the <code>commandMessagePriority</code> property to set the priority of internal acknowledgement and acknowledgement-expected messages.</p> <p>To prioritize the internal WebSphere MQ File Transfer Edition messages above new transfer requests, set this property to a value between 1 (the lowest) and 9 (the highest).</p> <p>From Version 7.0.4.5, the default value is changed to 8. This means that, if the WebSphere MQ attribute <code>DEFPRTY</code> (default priority) on an agent command queue is less than or equal to 7, internal negotiation messages are prioritized ahead of new transfer requests. If the value of the <code>DEFPRTY</code> attribute is set to either 8 or 9, to maintain the effectiveness of the <code>commandMessagePriority</code> property, you must change either <code>DEFPRTY</code> or the <code>commandMessagePriority</code> property.</p>	<p>Before Version 7.0.4.5, the default value is the <code>MQPRI_PRIORITY_AS_Q_DEF</code> constant, which has a value of -1.</p> <p>From Version 7.0.4.5, the default value is 8.</p>
defaultProperties	<p>The name of the default set of configuration options. This value is the name of a directory located in the configuration directory, which contains directories and properties files that specify configuration information.</p>	<p>No default</p>

Table 23. Basic properties (continued)

Property name	Description	Default value
enableFunctionalFixPack	<p>The fix pack function level to enable. Generally by default, any new function included with a fix pack is not enabled. Set this property to a version identifier to enable the new features available with that version. For details of the new function associated with each version, see “What’s new in this release?” on page 16.</p> <p>Specify the version identifier without any period characters (.). For example, to use the function available with Version 7.0.4.1, set this property to 7041. For Version 7.0.4.3, the valid values are 7041 and 7043.</p>	No default

The following text is an example of the contents of a `wmqfte.properties` file.

```
defaultProperties=ERIS
```

ERIS is the name of a directory that is located in the same directory as the `wmqfte.properties` file. The directory ERIS contains directories and properties files that describe a set of configuration options.

**Related concepts:**

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

**Related reference:**

“`fteChangeDefaultConfigurationOptions` (change the default configuration options)” on page 472

Use the **`fteChangeDefaultConfigurationOptions`** command to change the default configuration options that you want WebSphere MQ File Transfer Edition to use. The value of the configuration options defines the group of properties files that WebSphere MQ File Transfer Edition uses.

## The `coordination.properties` file

The `coordination.properties` file specifies the connection details to the coordination queue manager. Because several WebSphere MQ File Transfer Edition installations might share the same coordination queue manager, you can use a symbolic link to a common `coordination.properties` file on a shared drive.

The `coordination.properties` file is created by the installer or by the **`fteSetupCoordination`** command. You can use the **`fteSetupCoordination`** command with the **`-f`** flag to change the basic coordination queue manager properties in this file. To change or add advanced coordination queue manager properties you must edit the file in a text editor.

The `coordination.properties` file is located in your `configuration_directory/coordination_qmgr_name` directory.

The `coordination.properties` file contains the following values:

Table 24. Coordination queue manager properties

Property name	Description	Default value
coordinationQMgr	The name of the coordination queue manager.	No default
coordinationQMgrHost	The host name or IP address of the coordination queue manager.	No default
coordinationQMgrPort	The port number used for client connections to the coordination queue manager.	1414
coordinationQMgrChannel	The SVRCONN channel name used to connect to the coordination queue manager.	SYSTEM.DEF.SVRCONN

If you do not specify a value for the coordinationQMgrHost property, bindings mode is used by default.

If you specify a value for the coordinationQMgrHost property but do not specify values for the coordinationQMgrPort and coordinationQMgrChannel properties, a port number of 1414 and a channel of SYSTEM.DEF.SVRCONN are used by default.

Table 25. Advanced coordination queue manager properties

Property name	Description	Default value
<b>Code page properties:</b>		
coordinationCcsid	The code page the commands connect to the coordination queue manager with. Also any publications to the coordination queue manager made by the agent are performed with this code page. If you specify a value for coordinationCcsid you must also specify a value for coordinationCcsidName.	1208
coordinationCcsidName	The Java representation of the coordinationCcsid. If you specify a value for coordinationCcsidName you must also specify a value for coordinationCcsid.	UTF8
<b>Connection properties:</b>		
javaLibraryPath	When connecting to a queue manager in bindings mode WebSphere MQ File Transfer Edition must have access to the WebSphere MQ Java bindings libraries. By default WebSphere MQ File Transfer Edition looks for the bindings libraries in the default location defined by WebSphere MQ. If the bindings libraries are in a different location use this property to specify the location of the bindings libraries.	/opt/mqm/java/lib
<b>Multi-instance queue manager properties:</b>		

Table 25. Advanced coordination queue manager properties (continued)

Property name	Description	Default value
coordinationQMGrStandby	The host name and the port number used for client connections, in WebSphere MQ CONNAME format, for the standby instance of a multi-instance coordination queue manager defined by the coordinationQMGr property. For example, <i>host_name(port_number)</i>	No default
<b>Queue properties:</b>		
dynamicQueuePrefix	<p>This property defines the WebSphere MQ prefix to use for generating a temporary queue name.</p> <p>The format of the dynamicQueuePrefix property follows the format of the <b>DynamicQName</b> field of the WebSphere MQ MQOD structure. For more information, see Creating dynamic queues in the WebSphere MQ Version 7.0.1 product documentation.</p> <p>You can also define this property in the <code>command.properties</code> file if you want to use a specific WebSphere MQ prefix for temporary reply queues that are generated by commands that require a response from the agent.</p>	WMQFTE.*
modelQueueName	<p>This property defines the WebSphere MQ model queue to use for generating a temporary queue.</p> <p>You can also define this property in the <code>command.properties</code> file if you want to use a specific WebSphere MQ model queue for temporary reply queues that are generated by commands that require a response from the agent. For more information, see “The <code>command.properties</code> file” on page 580.</p>	SYSTEM.DEFAULT.MODEL.QUEUE
<b>Security properties:</b>		
userIdForClientConnect	The user ID that gets flowed through the client connections to WebSphere MQ. If <i>java</i> is specified the user name reported by the JVM is flowed as part of the WebSphere MQ connection request. The value of this property can be None or java.	None
<b>Subscription properties:</b>		

Table 25. Advanced coordination queue manager properties (continued)

Property name	Description	Default value
coordinationSubscriptionTopic	<p>Use this property to specify a topic other than SYSTEM.FTE to subscribe to in order to obtain publications about the status of the WMQFTE network. All tooling still publishes to the SYSTEM.FTE topic, but you can change your WebSphere MQ topology to distribute these publications to different topics based on their content. You can then use this function to force the tooling to subscribe to one of these other topics.</p> <p>This function is available for specific versions of WebSphere MQ File Transfer Edition only: V7.0.3 and V7.0.4.1 or later fix packs. If you are using 7.0.3, you also require an interim fix for APAR IC76641. If you are using WebSphere MQ File Transfer Edition Version 7.0.4.1 or later fix packs, you also require an interim fix for APAR IC96850 for the property to be recognized by the WebSphere MQ Explorer plug-in and the <b>fteListMonitors</b> command.</p>	SYSTEM.FTE

The following text is an example of the contents of a `coordination.properties` file.

```
coordinationQMGr=ERIS
coordinationQMGrHost=kuiper.example.com
coordinationQMGrPort=2005
coordinationQMGrChannel=SYSTEM.DEF.SVRCONN
```

ERIS is the name of a WebSphere MQ queue manager that is located on the system `kuiper.example.com`. The queue manager ERIS is the queue manager that WebSphere MQ File Transfer Edition sends log information to.

**Related concepts:**

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

**Related reference:**

“fteSetupCoordination (set up coordination details)” on page 560

The **fteSetupCoordination** command creates properties files and the coordination queue manager directory for WebSphere MQ File Transfer Edition.

## The `command.properties` file

The `command.properties` file specifies the command queue manager to connect to when you issue commands and the information that WebSphere MQ File Transfer Edition requires to contact that queue manager.

The `command.properties` file is created by the installer or by the **fteSetupCommands** command. You can use the **fteSetupCommands** command with the **-f** flag to change the basic command queue manager properties in this file. To change or add advanced command queue manager properties you must edit the file in a text editor.

Some WebSphere MQ File Transfer Edition commands connect to the agent queue manager or coordination queue manager instead of the command queue manager. For information about which commands connect to which queue manager, see “Which WebSphere MQ File Transfer Edition command connects to which queue manager” on page 467.

The `command.properties` file is located in your `config_directory/coordination_qmgr_name` directory.

The `command.properties` file contains the following values:

*Table 26. Basic command queue manager properties*

Property name	Description	Default value
connectionQMgr	The name of the queue manager used to connect to the WebSphere MQ network.	No default
connectionQMgrHost	The host name or IP address of the connection queue manager.	No default
connectionQMgrPort	The port number used to connect to the connection queue manager in client mode.	1414
connectionQMgrChannel	The SVRCONN channel name used to connect to the connection queue manager.	SYSTEM.DEF.SVRCONN

If you do not specify a value for the `connectionQMgrHost` property, `bindings` mode is used by default.

If you specify a value for the `connectionQMgrHost` property but do not specify values for the `connectionQMgrPort` and `connectionQMgrChannel` properties, a port number of 1414 and a channel of `SYSTEM.DEF.SVRCONN` are used by default.

*Table 27. Advanced command queue manager properties*

Property name	Description	Default value
<b>Code page properties:</b>		
connectionCcsid	The code page the commands connect to the command queue manager with. If you specify a value for <code>connectionCcsid</code> you must also specify a value for <code>connectionCcsidName</code> .	1208
connectionCcsidName	The Java representation of the <code>connectionCcsid</code> . If you specify a value for <code>connectionCcsidName</code> you must also specify a value for <code>connectionCcsid</code> .	UTF8
<b>Multi-instance queue manager properties:</b>		

Table 27. Advanced command queue manager properties (continued)

Property name	Description	Default value
connectionQMGrStandby	The host name and the port number used for client connections, in WebSphere MQ CONNAME format, for the standby instance of a multi-instance command queue manager defined by the connectionQMGr property. For example, <i>host_name(port_number)</i>	No default
<b>Security properties:</b>		
userIdForClientConnect	The user ID that gets flowed through the client connections to WebSphere MQ. If <i>java</i> is specified the user name reported by the JVM is flowed as part of the WebSphere MQ connection request. The value of this property can be None or java.	None
<b>Queue properties:</b>		
dynamicQueuePrefix	<p>For commands that require a response from the agent, this property defines the WebSphere MQ prefix to use for generating the temporary reply queue name.</p> <p>The format of the dynamicQueuePrefix property follows the format of the <b>DynamicQName</b> field of the WebSphere MQ MQOD structure. For more information, see Creating dynamic queues in the WebSphere MQ Version 7.0.1 product documentation.</p> <p>You can also define this property in the <code>coordination.properties</code> file if you want to use a specific WebSphere MQ prefix for temporary queues that are generated by WMQFTE.</p>	WMQFTE.*
modelQueueName	<p>For commands that require a response from the agent, this property defines the WebSphere MQ model queue to use for generating the temporary reply queue.</p> <p>You can also define this property in the <code>coordination.properties</code> file if you want to use a specific WebSphere MQ model queue for temporary queues that are generated by WMQFTE. For more information, see “The <code>coordination.properties</code> file” on page 577.</p>	SYSTEM.DEFAULT.MODEL.QUEUE
<b>Connection properties:</b>		

Table 27. Advanced command queue manager properties (continued)

Property name	Description	Default value
javaLibraryPath	When connecting to a queue manager in bindings mode WebSphere MQ File Transfer Edition must have access to the WebSphere MQ Java bindings libraries. By default WebSphere MQ File Transfer Edition looks for the bindings libraries in the default location defined by WebSphere MQ. If the bindings libraries are in a different location use this property to specify the location of the bindings libraries.	/opt/mqm/java/lib

The following text is an example of the contents of a `command.properties` file.

```
connectionQMGr=PLUTO
connectionQMGrHost=kuiper.example.com
connectionQMGrPort=1930
connectionQMGrChannel=SYSTEM.DEF.SVRCONN
```

PLUTO is the name of a WebSphere MQ queue manager that is located on the system `kuiper.example.com`. The queue manager PLUTO is the queue manager that the WebSphere MQ File Transfer Edition commands connect to.

#### Related concepts:

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

#### Related reference:

“Java system properties” on page 650

A number of WebSphere MQ File Transfer Edition command and agent properties must be defined as Java system properties, because they define configuration for early function that is unable to use the command or agent properties mechanism.

“SSL properties” on page 650

Use SSL with WebSphere MQ and WebSphere MQ File Transfer Edition to prevent unauthorized connections between agents and queue managers, and to encrypt message traffic between agents and queue managers.

“`fteSetupCommands` (create the `command.properties` file)” on page 559

The **`fteSetupCommands`** command creates the `command.properties` file. This properties file specifies the details of the queue manager that connects to the WebSphere MQ network when you issue commands.

## The agent.properties file

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

The `agent.properties` file is created by the installer or by the **`fteCreateAgent`**, **`fteCreateWebAgent`**, **`fteCreateBridgeAgent`** or **`fteCreateCDAgent`** command. You can use any of these commands with the **`-f`** flag to change the basic agent queue manager properties and those advanced agent properties associated with the type of agent that you are creating. To change or add advanced agent properties you must edit the file in a text editor.

The `agent.properties` file for an agent is located in your `config_directory/coordination_qmgr_name/agents/agent_name` directory.

If you change the `agent.properties` file you must restart the agent to pick up the changes.

Each `agent.properties` file contains the following values:

*Table 28. Agent properties*

Property name	Description	Default value
<code>agentName</code>	The name of the agent. The name of the agent must conform to the WebSphere MQ object naming conventions. For more information, see "Object naming conventions for WebSphere MQ File Transfer Edition" on page 719.	No default
<code>agentDesc</code>	The description of the agent - if you have chosen to create a description.	No default
<code>agentQMgr</code>	The agent queue manager name.	No default
<code>agentQMgrHost</code>	The host name or IP address of the agent queue manager.	No default
<code>agentQMgrPort</code>	The port number used for client connections to the agent queue manager.	1414
<code>agentQMgrChannel</code>	The SVRCONN channel name used to connect to the agent queue manager.	SYSTEM.DEF.SVRCONN
<code>agentType</code>	The type of agent: either a protocol bridge agent (BRIDGE) or a standard non-protocol bridge agent (STANDARD).	STANDARD

If you do not specify a value for the `agentQMgrHost` property, bindings mode is used by default.

If you specify a value for the `agentQMgrHost` property but do not specify values for the `agentQMgrPort` and `agentQMgrChannel` properties, a port number of 1414 and a channel of `SYSTEM.DEF.SVRCONN` are used by default.

## Advanced agent properties

WebSphere MQ File Transfer Edition also provides more advanced agent properties that help you configure agents. If you want to use any of the following properties, manually edit the `agent.properties` file to add the required advanced properties. When you specify file paths on Windows, ensure the separator character backslash (`\`) is entered as double backslashes (`\\`), that is, escaped backslash (`\`). Alternatively, you can use a single forward slash (`/`) character as a separator. For further information about character escaping in Java properties files, see the Oracle documentation Javadoc for the Properties class.

- Agent size properties
- Code page properties
- Command properties
- Connection properties
- Connect:Direct bridge properties
- File to message and message to file agent properties

- General agent properties
- Input/output properties
- Multi-channel support properties
- Multi-instance properties
- Protocol bridge properties
- Queue properties
- Resource monitoring properties
- Root directory properties
- Security properties
- Timeout properties
- Tracing and logging properties
- Transfer limit properties
- User exit routine properties
- WebSphere MQ client compression properties
- z/OS-specific properties

Table 29. Advanced agent properties

Property name	Description	Default value
<b>Agent size properties:</b>		
agentCheckpointInterval	<p>The interval in complete frames of data between which a checkpoint is taken for recovery purposes. This is an advanced property and for most WebSphere MQ File Transfer Edition configurations it is not necessary to modify its value.</p> <p>If there is a problem which causes the transfer to go into recovery, the transfer can recover only to a checkpoint boundary. Hence, the larger this value (with large agentChunkSize, agentWindowSize, and agentFrameSize values), the longer the time that is needed for the agent to recover transfers. For reliable WebSphere MQ File Transfer Edition networks where transfers rarely enter a recovery state, it may be beneficial to increase this value to increase overall performance.</p>	1

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
agentChunkSize	<p>The size of each transfer chunk for the transport of file data. Hence, denotes the maximum size of the WebSphere MQ messages that are transferred between the source and the destination agents. This is an advanced property and for most WebSphere MQ File Transfer Edition configurations it is not necessary to modify its value.</p> <p>This value is negotiated between the source agent and the destination agent, and the larger of the two values is used. If you want to change the value of this property, change the value at both the source agent and at the destination agent.</p> <p>agentChunkSize is an integer value. For example: agentChunkSize = 10,240 sets the chunk size to 10 KB.</p>	262144-byte (which is equivalent to 256 KB)
agentFrameSize	<p>The number of windows for the transfer frame. This is an advanced property and for most WebSphere MQ File Transfer Edition configurations it is not necessary to modify its value.</p> <p>For networks that have high latency, increasing this value may improve overall performance as it causes the agent to have more message chunks active concurrently.</p> <p>The value of this property, multiplied by agentWindowSize, multiplied by agentChunkSize, denotes the upper limit of the memory consumption of the agent for each transfer. For example, 262144-byte chunks x 10 x 5 = 12.5 MB for each transfer.</p> <p>Note: If the size of the files that is transferred in a single transfer is less than 12.5 MB increasing this property has no effect on the performance of the transfer.</p>	5

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
agentWindowSize	<p>The number of chunks for each window. This is an advanced property and for most WebSphere MQ File Transfer Edition configurations it is not necessary to modify its value.</p> <p>For networks that have high latency, increasing this value may improve overall performance. This is because it causes the agent to have more message chunks active concurrently and reduces the frequency that acknowledgement messages are sent back to the source agent.</p> <p>The value of this property, multiplied by agentFrameSize, multiplied by agentChunkSize, denotes the upper limit of the memory consumption of the agent for each transfer, and denotes the upper limit of the WebSphere MQ message data on the command queue of the destination agent. For example, 262144-byte chunks x 10 x 5 = an upper limit of 12.5 MB, for each transfer.</p> <p>Note: If the size of the files that is transferred in a single transfer is less than 12.5 MB increasing the value of this property has no effect on the performance of the transfer.</p>	10
<b>Code page properties:</b>		
agentCcsid	The code page the agent connects to its agent queue manager with. If you specify a value for agentCcsid you must also specify a value for agentCcsidName. For information on how to view the known code pages for the JVM, see the -hsc parameter in the <b>fteCreateBridgeAgent</b> command.	1208
agentCcsidName	The Java representation of the agentCcsid. If you specify a value for agentCcsidName you must also specify a value for agentCcsid.	UTF8
<b>Command properties:</b>		
maxCommandHandlerThreads	Controls the number of threads available for the initial parsing and processing of transfer command messages. When active, the threads require a connection to the queue manager but the threads release the connection when idle.	5

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
maxCommandOutput	The maximum number of bytes stored for command output. This property applies to commands specified for a managed call and preSource, postSource, preDestination, and postDestination commands for a managed transfer. This limits the length of command output written to the transfer log on the SYSTEM.FTE topic.	10 KB
maxCommandRetries	The maximum number of retries for a command that the agent permits. This property applies to commands specified for a managed call and the preSource, postSource, preDestination, and postDestination commands for a managed transfer.	9
maxCommandWait	The maximum wait, in seconds, between retries that the agent permits. This property applies to commands specified for a managed call and the preSource, postSource, preDestination, and postDestination commands for a managed transfer.	60
immediateShutdownTimeout	<p>For an immediate shutdown of an agent, you can use this property to specify the maximum amount of time in seconds an agent waits for its transfers to complete before forcing a shutdown.</p> <p><b>Note:</b> Do not change the value of this property to less than the default of 10 seconds. An immediate shutdown of an agent requires sufficient time to end any external processes. If the value of this property is too low, processes might be left running.</p> <p>If the value 0 is specified for this property, the agent waits for all outstanding transfers to stop. If an invalid value is specified for this property, the default value is used.</p>	10
<b>Connection properties:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
javaLibraryPath	<p>When connecting to a queue manager in bindings mode WebSphere MQ File Transfer Edition must have access to the WebSphere MQ Java bindings libraries. By default WebSphere MQ File Transfer Edition looks for the bindings libraries in the default location defined by WebSphere MQ. If the bindings libraries are in a different location, use this property to specify the location of the bindings libraries.</p>	/opt/mqm/java/lib
<b>Connect:Direct bridge properties:</b>		
cdNode	<p>Required property if you want to use the Connect:Direct bridge.</p> <p>The name of the Connect:Direct node to use to transfer messages from the Connect:Direct bridge agent to destination Connect:Direct nodes. This node is part of the Connect:Direct bridge, not the remote node that is the source or destination of the transfer. For more information, see “The Connect:Direct bridge” on page 269.</p>	No default
cdNodeHost	<p>The host name or IP address of the Connect:Direct node to use to transfer files from the Connect:Direct bridge agent to destination nodes (the Connect:Direct bridge node).</p> <p>In most cases, the Connect:Direct bridge node is on the same system as the Connect:Direct bridge agent. In these cases, the default value of this property, which is the IP address of the local system, is correct. If your system has multiple IP addresses, or your Connect:Direct bridge node is on a different system to your Connect:Direct bridge agent and their systems share a file system, use this property to specify the correct host name for the Connect:Direct bridge node.</p> <p>If you have not set the cdNode property, this property is ignored.</p>	The host name or IP address of the local system

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
cdNodePort	<p>The port number of the Connect:Direct bridge node that client applications use to communicate with the node. In Connect:Direct product documentation, this port is referred to as the API port.</p> <p>If you have not set the cdNode property, this property is ignored.</p>	1363
cdTmpDir	<p>The location to store files temporarily on the system where the Connect:Direct bridge agent is running before they are transferred to the destination Connect:Direct node.</p> <p>This property specifies the full path of the directory where files are temporarily stored. For example, if cdTmpDir is set to /tmp then the files are temporarily placed in the /tmp directory.</p> <p>The Connect:Direct bridge agent and the Connect:Direct bridge node must be able to access the directory specified by this parameter using the same path name. Consider this when planning the installation of your Connect:Direct bridge. If possible, create the agent on the system where the Connect:Direct node that is part of the Connect:Direct bridge is located. If your agent and node are on separate systems, the directory must be on a shared file system and be accessible from both systems using the same path name. For more information about the supported configurations, see “The Connect:Direct bridge” on page 269.</p> <p>If you have not set the cdNode property, this property is ignored.</p>	<p><i>value_of_java.io.tmpdir/cdbridge-agentName</i></p> <p>On Windows, <i>value_of_java.io.tmpdir\cdbridge-agentName</i></p>
cdTrace	<p>Whether the agent traces data sent between the Connect:Direct bridge agent and its Connect:Direct node. The value of this property can be true or false.</p>	false
cdMaxConnectionRetries	<p>The maximum number of Connect:Direct connection attempts, for a file transfer where a successful connection has not yet been made, before the transfer fails.</p>	-1 (an infinite number of attempts)

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
cdMaxPartialWorkConnectionRetries	The maximum number of Connect:Direct connection attempts, for a file transfer where a previous connection attempt has been successful and transfer work has been performed, before the transfer fails.	-1 (an infinite number of attempts)
cdMaxWaitForProcessEndStats	The maximum time in milliseconds to wait for Connect:Direct process completion information to become available within the Connect:Direct node statistics information, after the process has ended, before the file transfer is judged to have failed. Typically the information is available immediately, but under certain failure conditions the information is not published. In these conditions the file transfer fails after waiting for the amount of time specified by this property.	60000
cdAppName	The application name that the Connect:Direct bridge agent uses to connect to the Connect:Direct node that is part of the bridge.	WebSphere MQ File Transfer Edition <i>current version</i> , where <i>current version</i> is the version number of the product. For example, 7.0.4.
cdNodeLocalPortRange	The range of local ports to use for socket connections between the Connect:Direct bridge agent and the Connect:Direct node that is part of the bridge. The format of this value is a comma-separated list of values or ranges.  By default, the operating system selects the local port numbers.	None
cdNodeProtocol	The protocol that the Connect:Direct bridge agent uses to connect to the Connect:Direct node that is part of the bridge. The following values are valid: <ul style="list-style-type: none"> <li>• TCPIP</li> <li>• SSL</li> <li>• TLS</li> </ul>	TCPIP
cdNodeKeystore	The path to the keystore that is used for secure communications between the Connect:Direct bridge agent and the Connect:Direct node that is part of the bridge.  If you have not set the cdNodeProtocol property to SSL or TLS, this property is ignored.	None

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
cdNodeKeystorePassword	The password for the keystore specified by the cdNodeKeystore property.  If you have not set the cdNodeProtocol property to SSL or TLS, this property is ignored.	None
cdNodeKeystoreType	The file format of the keystore specified by the cdNodeKeystore property. The following values are valid: jks and pkcs12.  If you have not set the cdNodeProtocol property to SSL or TLS, this property is ignored.	jks
cdNodeTruststore	The path to the truststore that is used for secure communications between the Connect:Direct bridge agent and the Connect:Direct node that is part of the bridge.  If you have not set the cdNodeProtocol property to SSL or TLS, this property is ignored.	None
cdNodeTruststorePassword	The password for the truststore specified by the cdNodeTruststore property.  If you have not set the cdNodeProtocol property to SSL or TLS, this property is ignored.	None
cdNodeTruststoreType	The file format of the truststore specified by the cdNodeTruststore property. The following values are valid: jks and pkcs12.  If you have not set the cdNodeProtocol property to SSL or TLS, this property is ignored.	jks
logCDProcess	The level of Connect:Direct process logging that is recorded in the agent event log in the output0.log file. The values that this property can have are None or Failures or All.	None
<b>File to message and message to file agent properties:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
deleteTmpFileAfterRenameFailure	<p>Setting this property to a value of false ensures that temporary files are not deleted from the destination if the rename operation fails. In this case, the transferred data remains at the destination in a temporary (.part) file. You can manually rename this file later. By default, this property has the value of true. This property applies to both message-to-file and file-to-file transfers.</p> <p>This property is not available on IBM i.</p>	true
enableQueueInputOutput	<p>By default, the agent cannot read data from a source queue or write data to a destination queue as part of a transfer. Setting this value to true enables the agent to perform file to message, and message to file transfers. The value of this property can be true or false.</p>	false
enableSystemQueueInputOutput	<p>Specifies whether the agent can read from or write to WebSphere MQ system queues. System queues are prefixed with the qualifier SYSTEM. <b>Note:</b> System queues are used by WebSphere MQ, WebSphere MQ File Transfer Edition, and other applications to transmit important information. Changing this property enables the agent to access these queues. If you enable this property, use user sandboxing to limit the queues that the agent can access.</p>	false
maxDelimiterMatchLength	<p>The maximum number of characters that can be matched by the Java regular expression used to split a text file into multiple messages as part of a file-to-message transfer.</p>	5

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
maxInputOutputMessageLength	<p>The maximum length, in bytes, of a message that is read from a source queue or written to a destination queue by an agent. The maxInputOutputMessageLength property of the source agent in a transfer determines how many bytes can be read from a message on the source queue. The maxInputOutputMessageLength property of the destination agent in a transfer determines how many bytes can be written to a message on the destination queue. If the length of the message exceeds the value of this property the transfer fails with an error. This property does not affect the WebSphere MQ File Transfer Edition internal queues. For information about changing this property, see "Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size" on page 398.</p>	1048576
monitorGroupRetryLimit	<p>The maximum number of times that a monitor triggers a message-to-file transfer again if the message group still exists on the queue. The number of times that the message-to-file transfer has been triggered is determined from the MQMD backout count of the first message in the group.</p> <p>If the agent is restarted the monitor triggers a transfer again even if the number of times the transfer has been triggered has exceeded the value of monitorGroupRetryLimit. If this behavior causes the number of times that the transfer has been triggered to exceed the value of monitorGroupRetryLimit, the agent writes an error to its event log.</p> <p>If the value -1 is specified for this property, the monitor triggers the transfer again an unlimited number of times, until the trigger condition is not satisfied.</p>	10
<b>General agent properties:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
agentStatusPublishRateLimit	<p>The maximum rate in seconds that the agent republishes its status because of a change in file transfer status.</p> <p>If you set this property to too small a value, the performance of the WebSphere MQ network might be negatively affected.</p>	30
agentStatusPublishRateMin	<p>The minimum rate in seconds that the agent publishes its status. This value must be greater than or equal to the value of the agentStatusPublishRateLimit property.</p>	300
agentStatusJitterTolerance	<p>The maximum amount of time an agent status message publication can be delayed by before the message is considered as overdue. This value is measured in milliseconds.</p> <p>The age of a status message is based on the time at which it was published at the coordination queue manager. However, the message is emitted by the agent some time before it is received at the coordination queue manager, to allow for the time required travel across the WebSphere MQ network. If this transit always takes the same amount of time then messages created 60 seconds apart are published 60 seconds apart, regardless of the actual time in transit. However, if the transit time varies between messages, they might be created at 60 second intervals but published at intervals of, for example, 61, 59, 58, and 62 seconds. The maximum deviation from 60, 2 seconds in this example, is the jitter. This property determines the maximum delay due to jitter before the message is treated as overdue.</p>	3000

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
enableDetailedReplyMessages	<p>Setting this property to true enables managed transfer request replies to contain detailed information about the transferred files. The detailed information and format is the same as that published to the transfer log in the progress messages, that is, the &lt;transferSet&gt; element. For more information, see “File transfer log message formats” on page 675.</p> <p>The detailed reply information is included only when the managed transfer request specifies that detailed reply information is required. To specify this requirement, set the detailed attribute of the &lt;reply&gt; element of the managedTransfer XML request message sent to the source agent. For more information, see “File transfer request message format” on page 881.</p> <p>Multiple reply messages can be generated for each transfer request. This number is equal to the number of transfer log progress messages for the transfer plus 1 (where the first reply message is a simple ACK reply). Detailed information is included in all messages, except for the ACK reply messages, but the overall transfer result is included only in the last detailed reply message.</p>	true

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
enableMemoryAllocationChecking	<p>This property is available only if you have enabled the function for Version 7.0.4.3, or later.</p> <p>Determines whether the WMQFTE agent checks that there is sufficient memory available to run a transfer before a transfer is started. The check is made on both the source and destination agents. If there is insufficient memory available, the transfer is put into recovery, which prevents the agent from failing with an out-of-memory error.</p> <p>When calculating the memory required for a transfer, the maximum memory that is required by the transfer is used. Therefore, the value might be greater than the actual memory that is used by the transfer. For this reason, the number of concurrent transfers that can run might be reduced if the enableMemoryAllocationChecking property is set to true. You are recommended to set the property to true only if you are experiencing problems with WMQFTE failing with out-of-memory errors. The transfers that are likely to consume large amounts of memory are file-to-message and message-to-file transfers where the sizes of the messages are large.</p>	false

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
enableUserMetadataOptions	<p>Determines whether you can use known keys for user-defined metadata in new transfer requests to provide additional transfer options. These known keys always start with the following prefix <code>com.ibm.wmqfte..</code>. As a consequence when the <code>enableUserMetadataOptions</code> property is set true, keys using this prefix are not supported for user-defined use. When the <code>enableUserMetadataOptions</code> property is set to true, the keys supported currently are as follows:</p> <ul style="list-style-type: none"> <li>• <code>com.ibm.wmqfte.insertRecordLineSeparator</code></li> <li>• <code>com.ibm.wmqfte.newRecordOnLineSeparator</code></li> <li>• <code>com.ibm.wmqfte.convertLineSeparators</code></li> </ul> <p>For information about what these keys mean, see “<b>fteCreateTransfer</b> (create new file transfer)” on page 509.</p> <p>The value of this property can be true or false.</p>	false
maxInlineFileSize	<p>This property is available only if you have enabled the function for Version 7.0.4.3, or later.</p> <p>For single file-to-file, or file-to-message transfers, the maximum file size (in bytes) that can be automatically included in the initial transfer request message.</p> <p>You can use this property to improve the speed of your transfers, but if you set the file size to too large a value, this might degrade performance. A suggested initial size for this property is 100 KB but you are recommended to thoroughly test different values until you find the best file size for your system.</p>	0
<b>Input/output properties:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
doNotUseTempOutputFile	<p>Not setting a value for this property means the agent writes to a temporary file at the destination and renames this temporary file to the required file name after the file transfer is complete. Setting this property to any value means the agent will not use a temporary file.</p> <p>On z/OS systems, this behavior does not apply to sequential data sets, but does apply to PDS data set members.</p> <p>The value of this property for a transfer is defined by the destination agent.</p>	No default
enableMandatoryLocking	<p>When accessing normal files WebSphere MQ File Transfer Edition takes a shared lock for reading and an exclusive lock for writing. On UNIX type platforms, file locking is honored across processes. However, on Windows file locking is advisory only. When this property is set to true, WebSphere MQ File Transfer Edition enforces file locking. On Windows this means that if another application has a file open, monitoring of that file does not trigger until the file is closed. WebSphere MQ File Transfer Edition transfers involving that file fail. For UNIX type platforms, setting this property has no effect.</p> <p>The value of this property can be true or false.</p>	false
ioIdleThreadTimeout	Time in milliseconds for a file system input/output thread to remain idle before the thread shuts down.	10000
ioQueueDepth	The maximum number of input/output requests to queue up.	10

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
ioThreadPoolSize	<p>Maximum number of file system input/output threads available. Typically each transfer uses its own file system input/output thread, but if the number of concurrent transfers exceeds this limit, the file system input/output threads are shared between transfers.</p> <p>If you think you are likely to regularly have more concurrent transfers in progress than the ioThreadPoolSize value, you might see an improvement by increasing this value, so that each transfer has its own file system input/output thread.</p>	10
textReplacementCharacterSequence	<p>For text mode transfer, if any of the data bytes cannot be converted from the source code page to the destination code page, the default behavior is for the file transfer to fail.</p> <p>Set this property to allow the transfer to complete successfully by inserting the specified character value. This property value is a single character. Typically, a question mark (?) is used for any unmappable characters. For example, use this format <code>textReplacementCharacterSequence=?</code> where the question mark (?) is the replacement character. You cannot use a white space character as a replacement character.</p>	None
<b>Multi-channel support:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
agentMultipleChannelsEnabled	<p>Setting this property to true enables a WebSphere MQ File Transfer Edition agent to send transfer data messages across multiple WebSphere MQ channels. In some scenarios, this might improve performance. However, you should only enable multi-channel support if there is a demonstrable performance benefit. Only messages put to the <code>SYSTEM.FTE.DATA.destinationAgentName</code> queue are sent across multiple channels. The behavior for all other messages remains unchanged.</p> <p>When you set this property to true, you must also complete the WebSphere MQ configuration steps in one of the following topics to enable multi-channel support:</p> <ul style="list-style-type: none"> <li>• “Configuring multiple WebSphere MQ channels in a cluster” on page 618</li> <li>• “Configuring multiple WebSphere MQ channels in a non-clustered configuration” on page 619</li> </ul> <p>Additionally, you must also complete the standard WebSphere MQ configuration steps required for a WebSphere MQ File Transfer Edition agent, which are detailed in “Configuring WebSphere MQ File Transfer Edition for first use” on page 101.</p> <p>The value of this property can be true or false.</p>	false
agentMessageBatchSize	<p>When configured with multiple channels, a source agent sends data messages for a transfer across each channel on a round-robin basis. This property controls the number of messages sent down each channel at a time.</p>	5
<b>Multi-instance queue manager properties:</b>		
agentQMgrStandby	<p>The host name and the port number used for client connections, in WebSphere MQ CONNAME format, for the standby instance of a multi-instance agent queue manager defined by agentQMgr. For example, <code>host_name(port_number)</code></p>	No default
<b>Protocol bridge properties:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
protocolBridgeCredentialExitClasses	Specifies a comma-separated list of classes that implement a protocol bridge credential user exit routine. For more information, see "Mapping credentials for a file server using exit classes" on page 264.	No default.
protocolBridgeCredentialConfiguration	The value of this property is passed in as a string to the initialize() method of the exit classes specified by protocolBridgeCredentialExitClasses.	null
protocolBridgeLogoutBeforeDisconnect	Specifies whether the protocol bridge agent logs the user out of the file server before closing the FTP session and disconnecting. If you set this property to true, the protocol bridge agent issues an FTP <b>QUIT</b> command to the file server.	false
protocolBridgePropertiesConfiguration	This property is available only if you have enabled the Version 7.0.4.1 function.  Passed as one of the bridge properties to the initialize() method of the exit classes specified by the protocolBridgeServerPropertiesExitClasses property.	No default
protocolBridgePropertiesExitClasses	This property is available only if you have enabled the Version 7.0.4.1 function.  Specifies a comma-separated list of classes that implement a protocol bridge server properties user exit routine. For more information, see "Looking up protocol file server properties by using exit classes" on page 259.	No default
protocolServerType	Required property if you want to use the protocol bridge.  The type of network protocol that the server you want to send files to or receive files from is using. The value of this property can be FTP or SFTP.	No default
protocolServerHost	Required property if you want to use the protocol bridge.  The host name or IP address of the protocol file server that you want to send files to or receive files from.	No default

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
protocolServerPort	<p>The port number of the protocol file server that you want to send files to or receive files from.</p> <p>If you do not provide a value for this property, the FTP, SFTP, or FTPS standard default port numbers are used. FTPS is available only if you have enabled the 7.0.4.1 function.</p>	No default
protocolServerPlatform	<p>Required property if you want to use the protocol bridge.</p> <p>The platform of the protocol file server that you want to send files to or receive files from.</p> <p>Set this property according to how you enter paths on your FTP, FTPS, or SFTP server. For example, if you are running an FTP server on Windows but when you log in to the server, you must enter UNIX-style paths (that is, with forward slashes), set this value to UNIX and not WINDOWS. Servers running on Windows often present a UNIX-style file system.</p> <p>Specify either UNIX or WINDOWS.</p>	No default
protocolServerTimeZone	<p>Required property if you want to use the protocol bridge with an FTP server. This property is invalid for SFTP servers.</p> <p>The time zone of the protocol file server that you want to send files to or receive files from. For example: America/New_York or Asia/Tokyo.</p> <p>The value of this property is a time zone as defined by the Internet Assigned Numbers Authority (IANA).</p>	No default
protocolServerLocale	<p>Required property if you want to use the protocol bridge with an FTP server. This property is invalid for SFTP servers.</p> <p>The language used on the protocol file server that you want to send files to or receive files from. For example: en_US or ja_JP</p> <p>The value of this property is a language tag as defined by the Internet Engineering Task Force (IETF).</p>	No default

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
protocolServerFileEncoding	<p>Required property if you want to use the protocol bridge.</p> <p>Defines the character encoding used by the file server. This property is used when you transfer files in text mode so that the correct encoding sequences are changed when the files are moved between platforms. For example, UTF-8.</p>	No default
protocolServerListFormat	<p>Optional and applies to FTP servers only</p> <p>The listing format that defines the format of the file listed information returned from the protocol file server. The options are:</p> <ul style="list-style-type: none"> <li>• UNIX - Generic UNIX platform</li> <li>• WINDOWS - Generic Microsoft Windows platform</li> </ul> <p>To identify which format to select, use an FTP client program and list a directory. Then select which format is most appropriate.</p> <p>For example, the UNIX format is as follows: UNIX -rwxr-xr-x 2 userid groupId 4096 2009-07-23 09:36 filename</p> <p>The Windows format is as follows: WINDOWS 437,909 filename</p>	UNIX
protocolServerLimitedWrite	<p>The default mode when writing to a file server is to create a temporary file and then rename that file when the transfer has completed. For a file server that is configured as write only, the file is created directly with its final name. The value of this property can be true or false.</p>	false
<b>Queue properties:</b>		
publicationMDUser	<p>The MQMD user ID to associate with messages sent to be published by the coordination queue manager. If you do not set this property, the MQMD user ID is set based on the WebSphere MQ rules for setting MQMD user IDs.</p>	No default
<b>Resource monitoring properties:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
monitorMaxResourcesInPoll	<p>Specifies the maximum number of monitored resources to be triggered in each poll interval. For example, if you specify a monitor pattern of *.txt, a poll interval of 10 seconds, and set the monitorMaxResourcesInPoll property to 10, the monitorMaxResourcesInPoll property limits the agent to trigger on a maximum of 10 matches for each poll interval. Matching resources beyond the limit of 10 are triggered in later poll intervals.</p> <p>In addition, you can use the monitorMaxResourcesInPoll property in combination with a matching <b>-bs</b> parameter on the <b>fteCreateMonitor</b> command, for example, to restrict each poll interval to triggering one transfer only.</p>	No default
monitorReportTriggerFail	Specifies whether failure conditions regarding environment and configuration that are detected in the monitor are reported as a log message to the SYSTEM.FTE topic. A value of true logs messages. A value of false does not log messages.	true
monitorReportTriggerNotSatisfied	Specifies whether a non-satisfied trigger sends a log message to the SYSTEM.FTE topic that contains the details. A value of true logs messages. A value of false does not log messages.	false
monitorReportTriggerSatisfied	Specifies whether a satisfied trigger sends a log message to the SYSTEM.FTE topic that contains the details. A value of true logs messages. A value of false does not log messages.	false
monitorSilenceOnTriggerFailure	The number of consecutive failures of the resource monitor trigger before the failures are no longer reported.	5
monitorStopOnInternalFailure	The number of consecutive internal FFDC conditions of the resource monitor before the monitor changes its state to stop.	10
<b>Root directory properties:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
commandPath	<p>Specifies the set of paths that commands can be called by the agent Ant call, filecopy, or filemove tasks, or by specifying in an XML message passed to an agent, by using one of the supported WebSphere MQ File Transfer Edition agent command XML schemas (for example, managedCall or managedTransfer).</p> <p>For information about the valid syntax of the value of the commandPath property, see “The commandPath property” on page 461.</p> <p>Take extreme care when you set this property because any command in one of the specified commandPaths can effectively be called from a remote client system that is able to send commands to the agent. For this reason, by default, when you specify a commandPath, sandboxing is enabled so that all commandPath directories are automatically denied access for a transfer. You can set the sandboxRoot property to override this default behavior, but you are not recommended to do so, because this override effectively enables a client to transfer any command to the agent system and call the command.</p>	None - no commands can be called
sandboxRoot	<p>Specifies the set of root paths to include and exclude when you use sandboxing. See Working in a sandbox for information about this feature.</p> <p>Separate paths with a platform-specific path separator. Prefix paths with an exclamation point (!) character to denote paths as excluded from the sandbox. This feature is useful if you want to exclude a subdirectory under an included root path.</p> <p>The sandboxRoot property is not supported on protocol bridge agents.</p> <p>You cannot specify the sandboxRoot property and the userSandboxes property together.</p>	None - no sandbox
transferRoot	Default root directory for relative paths specified to the agent	The home directory for the user that started the agent process.

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
transferRootHLQ	Default HLQ (user ID) for non-fully qualified data sets specified to the agent	The user name of the user that started the agent process.
userSandboxes	<p>Restrict the area of the file system that files can be transferred to and from based on the MQMD user name of the user that requests the transfer. For more information, see “Working with user sandboxes” on page 81.</p> <p>The userSandboxes property is not supported on protocol bridge agents.</p> <p>You cannot specify the sandboxRoot property and the userSandboxes property together.</p>	false
<b>Scheduler property:</b>		
maxSchedulerRunDelay	<p>The maximum interval, in minutes, that the agent waits to check for scheduled transfers. Specify a positive integer to enable this property. For more information about why you might want to use this property, see “What to do if your scheduled transfer does not run or is delayed” on page 392.</p> <p>Because the agent might be reading a command from its command queue at the time that scheduled transfers are due to run, there could be an additional delay before the scheduled transfers are started. In this case the scheduler will run immediately after that command has been completed.</p>	No default
<b>Security properties:</b>		
authorityChecking	Specifies whether the security features described in “User authorities on WebSphere MQ File Transfer Edition actions” on page 456 are enabled.	false
logAuthorityChecks	The level of authority check logging that is recorded in the agent event log in the output0.log file. The values that this property can have are None or Failures or All.	None
userIdForClientConnect	The user ID that gets flowed through the client connections to WebSphere MQ. If <i>java</i> is specified the user name reported by the JVM is flowed as part of the WebSphere MQ connection request. The values that this property can have are None or java.	None

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
advancedSecurityPath	<p>The location of one or more Java archive (jar) files containing the WebSphere MQ Advanced Message Security Java Interceptor. If multiple jar files are specified, you must separate the file names with semi-colon characters. If this property is not set then WebSphere MQ Advanced Message Security is not used.</p> <p>This parameter is not used with embedded WebSphere MQ Advanced Message Security.</p>	None
<b>Timeout properties:</b>		
maxTransferNegotiationTime	<p>The maximum time in milliseconds that a transfer waits for a destination agent to complete negotiation. If negotiation does not complete in this time, the transfer is put into a resynchronization state and allows another transfer, when available, to run.</p> <p>In scenarios where the source or destination agent is under heavy load it is possible that the default value is too low for the agent to respond quickly enough to the negotiation request. This is most likely when a source agent has a large number of resource monitors defined or when its resource monitors are monitoring directories that contain large numbers of files. However, it can also occur when a large number of transfer requests is submitted to an agent. Increasing the value of this property to 200,000 or more may be necessary in such scenarios.</p>	30 000
recoverableTransferRetryInterval	The time to wait in milliseconds between detecting a recoverable transfer error and attempting to resume the transfer.	60 000
senderTransferRetryInterval	The time in milliseconds to wait until a rejected transfer is retried because the destination is already running the maximum number of transfers. Minimum value is 1000.	30 000

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
transferAckTimeout	<p>Timeout in milliseconds that a transfer waits for acknowledgment or data from the other end before a retry is issued. This is an advanced property and for most WebSphere MQ File Transfer Edition configurations it is not necessary to modify its value.</p> <p>Acknowledgments are sent from the receiving agent to the sending agent whenever a complete window of data is received. For bandwidth-constrained or unreliable networks and large agentWindowSize and agentChunkSize settings, it is possible that the default is not long enough. This can cause unnecessary retransfer of data between the agents. Therefore increasing this value might be beneficial and may reduce the likelihood of a transfer going into recovery mode because of a slow network.</p>	60 000
transferAckTimeoutRetries	Maximum number of acknowledgment retries for a transfer without a response before the agent gives up and moves the transfer into a recovery state	5
<b>Tracing and logging properties:</b>		
ITLMTraceLevel	<p>ITLM trace level. Controls the amount of trace and log information that is output by Tivoli License Manager.</p> <p>Possible values (in increasing level of verbosity) are: MIN, MID, and MAX</p>	MIN

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
javaCoreTriggerFile	<p>The full path to a file location that the agent monitors. If you create or update a file at this location, the agent triggers a Javacore file.</p> <p>A separate thread polls this file every 30 seconds to check whether the file has been created or updated. If the file has been created or updated since the last poll, the agent generates a Javacore file in the following directories:</p> <ul style="list-style-type: none"> <li>• UNIX and Linux: config/coordination_qmgr_name/agents/agent_name</li> <li>• Windows: config\coordination_qmgr_name\agents\agent_name</li> </ul> <p>When you specify this property, the agent outputs the following message at startup: BFGAG0092I&lt;/b&gt; The &lt;insert_0&gt; file will be used to request JVM diagnostic information.</p>	None
trace	<p>Trace specification when agent is to be run with trace enabled at agent start. The trace specification is a comma-separated list of classes, the equals character, and a trace level. For example, com.ibm.wmqfte.agent.Agent,com.ibm.wmqfte.commandhandler=all. You can specify multiple trace specifications in a colon-separated list. For example, com.ibm.wmqfte.agent.Agent=all:com.ibm.wmqfte.commandhandler=moderate.</p>	None
outputLogFiles	The total number of output.log files to keep. This applies to an agent's process controller as well as the agent itself.	5
outputLogSize	The maximum size in MB of each output.log file, before output wraps onto the next file. This applies to an agent's process controller as well as the agent itself.	1
outputLogEncoding	The character encoding that the agent uses when writing its output.log file.	The default character encoding of the platform that the agent is running on.
traceFiles	The total number of trace files to keep. This applies to an agent's process controller as well as the agent itself.	5
traceSize	The maximum size in MB of each trace file, before trace wraps onto the next file. This applies to an agent's process controller as well as the agent itself.	20

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
traceMaxBytes	The limit to the amount of message data that is output in the trace file.	4096 bytes
logTransferRecovery	When this property is set to a value of true, whenever a transfer enters recovery diagnostic, events are reported to the agent's event log.	Before Version 7.0.4.5, the default value is false. From Version 7.0.4.5, the default value is true.
<b>Transfer limit properties:</b>		
maxDestinationTransfers	<p>The maximum number of concurrent transfers that the destination agent processes at any given point in time. Each transfer request submitted to an agent counts against this total regardless of the number of files that are transferred to satisfy the request. This means that a transfer request that transfers a single file counts in the same way as a transfer request that transfers 10 files.</p> <p>When a Version 7.0.0 or Version 7.0.1 agent is acting as the source agent, if you attempt to start additional transfers, these additional transfers fail if the destination agent has reached the limit specified by the maxDestinationTransfers property. When a Version 7.0.2 or later agent is acting as the source agent, the agent queues transfers when the destination agent has reached the limit specified by the maxDestinationTransfers property.</p> <p>If the sum of the following agent property values: maxSourceTransfers + maxDestinationTransfers + maxQueuedTransfers exceeds the value of the MAXDEPTH setting of the state store queue (SYSTEM.FTE.STATE.agent name), the agent does not start.</p>	<p>25 (for all agents except Connect:Direct bridge agents)</p> <p>5 (for Connect:Direct bridge agents)</p>

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
maxFilesForTransfer	<p>The maximum number of transfer items that are allowed for a single managed transfer. If a managed transfer contains more items than the value of maxFilesForTransfer, the managed transfer fails and no transfer items are processed.</p> <p>Setting this property prevents you from accidentally transferring too many files because of a bad transfer request, for example, if a user accidentally specifies the transfer of the root directory / on a UNIX system.</p>	5000
maxSourceTransfers	<p>The maximum number of concurrent transfers that the source agent processes at any given point in time. Each transfer request submitted to an agent counts against this total regardless of the number of files that are transferred to satisfy the request. This means that a transfer request that transfers a single file counts in the same way as a transfer request that transfers 10 files.</p> <p>When a V7.0.0 or V7.0.1 agent is acting as a source agent, if you attempt to start additional transfers, these additional transfers fail if this agent has reached the limit specified by the maxSourceTransfers property. When a V7.0.2 or later agent is acting as the source agent, the source agent queues transfers when the destination agent has reached the limit specified by the maxSourceTransfers property.</p> <p>If the sum of the following agent property values: maxSourceTransfers + maxDestinationTransfers + maxQueuedTransfers exceeds the value of the MAXDEPTH setting of the state store queue (SYSTEM.FTE.STATE.<i>agent name</i>), the agent does not start.</p>	<p>25 (for all agents except Connect:Direct bridge agents)</p> <p>5 (for Connect:Direct bridge agents)</p>

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
maxQueuedTransfers	<p>For WebSphere MQ File Transfer Edition V7.0.2 and later, the maximum number of pending transfers that can be queued by an agent until the agent rejects a new transfer request. You can set this property so that in spite of the limits of maxDestinationTransfers and maxSourceTransfers being met or exceeded, any new transfer requests you make at this time are accepted, queued and then carried out later.</p> <p>The order that queued transfer requests are processed in is a factor of their priority and how long they have been queued. Old and high priority pending transfers are selected first. Transfers with a low priority that have been on the queue for a long time are selected in preference to newer, higher priority transfers.</p> <p>If the sum of the following agent property values: maxSourceTransfers + maxDestinationTransfers + maxQueuedTransfers exceeds the value of the MAXDEPTH setting of the state store queue (SYSTEM.FTE.STATE.<i>agent name</i>), the agent does not start.</p>	1000
<b>User exit routine properties:</b>		
agentForceConsistentPathDelimiters	Force the path delimiter in the source file and destination file information provided to the transfer exits to be the UNIX style: forward slash (/). Valid options are true and false.	false
destinationTransferEndExitClasses	Specifies a comma-separated list of classes that implement a destination transfer end user exit routine.	No default
destinationTransferStartExitClasses	Specifies a comma-separated list of classes that implement a destination transfer start user exit routine.	No default
exitClassPath	<p>Specifies a platform-specific, character-delimited list of directories that act as the class path for user exit routines.</p> <p>The agent exit directory is searched before any entries in this class path.</p>	Agent's exits directory

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
exitNativeLibraryPath	<p>Specifies a platform-specific, character-delimited list of directories that act as the native library path for user exit routines.</p> <p>The agent exit directory is not searched before any entries in this native library path.</p>	Agent's exit directory
ioMaxRecordLength	<p>This property is available only if you have enabled the Version 7.0.4.1 function.</p> <p>The maximum record length, in bytes, that can be supported for a record-oriented file. WebSphere MQ File Transfer Edition can support writing to record-oriented files with any record length. However, large record lengths might cause out-of-memory errors, so to avoid these errors the maximum record length is restricted by default to 64 K. When reading from record-oriented files an entire record must fit into a single transfer chunk, therefore the record length is additionally limited by the transfer chunk size. This property is currently used only for I/O user exit record-oriented files.</p>	64 KB
monitorExitClasses	Specifies a comma-separated list of classes that implement a monitor exit routine. For more information, see "Resource monitor user exits" on page 1015.	No default
protocolBridgeCredentialExitClasses	Specifies a comma-separated list of classes that implement a protocol bridge credential user exit routine. For more information, see "Mapping credentials for a file server using exit classes" on page 264.	No default.
sourceTransferEndExitClasses	Specifies a comma-separated list of classes that implement a source transfer end exit routine.	No default
sourceTransferStartExitClasses	Specifies a comma-separated list of classes that implement a source transfer start exit routine.	No default

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
IOExitClasses	<p>This property is available only if you have enabled the Version 7.0.4.1 function.</p> <p>Specifies a comma-separated list of classes that implement an I/O user exit routine. List only the classes that implement the IOExit interface, that is, do not list classes that implement the other I/O user exit interfaces, for example IOExitResourcePath and IOExitChannel. For more information, see "Using WebSphere MQ File Transfer Edition transfer I/O user exits" on page 361.</p>	No default.
<b>WebSphere MQ client compression:</b>		
agentDataCompression	<p>This property is supported for client connections to WebSphere MQ Version 7.0.1 or later queue managers only.</p> <p>A comma-separated list of the compression types for the transfer of file data to negotiate with the remote WebSphere MQ server. You can find information about these compression types in the following topic in the WebSphere MQ product documentation: Message data compression list</p> <p>The values are checked for validity and then passed through in order of appearance as properties to the agent client channel. The WebSphere MQ client then handles negotiation between this client channel and the remote server channel to find the matching lowest common denominator between the compression properties on the two channels. If no match is found, MQCOMPRESS_NONE is always selected.</p>	MQCOMPRESS_NONE

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
agentHeaderCompression	<p>This property is available only if you have enabled the Version 7.0.4.1 function and is supported for client connections to WebSphere MQ Version 7.0.1 or later queue managers only.</p> <p>A comma-separated list of the compression types for the transfer of header data to negotiate with the remote WebSphere MQ server. Accepted values are MQCOMPRESS_NONE or MQCOMPRESS_SYSTEM. You can find information about these compression types in the following topic in the WebSphere MQ product documentation: Message header compression list</p> <p>The values are checked for validity and then passed through in order of appearance as properties to the agent client channel. The WebSphere MQ client then handles negotiation between this client channel and the remote server channel to find the matching lowest common denominator between the compression properties on the two channels. If no match is found, MQCOMPRESS_NONE is always selected.</p>	MQCOMPRESS_NONE
<b>z/OS-specific:</b>		

Table 29. Advanced agent properties (continued)

Property name	Description	Default value
bpxwdynAllocAdditionalOptions	<p>WebSphere MQ File Transfer Edition uses the BPXWDYN text interface to create and open z/OS data sets. When BPXWDYN is used for data set allocation by default WebSphere MQ File Transfer Edition ensures, when possible, the data device is mounted (not required for disk-based data sets but is required for tape data sets). Because the options might not be supported for certain environments, use this property to change this behavior. Also when transferring to a data set it is also possible to specify options for BPXWDYN on the command line; these options are in addition to those options specified by this property.</p> <p>Some BPXWDYN options must not be specified when using the <b>fteCreateTemplate</b> command, the <b>fteCreateTransfer</b> command or the <b>bpxwdynAllocAdditionalProperties</b> property in the agent.properties file. For a list of these properties, see “BPXWDYN properties you must not use with WebSphere MQ File Transfer Edition” on page 733.</p>	<p>Default is as follows:</p> <ul style="list-style-type: none"> <li>• MOUNT for z/OS V1R8 and later</li> </ul>

**Related concepts:**

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

**Related reference:**

“Java system properties” on page 650

A number of WebSphere MQ File Transfer Edition command and agent properties must be defined as Java system properties, because they define configuration for early function that is unable to use the command or agent properties mechanism.

“SSL properties” on page 650

Use SSL with WebSphere MQ and WebSphere MQ File Transfer Edition to prevent unauthorized connections between agents and queue managers, and to encrypt message traffic between agents and queue managers.

“fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)” on page 478

The **fteCreateAgent** command creates an agent and its associated configuration.

“fteCreateBridgeAgent (create and configure WebSphere MQ File Transfer Edition protocol bridge agent)” on page 481

The **fteCreateBridgeAgent** command creates a protocol bridge agent and its associated configuration. Create a protocol bridge agent for each file server that you want to send files to and receive files from.

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The **fteCreateCDAgent** command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)” on page 528  
The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

## Configuring multiple WebSphere MQ channels in a cluster

If you want to use WebSphere MQ multi-channel support in a clustered configuration, first set the `agentMultipleChannelsEnabled` property to true and then complete the steps in this topic.

### About this task

In a cluster, multi-channel support is enabled by WebSphere MQ definitions on the queue manager of the destination agent only.

You must complete the steps in this topic in addition to the standard WebSphere MQ configuration steps required for a WebSphere MQ File Transfer Edition agent, which are listed in “Configuring WebSphere MQ File Transfer Edition for first use” on page 101.

The configuration examples shown below use **runmqsc** commands.

### Procedure

1. Define a cluster-receiver channel for each channel that you want to use. For example, if you are using two channels:

```
DEFINE CHANNEL(TO.DESTQMGRNAME_1) CHLTYPE(CLUSRCVR) CLUSTER(FTECLUSTER)
DEFINE CHANNEL(TO.DESTQMGRNAME_2) CHLTYPE(CLUSRCVR) CLUSTER(FTECLUSTER)
```

where:

- `DESTQMGRNAME` is the name of the queue manager of the destination agent.
- `FTECLUSTER` is the name of the WebSphere MQ cluster.

You are recommended to use the `TO.DESTMGRNAME_n` naming convention for channels, but this convention is not mandatory.

2. Define a queue manager alias corresponding to each channel. For example:

```
DEFINE QREMOTE(SYSTEM.FTE.DESTQMGRNAME_1) RQMNAME(DESTQMGRNAME) CLUSTER(FTECLUSTER)
DEFINE QREMOTE(SYSTEM.FTE.DESTQMGRNAME_2) RQMNAME(DESTQMGRNAME) CLUSTER(FTECLUSTER)
```

You must use the `SYSTEM.FTE.DESTQMGRNAME_n` naming convention for queue manager aliases because the sending agent searches for queue manager aliases of this format. The numbers that you use for *n* must start at 1 and be consecutive. You must make the definitions cluster-wide so that they are available on the source agent's queue manager.

For both the source agent and destination agent to correctly determine the number of queue manager aliases, do **not** define a default `XMITQ` for the queue manager.

### Related concepts:

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Configuring multiple WebSphere MQ channels in a non-clustered configuration

If you want to use WebSphere MQ multi-channel support in a non-clustered configuration, first set the `agentMultipleChannelsEnabled` property to `true` and then complete the steps in this topic.

### About this task

In a non-clustered configuration, multi-channel support is enabled by WebSphere MQ definitions on the queue manager of both the source agent and the destination agent.

You must complete the steps in this topic in addition to the standard WebSphere MQ configuration steps required for a WebSphere MQ File Transfer Edition agent, which are listed in “Configuring WebSphere MQ File Transfer Edition for first use” on page 101.

The following steps assume that sender-receiver channels are being used to communicate between the source and destination queue managers.

The configuration examples shown below use `runmqsc` commands.

### Procedure

1. On the destination agent's queue manager, define a receiver channel for each channel that you want to use. For example, if you are using two channels:

```
DEFINE CHANNEL(TO.DESTQMGRNAME_1) CHLTYPE(RCVR) TRPTYPE(TCP)
DEFINE CHANNEL(TO.DESTQMGRNAME_2) CHLTYPE(RCVR) TRPTYPE(TCP)
```

where: `DESTQMGRNAME` is the name of the queue manager of the destination agent.

You are recommended to use the `TO.DESTMGRNAME_n` naming convention for channels, but this convention is not mandatory. The receiver channel names must match the corresponding sender channels on the source agent's queue manager.

2. On the source agent's queue manager, define a transmission queue for each channel that you want to use. For example, if you are using two channels:

```
DEFINE QLOCAL(DESTQMGRNAME_1) USAGE(XMITQ)
DEFINE QLOCAL(DESTQMGRNAME_2) USAGE(XMITQ)
```

You are recommended to use the `DESTMGRNAME_n` naming convention for transmission queues, but this convention is not mandatory. The transmission queues you define are referenced from the sender channel definitions and the queue manager alias definitions in the following steps.

3. On the source agent's queue manager, define a sender channel for each channel that you want to use. For example, if you are using two channels:

```
DEFINE CHANNEL(TO.DESTQMGRNAME_1) CHLTYPE(SDR) TRPTYPE(TCP) CONNAME(DESTHOST:port)
XMITQ(DESTQMGRNAME_1)
DEFINE CHANNEL(TO.DESTQMGRNAME_2) CHLTYPE(SDR) TRPTYPE(TCP) CONNAME(DESTHOST:port)
XMITQ(DESTQMGRNAME_2)
```

You are recommended to use the TO.DESTMGRNAME\_n naming convention for the channels, but this convention is not mandatory. The sender channel names must match the corresponding receiver channels on the destination agent's queue manager.

4. On the source agent's queue manager, define a queue manager alias corresponding to each channel. For example:

```
DEFINE QREMOTE(SYSTEM.FTE.DESTQMGRNAME_1) RQMNAME(DESTQMGRNAME) XMITQ(DESTQMGRNAME_1)
DEFINE QREMOTE(SYSTEM.FTE.DESTQMGRNAME_2) RQMNAME(DESTQMGRNAME) XMITQ(DESTQMGRNAME_2)
```

You must use the SYSTEM.FTE.DESTQMGRNAME\_n naming convention for the queue manager aliases because the sending agent searches for queues manager aliases of this format. The numbers that you use for *n* must start at 1 and be consecutive.

For the agent to correctly determine the number of queue manager aliases, do **not** define a default XMITQ for the queue manager.

**Related concepts:**

“Configuring WebSphere MQ File Transfer Edition for first use” on page 101

You only need to perform some configuration tasks for WebSphere MQ File Transfer Edition agents and queue managers once, the first time you want to use them.

**Related reference:**

“The agent.properties file” on page 583

Each agent has its own properties file, agent.properties, that must contain the information that an agent uses to connect to its queue manager. The agent.properties file can also contain properties that alter the behavior of the agent.

**Supported user-defined metadata keys**

When the agent property enableUserMetadataOptions is set to a value of true, the following user-defined metadata keys are supported when specified to a new transfer request.

Table 30. Metadata keys

Key name	Description	Default value
com.ibm.wmqfte.insertRecordLineSeparator	For text transfers. When this key is set to true, specifies that when reading record-oriented files, such as z/OS data sets, line separators are to be inserted between records.  When this key is set to false, specifies that when reading record-oriented files, line separators are not to be inserted between records.	true
com.ibm.wmqfte.newRecordOnLineSeparator	For text transfers. When this key is set to true, specifies that when writing to record-oriented files, such as z/OS data sets, that line separators indicate a new record and are not written as part of the data.  When this key is set to false, specifies that when writing to record-oriented files that line separators are to be treated like any other character (that is, no record breaks).	true
com.ibm.wmqfte.convertLineSeparators	For text transfers. Specifies whether the line separator sequences CRLF and LF are converted to the required line separator sequence for the destination. This conversion currently only takes effect for the following cases:  1. If the user-defined metadata key com.ibm.wmqfte.newRecordOnLineSeparator is set to false and the transfer is to a record-oriented file.  2. If the user-defined metadata key com.ibm.wmqfte.com.ibm.wmqfte.insertRecordLineSeparator is set to false and the transfer is from a record-oriented file.	true

**Related information:**

Table 29 on page 585

`fteCreateTransfer -md` parameter

## Additional agent configuration files

In addition to the `agent.properties` file, the agent can have a number of XML configuration files in its configuration directory.

### Configuration files

The following XML configuration files can be used to specify additional information used by the agent:

**ProtocolBridgeCredentials.xml**

If your agent is a protocol bridge agent, you can use this file to specify the credentials to use to log in to the FTP or SFTP server that the agent connects to.

**ProtocolBridgeProperties.xml**

If your agent is a protocol bridge agent, you can use this file to define the properties of non-default protocol file servers that the agent connects to. The `fteCreateBridgeAgent` command creates a default protocol file server in this file for you.

**ConnectDirectCredentials.xml**

If your agent is a Connect:Direct bridge agent, you can use this file to specify the credentials to use to connect to the Connect:Direct nodes involved in a transfer.

**ConnectDirectNodeProperties.xml**

If your agent is a Connect:Direct bridge agent, you can use this file to specify the operating system information about the Connect:Direct nodes involved in a transfer.

**ConnectDirectProcessDefinition.xml**

If your agent is a Connect:Direct bridge agent, you can use this file to specify the user-defined Connect:Direct processes to call as part of a file transfer.

**UserSandboxes.xml**

You can use this file to specify which areas of the file system the agent can read from or write to.

### Updating the configuration files

Unlike the `agent.properties` file, you can update the XML configuration files and have the agent pick up the changes without having to restart the agent.

When you submit a transfer, if it has been more than 10 second since the last time the agent checked the XML configuration file, the agent checks the last modified time of the XML configuration file. If the XML configuration file has been modified since the last time the agent read the file, the agent reads the file again. If the contents of the file are valid when compared to the XML schema, the agent updates its information. If the contents of the file are not valid, the agent uses the information from the previous version of the file and writes a message to the `output0.log` file.

## Related reference:

“Protocol bridge credentials file format”

The ProtocolBridgeCredentials.xml file in the agent configuration directory defines the user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server.

“Protocol bridge properties file format” on page 626

The ProtocolBridgeProperties.xml file in the agent configuration directory defines properties for file protocol servers.

“Connect:Direct credentials file format” on page 634

The ConnectDirectCredentials.xml file in the agent configuration directory defines the user names and credential information that the Connect:Direct agent uses to authorize itself with a Connect:Direct node.

“Connect:Direct node properties file format” on page 637

The ConnectDirectNodeProperties.xml file in the Connect:Direct bridge agent configuration directory specifies information about remote Connect:Direct nodes that are involved in a file transfer.

“Connect:Direct process definitions file format” on page 639

The ConnectDirectProcessDefinitions.xml file in the Connect:Direct bridge agent configuration directory specifies the user-defined Connect:Direct process to start as part of the file transfer.

“Working with user sandboxes” on page 81

You can restrict the area of the file system that files can be transferred into and out of based on the MQMD user name that requests the transfer.

## Protocol bridge credentials file format

The ProtocolBridgeCredentials.xml file in the agent configuration directory defines the user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server.

The ProtocolBridgeCredentials.xml file must conform to the ProtocolBridgeCredentials.xsd schema. The ProtocolBridgeCredentials.xsd schema document is located in the *install\_directory/samples/schema* directory of the WMQFTE installation. A template ProtocolBridgeCredentials.xml file is created by the **fteCreateBridgeAgent** command in the agent configuration directory.

The new function for V7.0.4.1 introduces a new <server> element to replace the <serverHost> element that was used in earlier versions.

## Schema - V7.0.4.1 and later

The following schema describes which elements are valid in the ProtocolBridgeCredentials.xml file for V7.0.4.1 (with the new function enabled) and later.

```
<schema targetNamespace="http://wmqfte.ibm.com/ProtocolBridgeCredentials" elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeCredentials">
  <!--
    <?xml version="1.0" encoding="UTF-8"?>
      <tns:credentials xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeCredentials" xmlns:xsi="http://www.w3.org/2001/
        xsi:schemaLocation="http://wmqfte.ibm.com/ProtocolBridgeCredentials ProtocolBridgeC
          <tns:server name="myserver">
            <tns:user name="fred" serverPassword="pwd" serverUserId="bill">
              </tns:user>
            <tns:user name="jane" serverUserId="june" hostKey="1F:2e:f3">
              <tns:privateKey associationName="test" keyPassword="pwd2">
                .... private key ...
              </tns:privateKey>
            </tns:user>
          </tns:server>
          <tns:server name="server*" pattern="wildcard">
            <tns:user name="fred" serverPassword="pwd" serverUserId="bill">
              </tns:user>
            <tns:user name="jane" serverUserId="june" hostKey="1F:2e:f3">
              <tns:privateKey associationName="test" keyPassword="pwd2">
                .... private key ...
            </tns:user>
          </tns:server>
        </tns:credentials>
      </?xml>
    </!--
```

```

        </tns:privateKey>
      </tns:user>
    </tns:server>
  </tns:credentials>
-->

  <element name="credentials" type="tns:credentialsType"></element>

  <complexType name="credentialsType">
    <choice minOccurs="0" maxOccurs="1">
      <element name="serverHost" type="tns:serverHostType" minOccurs="0" maxOccurs="unbounded"/>
      <element name="server" type="tns:serverType" minOccurs="0" maxOccurs="unbounded"/>
    </choice>
  </complexType>

  <complexType name="serverHostType">
    <sequence>
      <element ref="tns:user" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
    <attribute name="name" type="string" use="required"></attribute>
  </complexType>

  <complexType name="serverType">
    <sequence>
      <element ref="tns:user" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
    <attribute name="name" type="string" use="required"></attribute>
    <attribute name="pattern" type="tns:patternType" use="optional" />
  </complexType>

  <element name="user" type="tns:userType"></element>

  <complexType name="userType">
    <sequence>
      <element ref="tns:privateKey" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
    <attribute name="name" type="string" use="required"></attribute>
    <attribute name="serverUserId" type="string" use="optional"></attribute>
    <attribute name="serverPassword" type="string" use="optional"></attribute>
    <attribute name="hostKey" use="optional">
      <simpleType>
        <restriction base="string">
          <pattern
            value="([a-zA-F0-9]){2}(:([a-zA-F0-9]){2})*">
          </pattern>
        </restriction>
      </simpleType>
    </attribute>
  </complexType>

  <element name="privateKey" type="tns:privateKeyType"></element>

  <complexType name="privateKeyType">
    <simpleContent>
      <extension base="string">
        <attribute name="keyPassword" type="string" use="optional"></attribute>
        <attribute name="associationName" type="string" use="required"></attribute>
      </extension>
    </simpleContent>
  </complexType>

  <!--
Determines the type of pattern matching to use.
-->
  <simpleType name="patternType">
    <restriction base="string">
      <enumeration value="regex" />
    </restriction>
  </simpleType>

```

```

    <enumeration value="wildcard" />
  </restriction>
</simpleType>
</schema>

```

## Schema - V7.0.4 and earlier

The following schema describes which elements are valid in the ProtocolBridgeCredentials.xml file for V7.0.4 and earlier.

```

<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="http://wmqfte.ibm.com/ProtocolBridgeCredentials"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeCredentials">

  <element name="credentials" type="tns:credentialsType"></element>

  <complexType name="credentialsType">
    <sequence>
      <element ref="tns:serverHost" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
  </complexType>

  <element name="serverHost" type="tns:serverHostType"></element>

  <complexType name="serverHostType">
    <sequence>
      <element ref="tns:user" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
    <attribute name="name" type="string" use="required"></attribute>
  </complexType>

  <element name="user" type="tns:userType"></element>

  <complexType name="userType">
    <sequence>
      <element ref="tns:privateKey" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
    <attribute name="name" type="string" use="required"></attribute>
    <attribute name="serverUserId" type="string" use="optional"></attribute>
    <attribute name="serverPassword" type="string" use="optional"></attribute>
    <attribute name="hostKey" use="optional">
      <simpleType>
        <restriction base="string">
          <pattern value="[a-zA-F0-9]{2}(:([a-zA-F0-9]){2})*"></pattern>
        </restriction>
      </simpleType>
    </attribute>
  </complexType>

  <element name="privateKey" type="tns:privateKeyType"></element>

  <complexType name="privateKeyType">
    <simpleContent>
      <extension base="string">
        <attribute name="keyPassword" type="string" use="optional"></attribute>
        <attribute name="associationName" type="string" use="required"></attribute>
      </extension>
    </simpleContent>
  </complexType>

</schema>

```

## Understanding the ProtocolBridgeCredentials.xml file

The elements and attributes used in the ProtocolBridgeCredentials.xml file are described in the following list.

### <credentials>

Group element containing elements that describe the credentials used by a protocol bridge agent to connect to a protocol server.

### <server>

If you have enabled the new function for V7.0.4.1, the protocol server that the protocol bridge connects to.

The <server> element is not supported for V7.0.4 or earlier.

Attribute	Description
name	The name of the protocol server.
pattern	If you have used wildcards or regular expressions to specify the pattern of a protocol server name, use either wildcard or regex.

### <serverHost>

The host name of the protocol server that the protocol bridge connects to.

If you have enabled the new function for V7.0.4.1, the ProtocolBridgeCredentials.xml file can either contain <serverHost> elements or <server> elements but you cannot use a mixture of the two different types. When you use <serverHost>, the name is matched against the protocol server's host name. When you use <server>, the name is matched against the protocol server's name (as defined in the ProtocolBridgeProperties.xml file).

Attribute	Description
name	The host name or IP address of the protocol server.

### <user>

A user mapping from a WebSphere MQ File Transfer Edition user name to a protocol server user name.

Attribute	Description
name	The user name that is used with WebSphere MQ File Transfer Edition.
serverUserId	The user name that is used with the protocol server.
serverPassword	The password for the user name used on the protocol server.
hostKey	The server host SSH fingerprint.

### <privateKey>

The private key of a user.

Attribute	Description
keyPassword	The password for the private key.
associationName	A name used for trace and logging.

## Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

## Related tasks:

“Mapping credentials for a file server using the ProtocolBridgeCredentials.xml file” on page 262

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

“Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server” on page 266

This example demonstrates how you can generate and configure the ProtocolBridgeCredentials.xml file. This example is a typical example and the details might vary according to your platform, but the principles remain the same.

“Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file” on page 258

Define the properties of one or more protocol file servers that you want to transfer files to and from using the ProtocolBridgeProperties.xml file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

## Protocol bridge properties file format

The ProtocolBridgeProperties.xml file in the agent configuration directory defines properties for file protocol servers.

The ProtocolBridgeProperties.xml file must conform to the ProtocolBridgeProperties.xsd schema. The ProtocolBridgeProperties.xsd schema document is located in the *install\_directory/samples/schema* directory of the WMQFTE installation. A template file, ProtocolBridgeProperties.xml, is created by the **fteCreateBridgeAgent** command in the agent configuration directory.

## Schema

The following schema describes the ProtocolBridgeProperties.xml file.

**Note:** The maxReconnectRetry and reconnectWaitPeriod attributes are not supported on WebSphere MQ File Transfer Edition V7.0.2, or later.

```
| <schema targetNamespace="http://wmqfte.ibm.com/ProtocolBridgeProperties" elementFormDefault="qualified" xmlns="http://www.w
| <!--
|     Example: ProtocolBridgeProperties.xml
|
|     <?xml version="1.0" encoding="UTF-8"?>
|     <tns:serverProperties xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeProperties"
|     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|     xsi:schemaLocation="http://wmqfte.ibm.com/ProtocolBridgeProperties
|     ProtocolBridgeProperties.xsd">
|     <tns:credentialsFile path="$HOME/ProtocolBridgeCredentials.xml" />
|     <tns:defaultServer name="myserver" />
|     <tns:ftpServer name="myserver" host="myhost.hursley.ibm.com" port="1234" platform="windows"
|     timeZone="Europe/London" locale="en-GB" fileEncoding="UTF-8"
|     listFormat="unix" limitedWrite="false" />
|     <tns:sftpServer name="server1" host="myhost.hursley.ibm.com" platform="windows"
|     fileEncoding="UTF-8" limitedWrite="false">
|     <limits maxListFileNames="10" />
|     </tns:sftpServer>
|     </tns:serverProperties>
|
|     -->
| <!-- Root element for the document -->
| <element name="serverProperties" type="tns:serverPropertiesType" />
```

```

| <!--
|     A container for all protocol bridge server properties
| -->
| <complexType name="serverPropertiesType">
|     <sequence>
|         <element name="credentialsFile" type="tns:credentialsFileName" minOccurs="0" maxOccurs="1" />
|         <element name="defaultServer" type="tns:serverName" minOccurs="0" maxOccurs="1" />
|         <choice minOccurs="0" maxOccurs="unbounded">
|             <element name="ftpServer" type="tns:ftpServerType" />
|             <element name="sftpServer" type="tns:sftpServerType" />
|             <element name="ftpsServer" type="tns:ftpsServerType" />
|             <element name="ftpsfgServer" type="tns:ftpsfgServerType" />
|             <element name="ftpsfgServer" type="tns:ftpsfgServerType" />
|         </choice>
|     </sequence>
| </complexType>
| <!--
|     A container for a server name
| -->
| <complexType name="serverName">
|     <attribute name="name" type="tns:serverNameType" use="required" />
| </complexType>
| <!--
|     A container for a credentials file name
| -->
| <complexType name="credentialsFileName">
|     <attribute name="path" type="string" use="required" />
| </complexType>
| <!--
|     A container for all the information about an FTP server
| -->
| <complexType name="ftpServerType">
|     <sequence>
|         <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:ftpServerAttributes" />
|     <attribute name="passiveMode" type="boolean" use="optional" />
| </complexType>
| <!--
|     A container for all the information about an SFG FTP server
| -->
| <complexType name="ftpsfgServerType">
|     <sequence>
|         <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:ftpServerAttributes" />
| </complexType>
| <!--
|     A container for all the information about an SFTP server
| -->
| <complexType name="sftpServerType">
|     <sequence>
|         <element name="limits" type="tns:sftpLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:sftpServerAttributes" />
| </complexType>
| <!--
|     A container for all the information about a FTPS server
| -->
| <complexType name="ftpsServerType">
|     <sequence>
|         <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:ftpsServerAttributes" />
| </complexType>
| <!--
|     A container for all the information about a SFG FTPS server

```

```

-->
<complexType name="ftpsfgServerType">
  <sequence>
    <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
  </sequence>
  <attributeGroup ref="tns:ftpsServerAttributes" />
</complexType>
<!--
  Attributes common to all server types
-->
<attributeGroup name="generalServerAttributes">
  <attribute name="name" type="tns:serverNameType" use="required" />
  <attribute name="host" type="string" use="required" />
  <attribute name="port" type="nonNegativeInteger" use="optional" />
  <attribute name="platform" type="tns:platformType" use="required" />
  <attribute name="fileEncoding" type="string" use="required" />
  <attribute name="limitedWrite" type="boolean" use="optional" />
  <attribute name="controlEncoding" type="string" use="optional" />
</attributeGroup>
<!--
  Attributes common to ftp and ftps server types
-->
<attributeGroup name="ftpServerAttributes">
  <attributeGroup ref="tns:generalServerAttributes" />
  <attribute name="timeZone" type="string" use="required" />
  <attribute name="locale" type="tns:localeType" use="required" />
  <attribute name="listFormat" type="tns:listFormatType" use="optional" />
  <attribute name="listFileRecentDateFormat" type="tns:dateFormatType" use="optional" />
  <attribute name="listFileOldDateFormat" type="tns:dateFormatType" use="optional" />
  <attribute name="monthShortNames" type="tns:monthShortNamesType" use="optional" />
</attributeGroup>
<!--
  Attributes common to ftps server types
-->
<attributeGroup name="ftpsServerAttributes">
  <attributeGroup ref="tns:ftpServerAttributes" />
  <attribute name="ftpsType" type="tns:ftpsTypeType" use="optional" />
  <attribute name="trustStore" type="string" use="required" />
  <attribute name="trustStoreType" type="string" use="optional" />
  <attribute name="keyStore" type="string" use="optional" />
  <attribute name="keyStoreType" type="string" use="optional" />
  <attribute name="ccc" type="boolean" use="optional" />
  <attribute name="protFirst" type="boolean" use="optional" />
  <attribute name="auth" type="string" use="optional" />
  <attribute name="connectTimeout" type="nonNegativeInteger" use="optional" />
  <attribute name="cipherSuiteList" type="string" use="optional" />
</attributeGroup>
<!--
  A container for limit-type attributes for a server. Limit parameters
  are optional, and if not specified a system default will be used.
-->
<complexType name="generalLimitsType">
  <attributeGroup ref="tns:generalLimitAttributes" />
</complexType>
<complexType name="sftpLimitsType">
  <attributeGroup ref="tns:generalLimitAttributes" />
  <attribute name="connectionTimeout" type="nonNegativeInteger" use="optional" />
</complexType>
<!--
  Attributes for limits common to all server types
-->
<attributeGroup name="generalLimitAttributes">
  <attribute name="maxListFileNames" type="positiveInteger" use="optional" />
  <attribute name="maxListDirectoryLevels" type="nonNegativeInteger" use="optional" />
  <attribute name="maxReconnectRetry" type="nonNegativeInteger" use="optional" />
  <attribute name="reconnectWaitPeriod" type="nonNegativeInteger" use="optional" />
  <attribute name="maxSessions" type="positiveInteger" use="optional" />

```

```

|     <attribute name="socketTimeout" type="nonNegativeInteger" use="optional" />
| </attributeGroup>
| <!--
|     The type for matching valid server names. Server names must be at least 2 characters in length and
|     are limited to alphanumeric characters and the following characters: ".", "_", "/" and "%".
| -->
| <simpleType name="serverNameType">
|   <restriction base="string">
|     <pattern value="[0-9a-zA-Z\._%]{2,}" />
|   </restriction>
| </simpleType>
| <!--
|     The types of platform supported.
| -->
| <simpleType name="platformType">
|   <restriction base="string" />
| </simpleType>
| <!--
|     The type for matching a locale specification.
| -->
| <simpleType name="localeType">
|   <restriction base="string">
|     <pattern value="(.)[-_](.*)" />
|   </restriction>
| </simpleType>
| <!--
|     The types of list format supported (for FTP servers).
| -->
| <simpleType name="listFormatType">
|   <restriction base="string" />
| </simpleType>
| <!--
|     Date format for FTP client directory listing on an FTP server. This is
|     the format to be passed to methods setDefaultDateFormatStr and
|     setRecentDateFormatStr for Java class:
|     org.apache.commons.net.ftp.FTPClientConfig
| -->
| <simpleType name="dateFormatType">
|   <restriction base="string" />
| </simpleType>
| <!--
|     A list of language-defined short month names can be specified. These are
|     used for translating the directory listing received from the FTP server.
|     The format is a string of three character month names separated by "|"
| -->
| <simpleType name="monthShortNamesType">
|   <restriction base="string">
|     <pattern value="(...\|){11}(...)" />
|   </restriction>
| </simpleType>
| <!--
|     The enumerations of the allowed FTPS types: "implicit" & "explicit"
|     If not specified the default is "explicit"
| -->
| <simpleType name="ftpsTypeType">
|   <restriction base="string">
|     <enumeration value="explicit" />
|     <enumeration value="implicit" />
|   </restriction>
| </simpleType>
| <!--
|     Attribute Group for SFTP Servers
| -->
| <attributeGroup name="sftpServerAttributes">

```

```

|     <attributeGroup ref="tns:generalServerAttributes" />
|     <attribute name="cipherList" type="string" use="optional" />
| </attributeGroup>
| </schema>

```

## Understanding the ProtocolBridgeProperties.xml file

The elements and attributes that are used in the ProtocolBridgeProperties.xml file are described in the following list:

### <serverProperties>

Root element of the XML document

#### <defaultServer>

The protocol file server that acts as the default server for file transfers

#### <ftpServer>

An FTP file server

#### <sftpServer>

An SFTP file server

#### <ftpsServer>

An FTPS file server

### General server attributes that apply to all types of protocol file server:

Attribute	Description
name	Required. The name of the protocol file server. Protocol server names must be at least two characters in length, are not case-sensitive, and are limited to alphanumeric characters and the following characters: <ul style="list-style-type: none"> <li>• period (.)</li> <li>• underscore (_)</li> <li>• forward slash (/)</li> <li>• percent sign (%)</li> </ul>
host	Required. The host name or IP address of the protocol file server that you want to send files to or receive files from.
port	Optional. The port number of the protocol file server that you want to send files to or receive files from. If you do not provide a value for this property, the FTP, SFTP, or FTPS standard default port numbers are used. FTPS is available only if you have enabled the 7.0.4.1 function.
platform	Required. The platform of the protocol file server that you want to send files to or receive files from. Specify either UNIX or WINDOWS.  Set this property according to how you enter paths on your FTP, FTPS, or SFTP server. For example, if you are running an FTP server on Windows but when you log in to the server, you must enter UNIX-style paths (that is, with forward slashes), set this value to UNIX and not WINDOWS. Servers running on Windows often present a UNIX-style file system.

Attribute	Description
fileEncoding	Required. Defines the character encoding used by the file server. This property is used when you transfer files in text mode so that the correct encoding sequences are changed when the files are moved between platforms. For example, UTF-8.
limitedWrite	Optional. The default mode when writing to a file server is to create a temporary file and then rename that file when the transfer has completed. For a file server that is configured as write only, the file is created directly with its final name. The value of this property can be true or false. The default is false.
controlEncoding	Optional. The control encoding value for control messages being sent to the protocol file server. This property affects the encoding of the file name that is used and must be compatible with the control encoding of the protocol file server. The default is UTF-8.

**General attributes that apply to FTP and FTPS servers only:**

Attribute	Description
timeZone	Required. The time zone of the protocol file server that you want to send files to or receive files from. For example: America/New_York or Asia/Tokyo.
locale	Required. The language used on the protocol file server that you want to send files to or receive files from. For example: en_US or ja_JP
listFormat	Optional. The listing format that defines the format of the file-listed information that is returned from the protocol file server. Use eitherWindows or UNIX. The default is UNIX.
listFileRecentDateFormat	Optional. The recent date format (less than a year) for FTP client directory listing on an FTP server. This attribute and the listFileOldDateFormat attribute allow you to redefine the expected date formats that are returned by the protocol file server. The default is as defined by the protocol file server.
listFileOldDateFormat	Optional. The old date format (more than a year) for FTP client directory listing on an FTP server. This attribute and the listFileRecentDateFormat attribute allow you to redefine the expected date formats that are returned by the protocol file server. The default is as defined by the protocol file server.
monthShortNames	Optional. A replacement list of month names that are used to decode date information returned from the file protocol server. This property consists of a list of 12 comma-separated names to override the default locale month values. The default is as defined by the protocol file server.

**General attributes that apply to FTP servers only:**

Attribute	Description
passiveMode	Optional. Controls whether the connection to the FTP server is passive or active.  If you set the value of this property to false, the connection is active. If you set the value to true, the connection is passive. The default is false.

**General attributes that apply to FTPS servers only:**

Attribute	Description
ftpsType	Optional. Specifies whether the explicit or implicit form of the FTPS protocol is used. The default is explicit.
trustStore	Required. The location of the truststore that is used to determine whether the certificate presented by the FTPS server is trusted.
trustStorePassword	Required. The password that is used to access the truststore.
trustStoreType	Optional. The format of the truststore file. The default is JKS.
keyStore	Optional. The location of the keystore that is used to provide certificate information if challenged by the FTPS server. The default is for the protocol bridge to not be able to connect to FTPS servers that are configured to require the authentication of clients.
keyStorePassword	Optional. The password that is used to access the keystore. This property is optional unless you set the protocolBridgeFTPSKeyStore attribute, in which case it is required.
keyStoreType	Optional. The format of the keystore file. The default is JKS.
ccc	Optional. Selects whether a clear (unencrypted) command channel is used when authentication has completed. The default value is false, which means that the command channel remains encrypted for the entire duration of the FTPS session. This attribute is applicable only when the ftpsType is set to explicit.
protFirst	Optional. Specifies whether the <b>USER/PASS</b> commands are issued to the FTPS server before or after the <b>PBSZ/PROT</b> commands. The default value is false, which means <b>USER/PASS</b> commands are sent first followed by <b>PBSZ/PROT</b> commands. This attribute is applicable only when the ftpsType is set to explicit.
auth	Optional. Specifies the protocol that is specified as part of the <b>AUTH</b> command. A specified protocol will be tried first, then the default is to try TLS, SSL, TLS-C, or TLS-P until the FTPS server does not reject with a 504 reply code. This attribute is applicable only when the ftpsType is set to explicit.

Attribute	Description
cipherSuiteList	<p>Specifies a comma-separated list of one or more cipher suite names. A cipher suite specifies the protocol, hash algorithm, and encryption algorithm that are used, and how many bits are used in the encryption key when data is exchanged between the agent and the FTPS server. The list supplied is used in the negotiation between the agent and the FTPS server.</p> <p>If you do not specify a value, the default set of ciphers enabled by Java is used in the negotiation between the agent and the FTPS server.</p> <p>For a list of valid cipher suite values, see Cipher suites in the IBM SDK and Runtime Environment Java Technology Edition Version 7 product documentation.</p>

### <limits>

Container element for attributes that are common to all types of server and for attributes that are specific to a type of server:

#### General limit attributes that apply to all types of protocol file server:

Attribute	Description
maxListFileNames	Optional. The maximum number of names collected when scanning a directory on the protocol file server for file names. The default is 999999999.
maxListDirectoryLevels	Optional. The maximum number of directory levels on the protocol server to recursively scan for file names. The default is 1000.
maxReconnectRetry (This attribute is now deprecated.)	<p><b>Deprecated.</b> This attribute is not supported on WebSphere MQ File Transfer Edition V7.0.2, or later.</p> <p>Optional. The maximum number of times a protocol server tries to reconnect before the protocol bridge agent stops trying. The default is 2.</p>
reconnectWaitPeriod (This attribute is now deprecated.)	<p><b>Deprecated.</b> This attribute is not supported on WebSphere MQ File Transfer Edition V7.0.2, or later.</p> <p>Optional. The maximum number of times a protocol server tries to reconnect before the protocol bridge agent stops trying. The default is 2.</p>
maxSessions	Optional. The maximum number of sessions for the protocol server. This number must be greater than or equal to the sum of the maximum number of source and destination transfers for the protocol bridge agent. The default is the sum of the values for the agent properties maxSourceTransfers and maxDestinationTransfers, which is 50 if the default values for maxSourceTransfers and maxDestinationTransfers are being used.
socketTimeout	Optional. The socket timeout in seconds. The value of this attribute is used during file streaming. The default is 30 seconds.

#### Limit attribute that applies to SFTP servers only:

Attribute	Description
connectionTimeout	Optional. The time, in seconds, to wait for a response from the protocol file server to a connection request. A timeout indicates that the protocol file server is not available. The default value is 30 seconds.
cipherList	Optional. Specifies a comma-separated list of ciphers that are used to communicate between the protocol bridge agent and the SFTP server. The ciphers are called in the order that they are specified in this list. The cipher must be available on the server and the client before it can be used. The default is aes128-cbc,aes192-cbc,aes256-cbc.

### Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

### Related tasks:

“Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file” on page 258  
 Define the properties of one or more protocol file servers that you want to transfer files to and from using the ProtocolBridgeProperties.xml file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

“Mapping credentials for a file server using the ProtocolBridgeCredentials.xml file” on page 262  
 Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

“Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server” on page 266

This example demonstrates how you can generate and configure the ProtocolBridgeCredentials.xml file. This example is a typical example and the details might vary according to your platform, but the principles remain the same.

## Connect:Direct credentials file format

The ConnectDirectCredentials.xml file in the agent configuration directory defines the user names and credential information that the Connect:Direct agent uses to authorize itself with a Connect:Direct node.

The ConnectDirectCredentials.xml file must conform to the ConnectDirectCredentials.xsd schema. The ConnectDirectCredentials.xsd schema document is located in the *install\_directory/samples/schema* directory of the WMQFTE installation. A template ConnectDirectCredentials.xml file is created by the **fteCreateCDAgent** command in the agent configuration directory.

## Schema

The following schema describes which elements are valid in the ConnectDirectCredentials.xml file.

```
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="http://wmqfte.ibm.com/ConnectDirectCredentials"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ConnectDirectCredentials">

  <element name="credentials" type="tns:credentialsType"></element>

  <complexType name="credentialsType">
    <sequence>
```

```

        <element name="pnode" type="tns:pnodeType"
            minOccurs="0" maxOccurs="unbounded"/></element>
    </sequence>
</complexType>

<complexType name="pnodeType">
    <sequence>
        <element name="user" type="tns:userType"
            minOccurs="0" maxOccurs="unbounded"/>
    </sequence>
    <attribute name="name" type="string" use="required"/>
    <attribute name="pattern" type="tns:patternType" use="optional"/>
</complexType>

<complexType name="userType">
    <sequence>
        <element name="snode" type="tns:snodeType"
            minOccurs="0" maxOccurs="unbounded"/>
    </sequence>
    <attribute name="name" type="string" use="required"/>
    <attribute name="ignorecase" type="boolean" use="optional"/>
    <attribute name="pattern" type="tns:patternType" use="optional"/>
    <attribute name="cdUserId" type="string" use="required"/>
    <attribute name="cdPassword" type="string" use="required"/>
    <attribute name="pnodeUserId" type="string" use="optional"/>
    <attribute name="pnodePassword" type="string" use="optional"/>
</complexType>

<complexType name="snodeType">
    <attribute name="name" type="string" use="required"/>
    <attribute name="pattern" type="tns:patternType" use="optional"/>
    <attribute name="userId" type="string" use="required"/>
    <attribute name="password" type="string" use="required"/>
</complexType>

<simpleType name="patternType">
    <restriction base="string">
        <enumeration value="regex"/>
        <enumeration value="wildcard"/>
    </restriction>
</simpleType>

</schema>

```

## Understanding the ConnectDirectCredentials.xml file

The elements and attributes used in the ConnectDirectCredentials.xml file are described in the following list.

### <credentials>

Group element containing elements that describe the credentials used by a Connect:Direct bridge agent to connect to a Connect:Direct node.

### <pnode>

The primary node (PNODE) in the Connect:Direct transfer. This node initiates the connection to the secondary node (SNODE).

Attribute	Description
name	The name of the Connect:Direct node. The value of this attribute can be a pattern that matches many node names.

Attribute	Description
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>• wildcard - wildcards are used</li> <li>• regex - Java regular expressions are used</li> </ul>

**<user>**

The WebSphere MQ user that submits the transfer request.

Attribute	Description
name	The user name that is used with WebSphere MQ File Transfer Edition. The value of this attribute can be a pattern that matches many user names.
ignorecase	Specifies whether the case of the name is ignored. Valid values for the ignorecase attribute are <ul style="list-style-type: none"> <li>• true - the name is not case sensitive</li> <li>• false - the name is case sensitive</li> </ul>
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>• wildcard - wildcards are used</li> <li>• regex - Java regular expressions are used</li> </ul>
cdUserId	The user name that is used by the Connect:Direct bridge to connect to its associated Connect:Direct node.
cdPassword	The password associated with the user name specified by the cdUserId attribute.
pnodeUserId	The user name that is used by the Connect:Direct primary node.
pnodePassword	The password associated with the user name specified by the pnodeUserId attribute.

**<snode>**

The Connect:Direct node that performs the role of secondary node (SNODE) during the Connect:Direct file transfer.

Attribute	Description
name	The name of the Connect:Direct node. The value of this attribute can be a pattern that matches many node names.
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>• wildcard - wildcards are used</li> <li>• regex - Java regular expressions are used</li> </ul>
userId	The user name used to connect to this node during a file transfer.
password	The password associated with the user name specified by the userId attribute.

## Example

In this example, the Connect:Direct bridge agent connects to the Connect:Direct node pnode1. When a WebSphere MQ user with the user name beginning with the prefix fteuser followed by a single character, for example fteuser2, requests a transfer involving the Connect:Direct bridge, the Connect:Direct bridge agent will use the user name cduser and the password passwd to connect to the Connect:Direct node pnode1. When the Connect:Direct node pnode1 performs its part of the transfer it uses the user name pnodeuser and the password passwd1.

If the secondary node in the Connect:Direct transfer has a name that begins with the prefix FISH, the node pnode1 uses the user name fishuser and the password passwd2 to connect to the secondary node. If the secondary node in the Connect:Direct transfer has a name that begins with the prefix CHIPS, the node pnode1 uses the user name chipsuser and the password passwd3 to connect to the secondary node.

```
<tns:credentials xsi:schemaLocation="http://wmqfte.ibm.com/ConnectDirectCredentials ConnectDirectCredentials.xsd">
  <tns:pnode name="pnode1" pattern="wildcard">
    <tns:user name="fteuser?" pattern="wildcard" ignorecase="true"
      cdUserId="cduser" cdPassword="passwd"
      pnodeUserId="pnodeuser" pnodePassword="passwd1">
      <tns:snode name="FISH*" pattern="wildcard"
        userId="fishuser" password="passwd2"/>
      <tns:snode name="CHIPS*" pattern="wildcard"
        userId="chipsuser" password="passwd3"/>
    </tns:user>
  </tns:pnode>
</tns:credentials>
```

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related reference:

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the java.util.regex API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Connect:Direct node properties file format

The ConnectDirectNodeProperties.xml file in the Connect:Direct bridge agent configuration directory specifies information about remote Connect:Direct nodes that are involved in a file transfer.

The ConnectDirectNodeProperties.xml file must conform to the ConnectDirectNodeProperties.xsd schema. The ConnectDirectNodeProperties.xsd schema document is located in the *install\_directory/samples/schema* directory of the WMQFTE installation. A template ConnectDirectNodeProperties.xml file is created by the **fteCreateCDAgent** command in the agent configuration directory.

## Schema

The following schema describes which elements are valid in the ConnectDirectNodeProperties.xml file.

```

<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://wmqfte.ibm.com/ConnectDirectNodeProperties"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ConnectDirectNodeProperties">

  <element name="nodeProperties" type="tns:nodePropertiesType"></element>

  <complexType name="nodePropertiesType">
    <sequence>
      <element name="node" type="tns:nodeType" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
  </complexType>

  <complexType name="nodeType">
    <attribute name="name" type="string" use="required" />
    <attribute name="pattern" type="tns:patternType" use="optional" />
    <attribute name="type" type="string" use="required" />
  </complexType>

  <simpleType name="patternType">
    <restriction base="string">
      <enumeration value="regex" />
      <enumeration value="wildcard" />
    </restriction>
  </simpleType>

</schema>

```

## Understanding the ConnectDirectNodeProperties.xml file

The elements and attributes used in the ConnectDirectNodeProperties.xml file are described in the following list.

### nodeProperties

Root element of the XML document.

### node

Specifies one or more Connect:Direct nodes.

Attribute	Description
name	A pattern that identifies the names of Connect:Direct nodes that use the definitions specified by the node element. Pattern matching is not case sensitive.
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are: <ul style="list-style-type: none"> <li>wildcard - wildcards are used</li> <li>regex - Java regular expressions are used</li> </ul> For information about the types of regular expressions used by WMQFTE, see "Regular expressions used by WebSphere MQ File Transfer Edition" on page 746.
type	Specifies the operating system type of the Connect:Direct node or nodes that match the pattern given by the name attribute. Valid values for the type attribute are: <ul style="list-style-type: none"> <li>Windows - the node runs on Windows</li> <li>UNIX - the node runs on UNIX or Linux</li> <li>z/OS, zos, os/390, or os390 - the node runs on z/OS</li> </ul> The value of this attribute is not case sensitive.

## Example

In this example, the file specifies that all Connect:Direct nodes that have a name that begins with “cdnodew” run on a Windows platform, all Connect:Direct nodes that have a name that begins with “cdnodeu” run on a UNIX platform, and that all Connect:Direct nodes that have a name that begins with “cdnodez” run on z/OS. The file specifies that all other Connect:Direct nodes run on a UNIX platform. The Connect:Direct bridge agent searches for matches from the top of the file to the bottom and uses the first match that it finds.

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:nodeProperties xmlns:tns="http://wmqfte.ibm.com/ConnectDirectNodeProperties"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/ConnectDirectNodeProperties
    ConnectDirectNodeProperties.xsd">

  <tns:node name="cdnodew*" pattern="wildcard" type="windows" />
  <tns:node name="cdnodeu.*" pattern="regex" type="unix" />
  <tns:node name="cdnodez*" pattern="wildcard" type="zos" />
  <tns:node name="*" pattern="wildcard" type="unix" />

</tns:nodeProperties>
```

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related reference:

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Connect:Direct process definitions file format

The `ConnectDirectProcessDefinitions.xml` file in the Connect:Direct bridge agent configuration directory specifies the user-defined Connect:Direct process to start as part of the file transfer.

The `ConnectDirectProcessDefinitions.xml` file must conform to the `ConnectDirectProcessDefinitions.xsd` schema. The `ConnectDirectProcessDefinitions.xsd` schema document is located in the `install_directory/samples/schema` directory of the WMQFTE installation. A template `ConnectDirectProcessDefinitions.xml` file is created by the **fteCreateCDAgent** command in the agent configuration directory.

## Schema

The following schema describes which elements are valid in the `ConnectDirectProcessDefinitions.xml` file.

```
<schema targetNamespace="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions">
```

```

<element name="cdprocess" type="tns:cdprocessType"></element>

<complexType name="cdprocessType">
  <sequence>
    <element name="processSet" type="tns:processSetType"
      minOccurs="0" maxOccurs="unbounded"></element>
  </sequence>
</complexType>

<complexType name="processSetType">
  <sequence>
    <element name="condition" type="tns:conditionType"
      minOccurs="0" maxOccurs="1" />
    <element name="process" type="tns:processType"
      minOccurs="1" maxOccurs="1" />
  </sequence>
</complexType>

<complexType name="conditionType">
  <choice minOccurs="0" maxOccurs="unbounded">
    <element name="match" type="tns:matchType" />
    <element name="defined" type="tns:definedType" />
  </choice>
</complexType>

<complexType name="matchType">
  <attribute name="variable" type="string" use="required" />
  <attribute name="value" type="string" use="required" />
  <attribute name="pattern" type="tns:patternType" use="optional" />
</complexType>

<complexType name="definedType">
  <attribute name="variable" type="string" use="required" />
</complexType>

<complexType name="processType">
  <sequence>
    <element name="preTransfer" type="tns:transferType"
      minOccurs="0" maxOccurs="1" />
    <element name="transfer" type="tns:transferType"
      minOccurs="0" maxOccurs="1" />
    <element name="postTransferSuccess" type="tns:transferType"
      minOccurs="0" maxOccurs="1" />
    <element name="postTransferFailure" type="tns:transferType"
      minOccurs="0" maxOccurs="1" />
  </sequence>
</complexType>

<complexType name="transferType">
  <attribute name="process" type="string" use="required" />
</complexType>

<simpleType name="patternType">
  <restriction base="string">
    <enumeration value="regex" />
    <enumeration value="wildcard" />
  </restriction>
</simpleType>

</schema>

```

## Understanding the ConnectDirectProcessDefinitions.xml file

The elements and attributes used in the ConnectDirectProcessDefinitions.xml file are described in the following list.

**cdProcess**

The root element of the XML document.

**processSet**

Group element containing all the information about a set of user-defined processes.

**condition**

Group element containing the conditions that a transfer is tested against to determine whether the set of processes contained in the processSet element are used.

**match**

A condition that tests whether a the value of a variable matches a given value.

Attribute	Description
variable	Specifies a variable. The value of this variable is compared with the value of the value attribute. The variable is an intrinsic symbol. For more information, see "Substitution variables for use with user-defined Connect:Direct processes" on page 746.
value	Specifies a pattern to match against the value of the variable specified by the variable attribute.
pattern	Specifies the type of pattern that is used for the value of the value attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>• wildcard - wildcards are used</li> <li>• regex - Java regular expressions are used</li> </ul> This attribute is optional and the default is wildcard.

**defined**

A condition that tests whether a variable has been defined.

Attribute	Description
variable	Specifies a variable. If this variable exists, the match condition is satisfied. The variable is an intrinsic symbol. For more information, see "Substitution variables for use with user-defined Connect:Direct processes" on page 746.

**process**

Group element containing the information about where to locate the Connect:Direct processes to call when a match is found.

**transfer**

The Connect:Direct process to call during a transfer request.

Attribute	Description
process	Optional. Specifies the name of a file that contains a Connect:Direct process to call during a transfer request. The file path is relative to the Connect:Direct bridge agent configuration directory. This attribute is optional, the default is to use a process generated by WMQFTE.

**Example**

In this example, there are three processSet elements.

The first processSet element specifies that if a transfer request has a %FTESNODE variable with a value that matches the pattern Client\* and a %FTESUSER variable with a value of Admin, the Connect:Direct bridge agent submits the Connect:Direct process located in the *agent\_configuration\_directory/AdminClient.cdp* as part of the transfer.

The second processSet element specifies that if a transfer request has a %FTESNODE variable with a value that matches the pattern Client\*, the Connect:Direct bridge agent submits the Connect:Direct process located in the *agent\_configuration\_directory/Client.cdp* as part of the transfer. The Connect:Direct bridge agent reads the processSet elements in the order that they are defined, and if it finds a match, it uses the first match and does not look for another match. For transfer requests that match the conditions of both the first and second processSet, the Connect:Direct bridge agent calls only the processes specified by the first processSet.

The third processSet element has no conditions and matches all transfers. If the transfer request does not match the conditions of the first or second processSet, the Connect:Direct bridge agent submits the Connect:Direct process specified by the third condition. This process is located in the *agent\_configuration\_directory/Default.cdp* as part of the transfer.

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:cdprocess xmlns:tns="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions ConnectDirectProcessDefinitions.xsd">
  <tns:processSet>
    <tns:condition>
      <tns:match variable="%FTESNODE" value="Client*" pattern="wildcard" />
      <tns:match variable="%FTESUSER" value="Admin" pattern="wildcard" />
    </tns:condition>
    <tns:process>
      <tns:transfer process="AdminClient.cdp" />
    </tns:process>
  </tns:processSet>
  <tns:processSet>
    <tns:condition>
      <tns:match variable="%FTESNODE" value="Client*" pattern="wildcard" />
    </tns:condition>
    <tns:process>
      <tns:transfer process="Client.cdp" />
    </tns:process>
  </tns:processSet>
  <tns:processSet>
    <tns:process>
      <tns:transfer process="Default.cdp" />
    </tns:process>
  </tns:processSet>
</tns:cdprocess>
```

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related tasks:

“Specifying the Connect:Direct process to start by using the ConnectDirectProcessDefinition.xml file” on page 184

Specify which Connect:Direct process to start as part of a WebSphere MQ File Transfer Edition transfer. WebSphere MQ File Transfer Edition provides an XML file that you can edit to specify process definitions.

### Related reference:

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Working with user sandboxes

You can restrict the area of the file system that files can be transferred into and out of based on the MQMD user name that requests the transfer.

User sandboxes are not supported when the agent is a protocol bridge agent or a Connect:Direct bridge agent.

To enable user sandboxing, add the following property to the `agent.properties` file for the agent that you want to restrict:

```
userSandboxes=true
```

When this property is present and set to true the agent uses the information in the `configuration_directory/coordination_queue_manager/agents/agent_name/UserSandboxes.xml` file to determine which parts of the file system the user who requests the transfer can access.

The `UserSandboxes.xml` XML is composed of an `<agent>` element that contains zero or more `<sandbox>` elements. These elements describe which rules are applied to which users. The user attribute of the `<sandbox>` element is a pattern that is used to match against the MQMD user of the request.

If you specify the `userPattern="regex"` attribute or value, the user attribute is interpreted as a Java regular expression. For more information, see “Regular expressions used by WebSphere MQ File Transfer Edition” on page 746.

If you do not specify the `userPattern="regex"` attribute or value the user attribute is interpreted as a pattern with the following wildcard characters:

- asterisk (\*), which represents zero or more characters
- question mark (?), which represents exactly one character

Matches are performed in the order that the `<sandbox>` elements are listed in the file. Only the first match is used, all following potential matches in the file are ignored. If none of the `<sandbox>` elements specified

in the file match the MQMD user associated with the transfer request message, the transfer cannot access the file system. When a match has been found between the MQMD user name and a user attribute, the match identifies a set of rules inside a <sandbox> element that are applied to the transfer. This set of rules is used to determine which files, or data sets, can be read from or written to as part of the transfer.

Each set of rules can specify a <read> element, which identifies which files can be read, and a <write> element which identifies which files can be written. If you omit the <read> or <write> elements from a set of rules, it is assumed that the user associated with that set of rules is not allowed to perform any reads or any writes, as appropriate.

**Note:** The <read> element must be before the <write> element, and the <include> element must be before the <exclude> element, in the UserSandboxes.xml file.

Each <read> or <write> element contains one or more patterns that are used to determine whether a file is in the sandbox and can be transferred. Specify these patterns by using the <include> and <exclude> elements. The name attribute of the <include> or <exclude> element specifies the pattern to be matched. An optional type attribute specifies whether the name value is a file or queue pattern. If the type attribute is not specified the agent treats the pattern as a file or directory path pattern. For example:

```
<tns:read>
  <tns:include name="/home/user/**"/>
  <tns:include name="USER.**" type="queue"/>
  <tns:exclude name="/home/user/private/**"/>
</tns:read>
```

The <include> and <exclude> name patterns are used by the agent to determine whether files, data sets, or queue can be read from or written to. An operation is allowed if the canonical file path, data set, or queue name matches at least one of the included patterns and exactly zero of the excluded patterns. The patterns specified by using the name attribute of the <include> and <exclude> elements use the path separators and conventions appropriate to the platform that the agent is running on. If you specify relative file paths, the paths are resolved relative to the transferRoot property of the agent.

When specifying a queue restriction, a syntax of QUEUE@QUEUEMANAGER is supported, with the following rules:

- If the at character (@) is missing from the entry, the pattern is treated as a queue name that can be accessed on any queue manager. For example, if the pattern is name it is treated the same way as name@\*\*.
- If the at character (@) is the first character in the entry, the pattern is treated as a queue manager name and all queues on the queue manager can be accessed. For example, if the pattern is @name it is treated the same way as \*\*@name..

The following wildcard characters have special meaning when you specify them as part of the name attribute of the <include> and <exclude> elements:

- \* A single asterisk matches zero or more characters in a directory name, or in a qualifier of a data set name or queue name.
- ? A question mark matches exactly one character in a directory name, or in a qualifier of a data set name or queue name.
- \*\* Two asterisk characters match zero or more directory names, or zero or more qualifiers in a data set name or queue name. Also, paths that end with a path separator have an implicit "\*\*\*" added to the end of the path. So /home/user/ is the same as /home/user/\*\*.

For example:

- /\*\*/test/\*\* matches any file that has a test directory in its path
- /test/file? matches any file inside the /test directory that starts with the string file followed by any single character

- `c:\test\*.txt` matches any file inside the `c:\test` directory with a `.txt` extension
- `c:\test\**\*.txt` matches any file inside the `c:\test` directory, or one of its subdirectories that has a `.txt` extension
- `//'TEST.*.DATA'` matches any data set that has the first qualifier of `TEST`, has any second qualifier, and a third qualifier of `DATA`.
- `TEST.*.QUEUE@QM1` matches any queue on the queue manager `QM1` that has the first qualifier of `TEST`, has any second qualifier, and a third qualifier of `QUEUE`.

## Symbolic links

You must fully resolve any symbolic links that you use in file paths in the `UserSandboxes.xml` file by specifying hard links in the `<include>` and `<exclude>` elements. For example, if you have a symbolic link where `/var` maps to `/SYSTEM/var`, you must specify this path as `<tns:include name="/SYSTEM/var"/>`, otherwise the intended transfer fails with a user sandbox security error.

## Example

To allow the user with the MQMD user name `guest` to transfer any file from the `/home/user/public` directory or any of its subdirectories on the system where the agent `AGENT_JUPITER` is running, add the following `<sandbox>` element to the file `UserSandboxes.xml` in `AGENT_JUPITER`'s configuration directory

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:userSandboxes
  xmlns:tns="http://wmqfte.ibm.com/UserSandboxes"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/UserSandboxes UserSandboxes.xsd">
  <tns:agent>
    <tns:sandbox user="guest">
      <tns:read>
        <tns:include name="/home/user/public/**"/>
      </tns:read>
    </tns:sandbox>
  </tns:agent>
</tns:userSandboxes>
```

## Example

To allow any user with the MQMD user name `account` followed by a single digit, for example `account4`, to complete the following actions:

- Transfer any file from the `/home/account` directory or any of its subdirectories, excluding the `/home/account/private` directory on the system where the agent `AGENT_SATURN` is running
- Transfer any file to the `/home/account/output` directory or any of its subdirectories on the system where the agent `AGENT_SATURN` is running
- Read messages from queues on the local queue manager starting with the prefix `ACCOUNT.` unless it starts with `ACCOUNT.PRIVATE.` (that is has `PRIVATE` at the second level).
- Transfer data onto queues starting with the prefix `ACCOUNT.OUTPUT.` on any queue manager.

add the following `<sandbox>` element to the file `UserSandboxes.xml`, in `AGENT_SATURN`'s configuration directory,

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:userSandboxes
  xmlns:tns="http://wmqfte.ibm.com/UserSandboxes"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/UserSandboxes UserSandboxes.xsd">
  <tns:agent>
    <tns:sandbox user="account[0-9]" userPattern="regex">
      <tns:read>
        <tns:include name="/home/account/**"/>
        <tns:include name="ACCOUNT.**" type="queue"/>
      </tns:read>
    </tns:sandbox>
  </tns:agent>
</tns:userSandboxes>
```

```

<tns:exclude name="ACCOUNT.PRIVATE.**" type="queue"/>
<tns:exclude name="/home/account/private/**"/>
    </tns:read>
<tns:write>
    <tns:include name="/home/account/output/**"/>
    <tns:include name="ACCOUNT.OUTPUT.**" type="queue"/>
</tns:write>
</tns:sandbox>
</tns:agent>
</tns:userSandboxes>

```

## Database logger configuration properties for WebSphere MQ File Transfer Edition

The database logger has a set of configuration properties. The table details the properties and their default values. Specify these properties in the `databaselogger.properties` file, which is in the `config_directory/coordination_qmgr` directory.

**Note:** When you specify file paths on Windows, the backslash (\) separator character must appear as double backslashes (\\) (that is, escaped \). Alternatively, you can use a single forward slash character (/) as a separator. For further information about character escaping in Java properties files see Sun's Javadoc for the Properties class.

Property name	Description	Default value
wmqfte.max.transaction.messages	The maximum number of messages that is processed in a transaction before the transaction is committed. In circular logging mode, a queue manager has a fixed amount of space available for inflight data. Ensure you set this property with a sufficiently low value so that the available space does not run out.	50
wmqfte.max.transaction.time	The maximum length of time in milliseconds that passes between transaction commits.	5000
wmqfte.max.consecutive.reject	The maximum number of messages that can be rejected consecutively (that is, without encountering a valid message).  If this number is exceeded the database logger concludes that the problem is not with the messages themselves but with the configuration. For example, if you make an agent-name column in the database narrower than all of your agent names, all messages referring to agents are rejected.	50
wmqfte.reject.queue.name	The name of a queue that the database logger puts messages to that the logger cannot handle. See Database logger error handling and rejection for details of which messages might be put onto this queue.	SYSTEM.FTE.DATABASELOGGER.REJECT

Property name	Description	Default value
wmqfte.command.queue.name	The name of a queue that the database logger reads command messages controlling its behavior from.	SYSTEM.FTE.DATABASELOGGER.COMMAND
wmqfte.queue.manager	The queue manager that the database logger connects to (the queue manager must be on the same machine as the database logger).	No default value
wmqfte.message.source.type	<p>One of the following values:</p> <p><b>automatic subscription</b> The default value. The database logger creates and uses its own durable, managed subscription on the above-named queue manager, to the topic SYSTEM.FTE/Log/#. This is an appropriate value for most scenarios.</p> <p><b>administrative subscription</b> If the automatic subscription is not appropriate, you can administratively define a different subscription (for example, using the WebSphere MQ Explorer, MQSC, or PCF) and instruct the database logger to use the subscription. For example, use this value to partition the log space so that one logger instance handles agents from A-H, another logger instance handles I-P, and a third logger instance from Q-Z.</p> <p><b>queue</b> If the WebSphere MQ topology means that creating a subscription for the database logger is not convenient, you can use a queue instead. Configure WebSphere MQ so that the queue receives the messages that are typically received by a subscription to SYSTEM.FTE/Log/# on the coordination queue manager.</p>	automatic subscription
wmqfte.message.source.name	If the message source type is administrative subscription or queue, the name of the subscription or queue to use. This property is ignored if the source type is automatic subscription.	No default value

Property name	Description	Default value
wmqfte.database.name	The name of the database containing the WebSphere MQ File Transfer Edition log tables.	No default value
wmqfte.database.type	The database management system in use: Db2 or Oracle. Set this value to db2 or oracle.	db2
wmqfte.database.schema	The database schema that contains the WebSphere MQ File Transfer Edition logging tables. In most cases the default value is appropriate, but you might need to specify an alternative value depending on your own site-specific database considerations.	FTELOG
wmqfte.database.native.library.path	The path containing the native libraries needed by your chosen database driver (if any). For example, the Type 2 driver for Db2 on AIX requires libraries from /opt/IBM/db2/V9.5/lib32/. As an alternative to this property, you can set the java.library.path system property using other methods.	No default value
wmqfte.database.driver	<p>The location of the JDBC driver classes for the database. This is typically the path and file name of a JAR file. For example, the Type 2 driver for Db2 on AIX requires the file /opt/IBM/db2/V9.5/java/db2jcc.jar. On Windows specify the path separator as a forward slash character (/) for example, C:/Program Files/IBM/SQLLIB/java/db2jcc.jar.</p> <p>On z/OS, you must reference all of the following JAR files:</p> <ul style="list-style-type: none"> <li>• db2jcc.jar</li> <li>• db2jcc_license_cisuz.jar</li> <li>• db2jcc_javax.jar</li> </ul> <p>If your database driver consists of multiple JAR files (for example, Db2 V9.1 requires a driver JAR file and a license JAR file), include all of these JAR files in this property. Separate multiple file names using the classpath separator for your platform, that is, the semicolon character (;) on Windows and the colon character (:) on other platforms.</p>	No default value

Property name	Description	Default value
wmqfte.max.retry.interval	<p>The maximum time, in seconds, between retries when the database logger encounters a persistent error.</p> <p>Some error conditions (for example, loss of database connection) prevent the database logger continuing. When this type of condition occurs, the logger rolls back the current transaction, waits for a period, and then retries. The time that the logger waits is initially very short, so that transitory errors can be overcome quickly. However, each time the database logger retries, the time that it waits is increased. This prevents too much unnecessary work taking place when the error condition is longer-lasting, for example when a database is taken down for maintenance.</p> <p>Use this property to set a limit to the length of the wait, so that a retry occurs in a reasonable time of the error condition being resolved.</p>	600
wmqfte.database.user	The user that the database logger uses to connect to the database.	No default value
wmqfte.database.password	The password that the database logger uses to connect to the database.	No default value
wmqfte.oracle.port	The port that the database logger uses to connect to the Oracle instance. This port is also known as a TNS listener.	1521
wmqfte.oracle.host	The host that the database logger uses to connect to the Oracle instance.	localhost

## Java system properties

A number of WebSphere MQ File Transfer Edition command and agent properties must be defined as Java system properties, because they define configuration for early function that is unable to use the command or agent properties mechanism.

Define system properties and other JVM options for the JVM that is to run WebSphere MQ File Transfer Edition commands by defining the environment variable `FTE_JVM_PROPERTIES`. For example, to set the `com.ibm.wmqfte.maxConsoleLineLength` property on a UNIX-type platform, define the variable as follows:

```
export FTE_JVM_PROPERTIES="-Dcom.ibm.wmqfte.maxConsoleLineLength=132"
```

If you are running an agent as a Windows service, you can modify the agent's Java system properties by specifying the `-sj` parameter on the **fteModifyAgent** command.

Table 31. Java system properties

Property name	Description	Value
<code>com.ibm.wmqfte.maxConsoleLineLength</code>	Maximum length of line that can be written to the console. Lines that exceed this length are word wrapped. This value is expressed in bytes (not characters).	Default for IBM i is 132 bytes. For all other platforms, the length is unlimited.
<code>com.ibm.wmqfte.daemon.windows.windowsServiceLogFiles</code> (Windows only)	Specifies the maximum number of Windows service log files to keep. Windows service log files are created in the agent and database logger logs directories if these applications are running as a Windows service. Windows service log files are named with the prefix <i>service</i> , and contain messages about the starting and stopping of the service.	5

### Related concepts:

"Configuration options" on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

## SSL properties

Use SSL with WebSphere MQ and WebSphere MQ File Transfer Edition to prevent unauthorized connections between agents and queue managers, and to encrypt message traffic between agents and queue managers.

For information about using SSL with WebSphere MQ File Transfer Edition, see [Configuring SSL encryption for WebSphere MQ File Transfer Edition](#).

Table 32. SSL properties for the agent.properties file

Property name	Description	Default value
agentSslCipherSpec	<p>Specifies the protocol, hash algorithm, and encryption algorithm used, and how many bits are used in the encryption key, when exchanging data between the agent and the agent queue manager.</p> <p>The value of agentSslCipherSpec is a cipher specification name. This cipher specification name is the same as the cipher specification name used on the agent queue manager channel. A list of valid cipher specification names is included here: Specifying CipherSpecs in the WebSphere MQ V7.1.0 product documentation.</p> <p>agentSslCipherSpec is similar to agentSslCipherSuite. If both agentSslCipherSuite and agentSslCipherSpec are specified the value of agentSslCipherSpec is used.</p>	None
agentSslCipherSuite	<p>Specifies SSL aspects of how the agent and the agent queue manager exchange data.</p> <p>The value of agentSslCipherSuite is a cipher suite name. The cipher suite name maps to the cipher specification name used on the agent queue manager channel. For more information, see CipherSuite and CipherSpec name mappings in the WebSphere MQ V7.1.0 product documentation.</p> <p>agentSslCipherSuite is similar to agentSslCipherSpec. If both agentSslCipherSuite and agentSslCipherSpec are specified the value of agentSslCipherSpec is used.</p>	None
agentSslPeerName	<p>Specifies a distinguished name skeleton that must match the name provided by the agent queue manager. The distinguished name is used to check the identifying certificate presented by the queue manager on connection.</p>	None
agentSslTrustStore	<p>Specifies the location of the certificates that the agent trusts. The value of agentSslTrustStore is a file path. If it is a Windows file path the backslash character (\) must be escaped (\\).</p>	None

Table 32. SSL properties for the agent.properties file (continued)

Property name	Description	Default value
agentSslTrustStorePassword	Specifies the password required to access the truststore. This property is required only if the agentSslTrustStore property is specified.	None
agentSslKeyStore	Specifies the location of the private key of the agent. The value of agentSslKeyStore is a file path. If it is a Windows file path the backslash character (\) must be escaped (\\). This property is only required if the agent queue manager requires client authentication.	None
agentSslKeyStorePassword	Specifies the password required to access the private key of the agent. This property is required only if the agentSslKeyStore property is specified.	None

Table 33. SSL properties for the coordination.properties file

Property name	Description	Default value
coordinationSslCipherSpec	<p>Specifies the protocol, hash algorithm, and encryption algorithm used, and how many bits are used in the encryption key, when exchanging data between the commands and the coordination queue manager.</p> <p>The value of coordinationSslCipherSpec is a CipherSpec name. This cipher specification name is the same as the cipher specification name used on the coordination queue manager channel. A list of valid cipher specification names is included in the topic Specifying CipherSpecs in the WebSphere MQ V7.1.0 product documentation.</p> <p>coordinationSslCipherSpec is similar to coordinationSslCipherSuite. If both coordinationSslCipherSuite and coordinationSslCipherSpec are specified the value of coordinationSslCipherSpec is used.</p>	None

Table 33. SSL properties for the `coordination.properties` file (continued)

Property name	Description	Default value
<code>coordinationSslCipherSuite</code>	<p>Specifies SSL aspects of how the commands and the coordination queue manager exchange data.</p> <p>The value of <code>coordinationSslCipherSuite</code> is a cipher suite name. The cipher suite name maps to the cipher specification name used on the agent queue manager channel. For more information, see <code>CipherSuite</code> and <code>CipherSpec</code> name mappings in the WebSphere MQ V7.1.0 product documentation.</p> <p><code>coordinationSslCipherSuite</code> is similar to <code>coordinationSslCipherSpec</code>. If both <code>coordinationSslCipherSuite</code> and <code>coordinationSslCipherSpec</code> are specified the value of <code>coordinationSslCipherSpec</code> is used.</p>	None
<code>coordinationSslPeerName</code>	<p>Specifies a distinguished name skeleton that must match the name provided by the coordination queue manager. The distinguished name is used to check the identifying certificate presented by the coordination queue manager on connection.</p>	None
<code>coordinationSslTrustStore</code>	<p>Specifies the location of the certificates that the commands trust. The value of <code>coordinationSslTrustStore</code> is a file path. If it is a Windows file path the backslash character (\) must be escaped (\\).</p>	None
<code>coordinationSslTrustStorePassword</code>	<p>Specifies the password required to access the truststore. This property is required only if the <code>coordinationSslTrustStore</code> property is specified.</p>	None
<code>coordinationSslKeyStore</code>	<p>Specifies the location of the private key of the commands. The value of <code>coordinationSslKeyStore</code> is a file path. If it is a Windows file path the backslash character (\) must be escaped (\\). This property is only required if the coordination queue manager requires client authentication.</p>	None
<code>coordinationSslKeyStorePassword</code>	<p>Specifies the password required to access the private key of the commands. This property is required only if the <code>coordinationSslKeyStore</code> property is specified.</p>	None

Table 34. SSL properties for the `command.properties` file

Property name	Description	Default value
<p><code>connectionSslCipherSpec</code></p>	<p>Specifies the protocol, hash algorithm, and encryption algorithm used, and how many bits are used in the encryption key, when exchanging data between the commands and the command queue manager.</p> <p>The value of <code>connectionSslCipherSpec</code> is a cipher specification name. This cipher specification name is the same as the cipher specification name used on the command queue manager channel. A list of valid cipher specification names is included in the topic <code>Specifying CipherSpecs</code> in the WebSphere MQ V7.1.0 product documentation.</p> <p><code>connectionSslCipherSpec</code> is similar to <code>connectionSslCipherSuite</code>. If both <code>connectionSslCipherSuite</code> and <code>connectionSslCipherSpec</code> are specified the value of <code>connectionSslCipherSpec</code> is used.</p>	<p>None</p>
<p><code>connectionSslCipherSuite</code></p>	<p>Specifies SSL aspects of how the commands and the command queue manager exchange data.</p> <p>The value of <code>connectionSslCipherSuite</code> is a cipher suite name. The cipher suite name maps to the cipher specification name used on the agent queue manager channel. For more information, see <code>CipherSuite</code> and <code>CipherSpec</code> name mappings in the WebSphere MQ V7.1.0 product documentation.</p> <p><code>connectionSslCipherSuite</code> is similar to <code>connectionSslCipherSpec</code>. If both <code>connectionSslCipherSuite</code> and <code>connectionSslCipherSpec</code> are specified the value of <code>connectionSslCipherSpec</code> is used.</p>	<p>None</p>
<p><code>connectionSslPeerName</code></p>	<p>Specifies a distinguished name skeleton that must match the name provided by the command queue manager. The distinguished name is used to check the identifying certificate presented by the command queue manager on connection.</p>	<p>None</p>

Table 34. SSL properties for the `command.properties` file (continued)

Property name	Description	Default value
<code>connectionSslTrustStore</code>	Specifies the location of the certificates that the commands trust. The value of <code>connectionSslTrustStore</code> is a file path. If it is a Windows file path the backslash character (\) must be escaped (\\).	None
<code>connectionSslTrustStorePassword</code>	Specifies the password required to access the truststore. This property is required only if the <code>connectionSslTrustStore</code> property is specified.	None
<code>connectionSslKeyStore</code>	Specifies the location of the private key of the commands. The value of <code>connectionSslKeyStore</code> is a file path. If it is a Windows file path the backslash character (\) must be escaped (\\). This property is only required if the command queue manager requires client authentication.	None
<code>connectionSslKeyStorePassword</code>	Specifies the password required to access the private key of the commands. This property is required only if the <code>connectionSslKeyStore</code> property is specified.	None

**Related concepts:**

“Configuration options” on page 98

WebSphere MQ File Transfer Edition provides a set of properties files that contain key information about your setup and are required for operation. These properties files are located in the configuration directory that you defined when you installed the product.

**Related reference:**

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

“The `command.properties` file” on page 580

The `command.properties` file specifies the command queue manager to connect to when you issue commands and the information that WebSphere MQ File Transfer Edition requires to contact that queue manager.

“The `coordination.properties` file” on page 577

The `coordination.properties` file specifies the connection details to the coordination queue manager. Because several WebSphere MQ File Transfer Edition installations might share the same coordination queue manager, you can use a symbolic link to a common `coordination.properties` file on a shared drive.

## SHA-2 cipher specifications and cipher suites

WebSphere MQ File Transfer Edition supports SHA-2 cipher specifications and cipher suites on the IBM i and z/OS platforms only.

To enable use of SHA-2 cipher specifications and cipher suites on connections between agents and WebSphere MQ queue managers, you must use WebSphere MQ File Transfer Edition V7.0.4.3 with APAR IC93851 applied; and IBM JREs 6.0 SR13 FP2, 7.0 SR4 FP2, or later.

For more information about cipher specifications and cipher suites that are available to use on IBM i and z/OS on connections between agents and WebSphere MQ queue managers, see *SSL CipherSpecs and CipherSuites*.

To enable use of SHA-2 cipher specifications and cipher suites to connect to an FTPS server using the protocol bridge in FTPS mode, you must use WebSphere MQ File Transfer Edition V7.0.4.4 or later; and IBM JREs 6.0 SR13 FP2, 7.0 SR4 FP2, or later.

For more information about configuring cipher suites for use with the protocol bridge agent, see “FTPS server support by the protocol bridge” on page 752 and “Protocol bridge properties file format” on page 626. For a list of valid cipher suite values, see *Cipher suites in the IBM SDK and Runtime Environment Java Technology Edition Version 7 product documentation*.

If you want to comply with SP 800-131A, you must satisfy the following requirements:

- You must use FTPS, which you have configured appropriately; SFTP is not supported.
- The remote server must send SP 800-131A-compliant cipher suites only.

**Related reference:**

“SSL properties” on page 650

Use SSL with WebSphere MQ and WebSphere MQ File Transfer Edition to prevent unauthorized connections between agents and queue managers, and to encrypt message traffic between agents and queue managers.

## The **SYSTEM.FTE** topic

The **SYSTEM.FTE** topic is a topic on the coordination queue manager that WebSphere MQ File Transfer Edition uses to log transfers and store information about agents, monitors, schedules, and templates.

### Topic structure

```
SYSTEM.FTE
  /Agents
    /agent_name
  /monitors
    /agent_name
  /Scheduler
    /agent_name
  /Templates
    /template_ID
  /Transfers
    /agent_name
    /transfer_ID
  /Log
    /agent_name
      /Monitors
        /schedule_ID
        /transfer_ID
```

#### **SYSTEM.FTE/Agents/agent\_name**

This topic contains a retained publication that describes an agent in your WebSphere MQ File Transfer Edition network and its properties. The message on this topic is updated periodically with the agent status. For more information, see “Agent status message format” on page 658.

#### **SYSTEM.FTE/monitors/agent\_name**

This topic contains retained publications that describe the resource monitors associated with the agent *agent\_name*. The XML of the retained publication conforms to the schema *MonitorList.xsd*. For more information, see “Monitor list message format” on page 661.

### **SYSTEM.FTE/Scheduler/*agent\_name***

This topic contains a retained publication that describes all of the active schedules associated with the agent *agent\_name*. The XML of the retained publication conforms to the schema `ScheduleList.xsd`. For more information, see “Schedule list message format” on page 666.

### **SYSTEM.FTE/Templates**

This topic contains retained publications that describe all of the templates defined in your WebSphere MQ File Transfer Edition topology.

- The publication associated with each template is published to a subtopic with the name `SYSTEM.FTE/Templates/template_ID`.

For an example of the contents of this retained publication, see “Example template XML message” on page 671.

### **SYSTEM.FTE/Transfers/*agent\_name***

This topic contains publications that describe that status of transfers that originate at the agent *agent\_name*. The publications associated with each transfer are published to a subtopic with the name `SYSTEM.FTE/Transfers/agent_name/transfer_ID`. These publications are used by the WebSphere MQ Explorer plug-in to provide progress information about individual transfers. The XML of the publication conforms to the schema `TransferStatus.xsd`. For more information, see “File transfer status message format” on page 671.

### **SYSTEM.FTE/Log/*agent\_name***

This topic contains publications that log information about transfers, monitors, and schedules that originate at the agent *agent\_name*. These publications can be logged by the database logger to provide audit records of the events that have occurred in your WebSphere MQ File Transfer Edition network.

- The publications that are associated with each transfer are published to a subtopic with the name `SYSTEM.FTE/Log/agent_name/transfer_ID` and the XML of the publication conforms to the schema `TransferLog.xsd`. For more information, see “File transfer log message formats” on page 675.
- The publications that are associated with each scheduled transfer are published to a subtopic with the name `SYSTEM.FTE/Log/agent_name/schedule_ID` and the XML of the publication conforms to the schema `ScheduleLog.xsd`. For more information, see “Scheduled transfer log message formats” on page 704.
- The publications that are associated with each monitor are published to a subtopic with the name `SYSTEM.FTE/Log/agent_name/Monitors/monitor_name/monitor_ID` and the XML of the publication conforms to the schema `MonitorLog.xsd`. For more information, see “Monitor log message format” on page 710.

## Agent status message format

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

The following information is included:

- Agent name
- Platform the agent is running on
- Agent description (if provided)
- Agent's queue manager
- Time zone that the agent is running in
- Agent version
- Agent transfer limits
- State of each of the agent's current transfers. These states are listed in Agent transfer states
- Type of agent

If the agent is a protocol bridge agent the following information is also included:

- Type of protocol bridge agent
- Host name or IP address of the protocol bridge server

If the agent is a web agent the following information is also included:

- Name of the Web Gateway the web agent connects to

The agent status is republished whenever the agent transfer states change, but by default no more than every 30 seconds. You can change this default setting using the agentStatusPublishRateLimit agent property, which is described in: Advanced agent properties.

The following example output shows the keys used for each data element in the agent status:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
  <entry key="agentOsName">Windows XP</entry>
  <entry key="agentDescription"/>
  <entry key="queueManager">QM1</entry>
  <entry key="agentTimeZone">Europe/London</entry>
  <entry key="agentVersion">1.00</entry>
  <entry key="agentName">FTEAGENT</entry>
  <entry key="maxDestinationTransfers">25</entry>
  <entry key="maxSourceTransfers">25</entry>
  <entry key="maxQueuedTransfers">100</entry>
  <entry key="DestinationTransferStates">414d51204d554e474f202020202020d857374a60a72622=RunningTransfer
414d51204d554e474f202020202020d857374a69a72622=RunningTransfer
414d51204d554e474f202020202020d857374a75a72622=RunningTransfer
</entry>
  <entry key="SourceTransferStates">414d51204d554e474f202020202020d857374a93a72622=NegotiatingTransfer
414d51204d554e474f202020202020d857374a78a72622=RunningTransfer
414d51204d554e474f202020202020d857374aaba72622=NewSenderTransfer
414d51204d554e474f202020202020d857374a63a72622=RunningTransfer
</entry>
</properties>
```

The following example output shows the keys used for each data element in the agent status of a protocol bridge agent:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
```

```

<entry key="agentOsName">Windows XP</entry>
<entry key="agentDescription"/>
<entry key="queueManager">QM1</entry>
<entry key="agentTimeZone">Europe/London</entry>
<entry key="agentVersion">1.00</entry>
<entry key="agentName">BRIDGE</entry>
<entry key="protocolBridgeType">ftp</entry>
<entry key="protocolBridgeServerHost">ftpserver.example.org</entry>
<entry key="maxDestinationTransfers">25</entry>
<entry key="maxSourceTransfers">25</entry>
<entry key="maxQueuedTransfers">100</entry>
<entry key="DestinationTransferStates">414d51204d554e474f202020202020d857374a60a72622=RunningTransfer
</entry>
<entry key="SourceTransferStates">414d51204d554e474f202020202020d857374a93a72622=NegotiatingTransfer
</entry>
</properties>

```

### Related reference:

#### “Agent transfer states”

An agent that is started publishes its details to the SYSTEM.FTE topic on its coordination queue manager. These details include the states of each of the current transfers that involved that agent. The states are as follows:

#### “File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

#### “File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

#### “File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of *Log/agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

#### “Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

#### “Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

#### “Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

### Agent transfer states:

An agent that is started publishes its details to the SYSTEM.FTE topic on its coordination queue manager. These details include the states of each of the current transfers that involved that agent. The states are as follows:

<b>Transfer state</b>	<b>Explanation</b>
NewSenderTransfer	A new transfer from the source agent that the negotiation has not started for.
NewReceiverTransfer	A new transfer has been created at the destination agent as part of negotiation, but the transfer is not yet running.
NegotiatingTransfer	A source agent is in negotiation with the destination agent before running a transfer.
RunningTransfer	A transfer from either a source agent or destination agent that is in the normal running state
RecoveringTransfer	<p>When either a source or destination agent starts the recovery process, any transfers in running state are moved into transfer state. Transfers are moved out of this state into ReSynchronisingTransfer state when a resynchronization message is sent to the peer agent.</p> <p>For example, if the destination agent starts the recovery process for a running transfer, the transfer is moved into the ReSynchronisingTransfer state when a resynchronization message is sent to its source agent.</p>
ReSynchronisingTransfer	A transfer source or destination agent has found a problem and has sent a resynchronization message to its respective destination or source agent.
CompletedTransfer	A destination agent has completed the transfer and has sent a completion message to the source agent. The destination agent is waiting for an acknowledgment message from the source agent.
CompleteReceivedTransfer	A source agent has received a completion message from the destination agent and has sent a message back to the destination agent to acknowledge the completion message.
CancelledNewTransfer	A source agent has received a cancel message for a new transfer.
CancelledInProgressTransfer	A source agent has received a cancel message for an in-progress transfer.
ResumingTransfer	A source agent has received a resynchronize response message and now schedules the transfer to restart.
RestartingTransfer	A source or destination agent has received a resynchronize request message and is waiting for the respective destination or source agent to restart.
WaitingForDestinationCapacity	A source agent has received a DESTINATION_CAPACITY_EXCEEDED error from the destination agent. The transfer is now in a waiting state to be retried after a period.
FailedTransferEnding	The transfer has failed but the completion log message has not been published and the transfer has not been removed from the state store. For example, this state can occur if an agent process is stopped after a failure response has been received from the destination agent but before the subsequent processing has been completed.

## Related reference:

“Agent status values” on page 721

The **fteListAgents** and **fteShowAgentDetails** commands produce agent status information. There are several possible values for this status.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory*/samples/schema directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory*/samples/schema directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory*/samples/schema directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent\_name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

## Monitor list message format

The XML messages that are published as retained publications to the topic string SYSTEM.FTE/monitors/*agent\_name/monitor\_name* conform to the MonitorList.xsd schema. Each XML message lists an active monitor belonging to that agent. This information is used by the **fteListMonitors** command and the WebSphere MQ Explorer plug-in to display a list of monitors to the user. The MonitorList.xsd schema document is located in the *install\_directory*/samples/schema directory. The MonitorList.xsd schema imports Monitor.xsd, which is in the same directory.

## Schema

The following schema describes which elements are valid in a monitor list XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  xmlns="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition">

  <xsd:include schemaLocation="Monitor.xsd"/>

  <xsd:element name="monitorList">
    <xsd:complexType>
      <xsd:sequence>
```

```

        <xsd:element name="status" type="monitorStatusType" minOccurs="1" maxOccurs="1"/>
        <xsd:element name="configuration" type="monitorConfigurationType" minOccurs="1" maxOccurs="1"/>
        <xsd:element name="pollInterval" type="pollIntervalType" minOccurs="1" maxOccurs="1"/>
        <xsd:element name="batch" type="batchType" minOccurs="1" maxOccurs="1"/>
        <xsd:any minOccurs="0"/>
    </xsd:sequence>
    <xsd:attribute name="version" type="versionType" use="required"/>
    <xsd:attribute name="agent" type="xsd:string" use="required"/>
    <xsd:attribute name="monitor" type="xsd:string" use="required"/>
</xsd:complexType>
</xsd:element>

<xsd:complexType name="monitorStatusType">
    <xsd:sequence>
        <xsd:any minOccurs="0"/>
    </xsd:sequence>
    <xsd:attribute name="state" type="xsd:token"/>
    <xsd:anyAttribute/>
</xsd:complexType>

<xsd:complexType name="monitorConfigurationType">
    <xsd:sequence>
        <xsd:element name="description" type="xsd:string" minOccurs="1" maxOccurs="1" />
        <xsd:element name="resources" type="monitorResourcesType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="triggerMatch" type="triggerMatchType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="tasks" type="monitorListTasksType" minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
    <xsd:anyAttribute/>
</xsd:complexType>

<xsd:complexType name="monitorListTasksType">
    <xsd:sequence>
        <xsd:element name="task" type="monitorListTaskType" minOccurs="1" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="monitorListTaskType">
    <xsd:sequence>
        <xsd:element name="name" type="monitorTaskNameType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="description" type="xsd:string" minOccurs="0" maxOccurs="1" />
        <xsd:element name="taskXML" type="xsd:string" minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>
</xsd:schema>

```

## Understanding the monitor list message

The elements and attributes used in the monitor list messages are described in the following list:

### <monitorList>

Group element containing the elements describe a monitor that is defined for the agent.

Attribute	Description
agent	Required. The name of the agent that the resource monitor is defined on.
monitor	Required. The name of the monitor. Unique for this agent.
version	Required. The version of the monitor list message format.

### <status>

The status of the monitor.

Attribute	Description
state	The state of the monitor.

**<configuration>**

Group element containing the elements describe the configuration of the monitor.

**<description>**

A description of the monitor. (Not currently used.)

**<resources>**

The resource or resources being monitored.

**<directory>**

A directory to monitor.

Attribute	Description
recursionLevel	The number of directory levels down from the top level to monitor.
id	The ID of the resource.

**<queue>**

A queue to monitor.

Attribute	Description
id	The ID of the resource.

**<triggerMatch>**

Element that contains the <conditions> element.

**<conditions>**

Element that contains the condition or conditions that the resource monitor is monitoring for. This element can contain only one of the following elements: <allOf>, <anyOf>, or <condition>.

**<allOf>**

Element that contains the condition or conditions that the resource monitor is monitoring for. This element can contain one or many <condition> elements. For the resource monitor to be triggered all of the conditions inside of this element must be met.

**<anyOf>**

Element that contains the condition or conditions that the resource monitor is monitoring for. This element can contain one or many <condition> elements. For the resource monitor to be triggered only one of the conditions inside of this element must be met.

**<condition>**

Element that contains a single condition that the resource monitor is monitoring for. This element can contain only one of the following elements: <fileMatch>, <fileNoMatch>, <fileSize>, <queueNotEmpty>, <completeGroups>, or <fileSizeSame>. It can also contain a <name> element and a <resource> element.

If the resource that is being monitored is a directory, one of the following three elements must be specified in the condition:

- fileMatch
- fileNoMatch
- fileSize

If the resource that is being monitored is a queue, one of the following two elements must be specified in the condition:

- queueNotEmpty
- completeGroups

**<fileMatch>**

Group element for a file name match condition.

**<pattern>**

Specifies a file name match pattern. Files on the resource must match the pattern in order to satisfy the condition. The default pattern is \* (any file will match).

**<fileNoMatch>**

Group element for an inverse file name match condition.

**<pattern>**

Specifies an inverse file name match pattern. If no files on the monitored resource match, the condition is satisfied. The default pattern is \* (the absence of any file will match).

**<fileSize>**

Group element for a file size comparison.

**<compare>**

Specifies a file size comparison. The value must be a non-negative integer.

Attribute	Description
operator	Comparison operator to use. Only '>=' is supported.
units	Specifies file size units, which can be one of: <ul style="list-style-type: none"> <li>• B - bytes</li> <li>• KB - kilobytes</li> <li>• MB - megabytes</li> <li>• GB - gigabytes</li> </ul> The units value is case insensitive, so 'mb' works as well as 'MB'.

**<pattern>**

File name pattern to match. Default is \* (any file will match).

**<queueNotEmpty>**

This can only be specified if the resource is a queue. Specifies that there must be a message on the queue for the monitor to be triggered.

**<completeGroups>**

This can only be specified if the resource is a queue. Specifies that there must be a complete group of messages present on the queue for the monitor to be triggered. A single transfer task is executed for each complete group on the queue.

**<name>**

Name of the condition.

**<resource>**

Identifies the resource definition to compare the condition against.

Attribute	Description
id	Unique identifier for the resource.

**<tasks>**

Group element to contain elements which specify the tasks to invoke when the monitor trigger conditions are satisfied.

**<task>**

Group element which defines an individual task that the monitor will invoke when the trigger conditions are satisfied. Currently only one task can be specified.

**<name>**

Name of the task. Accepts any alphanumeric characters.

**<description>**

Description of the task. Any text value is allowed.

**<taskXML>**

The XML message that describes the task that the monitor is to perform. The contents of this element are in an escaped XML format.

**<pollInterval>**

The time interval between each check of the resource against the trigger condition.

Attribute	Description
units	Specifies the time units for the poll interval. Valid values are: <ul style="list-style-type: none"> <li>• seconds</li> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul>

**<batch>**

The maximum number of trigger matches to include in a single batch.

Attribute	Description
maxSize	The maximum number of trigger matches to include in a single batch

The following XML shows an example of a retained publication which is published to the topic string SYSTEM.FTE/monitors/*agent\_name*/MONITORTWO when the monitor called MONITORTWO is created on AGENT\_JUPITER. The escaped XML within the <taskXML> element describes the task that is submitted when the monitor condition is met.

```
<?xml version="1.0" encoding="UTF-8"?>
<lst:monitorList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:lst="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition MonitorList.xsd"
  version="4.00"
  agent="AGENT_JUPITER"
  monitor="MONITORTWO">
  <status state="started"/>
  <configuration>
    <description/>
    <resources>
      <directory recursionLevel="0" id="">/srv/nfs/incoming</directory>
    </resources>
    <triggerMatch>
      <conditions>
```

```

        <condition>
          <name/>
          <resource id=""/>
          <fileMatch>
            <pattern>*.completed</pattern>
          </fileMatch>
        </condition>
      </conditions>
    </triggerMatch>
    <tasks>
      <task>
        <name/>
        <description/>
        <taskXML>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
          xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
            &lt;originator&gt;&lt;hostName&gt;example.com.&lt;/hostName&gt;
            &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
            &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
            &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
            &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
            &lt;source disposition="leave" recursive="false"&gt;&lt;file
            &gt;/srv/nfs/incoming/*.txt&lt;/file&gt;&lt;/source&gt;
            &lt;destination exist="error" type="directory"&gt;
            &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
            &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;
            &lt;/request&gt;
          </taskXML>
        </task>
      </tasks>
    </configuration>
    <pollInterval units="minutes">1</pollInterval>
    <batch maxSize="1"/>
  </lst:monitorList>

```

## Schedule list message format

The XML message that is published to a retained publication to the topic string SYSTEM.FTE/Scheduler/*agent\_name* conforms to the ScheduleList.xsd schema. This XML message lists all active schedules belonging to that agent. This information is used by the **fteListScheduledTransfers** command and the WebSphere MQ Explorer plug-in to display a list of schedules to the user. The ScheduleList.xsd schema document is located in the *install\_directory/samples/schema* directory. The ScheduleList.xsd schema imports FileTransfer.xsd, which is in the same directory.

## Schema

The following schema describes which elements are valid in a monitor list XML message.

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <xsd:include schemaLocation="FileTransfer.xsd"/>

  <xsd:element name="schedules">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="managedTransfer" type="scheduledManagedTransferType" minOccurs="0" maxOccurs="unbounded" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required" />
      <xsd:attribute name="size" type="xsd:nonNegativeInteger" use="required" />
      <xsd:attribute name="agent" type="xsd:string" use="required" />
    </xsd:complexType>
  </xsd:element>

  <xsd:complexType name="scheduledManagedTransferType">
    <xsd:sequence>

```

```

    <xsd:element name="originator" type="origRequestType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="schedule" type="scheduleListType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="sourceAgent" type="agentType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="destinationAgent" type="agentClientType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="trigger" type="triggerType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="reply" type="replyType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="transferSet" type="transferSetType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="job" type="jobType" maxOccurs="1" minOccurs="0" />
  </xsd:sequence>
  <xsd:attribute name="id" type="idType" use="required"/>
</xsd:complexType>

<xsd:complexType name="scheduleListType">
  <xsd:sequence>
    <xsd:element name="submit" type="submitType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="repeat" type="repeatType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="next" type="noZoneTimeType" maxOccurs="1" minOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>

</xsd:schema>

```

## Understanding the schedule list message

The elements and attributes used in the schedule list messages are described in the following list:

### <schedules>

Group element containing information about all of the schedules defined on a single agent.

Attribute	Description
agent	Required. The name of the source agent that the schedule is defined on.
size	Required. The number of schedules defined on this agent.
version	Required. The version of the schedule list message format.

### <managedTransfer>

Group element containing information about a single schedule.

Attribute	Description
id	Required. The hexadecimal string ID of the schedule request message.

### <originator>

The originator of the schedule request.

#### <hostName>

The host name of the machine that the schedule request was submitted from.

#### <userID>

The user ID of the user that submitted the schedule request.

#### <mqmdUserID>

The MQMD user ID of the user that submitted the schedule request.

#### <webBrowser>

If the schedule request was submitted through the Web Gateway, the web browser that the request was submitted from.

**<webUserID>**

If the schedule request was submitted through the Web Gateway, the web user ID of the user that submitted the schedule request.

**<schedule>**

Element that contains the elements that describe when the scheduled transfer occurs.

**<submit>**

Specifies the date and time that the scheduled transfer is due to start.

Attribute	Description
timebase	Specifies which time zone to use. The value of this attribute can be one of the following values: <ul style="list-style-type: none"> <li>• source - use the time zone of the source agent</li> <li>• admin - use the time zone of the administrator issuing the command</li> <li>• UTC - use Coordinated Universal Time</li> </ul>
timezone	The time zone description according to the timebase value

**<repeat>**

Group element that contains details about how often a scheduled transfer repeats, how many times a scheduled transfer repeats, and when a scheduled transfer stops repeating.

Attribute	Description
interval	The interval units, which must be one of the following values: <ul style="list-style-type: none"> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul>

**<frequency>**

The time period that must elapse before the transfer repeats.

Attribute	Description
interval	The interval units, which must be one of the following values: <ul style="list-style-type: none"> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul>

**<expireTime>**

Optional element that specifies the date and time that a repeating scheduled transfer stops. This element and the <expireCount> element are mutually exclusive.

**<expireCount>**

Optional element that specifies the number of times the scheduled file transfer occurs before stopping. This element and the <expireTime> element are mutually exclusive.

**<next>**

Specifies the date and time when the next scheduled transfer is due to start.

**<sourceAgent>**

Specifies the name of the agent on the system where the source file is located.

Attribute	Description
agent	Specifies the name of the agent.
QMgr	The name of the agent queue manager.

**<destinationAgent>**

Specifies the name of the agent on the system you want to transfer the file to.

Attribute	Description
agent	Specifies the name of the agent.
QMgr	The name of the agent queue manager.

**<trigger>**

Optional element that specifies a condition that must be true for the file transfer to take place.

Attribute	Description
log	A flag indicating whether trigger failures are logged. The following are valid values: <ul style="list-style-type: none"> <li>• yes - log entries are created for failed triggered transfers</li> <li>• no - log entries are not created for failed triggered transfers</li> </ul>

**<reply>**

Specifies the name of the temporary reply queue generated for synchronous file transfers (specified with the **-w** parameter on the command line). The name of the queue is defined by the key **dynamicQueuePrefix** in the `command.properties` configuration file or the default of `WMQFTE.*` if not specified.

Attribute	Description
QMGR	The name of the command queue manager on which the temporary dynamic queue is generated to receive replies.

**<transferSet>**

Specifies a group of file transfers you want the scheduled transfer to perform together. During transmission `<transferSet>` is a group element containing `<item>` elements.

Attribute	Description
priority	Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the priority level of the source agent.

**<job>**

Optional group element containing job information for the entire transfer specification. `<job>` is a user-defined job name identifier that is added to the log message when the transfer has started. This `<job>` element is the same as the `<job>` element that appears in the transfer log message, which is described in the following topic: "File transfer log message formats" on page 675.

## Example

```
<?xml version="1.0" encoding="UTF-8"?>
<schedules xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  size="2"
  version="4.00"
  agent="AGENT_JUPITER"
  xsi:noNamespaceSchemaLocation="ScheduleList.xsd">
  <managedTransfer id="1">
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <schedule>
      <submit timebase="admin" timezone="Europe/London">2010-01-01T21:00+0000</submit>
      <next>2010-01-01T21:00+0000</next>
    </schedule>
    <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
    <destinationAgent agent="AGENT_SATURN" QMgr="QM_JUPITER"/>
    <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20004E06</reply>
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>/etc/passwd</file>
        </source>
        <destination type="directory" exist="overwrite">
          <file>/tmp</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
  <managedTransfer id="2">
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <schedule>
      <submit timebase="admin" timezone="Europe/London">2010-12-31T09:00+0000</submit>
      <next>2010-12-31T09:00+0000</next>
    </schedule>
    <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
    <destinationAgent agent="AGENT_NEPTUNE" QMgr="QM_JUPITER"/>
    <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20004E09</reply>
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>/etc/passwd</file>
        </source>
        <destination type="directory" exist="overwrite">
          <file>/tmp</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</schedules>
```

## Example template XML message

When a template is created, a message is published to the SYSTEM.FTE topic with a topic string of `Templates/template_ID`. This example XML describes a single template defined in your WebSphere MQ File Transfer Edition network.

```
<?xml version="1.0" encoding="UTF-8"?>
<transferTemplate version="4.00" id="baf9df73-45c2-4bb0-a085-292232ab66bc">
  <name>BASIC_TEMPLATE</name>
  <sourceAgentName>AGENT_JUPITER</sourceAgentName>
  <sourceAgentQMGr>QM_JUPITER</sourceAgentQMGr>
  <destinationAgentName>AGENT_SATURN</destinationAgentName>
  <destinationAgentQMGr>QM_JUPITER</destinationAgentQMGr>
  <fileSpecs>
    <item mode="binary" checksumMethod="MD5">
      <source recursive="false" disposition="leave">
        <file>/etc/passwd</file>
      </source>
      <destination type="directory" exist="overwrite">
        <file>/tmp</file>
      </destination>
    </item>
  </fileSpecs>
  <priority>0</priority>
</transferTemplate>
```

### Related tasks:

“Creating a file transfer template using the WebSphere MQ Explorer” on page 223

You can create a file transfer template from the WebSphere MQ Explorer or from the command line. You can then use that template to create new file transfers using the template details or submit the template to start the file transfer.

### Related reference:

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

## File transfer status message format

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its `SYSTEM.FTE/Transfers/agent_name/transfer ID` topic), which conforms to the `TransferStatus.xsd` XML schema. The `TransferStatus.xsd` file is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

## Schema

The following schema describes which elements are valid in a transfer status XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>
  <xsd:element name="transaction">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="sourceAgent" type="agentType"
          maxOccurs="1" minOccurs="1"/>
        <xsd:element name="destinationAgent" type="agentType"
          maxOccurs="1" minOccurs="1"/>
        <xsd:element name="transferSet" type="transferSetType"
          maxOccurs="1" minOccurs="1"/>
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
    </complexType>
  </xsd:element>
</xsd:schema>
```

```

        <xsd:attribute name="ID" type="IDType" use="required"/>
    </xsd:complexType>
</xsd:element>

<xsd:complexType name="transferSetType">
    <xsd:sequence>
        <xsd:element name="stats" type="statsType"
            maxOccurs="1" minOccurs="1" />
        <xsd:element name="current" type="currentType"
            maxOccurs="1" minOccurs="0" />
    </xsd:sequence>
    <xsd:attribute name="time" type="xsd:dateTime" use="required" />
</xsd:complexType>

<xsd:complexType name="currentType">
    <xsd:sequence>
        <xsd:element name="source" type="fileSourceType"
            maxOccurs="1" minOccurs="1" />
        <xsd:element name="destination" type="fileDestinationType"
            maxOccurs="1" minOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="transferred" type="xsd:nonNegativeInteger" use="required" />
    <xsd:attribute name="size" type="xsd:nonNegativeInteger" use="required" />
</xsd:complexType>

<xsd:complexType name="statsType">
    <xsd:attribute name="bytes" type="xsd:nonNegativeInteger" use="required" />
    <xsd:attribute name="seconds" type="xsd:decimal" use="required" />
    <xsd:attribute name="currentItem" type="xsd:nonNegativeInteger" use="required" />
    <xsd:attribute name="totalItems" type="xsd:nonNegativeInteger" use="required" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the transfer status message

The elements and attributes used in the transfer status messages are described in the following list:

### <transaction>

Group element that contains all of the elements for the file transfers.

Attribute	Description
version	Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition.
ID	The unique identifier for the file transfer.

### <sourceAgent>

Specifies the name of the agent on the system where the source file is located.

Attribute	Description
agent	The name of the agent.
QMgr	The name of the agent queue manager.

### <destinationAgent>

Specifies the name of the agent on the system you want to transfer the file to.

Attribute	Description
agent	The name of the agent.
QMgr	The name of the agent queue manager.

**<transferSet>**

Specifies a group of file transfers being performed together. All of the files in the transfer must originate at the same source agent and end at the same destination agent.

Attribute	Description
time	Specifies the date and time (in date time format).

**<stats>**

Required. Defines metrics about the transfer, including the number of bytes copied so far, in the given number of seconds. Also supplies the current item number out of the total number of items in the <transferSet>.

Attribute	Description
bytes	Number of bytes copied so far.
seconds	Number of seconds taken to transfer those bytes.
currentItem	The index of the current item being transferred.
totalItems	The total number of items being transferred.

**<current>**

Optional element. Group element that contains elements that specify the file transfer currently in progress. The <current> element indicates how many bytes of data have been transferred so far for the current item and the expected total number of bytes

**<source>**

Group element that contains the element specifying the source file name.

**<file>**

When used with the <source> element, specifies the name of the file you want to transfer. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

**<destination>**

Group element that contains the element specifying the destination file name or specification.

**<file>**

When used with the <destination> element, specifies the name of the file you want to transfer to. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

Attribute	Description
alias	Specifies an alias for the destination file. This alias is the name of the source file, excluding any directory path specified for the transfer.
filespace	Specifies the name of the file space where the destination file is written.

**<queue>**

When used with the <destination> element, specifies the name of the queue you want to transfer to. This name is in the format QUEUE or QUEUE@QUEUE\_MANAGER.

## Related reference:

“Transfer progress message examples”

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Transfers/agent_name/transfer_ID`. The XML examples show the progress message for a single file transfer and for a multiple file transfer.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the `SYSTEM.FTE/Agents/agent name` topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the `FileTransfer.xsd` schema and have the `<request>` element as the root element. The `FileTransfer.xsd` schema document is located in the `install_directory/samples/schema` directory. The `FileTransfer.xsd` schema imports `fteutils.xsd`, which is in the same directory.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its `SYSTEM.FTE/Log/agent name/schedule ID` topic). This message conforms to the `ScheduleLog.xsd` XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the `fteCreateMonitor` command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

## Transfer progress message examples:

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Transfers/agent_name/transfer_ID`. The XML examples show the progress message for a single file transfer and for a multiple file transfer.

### Single file transfer

The following example shows the details of a single file transfer that is in progress.

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d223d0020"
  xsi:noNamespaceSchemaLocation="TransferStatus.xsd">
  <sourceAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <destinationAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <transferSet time="2011-01-26T13:03:26.542Z">
  <stats bytes="1198" seconds="0.018" currentItem="1" totalItems="1"/>
  <current transferred="1151" size="1151">
    <source>
      <file>/etc/passwd</file>
    </source>
    <destination>
      <file>/tmp/passwd</file>
    </destination>
  </current>
</transferSet>
</transaction>
```

```

        </destination>
    </current>
</transferSet>
</transaction>

```

## Multiple file transfer

If there were more files in the transfer set, the transfer status message indicates which one is being processed and how many bytes have been transferred so far.

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    version="4.00"
    ID="414d51205553322e42494e44494e47538b0f404d035c0020"
    xsi:noNamespaceSchemaLocation="TransferStatus.xsd">
    <sourceAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <destinationAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <transferSet time="2011-01-26T13:12:58.636Z">
        <stats bytes="440" seconds="0.082" currentItem="10" totalItems="10"/>
        <current transferred="0" size="0">
            <source>
                <file>/srv/nfs/incoming/file10.txt</file>
            </source>
            <destination>
                <file>/srv/nfs/outgoing/file10.txt</file>
            </destination>
        </current>
    </transferSet>
</transaction>

```

## File transfer log message formats

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

If you want to monitor file transfers or collect data about them, set up a subscription to a wildcard topic tailored to the transfers you are interested in. For example:

```
Log/#
```

or,

```
Log/FTEAGENT/#
```

This subscription can be durable or non-durable. Durable subscriptions continue to exist when a subscribing application's connection to the queue manager is closed. Non-durable subscriptions exist only as long as a subscribing application's connection to the queue manager remains open.

## Schema

The following schema describes which elements are valid in a transfer log XML message.

```

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <xsd:include schemaLocation="fteutils.xsd"/>
    <xsd:element name="transaction">
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element name="action" type="actionType"
                    maxOccurs="1" minOccurs="0"/>
                <xsd:element name="sourceAgent" type="agentExitStatusType"
                    maxOccurs="1" minOccurs="0"/>
                <xsd:element name="sourceWebGateway" type="webGatewayType"

```

```

        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="sourceWebUser"    type="webUserType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="destinationAgent" type="agentExitStatusType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="destinationWebGateway" type="webGatewayType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="destinationWebUser" type="webUserType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="agent"            type="agentExitStatusType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="originator"       type="origRequestType"
        maxOccurs="1"                minOccurs="1"/>
<xsd:element name="status"          type="statusType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="trigger"         type="triggerType"
        maxOccurs="1"                minOccurs="0" />
<xsd:element name="transferSet"     type="transferSetType"
        maxOccurs="1"                minOccurs="1"/>
<xsd:element name="job"             type="jobType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="scheduleLog"     type="scheduleLogType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="statistics"      type="statisticsType"
        maxOccurs="1"                minOccurs="0"/>
</xsd:sequence>
<xsd:attribute name="version"        type="versionType"    use="required"/>
<xsd:attribute name="ID"            type="IDType"        use="required"/>
<xsd:attribute name="relatedID"     type="IDType"        use="optional"/>
<xsd:attribute name="agentRole"     type="agentRoleType" use="optional"/>
</xsd:complexType>
</xsd:element>

<xsd:complexType name="agentExitStatusType">
  <xsd:complexContent>
    <xsd:extension base="agentType">
      <xsd:sequence>
        <xsd:element name="startExits" type="exitGroupType" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="endExits"  type="exitGroupType" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="systemInfo" type="systemInfoType" minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="transferSetType">
  <xsd:sequence>
    <xsd:element name="metaDataSet"    type="metaDataSetType"
      maxOccurs="1"                minOccurs="0" />
    <xsd:element name="call"          type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="preSourceCall"  type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="postSourceCall" type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="preDestinationCall" type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="postDestinationCall" type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="item"          type="itemType"
      maxOccurs="unbounded"        minOccurs="0"/>
  </xsd:sequence>
  <xsd:attribute name="index"         type="xsd:nonNegativeInteger" use="optional" />
  <xsd:attribute name="size"          type="xsd:nonNegativeInteger" use="optional" />
  <xsd:attribute name="startTime"     type="xsd:dateTime"          use="required" />
  <xsd:attribute name="total"         type="xsd:nonNegativeInteger" use="required" />
  <xsd:attribute name="bytesSent"     type="xsd:nonNegativeInteger" use="required" />

```

```

</xsd:complexType>

<xsd:complexType name="itemType">
  <xsd:sequence>
    <xsd:element name="source" type="fileSourceChecksumType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="destination" type="fileDestinationChecksumType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="status" type="statusType"
      maxOccurs="1" minOccurs="1" />
  </xsd:sequence>
  <xsd:attribute name="mode" type="modeType" use="required" />
</xsd:complexType>

<xsd:complexType name="fileSourceChecksumType">
  <xsd:complexContent>
    <xsd:extension base="fileSourceType">
      <xsd:sequence>
        <xsd:element name="checksum" type="checksumType" minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="fileDestinationChecksumType">
  <xsd:complexContent>
    <xsd:extension base="fileDestinationType">
      <xsd:sequence>
        <xsd:element name="checksum" type="checksumType"
          minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="actionType">
  <xsd:simpleContent>
    <xsd:extension base="actionEnumType">
      <xsd:attribute name="time" type="xsd:dateTime" use="required" />
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="actionEnumType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="cancelled"/>
    <xsd:enumeration value="started"/>
    <xsd:enumeration value="progress"/>
    <xsd:enumeration value="completed"/>
    <xsd:enumeration value="malformed"/>
    <xsd:enumeration value="notAuthorized"/>
    <xsd:enumeration value="deleted"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="systemInfoType">
  <xsd:attribute name="architecture" type="xsd:string" use="required"/>
  <xsd:attribute name="name" type="xsd:string" use="required"/>
  <xsd:attribute name="version" type="xsd:string" use="required"/>
</xsd:complexType>

<xsd:element name="malformed">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="action" type="actionType"
        maxOccurs="1" minOccurs="1"/>
      <xsd:element name="agent" type="agentExitStatusType"

```

```

                maxOccurs="1" minOccurs="0"/>
        <xsd:element name="status" type="statusType"
                maxOccurs="1" minOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="version" type="versionType" use="required"/>
    <xsd:attribute name="ID" type="IDType" use="required"/>
    <xsd:attribute name="agentRole" type="agentRoleType" use="required"/>
</xsd:complexType>
</xsd:element>

<xsd:element name="notAuthorized">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="action" type="actionType"
                    maxOccurs="1" minOccurs="1"/>
            <xsd:element name="originator" type="origRequestType"
                    maxOccurs="1" minOccurs="1"/>
            <xsd:element name="authority" type="xsd:string"
                    minOccurs="1" maxOccurs="1"/>
            <xsd:element name="status" type="statusType"
                    maxOccurs="1" minOccurs="1"/>
        </xsd:sequence>
        <xsd:attribute name="version" type="versionType" use="required"/>
        <xsd:attribute name="ID" type="IDType" use="required"/>
        <xsd:attribute name="agentRole" type="agentRoleType" use="required"/>
    </xsd:complexType>
</xsd:element>

<xsd:complexType name="statisticsType">
    <xsd:sequence>
        <xsd:element name="actualStartTime" type="xsd:dateTime"
                maxOccurs="1" minOccurs="0"/>
        <xsd:element name="retryCount" type="xsd:nonNegativeInteger"
                maxOccurs="1" minOccurs="1"/>
        <xsd:element name="numFileFailures" type="xsd:nonNegativeInteger"
                maxOccurs="1" minOccurs="1"/>
        <xsd:element name="numFileWarnings" type="xsd:nonNegativeInteger"
                maxOccurs="1" minOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="webGatewayType">
    <xsd:attribute name="webGatewayName" type="xsd:string" use="optional" />
    <xsd:attribute name="webGatewayAgentName" type="xsd:string" use="optional" />
    <xsd:attribute name="webGatewayAgentQMgr" type="xsd:string" use="optional" />
</xsd:complexType>

<xsd:complexType name="webUserType">
    <xsd:attribute name="webGatewayName" type="xsd:string" use="required" />
    <xsd:attribute name="webGatewayAgentName" type="xsd:string" use="optional" />
    <xsd:attribute name="webGatewayAgentQMgr" type="xsd:string" use="optional" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the transfer log message

### <transaction>

Group element that specifies a group of transfers you want to perform together.

Attribute	Description
version	Specifies the version of this element as detailed by WebSphere MQ File Transfer Edition.
ID	Specifies the unique transaction ID. The ID can be a maximum of 48 alphanumeric characters.

Attribute	Description
relatedID	Optional. If the transaction is the delete or download of a file from a file space, <b>relatedID</b> specifies the transaction ID of the transfer that uploaded the file to the file space.
agentRole	Optional. Specifies whether the agent concerned is on the source or destination system
xmlns:xsi	Namespace declaration. Indicates that the elements and data types used in this schema derive from the "http://www.w3.org/2001/XMLSchema-instance" namespace.
xsi:noNamespaceSchemaLocation	Specifies the name and location of the XML schema document to validate this message against if there is no namespace declaration. The value you specify for this attribute must refer to a WebSphere MQ File Transfer Edition TransferLog.xsd document.

#### <action>

Describes the status of the file transfer at the time logged by the time attribute. The status can be one of the following values:

- started
- progress
- completed
- cancelled
- malformed (indicates the file transfer request message content can not be interpreted.)
- notAuthorized
- deleted

Attribute	Description
time	The time that the transfer status was captured, expressed in UTC format.

#### <sourceAgent>

Specifies the name of the agent on the system where the source file is located. Only one of <sourceAgent>, <sourceWebUser>, and <sourceWebGateway> can be specified.

#### <startExits>

Group element that contains one or more user exit elements. This element can occur once only.

#### <endExits>

Group element that contains one or more user exit elements. This element can occur once only.

#### <systemInfo>

Describes the system architecture, name, and version. This element can occur once only.

Attribute	Description
agent	The name of the agent on the source system.
QMgr	The name of the queue manager on the source system.

Attribute	Description
agentType	The type of the agent. Valid values are: <ul style="list-style-type: none"> <li>• STANDARD - a normal agent</li> <li>• BRIDGE - a protocol bridge agent</li> <li>• CD_BRIDGE - a Connect:Direct bridge agent</li> <li>• EMBEDDED - an embedded agent</li> <li>• WEB_GATEWAY - a web agent</li> <li>• SFG - a Sterling File Gateway embedded agent</li> </ul>
bridgeURL	Optional. If the agent is a protocol bridge agent, the host name of the system hosting the protocol server.
pnode	Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct primary node involved in the transfer.
snode	Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct secondary node involved in the transfer.
bridgeNode	Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct node that is part of the Connect:Direct bridge. This is the same node as either the primary node or the secondary node.

**<sourceWebUser>**

Specifies the name of the web user that uploads the source file to the Web Gateway. Only one of <sourceAgent>, <sourceWebUser>, and <sourceWebGateway> can be specified.

Attribute	Description
webGatewayName	The name of the Web Gateway that receives the file from the web user.
webGatewayAgentName	The name of the web agent that the Web Gateway uses to send the file to the destination.
webGatewayAgentQMgr	The name of the queue manager of the web agent.

**<sourceWebGateway>**

Specifies the name of the Web Gateway that the source file is downloaded from. Only one of <sourceAgent>, <sourceWebUser>, and <sourceWebGateway> can be specified.

Attribute	Description
webGatewayName	The name of the Web Gateway that receives the file from the web user.
webGatewayAgentName	The name of the web agent that the Web Gateway uses to send the file to the destination.
webGatewayAgentQMgr	The name of the queue manager of the web agent.

**<destinationAgent>**

Specifies the name of the agent on the system the file was transferred to. Only one of <destinationAgent>, <destinationWebGateway>, and <destinationWebUser> can be specified.

Table 35.

Attribute	Description
agent	The name of the agent on the destination system.
QMgr	The name of the queue manager on the destination system.
agentType	The type of the agent. Valid values are: <ul style="list-style-type: none"> <li>• STANDARD - a normal agent</li> <li>• BRIDGE - a protocol bridge agent</li> <li>• CD_BRIDGE - a Connect:Direct bridge agent</li> <li>• EMBEDDED - an embedded agent</li> <li>• WEB_GATEWAY - a web agent</li> <li>• SFG - a Sterling File Gateway embedded agent</li> </ul>
bridgeURL	Optional. If the agent is a protocol bridge agent, the host name of the system hosting the protocol server.
pnode	Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct primary node involved in the transfer.
snode	Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct secondary node involved in the transfer.
bridgeNode	Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct node that is part of the Connect:Direct bridge. This is the same node as either the primary node or the secondary node.

**<startExits>**

Group element that contains one or more user exit elements. This element can occur once only.

**<endExits>**

Group element that contains one or more user exit elements. This element can occur once only.

**<systemInfo>**

Describes the system architecture, name, and version. This element can occur once only.

**<destinationWebUser>**

Specifies the name of the web user who downloads the file from the Web Gateway. Only one of <destinationAgent>, <destinationWebGateway>, and <destinationWebUser> can be specified.

Attribute	Description
webGatewayName	The name of the Web Gateway that receives the file from the web user.

**<destinationWebGateway>**

Specifies the name of the web user who downloads the file from the Web Gateway. Only one of <destinationAgent>, <destinationWebGateway>, and <destinationWebUser> can be specified.

Attribute	Description
webGatewayName	The name of the Web Gateway that receives the file from the web user.
webGatewayAgentName	The name of the web agent that the Web Gateway uses.
webGatewayAgentQMgr	The name of the queue manager of the web agent.

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<hostName>**

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

The WebSphere MQ user ID that was supplied in the message descriptor (MQMD)

**<webUserID>**

Optional. The user ID that was supplied to the web browser submitting the transfer request.

**<webBrowser>**

Optional. The web browser that the transfer request was submitted from.

**<status>**

The result code and supplement messages.

**<trigger>**

Group element that contains the trigger elements defined in the original transfer request. These elements can be either or both of the following:

**<fileExist>**

Trigger condition based on whether a file exists

**<fileSize>**

Trigger condition based on whether a file meets or exceeds the specified size

**<transferSet>**

Specifies a group of file transfers you want to perform together. During transmission <transferSet> is a group element containing <item> elements.

Attribute	Description
startTime	Records the time that the set of transfers started, expressed in UTC format.
total	Specifies the total number of items in this set of transfers.
index	Optional attribute. Specifies the position of the first item in progress of the transfer set. The index attribute increments from zero. For example, if the index is set to 1, the progress message is the second of two items.
size	Optional attribute. Specifies the number of items in the progress report.
priority	Optional attribute. Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the source agent priority level.

**<metaDataSet>**

Group element containing one or more of the following attributes:

**<metaData>**

Attribute	Description
key	The key half of a metadata key-value pair. The <metaData> element content contains the value half of the pair. For example <metaData key="testkey1">testvalue1</metaData>

### <job>

Group element that contains an element specifying job details. <job> is a user-defined job name identifier that is added to the log message when the transfer has started. This <job> element is the same as the <job> element that is included in the transfer request message, which is described in the following topic: "File transfer request message format" on page 881.

#### <name>

The value of name can be any string.

### <scheduleLog>

Group element that contains elements specifying the source and destination file names and locations.

Attribute	Description
ID	Matches the schedule ID if the transfer is a scheduled transfer.

### <item>

Group element that contains elements specifying the source and destination file names and locations.

### <source>

Group element that contains the <file> element or the <queue> element, and the <checksum> element for the file on the source system.

Attribute	Description
recursive	Specifies that files are transferred recursively in subdirectories when the <source> element is a directory or contains wildcard characters.
disposition	Specifies the action that is taken on the <source> element when <source> has successfully been transferred to its destination. The valid options are as follows: <ul style="list-style-type: none"> <li>• leave - the source files are left unchanged.</li> <li>• delete - the source files are deleted from the source system after the source file is successfully transferred.</li> </ul>
correlationBoolean	A boolean correlation value. If the source is a Connect:Direct bridge, this specifies whether the Connect:Direct process is user-defined.
correlationString1	A string correlation value. If the source is a Connect:Direct bridge, this specifies the name of the Connect:Direct process that occurs at the destination of the transfer.
correlationNum1	A numeric correlation value. If the source is a Connect:Direct bridge, this specifies the ID number of the Connect:Direct process that occurs at the destination of the transfer.

### <queue>

When used with the <source> element, specifies the name of the queue that the transferred messages were read from, which is located on the source agent queue manager.

Attribute	Description
messageCount	The number of messages that were read from the queue.
groupId	The WebSphere MQ group ID of the messages read from the queue.

### <destination>

Group element that contains the <file> element or the <queue> element, and <checksum> element for the destination.

Only one of <file> and <queue> is present as a child element of destination.

Attribute	Description
type	<p>The type of destination. The valid options are as follows:</p> <ul style="list-style-type: none"> <li>file - specifies a file as the destination</li> <li>directory - specifies a directory as the destination</li> <li>dataset - specifies a z/OS data set as the destination</li> <li>pds - specifies a z/OS partitioned data set as the destination</li> <li>queue- specifies a WebSphere MQ queue as the destination</li> </ul> <p>The options file, directory, dataset, and pds can be present only when the &lt;destination&gt; element has a child element of &lt;file&gt;.</p> <p>The option queue can be present only when the &lt;destination&gt; element has a child element of &lt;queue&gt;.</p>
exist	<p>Specifies the action that is taken if a destination file exists on the destination system. The valid options are as follows:</p> <ul style="list-style-type: none"> <li>error - reports an error and the file is not transferred.</li> <li>overwrite - overwrites the existing destination file.</li> </ul> <p>This attribute cannot be present if the &lt;destination&gt; element has a child element of &lt;queue&gt;.</p>
correlationBoolean	A boolean correlation value. If the destination is a Connect:Direct bridge, this specifies whether the Connect:Direct process is user-defined.
correlationString1	A string correlation value. If the destination is a Connect:Direct bridge, this specifies the name of the Connect:Direct process that occurs at the destination of the transfer.
correlationNum1	A numeric correlation value. If the destination is a Connect:Direct bridge, this specifies the ID number of the Connect:Direct process that occurs at the destination of the transfer.

### <file>

Specifies the absolute path of the file that was transferred (both at the source and destination). The fully-qualified path is in the format consistent with your operating system, for example C:/from/here.txt. File URIs are not used.

### <queue>

When used with the <destination> element, specifies the name of the queue that was transferred to, which is located on any queue manager that is connected to the destination agent queue manager.

Attribute	Description
messageCount	The number of messages that were written to the queue.
messageLength	The length of the messages written to the queue.
groupId	If the transfer request specified that the file is split into multiple messages, the value of this attribute is the WebSphere MQ group ID of the messages written to the queue.
messageId	If the transfer request did not specify that the file is split into multiple messages, the value of this attribute is the WebSphere MQ message ID of the message written to the queue.

#### <checksum>

Optional element.

Specifies the type of hash algorithm that generated the message digest to create the digital signature. Currently WebSphere MQ File Transfer Edition supports Message Digest algorithm 5 (MD5) only. The checksum provides a way for you to confirm the integrity of transferred files is intact.

#### <malformed>

Group element for malformed messages.

Attribute	Description
version	
ID	
agentRole	Either source agent or destination agent

#### <statistics>

Group element for statistical information for the transfer (when available).

##### <actualStartTime>

The actual time that the agent started running the transfer. Typically, the time is the same as (or very close to) the start time recorded for the transfer. However, when an agent is busy submitted transfers might be queued until the agent has capacity to run the transfers.

##### <retryCount>

The number of times that the transfer went into the recovery state and was retried by the agent. A transfer can go into a recovery state because the source and destination agents lose communication, either because of a WebSphere MQ network error or because they are not receiving data or acknowledgment messages for a period. This period is determined by the agent properties: transferAckTimeout and transferAckTimeoutRetries.

##### <numFileFailures>

The number of files in the transferSet that failed to transfer successfully.

##### <numFileWarnings>

The number of files in the transferSet that generated warnings while being transferred, but otherwise transferred successfully.

## Examples

Examples of XML messages that conform to this schema are provided for each of the following types of transfer:

- A transfer of a single file
- A transfer that contains multiple files
- A failed file transfer

- A transfer defined with a trigger
- A transfer started by a schedule
- A transfer that calls user exits
- A transfer requested through the Web Gateway
- A transfer through a Connect:Direct bridge node

**Related reference:**

“Single transfer log message examples”

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a single file transfer being started, in progress, and completed.

“Multiple file transfer log message examples” on page 688

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID` when a transfer that contains multiple files occurs.

“Failed transfer log message examples” on page 691

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a file transfer that fails being started, in progress, and completed.

“Triggered transfer message format” on page 693

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

“User exit message formats” on page 695

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages that are created when a file transfer occurs that contains calls to user exits.

“Additions to message formats for web-based transfers” on page 698

The Started and Completed log messages from a transfer that was requested through the WebSphere MQ File Transfer Edition Web Gateway include extra metadata. This metadata contains information about the HTTP request and about the application server hosting the Web Gateway.

“Connect:Direct bridge transfer message examples” on page 700

The `destinationAgent` or `sourceAgent` element contains additional attributes when the destination agent or source agent is a Connect:Direct bridge agent. The Started log message contains only a subset of the information about the Connect:Direct transfer. The Progress and Completed log messages contain full information about the Connect:Direct transfer.

**Single transfer log message examples:**

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a single file transfer being started, in progress, and completed.

**Single file transfer - started**

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d5120553322e42494e44494e47538b0f404d223d0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:03:26.484Z">started</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <originator>
```

```

    <hostName>dhcp-9-20-240-199.hursley.ibm.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet startTime="2011-01-26T13:03:26.484Z" total="1" bytesSent="0">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">dhcp-9-20-240-199.hursley.ibm.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d223d0020</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
  <scheduleLog ID="3"/>
</transaction>

```

### Single file transfer success - progress

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d223d0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:03:26.615Z">progress</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet index="0" size="1" startTime="2011-01-26T13:03:26.484Z" total="1" bytesSent="1198">
  <item mode="binary">
    <source disposition="leave" type="file">
      <file size="1151" last-modified="2009-11-02T10:37:01.000Z">/etc/passwd</file>
      <checksum method="MD5">2287181c07199f879de28296371cb24c</checksum>
    </source>
    <destination type="file">
      <file size="1151" last-modified="2011-01-26T13:03:26.000Z">/tmp/passwd</file>
      <checksum method="MD5">2287181c07199f879de28296371cb24c</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
</transferSet>
</transaction>

```

### Single file transfer success - completed

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d223d0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:03:26.622Z">completed</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">

```

```

    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <status resultCode="0">
    <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
  </status>
  <transferSet startTime="2011-01-26T13:03:26.484Z" total="1" bytesSent="1198">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d223d0020</metaData>
      <metaData key="com.ibm.wmqfte.ScheduleId">3</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
  <statistics>
    <actualStartTime>2011-01-26T13:03:26.541Z</actualStartTime>
    <retryCount>0</retryCount>
    <numFileFailures>0</numFileFailures>
    <numFileWarnings>0</numFileWarnings>
  </statistics>
</transaction>

```

### Related reference:

“Triggered transfer message format” on page 693

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

“User exit message formats” on page 695

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages that are created when a file transfer occurs that contains calls to user exits.

“Additions to message formats for web-based transfers” on page 698

The Started and Completed log messages from a transfer that was requested through the WebSphere MQ File Transfer Edition Web Gateway include extra metadata. This metadata contains information about the HTTP request and about the application server hosting the Web Gateway.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

### Multiple file transfer log message examples:

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID` when a transfer that contains multiple files occurs.

#### Multiple file transfer - started

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d035c0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"

```

```

        xmlns="">
<action time="2011-01-26T13:12:58.534Z">started</action>
<sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
  <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
</sourceAgent>
<destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
<originator>
  <hostName>example.com</hostName>
  <userID>mqm</userID>
  <mqmdUserID>mqm</mqmdUserID>
</originator>
<transferSet startTime="2011-01-26T13:12:58.534Z" total="6" bytesSent="0">
  <metaDataSet>
    <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingHost">example.com</metaData>
    <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d035c0020</metaData>
    <metaData key="com.ibm.wmqfte.Priority">0</metaData>
  </metaDataSet>
</transferSet>
</transaction>

```

### Multiple file transfer - progress

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d035c0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
<action time="2011-01-26T13:12:58.753Z">progress</action>
<sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
  <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
</sourceAgent>
<destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
  <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
</destinationAgent>
<originator>
  <hostName>example.com.</hostName>
  <userID>mqm</userID>
  <mqmdUserID>mqm</mqmdUserID>
</originator>
<transferSet index="0" size="6" startTime="2011-01-26T13:12:58.534Z" total="6" bytesSent="440">
  <item mode="binary">
    <source disposition="leave" type="file">
      <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file01.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </source>
    <destination type="file">
      <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file01.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
  <item mode="binary">
    <source disposition="leave" type="file">
      <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file02.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </source>
    <destination type="file">
      <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file02.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
</transferSet>

```

```

</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file03.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file03.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file04.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file04.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file05.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file05.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file06.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file06.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
</transferSet>
</transaction>

```

### Multiple file transfer - completed

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d035c0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:12:58.766Z">completed</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>

```

```

    <mqmdUserID>mqm</mqmdUserID>
</originator>
<status resultCode="0">
  <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
</status>
<transferSet startTime="2011-01-26T13:12:58.534Z" total="6" bytesSent="440">
  <metaDataSet>
    <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
    <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e444494e47538b0f404d035c0020</metaData>
    <metaData key="com.ibm.wmqfte.Priority">0</metaData>
  </metaDataSet>
</transferSet>
<statistics>
  <actualStartTime>2011-01-26T13:12:58.634Z</actualStartTime>
  <retryCount>0</retryCount>
  <numFileFailures>0</numFileFailures>
  <numFileWarnings>0</numFileWarnings>
</statistics>
</transaction>

```

### Failed transfer log message examples:

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a file transfer that fails being started, in progress, and completed.

#### File transfer failure - started

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e444494e47538b0f404d03620020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:19:15.767Z">started</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet startTime="2011-01-26T13:19:15.767Z" total="1" bytesSent="0">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e444494e47538b0f404d03620020</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
</transaction>

```

## File transfer failure - progress

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d03620020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:19:15.944Z">progress</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet index="0" size="1" startTime="2011-01-26T13:19:15.767Z" total="1" bytesSent="0">
    <item mode="binary">
      <source disposition="leave" type="file">
        <file size="0" last-modified="2011-01-26T13:10:19.000Z"/>/srv/nfs/incoming/file01.txt</file>
        <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
      </source>
      <destination type="file">
        <file>/srv/nfs/outgoing/file01.txt</file>
      </destination>
      <status resultCode="1">
        <supplement>BFGI00006E: File "/srv/nfs/outgoing/file01.txt" already exists.</supplement>
      </status>
    </item>
  </transferSet>
</transaction>
```

## File transfer failure - completed

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d03620020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:19:15.948Z">completed</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <status resultCode="40">
    <supplement>BFGRP0034I: The file transfer request has
      completed with no files being transferred.
    </supplement>
  </status>
  <transferSet startTime="2011-01-26T13:19:15.767Z" total="1" bytesSent="0">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
    </metaDataSet>
  </transferSet>
</transaction>
```

```

    <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
    <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d03620020</metaData>
    <metaData key="com.ibm.wmqfte.Priority">0</metaData>
  </metaDataSet>
</transferSet>
<statistics>
  <actualStartTime>2011-01-26T13:19:15.878Z</actualStartTime>
  <retryCount>0</retryCount>
  <numFileFailures>1</numFileFailures>
  <numFileWarnings>0</numFileWarnings>
</statistics>
</transaction>

```

### Triggered transfer message format:

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

### Trigger single file transfer success - started

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction version="1.00"
  ID="414d5120514d31202020202020202020207e970d492000a102" agentRole="sourceAgent"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2008-11-02T22:05:18.703Z">started</action>
  <sourceAgent agent="FTEAGENT" QMgr="QM1">
    <systemInfo architecture="x86" name="Windows XP"
      version="5.1 build 2600 Service Pack 2" />
  </sourceAgent>
  <destinationAgent agent="FTEAGENT" QMgr="QM1" />
  <originator>
    <hostName>reportserver.com</hostName>
    <userID>USER1</userID>
    <mqmdUserID>USER1 </mqmdUserID>
  </originator>
  <trigger log="yes">
    <fileExist comparison="" value="exist">c:\trigger.txt</fileExist>
  </trigger>
  <transferSet startTime="2008-11-02T22:05:18.703Z" total="1"></transferSet>
</transaction>

```





```

<sourceAgent agent="FTEAGENT" QMgr="QM1">
  <startExits>
    <exit name="class testExits.SourceExit1">
      <status resultCode="proceed">
        <supplement>Source Start, modified metadata</supplement>
      </status>
    </exit>
  </startExits>
</endExits>
  <exit name="class testExits.SourceExit1">
    <status>
      <supplement>Source End</supplement>
    </status>
  </exit>
</endExits>
<systemInfo architecture="x86" name="Windows XP"
  version="5.1 build 2600 Service Pack 2" />
</sourceAgent>
<destinationAgent agent="FTEAGENT" QMgr="QM1">
  <startExits>
    <exit name="class testExits.DestinationExitProceed">
      <status resultCode="proceed">
        <supplement>Destination start, with proceed</supplement>
      </status>
    </exit>
  </startExits>
</endExits>
  <exit name="class testExits.DestinationExitProceed">
    <status>
      <supplement>destination end</supplement>
    </status>
  </exit>
</endExits>
<systemInfo architecture="x86" name="Windows XP"
  version="5.1 build 2600 Service Pack 2" />
</destinationAgent>
<originator>
  <hostName>reportserver.com</hostName>
  <userID>USER1</userID>
  <mqmdUserID>USER1      </mqmdUserID>
</originator>
<transferSet startTime="2008-11-02T22:36:13.046Z" total="1">
  <metaDataSet>
    <metaData key="newkey2">newvalue2</metaData>
    <metaData key="newkey1">newvalue1</metaData>
    <metaData key="newkey4">newvalue4</metaData>
    <metaData key="newkey3">newvalue3</metaData>
    <metaData key="newkey5">newvalue5</metaData>
    <metaData key="testkey1">testvalue1</metaData>
    <metaData key="testkey2">testvalue2</metaData>
  </metaDataSet>
</transferSet>
</transaction>

```

<!--

In this example the source transfer start exit has modified the metadata as follows:

Added keys and values for:

```

newkey1, newvalue1
newkey2, newvalue2
newkey3, newvalue3
newkey4, newvalue4
newkey5, newvalue5

```

Replaced values for:

```

key1 to modifiedValue1

```







### Related reference:

“Single transfer log message examples” on page 686

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a single file transfer being started, in progress, and completed.

“Triggered transfer message format” on page 693

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

“User exit message formats” on page 695

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages that are created when a file transfer occurs that contains calls to user exits.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

### Connect:Direct bridge transfer message examples:

The `destinationAgent` or `sourceAgent` element contains additional attributes when the destination agent or source agent is a Connect:Direct bridge agent. The Started log message contains only a subset of the information about the Connect:Direct transfer. The Progress and Completed log messages contain full information about the Connect:Direct transfer.

### Source agent is Connect:Direct bridge agent

#### Started:

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d20092507"
  agentRole="sourceAgent"
  version="4.00"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T13:05:01.838Z">started</action>
  <sourceAgent QMgr="QM_KUIPER" agent="VARUNA" agentType="CD_BRIDGE" bridgeNode="CDNODE_VARUNA">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_KUIPER" agent="IXION"/>
  <originator>
    <hostName>kuiper.example.com.</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <transferSet bytesSent="0" startTime="2011-03-07T13:05:01.838Z" total="1">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">VARUNA</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">IXION</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">kuiper.example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d20092507</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
</transaction>
```

#### Progress:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d20092507"
  agentRole="sourceAgent"
  version="4.00"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T13:05:03.448Z">progress</action>
  <sourceAgent QMgr="QM_KUIPER" agent="VARUNA" agentType="CD_BRIDGE"
    bridgeNode="CDNODE_VARUNA" pnode="CDNODE_VARUNA" snode="CDNODE_ERIS">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_KUIPER" agent="IXION" agentType="STANDARD">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </destinationAgent>
  <originator>
    <hostName>kuiper.example.com.</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <transferSet bytesSent="48" index="0" size="1" startTime="2011-03-07T13:05:01.838Z" total="1">
    <item mode="binary">
      <source disposition="leave" processName="f2007567" processNumber="68" type="file">
        <file last-modified="2011-03-07T13:05:02.573Z" size="4">CDNODE_ERIS:D:/AGENTS/CDNODE_ERIS/test.txt</file>
        <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
      </source>
      <destination type="file">
        <file last-modified="2011-03-07T13:05:03.338Z" size="4">D:\AGENTS\IXION\test.txt</file>
        <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
      </destination>
      <status resultCode="0"/>
    </item>
  </transferSet>
</transaction>

```

### Completed:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d20092507"
  agentRole="sourceAgent"
  version="4.00" xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T13:05:03.495Z">completed</action>
  <sourceAgent QMgr="QM_KUIPER" agent="VARUNA" agentType="CD_BRIDGE"
    bridgeNode="CDNODE_VARUNA" pnode="CDNODE_VARUNA" snode="CDNODE_ERIS">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_KUIPER" agent="IXION" agentType="STANDARD">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </destinationAgent>
  <originator>
    <hostName>kuiper.example.com.</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <status resultCode="0">
    <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
  </status>
  <transferSet bytesSent="48" startTime="2011-03-07T13:05:01.838Z" total="1">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">VARUNA</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">IXION</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">kuiper.example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d20092507</metaData>
    </metaDataSet>
  </transferSet>
</transaction>

```

```

        <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
</transferSet>
<statistics>
    <actualStartTime>2011-03-07T13:05:02.041Z</actualStartTime>
    <retryCount>0</retryCount>
    <numFileFailures>0</numFileFailures>
    <numFileWarnings>0</numFileWarnings>
</statistics>
</transaction>

```

## Destination agent is Connect:Direct bridge agent

### Started:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    ID="414d5120514d5f696b6b796f20202020a704654d2008e102"
    agentRole="sourceAgent"
    version="4.00"
    xsi:noNamespaceSchemaLocation="TransferLog.xsd"
    xmlns="">
    <action time="2011-03-07T10:29:44.854Z">started</action>
    <sourceAgent QMgr="QM_ASTEROID" agent="PALLAS" agentType="STANDARD">
        <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
    </sourceAgent>
    <destinationAgent QMgr="QM_ASTEROID" agent="VESTA"/>
    <originator>
        <hostName>belt.example.com.</hostName>
        <userID>sol</userID>
        <mqmdUserID>sol</mqmdUserID>
    </originator>
    <transferSet bytesSent="0" startTime="2011-03-07T10:29:44.854Z" total="1">
        <metaDataSet>
            <metaData key="com.ibm.wmqfte.SourceAgent">PALLAS</metaData>
            <metaData key="com.ibm.wmqfte.DestinationAgent">VESTA</metaData>
            <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
            <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
            <metaData key="com.ibm.wmqfte.OriginatingHost">belt.example.com.</metaData>
            <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d2008e102</metaData>
            <metaData key="com.ibm.wmqfte.Priority">0</metaData>
        </metaDataSet>
    </transferSet>
</transaction>

```

### Progress:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    ID="414d5120514d5f696b6b796f20202020a704654d2008e102"
    agentRole="sourceAgent"
    version="4.00"
    xsi:noNamespaceSchemaLocation="TransferLog.xsd"
    xmlns="">
    <action time="2011-03-07T10:29:46.682Z">progress</action>
    <sourceAgent QMgr="QM_ASTEROID" agent="PALLAS" agentType="STANDARD">
        <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
    </sourceAgent>
    <destinationAgent QMgr="QM_ASTEROID" agent="VESTA" agentType="CD_BRIDGE"
        bridgeNode="CDNODE_VESTA" pnode="CDNODE_VESTA" snode="CDNODE_HYGIEA">
        <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
    </destinationAgent>
    <originator>
        <hostName>belt.example.com.</hostName>
        <userID>sol</userID>
        <mqmdUserID>sol</mqmdUserID>
    </originator>

```

```

<transferSet bytesSent="48" index="0" size="1" startTime="2011-03-07T10:29:44.854Z" total="1">
  <item mode="binary">
    <source disposition="leave" type="file">
      <file last-modified="2011-03-04T14:53:28.323Z" size="4">D:\AGENTS\PALLAS\test.txt</file>
      <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
    </source>
    <destination processName="f2006965" processNumber="59" type="file">
      <file size="4">CDNODE_VESTA:D:/AGENTS/CDNODE_VESTA/test.txt</file>
      <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
</transferSet>
</transaction>

```

### Completed:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d2008e102"
  agentRole="sourceAgent"
  version="4.00"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T10:29:46.698Z">completed</action>
  <sourceAgent QMgr="QM_ASTEROID" agent="PALLAS" agentType="STANDARD">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_ASTEROID" agent="VESTA" agentType="CD_BRIDGE"
    bridgeNode="CDNODE_VESTA" pnode="CDNODE_VESTA" snode="CDNODE_HYGIEA">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </destinationAgent>
  <originator>
    <hostName>belt.example.com</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <status resultCode="0">
    <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
  </status>
  <transferSet bytesSent="48" startTime="2011-03-07T10:29:44.854Z" total="1">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">PALLAS</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">VESTA</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">belt.example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d2008e102</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
  <statistics>
    <actualStartTime>2011-03-07T10:29:45.010Z</actualStartTime>
    <retryCount>0</retryCount>
    <numFileFailures>0</numFileFailures>
    <numFileWarnings>0</numFileWarnings>
  </statistics>
</transaction>

```

## Scheduled transfer log message formats

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

### Schema

The following schema describes which elements are valid in a schedule log XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>

  <xsd:element name="schedulelog">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="originator" type="hostUserIDType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="action" type="actionType"
          maxOccurs="1" minOccurs="1"/>
        <xsd:element name="schedule" type="scheduleType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="sourceAgent" type="agentType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="destinationAgent" type="agentClientType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="status" type="statusType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="transferSet" type="transferSetType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="job" type="jobType"
          maxOccurs="1" minOccurs="0"/>
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
      <xsd:attribute name="ID" type="xsd:string" use="required"/>
    </xsd:complexType>
  </xsd:element>

  <xsd:complexType name="actionType">
    <xsd:simpleContent>
      <xsd:extension base="actionEnumType">
        <xsd:attribute name="time" type="xsd:dateTime" use="required" />
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>

  <xsd:simpleType name="actionEnumType">
    <xsd:restriction base="xsd:token">
      <xsd:enumeration value="submit"/>
      <xsd:enumeration value="delete"/>
      <xsd:enumeration value="expire"/>
      <xsd:enumeration value="skipped"/>
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:complexType name="transferSetType">
    <xsd:sequence>
      <xsd:element name="item" type="itemType"
        maxOccurs="unbounded" minOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="size" type="xsd:int" use="required" />
    <xsd:attribute name="priority" type="priorityType" use="optional" />
  </xsd:complexType>

  <xsd:complexType name="itemType">
    <xsd:sequence>
      <xsd:element name="source" type="fileSourceType"

```

```

                maxOccurs="1"      minOccurs="1" />
        <xsd:element name="destination" type="fileDestinationType"
                maxOccurs="1"      minOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="mode" type="modeType" use="required" />
    <xsd:attribute name="checksumMethod" type="checkSumMethod" use="required" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the schedule log message

The elements and attributes used in the schedule log message are described:

### <schedulelog>

Group element that describes a single submitted scheduled file transfer.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as detailed by WebSphere MQ File Transfer Edition. |
| ID        | The unique identifier for the submitted schedule file transfer.                          |

### <originator>

Group element that contains the elements specifying the originator of the request.

### <hostName>

The host name of the system where the source file is located.

### <userID>

The user ID that originated the file transfer.

### <mqmdUserID>

The WebSphere MQ user ID that was supplied in the message descriptor (MQMD)

### <action>

Specifies the action to take with the scheduled transfer matching the ID attribute of <schedulelog> element. This element must be one of the following values:

- submit - new scheduled transfer
- delete - cancel schedule transfer
- expire - schedule transfer entry about to be processed
- skipped - a transfer that was scheduled cannot be started because the agent is offline. This message is logged when the agent becomes available to indicate the transfer was skipped.

| Attribute | Description                                                                    |
|-----------|--------------------------------------------------------------------------------|
| time      | Specifies the date and time the log entry was published (in date time format). |

### <sourceAgent>

Specifies the name of the agent on the system where the source file is located.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | Specifies the name of the agent.     |
| QMgr      | The name of the agent queue manager. |

### <destinationAgent>

Specifies the name of the agent on the system you want to transfer the file to.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | Specifies the name of the agent.     |
| QMgr      | The name of the agent queue manager. |

**<status>**

The result code and supplement messages.

**<transferSet>**

Specifies a group of file transfers you want to perform together. During transmission <transferSet> is a group element containing <item> elements.

| Attribute | Description                                                                                                                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| size      | Specifies the number of transfer items.                                                                                                                                                                        |
| priority  | Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the priority level of the source agent. |

**<item>**

Group element that contains elements specifying the source and destination file names and locations.

| Attribute      | Description                                                                                                                              |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------|
| mode           | Specifies the transfer mode as being either binary or text.                                                                              |
| checksumMethod | Specifies the type of hash algorithm that generates the message digest to create the digital signature. Permitted values are MD5 or none |

**<source>**

Group element that contains the <file> and <checksum> elements for the file on the source system.

| Attribute   | Description                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| recursive   | Specifies that files are transferred recursively in subdirectories when the <source> element is a directory or contains wildcard characters.                                                                                                                                                                                                                                                 |
| disposition | Specifies the action that is taken on the <source> element when <source> has successfully been transferred to its destination. The valid options are as follows: <ul style="list-style-type: none"> <li>• leave - the source files are left unchanged.</li> <li>• delete - the source files are deleted from the source system after the source file is successfully transferred.</li> </ul> |

**<destination>**

Group element that contains the <file> and <checksum> elements for the file on the destination system.

| Attribute | Description                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type      | The type of file or directory at the destination. The valid options are as follows: <ul style="list-style-type: none"> <li>• file - specifies a file as the destination</li> <li>• directory - specifies a directory as the destination</li> <li>• dataset - specifies a z/OS data set as the destination</li> <li>• PDS - specifies a z/OS partitioned data set as the destination</li> </ul> |
| exist     | Specifies the action that is taken if a destination file exists on the destination system. The valid options are as follows: <ul style="list-style-type: none"> <li>• error - reports an error and the file is not transferred.</li> <li>• overwrite - overwrites the existing destination file.</li> </ul>                                                                                    |

### <file>

Specifies the name of the file to transfer. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

| Attribute | Description                                                                                                                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| encoding  | The encoding for a text file transfer.                                                                                                                                                                       |
| EOL       | Specifies the end of line marker. Permitted values are: <ul style="list-style-type: none"> <li>• LF - line feed character only</li> <li>• CRLF - carriage return and line feed character sequence</li> </ul> |

### <job>

Group element that contains an element specifying job details. <job> is a user-defined job name identifier that is added to the log message when the transfer has started. This <job> element is the same as the <job> element that is included in the transfer request message, which is described in the following topic: “File transfer request message format” on page 881.

#### <name>

The value of name can be any string.

## Examples

Examples of XML messages that conform to this schema are provided for each of the following scheduled transfer actions:

- A scheduled transfer is created
- A scheduled transfer is canceled
- A schedule transfer expires

Transfers that are started by a schedule are logged in the same way as a standard transfer. For examples of log messages for transfers started by a schedule, see “Scheduled transfer log message examples” on page 694.

## Related reference:

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of *Log/agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

## Schedule log examples:

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of *Log/agent\_name/schedule\_ID* when a scheduled transfer action occurs.

### Scheduled transfer log message

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/*Log/agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema. For example:

```
<?xml version="1.0" encoding="UTF-8"?>
<schedulelog version="1.00" ID="5"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ScheduleLog.xsd">
  <originator>
    <hostName>reportserver.com</hostName>
    <userID>USER1</userID>
  </originator>
  <action time="2008-11-23T21:32:01Z">submit</action>
  <schedule>
    <submit timebase="admin" timezone="Europe/London">2008-11-23T22:00</submit>
  </schedule>
  <sourceAgent agent="FTEAGENT" QMgr="QM1" />
  <destinationAgent agent="FTEAGENT" QMgr="QM1" />
  <status resultCode="0" />
  <transferSet size="1" priority="0">
    <item mode="binary" checksumMethod="MD5">
      <source recursive="false" disposition="leave">
        <file>c:\sourcefiles\source1.doc</file>
      </source>
    </item>
  </transferSet>
</schedulelog>
```

```

    <destination type="file" exist="overwrite">
      <file>c:\destinationfiles\dest1.doc</file>
    </destination>
  </item>
</transferSet>
</schedulelog>

```

This message is a log of the following information:

- Who originated the request
- When the request was submitted
- When the scheduled transfer starts
- The source and destination agent details
- The transfer specification

The ID attribute of the <schedulelog> element is a unique ID for this scheduled transfer (in the source agent). This ID used to correlate schedule entries with the actual file transfers.

The <action> element value of submit confirms the request has been received.

### Scheduled transfer cancel log message

When a request to cancel a pending scheduled file transfer is received by the agent, the following message is published to the SYSTEM.FTE/Log/*agent\_name* topic:

```

<?xml version="1.0" encoding="UTF-8"?>
<schedulelog version="1.00" ID="5"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ScheduleLog.xsd">
  <originator>
    <hostName>reportserver.com</hostName>
    <userID>USER1</userID>
  </originator>
  <action time="2008-11-23T21:56:27Z">delete</action>
  <status resultCode="0" />
</schedulelog>

```

The ID attribute value corresponds to the ID of the pending transfer request ID in the schedules message.

### Scheduled transfer expire log message

When the current time matches the time of the earliest pending file transfer in the schedule list (as indicated by the value of the <next> element), a schedule log message is published to indicate that the scheduled transfer entry has expired:

```

<?xml version="1.0" encoding="UTF-8"?>
<schedulelog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00" ID="3"
  xsi:noNamespaceSchemaLocation="ScheduleLog.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <action time="2011-01-26T13:03:26Z">expire</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <status resultCode="0"/>
</schedulelog>

```

The <action> element value of "expire" confirms the schedule entry has now been removed from the schedule list and is being processed. A schedule message for the agent is published with the expired entry no longer present.

## Related reference:

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Scheduled transfer log message examples” on page 694

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/transfer\_ID*. The XML examples show the log messages that are created when a file transfer occurs as a result of a schedule.

## Monitor log message format

Monitor log messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/Monitors/monitor\_name/monitor\_ID*.

If you want to collect data or view monitor actions, set up a subscription to a wildcard topic tailored to the monitors that you are interested in. For example:

```
Log/#
```

or,

```
Log/agent_name/#
```

This subscription can be durable or non-durable. Durable subscriptions continue to exist when a subscribing application's connection to the queue manager is closed. Non-durable subscriptions exist only as long as a subscribing application's connection to the queue manager remains open.

The MonitorLog.xsd schema document is located in the *install\_directory/samples/schema* directory. The MonitorLog.xsd schema imports fteutils.xsd, which is in the same directory.

## Schema

The following schema describes which elements are valid in a monitor log XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>
  <xsd:element name="monitorLog">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="originator" type="hostUserIDType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="references" type="referencesType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="action" type="monitorActionType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="monitorAgent" type="agentType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="status" type="statusType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="monitorMetaData" type="monitorMetaDataType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="monitorExits" type="exitGroupType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="jobDetails" type="jobType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="taskXMLRequest" type="taskXMLRequestType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="monitorXMLRequest" type="monitorXMLRequestType" maxOccurs="1" minOccurs="0"/>
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
      <xsd:attribute name="monitorName" type="xsd:string" use="required"/>
      <xsd:attribute name="referenceId" type="xsd:string" use="optional"/>
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="monitorActionType">
    <xsd:simpleContent>
      <xsd:extension base="monitorActionEnumType">
        <xsd:attribute name="time" type="xsd:dateTime" use="required" />
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
</xsd:schema>
```

```

    </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="monitorActionEnumType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="create"/>
    <xsd:enumeration value="delete"/>
    <xsd:enumeration value="start"/>
    <xsd:enumeration value="stop"/>
    <xsd:enumeration value="triggerSatisfied"/>
    <xsd:enumeration value="triggerNotSatisfied"/>
    <xsd:enumeration value="triggerFail"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="monitorMetaDataType">
  <xsd:sequence>
    <xsd:element name="originalMetaData" type="metaDataSetType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="updatedMetaData" type="metaDataSetType" maxOccurs="unbounded" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="taskXMLRequestType">
  <xsd:sequence>
    <xsd:element name="originalRequest" type="xsd:string" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="updatedRequest" type="xsd:string" maxOccurs="1" minOccurs="0"/>
  </xsd:sequence>
  <xsd:attribute name="taskId" type="xsd:string" use="required"/>
</xsd:complexType>

<xsd:complexType name="referencesType">
  <xsd:sequence>
    <xsd:element name="createRequest" type="xsd:string" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="taskRequest" type="xsd:string" maxOccurs="1" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="monitorXMLRequestType">
  <xsd:simpleContent>
    <xsd:extension base="xsd:string">
      <xsd:attribute name="type" type="xmlContentEnumType" use="required" />
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="xmlContentEnumType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="escapedXML"/>
  </xsd:restriction>
</xsd:simpleType>
</xsd:schema>

```

## Understanding the monitor log message

The elements and attributes used in the monitor log messages are described in the following list:

### <monitorLog>

Group element containing the elements describe an action that has been performed by a monitor.

| Attribute | Description                                               |
|-----------|-----------------------------------------------------------|
| version   | Required. The version of the monitor list message format. |

| Attribute   | Description                                                                             |
|-------------|-----------------------------------------------------------------------------------------|
| monitorName | Required. The name of the monitor. Unique for the agent that the monitor is defined on. |
| referenceId | The ID of the monitor action.                                                           |

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<hostName>**

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

**<references>**

References to the IDs of other messages associated with this monitor action.

**<createRequest>**

The message ID of the XML request message that was used to create the monitor.

**<taskRequest>**

The message ID of the XML request message that the monitor submits as a result of this action.

**<action>**

The action that occurred, which this log message is associated with. The value inside the element can be one of the following: create, delete, start, stop, triggerSatisfied, triggerNotSatisfied, or triggerFail.

**<monitorAgent>**

The agent that is monitoring the resource.

| Attribute | Description                                                                        |
|-----------|------------------------------------------------------------------------------------|
| agent     | Required. The name of the agent.                                                   |
| QMgr      | Optional. The name of the queue manager that the agent connects to.                |
| bridgeURL | Optional. If the agent is a protocol bridge agent, the URL of the protocol server. |

**<status>**

The status of the resource monitor action being logged.

| Attribute  | Description                                        |
|------------|----------------------------------------------------|
| resultCode | Required. The integer result code from the action. |

**<supplement>**

Additional information about the status of the resource monitor action being logged.

**<monitorMetaData>**

Group element that contains the <originalMetaData> and <updatedMetaData> elements.

**<originalMetaData>**

Element that contains one or more <metadata> elements that describe the metadata of the monitor before the action occurs.

**<updatedMetaData>**

Element that contains one or more <metadata> elements that describe the metadata of the monitor after the action occurs.

**<metadata>**

Defines a metadata key-value pair. The key is an attribute of the element; the value is the content of the element.

| Attribute | Description              |
|-----------|--------------------------|
| key       | The key of the metadata. |

**<monitorExits>**

Group element containing one or more <exit> elements.

**<exits>**

Element describing an exit run by the resource monitor.

| Attribute | Description                                      |
|-----------|--------------------------------------------------|
| name      | Required. The name of the resource monitor exit. |

**<status>**

The status of the resource monitor exit that is being logged.

| Attribute  | Description                                      |
|------------|--------------------------------------------------|
| resultCode | Required. The integer result code from the exit. |

**<supplement>**

Additional information about the status of the resource monitor exit that is being logged.

**<jobDetails>**

Element containing a single <name> element.

**<name>**

The name of the job..

**<taskXMLRequest>**

Group element that contains the <originalRequest> and <updatedRequest> elements.

| Attribute | Description                         |
|-----------|-------------------------------------|
| taskId    | The ID of the task request message. |

**<originalRequest>**

Element that contains the escaped XML request message for the task that the monitor performs.

**<updatedRequest>**

Element that contains the updated escaped XML request message for the task that the monitor performs.

**<monitorXMLRequest>**

The monitor XML request.

| Attribute | Description                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------|
| type      | Required. The format of the monitor XML request data inside of the <monitorXMLRequest> element. The only valid value is escapedXML. |

**Examples**

Examples of XML messages that conform to this schema are provided for each of the following monitor actions:

- A monitor is created
- The condition of a monitor is satisfied when the monitor polls the resource
- The condition of a monitor is not satisfied when the monitor polls the resource
- A monitor is deleted

#### Related reference:

“Monitor log examples”

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/monitor_ID` when a monitor action occurs.

#### Monitor log examples:

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/monitor_ID` when a monitor action occurs.

#### Monitor created log message

```
<?xml version="1.0" encoding="UTF-8"?>
<monitorLog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  monitorName="MONITORTWO"
  referenceId="414d51205553322e42494e44494e47538b0f404d04410020"
  xsi:noNamespaceSchemaLocation="MonitorLog.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <references>
    <createRequest>414d51205553322e42494e44494e47538b0f404d04410020</createRequest>
  </references>
  <action time="2011-01-26T12:41:24Z">start</action>
  <monitorAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <status resultCode="0"/>
</monitorLog>
```

#### Monitor condition satisfied log message

```
<?xml version="1.0" encoding="UTF-8"?>
  <monitorLog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    version="4.00"
    monitorName="MONITORONE"
    referenceId="414d51205553322e42494e44494e47538b0f404d09430020"
    xsi:noNamespaceSchemaLocation="MonitorLog.xsd">
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
      <mqmdUserID>mqm</mqmdUserID>
    </originator>
    <references>
      <createRequest>414d51205553322e42494e44494e47538b0f404d09430020</createRequest>
    </references>
    <action time="2011-01-26T12:56:46Z">triggerSatisfied</action>
    <monitorAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <status resultCode="0"/>
    <monitorMetaData>
      <originalMetaData>
        <metaData key="AGENTNAME">AGENT_JUPITER</metaData>
        <metaData key="LASTMODIFIEDDATEUTC">2011-01-26</metaData>
        <metaData key="CURRENTTIMESTAMPUTC">20110126125646793</metaData>
        <metaData key="CURRENTTIMESTAMP">20110126125646793</metaData>
        <metaData key="LASTMODIFIEDDATE">2011-01-26</metaData>
        <metaData key="FILENAME">new.completed</metaData>
        <metaData key="LASTMODIFIEDTIMEUTC">12.56</metaData>
        <metaData key="LASTMODIFIEDTIME">12.56</metaData>
      </originalMetaData>
    </monitorMetaData>
  </monitorLog>
```

```

    <metaData key="FILESIZE">0</metaData>
    <metaData key="FILEPATH">/srv/nfs/incoming/new.completed</metaData>
</originalMetaData>
<updatedMetaData>
  <metaData key="AGENTNAME">AGENT_JUPITER</metaData>
  <metaData key="LASTMODIFIEDDATEUTC">2011-01-26</metaData>
  <metaData key="CURRENTTIMESTAMPUTC">20110126125646793</metaData>
  <metaData key="CURRENTTIMESTAMP">20110126125646793</metaData>
  <metaData key="LASTMODIFIEDDATE">2011-01-26</metaData>
  <metaData key="FILENAME">new.completed</metaData>
  <metaData key="LASTMODIFIEDTIMEUTC">12.56</metaData>
  <metaData key="LASTMODIFIEDTIME">12.56</metaData>
  <metaData key="FILESIZE">0</metaData>
  <metaData key="FILEPATH">/srv/nfs/incoming/new.completed</metaData>
</updatedMetaData>
</monitorMetaData>
<taskXMLRequest taskId="null">
  <originalRequest>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
    xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
      &lt;originator&gt;&lt;hostName&gt;example.com.&lt;/hostName&gt;
      &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
      &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
      &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
      &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
        &lt;source disposition="leave" recursive="false"&gt;
          &lt;file&gt;/srv/nfs/incoming/*.txt&lt;/file&gt;&lt;/source&gt;
          &lt;destination exist="error" type="directory"&gt;
            &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
          &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;&lt;/request&gt;
        &lt;/originalRequest>
        <updatedRequest>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
          xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
            &lt;originator&gt;&lt;hostName&gt;example.com.&lt;/hostName&gt;
            &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
            &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
            &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
            &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
              &lt;source disposition="leave" recursive="false"&gt;
                &lt;file&gt;/srv/nfs/incoming/*.txt&lt;/file&gt;
                &lt;/source&gt;&lt;destination exist="error" type="directory"&gt;
                  &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
                &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;&lt;/request&gt;
              &lt;/updatedRequest>
            </taskXMLRequest>
          </monitorLog>

```

### Monitor condition not satisfied log message

```

<?xml version="1.0" encoding="UTF-8"?>
<monitorLog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  monitorName="MONITORONE"
  referenceId="414d51205553322e42494e44494e47538b0f404d09430020"
  xsi:noNamespaceSchemaLocation="MonitorLog.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <references>
    <createRequest>414d51205553322e42494e44494e47538b0f404d09430020</createRequest>
  </references>

```

```

    <action time="2011-01-26T12:58:46Z">triggerNotSatisfied</action>
    <monitorAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <status resultCode="0"/>
</monitorLog>

```

### Monitor deleted log message

```

<?xml version="1.0" encoding="UTF-8"?>
<lst:monitorList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:lst="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  version="4.00"
  agent="AGENT_JUPITER"
  monitor="MONITORONE"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition MonitorList.xsd">
  <status state="deleted"/>
  <configuration>
    <description/>
    <resources>
      <directory recursionLevel="0" id="">/srv/nfs/incoming</directory>
    </resources>
    <triggerMatch>
      <conditions>
        <condition>
          <name/>
          <resource id=""/>
          <fileMatch>
            <pattern>*.completed</pattern>
          </fileMatch>
        </condition>
      </conditions>
    </triggerMatch>
    <tasks>
      <task>
        <name/>
        <description/>
        <taskXML>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
          xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
            &lt;originator&gt;&lt;hostName&gt;example.ibm.com.&lt;/hostName&gt;
            &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
            &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
            &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
            &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
            &lt;source disposition="leave" recursive="false"&gt;
            &lt;file&gt;/srv/nfs/incoming/*.txt&lt;/file&gt;&lt;/source&gt;
            &lt;destination exist="error" type="directory"&gt;
            &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
            &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;&lt;/request&gt;
          </taskXML>
        </task>
      </tasks>
    </configuration>
    <pollInterval units="minutes">1</pollInterval>
    <batch maxSize="1"/>
</lst:monitorList>

```

## Agent queues for WebSphere MQ File Transfer Edition

The MQSC command scripts generated by the **fteCreateAgent** command create the agent queues with parameters set to the following values. If you do not use the MQSC scripts provided to create the queues, but create the queues manually, ensure you set the following parameters to the values given.

### Agent operation queues

The agent's operation queues have the following names:

- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

Table 36. Agent operation queue parameters

| Parameter | Value (if applicable) |
|-----------|-----------------------|
| DEFPRTY   | 0                     |
| DEFSOPT   | SHARED                |
| GET       | ENABLED               |
| MAXDEPTH  | 5000                  |
| MAXMSGL   | 4194304               |
| MSGDLVSQ  | PRIORITY              |
| PUT       | ENABLED               |
| RETINTVL  | 999999999             |
| SHARE     |                       |
| NOTRIGGER |                       |
| USAGE     | NORMAL                |
| REPLACE   |                       |

### Agent authority queues

The agent's authority queues have the following names:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*
- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*

Table 37. Agent authority queue parameters

| Parameter | Value (if applicable) |
|-----------|-----------------------|
| DEFPRTY   | 0                     |
| DEFSOPT   | SHARED                |
| GET       | ENABLED               |
| MAXDEPTH  | 0                     |
| MAXMSGL   | 0                     |
| MSGDLVSQ  | PRIORITY              |
| PUT       | ENABLED               |
| RETINTVL  | 999999999             |
| SHARE     |                       |
| NOTRIGGER |                       |
| USAGE     | NORMAL                |
| REPLACE   |                       |

## Web agent operation queues

If the agent is a web agent it has two additional queues. These queues have the following names:

- SYSTEM.FTE.WEB.gateway\_name
- SYSTEM.FTE.WEB.RESP.agent\_name

Table 38. Web agent operation queue parameters

| Parameter | Value (if applicable) |
|-----------|-----------------------|
| DEFPRTY   | 0                     |
| DEFSOPT   | SHARED                |
| GET       | ENABLED               |
| MAXDEPTH  | 5000                  |
| MAXMSGL   | 4194304               |
| MSGDLVSQ  | PRIORITY              |
| PUT       | ENABLED               |
| RETINTVL  | 999999999             |
| SHARE     |                       |
| NOTRIGGER |                       |
| USAGE     | NORMAL                |
| REPLACE   |                       |

### Related reference:

“fteCreateAgent (create a WebSphere MQ File Transfer Edition agent)” on page 478  
The **fteCreateAgent** command creates an agent and its associated configuration.

## System queues and the system topic

WebSphere MQ File Transfer Edition has a number of system queues and one system topic that are for internal use only. Do not delete these objects or change them in any way.

Any queues with a name beginning SYSTEM.FTE are internal system queues for WebSphere MQ File Transfer Edition. The topic named SYSTEM.FTE is also for internal use only. Do not modify or delete this topic or these queues, or change the queue contents in any way, because you will prevent WebSphere MQ File Transfer Edition from functioning correctly and you could lose messages.

## Temporary queues

WebSphere MQ File Transfer Edition creates temporary queues for a number of purposes. The name of each queue starts with WMQFTE. by default. (The period is part of the default prefix.) If you want to change this prefix, you can use the **dynamicQueuePrefix** property in the `command.properties` file or the `coordination.properties` file or both. The property in the `command.properties` file is used to set the prefix of temporary queues that are created for responses to commands that require a response from the agent. The property in the `coordination.properties` file is used to set the prefix of temporary queues that are created for other purposes; for example, the `WMQFTE.FTE.TIMECHCK.QUEUE`, where `WMQFTE.` is the value defined by the **dynamicQueuePrefix** property.

## Object naming conventions for WebSphere MQ File Transfer Edition

Use the following naming conventions for your WebSphere MQ File Transfer Edition objects:

- Agent names can be a maximum of 28 characters long and are not case-sensitive. Agent names entered in lowercase or mixed case are converted to uppercase. Agent names must conform to standard WebSphere MQ object naming conventions. These conventions are detailed in the WebSphere MQ product documentation: Rules for naming WebSphere MQ objects.
- In addition to the WebSphere MQ object naming conventions, the forward slash (/) character cannot be used in agent names.
- In addition to the WebSphere MQ object naming conventions, the percent (%) character cannot be used in agent names.
- The names of properties in the properties files are case-sensitive.
- Queue manager names are case-sensitive.
- File names are case-sensitive for some platforms.
- Resource monitor names are not case-sensitive. Resource monitor names entered in lowercase or mixed case are converted to uppercase. Resource monitor names must not contain asterisk (\*), percent (%) or question mark (?) characters.
- Protocol file server names must be a minimum of 2 characters long but there is no maximum length limit, they are not case-sensitive. Protocol server names must conform to standard WebSphere MQ object naming conventions. These conventions are detailed in the WebSphere MQ product documentation: Rules for naming WebSphere MQ objects.

## Web Gateway names

- Web Gateway names can be a maximum of 28 characters long and are not case-sensitive. Web Gateway names entered in lowercase or mixed case are converted to uppercase. Web Gateway names must conform to standard WebSphere MQ object naming conventions. These conventions are detailed in the WebSphere MQ product documentation: Rules for naming WebSphere MQ objects. In addition to the WebSphere MQ object naming conventions, the forward slash (/) character and percent (%) character cannot be used in Web Gateway names.

- If you deploy multiple instances of the same Web Gateway, use the same name for each instance.
- If you deploy more than one separate Web Gateway, use different names for each gateway. Do not create more than one Web Gateway with the same name.
- Give a web agent that is a component of a Web Gateway a similar name to the name of the Web Gateway. For example, if the Web Gateway is named WG1\_GTWY, name the web agent WG1\_AGNT\_QM1.

## Files in the IBM i integrated file system (IFS)

File names in the IFS cannot contain any of the following characters:

- Backslash (\)
- Forward slash (/)
- Colon (:)
- Asterisk (\*)
- Question mark (?)
- Quotation marks ("")
- Less than symbol (<)
- Greater than symbol (>)
- Vertical bar (|)

If you attempt to transfer files with names containing any of these characters to an IBM i IFS, the transfer of these files fails.

## Data set names

Data sets have naming restrictions, which affect the maximum name length and the available characters that you can use for data set names. PDS data set member names can be a maximum of eight characters and cannot contain the dot (.) character. When you transfer to a data set, you must explicitly specify the name, which means these naming restrictions do not cause a problem. But when you transfer from files to PDS members the file path might not map to a PDS member name. When you transfer to a PDS data set, each source file becomes a PDS member and each member name is generated from the name of the source.

PDS member names are z/OS unqualified names and are defined by the following regular expression:

```
[a-zA-Z$#@][a-zA-Z0-9$#@]{0-7}
```

The following scheme is used to convert a source data set or source file name to a valid PDS member name. The considerations are applied in the order listed:

1. Only the characters in the name after the last forward slash (/), the last backslash (\), or the last colon (:), character, are used. That is, only the name part of a file path is used.
2. For source files (not data sets or PDS members), the characters after and including the last dot (.) character, are ignored.
3. For any name longer than eight characters, the last eight characters only are used.
4. Dot characters are replaced with at sign (@) characters.
5. Invalid characters are replaced with at sign (@) characters.
6. If the conversion produces no characters, the PDS member name is @.

---

## Administering

### Agent status values

The **fteListAgents** and **fteShowAgentDetails** commands produce agent status information. There are several possible values for this status.

#### ACTIVE

The agent is running and is sending or receiving files. The agent is publishing its status at regular intervals. The last update was received within the expected time period.

#### READY

The agent is running, but is not sending or receiving files. The agent is publishing its status at regular intervals. The last update was received within the expected time period.

#### STARTING

The agent is starting, but is not yet ready to perform transfers.

#### UNREACHABLE

Agent status updates were not received at the expected time intervals. The agent might have stopped running due to an error, or have been shut down abruptly, or be running but experiencing communication problems.

#### STOPPED

The agent has been stopped. It was shut down in a controlled manner.

#### NO\_INFORMATION

The agent version might be is WebSphere MQ File Transfer Edition version 7.0.2 or earlier. The agent is not publishing updates in a form that this command can process.

#### UNKNOWN

The status of the agent cannot be determined. It might have published a status which is not recognized by this tool. If you have mixed product versions on your network, upgrading the installation version of this tool might fix this problem.

#### PROBLEM

The agent command handler might not be working. The agent is publishing status messages, but these status messages are out of date.

#### Related reference:

“fteListAgents (list the WebSphere MQ File Transfer Edition agents for a coordination queue manager)” on page 540

Use the **fteListAgents** command to list all of the WebSphere MQ File Transfer Edition agents that are registered with a particular coordination queue manager from the command line.

“fteShowAgentDetails (display WebSphere MQ File Transfer Edition agent details)” on page 563

Use the **fteShowAgentDetails** command to display the details of a particular WebSphere MQ File Transfer Edition agent. These are the details that are stored by its WebSphere MQ File Transfer Edition coordination queue manager.

“What to do if you think that your transfer is stuck” on page 391

On a heavily loaded system or when there are network problems between the source and destination agents, transfers can occasionally appear to be stuck in a queued or recovering state. There are a number of factors that can cause this.

### Guidelines for transferring files

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

Read the relevant topics for further information.

**Related reference:**

“Transferring files and data sets between z/OS and distributed systems”

You can transfer files and supported data set types between z/OS and distributed file systems by using WebSphere MQ File Transfer Edition. Review the following behavior carefully, which is dependent on the type of system you are transferring from and to.

“Transferring between data sets” on page 724

You can transfer between z/OS data sets using WebSphere MQ File Transfer Edition. Review the following behavior carefully to ensure your data sets are transferred correctly.

“Transferring text files” on page 734

Text file transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return-line feed) characters between systems. This topic summarizes text file transfer behavior of WebSphere MQ File Transfer Edition.

“Transferring text files between Connect:Direct and WebSphere MQ File Transfer Edition” on page 736

Text transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return line feed) characters between systems. This topic summarizes text file transfer behavior in transfers between a WMQFTE agent and a Connect:Direct node.

“Transferring files to or from protocol bridge agents” on page 737

You can transfer files to and from an FTP or SFTP file server outside your WebSphere MQ File Transfer Edition network using a protocol bridge agent.

“Transferring files to or from IBM i systems” on page 737

If you transfer files to or from IBM i systems using WebSphere MQ File Transfer Edition in text mode and you want to convert the data in the files, consider the information in this topic.

“Transferring save files that are located in the QSYS.LIB file system on IBM i systems” on page 741

WebSphere MQ File Transfer Edition supports the transfer of save files located in the QSYS.LIB file system between two IBM i systems. Consider the following information when requesting file transfers of save files.

“Transferring generation data groups (GDGs)” on page 742

WebSphere MQ File Transfer Edition supports generation data groups (GDGs) for source and destination data sets on z/OS. Absolute and relative GDG names are supported. When you write to a new generation, the base GDG must exist.

“Using wildcard characters” on page 743

You can use wildcard characters when you specify source file names and source file paths for file transfers. This allows you to select multiple files simultaneously.

**Transferring files and data sets between z/OS and distributed systems**

You can transfer files and supported data set types between z/OS and distributed file systems by using WebSphere MQ File Transfer Edition. Review the following behavior carefully, which is dependent on the type of system you are transferring from and to.

WebSphere MQ File Transfer Edition supports generation data groups (GDGs) for source and destination data sets on z/OS. Absolute and relative GDG names are supported. When you write to a new generation, the base GDG must exist.

When you transfer a file or data set to tape, any existing data set that is already on the tape is replaced. The attributes for the new data set are set from attributes passed in the transfer definition. If no attributes are specified, attributes are set to the same as those attributes for the source data set or are set to the default values when the source is a file. The attributes of an existing tape data set are ignored.

**Transferring from a file to a data set - binary transfers**

The format of the destination data set determines the destination record length. Ensure the data set exists on the destination system or specify the destination data set with the correct attributes so that the data set is created properly. If you do not specify attributes, the system specifies the following default: a

physical sequential data set with an undefined record format and a maximum block size (BLKSIZE) of 32760. If you want to transfer a file on a distributed system to a z/OS data set in binary mode, note the following behavior:

**Physical sequential (PS) destination data sets:**

- The source file on the distributed system is read sequentially to fill each record or block.
- On variable format data sets, each record is filled to capacity.

**Partitioned data set (PDS) destination data sets:**

- Each source file is copied to a PDS member with the same or equivalent name. If the file name is longer than the maximum allowed length of a member name, the file name is converted to a valid member name. For more information about member names, see Object naming conventions. If the source file is a directory, each file in that directory becomes a member of the PDS.
- If a PDS member exists, the member is overwritten if you have specified overwrite existing destination files for the transfer.
- The source file on the distributed system's is read sequentially to fill each record or block for the member.
- On variable format PDS members, each record is filled to capacity.

**Transferring from a file to a data set - text transfers**

The format of the destination data set determines the destination record length. Ensure the data set exists on the destination system or specify the destination data set with the correct attributes so the data set is created properly. If you want to transfer from a file on a distributed system to a z/OS data set as text, note the following behavior:

**Physical sequential (PS) destination data sets:**

- Each line of text becomes a record (or a block for undefined record format (RECFM=U) data sets). End-of-line characters are not present in data set records (for non-ASA data sets only).
- When ASA format control characters are used in the destination data set, end-of-line characters are effectively converted to equivalent ASA format control code.
- When a line is longer than a record, the line is split at the record boundary and flows onto the next record.

**PDS destination data sets:**

- Each line of text becomes a record (or a block for undefined record format (RECFM=U) data sets). End-of-line characters are not present in member records (for non-ASA data sets only).
- When ASA format control characters are used in the destination data set, end-of-line characters are effectively converted to equivalent ASA format control code.
- When a line is longer than a record, the line is split at the record boundary and flows onto the next record.

**Transferring from a data set to a file - binary and text transfers**

If you want to transfer from a data set to a file as binary or text, note the following behavior:

- The content of each record is transferred in binary form to a file; no record, block format information, or ASA format control characters are transferred.
- For text transfers only, each data set record becomes a line with text converted to the code page of the destination agent. That is, a carriage return-line feed (CRLF) is appended for a Windows destination system and carriage return (CR) is appended for a UNIX destination system.
- **Non-VSAM and PS source data sets.** The records for the source data set are transferred to the destination file and concatenated together. If the destination file exists, the file is overwritten, depending on the destination file behavior option you have specified for the file transfer.

- **PDS source data sets.** Each specified member, or all members if no member is specified, is extracted to the destination. If the destination specifies a directory, members are extracted to separate files. Otherwise each specified member is written to the destination file, resulting in effectively only one member being transferred. If the destination file exists for a member, the file is overwritten, depending on the destination file behavior option you have specified for the file transfer.

**Related reference:**

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“Transferring between data sets”

You can transfer between z/OS data sets using WebSphere MQ File Transfer Edition. Review the following behavior carefully to ensure your data sets are transferred correctly.

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

### Transferring between data sets

You can transfer between z/OS data sets using WebSphere MQ File Transfer Edition. Review the following behavior carefully to ensure your data sets are transferred correctly.

WebSphere MQ File Transfer Edition does not support uncataloged data sets either on disk or tape. Existing data sets must be cataloged and new data sets will be cataloged.

Consider the following cases:

- **If you copy or move a data set between z/OS systems and the destination does not exist.**  
By default, the destination data set is created with the identical characteristics to the source. You can specify attributes for the destination data set to override the default characteristics. If you do this, a compatibility check is performed to ensure the transfer is possible.
- **If you copy or move a data set between z/OS systems and the destination already exists.**  
If you specify attributes for the destination data set to override the default characteristics, a compatibility check is performed to ensure the destination data set can be accessed in the required way. However, you cannot override the following attributes:
  - Base data set organization and type
  - Logical record length (LRECL)
  - Block size (BLKSIZE)
- **If you are transferring a data set to tape.**  
When you transfer a data set to tape, any existing data set that is already on the tape is replaced. The attributes for the new data set are set from attributes passed in the transfer definition. If no attributes are specified, attributes are set to the same as those for the source data set or are set to the default values when the source is a file. The attributes of an existing tape data set are ignored.

### Data set compatibility

Review the following behavior and restrictions for data set compatibility:

**Record format and length differences:**

- Variable-format records use a 4 byte record length field in the record data. Therefore for a transfer from a fixed record to a variable record data set, the variable record length must be greater than or equal to the fixed record length plus 4. For a transfer from a variable format record data set to a fixed format record data set, the fixed format record data set record length must be greater than or equal to the variable record length minus 4.

### **Block size differences:**

- For fixed- and variable-format record data, block size differences makes the source and destination data set layout different.
- For undefined format records, provided the destination block size is greater or equal to the source data set block size, you can transfer a data set.
- For undefined format data sets, you cannot transfer if the source block size is greater than the destination block size.

**Partitioned data sets (PDS) and partitioned data set extended (PDSE) data sets.** The following behavior and restrictions apply equally to PDS and PDSE:

- If you transfer a PDS or PDSE member to a destination PDS or PDSE, a member of the destination PDS or PDSE is created. If the destination PDS or PDSE member already exists, the member is overwritten. If you transfer a PDS or PDSE member to a non-PDS or non-PDSE destination data set, the destination data set is created to contain the member data. If the destination data set already exists, the data set is overwritten.
- If you attempt to transfer a PDS or PDSE to a non-PDS or non-PDSE destination, this results in all members of the PDS or PDSE being written to the non-PDSE destination. Each subsequent member transfer overwrites the previous contents of the non-PDSE destination or fails, depending on the transfer options.
- When you transfer a PDS or PDSE to a destination PDS or PDSE, a copy of the entire PDS or PDSE is created at the destination. If the destination PDS or PDSE already exists, members from the source are added. If a PDS or PDSE member already exists at the destination, the member is overwritten.
- The transfer of a non-PDS or non-PDSE to a destination PDS or PDSE, adds the contents of the non-PDS or non-PDSE as a new member of the PDS or PDSE. If the PDS member already exists, the member is overwritten. If you do not specify a name for a new member, a name is generated from the source data set or DD name.
- There is a known limitation with transfers to PDS and PDSE data sets on systems where disk space is limited. For more details, see the topic [Troubleshooting WebSphere MQ File Transfer Edition](#) .
- 

**Note:** When you transfer a PDS or PDSE to a destination PDS or PDSE, the member information and statistics are not preserved. For example, if you transfer a load library that is stored as a PDS, the destination PDS is not usable as a load library.

### **Binary and text transfers**

Binary transfer for data sets is defined as the record data in its binary form, as read from the data set using the default record format (type=record). Data is read and written on a record by record basis. The system service performs the necessary record and block conversion (where the data sets have different record and block settings) and the necessary ASA and machine control code conversion. If one data set is defined for ASA format control characters and the other is not appropriate, conversion to normal control codes is performed using the C/C++ system library function behavior.

### **Generation data groups (GDGs)**

WebSphere MQ File Transfer Edition supports generation data groups (GDGs) for source and destination data sets on z/OS. Absolute and relative GDG names are supported. When you write to a new generation, the base GDG must already exist.

## Related reference:

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“Transferring generation data groups (GDGs)” on page 742

WebSphere MQ File Transfer Edition supports generation data groups (GDGs) for source and destination data sets on z/OS. Absolute and relative GDG names are supported. When you write to a new generation, the base GDG must exist.

“Transferring data sets to and from Connect:Direct nodes”

You can transfer data sets between WebSphere MQ File Transfer Edition agents and IBM Sterling Connect:Direct nodes using the Connect:Direct bridge. You can specify a data set as the transfer source, transfer destination, or both.

“Transferring files and data sets between z/OS and distributed systems” on page 722

You can transfer files and supported data set types between z/OS and distributed file systems by using WebSphere MQ File Transfer Edition. Review the following behavior carefully, which is dependent on the type of system you are transferring from and to.

## Transferring data sets to and from Connect:Direct nodes

You can transfer data sets between WebSphere MQ File Transfer Edition agents and IBM Sterling Connect:Direct nodes using the Connect:Direct bridge. You can specify a data set as the transfer source, transfer destination, or both.

## Specifying data set names

To specify a data set on a Connect:Direct node in a transfer request, use the syntax that is used for data set transfers between WebSphere MQ File Transfer Edition agents, but with two changes:

- You must prefix the data set name with the Connect:Direct node name and a colon (:). The syntax is as follows:

```
cdNode:data_set_name{;attrib1;...;attribN}
```

For example, to specify a partitioned data set called OBJECT.LIB on the system where the Connect:Direct node CD\_NODE1 is located, use the following syntax:

```
CD_NODE1://'OBJECT.LIB';RECFM(F,B);BLKSIZE(800);LRECL(80)
```

In the above example, three optional attributes are specified by the text RECFM(F,B);BLKSIZE(800);LRECL(80).

- The specified data set name is interpreted as a fully qualified data set name, regardless of whether it is enclosed by single quotation mark characters. The system never adds any prefix. If you want to specify a prefix, such as the user ID that the agent runs under, you must specify it as part of the data set name. This differs from the behavior for data set transfers that involve only WebSphere MQ File Transfer Edition agents, where if the specified data set name is not enclosed by single quotation mark characters, the system adds a prefix of the default high-level qualifier for the destination agent.

Except for these two changes, specify the data set name and any optional attributes using the same syntax that is used for data set transfers between WebSphere MQ File Transfer Edition agents, which has the following rules:

- You must prefix the data set name with two forward slash characters (//).
- If you want to specify data set attributes, provide these after the data set name, separated by semicolons. Attributes must be provided in the format *key(value)*, which is suitable for BPXWDYN.

For more information about specifying data sets in a transfer request, see “**fteCreateTransfer** (create new file transfer)” on page 509 and “**fteCreateTemplate** (create new file transfer template)” on page 495.

## Parameters to use in your transfer request

For most transfer requests that involve data sets on Connect:Direct nodes, you can specify the source and destination data sets in the same way as you would for a data set transfer that involves only WebSphere MQ File Transfer Edition agents. Use the **source\_specification**, **-ds**, and **-dp** parameters with the **fteCreateTransfer** or **fteCreateTemplate** commands. This syntax is supported for the following scenarios:

- All the agents involved in the transfer are v7.0.4 or later
- The source agent is the Connect:Direct bridge agent, and is therefore v7.0.4 or later, and the destination agent is v7.0.3 or earlier

If the destination agent is the Connect:Direct bridge agent, and the source agent is v7.0.3 or earlier, you must make the following changes to your transfer request:

- To specify a sequential data set or partitioned data set (PDS) member as the destination of a transfer, use the **-df** parameter.
- To specify a PDS as the destination of a transfer, use the **-dd** parameter.

You can also use this syntax as an alternative to the usual **-ds** and **-dp** parameters for transfers where the source agent is v7.0.4 or later. For example, if you want to use a consistent syntax across all your scenarios and some scenarios involve a source agent that is v7.0.3 or earlier, use the **-df** and **-dd** parameters.

**Note:** If the destination of the transfer is a PDS and the destination agent is the Connect:Direct bridge agent, you must specify the **-de** parameter with the value of **overwrite**.

## Specifying data set attributes

Certain data set attributes are set by WebSphere MQ File Transfer Edition and passed through as parameters to the Connect:Direct **COPY** process. You can also supply certain attributes in the transfer request, by specifying the appropriate BPXWDYN key. The Connect:Direct bridge converts keys that have equivalent Connect:Direct properties to the format that is required by Connect:Direct. For example, in the data set specification `CD_NODE1://'OBJECT.LIB';RECFM(F,B);BLKSIZE(800);LRECL(80)`, the attributes `RECFM(F,B);BLKSIZE(800);LRECL(80)` are converted to `DCB=(RECFM=FB,BLKSIZE=800,LRECL=80)`.

For details of the mappings between these two types of parameter, including details of the BPXWDYN keys that are supported for use with a Connect:Direct transfer, see “Mappings between Connect:Direct process statement parameters and BPXWDYN keys” on page 728. Not all BPXWDYN keys have an equivalent Connect:Direct process parameter, and not all Connect:Direct process parameters have an equivalent BPXWDYN key.

## Additional considerations

- If your transfer destination is a partitioned data set at a Connect:Direct node, you must create the partitioned data set before the transfer, because the Connect:Direct node does not create it for you.

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related tasks:

“Transferring a data set to a Connect:Direct node on z/OS” on page 274

You can transfer a data set from a WebSphere MQ File Transfer Edition agent on z/OS to a Connect:Direct node on z/OS by using a Connect:Direct bridge that is located on a Windows or Linux system.

### Related reference:

“Transferring between data sets” on page 724

You can transfer between z/OS data sets using WebSphere MQ File Transfer Edition. Review the following behavior carefully to ensure your data sets are transferred correctly.

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

“Connect:Direct file paths specified with a double forward slash” on page 434

If, as part of a file transfer, you specify a file located on a Connect:Direct node by using a file path that starts with a double forward slash (//), the file is treated as a data set.

## Mappings between Connect:Direct process statement parameters and BPXWDYN keys

When you submit a transfer request for a data set where either the source or destination is a Connect:Direct node, any supported BPXWDYN keys that you provide are converted to a format that is accepted by Connect:Direct processes.

For more information about IBM Sterling Connect:Direct process statements, see the Connect:Direct Process Language Reference Guide.

*Table 39. Parameters to the Connect:Direct COPY statement, and the equivalent BPXWDYN keys used by WebSphere MQ File Transfer Edition*

| Parameter to Connect:Direct COPY statement | BPXWDYN key                                                                                                                                                                                                                                                           |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DSN                                        | DSN (valid for transfers to and from data sets). Specifying this key overrides the parameter value that is assigned by WebSphere MQ File Transfer Edition, which is based on the source or destination file specifications that are provided in the transfer request. |
| FILE                                       | No mapping for data sets.                                                                                                                                                                                                                                             |
| PNODE                                      | No mapping. The primary node for the transfer is identified by WebSphere MQ File Transfer Edition. If you attempt to provide a value for this parameter, an error is produced.                                                                                        |
| SNODE                                      | No mapping. The secondary node for the transfer is identified by WebSphere MQ File Transfer Edition. If you attempt to provide a value for this parameter, an error is produced.                                                                                      |

Table 39. Parameters to the Connect:Direct COPY statement, and the equivalent BPXWDYN keys used by WebSphere MQ File Transfer Edition (continued)

| Parameter to Connect:Direct COPY statement | BPXWDYN key                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DCB                                        | See Mappings for subparameters of DCB                                                                                                                                                                                                                                                                                                                                                                 |
| DISP                                       | See Mappings for subparameters of DISP for a COPY From statement and Mappings for subparameters of DISP for a COPY To statement                                                                                                                                                                                                                                                                       |
| RESGDG                                     | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| LABEL                                      | See Mappings for subparameters of LABEL                                                                                                                                                                                                                                                                                                                                                               |
| MSVGP                                      | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| UNIT                                       | UNIT                                                                                                                                                                                                                                                                                                                                                                                                  |
| VOL                                        | See Mappings for subparameters of VOL                                                                                                                                                                                                                                                                                                                                                                 |
| ALIAS                                      | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| EXCLUDE                                    | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| PDS.DIR                                    | No mapping. WebSphere MQ File Transfer Edition sets the value of this process parameter to N, so no user-related information that is in the directory is sent.                                                                                                                                                                                                                                        |
| REPLACE   NOREPLACE                        | No BPXWDYN equivalent. The behavior when a destination data set already exists on the destination system is defined by the value of the <b>-de (destination_file_behavior)</b> parameter in the transfer request. For more information about the default behavior of WebSphere MQ File Transfer Edition when a destination data set already exists, see "Transferring between data sets" on page 724. |
| SELECT                                     | No BPXWDYN equivalent. The data set members that are selected for copying are defined by the source file specification in the transfer request.                                                                                                                                                                                                                                                       |
| BUFND                                      | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| IOEXIT                                     | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| DATAEXIT                                   | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| SYSOPTS                                    | See Mappings for subparameters of SYSOPTS                                                                                                                                                                                                                                                                                                                                                             |
| TYPE                                       | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| AVGREC                                     | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| DATACLAS                                   | DATACLAS                                                                                                                                                                                                                                                                                                                                                                                              |
| DSNTYPE                                    | DSNTYPE. Specifying a value of PDS for this key overrides the parameter value that is assigned by WebSphere MQ File Transfer Edition, which is LIBRARY. There are no mappings for any other value - EXTPREF, EXTREQ, BASIC, or LARGE. Specifying any of these unsupported values produces an error. Specifying PDS or LIBRARY for a sequential data set produces an error.                            |
| KEYLEN                                     | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| KEYOFF                                     | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| LIKE                                       | LIKE                                                                                                                                                                                                                                                                                                                                                                                                  |
| LRECL                                      | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |
| MGMTCLAS                                   | MGMTCLAS                                                                                                                                                                                                                                                                                                                                                                                              |
| RECORG                                     | No mapping                                                                                                                                                                                                                                                                                                                                                                                            |

Table 39. Parameters to the Connect:Direct **COPY** statement, and the equivalent **BPXWDYN** keys used by WebSphere MQ File Transfer Edition (continued)

| Parameter to Connect:Direct <b>COPY</b> statement | <b>BPXWDYN</b> key                      |
|---------------------------------------------------|-----------------------------------------|
| SECMODEL                                          | No mapping                              |
| STORCLAS                                          | STORCLAS                                |
| SPACE                                             | See Mappings for subparameters of SPACE |
| SYSOUT                                            | No mapping                              |
| CKPT                                              | No mapping                              |
| COMPRESS                                          | No mapping                              |
| SECURE                                            | No mapping                              |

Table 40. Subparameters of the **DCB** parameter for the Connect:Direct **COPY** statement, and the equivalent **BPXWDYN** keys used by WebSphere MQ File Transfer Edition

| Subparameters of the <b>DCB</b> parameter | <b>BPXWDYN</b> key |
|-------------------------------------------|--------------------|
| model-file-name                           | No mapping         |
| BLKSIZE                                   | BLKSIZE            |
| NCP                                       | BUFNO              |
| DEN                                       | No mapping         |
| DSORG                                     | DSORG              |
| KEYLEN                                    | No mapping         |
| LIMCT                                     | No mapping         |
| LRECL                                     | LRECL              |
| OPTCD                                     | No mapping         |
| RECFM                                     | RECFM              |
| RKP                                       | No mapping         |
| TRTCH                                     | TRTCH              |

Table 41. Subparameters of the **DISP** parameter for the Connect:Direct **COPY From** statement, and the equivalent **BPXWDYN** keys used by WebSphere MQ File Transfer Edition

| Subparameters of the <b>DISP</b> parameter for a <b>COPY From</b> statement | <b>BPXWDYN</b> key          | Details                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [OLD   SHR]                                                                 | [OLD   SHR]                 | Specifies the status of the data set before the transfer. WebSphere MQ File Transfer Edition sets this subparameter to <b>SHR</b> .                                                                                  |
| [KEEP   DELETE]                                                             | [KEEP   DELETE] or PATHDISP | Specifies the status of the data set after the transfer has completed successfully. The value set by WebSphere MQ File Transfer Edition depends on the source file disposition, defined by the <b>-sd</b> parameter. |
| [KEEP   DELETE]                                                             | [KEEP   DELETE] or PATHDISP | Specifies the status of the data set after the transfer has completed abnormally. WebSphere MQ File Transfer Edition sets this subparameter to <b>KEEP</b> .                                                         |

Table 42. Subparameters of the **DISP** parameter for the **Connect:Direct COPY To** statement, and the equivalent **BPXWDYN** keys used by **WebSphere MQ File Transfer Edition**

| Subparameters of the <b>DISP</b> parameter for a <b>COPY To</b> statement | <b>BPXWDYN</b> key          | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [NEW   OLD   MOD   RPL   SHR]                                             | [NEW   OLD   MOD   SHR]     | Specifies the status of the data set before the transfer. The value set by WebSphere MQ File Transfer Edition depends on the value of the <b>-de (destination_file_behavior)</b> parameter in the transfer request. If the destination data set does not already exist, the subparameter value is <b>NEW</b> . If the data set already exists, the subparameter value is <b>RPL</b> . WebSphere MQ File Transfer Edition does not support the key <b>RPL</b> being provided in a transfer request. |
| [KEEP   CATLG]                                                            | [KEEP   CATLOG] or PATHDISP | Specifies the status of the data set after the transfer has completed successfully. WebSphere MQ File Transfer Edition sets this subparameter to <b>CATLOG</b> .                                                                                                                                                                                                                                                                                                                                   |
| [KEEP   CATLG   DELETE]                                                   | [KEEP   DELETE] or PATHDISP | Specifies the status of the data set after the transfer has completed abnormally. WebSphere MQ File Transfer Edition sets this subparameter to <b>DELETE</b> .                                                                                                                                                                                                                                                                                                                                     |

Table 43. Subparameters of the **LABEL** parameter for the **Connect:Direct COPY** statement, and the equivalent **BPXWDYN** keys used by **WebSphere MQ File Transfer Edition**

| Subparameters of the <b>LABEL</b> parameter for a <b>COPY</b> statement | <b>BPXWDYN</b> key   | Details                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| file-sequence-number                                                    | SEQUENCE             |                                                                                                                                                                                                                                            |
| [SL   AL   BLP   LTM   NL]                                              | LABEL( <i>type</i> ) | The possible values of <i>type</i> are NL, SL, NSL, SUL, BLP, LTM, AL, and AUL. Connect:Direct accepts a subset of these values. If you specify a value that is not supported by Connect:Direct, Connect:Direct produces an error message. |
| [PASSWORD   NOPWREAD]                                                   | No mapping           |                                                                                                                                                                                                                                            |
| [IN   OUT]                                                              | No mapping           |                                                                                                                                                                                                                                            |
| [RETPD   EXPDT]                                                         | RETPD                | EXPDT not supported                                                                                                                                                                                                                        |

Table 44. Subparameters of the V0L parameter for the Connect:Direct COPY statement, and the equivalent BPXWDYN keys used by WebSphere MQ File Transfer Edition

| Subparameters of the V0L parameter for a COPY statement | BPXWDYN key |
|---------------------------------------------------------|-------------|
| PRIVATE                                                 | No mapping  |
| RETAIN                                                  | No mapping  |
| volume-sequence-no                                      | No mapping  |
| volume-count                                            | MAXVOL      |
| SER                                                     | VOL         |
| REF                                                     | No mapping  |

Table 45. Subparameters of the SYSOPTS parameter for the Connect:Direct COPY statement, and the equivalent BPXWDYN keys used by WebSphere MQ File Transfer Edition

| Subparameters of the SYSOPTS parameter for a COPY statement | BPXWDYN key                                                                                                                                 |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| DBCS                                                        | No mapping                                                                                                                                  |
| CODEPAGE                                                    | Value is dependent on WebSphere MQ File Transfer Edition transfer options. For more information, see "Transferring text files" on page 734. |
| DATATYPE                                                    | No mapping. WebSphere MQ File Transfer Edition sets this value to TEXT for text transfers to or from a data set, and otherwise to BINARY.   |
| XLATE                                                       | No mapping. WebSphere MQ File Transfer Edition sets this value to NO when the value of DATATYPE is TEXT.                                    |
| STRIP.BLANKS                                                | No mapping. WebSphere MQ File Transfer Edition sets this value to YES when the value of DATATYPE is TEXT.                                   |
| PERMISS                                                     | No mapping                                                                                                                                  |
| PRECOMP                                                     | No mapping                                                                                                                                  |
| UNIQUE                                                      | No mapping                                                                                                                                  |
| SYSOUT                                                      | No mapping                                                                                                                                  |

Table 46. Subparameters of the SPACE parameter for the Connect:Direct COPY statement, and the equivalent BPXWDYN keys used by WebSphere MQ File Transfer Edition

| Subparameters of the SPACE parameter for a COPY statement | BPXWDYN key            |
|-----------------------------------------------------------|------------------------|
| CYL                                                       | CYL                    |
| TRK                                                       | TRACKS                 |
| blk                                                       | BLOCKS                 |
| av-rec-len                                                | No mapping             |
| prim, [sec], [dir]                                        | SPACE(prim[,sec]), DIR |
| RLSE                                                      | RELEASE                |
| CONTIG                                                    | No mapping             |
| ROUND                                                     | No mapping             |

**Related concepts:**

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

**Related tasks:**

“Transferring a data set to a Connect:Direct node on z/OS” on page 274

You can transfer a data set from a WebSphere MQ File Transfer Edition agent on z/OS to a Connect:Direct node on z/OS by using a Connect:Direct bridge that is located on a Windows or Linux system.

**Related reference:**

“Transferring data sets to and from Connect:Direct nodes” on page 726

You can transfer data sets between WebSphere MQ File Transfer Edition agents and IBM Sterling Connect:Direct nodes using the Connect:Direct bridge. You can specify a data set as the transfer source, transfer destination, or both.

**BPXWDYN properties you must not use with WebSphere MQ File Transfer Edition**

Some BPXWDYN options must not be specified when using the `fteCreateTemplate` command, the `fteCreateTransfer` command or the `bpxwdynAllocAdditionalProperties` property in the `agent.properties` file.

There are a number of BPXWDYN options that must not be specified with WebSphere MQ File Transfer Edition because they are used by the agent or they are not supported. If you use these options they can cause unpredictable behavior; the options are listed in the following table.

| BPXWDYN options               | Description                                                                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DA DSN                        | Specifies the data set name to allocate.                                                                                                                                                                                          |
| FI DD                         | Specifies the ddname to allocate.                                                                                                                                                                                                 |
| FILEDATA                      | Specifies, to the sequential access method services, whether the data is treated as text or binary.                                                                                                                               |
| OLD SHR MOD NEW SYSOUT        | Specifies the data set status.                                                                                                                                                                                                    |
| REUSE                         | Specifies that the named data set is freed before the function is performed.                                                                                                                                                      |
| HOLD                          | Specifies that the output data set is to be held until released by the user or operator.                                                                                                                                          |
| KEEP DELETE CATALOG UNCATALOG | Specifies the data set disposition after it is freed.                                                                                                                                                                             |
| RECORG(LS)                    | Creates a VSAM linear data set.                                                                                                                                                                                                   |
| MSG                           | Directs allocation messages.<br><b>Note:</b> This option can be used, but because WebSphere MQ File Transfer Edition uses this option to direct error information to the transfer log, using it can cause unpredictable behavior. |

## Related reference:

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Transferring text files

Text file transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return-line feed) characters between systems. This topic summarizes text file transfer behavior of WebSphere MQ File Transfer Edition.

Unless you specify otherwise, conversion is from the default code page of the file's source system to the default code page of its destination system. Additionally, text file transfer performs new line conversion, which means that new line characters for the destination file are those native to its destination platform. You can override the use of the default code pages on a system by specifying the code page to use for reading the source file and writing the destination file. You can also specify the end-of-line character sequence to use for the destination file. For more information, see the topics “**fteCreateTransfer** (create new file transfer)” on page 509 and “Using transfer definition files” on page 195.

Text file transfer does not perform complex transforms or translations of the data.

Table 47. Text file transfer behavior for all platforms

| Area                                                                                                                                                                                                                                              | Default behavior                                                                                                                                                                                                                                                                        | Can you change this behavior? |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Source file encoding                                                                                                                                                                                                                              | Source platform encoding                                                                                                                                                                                                                                                                | Yes <sup>1</sup>              |
| Source file end of line character sequence                                                                                                                                                                                                        | Convert a single (LF) or (CRLF) sequence to the destination end of line character sequence                                                                                                                                                                                              | No                            |
| Destination file encoding                                                                                                                                                                                                                         | Destination platform encoding                                                                                                                                                                                                                                                           | Yes <sup>1</sup>              |
| Destination file end of line character sequence                                                                                                                                                                                                   | Destination platform EOL                                                                                                                                                                                                                                                                | Yes                           |
| Text replacement character sequence for unmappable or malformed characters in the source or destination                                                                                                                                           | Blank, meaning the transfer fails if unmappable characters or malformed characters are present. You can use the <code>textReplacementCharacterSequence</code> property to specify the replacement text, which is described in Properties files for WebSphere MQ File Transfer Edition . | Yes                           |
| <b>Key:</b>                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                         |                               |
| 1. When you specify source file encoding and the source is a data set, the encoding must be an EBCDIC code page, otherwise the transfer fails. Similarly, if the destination is a data set, the destination encoding must be an EBCDIC code page. |                                                                                                                                                                                                                                                                                         |                               |

## z/OS data sets

When data set records are accessed in text mode, each record represents a single line. New line characters do not exist in the record but for ASA format data sets an ASA format control code character is set that represents a new line (or other control character). When a line of text with a terminating new line character is written to a record, the new line character is either automatically removed or an appropriate ASA control code is set, as appropriate. When a record is read a new line character is automatically appended to the return data. For ASA format data sets this character can be multiple new lines or a form feed, as appropriate for the ASA control code of the record.

Additionally, for fixed-format data sets when a record is read the new line is appended after the last character in the record that is not a space character, thus making fixed-format data sets suitable for storing text.

*Table 48. Additional text file transfer behavior specific to z/OS*

| Area                   | Default behavior                                                      | Can you change this behavior? |
|------------------------|-----------------------------------------------------------------------|-------------------------------|
| Maximum line length    | Destination data set LRECL or BLKSIZE setting, as appropriate         | No                            |
| Wrap over length lines | Wrap. The line is split over multiple records and blocks as required. | No                            |

When the WebSphere MQ File Transfer Edition agent is run, the environment variable `_EDC_ZERO_RECLLEN` is always set to "Y". This setting makes WebSphere MQ File Transfer Edition text transfer behavior the same as FTP for variable and fixed block data sets. However, for undefined format data sets, WebSphere MQ File Transfer Edition converts single space lines to an empty line and preserves empty lines. FTP converts empty lines to single space lines and preserves single space lines. Table 3 describes the WebSphere MQ File Transfer Edition behavior and how FTP behavior differs.

The format of the data set also determines how each line of text is written to a record. For non-ASA format data sets newline and carriage-return characters are not written to the record. For ASA format data sets, the first byte of each record is an ASA control code representing end of lines, a form feed, and other codes, as appropriate. Because ASA control codes are at the start of each record, if the source text file does not start with a new line character sequence, a blank ( ' ') ASA control character sequence (which equates to a newline) is inserted. This means that if the ASA data set is transferred to a file, a blank line is present at the start of the file.

*Table 49. The WebSphere MQ File Transfer Edition behavior for data sets*

| Data set format | Original text line in file | Data set record     | Read of data set record | FTP Read behavior |
|-----------------|----------------------------|---------------------|-------------------------|-------------------|
| Fixed block     | Empty line                 | Space filled record | Empty line              | Same as WMQFTE    |
| Fixed block     | Single space               | Space filled record | Empty line              | Same as WMQFTE    |
| Variable block  | Empty line                 | Empty record        | Empty line              | Same as WMQFTE    |
| Variable block  | Single space               | Single space record | Single space            | Same as WMQFTE    |
| Undefined       | Empty line                 | Single space record | Empty line              | Single space      |
| Undefined       | Single space               | Single space record | Empty line              | Single space      |

**Related reference:**

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“Transferring text files between Connect:Direct and WebSphere MQ File Transfer Edition”

Text transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return line feed) characters between systems. This topic summarizes text file transfer behavior in transfers between a WMQFTE agent and a Connect:Direct node.

“Available code pages” on page 769

This reference topic lists all character encoding formats available for text file conversion on the various platforms supported by WebSphere MQ File Transfer Edition.

**Transferring text files between Connect:Direct and WebSphere MQ File Transfer Edition**

Text transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return line feed) characters between systems. This topic summarizes text file transfer behavior in transfers between a WMQFTE agent and a Connect:Direct node.

For information about the behavior of text transfers in WebSphere MQ File Transfer Edition, see

“Transferring text files” on page 734.

- Ensure that the network map of the Connect:Direct bridge node and any Connect:Direct nodes that are used as a transfer destination include the correct platform description.
  - If your Connect:Direct bridge node is on a Windows system, ensure that for each remote node in your network map you select the correct value from the **Operating System** list.
    - If the remote node is on a Windows system, select Windows.
    - If the remote node is on a UNIX or Linux system, select UNIX.
    - If the remote node is on a z/OS system, select OS/390.

Transfers to remote nodes on other operating systems are not supported by the Connect:Direct bridge.

- Ensure that for each remote node you transfer a file to or from, you specify the operating system type of the remote Connect:Direct node in the `ConnectDirectNodeProperties.xml` file in the Connect:Direct bridge agent configuration directory. For more information, see “Configure the `ConnectDirectNodeProperties.xml` file to include information about the remote Connect:Direct nodes” on page 177 and “Connect:Direct node properties file format” on page 637.

Connect:Direct uses the network map information to determine which line ending to use.

- If the destination of a transfer is a WMQFTE agent, this WMQFTE agent performs the line ending conversion.
- If the destination of a transfer is a Connect:Direct node, the Connect:Direct bridge agent performs the line ending conversion.

**Related reference:**

“Transferring text files” on page 734

Text file transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return-line feed) characters between systems. This topic summarizes text file transfer behavior of WebSphere MQ File Transfer Edition.

“What to do if text transfers to or from Connect:Direct nodes are not converting the data correctly” on page 433

When you transfer files in text mode between a WMQFTE agent and a Connect:Direct node, code page and end-of-line character conversion is performed. The transfer uses the operating system information in the network map of the Connect:Direct bridge node to determine the end-of-line characters of a remote node. If the information in the network map is incorrect, the end-of-line character conversion might be performed incorrectly.

**Transferring files to or from protocol bridge agents**

You can transfer files to and from an FTP or SFTP file server outside your WebSphere MQ File Transfer Edition network using a protocol bridge agent.

When you transfer files using the protocol bridge, the bridge must have permission to read the source or destination directory containing the files you want to transfer. For example, if you want to transfer files from the directory `/home/fte/bridge` that has only execute permissions (`d-x-x-x`), any transfers you attempt from this directory fail with the following error message:

```
BFGBR0032E: Attempt to read filename from the protocol file server has failed with server error 550  
Failed to open file.
```

During file transfer, files are typically written as temporary files at the destination and are then renamed when the transfer is complete. However, if the transfer destination is a protocol file server that is configured as limited write (users can upload files to the protocol file server but cannot change those uploaded files in any way; effectively users can write once only), transferred files are written to the destination directly. This means that if a problem occurs during the transfer, the partially-written files remain on the destination protocol file server and WebSphere MQ File Transfer Edition cannot delete or edit these files. In this situation the transfer fails.

Ensure that you have another agent in your WebSphere MQ File Transfer Edition network in addition to the protocol bridge agent. The protocol bridge agent is a bridge to the FTP or SFTP server only and does not write transferred files to the local disk. If you want to transfer files to or from the FTP or SFTP server you must use the protocol bridge agent as the destination or source for the file transfer (representing the FTP or SFTP server) and another standard agent as the corresponding source or destination.

**Related concepts:**

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

**Related reference:**

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

**Transferring files to or from IBM i systems**

If you transfer files to or from IBM i systems using WebSphere MQ File Transfer Edition in text mode and you want to convert the data in the files, consider the information in this topic.

Each file on an IBM i system is tagged with a coded character set ID (CCSID) value that identifies the data encoding of the file. For example, a file containing EBCDIC data might have a CCSID value of 037 and a file containing ASCII data might have a CCSID value of 819.

For text mode transfers, WebSphere MQ File Transfer Edition converts data when there are file encoding differences between source and destination files. However, WebSphere MQ File Transfer Edition currently ignores CCSID tags associated with files on IBM i systems. Instead, it uses the JVM file encoding property of the JVMs running the source agent and destination agent. The default value of this property is based on locale (but you can override this default on your IBM i system using the `SystemDefault.properties` file described in the following section: "Changing the file.encoding record in the `SystemDefault.properties` file"). With this default implementation, an agent that transfers files in text mode is limited in its ability to handle text files with different file encodings. For example, you cannot use the same agent to transfer files containing EBCDIC text and also files containing ASCII text without stopping and restarting the agent with the appropriate (that is, EBCDIC or ASCII) file encoding override in place. On IBM i V6R1 systems, you can check the file encoding value of the JVM that is running the agent job by using `WRKJVMJOB`, option 7 to Display Current Java System Properties. (The `WRKJVMJOB` command does not exist on IBM i V5R4 systems.)

If you plan to use WebSphere MQ File Transfer Edition to transfer text files with different file encodings, consider creating multiple agents and multiple users who start those agents, so that each unique encoding has an agent that is ready and enabled to transfer that type of data.

For example, if you want to transfer a file containing EBCDIC text with CCSID value of 037 from an IBM i system (source) to another IBM i V6R1 system (destination) where you want the file content at the destination to be converted to ASCII text with CCSID value of 819, complete the following steps:

1. Select a source agent with a JVM file encoding of Cp037.
2. Select a destination agent with a JVM file encoding of ISO8859\_1.
3. Select text mode transfer, and other specifications as needed.

### Changing the file.encoding record in the SystemDefault.properties file

To enable a JVM running an agent for a particular encoding, complete the following steps:

1. Determine which user starts the agent that runs on the IBM i system. This is the agent that services the WebSphere MQ File Transfer Edition file transfer request.

Create a `SystemDefault.properties` file in the home directory of that user as needed. For example, if you start the agent, use Qshell to run the following command:

```
touch -C 819 /home/your_userID/SystemDefault.properties
```

2. Using Qshell, run the `/QIBM/ProdData/WMQFTE/V7/bin/fteStopAgent` command to stop the agent as needed.
3. Update the `SystemDefault.properties` file that is described in step 1 to ensure that the file contains a record like the following:

```
file.encoding=java_encoding
```

where *java\_encoding* corresponds to the type of data that is contained in the file, and matches a file.encoding value from the following table: File.encoding values and System i5® CCSID.

4. The user identified in step 1 must complete the following steps:
  - a. On IBM i V5R4 only: add the `QIBM_PASE_DESCRIPTOR_STDIO` environment variable (\*JOB scope) to 'B' if using EBCDIC file encoding, or 'T' if using ASCII encoding. For example:

```
ADDENVVAR ENVVAR('QIBM_PASE_DESCRIPTOR_STDIO') VALUE('B') REPLACE(*YES)
```
  - b. If Qshell is active, press **F3=Exit** to end Qshell.
  - c. Start Qshell and run the `/QIBM/ProdData/WMQFTE/V7/bin/fteStartAgent` command as appropriate to restart the agent.

When the file encoding of the JVM running the agent has been changed, the agent log is written with that encoding. If you want to read the contents of the agent log, you must use a viewer that is enabled for that encoding.

## Using a transfer definition for data conversion

An alternative way to convert data when files are being transferred is to create a transfer definition that specifies file encoding, or to use the **-sce** and **-dce** parameters of the **fteCreateTransfer** command. If you use these parameters when the destination is an IBM i system, this can result in files that have incorrect CCSID tags. For this reason, the recommended approach for controlling data conversion with files that are located on IBM i systems is to use `SystemDefault.properties` as described in the preceding section.

## Protocol bridge limitation

On IBM i, you cannot transfer EBCDIC files to or from an SFTP server using a protocol bridge agent.

### Related tasks:

“Installing WebSphere MQ File Transfer Edition on IBM i systems” on page 62

You can install WebSphere MQ File Transfer Edition Server or Client on IBM i systems using the console or silent installer. The graphical installer is not supported on IBM i systems.

### Related reference:

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“Transferring save files that are located in the QSYS.LIB file system on IBM i systems” on page 741

WebSphere MQ File Transfer Edition supports the transfer of save files located in the QSYS.LIB file system between two IBM i systems. Consider the following information when requesting file transfers of save files.

## Transferring physical file members that reside in the QSYS.LIB file system on IBM i systems

WebSphere MQ File Transfer Edition supports the transfer of physical file members in the QSYS.LIB file system between two IBM i systems. Consider the following information when you request file transfers of physical file members.

A physical file member on IBM i is located in a physical file, which in turn is located in a library on IBM i. A library can be one of the standard libraries that ship with the operating system (for example, QSYS or QGPL) or it can be a library that you have created.

Physical files in the QSYS.LIB file system are identified in two different ways on IBM i. When you run CL commands on an IBM i command line, use the following naming syntax:

```
FILE(library name/file name) MBR(member name)
```

For example, a physical file member that is called MYMBR is in a file that called MYFILE in a library that is called SOMELIB is identified as `FILE(SOMELIB/MYFILE) MBR(MYMBR)`. You can also identify the same physical file member by specifying a UNIX-like path name that follows the Integrated File System (IFS) naming convention. Using the IFS naming convention, MYMBR in MYFILE in SOMELIB has the following path name:

```
/QSYS.LIB/SOMELIB.LIB/MYFILE.FILE/MYMBR.MBR
```

For more information, see `Path names in the QSYS.LIB file system`.

WebSphere MQ File Transfer Edition on IBM i recognizes the IFS naming convention but does not support the syntax used by CL commands. The following examples illustrate valid and invalid path names for WMQFTE. The following example is a valid path name for a physical file member:

```
/QSYS.LIB/SOMELIB.LIB/MYFILE.FILE/MYMBR.MBR
```

This example assumes MYFILE is a physical file in the library SOMELIB and contains a member that is called MYMBR.

The following examples are invalid path names for physical file member transfers:

- /QSYS.LIB/SOMELIB.LIB/MYFILE.FILE (.FILE assumes a SAVF, not a physical file. If MYFILE is a physical file, the transfer fails with an invalid file type error)
- /QSYS.LIB/MYLIB.LIB/ (physical file and member names are required)
- /QSYS.LIB/SOMELIB.LIB/MYFILE.FILE/MYMBR (the member name must contain an extension of .MBR)
- /QSYS.LIB/SOMELIB.LIB/MYFILE/MYMBR.MBR (the physical file name extension must be .FILE)

## Transferring multiple physical file members from a physical file in a single transfer request

WebSphere MQ File Transfer Edition on IBM i supports the transfer of multiple physical file members from a single physical file as a single transfer request. You can specify an appropriate path name that includes wildcard characters as shown in the following examples:

- ABCLIB contains a physical file MYFILE with multiple members. To transfer all these members in a single request, specify the following path name: /QSYS.LIB/ABCLIB.LIB/MYFILE.FILE/\*.MBR
- XYZLIB contains a physical file MYFILE whose member names differ by a single character, that is: TEST1.MBR, TEST2.MBR, TEST3.MBR, and so on. To transfer all these members in a single request, specify the following path name: /QSYS.LIB/XYZLIB.LIB/MYFILE.FILE/TEST?.MBR.

The following types of transfer requests are not supported for transferring multiple physical file members and result in an error:

- /QSYS.LIB/MYLIB.LIB/\*.\*
- /QSYS.LIB/MYLIB.LIB/\*
- /QSYS.LIB/MYLIB.LIB/\*.FILE/MYMBR.MBR
- /QSYS.LIB/MYLIB.LIB/MYFILE\*.FILE/\*.MBR (there is no support for wildcarding on file names, only on member names)
- /QSYS.LIB/MYLIB.LIB/\*.FILE/\*.MBR
- /QSYS.LIB/MYLIB.LIB/MYFILE.FILE (.FILE assumes a SAVF not a physical file, so if MYFILE is a physical file, the transfer fails with invalid file type error)

## Transferring physical file members to and from non-IBM i systems

WMQFTE supports the transfer of physical file members to and from non-IBM i systems, such as Windows, Linux, and UNIX. All transfers must be done in text mode. The following examples illustrate some of the supported **fteCreateTransfer** requests when working with non-IBM i systems:

- This command transfers physical file member FILE(FROMIBMI/FILE1) MBR(FILE1) on IBM i to text file /home/qfte/fromibmi/linux.mbr.txt on Linux:

```
fteCreateTransfer -da linux -dm QM1 -sa ibmi -sm QM1 -t text -df /home/qfte/fromibmi/linux.mbr.txt /qsys.lib/fromibmi.lib
```

- This command transfers physical file member FILE(FROMIBMI/FILE1) MBR(FILE1) on IBM i to text file C:\FTE\fromibmi\windows.mbr.txt on Windows:

```
fteCreateTransfer -da windows -dm QM1 -sa ibmi -sm QM1 -t text -df C:\FTE\fromibmi\windows.mbr.txt /qsys.lib/fromibmi.lib
```

•

This command transfers text file C:\FTE\toibmi\file.txt on Windows to physical file member FILE(TOIBMI/EXISTS) MBR(WINDOWS) on IBM i:

```
fteCreateTransfer -da ibmi -dm QM1 -sa windows -sm QM1 -t text -df /qsys.lib/toibmi.lib/exists.file/windows.mbr C:\FTE\to
```

The following commands are examples of invalid physical file member transfers with non-IBM i systems:

- This command fails because the source file on Windows has a .txt file extension but a destination directory of .file has been specified. When transferring using the destination directory parameter to specify a destination physical file, the source file extension must be .mbr file, for example,

```
C:\FTE\toibmi\file.mbr
```

```
fteCreateTransfer -da ibmi -dm QM1 -sa windows -sm QM1 -t text -dd /qsys.lib/toibmi.lib/windows.file C:\FTE\toibmi\fil
```

- The default transfer mode is binary and text mode must be specified when transferring physical file members.

```
fteCreateTransfer -da windows -dm QM1 -sa ibmi -sm QM1 -df C:\FTE\fromibmi\file.bin /qsys.lib/fromibmi.lib/file1.file/
```

WMQFTE supports the transfer of physical file members that are in the QSYS.LIB file system but does not support the transfer of source physical file members that are in the QSYS.LIB file system. File transfers in the QDLS file system are supported using the provided sample user exits. For more information and restrictions on physical file member transfers and QDLS support, see “What’s new in Version 7.0.4.3?” on page 17

#### Related reference:

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“Transferring files to or from IBM i systems” on page 737

If you transfer files to or from IBM i systems using WebSphere MQ File Transfer Edition in text mode and you want to convert the data in the files, consider the information in this topic.

### Transferring save files that are located in the QSYS.LIB file system on IBM i systems

WebSphere MQ File Transfer Edition supports the transfer of save files located in the QSYS.LIB file system between two IBM i systems. Consider the following information when requesting file transfers of save files.

A save file on IBM i is located in a library on IBM i. A library can be one of the standard libraries that ship with the operating system for example QSYS or QGPL or it can be a library that is created by the user. Save files in the QSYS.LIB file system are identified in two different ways on IBM i. When working with CL commands on an IBM i command line, the naming syntax used is as follows:

```
FILE(library name/file name)
```

For example, a save file called MYSAVF is located in a library called SOMELIB is identified as FILE(SOMELIB/MYSAVF).

You can also identify the same save file by specifying a UNIX-like path name that follows the Integrated File System (IFS) naming convention. See Path names in the QSYS.LIB file system for more information. Using the IFS naming convention, MYSAVF in SOMELIB has the following path name:

```
/QSYS.LIB/SOMELIB.LIB/MYSAVF.FILE
```

WebSphere MQ File Transfer Edition on IBM i recognizes the IFS naming convention but does not support the syntax used by CL commands. The following examples illustrate valid and invalid path names for WebSphere MQ File Transfer Edition.

Some examples of valid path names for save file transfers are as follows:

- /QSYS.LIB/SOMELIB.LIB/MYSAVF.FILE (assuming MYSAVF save file is located in the library SOMELIB)
- /QSYS.LIB/MYSAVF.FILE (assuming MYSAVF is located in the library QSYS)

Some examples of invalid path names for save file transfers are as follows:

- SOMELIB.LIB/MYSAVF.FILE (Path name must start with /QSYS.LIB)
- /QSYS.LIB/MYLIB.LIB (Path must end in a save file name, not a library name)

- /QSYS.LIB/MYLIB.LIB/ (Save file name is required)
- /QSYS.LIB/SOMELIB.LIB/MYSAVF (Save file name must have a .FILE extension in name)
- /QSYS.LIB/SOMELIB.LIB/MYSAVF.SAVF (Save file name extension must be .FILE)

## Transferring multiple save files from a library in a single transfer request

WebSphere MQ File Transfer Edition on IBM i supports the transfer of multiple save files from a library as a single transfer request. You can specify an appropriate path name that includes wildcard characters as shown in the following examples:

- ABCLIB contains many save files. To transfer all these files in a single request, specify the following path name:  
/QSYS.LIB/ABCLIB.LIB/\*.FILE
- XYZLIB contains several save files whose names differ by a single character, that is: TEST1.FILE, TEST2.FILE, TEST3.FILE, and so on. To transfer all of these files in a single request, specify the following path name:  
/QSYS.LIB/XYZLIB.LIB/TEST?.FILE

The following types of transfer requests are not supported for transferring multiple save files and result in an error:

- /QSYS.LIB/MYLIB.LIB/\*.\*
- /QSYS.LIB/MYLIB.LIB/\*

WebSphere MQ File Transfer Edition supports the transfer of save files that are located in the QSYS.LIB file system but the transfer of other types of files that are located in the QSYS.LIB file system is not supported. However, WebSphere MQ File Transfer Edition provides samples that use the save file support and use predefined fteAnt tasks to demonstrate how a complete library, a source physical file, or database file can be transferred between two IBM i systems. See Getting started using Ant scripts with WebSphere MQ File Transfer Edition for details on how to customize and use these samples.

### Related reference:

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“Transferring files to or from IBM i systems” on page 737

If you transfer files to or from IBM i systems using WebSphere MQ File Transfer Edition in text mode and you want to convert the data in the files, consider the information in this topic.

## Transferring generation data groups (GDGs)

WebSphere MQ File Transfer Edition supports generation data groups (GDGs) for source and destination data sets on z/OS. Absolute and relative GDG names are supported. When you write to a new generation, the base GDG must exist.

**Note:** When creating a GDG entry in a batch environment using BASEGDG(+*n*), it cannot be referred to later in the same job by using the same positive generation number. Maintaining the same GDG entry numbers between steps of a job is a function of JCL and is not available to utility functions that update the GDG by using dynamic allocation. Therefore, a job that creates a new generation using BASEGDG(+1) would find the GDG updated as soon as the transfer successfully completes and would then need to refer to the same dataset as BASEGDG(0).

The following are examples of the **fteCreateTransfer** command using GDGs. In the examples, the name BASEGDG refers to an existing base GDG name. The name DSET refers to a sequential data set that is to be created. The name /u/user/file.dat refers to the name of a source data file.

This command copies file.dat into a new generation in BASEGDG. The absolute name of the new generation is reported in the transfer log:

```
fteCreateTransfer -sa A1 -da A2 -ds "//BASEGDG(+1)" /u/user/file.dat
```

This command copies file.dat into the generation with the absolute name specified in BASEGDG:

```
fteCreateTransfer -sa A1 -da A2 -ds "//BASEGDG.G0009V00" /u/user/file.dat
```

This command copies the most recent generation in BASEGDG to DSET. The absolute name of the generation is reported in the transfer log:

```
fteCreateTransfer -sa A1 -da A2 -ds "//DSET" "//BASEGDG(0)"
```

This command copies the next most recent generation in BASEGDG to DSET. The absolute name of the generation is reported in the transfer log:

```
fteCreateTransfer -sa A1 -da A2 -ds "//DSET" "//BASEGDG(-1)"
```

#### **Related reference:**

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

“Transferring between data sets” on page 724

You can transfer between z/OS data sets using WebSphere MQ File Transfer Edition. Review the following behavior carefully to ensure your data sets are transferred correctly.

## **Using wildcard characters**

You can use wildcard characters when you specify source file names and source file paths for file transfers. This allows you to select multiple files simultaneously.

## **Distributed platforms**

You can use the following wildcard characters on distributed platforms:

? Use the question mark (?) to represent exactly one character. All of the other characters specified are required in matching file names.

For example, ab?d.jpg matches the files abcd.jpg, abed.jpg, and abfd.jpg.

\* Use the asterisk character (\*) to represent zero or more characters.

For example \*.txt matches the files abc.txt and x.txt.

The pattern \*.txt matches the files abc.txt, x.txt, and newtxt because the period (.) in the file names is a required character.

You must enclose the asterisk character (\*) in double quotation marks. If you do not, the character will be interpreted by the command shell and might cause the command to fail.

If the operating system is case-insensitive for file and path names, for example Windows, the pattern match is case-insensitive. You can use wildcard characters to specify file names only: you cannot use wildcards in directory names.

## **Protocol bridge agent**

If you are using a protocol bridge agent to transfer files from an FTP, FTPS or SFTP file server, wildcard matching is case sensitive, regardless of the platform that the file server is actually running on.

## Connect:Direct bridge

When the source of a transfer is a Connect:Direct bridge agent that is requesting files from a Connect:Direct node, wildcards are not supported.

## IBM i

You can use the following wildcard characters on IBM i platforms:

? Use the question mark (?) to represent exactly one character. All of the other characters specified are required in matching file names.

For example, ab?d.jpg matches the files abcd.jpg, abed.jpg, and abfd.jpg.

\* Use the asterisk character (\*) to represent zero or more characters.

For example \*.txt matches the files abc.txt and x.txt.

The pattern \*.txt matches the files abc.txt, x.txt, and newtxt because the period (.) in the pattern is a required character.

For additional considerations regarding the use of wildcard characters with save file transfers, see *Transferring save files that reside in QSYS.LIB file system on IBM i systems.*

## z/OS

For z/OS systems the wildcard character rules for WebSphere MQ File Transfer Edition follow the standard ISPF wildcard conventions in general. There are specific rules for both sequential and partitioned data sets as follows:

### Sequential data sets

When you reference sequential data sets, you can use data set name qualifiers containing asterisks (\*) and percent signs (%) as follows:

\* Use a single asterisk (\*) to represent at least one qualifier. A single asterisk within a qualifier represents zero or more characters.

\*\* Use double asterisks (\*\*) to represent zero or more qualifiers. You cannot use a double asterisk within a qualifier.

% Use a single percent sign (%) to represent one single alphanumeric or national language character.

%% Use between one and eight percent signs to represent zero or more characters.

### Partitioned data sets

When you reference partitioned data sets, you can specify wildcard characters for the member names only. You can use data set name qualifiers containing asterisks (\*), underscores (\_), and question marks (?) as follows:

\* Use the asterisk (\*) character to represent zero or more characters.

\_ Use the underscore (\_) character to represent exactly one character.

? Use the question mark (?) character to represent exactly one character. The question mark is an alternative to the underscore character and is provided as an addition to ISPF conventions.

## Directories

By default if you create a file transfer with a wildcard pattern that matches subdirectories, the subdirectories are not transferred. You can specify the **-r** parameter on the `fteCreateTransfer` command to

include subdirectories that match the wildcard pattern. When you transfer a subdirectory, the entire contents and structure of the subdirectory are transferred: including all of its files, subdirectories, and hidden files.

For example, if you have a directory called `abc`, there is a difference in behavior between specifying a source file path of `/opt/abc` and `/opt/abc/*`. In the case of `/opt/abc` because the directory is transferred, a directory called `abc` is created at the destination and all of the file contents are transferred. In the case of `/opt/abc/*`, the contents of `abc` are transferred into the destination path.

### **Hidden files**

Wildcards do not match hidden files except on UNIX-type platforms when the wildcard pattern starts with a dot character (`.`). For example: `/opt/*.*` transfers all hidden files in the `opt` directory.

On Windows if you want to transfer a hidden file, either specify the file name exactly or transfer the directory containing the hidden file.

### **Symbolic links**

Symbolic links are a type of file that contain a pointer to another file or directory and are known as shortcuts on Windows. You can match symbolic link files with wildcard characters. However, when a destination file is created from a source that is a symbolic link, the destination file becomes a hard link (that is, a regular file). You cannot successfully transfer symbolic links to directories because this could potentially create a recursive path.

### **Transferring files with wildcard characters in their file names**

You can transfer a file if the file name itself contains a wildcard character. If you specify that file name exactly, only that file is transferred, and not the set of files that match the wildcard.

For example, if you have a file called `/opt/abc*.txt` and you create a file transfer for `/opt/abc*.txt`, the only file transferred is `/opt/abc*.txt`. But if you create a file transfer for `/opt/ab*.txt`, all files matching the pattern `/opt/ab*.txt` are transferred, including the file `/opt/abc*.txt`.

### **Transferring directory paths that contain wildcard characters**

Enclose any directory path that includes a wildcard character in quotation marks (`" "`) or single quotation marks (`' '`) to avoid shell expansion. Shell expansion happens when the operating system expands the wildcard character before the character is passed to the WebSphere MQ File Transfer Edition command and this might cause unexpected behavior.

**Related reference:**

“Guidelines for transferring files” on page 721

Depending on the operating system you are transferring from and to and whether you are transferring in binary or text mode, there are guidelines on what behavior to expect.

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Regular expressions used by WebSphere MQ File Transfer Edition

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

For more information about Java regular expressions, see the Java tutorial Regular Expressions.

### Examples

To match all patterns, use the following regular expression:

```
.*
```

To match all patterns that begin with the string `fte`, use the following regular expression:

```
fte.*
```

To match all patterns that begin with the string `accounts` followed by a single digit, and end with `.txt`, use the following regular expression:

```
accounts[0-9]\.txt
```

## Substitution variables for use with user-defined Connect:Direct processes

You can define values to substitute in to user-defined Connect:Direct processes by using intrinsic symbolic variables that are specific to WebSphere MQ File Transfer Edition.

To follow the Connect:Direct naming convention, all intrinsic symbolic variables used by WebSphere MQ File Transfer Edition have the format `%FTE` followed by five uppercase alphanumeric characters. For more information about intrinsic symbolic variables, see the Connect:Direct product documentation.

When creating a process to transfer files from a Connect:Direct node to the Connect:Direct bridge system, you must use the intrinsic variable `%FTETFILE` as the value of `TO FILE` in the Connect:Direct process. When creating a process to transfer files to a Connect:Direct node from the Connect:Direct bridge system, you must use the intrinsic variable `%FTEFFILE` as the value of `FROM FILE` in the Connect:Direct process. These variables contain the temporary file paths that the Connect:Direct bridge agent uses for transfers into and out of the WebSphere MQ File Transfer Edition network.

Table 50. Intrinsic symbolic variables used by WebSphere MQ File Transfer Edition and Connect:Direct

| Variable name | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| %FTESAGNT     | The name of the WebSphere MQ File Transfer Edition source agent. This variable is set only for transfers from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| %FTEDAGNT     | The name of the WebSphere MQ File Transfer Edition destination agent. This variable is set only for transfers from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| %FTEPNODE     | The Connect:Direct primary node name. The value is always the name of the Connect:Direct node that is part of the Connect:Direct bridge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| %FTEPPLAT     | The platform that the Connect:Direct primary node runs on. Possible values for this variable are UNIX and WINDOWS. This information is provided by the Connect:Direct bridge agent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| %FTEPUSER     | The Connect:Direct primary node user identifier to use in the Connect:Direct process. This information is taken from the ConnectDirectCredentials.xml file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| %FTEPPASS     | The password to use with the user name defined by the %FTEPUSER variable. This information is taken from the ConnectDirectCredentials.xml file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| %FTESNODE     | The Connect:Direct secondary node name. The value is always the name of the Connect:Direct node that the file is transferred to or from.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| %FTESPLAT     | The platform that the Connect:Direct secondary node runs on. Possible values for this variable are UNIX, WINDOWS, and ZOS. This information is taken from the ConnectDirectNodeProperties.xml file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| %FTESUSER     | The Connect:Direct secondary node user identifier to use in the Connect:Direct process. This information is taken from the ConnectDirectCredentials.xml file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| %FTESPASS     | The password to use with the user name defined by the %FTESUSER variable. This information is taken from the ConnectDirectCredentials.xml file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| %FTEFFILE     | <p>The source file name. This variable is set only for Connect:Direct processes that are submitted at a per-file scope.</p> <p>When transferring files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, the value is the fully qualified location of the file on the same system as the Connect:Direct bridge.</p> <p>When transferring files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent, the value is the name of the file that is specified as the source file in the WebSphere MQ File Transfer Edition transfer request.</p>                                                                                                                                                 |
| %FTEFDISP     | <p>The disposition of the source file when the process is complete. The value of this variable is platform dependent and equivalent to the values for WMQFTE transfer request. This variable is set only for Connect:Direct processes that are submitted at a per-file scope.</p> <p>When transferring files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, the action of deleting or not deleting the source file is performed by the WebSphere MQ File Transfer Edition bridge agent.</p> <p>When transferring files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent, the action of deleting or not deleting the source file must be performed by the Connect:Direct process.</p> |

Table 50. Intrinsic symbolic variables used by WebSphere MQ File Transfer Edition and Connect:Direct (continued)

| Variable name | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| %FTEFCP       | <p>The code page to use for the source file. This variable is set only for Connect:Direct processes that are submitted at a per-file scope.</p> <p>When transferring files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, this value is UTF-8 or, if the transfer is a binary transfer, the value is not set.</p> <p>When transferring files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent, this value is specified by Connect:Direct or, if the transfer is a binary transfer, the value is not set.</p>                                                                                                                                                           |
| %FTEFSYSO     | <p>The Connect:Direct SYSOPTS for the source of the transfer. If the remote Connect:Direct node is on Linux, UNIX, or Windows, this value contains information about the code page and data type of the source of the transfer. If the remote node is on z/OS, this value contains additional information.</p>                                                                                                                                                                                                                                                                                                                                                                                                            |
| %FTEFNODE     | <p>Identifies the Connect:Direct node where the source file resides. This will be set to a value of either: PNODE or SNODE.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| %FTETFILE     | <p>The destination file name. This variable is set only for Connect:Direct processes that are submitted at a per-file scope.</p> <p>When transferring files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, the value is the name of the file that is specified as the destination file in the WebSphere MQ File Transfer Edition transfer request.</p> <p>When transferring files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent, the value is the fully qualified name of the location to write the file to on the same system as the Connect:Direct bridge.</p>                                                                                                    |
| %FTETDISP     | <p>The disposition of the destination file. The value of this variable is platform dependent and equivalent to the values for WMQFTE transfer request. This variable is set only for Connect:Direct processes that are submitted at a per-file scope.</p> <p>When transferring files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, the action of creating a file or replacing an existing file must be performed by the Connect:Direct process.</p> <p>When transferring files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent, the action of creating a file or replacing an existing file is performed by the WebSphere MQ File Transfer Edition bridge agent.</p> |
| %FTETCP       | <p>The code page to use for the destination file. This variable is set only for Connect:Direct processes that are submitted at a per-file scope.</p> <p>When transferring files from a WebSphere MQ File Transfer Edition agent to a Connect:Direct node, this value is specified by Connect:Direct or, if the transfer is a binary transfer, the value is not set.</p> <p>When transferring files from a Connect:Direct node to a WebSphere MQ File Transfer Edition agent, this value is UTF-8 or, if the transfer is a binary transfer, the value is not set.</p>                                                                                                                                                      |
| %FTETSYSO     | <p>The Connect:Direct SYSOPTS for the destination of the transfer. If the remote Connect:Direct node is on Linux, UNIX, or Windows, this value contains information about the code page and data type of the destination of the transfer. If the remote node is on z/OS, this value contains additional information.</p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| %FTETNODE     | <p>Identifies the Connect:Direct node where the destination file is to reside. This will be set to a value of either: PNODE or SNODE.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Table 50. Intrinsic symbolic variables used by WebSphere MQ File Transfer Edition and Connect:Direct (continued)

| Variable name          | Description                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| %FTEDTYPE              | The data type or mode of the transfer. Possible values for this variable are text or binary. This variable is set only for Connect:Direct processes that are submitted at a per-file scope.                                                                                                                                                                                      |
| %FTETRID               | The 48-character hexadecimal transfer ID from the WebSphere MQ File Transfer Edition transfer.                                                                                                                                                                                                                                                                                   |
| %FTEJOB                | The job name from the WebSphere MQ File Transfer Edition transfer request. The value of this variable is truncated to 256 characters and can be used in the process accounting data.                                                                                                                                                                                             |
| %FTEPNAME              | The Connect:Direct process name generated by the WebSphere MQ File Transfer Edition bridge agent. The value of this variable is 8 alphanumeric characters. The value always starts with an alphabetic character.                                                                                                                                                                 |
| %FTEMETA( <i>key</i> ) | A metadata from the WebSphere MQ File Transfer Edition transfer request. The value of <i>key</i> is the key of the metadata. The value of <i>key</i> is not case sensitive. A key of ABC is the treated the same as a key of abc. If both ABC and abc are defined as metadata keys, the value of the second metadata defined overwrites the value of the first metadata defined. |

The following table contains information about additional intrinsic symbolic variables that are used when the remote Connect:Direct node in the transfer is on a z/OS platform.

Table 51.

| Variable name | Description                                                             |
|---------------|-------------------------------------------------------------------------|
| %FTEFDCB      | The value of the DCB parameter at the source of the transfer.           |
| %FTEFSPACE    | The value of the SPACE parameter at the source of the transfer.         |
| %FTEFLBEL     | The value of the LABEL parameter at the source of the transfer.         |
| %FTEFUNIT     | The value of the UNIT parameter at the source of the transfer.          |
| %FTEFVOL      | The value of the VOL parameter at the source of the transfer.           |
| %FTEFDACL     | The value of the DATACLAS parameter at the source of the transfer.      |
| %FTETDCB      | The value of the DCB parameter at the destination of the transfer.      |
| %FTETSPACE    | The value of the SPACE parameter at the destination of the transfer.    |
| %FTETLBEL     | The value of the LABEL parameter at the destination of the transfer.    |
| %FTETUNIT     | The value of the UNIT parameter at the destination of the transfer.     |
| %FTETVOL      | The value of the VOL parameter at the destination of the transfer.      |
| %FTETDACL     | The value of the DATACLAS parameter at the destination of the transfer. |
| %FTETDSTY     | The value of the DSNTYPE parameter at the destination of the transfer.  |

Table 51. (continued)

| Variable name | Description                                                             |
|---------------|-------------------------------------------------------------------------|
| %FTETLIKE     | The value of the LIKE parameter at the destination of the transfer.     |
| %FTETMGCL     | The value of the MGMTCLAS parameter at the destination of the transfer. |
| %FTETSTCL     | The value of the STORCLAS parameter at the destination of the transfer. |

## Example of a Connect:Direct process file that calls the `ftecxfer` command

An example Connect:Direct process file that calls the WebSphere MQ File Transfer Edition `ftetag` command and the `ftecxfer` command.

In this example, the following actions occur:

1. A Connect:Direct COPY statement transfers the file from `C:\test\from\sent.txt` on the system where the secondary node runs to `C:\test\tmp\midpoint.txt` on the system where the primary node runs.
2. The Connect:Direct process calls the `ftetag` command to create audit information in WMQFTE.
3. The Connect:Direct process calls the `ftecxfer` command.
4. The `ftecxfer` command transfers the file from `C:\test\tmp\midpoint.txt` on the system where the primary node runs and the agent `CD_BRIDGE` runs to `/test/to/arrived.txt` on the system where the agent `LINUX_AGENT` is located.

```

/*BEGIN_REQUESTER_COMMENTS
  $PNODE$="cd_wīn01" $PNODE_OS$="Windows"
  $SNODE$="CD_WIN01" $SNODE_OS$="Windows"
  $OPTIONS$="WDOS"
END_REQUESTER_COMMENTS*/

TESTPRO PROCESS
SNODE=CD_WIN01

COPY
FROM (
  FILE=C:\test\from\sent.txt
  SNODE
)
TO (
  FILE=C:\test\tmp\midpoint.txt
  PNODE
  DISP=RPL
)
COMPRESS Extended

RUN TASK PNODE
SYSOPTS="pgm(C:\wmqfte\bin\ftetag) args(C:\test\tmp\midpoint.txt)"

RUN TASK PNODE
SYSOPTS="pgm(C:\wmqfte\bin\ftecxfer) args(-qmgrname QM_CDBA -connname fish.example.com(1441) -channelname SYSTEM.DEF.SVRCO

PEND

```

### Related concepts:

“Using Connect:Direct processes to submit WebSphere MQ File Transfer Edition transfer requests” on page 285

You can submit a transfer request to the Connect:Direct bridge agent from a Connect:Direct process. WebSphere MQ File Transfer Edition provides commands that can be called from a **RUN TASK** statement in a Connect:Direct process.

### Related tasks:

“Creating and submitting a Connect:Direct process that calls WebSphere MQ File Transfer Edition by using the Connect:Direct Requester” on page 286

The Connect:Direct Requester is a graphical user interface that you can use to create and submit a Connect:Direct process that calls WebSphere MQ File Transfer Edition.

## Restrictions of the Connect:Direct bridge agent

The Connect:Direct bridge agent is configured to transfer files to and from Connect:Direct nodes. There are some functions that the Connect:Direct bridge agent is not capable of performing.

- The Connect:Direct bridge agent cannot read messages from a queue or write messages to a queue. It cannot act as the destination agent in a file-to-message transfer or as the source agent in a message-to-file transfer.
- You cannot define a resource monitor on the Connect:Direct bridge agent.
- You cannot have a Connect:Direct bridge agent as both the source and destination of a transfer. You cannot transfer from Connect:Direct node to Connect:Direct node through the Connect:Direct bridge.
- The Connect:Direct bridge agent does not support user exits that are called before or after the transfer. The Connect:Direct bridge agent does support a credential mapping exit. For more information, see “Mapping credentials for Connect:Direct by using exit classes” on page 181.
- You cannot define presrc or postsrc program invocations for a transfer that has the Connect:Direct bridge agent as the source agent. For more information, see “Program invocation nested elements” on page 1009.
- You cannot define predst or postdst program invocations for a transfer that has the Connect:Direct bridge agent as the destination agent. For more information, see “Program invocation nested elements” on page 1009.
- You cannot specify a wildcard character in the source specification if the source agent is the Connect:Direct bridge agent.
- If you specify a source disposition (**-sd**) of delete when transferring a file or data set from a Connect:Direct node, the behavior is different to the usual source disposition behavior. One of the following cases occurs:
  - If Connect:Direct uses a process generated by WebSphere MQ File Transfer Edition to move the file or data set from the source, specifying the delete option causes the transfer to fail. To specify that the source file is deleted, you must submit a user-defined Connect:Direct process. For more information, see “Submitting a user-defined Connect:Direct process from a file transfer request” on page 280.
  - If Connect:Direct uses a user-defined process to move the file or data set from the source, this parameter is passed to the process through the **%FTEFDISP** intrinsic symbolic variable. The user-defined process determines whether the source is deleted. The result that the transfer returns depends on the result returned by the user-defined process.

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

## FTPS server support by the protocol bridge

If you enable the Version 7.0.4.1 function, the protocol bridge supports a subset of the FTPS protocol as defined by RFC-2228, RFC-4217, and the Internet-Draft entitled *Secure FTP over SSL*.

The following features of the FTPS protocol are supported:

- Implicit and explicit modes of operation.
- Validation of the server certificate.
- Optional mutual authentication using client certificate checks.
- Optional use of a clear control channel after the initial authentication and level of protection for the data channel has been selected.
- SHA-2 cipher suites are supported for the z/OS and IBM i operating systems only. The following versions of Java are required: IBM JREs 6.0 SR13 FP2, 7.0 SR4 FP2, or later.

The following features of the FTPS protocol and runtime environment are not supported:

- Use of the **ADAT** command for additional security data exchange.
- Use of FTPS for channel encryption only that is, where the servers certificate is not validated.
- Selection of the Clear, Secure, or Confidential levels of protection using the **PROT** command.
- Encryption for each command using the **MIC**, **CONF**, and **ENC** commands.
- Fallback to the FTP protocol if the server does not support explicit FTPS. Use the FTP support provided by the protocol bridge to work with such a server.
- Use of the **FEAT** command to determine the available capabilities of the FTPS server.
- Validation of certificates using pattern matching against the DN field.
- Certificate revocation checking.
- Validation of certificates with the issuing trusted certificate authority.
- Explicit selection of the cipher suites available to the SSL negotiation phase of establishing a session.
- Restricting the encryption used to the encryption provided by a FIPS 140-2-accredited cryptographic module.
- Use of extensions specific to z/OS or IBM i that integrate cryptography with the operating system. Specifically, the use of the z/OS keyring or non-hierarchical file systems for storing key and trust information, for example, data sets. Cryptographic hardware and offload engines are used if these functions are managed transparently by the JVM and do not require explicit application code.

## Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

## Database logger tables

When you have installed and configured the database logger, the following database tables are created:

### AUTH\_EVENT

An event related to authority checking, typically the rejection of a request due to insufficient privileges.

- **ID:** Row ID.
- **ACTION:** The type of action that took place.
- **COMMAND\_ID:** The WebSphere MQ message ID of the original message that requested the event. In the case of a transfer request, this will also be the transfer ID.
- **TIME:** The time at which the event occurred.
- **ORIGINATOR\_MQ\_USER:** The user ID contained in the WebSphere MQ message, against which the authority check was performed.
- **AUTHORITY:** The authority that was required for the requested action.
- **ORIGINAL\_XML\_REQUEST:** The payload of the command message, indicating what action was refused.
- **RESULTCODE:** The numeric code identifying the result.
- **RESULT\_TEXT:** A message explaining the result of the authority event.

### CALL

The remote running of an operating system command, Ant script, or z/OS JCL job, managed by WebSphere MQ File Transfer Edition. Calls can be embedded in transfers, or referred to by call\_request rows.

A CALL (that is, a row in this table) can either be part of a normal transfer (in which case TRANSFER\_CALLS is used to link it to the relevant entry in TRANSFERS) or it can be a stand-alone managed call on its own (available only from Ant or by directly inserting messages). In the latter case, the CALL\_REQUEST table is used instead of the TRANSFERS table; an equivalent to TRANSFER\_CALLS is not needed because there can be only one call per call request.

- **ID:** Row ID.
- **COMMAND:** The command that was run. This field does not include any arguments passed to the command or the path where the command is located.
- **TYPE:** The type of command, such as Ant or JCL.
- **RETRIES:** The number of retries that were requested.
- **RETRY\_WAIT:** The interval to wait between retries as originally requested, in seconds.
- **SUCCESS\_RC:** The return code that indicates a successful completion of the command. If any other code is received, the run is reported to have failed.
- **EXECUTED\_COMMAND:** The full name of the command that was run, including path.
- **CAPPED\_RETRIES:** The number of retries available; this number might be less than requested if the retry limit of the agent is lower than the number of retries requested.
- **CAPPED\_RETRY\_WAIT:** The interval between retries that is used; this number might be less than requested if the configured limit of the agent is lower than the retry wait requested.

- **OUTCOME:** Whether the call was successful overall. If there were multiple tries the outcome of each one is recorded separately in the CALL\_RESULT table.

## CALL\_ARGUMENT

An argument or parameter supplied to a command that is called.

- **ID:** Row ID.
- **CALL\_ID:** The call that the argument is associated with.
- **KEY:** Where the argument is of a key-value-pair kind, the key, or name.
- **TYPE:** The type of the argument: some are position parameters to operating system commands and others are named properties used with Ant.
- **VALUE:** The value of the argument.

## CALL\_REQUEST

The vehicle for a command call that is not part of a file transfer. You can submit ManagedCall messages using Ant and using direct XML injection.

- **ID:** The hexadecimal ID of the managed call request.
- **CALL\_ID:** The database ID of the row in the CALL table describing this call.
- **ACTION\_TIME:** The time that the action occurred.
- **AGENT:** The agent that the command is run on.
- **AGENT\_QM:** The queue manager used by the agent that the command is run on.
- **ARCHITECTURE:** The machine architecture of the system that the agent runs on.
- **OS\_NAME:** The name of the operating system that the agent is running on.
- **OS\_VERSION:** The version of the operating system.
- **ORIGINATOR\_HOST:** The host name of the machine that the call request was submitted from.
- **ORIGINATOR\_USER:** The name of the user who submitted the call request, as reported in the request XML.
- **ORIGINATOR\_MQ\_USER:** The name of the user who submitted the call request, as contained in the WebSphere MQ message descriptor of the request.
- **JOB\_NAME:** A user-specified job name.
- **RESULTCODE:** The overall result code for the call.
- **RESULTTEXT:** The overall result message for the call.

## CALL\_RESULT

The detailed result of calling a command. A call can have multiple results if retries were enabled.

- **ID:** Row ID.
- **CALL\_ID:** The database ID of the row in the CALL table that this result applies to.
- **SEQUENCE:** Which attempt this result applies to, where there have been multiple attempts.
- **OUTCOME:** The outcome (for example, success or failure) of the command.
- **RETURN\_CODE:** The command return code.
- **TIME:** The time that the command completed.
- **STDOUT:** The standard output stream from the command, if it was started.
- **STDERR:** The standard error stream from the command, if it was started.
- **ERROR:** If the command could not be started, an error message produced by WebSphere MQ File Transfer Edition explaining the problem.

## FILE\_SPACE\_ENTRY

Each row represents a file that has been sent to the named file space.

- **ID:** The ID of the file space entry.
- **FILE\_SPACE\_NAME:** The name of the file space. This is the name of the user that the file space belongs to.
- **TRANSFER\_ITEM\_ID:** The ID of the transfer item that this row relates to.
- **ALIAS:** The alias name for this file space entry. Typically this alias name is the name of the source file for the transfer.
- **DELETED:** The time when the file was deleted from the file space. If the file has not been deleted the value is null.

## METADATA

Metadata associated with a transfer.

- **ID:** Row ID.
- **TRANSFER\_EVENT\_ID:** The transfer\_event row that this metadata is associated with, if it relates to a transfer. This field is null if the metadata is associated with a stand-alone managed call.
- **STANDALONE\_CALL\_ID:** If the metadata is associated with a stand-alone managed call, the ID of the managed call request concerned.
- **KEY:** The name of the metadata item.
- **VALUE:** The value of the metadata item.

## MONITOR

Resource monitors that trigger WebSphere MQ File Transfer Edition operations based on external conditions.

- **AGENT:** The agent that the monitor runs on.
- **ID:** The hexadecimal ID of the monitor.
- **NAME:** The name of the monitor.
- **QMGR:** The queue manager of the agent where the monitor runs.

## MONITOR\_ACTION

Each row represents an action (for example, creation and triggering) occurring in respect of a monitor

- **ID:** Row ID.
- **ACTION:** The type of action that took place.
- **JOB\_NAME:** The name of the submitted job, where applicable.
- **MONITOR:** The monitor that this action occurred on. Might be null if the action failed because it was requested for a monitor that does not exist.
- **ORIGINAL\_XML\_REQUEST:** If this action was a *create* or *triggerSatisfied* action, the XML request that is started when the monitor is triggered.
- **ORIGINATOR\_MQ\_USER:** The user ID contained in the WebSphere MQ message that initiated the action
- **ORIGINATOR\_USER:** The user name that submitted the request to perform the action.
- **ORIGINATOR\_HOST:** The machine from which the user submitted the request to perform the action.
- **TIME:** The time that the action occurred.
- **UPDATED\_XML\_REQUEST:** If the action is *triggerSatisfied*, the XML request that was started. This request might vary from the XML request that was originally made because of variable substitution.

## MONITOR\_EXIT\_RESULT

The result of running a resource monitor exit.

- **ID:** Row ID.
- **ACTION\_ID:** The monitor action that the result is associated with.
- **EXIT\_NAME:** The name of the exit that produced this result.
- **RESULTCODE:** The numeric result code from the exit.
- **RESULTTEXT:** The text output from the exit, if provided.

## MONITOR\_METADATA

Items of metadata associated with a resource monitor.

- **ID:** Row ID.
- **ACTION\_ID:** The monitor\_action that the metadata is associated with.
- **KEY:** The name of the metadata item.
- **PHASE:** Whether this metadata item represents the data that was originally submitted or the updated version after variable substitution.
- **VALUE:** The value of the metadata item.

## SCHEDULE

A transfer schedule registered with an agent.

- **AGENT:** The name of the agent that has this schedule.
- **CREATION\_DATE:** The point in time that this schedule was created.
- **ID:** The unique database (not agent) ID for the schedule.
- **ID\_ON\_AGENT:** The ID that the agent uses for the database ID. This ID is not unique across agents and might not even be unique in an agent if the persistent state of the agent is reset.
- **LATEST\_ACTION:** The most recent action that modified the state of this schedule.

## SCHEDULE\_ACTION

When an event occurs that modifies the schedule state, an action is recorded.

- **ACTION\_TYPE:** The action that occurred.
- **ID:** Row ID
- **ORIGINATOR\_HOST:** The machine that the request that caused the change was submitted from.
- **ORIGINATOR\_USER:** The user whose name the request that caused the change was submitted in.
- **SCHEDULE\_ID:** The schedule that this action applies to.
- **SPEC\_AFTERWARDS:** The schedule\_spec that represents the state of this schedule after the action occurred.
- **STATUS\_CODE:** A numeric return code describing the outcome of the action
- **STATUS\_TEXT:** A text description of the outcome of the action. Typically null if the action succeeded.
- **TIME:** The point in time that the action occurred

## SCHEDULE\_SPEC

The details of an individual scheduled transfer.

- **ID:** Row ID.
- **DESTINATION\_AGENT:** The agent that the files are transferred to.
- **DESTINATION\_QM:** The queue manager used by the destination agent.

- **REPEAT\_COUNT:** How many times to repeat if the schedule repeats and is bound by the number of occurrences rather than an end time.
- **REPEAT\_FREQUENCY:** How many repeat\_intervals there are between scheduled transfers.
- **REPEAT\_INTERVAL:** If the transfer repeats, what interval to repeat at (for example, minutes or weeks).
- **SOURCE\_AGENT:** The agent that the files are transferred from.
- **SOURCE\_QM:** The queue manager used by the source agent.
- **START\_TIME:** The time that the first transfer in the schedule will take place.
- **START\_TIMEBASE:** The time base for the times associated with the transfer. For example, whether to operate from the time zone of the agent or the time zone of the administrator.
- **START\_TIMEZONE:** The time zone that the time base corresponds to and which will be used in operating the schedule.

## SCHEDULE\_ITEM

Each file (or pattern to match at transfer time) is represented by a schedule\_item.

- **ID:** Row ID.
- **CHECKSUM\_METHOD:** How the checksum for the file is calculated
- **DESTINATION\_EXISTS\_ACTION:** What action the destination agent takes if the file already exists at the destination.
- **DESTINATION\_FILENAME:** The file or directory that the files are transferred into.
- **DESTINATION\_TYPE:** Whether the destination\_filename column refers to a file, directory, or data set.
- **FILE\_MODE:** The mode (for example, *text* or *binary*) that the file is transferred in.
- **RECURSIVE:** When the agent creates the transfer according to the schedule, whether the agent recurses (Y) or not (N) the source directory.
- **SCHEDULE\_SPEC\_ID:** The schedule\_spec that this item is associated with.
- **SOURCE\_DISPOSITION:** What action to perform on source files after the transfer completes.
- **SOURCE\_FILENAME:** The source file, directory name, or pattern.

## TRANSFER

A single transfer of one or more files.

- **TRANSFER\_ID:** The hexadecimal ID for the transfer.
- **JOB\_NAME:** A user-specified job name for the transfer.
- **SCHEDULE\_ID:** If this transfer is the result of a schedule, the database row ID of the schedule concerned.
- **START\_ID:** The row ID of the transfer\_event that represents the start of the transfer.
- **COMPLETE\_ID:** The row ID of the transfer\_event that represents the end of the transfer.
- **RESULTCODE:** The overall result code for the transfer. The possible values for this column are listed in the following topic: Return codes for WebSphere MQ File Transfer Edition. These codes apply to the transfer as a whole; see TRANSFER\_ITEM.RESULTCODE for the status of each individual item.
- **RESULTTEXT:** The overall result text for the transfer, if any.
- **STATUS:** The status of a transfer. The possible values for this column are started, success, partial success, failure, and cancelled.
- **RELATED\_TRANSFER\_ID:** The hexadecimal ID of a previous transfer that is related to this transfer. For example, if the transfer is a file download using the Web Gateway, this field will refer to the transfer that uploaded the file.

## TRANSFER\_CALLS

Links runnable command calls to transfers

- **ID:** Row ID.
- **POST\_DESTINATION\_CALL:** The call made at the destination after the transfer is complete.
- **POST\_SOURCE\_CALL:** The call made at the source agent after the transfer is complete.
- **PRE\_DESTINATION\_CALL:** The call made at the destination agent before the transfer starts.
- **PRE\_SOURCE\_CALL:** The call made at the source agent before the transfer starts.
- **TRANSFER\_ID:** The transfer that the calls in this row are associated with.

## TRANSFER\_CD\_NODE

Information about Connect:Direct nodes that are used in a transfer.

- **PNODE:** The primary node in the transfer.
- **SNODE:** The secondary node in the transfer.
- **BRIDGE\_IS\_PNODE:** Character indicating which node is the node that is part of the Connect:Direct bridge. If this value is Y, the primary node is the bridge node. If this value is N, the secondary node is the bridge node.
- **ID:** The ID of this row.

## TRANSFER\_CORRELATOR

Each row contains a correlation string and a number associated with a transfer item.

- **CORRELATION\_BOOLEAN:** A boolean correlation value. Represented by a single character of Y for true and N for false.
- **CORRELATION\_STRING:** A string correlation value.
- **CORRELATION\_NUMBER:** A numeric correlation value.
- **ID:** The ID of this row.

## TRANSFER\_EVENT

An event (start or end) related to a transfer.

- **ID:** Row ID.
- **ACTION\_TIME:** The time that the transfer action took place.
- **SOURCE\_AGENT:** The name of the agent that the files are transferred from.
- **SOURCE\_AGENT\_TYPE:** The type of agent that the files are transferred from. The following values are possible: 1 = STANDARD, 2 = BRIDGE, 3 = WEB\_GATEWAY, 4 = EMBEDDED, 5 = CD\_BRIDGE, 6 = SFG.
- **SOURCE\_QM:** The queue manager used by the source agent.
- **SOURCE\_ARCHITECTURE:** The machine architecture of the system hosting the source agent.
- **SOURCE\_OS\_NAME:** The operating system of the source agent machine.
- **SOURCE\_OS\_VERSION:** The version of operating system of the source agent machine.
- **SOURCE\_BRIDGE\_URL:** If the source agent is a protocol bridge agent, the URL of the data source to which it forms a bridge.
- **SOURCE\_WEB\_GATEWAY:** The name of the Web Gateway that the files are transferred from.
- **SOURCE\_CD\_NODE\_ID:** The Connect:Direct node that is the source of the transfer.
- **DESTINATION\_AGENT:** The name of the agent that the files are transferred to.

- **DESTINATION\_AGENT\_TYPE:** The type of agent that the files are transferred to. The following values are possible: 1 = STANDARD, 2 = BRIDGE, 3 = WEB\_GATEWAY, 4 = EMBEDDED, 5 = CD\_BRIDGE, 6 = SFG.
- **DESTINATION\_QM:** The queue manager used by the destination agent.
- **DESTINATION\_BRIDGE\_URL:** If the destination agent is a bridge agent, the URL of the data source to which it forms a bridge.
- **DESTINATION\_WEB\_GATEWAY:** The name of the Web Gateway that the files are transferred to.
- **DESTINATION\_CD\_NODE\_ID:** The Connect:Direct node that is the destination of the transfer.
- **ORIGINATOR\_HOST:** The host name of the machine that the transfer request was submitted from.
- **ORIGINATOR\_USER:** The name of the user who submitted the transfer request, as reported by the `fteCreateTransfer` command.
- **ORIGINATOR\_MQ\_USER:** The name of the user who submitted the transfer request, as contained in the WebSphere MQ message descriptor of the request.
- **ORIGINATOR\_WEB\_USER:** The name of the Web Gateway user, which is configured in your application server environment, who submitted the request.
- **TRANSFERSET\_TIME:** The time that the transfer set was created.
- **TRANSFERSET\_SIZE:** The number of items being transferred.
- **TRIGGER\_LOG:** For transfer definitions involving a trigger, whether to log trigger evaluations that did not result in a transfer.

## TRANSFER\_EXIT

Each row represents a transfer exit which was executed as part of a file transfer.

- **ID:** Row ID.
- **EXIT\_NAME:** The name of the exit.
- **TRANSFER\_ID:** The ID of the completed or canceled transfer that this exit applies to.
- **TYPE:** The type of exit. This can be one of the following values: *SourceStart*, *SourceEnd*, *DestinationStart* or *DestinationEnd*.
- **STATUS:** The value that the exit returned. This can be *cancel* or *proceed*.
- **SUPPLEMENT:** An optional message explaining the status of the exit.

## TRANSFER\_ITEM

Each row represents a file that is sent as part of the transfer.

- **DESTINATION\_CHECKSUM\_METHOD:** The algorithm used to calculate a checksum of the destination file. Might be null if no checksum was calculated because the transfer did not complete successfully.
- **DESTINATION\_CHECKSUM\_VALUE:** The checksum value of the destination file. The value might be null if checksumming was disabled.
- **DESTINATION\_ENCODING:** The character encoding used on the destination file, if the destination file is transferred as text.
- **DESTINATION\_EXISTS\_ACTION:** The action to perform if the file exists at the destination.
- **DESTINATION\_FILENAME:** The file name or data set name to use at the destination.
- **DESTINATION\_LINEEND:** The line-end format used in the destination file, if the destination file is transferred as text.
- **DESTINATION\_CORRELATOR\_ID:** The ID of the correlator information for the destination.
- **FILE\_MODE:** The file transfer mode, for example *text* or *binary*.
- **ID:** Row ID

- **RESULTCODE:** A numeric code indicating the outcome of the transfer of this item. The possible values for this column are listed in the following topic: “Return codes for files in a transfer” on page 413. These codes apply to the individual items in the transfer; see TRANSFER.RESULTCODE for the result of the transfer as a whole.
- **RESULT\_TEXT:** A textual explanation of the result of the transfer. Typically null if the transfer was successful.
- **SOURCE\_CHECKSUM\_METHOD:** The algorithm used to calculate a checksum of the source file.
- **SOURCE\_CHECKSUM\_VALUE:** The checksum value of the source file. The value might be null if checksumming was disabled.
- **SOURCE\_DISPOSITION:** The action to perform on the source file when the transfer is complete.
- **SOURCE\_ENCODING:** The character encoding used on the source file, if the source file is transferred as text.
- **SOURCE\_FILENAME:** The source file name or data set name.
- **SOURCE\_LINEEND:** The line-end format used in the source file, if the source file is transferred as text.
- **SOURCE\_CORRELATOR\_ID:** The ID of the correlator information for the source.
- **TRANSFER\_ID:** The transfer that this item is part of.
- **DESTINATION\_MESSAGE\_QUEUE\_NAME:** The destination queue for the messages that are produced from the source file during a file to message transfer.
- **DESTINATION\_MESSAGE\_GROUP\_ID:** If more than one message is produced, the group ID used for the messages that are produced from the source file during a file to message transfer.
- **DESTINATION\_MESSAGE\_MESSAGE\_ID:** If only one message is produced, The message ID of the message that is produced from the source file during a file to message transfer.
- **DESTINATION\_MESSAGE\_COUNT:** The number of messages that the source file was split into during a file to message transfer.
- **DESTINATION\_MESSAGE\_LENGTH:** The length of the message that is produced from the source file during a file to message transfer, in bytes. This value is only set if you specify a length for the output messages, for example by using the `-qs` option of the `fteCreateTransfer` command. If you specify `-qs 20K` and the size of your source file is 50 KB, the resulting three messages are 20 KB, 20 KB, and 10 KB in size. In this case the value of `DESTINATION_MESSAGE_LENGTH` is set to 20480.
- **SOURCE\_MESSAGE\_QUEUE\_NAME:** The source queue for the messages that are included in the destination file for a message to file transfer.
- **SOURCE\_MESSAGE\_GROUP\_ID:** The group ID of the messages that are included in the destination file for a message to file transfer.
- **SOURCE\_MESSAGE\_COUNT:** The number of messages that are included in the destination file for a message to file transfer.

## TRANSFER\_STATS

A set of statistics generated at the end of a transfer.

- **ID:** Row ID.
- **TRANSFER\_ID:** The transfer to which the statistics refer.
- **START\_TIME:** The time at which the transfer started. In a system that is busy or has intermittent connectivity, this time might be later than the time reported in the Started message, as that time represents the point at which initial processing began rather than the point at which the successful transfer of data began.
- **RETRY\_COUNT:** The number of times that the transfer had to be retried because of load or availability issues.
- **FILE\_FAILURES:** The number of files that failed to be transferred.

- **FILE\_WARNINGS:** The number of files that had warnings reported for them when they were transferred.

## TRIGGER\_CONDITION

One condition in a basic WebSphere MQ File Transfer Edition conditional transfer. For example, "file example.file exists".

- **ID:** Row ID.
- **TRANSFER\_EVENT\_ID:** The transfer event that the trigger is related to.
- **CONDITION\_TYPE:** The type of check used in the trigger. For example, the existence of a file or the size of a file.
- **COMPARISON:** The specific comparison to make. For example "greater than or equal to".
- **VALUE:** The value to compare against.
- **FILENAME:** The file name to examine.

### Related concepts:

"Configuring a WebSphere MQ File Transfer Edition logger" on page 123

### Related reference:

"fteStartDatabaseLogger (start the stand-alone database logger)" on page 569

The **fteStartDatabaseLogger** command starts the stand-alone database logger.

"fteModifyDatabaseLogger (run a WebSphere MQ File Transfer Edition database logging application as a Windows service)" on page 550

The **fteModifyDatabaseLogger** command modifies a stand-alone database logger so that it can be run as a Windows service. This command is only available on Windows.

"fteStopDatabaseLogger (stop the stand-alone database logger)" on page 572

The **fteStopDatabaseLogger** command stops the stand-alone database logger.

## Authorities for the database logger

The operating system user who runs the database logger requires certain WebSphere MQ authorities on the database logger queues and the SYSTEM.FTE topic.

The operating system user who runs the database logger requires the following WebSphere MQ authorities:

- CONNECT and INQUIRE on the coordination queue manager.
- SUBSCRIBE permission on the SYSTEM.FTE topic.
- PUT permission on the SYSTEM.FTE.DATABASELOGGER.REJECT queue.
- GET permission on the SYSTEM.FTE.DATABASELOGGER.COMMAND queue.

### Related reference:

“Group authorities for resources specific to WebSphere MQ File Transfer Edition” on page 452  
Instead of granting authority to individual users for all of the various objects that might be involved, configure two security groups for the purposes of administering WebSphere MQ File Transfer Edition access control: FTEUSER and FTEAGENT. It is the responsibility of the WebSphere MQ administrator to create and populate these groups. The administrator can choose to extend or modify the proposed configuration described here.

“User authorities on WebSphere MQ File Transfer Edition actions” on page 456

In addition to using groups to manage access to resources, you can enable an additional level of security to restrict the agent actions that a user can take. Grant authorities on an agent authority queue to a user to give the user permission to perform specific agent actions.

## WebSphere MQ message properties set on messages written to destination queues

When transferring from file to message, WebSphere MQ File Transfer Edition can set WebSphere MQ message properties on the first message written to the destination queue. Additional WebSphere MQ message properties are set when a file to message transfer has failed.

WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing MQ Message Descriptor (MQMD) or MQRFH2 headers. For more information, see the WebSphere MQ version 7.0.1 online product documentation.

### Standard properties

You can use the **-qmp** parameter on the **fteCreateTransfer** command or the **fteCreateTemplate** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. For an example of how to use this parameter, see the topic “Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

The WebSphere MQ message properties contain transfer metadata. The message property names are prefixed with **usr.WMQFTE**. The **usr.** prefix makes these message properties available to JMS applications.

#### **usr.WMQFTETransferId**

The unique hexadecimal transfer ID.

#### **usr.WMQFTETransferMode**

The type of file transfer: binary mode or text mode.

#### **usr.WMQFTESourceAgent**

The name of the source agent.

#### **usr.WMQFTEDestinationAgent**

The name of the destination agent.

#### **usr.WMQFTEFileName**

The name of the source file.

#### **usr.WMQFTEFileSize**

The size of the source file in bytes.

#### **usr.WMQFTEFileLastModified**

The last modified time of the source file. This value is in units of milliseconds, measured from 00:00:00 UTC, January 1, 1970.

#### **usr.WMQFTEFileIndex**

The index of the current file in the list of files that are being transferred. The first file in the list has index 0.

### **usr.WMQFTEMqmdUser**

The MQMD user ID of the user that submitted the transfer request.

## **Failure properties**

When a file to message transfer fails after the destination agent has written at least one message to the destination queue, WebSphere MQ File Transfer Edition writes a blank message to the destination queue. If the **-qmp** parameter is set to true, this blank message has two WebSphere MQ message properties set. For an example of a file to message transfer failure, see “Failure of a file to message transfer” on page 239.

The WebSphere MQ message properties contain information about the failure. As with the standard message properties, the message property names are prefixed with **usr.WMQFTE** and are available to JMS applications.

### **usr.WMQFTEReturnCode**

The return code of the transfer. For a list of possible values for this return code, see the topic “Return codes for WebSphere MQ File Transfer Edition” on page 409.

### **usr.WMQFTESupplement**

A supplementary message describing in more detail why the transfer failed.

## **User-defined properties**

Metadata specified using the **-md** parameter with the **fteCreateTransfer** command can be set as WebSphere MQ message properties. If the **-qmp** parameter is set to true, any metadata specified by the user will be added to the message header of the first message.

The metadata name is prefixed by **usr..** For example, if the metadata is department=accounts, the WebSphere MQ message header is set to **usr.department=accounts**.

You cannot use metadata to specify headers that begin with **usr.WMQFTE** or **usr.com.ibm.wmqfte**. If you specify metadata with a name beginning with **WMQFTE** or **com.ibm.wmqfte** this metadata is not used in the message properties and is ignored.

### **Related concepts:**

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### **Related tasks:**

“Example: Setting WebSphere MQ message properties on a file-to-message transfer” on page 235

You can use the **-qmp** parameter on the **fteCreateTransfer** command to specify whether WebSphere MQ message properties are set on the first message written to the destination queue by the transfer. WebSphere MQ message properties allow an application to select messages to process, or to retrieve information about a message without accessing WebSphere MQ Message Descriptor (MQMD) or MQRFH2 headers.

### **Related reference:**

“WebSphere MQ message properties read from messages on source queues” on page 764

The agent reading messages from a source queue in a message to file transfer reads the WebSphere MQ message properties from the message. The value of these properties can be used to determine the behavior of a transfer.

“Return codes for WebSphere MQ File Transfer Edition” on page 409

WebSphere MQ File Transfer Edition commands, Ant tasks, and log messages provide return codes to indicate whether functions have successfully completed.

“Failure of a file to message transfer” on page 239

If a file-to- message transfer fails after the agent has started writing file data to the destination queue, the agent writes a message to the queue to indicate to an application consuming the messages that a failure has occurred.

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## WebSphere MQ message properties read from messages on source queues

The agent reading messages from a source queue in a message to file transfer reads the WebSphere MQ message properties from the message. The value of these properties can be used to determine the behavior of a transfer.

### Headers used to cancel message to file transfers

Set the following WebSphere MQ message properties on the last message in a group to cancel the message to file transfer of that group:

#### **usr.UserReturnCode**

Required. The return code of the transfer. Set this header as a non-zero value to indicate that the transfer is to be cancelled.

#### **usr.UserSupplement**

Optional. Text describing why the transfer was cancelled.

If the source agent of a message to file transfer reads a message from the source queue that has the **usr.UserReturnCode** message property set to a non-zero value, it stops reading messages from the queue and reports that the transfer failed in the transfer log XML. The transfer log XML contains the return code and supplementary text that is set in the message headers. If the destination agent has already written data to a temporary file this file is deleted from the destination.

### Headers used by variable substitution

The value of any WebSphere MQ message property in the first message to be read from the monitored queue can be substituted into the task XML definition. User-defined message properties are prefixed with **usr.**, but do not include this prefix in the variable name. Variable names must be preceded by a dollar sign (\$) character and enclosed in braces ({}). For example, `${destFileName}` is replaced with the value of the **usr.destFileName** message property of the first message to be read from the source queue.

For example, the user or program putting messages to a monitored queue can set WebSphere MQ message properties on the first message in a group specifying which agent is to be used as the destination of the file transfer and what file name to transfer the data to.

For more information, see “Monitoring a queue and using variable substitution” on page 219.

### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

### Related tasks:

“Configuring an agent to perform message to file transfers” on page 242

By default agents cannot perform message to file, or file to message, transfers. To enable this function you must set the agent property `enableQueueInputOutput` to true.

“Example: Failing a message to file transfer using WebSphere MQ message properties” on page 250

You can cause a message to file transfer to fail by setting the `usr.UserReturnCode` WebSphere MQ message property to a non-zero value. You can also specify supplementary information about the reason for the failure by setting the `usr.UserSupplement` WebSphere MQ message property.

### Related reference:

“WebSphere MQ message properties set on messages written to destination queues” on page 762

When transferring from file to message, WebSphere MQ File Transfer Edition can set WebSphere MQ message properties on the first message written to the destination queue. Additional WebSphere MQ message properties are set when a file to message transfer has failed.

“`fteCreateTransfer` (create new file transfer)” on page 509

The `fteCreateTransfer` command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Guidance for setting WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties associated with message size

You can change WebSphere MQ attributes and WebSphere MQ File Transfer Edition properties to affect the behavior of WebSphere MQ File Transfer Edition when reading or writing messages of various sizes.

If the size of messages being read from a source queue or written to a destination queue exceeds 1048576 bytes (1 MB), you must increase the value of the WebSphere MQ File Transfer Edition agent property `maxInputOutputMessageLength` to a value that is greater than or equal to the maximum message size to be read or written.

If the messages on the source queue are greater than 1048576 bytes you must set the `maxInputOutputMessageLength` property on the source agent. If the messages on the destination queue are greater than 1048576 bytes you must set the `maxInputOutputMessageLength` property on the destination agent. For more information about the `maxInputOutputMessageLength` parameter, see Advanced agent properties.

In addition to changing the `maxInputOutputMessageLength` agent property, you might also have to change some of the WebSphere MQ queue manager properties.

- | • If the queue that the agent is writing to or reading from is local to the agent queue manager, you
- | might have to change the WebSphere MQ queue manager, queue, and channel `MAXMSGL` attributes.
- | Ensure that the value of the maximum message size of the source or destination queue is greater than
- | or equal to the value of the `maxInputOutputMessageLength` agent property.
- | Consider each of the following WebSphere MQ attributes:
- | – The maximum message size of the agent queue manager
- | – The maximum message size of the `SYSTEM.FTE.STATE.agent_name` queue
- | – The client channel maximum message size, if your agent connects to the queue manager in client
- | mode

Ensure that the value of each of these attributes, in bytes, is greater than or equal to the result of the following calculation:

**For a file-to-message transfer (which supports a file size of up to 100 MB):**

The value of **maxInputOutputMessageLength**

**For a message-to-file transfer:**

The value of  $3 * (\text{maxInputOutputMessageLength}) + 1048576$

This formula is used to calculate the number of checkpoint records that can be held in a single FTE state message for the `SYSTEM.FTE.STATE.agent_name` queue. This calculation is derived from the following facts:

- Three checkpoints can be stored in a state message.
- Each checkpoint might have to buffer up to the maximum size of a message amount of data.

Because the maximum message size that WebSphere MQ can process is 100 MB, the maximum value that can be set in the **maxInputOutputMessageLength** property for a message-to-file transfer is 33 MB (34603008 bytes).

- If the queue that the agent is writing to is a remote queue, you might have to change the WebSphere MQ queue manager, queue, and channel **MAXMSGL** attributes.

Ensure that the value of each of the following WebSphere MQ attributes is greater than or equal to the value of the **maxInputOutputMessageLength** agent property:

- The maximum message size of the remote queue manager transmission queue on the agent queue manager
- The maximum message size of the channel from the agent queue manager to the remote queue manager
- The maximum message size of the destination queue on the remote queue manager
- The maximum message size of the remote queue manager

Consider each of the following WebSphere MQ attributes:

- The maximum message size of the agent queue manager
- The maximum message size of the `SYSTEM.FTE.STATE.agent_name` queue
- The client channel maximum message size, if your agent connects to the queue manager in client mode

Ensure that the value of each of these attributes, in bytes, is greater than or equal to the result of the following calculation:

**For a file-to-message transfer (which supports a file size of up to 100 MB):**

The value of **maxInputOutputMessageLength**

**For a message-to-file transfer:**

The value of  $3 * (\text{maxInputOutputMessageLength}) + 1048576$

This formula is used to calculate the number of checkpoint records that can be held in a single FTE state message for the `SYSTEM.FTE.STATE.agent_name` queue. This calculation is derived from the following facts:

- Three checkpoints can be stored in a state message.
- Each checkpoint might have to buffer up to the maximum size of a message amount of data.

Because the maximum message size that WebSphere MQ can process is 100 MB, the maximum value that can be set in the **maxInputOutputMessageLength** property for a message-to-file transfer is 33 MB (34603008 bytes).

If you exceed the value of one of these properties, the agent stops with the following error in the agent event log:

BFGUT0002E: An internal error has occurred. Product failure data was captured in file "FFDC.FTE.20100928170828514.817276  
BFGSS0025E: An internal error has occurred. The exception is: cc=2 rc=2010 op=put - MQPUT to SYSTEM.FTE.STATE.agent\_name  
BFGAG0061E: The agent ended abnormally

The following WebSphere MQ reason codes might be included in this message in the agent event log:

- rc=2010 This reason code maps to MQRC\_DATA\_LENGTH\_ERROR and indicates that the value of the client channel maximum message size was exceeded. To resolve this problem ensure that the client channel maximum message size of the agent queue manager is greater than or equal to the result of the following calculation:  
$$3 * (\text{maxInputOutputMessageLength}) + 1048576$$
- rc=2030 This reason code maps to MQRC\_MSG\_TOO\_BIG\_FOR\_Q and indicates that the value of the maximum message size of the SYSTEM.FTE.STATE.agent\_name queue was exceeded. To resolve this problem ensure that the maximum message size of the SYSTEM.FTE.STATE.agent\_name queue is greater than or equal to the result of the following calculation:  
$$3 * (\text{maxInputOutputMessageLength}) + 1048576$$
- rc=2031 This reason code maps to MQRC\_MSG\_TOO\_BIG\_FOR\_Q\_MGR and indicates that the value of the maximum message size of the agent queue manager was exceeded. To resolve this problem ensure that the maximum message size of the agent queue manager is greater than or equal to the result of the following calculation:  
$$3 * (\text{maxInputOutputMessageLength}) + 1048576$$

## If you are transferring many small messages

If the average size of the messages that the agent is reading from or writing to a queue is less than 1310 bytes and the agent is reading or writing more than 10000 messages, you must increase the maximum number of uncommitted messages property on the queue manager or reduce the amount of data in a checkpoint interval.

When the agent is reading messages from or writing messages to a queue the corresponding **GETs** or **PUTs** are grouped together into transactions. The number of **GETs** or **PUTs** in a transaction is determined by the number required to process all of the data within a checkpoint interval. The approximate amount of the data in a checkpoint interval is determined from agent properties using the following calculation:

Checkpoint interval data size (in bytes) = agentCheckpointInterval \* agentFrameSize \*  
agentWindowSize \* agentChunkSize.

The default checkpoint data size is  $1 * 5 * 10 * 262144$  bytes = 13107200 bytes (12.5MB). The maximum number of uncommitted messages in a transaction that a queue manager supports is controlled by the **MaxUncommittedMsgs** queue manager attribute. The default value of this attribute is 10000 messages. If the average message size is less than approximately 1310 bytes the default maximum number of uncommitted messages is exceeded if there are more than 10000 messages to be written.

If you exceed the **MaxUncommittedMsgs** limit, the agent stops with the following error in the agent event log:

BFGSS0024E: The agent has received a reason code of '2024' from the message queue interface (MQI). The agent cannot cont  
BFGAG0139I: The agent has suspended its current transfers and is now stopping.

The reason code 2024 maps to: MQRC\_SYNCPOINT\_LIMIT\_REACHED.

To resolve this problem perform one of the following actions

- Increase the value of the **MaxUncommittedMsgs** queue manager property of the queue manager that the agent reading from or writing to a queue connects to. For information about how change this value, see MaximumUncommittedMessages property in the WebSphere MQ V7.1.0 product documentation.
- Reduce the amount of data in a checkpoint interval. To do this, decrease the value of one or more of the following agent properties:

- agentCheckpointInterval
- agentFrameSize
- agentWindowSize
- agentChunkSize

For information about these agent properties, see Advanced agent properties.

## If you are writing messages to a queue persistently

If you are transferring to a queue and writing the messages to the queue persistently, you might have to increase the size of the queue manager log file space to be able to log all of the data in a checkpoint interval.

If you exceed the queue manager log file space, the agent stops with the following error in the agent event log:

```
BFGSS0024E: The agent has received a reason code of '2102' from the message queue interface (MQI). The agent cannot continue.
BFGAG0062E: The agent has received MQI reason code '2102'. The agent cannot continue processing and will now end.
BFGAG0061E: The agent ended abnormally
```

The reason code '2102' maps to: MQRC\_RESOURCE\_PROBLEM.

To resolve this problem increase the size of the destination agent queue manager log file space. For information about how change this value, see the Managing log files.

## If you are transferring files to or from messages on z/OS queue managers - Version 7.0.3 or later

On z/OS, you must ensure that the size of the queue manager page sets are sufficient for the size of the messages on the SYSTEM.FTE.STATE.*agent\_name* queue, in addition to the messages on the source and destination queues. For "In progress" transfers, the maximum size that the messages on the SYSTEM.FTE.STATE.*agent\_name* queue can be is as follows:

$$3 \times (\text{maxInputOutputMessageLength}) + 1048576 \text{ bytes}$$

Each "In progress" source and destination transfer has a message on the SYSTEM.FTE.STATE.*agent\_name* queue. The number of concurrent source transfers is limited by the **maxSourceTransfers** agent property and the number of concurrent destination transfers is limited by the **maxDestinationTransfers** agent property.

For further details on sizing page sets and setting their values, see Managing page sets.

### Related concepts:

“Transferring data from messages to files” on page 240

The message-to-file feature of WebSphere MQ File Transfer Edition enables you to transfer data from one or more messages on a WebSphere MQ queue to a file, a data set, or a user file space. If you have an application that creates or processes WebSphere MQ messages you can use the message-to-file capability of WebSphere MQ File Transfer Edition to transfer these messages to a file on any system in your WebSphere MQ File Transfer Edition network.

“Transfer data from files to messages” on page 224

You can use the file-to-message feature of WebSphere MQ File Transfer Edition to transfer data from a file to a single message, or multiple messages, on a WebSphere MQ queue.

### Related reference:

“The agent.properties file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Guidance for specifying a wait time on a message-to-file transfer

When specifying a message-to-file transfer you can optionally specify a wait time on the transfer using the **-sqwt** parameter. The value of **-sqwt** is the amount of time that the source agent waits either for a message to appear on the source queue if the source queue is empty or becomes empty, or for a complete group to appear on the source queue if the **-sqgi** attribute is specified.

If the value of the **-sqwt** parameter is greater than or equal to the amount of time the destination agent waits for the transfer to be completed by the source agent, the transfer does not complete. The amount of time the destination agent waits for the transfer to complete is given by the following calculation:

`transferAckTimeout * transferAckTimeoutRetries`

The properties `transferAckTimeout` and `transferAckTimeoutRetries` are set in the destination agent `agent.properties` file. For more information about these agent properties, see “The `agent.properties` file” on page 583.

To prevent transfers from failing to complete, you must perform one of the following steps:

- Reduce the value of the **-sqwt** parameter so that it is less than the value of the destination agent `transferAckTimeout` property.

**Note:** The default value of the `transferAckTimeout` property is 60,000 milliseconds. The value of the **-sqwt** parameter is given in seconds, set the value to 59 or less.

- Increase the value of the destination agent `transferAckTimeout` property so that it is greater than the value of the **-sqwt** parameter.

**Note:** The value of the `transferAckTimeout` property is given in milliseconds. The value of the **-sqwt** parameter is given in seconds.

### Related reference:

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

“The `agent.properties` file” on page 583

Each agent has its own properties file, `agent.properties`, that must contain the information that an agent uses to connect to its queue manager. The `agent.properties` file can also contain properties that alter the behavior of the agent.

## Available code pages

This reference topic lists all character encoding formats available for text file conversion on the various platforms supported by WebSphere MQ File Transfer Edition.

### Common Encodings

These character encoding formats are available on all supported platforms. If your source file is encoded using one of the formats in this table, and you want to use another of the formats in this table to write the destination file, you can do so without any consideration of platform. You can use either the canonical name or any of the aliases to specify an encoding format.

| Canonical Name | Aliases                                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| windows-1256   | ibm-1256, Cp1256                                                                                                                                          |
| windows-1255   | ibm-1255, Cp1255                                                                                                                                          |
| windows-1254   | Cp1254, ibm-1254                                                                                                                                          |
| windows-1253   | Cp1253, ibm-1253                                                                                                                                          |
| windows-1252   | ibm-1252, Cp1252                                                                                                                                          |
| windows-1251   | ibm-1251, Cp1251                                                                                                                                          |
| windows-1250   | Cp1250, ibm-1250                                                                                                                                          |
| UTF-8          | UTF_8, UTF8                                                                                                                                               |
| UTF-16LE       | X-UTF-16LE, UTF16LE, UTF_16LE, UnicodeLittleUnmarked                                                                                                      |
| UTF-16BE       | UTF16BE, UnicodeBigUnmarked, ISO-10646-UCS-2, UTF_16BE, X-UTF-16BE                                                                                        |
| US-ASCII       | Cp367, iso-ir-6, ANSI_X3.4-1968, ANSI_X3.4-1986, default, ASCII, us, iso-646.irv:1983, csASCII, 646, ascii7, ISO646-US, ibm-367, ISO-646.irv:1991, direct |
| TIS-620        | tis620, tis620.2533                                                                                                                                       |
| IBM-1122       | Cp1122, ibm1122                                                                                                                                           |
| IBM-1006       | Cp1006, ibm1006                                                                                                                                           |
| IBM-037        | ibm-37                                                                                                                                                    |
| GB18030        | windows-54936, gb18030-2000, ibm-1392                                                                                                                     |
| EUC-TW         | x-euc-tw, euctw, cns11643, euc_tw                                                                                                                         |
| EUC-KR         | ibm-euckr, euc_kr, ksc_5601, ks_c_5601-1987, ksc5601_1987, euckr, ksc5601-1987, ibm-970, Cp970, 5601                                                      |
| EUC-JP         | x-euc-jp, euc_jp, eucjp, x-eucjp, euc_jp_linux, euc-jp-linux                                                                                              |
| EUC-CN         | x-euc-cn, ibm-eucn, euc_cn, eucn                                                                                                                          |
| Big5           | big5-0, big5, Big5-HKSCS                                                                                                                                  |
| IBM-1025       | Cp1025, ibm1025                                                                                                                                           |
| IBM-1026       | ibm1026, Cp1026                                                                                                                                           |
| IBM-1046       | Cp1046, ibm1046                                                                                                                                           |
| IBM-1097       | Cp1097, ibm1097                                                                                                                                           |
| IBM-1098       | Cp1098, ibm1098                                                                                                                                           |
| IBM-1112       | ibm1112, Cp1112                                                                                                                                           |
| IBM-1383       | Cp1383, ibm1383                                                                                                                                           |
| IBM-273        | Cp273, ibm273                                                                                                                                             |
| IBM-277        | Cp277, ibm277                                                                                                                                             |
| IBM-278        | Cp278, ibm278                                                                                                                                             |
| IBM-280        | ibm280, Cp280                                                                                                                                             |
| IBM-284        | ibm284, Cp284                                                                                                                                             |
| IBM-285        | Cp285, ibm285                                                                                                                                             |
| IBM-297        | ibm297, Cp297                                                                                                                                             |
| IBM-420        | Cp420, ibm420                                                                                                                                             |
| IBM-860        | Cp860, ibm860                                                                                                                                             |

| Canonical Name | Aliases                                                               |
|----------------|-----------------------------------------------------------------------|
| IBM-861        | ibm861, Cp861                                                         |
| IBM-862        | Cp862, ibm862                                                         |
| IBM-863        | Cp863, ibm863                                                         |
| IBM-864        | Cp864, ibm864                                                         |
| IBM-865        | ibm865, Cp865                                                         |
| windows-1257   | Cp1257, ibm-1257                                                      |
| windows-1258   | Cp1258, ibm-1129, ibm-1258                                            |
| windows-31j    | ms_kanji, cswindows31j, MS932, windows-932                            |
| windows-874    | MS874                                                                 |
| windows-936    | MS936, x-mswin-936, 936                                               |
| windows-949    | MS949, Cp1361, ibm-1361, ibm1361, ms1361, ksc5601-1992, x-windows-949 |
| windows-950    | MS950, x-windows-950                                                  |
| IBM-857        | ibm857, Cp857, csibm857                                               |
| IBM-856        | Cp856, ibm856                                                         |
| IBM-855        | Cp855, ibm855                                                         |
| IBM-852        | cspcp852, ibm852, Cp852                                               |
| IBM-850        | Cp850, ibm850, cspc850multilingual                                    |
| IBM-838        | Cp838, ibm838                                                         |
| IBM-834        | Cp834, ibm834                                                         |
| IBM-775        | ibm775, Cp775                                                         |
| IBM-737        | Cp737, ibm737                                                         |
| IBM-500        | Cp500, ibm500                                                         |
| IBM-437        | ibm437, Cp437, cspc8codepage437                                       |
| IBM-424        | ibm424, Cp424                                                         |
| IBM-1123       | Cp1123, ibm1123                                                       |
| IBM-1124       | Cp1124, ibm1124                                                       |
| IBM-1381       | Cp1381, ibm1381                                                       |
| IBM-866        | Cp866, ibm866                                                         |
| IBM-868        | Cp868, ibm868                                                         |
| IBM-869        | ibm869, Cp869                                                         |
| IBM-870        | Cp870, ibm870                                                         |
| IBM-871        | ibm871, Cp871                                                         |
| IBM-874        | ibm874, Cp874                                                         |
| IBM-875        | Cp875, ibm875                                                         |
| IBM-921        | Cp921, ibm921                                                         |
| IBM-922        | Cp922, ibm922                                                         |
| IBM-933        | Cp933, ibm933                                                         |
| IBM-935        | Cp935, ibm935                                                         |
| IBM-937        | Cp937, ibm937                                                         |
| IBM-942        | Cp942, ibm942                                                         |

| Canonical Name   | Aliases                                                                                                                               |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| IBM-943          | Cp943, ibm943                                                                                                                         |
| IBM-948          | ibm948, Cp948                                                                                                                         |
| IBM-949          | ibm949, Cp949                                                                                                                         |
| IBM-950          | ibm950, Cp950                                                                                                                         |
| ISCII91          | iscii                                                                                                                                 |
| ISO-2022-CN      | iso2022-cn-cns, iso2022cn-cns, iso-2022-cn-cns, iso2022cn, iso2022-cn                                                                 |
| ISO-2022-CN-GB   | iso2022-cn-gb, iso2022cn-gb                                                                                                           |
| ISO-2022-JP      | iso2022jp, jis, iso2022-jp, iso-2022-jp2, csiso2022jp2, csjisencoding, jis-encoding                                                   |
| ISO-2022-KR      | csiso2022kr, iso2022-kr, iso2022kr                                                                                                    |
| ISO-8859-1       | iso8859_1, iso8859-1, ibm819, l1, csisolatin1, Cp819, iso-ir-100, iso-8859-1:1987, ibm-819, latin1, 8859-1                            |
| ISO-8859-13      | iso8859-13, 8859-13, iso8859_13                                                                                                       |
| ISO-8859-15      | csisolatin9, iso8859-15, ibm923, latin9, ibm-923, l9, iso8859_15, iso8859_15_fdis, Cp923, latin0                                      |
| ISO-8859-2       | Cp912, ibm912, iso8859-2, iso-8859-2:1987, l2, iso8859_2, csisolatin2, latin2, ibm-912, 8859-2, iso-ir-101                            |
| ISO-8859-3       | iso8859-3, Cp913, l3, iso8859_3, iso-ir-109, iso-8859-3:1988, latin3, ibm-913, 8859-3, csisolatin3                                    |
| ISO-8859-4       | Cp914, latin4, iso8859_4, l4, iso-8859-4:1988, ibm-914, iso8859-4, 8859-4, csisolatin4, iso-ir-110                                    |
| ISO-8859-5       | csisolatincyrillic, iso-ir-144, cyrillic, iso8859_5, iso-8859-5:1988, ibm-915, 8859-5, Cp915, ibm915, iso8859-5                       |
| ISO-8859-6       | csisolatinarabic, Cp1089, iso-8859-6:1987, ecma-114, iso-ir-127, asmo-708, iso8859_6, 8859-6, ibm1089, arabic, iso8859-6, ibm-1089    |
| ISO-8859-7       | ecma-118, ibm813, csisolatingreek, elot-928, iso-ir-126, Cp813, 8859-7, iso-8859-7:1987, iso8859_7, greek, greek8, ibm-813, iso8859-7 |
| ISO-8859-8       | iso-ir-138, iso-8859-8:1988, csisolatinhebrew, hebrew, iso8859-8, 8859-8, ibm-916, iso8859_8, Cp916, ibm916                           |
| ISO-8859-9       | ibm-920, ibm920, latin5, 8859-9, Cp920, l5, iso8859-9, iso8859_9, csisolatin5, iso-ir-148                                             |
| JIS0212          |                                                                                                                                       |
| KOI8-R           | koi8, ibm-878, cskoi8r, koi8_r                                                                                                        |
| MacArabic        |                                                                                                                                       |
| MacCentralEurope | ibm-1282                                                                                                                              |
| MacCroatian      | ibm-1284                                                                                                                              |
| MacCyrillic      | ibm-1283                                                                                                                              |
| MacGreek         | ibm-1280                                                                                                                              |
| MacIceland       | ibm-1286                                                                                                                              |
| MacRoman         | ibm-1275                                                                                                                              |
| MacRomania       | ibm-1285                                                                                                                              |

| Canonical Name    | Aliases                         |
|-------------------|---------------------------------|
| <b>MacSymbol</b>  | Adobe-Symbol-Encoding, ibm-1038 |
| <b>MacTurkish</b> | ibm-1281                        |

## Source Platform Default Encodings

If you do not specify an encoding for the source file or for the destination file, the default encoding for that platform will be used. The conversion is performed by the destination agent, and both source and destination encodings must be supported on the destination agent's platform for the conversion to take place. The destination default encoding will always be supported on the destination agent, so it is always safe to leave this unspecified. However, it might not be safe to use a default source encoding, because the destination agent might not support the source's default.

If you are using default source encodings, you should use the tables in this topic to make sure that the combination will be supported.

| Platform                                 | Default Encoding |
|------------------------------------------|------------------|
| Solaris                                  | ISO-8859-1       |
| SUSE Linux Enterprise Server on System x | UTF-8            |
| IBM i                                    | ISO-8859-1       |
| HP-UX (Itanium)                          | ISO-8859-1       |
| Linux for System z                       | UTF-8            |
| AIX                                      | ISO-8859-1       |
| Microsoft Windows                        | windows-1252     |
| Red Hat Enterprise Linux on System x     | UTF-8            |
| z/OS                                     | IBM-1047         |
| Linux for System P                       | UTF-8            |
| HP (PA-RISC)                             | ISO-8859-1       |

## Platform-specific Encodings

**Note:** The following two tables contain the same information. It is organized in two different ways to help you find the right information, depending whether you are looking up by platform or by encoding.

### Encodings by Platform

Canonical names are listed in bold, followed by aliases in parentheses.

Platforms that support only encodings already listed in the Common Encodings table are not listed here.

| Platform | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Solaris  | <p><b>x-IBM33722</b> (ibm33722, 33722, ibm-33722_vascii_vpua, ibm-5050, ibm-33722, cp33722)</p> <p><b>x-IBM930</b> (cp930, ibm930, ibm-930, 930)</p> <p><b>x-IBM939</b> (ibm-939, ibm939, cp939, 939)</p> <p><b>x-IBM964</b> (964, cp964, ibm-964, ibm964)</p> <p><b>x-ISO-2022-CN-CNS</b> (ISO-2022-CN-CNS, ISO2022CN_CNS)</p> <p><b>x-iso-8859-11</b> (iso-8859-11, iso8859_11)</p> <p><b>x-JISAutoDetect</b> (JISAutoDetect)</p> <p><b>x-MS932_0213</b> ()</p> <p><b>x-MS950-HKSCS</b> (MS950_HKSCS)</p> <p><b>x-PCK</b> (pck)</p> <p><b>x-SJIS_0213</b> ()</p> <p><b>X-UTF-32BE-BOM</b> (UTF_32BE_BOM, UTF-32BE-BOM)</p> <p><b>x-MacUkraine</b> (macukraine)</p> <p><b>x-MacThai</b> (macthai)</p> <p><b>x-MacHebrew</b> (machebrew)</p> <p><b>x-MacDingbat</b> (macdingbat)</p> <p><b>x-KSC5601</b> (ksc5601)</p> <p><b>x-JIS0208</b> (jis_c6226-1983, jis_x0208-1983, csiso87jisx0208, x0208, iso-ir-87, jis0208)</p> <p><b>x-IBM949C</b> (ibm949c, cp949c, 949c, ibm-949c)</p> <p><b>x-IBM943C</b> (cp943c, 943c, ibm-943c, ibm943c)</p> <p><b>JIS_X0201</b> (jis_x0201, x0201, cshalfwidthkatakana, jis0201)</p> <p><b>x-windows-iso2022jp</b> (windows-iso2022jp)</p> <p><b>x-windows-50221</b> (ms50221, cp50221)</p> <p><b>x-windows-50220</b> (cp50220, ms50220)</p> <p><b>X-UTF-32LE-BOM</b> (UTF_32LE_BOM, UTF-32LE-BOM)</p> <p><b>x-eucJP-Open</b> (EUC_JP_Solaris, eucJP-open)</p> <p><b>x-Big5-Solaris</b> (Big5_Solaris)</p> <p><b>ISO-2022-JP-2</b> (csISO2022JP2, iso2022jp2)</p> <p><b>IBM918</b> (cp918, ebcdic-cp-ar2, ibm-918, 918)</p> <p><b>IBM1047</b> (cp1047, 1047, ibm-1047)</p> <p><b>IBM01149</b> (cp1149, cp01149, ccsid01149, 1149)</p> <p><b>IBM01148</b> (cp1148, ccsid01148, 1148, cp01148)</p> <p><b>IBM01147</b> (ccsid01147, cp1147, 1147, cp01147)</p> <p><b>IBM01146</b> (ccsid01146, cp01146, cp1146, 1146)</p> |

| Platform                                 | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| SUSE Linux Enterprise Server on System x | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>UTF-32LE</b> (UTF_32LE, X-UTF-32LE, UTF32LE)</p> <p><b>UTF-32BE</b> (UTF_32BE, X-UTF-32BE, UTF32BE)</p> <p><b>UTF-32</b> (UCS-4, UTF32, ISO-10646-UCS-4)</p> <p><b>PTCP154</b> (PT154, IBM-1169, Cyrillic-Asian, csPTCP154)</p> <p><b>KOI8-RU</b> (ibm-1168, koi8_ru)</p> <p><b>ISO-8859-16</b> (8859-16, iso8859_16, iso8859-16)</p> <p><b>ISO-8859-14</b> (ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14)</p> <p><b>IBM01141</b> (cp1141, ccsid01141, cp01141, 1141)</p> <p><b>IBM01142</b> (cp01142, cp1142, 1142, ccsid01142)</p> <p><b>IBM01143</b> (cp01143, 1143, ccsid01143, cp1143)</p> <p><b>IBM01144</b> (cp01144, cp1144, ccsid01144, 1144)</p> <p><b>IBM01145</b> (cp1145, cp01145, ccsid01145, 1145)</p> <p><b>IBM01146</b> (ccsid01146, cp01146, cp1146, 1146)</p> <p><b>IBM01147</b> (ccsid01147, cp1147, 1147, cp01147)</p> <p><b>IBM01148</b> (cp1148, ccsid01148, 1148, cp01148)</p> <p><b>IBM01149</b> (cp1149, cp01149, ccsid01149, 1149)</p> <p><b>IBM1047</b> (cp1047, 1047, ibm-1047)</p> <p><b>IBM918</b> (cp918, ebcdic-cp-ar2, ibm-918, 918)</p> <p><b>ISO-2022-JP-2</b> (csISO2022JP2, iso2022jp2)</p> <p><b>x-Big5-Solaris</b> (Big5_Solaris)</p> <p><b>x-eucJP-Open</b> (EUC_JP_Solaris, eucJP-open)</p> <p><b>x-IBM33722</b> (ibm33722, 33722, ibm-33722_vascii_vpua, ibm-5050, ibm-33722, cp33722)</p> <p><b>x-IBM930</b> (cp930, ibm930, ibm-930, 930)</p> <p><b>x-IBM939</b> (ibm-939, ibm939, cp939, 939)</p> <p><b>x-IBM964</b> (964, cp964, ibm-964, ibm964)</p> <p><b>x-ISO-2022-CN-CNS</b> (ISO-2022-CN-CNS, ISO2022CN_CNS)</p> <p><b>x-iso-8859-11</b> (iso-8859-11, iso8859_11)</p> <p><b>x-JISAutoDetect</b> (JISAutoDetect)</p> <p><b>x-MS932_0213</b> ()</p> <p><b>x-MS950-HKSCS</b> (MS950_HKSCS)</p> <p><b>x-PCK</b> (pck)</p> <p><b>x-IBM1363C</b> (ibm1363c, cp1363c, ibm-1363c)</p> |

| Platform | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| IBM i    | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>IBM-1146</b> (Cp1146, ibm1146)</p> <p><b>IBM-1145</b> (Cp1145, ibm1145)</p> <p><b>IBM-1144</b> (ibm1144, Cp1144)</p> <p><b>IBM-1143</b> (Cp1143, ibm1143)</p> <p><b>IBM-1142</b> (Cp1142, ibm1142)</p> <p><b>IBM-1141</b> (Cp1141, ibm1141)</p> <p><b>IBM-1140</b> (ibm1140, Cp1140)</p> <p><b>IBM-1115</b> (Cp1115, ibm1115)</p> <p><b>IBM-1114</b> (Cp1114, ibm1114)</p> <p><b>hp-roman8</b> (roman8, ibm-1051, r8, Cp1051)</p> <p><b>GBK</b> (GBK)</p> <p><b>GB2312</b> (gb2312-1980, gb2312-80)</p> <p><b>COMPOUND_TEXT</b> (x-compound-text, x11-compound-text)</p> <p><b>CESU-8</b> (CESU8)</p> <p><b>IBM-1027</b> (Cp1027, ibm1027)</p> <p><b>IBM-1041</b> (Cp1041, ibm1041)</p> <p><b>IBM-1043</b> (Cp1043, ibm1043)</p> <p><b>IBM-1046S</b> (ibm1046S, Cp1046S)</p> <p><b>IBM-1047</b> (Cp1047, ibm1047)</p> <p><b>IBM-1088</b> (Cp1088, ibm1088)</p> <p><b>IBM-1382</b> (ibm1382, Cp1382)</p> <p><b>IBM-1385</b> (Cp1385, ibm1385)</p> <p><b>IBM-1386</b> (ibm1386, Cp1386)</p> <p><b>IBM-1388</b> (Cp1388, ibm1388)</p> <p><b>IBM-836</b> (ibm836, Cp836)</p> <p><b>IBM-837</b> (ibm837, Cp837)</p> <p><b>IBM-858</b> (Cp858, ibm858)</p> <p><b>IBM-859</b> (Cp859, ibm859)</p> <p><b>IBM-864S</b> (ibm864S, Cp864S)</p> <p><b>X-UnicodeBig</b> (UnicodeBig)</p> <p><b>X-UnicodeLittle</b> (UnicodeLittle)</p> <p><b>IBM-1047_LF</b> (Cp1047_LF, ibm1047_LF)</p> <p><b>IBM-1141_LF</b> (Cp1141_LF, ibm1141_LF)</p> |

| Platform        | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HP-UX (Itanium) | <p><b>UTF-16</b> (UTF16, Unicode, UTF_16, UCS-2)</p> <p><b>MacUkraine</b> ()</p> <p><b>MacThai</b> ()</p> <p><b>MacHebrew</b> ()</p> <p><b>MacDingbat</b> ()</p> <p><b>JIS0208</b> ()</p> <p><b>JIS0201</b> ()</p> <p><b>IBM-949C</b> (Cp949C, ibm949C)</p> <p><b>IBM-943C</b> (ibm943C, Cp943C)</p> <p><b>IBM-942C</b> (Cp942C, ibm942C)</p> <p><b>IBM00858</b> (cp858, ccsid00858, 858, cp00858)</p> <p><b>IBM01140</b> (ccsid01140, cp01140, 1140, cp1140)</p> <p><b>x-eucJP-Open</b> (EUC_JP_Solaris, eucJP-open)</p> <p><b>x-IBM33722</b> (ibm33722, 33722, ibm-33722_vascii_vpua, ibm-5050, ibm-33722, cp33722)</p> <p><b>x-IBM930</b> (cp930, ibm930, ibm-930, 930)</p> <p><b>x-IBM939</b> (ibm-939, ibm939, cp939, 939)</p> <p><b>x-IBM964</b> (964, cp964, ibm-964, ibm964)</p> <p><b>x-ISO-2022-CN-CNS</b> (ISO-2022-CN-CNS, ISO2022CN_CNS)</p> <p><b>x-iso-8859-11</b> (iso-8859-11, iso8859_11)</p> <p><b>x-JISAutoDetect</b> (JISAutoDetect)</p> <p><b>x-MS950-HKSCS</b> (MS950_HKSCS)</p> <p><b>x-PCK</b> (pck)</p> <p><b>x-windows-50220</b> (cp50220, ms50220)</p> <p><b>x-windows-50221</b> (ms50221, cp50221)</p> <p><b>x-windows-iso2022jp</b> (windows-iso2022jp)</p> <p><b>x-Big5-Solaris</b> (Big5_Solaris)</p> <p><b>IBM918</b> (cp918, ebcdic-cp-ar2, ibm-918, 918)</p> <p><b>IBM1047</b> (cp1047, 1047, ibm-1047)</p> <p><b>IBM01149</b> (cp1149, cp01149, ccsid01149, 1149)</p> <p><b>IBM01148</b> (cp1148, ccsid01148, 1148, cp01148)</p> <p><b>IBM01147</b> (ccsid01147, cp1147, 1147, cp01147)</p> <p><b>IBM01146</b> (ccsid01146, cp01146, cp1146, 1146)</p> <p><b>IBM01145</b> (cp1145, cp01145, ccsid01145, 1145)</p> <p><b>IBM01144</b> (cp01144, cp1144, ccsid01144, 1144)</p> <p><b>IBM01143</b> (cp01143, 1143, ccsid01143, cp1143)</p> |

| Platform           | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Linux for System z | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>UTF-32LE</b> (UTF_32LE, X-UTF-32LE, UTF32LE)</p> <p><b>UTF-32BE</b> (UTF_32BE, X-UTF-32BE, UTF32BE)</p> <p><b>UTF-32</b> (UCS-4, UTF32, ISO-10646-UCS-4)</p> <p><b>PTCP154</b> (PT154, IBM-1169, Cyrillic-Asian, csPTCP154)</p> <p><b>KOI8-RU</b> (ibm-1168, koi8_ru)</p> <p><b>ISO-8859-16</b> (8859-16, iso8859_16, iso8859-16)</p> <p><b>ISO-8859-14</b> (ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14)</p> <p><b>IBM01141</b> (cp1141, ccsid01141, cp01141, 1141)</p> <p><b>IBM01142</b> (cp01142, cp1142, 1142, ccsid01142)</p> <p><b>IBM01143</b> (cp01143, 1143, ccsid01143, cp1143)</p> <p><b>IBM01144</b> (cp01144, cp1144, ccsid01144, 1144)</p> <p><b>IBM01145</b> (cp1145, cp01145, ccsid01145, 1145)</p> <p><b>IBM01146</b> (ccsid01146, cp01146, cp1146, 1146)</p> <p><b>IBM01147</b> (ccsid01147, cp1147, 1147, cp01147)</p> <p><b>IBM01148</b> (cp1148, ccsid01148, 1148, cp01148)</p> <p><b>IBM01149</b> (cp1149, cp01149, ccsid01149, 1149)</p> <p><b>IBM1047</b> (cp1047, 1047, ibm-1047)</p> <p><b>IBM918</b> (cp918, ebcdic-cp-ar2, ibm-918, 918)</p> <p><b>ISO-2022-JP-2</b> (csISO2022JP2, iso2022jp2)</p> <p><b>x-Big5-Solaris</b> (Big5_Solaris)</p> <p><b>x-eucJP-Open</b> (EUC_JP_Solaris, eucJP-open)</p> <p><b>x-IBM33722</b> (ibm33722, 33722, ibm-33722_vascii_vpua, ibm-5050, ibm-33722, cp33722)</p> <p><b>x-IBM930</b> (cp930, ibm930, ibm-930, 930)</p> <p><b>x-IBM939</b> (ibm-939, ibm939, cp939, 939)</p> <p><b>x-IBM964</b> (964, cp964, ibm-964, ibm964)</p> <p><b>x-ISO-2022-CN-CNS</b> (ISO-2022-CN-CNS, ISO2022CN_CNS)</p> <p><b>x-iso-8859-11</b> (iso-8859-11, iso8859_11)</p> <p><b>x-JISAutoDetect</b> (JISAutoDetect)</p> <p><b>x-MS932_0213</b> ()</p> <p><b>x-MS950-HKSCS</b> (MS950_HKSCS)</p> <p><b>x-PCK</b> (pck)</p> <p><b>x-IBM1363C</b> (ibm1363c, cp1363c, ibm-1363c)</p> |

| Platform | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| AIX      | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>UTF-32LE</b> (UTF_32LE, X-UTF-32LE, UTF32LE)</p> <p><b>UTF-32BE</b> (UTF_32BE, X-UTF-32BE, UTF32BE)</p> <p><b>UTF-32</b> (UCS-4, UTF32, ISO-10646-UCS-4)</p> <p><b>UTF-16</b> (UTF16, Unicode, UTF_16, UCS-2)</p> <p><b>Shift_JIS</b> ()</p> <p><b>PTCP154</b> (PT154, IBM-1169, Cyrillic-Asian, csPTCP154)</p> <p><b>MacUkraine</b> ()</p> <p><b>MacThai</b> ()</p> <p><b>MacHebrew</b> ()</p> <p><b>MacDingbat</b> ()</p> <p><b>KSC5601</b> ()</p> <p><b>KOI8-U</b> (koi8_u, ibm-1167)</p> <p><b>KOI8-RU</b> (ibm-1168, koi8_ru)</p> <p><b>Johab</b> (x-johab)</p> <p><b>JIS0208</b> ()</p> <p><b>JIS0201</b> ()</p> <p><b>ISO-8859-6S</b> (iso8859-6S, iso8859_6S)</p> <p><b>ISO-8859-16</b> (8859-16, iso8859_16, iso8859-16)</p> <p><b>ISO-8859-14</b> (ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14)</p> <p><b>ISO-8859-10</b> (latin6, 8859-10, ISO_8859-10:1992, iso8859_10, iso-ir-157, ibm-919, iso8859-10, l6, csisolatin6)</p> <p><b>IBM-971</b> (Cp971, ibm971)</p> <p><b>IBM-964</b> (ibm-euctw, Cp964)</p> <p><b>IBM-954C</b> (Cp954c)</p> <p><b>IBM-954</b> (ibm954, Cp954)</p> <p><b>IBM-951</b> (Cp951, ibm951)</p> <p><b>IBM-949C</b> (Cp949C, ibm949C)</p> <p><b>IBM-947</b> (Cp947, ibm947)</p> <p><b>IBM-943C</b> (ibm943C, Cp943C)</p> <p><b>IBM-942C</b> (Cp942C, ibm942C)</p> <p><b>IBM-939</b> (Cp5035, 5035)</p> <p><b>IBM-932</b> (ibm932, Cp932)</p> <p><b>IBM-930</b> (Cp5026, 5026)</p> <p><b>IBM-927</b> (ibm927, Cp927)</p> |

| Platform          | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Microsoft Windows | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>UTF-32LE</b> (UTF_32LE, X-UTF-32LE, UTF32LE)</p> <p><b>UTF-32BE</b> (UTF_32BE, X-UTF-32BE, UTF32BE)</p> <p><b>UTF-32</b> (UCS-4, UTF32, ISO-10646-UCS-4)</p> <p><b>PTCP154</b> (PT154, IBM-1169, Cyrillic-Asian, csPTCP154)</p> <p><b>KOI8-RU</b> (ibm-1168, koi8_ru)</p> <p><b>ISO-8859-16</b> (8859-16, iso8859_16, iso8859-16)</p> <p><b>ISO-8859-14</b> (ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14)</p> <p><b>IBM01141</b> (cp1141, ccsid01141, cp01141, 1141)</p> <p><b>IBM01142</b> (cp01142, cp1142, 1142, ccsid01142)</p> <p><b>IBM01143</b> (cp01143, 1143, ccsid01143, cp1143)</p> <p><b>IBM01144</b> (cp01144, cp1144, ccsid01144, 1144)</p> <p><b>IBM01145</b> (cp1145, cp01145, ccsid01145, 1145)</p> <p><b>IBM01146</b> (ccsid01146, cp01146, cp1146, 1146)</p> <p><b>IBM01147</b> (ccsid01147, cp1147, 1147, cp01147)</p> <p><b>IBM01148</b> (cp1148, ccsid01148, 1148, cp01148)</p> <p><b>IBM01149</b> (cp1149, cp01149, ccsid01149, 1149)</p> <p><b>IBM1047</b> (cp1047, 1047, ibm-1047)</p> <p><b>IBM918</b> (cp918, ebcdic-cp-ar2, ibm-918, 918)</p> <p><b>ISO-2022-JP-2</b> (csISO2022JP2, iso2022jp2)</p> <p><b>x-Big5-Solaris</b> (Big5_Solaris)</p> <p><b>x-eucJP-Open</b> (EUC_JP_Solaris, eucJP-open)</p> <p><b>x-IBM33722</b> (ibm33722, 33722, ibm-33722_vascii_vpua, ibm-5050, ibm-33722, cp33722)</p> <p><b>x-IBM930</b> (cp930, ibm930, ibm-930, 930)</p> <p><b>x-IBM939</b> (ibm-939, ibm939, cp939, 939)</p> <p><b>x-IBM964</b> (964, cp964, ibm-964, ibm964)</p> <p><b>x-ISO-2022-CN-CNS</b> (ISO-2022-CN-CNS, ISO2022CN_CNS)</p> <p><b>x-iso-8859-11</b> (iso-8859-11, iso8859_11)</p> <p><b>x-JISAutoDetect</b> (JISAutoDetect)</p> <p><b>x-MS932_0213</b> ()</p> <p><b>x-MS950-HKSCS</b> (MS950_HKSCS)</p> <p><b>x-PCK</b> (pck)</p> <p><b>x-IBM1363C</b> (ibm1363c, cp1363c, ibm-1363c)</p> |

| Platform                             | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Red Hat Enterprise Linux on System x | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>UTF-32LE</b> (UTF_32LE, X-UTF-32LE, UTF32LE)</p> <p><b>UTF-32BE</b> (UTF_32BE, X-UTF-32BE, UTF32BE)</p> <p><b>UTF-32</b> (UCS-4, UTF32, ISO-10646-UCS-4)</p> <p><b>PTCP154</b> (PT154, IBM-1169, Cyrillic-Asian, csPTCP154)</p> <p><b>KOI8-RU</b> (ibm-1168, koi8_ru)</p> <p><b>ISO-8859-16</b> (8859-16, iso8859_16, iso8859-16)</p> <p><b>ISO-8859-14</b> (ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14)</p> <p><b>IBM01141</b> (cp1141, ccsid01141, cp01141, 1141)</p> <p><b>IBM01142</b> (cp01142, cp1142, 1142, ccsid01142)</p> <p><b>IBM01143</b> (cp01143, 1143, ccsid01143, cp1143)</p> <p><b>IBM01144</b> (cp01144, cp1144, ccsid01144, 1144)</p> <p><b>IBM01145</b> (cp1145, cp01145, ccsid01145, 1145)</p> <p><b>IBM01146</b> (ccsid01146, cp01146, cp1146, 1146)</p> <p><b>IBM01147</b> (ccsid01147, cp1147, 1147, cp01147)</p> <p><b>IBM01148</b> (cp1148, ccsid01148, 1148, cp01148)</p> <p><b>IBM01149</b> (cp1149, cp01149, ccsid01149, 1149)</p> <p><b>IBM1047</b> (cp1047, 1047, ibm-1047)</p> <p><b>IBM918</b> (cp918, ebcdic-cp-ar2, ibm-918, 918)</p> <p><b>ISO-2022-JP-2</b> (csISO2022JP2, iso2022jp2)</p> <p><b>x-Big5-Solaris</b> (Big5_Solaris)</p> <p><b>x-eucJP-Open</b> (EUC_JP_Solaris, eucJP-open)</p> <p><b>x-IBM33722</b> (ibm33722, 33722, ibm-33722_vascii_vpua, ibm-5050, ibm-33722, cp33722)</p> <p><b>x-IBM930</b> (cp930, ibm930, ibm-930, 930)</p> <p><b>x-IBM939</b> (ibm-939, ibm939, cp939, 939)</p> <p><b>x-IBM964</b> (964, cp964, ibm-964, ibm964)</p> <p><b>x-ISO-2022-CN-CNS</b> (ISO-2022-CN-CNS, ISO2022CN_CNS)</p> <p><b>x-iso-8859-11</b> (iso-8859-11, iso8859_11)</p> <p><b>x-JISAutoDetect</b> (JISAutoDetect)</p> <p><b>x-MS932_0213</b> ()</p> <p><b>x-MS950-HKSCS</b> (MS950_HKSCS)</p> <p><b>x-PCK</b> (pck)</p> <p><b>x-IBM1363C</b> (ibm1363c, cp1363c, ibm-1363c)</p> |

| Platform | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| z/OS     | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>UTF-32LE</b> (UTF_32LE, X-UTF-32LE, UTF32LE)</p> <p><b>UTF-32BE</b> (UTF_32BE, X-UTF-32BE, UTF32BE)</p> <p><b>UTF-32</b> (UCS-4, UTF32, ISO-10646-UCS-4)</p> <p><b>UTF-16</b> (UTF16, Unicode, UTF_16, UCS-2)</p> <p><b>Shift_JIS</b> ()</p> <p><b>PTCP154</b> (PT154, IBM-1169, Cyrillic-Asian, csPTCP154)</p> <p><b>MacUkraine</b> ()</p> <p><b>MacThai</b> ()</p> <p><b>MacHebrew</b> ()</p> <p><b>MacDingbat</b> ()</p> <p><b>KSC5601</b> ()</p> <p><b>KOI8-U</b> (koi8_u, ibm-1167)</p> <p><b>KOI8-RU</b> (ibm-1168, koi8_ru)</p> <p><b>Johab</b> (x-johab)</p> <p><b>JIS0208</b> ()</p> <p><b>JIS0201</b> ()</p> <p><b>ISO-8859-6S</b> (iso8859-6S, iso8859_6S)</p> <p><b>ISO-8859-16</b> (8859-16, iso8859_16, iso8859-16)</p> <p><b>ISO-8859-14</b> (ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14)</p> <p><b>ISO-8859-10</b> (latin6, 8859-10, ISO_8859-10:1992, iso8859_10, iso-ir-157, ibm-919, iso8859-10, l6, csisolatin6)</p> <p><b>IBM-971</b> (Cp971, ibm971)</p> <p><b>IBM-964</b> (ibm-euctw, Cp964)</p> <p><b>IBM-954C</b> (Cp954c)</p> <p><b>IBM-954</b> (ibm954, Cp954)</p> <p><b>IBM-951</b> (Cp951, ibm951)</p> <p><b>IBM-949C</b> (Cp949C, ibm949C)</p> <p><b>IBM-947</b> (Cp947, ibm947)</p> <p><b>IBM-943C</b> (ibm943C, Cp943C)</p> <p><b>IBM-942C</b> (Cp942C, ibm942C)</p> <p><b>IBM-939</b> (Cp5035, 5035)</p> <p><b>IBM-932</b> (ibm932, Cp932)</p> <p><b>IBM-930</b> (Cp5026, 5026)</p> <p><b>IBM-927</b> (ibm927, Cp927)</p> |

| Platform           | Supported Encodings (not in Common Encodings table)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Linux for System P | <p><b>windows-1256S</b> (Cp1256s, ibm-1256s)</p> <p><b>UTF-8J</b> (UTF8J)</p> <p><b>UTF-32LE</b> (UTF_32LE, X-UTF-32LE, UTF32LE)</p> <p><b>UTF-32BE</b> (UTF_32BE, X-UTF-32BE, UTF32BE)</p> <p><b>UTF-32</b> (UCS-4, UTF32, ISO-10646-UCS-4)</p> <p><b>UTF-16</b> (UTF16, Unicode, UTF_16, UCS-2)</p> <p><b>Shift_JIS</b> ()</p> <p><b>PTCP154</b> (PT154, IBM-1169, Cyrillic-Asian, csPTCP154)</p> <p><b>MacUkraine</b> ()</p> <p><b>MacThai</b> ()</p> <p><b>MacHebrew</b> ()</p> <p><b>MacDingbat</b> ()</p> <p><b>KSC5601</b> ()</p> <p><b>KOI8-U</b> (koi8_u, ibm-1167)</p> <p><b>KOI8-RU</b> (ibm-1168, koi8_ru)</p> <p><b>Johab</b> (x-johab)</p> <p><b>JIS0208</b> ()</p> <p><b>JIS0201</b> ()</p> <p><b>ISO-8859-6S</b> (iso8859-6S, iso8859_6S)</p> <p><b>ISO-8859-16</b> (8859-16, iso8859_16, iso8859-16)</p> <p><b>ISO-8859-14</b> (ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14)</p> <p><b>ISO-8859-10</b> (latin6, 8859-10, ISO_8859-10:1992, iso8859_10, iso-ir-157, ibm-919, iso8859-10, l6, csisolatin6)</p> <p><b>IBM-971</b> (Cp971, ibm971)</p> <p><b>IBM-964</b> (ibm-euctw, Cp964)</p> <p><b>IBM-954C</b> (Cp954c)</p> <p><b>IBM-954</b> (ibm954, Cp954)</p> <p><b>IBM-951</b> (Cp951, ibm951)</p> <p><b>IBM-949C</b> (Cp949C, ibm949C)</p> <p><b>IBM-947</b> (Cp947, ibm947)</p> <p><b>IBM-943C</b> (ibm943C, Cp943C)</p> <p><b>IBM-942C</b> (Cp942C, ibm942C)</p> <p><b>IBM-939</b> (Cp5035, 5035)</p> <p><b>IBM-932</b> (ibm932, Cp932)</p> <p><b>IBM-930</b> (Cp5026, 5026)</p> <p><b>IBM-927</b> (ibm927, Cp927)</p> |

## Platforms by Encoding

| Encoding            | Aliases    | Platforms on which this encoding is supported                                                                                                              |
|---------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>x-MacUkraine</b> | macukraine | Solaris,<br><br>SUSE Linux Enterprise Server on System x,<br><br>Linux for System z,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x |
| <b>x-MacThai</b>    | macthai    | Solaris,<br><br>SUSE Linux Enterprise Server on System x,<br><br>Linux for System z,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x |
| <b>x-MacHebrew</b>  | machebrew  | Solaris,<br><br>SUSE Linux Enterprise Server on System x,<br><br>Linux for System z,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x |
| <b>x-MacDingbat</b> | macingbat  | Solaris,<br><br>SUSE Linux Enterprise Server on System x,<br><br>Linux for System z,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x |
| <b>x-KSC5601</b>    | ksc5601    | Solaris,<br><br>SUSE Linux Enterprise Server on System x,<br><br>Linux for System z,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x |

| Encoding             | Aliases                                                                    | Platforms on which this encoding is supported                                                                                              |
|----------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>x-JIS0208</b>     | jis_c6226-1983, jis_x0208-1983, csiso87jisx0208, x0208, iso-ir-87, jis0208 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x |
| <b>x-ISO-8859-6S</b> | 8859_6s, iso8859-6s, iso8859_6s, iso-8859-6s                               | SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x             |
| <b>x-IBM954C</b>     | cp954c, 954c, ibm-954c, ibm954c                                            | SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x             |
| <b>x-IBM949C</b>     | ibm949c, cp949c, 949c, ibm-949c                                            | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x |
| <b>x-IBM943C</b>     | cp943c, 943c, ibm-943c, ibm943c                                            | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x |

| Encoding           | Aliases                                        | Platforms on which this encoding is supported                                                                                              |
|--------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>x-IBM864S</b>   | csibm864s, ibm864s, cp864s, 864s, ibm-864s     | SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x             |
| <b>x-IBM420S</b>   | 420s, ibm-420s, csibm420s, ibm420s, cp420s     | SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x             |
| <b>x-IBM1363C</b>  | ibm1363c, cp1363c, ibm-1363c                   | SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x             |
| <b>x-IBM1046S</b>  | ibm-1046s, 1046s, cp1046s, ibm1046s            | SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x             |
| <b>x-IBM-udcJP</b> | IBM-udcJP                                      | SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x             |
| <b>JIS_X0201</b>   | jis_x0201, x0201, cshalfwidthkatakana, jis0201 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x |

| Encoding                   | Aliases               | Platforms on which this encoding is supported                                                                                                                                   |
|----------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-939A</b>            | Cp939A, ibm939A       | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x                                        |
| <b>IBM-930A</b>            | ibm930A, Cp930A       | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS                               |
| <b>IBM-924_LF</b>          | Cp924_LF, ibm924_LF   | IBM i                                                                                                                                                                           |
| <b>IBM-33722A</b>          | Cp33722A, ibm33722A   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x                                        |
| <b>IBM-1141_LF</b>         | Cp1141_LF, ibm1141_LF | IBM i                                                                                                                                                                           |
| <b>IBM-1047_LF</b>         | Cp1047_LF, ibm1047_LF | IBM i                                                                                                                                                                           |
| <b>x-windows-iso2022jp</b> | windows-iso2022jp     | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |

| Encoding               | Aliases                    | Platforms on which this encoding is supported                                                                                                                                   |
|------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>x-windows-50221</b> | ms50221, cp50221           | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>x-windows-50220</b> | cp50220, ms50220           | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>X-UTF-32LE-BOM</b>  | UTF_32LE_BOM, UTF-32LE-BOM | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC)                     |
| <b>X-UTF-32BE-BOM</b>  | UTF_32BE_BOM, UTF-32BE-BOM | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC)                     |

| Encoding      | Aliases     | Platforms on which this encoding is supported                                                                                                                                   |
|---------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| x-SJIS_0213   |             | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC)                     |
| x-PCK         | pck         | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| x-MS950-HKSCS | MS950_HKSCS | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| x-MS932_0213  |             | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC)                     |

| Encoding                 | Aliases                        | Platforms on which this encoding is supported                                                                                                                                   |
|--------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>x-JISAutoDetect</b>   | JISAutoDetect                  | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>x-iso-8859-11</b>     | iso-8859-11, iso8859_11        | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>x-ISO-2022-CN-CNS</b> | ISO-2022-CN-CNS, ISO2022CN_CNS | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>x-IBM964</b>          | 964, cp964, ibm-964, ibm964    | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |

| Encoding            | Aliases                                                                    | Platforms on which this encoding is supported                                                                                                                                   |
|---------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>x-IBM939</b>     | ibm-939, ibm939, cp939, 939                                                | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>x-IBM930</b>     | cp930, ibm930, ibm-930, 930                                                | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>x-IBM33722</b>   | ibm33722, 33722,<br>ibm-33722_vascii_vpua, ibm-5050,<br>ibm-33722, cp33722 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>x-eucJP-Open</b> | EUC_JP_Solaris, eucJP-open                                                 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |

| Encoding              | Aliases                            | Platforms on which this encoding is supported                                                                                                                                   |
|-----------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>x-Big5-Solaris</b> | Big5_Solaris                       | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>Roman9</b>         | Roman9                             | HP (PA-RISC)                                                                                                                                                                    |
| <b>ISO-2022-JP-2</b>  | csISO2022JP2, iso2022jp2           | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC)                     |
| <b>IBM918</b>         | cp918, ebcdic-cp-ar2, ibm-918, 918 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| <b>IBM1047</b>        | cp1047, 1047, ibm-1047             | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |

| Encoding | Aliases                           | Platforms on which this encoding is supported                                                                                                                                   |
|----------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM01149 | cp1149, cp01149, ccsid01149, 1149 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM01148 | cp1148, ccsid01148, 1148, cp01148 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM01147 | ccsid01147, cp1147, 1147, cp01147 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM01146 | ccsid01146, cp01146, cp1146, 1146 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |

| Encoding | Aliases                           | Platforms on which this encoding is supported                                                                                                                                   |
|----------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM01145 | cp1145, cp01145, ccsid01145, 1145 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM01144 | cp01144, cp1144, ccsid01144, 1144 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM01143 | cp01143, 1143, ccsid01143, cp1143 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM01142 | cp01142, cp1142, 1142, ccsid01142 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |

| Encoding | Aliases                           | Platforms on which this encoding is supported                                                                                                                                   |
|----------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM01141 | cp1141, ccsid01141, cp01141, 1141 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM01140 | ccsid01140, cp01140, 1140, cp1140 | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |
| IBM00858 | cp858, ccsid00858, 858, cp00858   | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>HP-UX (Itanium),<br>Linux for System z,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>HP (PA-RISC) |

| Encoding               | Aliases         | Platforms on which this encoding is supported                                                                                                                                                                  |
|------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>X-UnicodeLittle</b> | UnicodeLittle   | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |
| <b>X-UnicodeBig</b>    | UnicodeBig      | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |
| <b>IBM-864S</b>        | ibm864S, Cp864S | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                                                  |

| Encoding       | Aliases       | Platforms on which this encoding is supported                                                                                                                                    |
|----------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-859</b> | Cp859, ibm859 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-858</b> | Cp858, ibm858 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| <b>IBM-837</b> | ibm837, Cp837 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-836</b> | ibm836, Cp836 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding | Aliases       | Platforms on which this encoding is supported                                                                                                                                    |
|----------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM-835  | ibm835, Cp835 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-833  | ibm833, Cp833 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-808  | Cp808, ibm808 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding         | Aliases             | Platforms on which this encoding is supported                                                                                                                                    |
|------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-720</b>   | Cp720, ibm720       | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-420S</b>  | Cp420S, ibm420S     | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| <b>IBM-3372C</b> | ibm-eucjp, Cp33722c | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-33722</b> | 5050, Cp5050        | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |

| Encoding       | Aliases       | Platforms on which this encoding is supported                                                                                                                                    |
|----------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-301</b> | Cp301, ibm301 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-300</b> | Cp300, ibm300 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-290</b> | ibm290, Cp290 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding        | Aliases         | Platforms on which this encoding is supported                                                                                                                                    |
|-----------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-1399</b> | ibm1399, Cp1399 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-1390</b> | Cp1390, ibm1390 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-1388</b> | Cp1388, ibm1388 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-1386</b> | ibm1386, Cp1386 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |

| Encoding | Aliases         | Platforms on which this encoding is supported                                                                                                                                    |
|----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM-1385 | Cp1385, ibm1385 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-1382 | ibm1382, Cp1382 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-1088 | Cp1088, ibm1088 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-1047 | Cp1047, ibm1047 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |

| Encoding         | Aliases           | Platforms on which this encoding is supported                                                                                                                                    |
|------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-1046S</b> | ibm1046S, Cp1046S | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| <b>IBM-1043</b>  | Cp1043, ibm1043   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-1041</b>  | Cp1041, ibm1041   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-1027</b>  | Cp1027, ibm1027   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding      | Aliases                            | Platforms on which this encoding is supported                                                                                                                                                                  |
|---------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CESU-8        | CESU8                              | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P                               |
| COMPOUND_TEXT | x-compound-text, x11-compound-text | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |
| GB2312        | gb2312-1980, gb2312-80             | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P                               |

| Encoding         | Aliases                      | Platforms on which this encoding is supported                                                                                                                                                      |
|------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GBK</b>       | GBK                          | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P                   |
| <b>hp-roman8</b> | roman8, ibm-1051, r8, Cp1051 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |
| <b>IBM-1114</b>  | Cp1114, ibm1114              | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P                   |

| Encoding | Aliases         | Platforms on which this encoding is supported                                                                                                                                    |
|----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM-1115 | Cp1115, ibm1115 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-1140 | ibm1140, Cp1140 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1141 | Cp1141, ibm1141 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1142 | Cp1142, ibm1142 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1143 | Cp1143, ibm1143 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1144 | ibm1144, Cp1144 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1145 | Cp1145, ibm1145 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |

| Encoding | Aliases         | Platforms on which this encoding is supported                                                                                                                                    |
|----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM-1146 | Cp1146, ibm1146 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1147 | Cp1147, ibm1147 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1148 | ibm1148, Cp1148 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1149 | Cp1149, ibm1149 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-1351 | Cp1351, ibm1351 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding         | Aliases           | Platforms on which this encoding is supported                                                                                                                                                      |
|------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-1362</b>  | Cp1362, ibm1362   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P                   |
| <b>IBM-1363</b>  | ibm1363, Cp1363   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P                   |
| <b>IBM-1363C</b> | ibm1363C, Cp1363C | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                                      |
| <b>IBM-1364</b>  | Cp1364, ibm1364   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |

| Encoding        | Aliases         | Platforms on which this encoding is supported                                                                                                                                    |
|-----------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-1370</b> | Cp1370, ibm1370 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-1371</b> | Cp1371, ibm1371 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-1380</b> | Cp1380, ibm1380 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding       | Aliases       | Platforms on which this encoding is supported                                                                                                                                    |
|----------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-867</b> | Cp867, ibm867 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-897</b> | Cp897, ibm897 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-918</b> | ibm918, Cp918 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| <b>IBM-924</b> | Cp924, ibm924 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding | Aliases         | Platforms on which this encoding is supported                                                                                                                                    |
|----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM-927  | ibm927, Cp927   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-930  | Cp5026, 5026    | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-932  | ibm932, Cp932   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-939  | Cp5035, 5035    | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| IBM-942C | Cp942C, ibm942C | Solaris,<br>IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC)                                                                                  |

| Encoding | Aliases         | Platforms on which this encoding is supported                                                                                                                                    |
|----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM-943C | ibm943C, Cp943C | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC)                                                                                              |
| IBM-947  | Cp947, ibm947   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| IBM-949C | Cp949C, ibm949C | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC)                                                                                              |
| IBM-951  | Cp951, ibm951   | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding        | Aliases          | Platforms on which this encoding is supported                                                                                                                                    |
|-----------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBM-954</b>  | ibm954, Cp954    | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>IBM-954C</b> | Cp954c           | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| <b>IBM-964</b>  | ibm-euctw, Cp964 | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| <b>IBM-971</b>  | Cp971, ibm971    | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

| Encoding           | Aliases                                                                                         | Platforms on which this encoding is supported                                                                                                                                    |
|--------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ISO-8859-10</b> | latin6, 8859-10, ISO_8859-10:1992, iso8859_10, iso-ir-157, ibm-919, iso8859-10, l6, csisolatin6 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>ISO-8859-14</b> | ISO_8859-14:1998, 8859-14, latin8, iso-ir-199, iso8859-14, l8, isoceltic, iso8859_14            | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>ISO-8859-16</b> | 8859-16, iso8859_16, iso8859-16                                                                 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>ISO-8859-6S</b> | iso8859-6S, iso8859_6S                                                                          | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |

| Encoding       | Aliases           | Platforms on which this encoding is supported                                                                                                                                    |
|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>JIS0201</b> |                   | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC)                                                                                              |
| <b>JIS0208</b> |                   | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC)                                                                                              |
| <b>Johab</b>   | x-johab           | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                    |
| <b>KOI8-RU</b> | ibm-1168, koi8_ru | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |
| <b>KOI8-U</b>  | koi8_u, ibm-1167  | Solaris,<br>IBM i,<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC)                                                                                                      |

| Encoding   | Aliases | Platforms on which this encoding is supported                                       |
|------------|---------|-------------------------------------------------------------------------------------|
| KSC5601    |         | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                       |
| MacDingbat |         | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |
| MacHebrew  |         | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |
| MacThai    |         | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |
| MacUkraine |         | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |

| Encoding         | Aliases                                    | Platforms on which this encoding is supported                                                                                                                                                                  |
|------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PTCP154</b>   | PT154, IBM-1169, Cyrillic-Asian, csPTCP154 | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P                               |
| <b>Shift_JIS</b> |                                            | IBM i,<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                                                  |
| <b>UTF-16</b>    | UTF16, Unicode, UTF_16, UCS-2              | IBM i,<br>HP-UX (Itanium),<br>AIX,<br>z/OS,<br>Linux for System P                                                                                                                                              |
| <b>UTF-32</b>    | UCS-4, UTF32, ISO-10646-UCS-4              | Solaris,<br>SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P ,<br>HP (PA-RISC) |

| Encoding | Aliases                       | Platforms on which this encoding is supported                                                                                                                                                                                                      |
|----------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UTF-32BE | UTF_32BE, X-UTF-32BE, UTF32BE | Solaris,<br><br>SUSE Linux Enterprise Server on System x,<br><br>IBM i,<br><br>Linux for System z,<br><br>AIX,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x,<br><br>z/OS,<br><br>Linux for System P ,<br><br>HP (PA-RISC) |
| UTF-32LE | UTF_32LE, X-UTF-32LE, UTF32LE | Solaris,<br><br>SUSE Linux Enterprise Server on System x,<br><br>IBM i,<br><br>Linux for System z,<br><br>AIX,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x,<br><br>z/OS,<br><br>Linux for System P ,<br><br>HP (PA-RISC) |
| UTF-8J   | UTF8J                         | SUSE Linux Enterprise Server on System x,<br><br>IBM i,<br><br>Linux for System z,<br><br>AIX,<br><br>Microsoft Windows,<br><br>Red Hat Enterprise Linux on System x,<br><br>z/OS,<br><br>Linux for System P                                       |

| Encoding      | Aliases            | Platforms on which this encoding is supported                                                                                                                                    |
|---------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| windows-1256S | Cp1256s, ibm-1256s | SUSE Linux Enterprise Server on System x,<br>IBM i,<br>Linux for System z,<br>AIX,<br>Microsoft Windows,<br>Red Hat Enterprise Linux on System x,<br>z/OS,<br>Linux for System P |

#### Related concepts:

“Using transfer definition files” on page 195

You can specify a transfer definition file which can be used to create a file transfer. The transfer definition file is an XML file that defines some or all of the information required to create the transfer.

#### Related reference:

“Transferring text files” on page 734

Text file transfer involves converting the code page of a file from one code page to another. Text file transfer also involves converting CRLF (carriage return-line feed) characters between systems. This topic summarizes text file transfer behavior of WebSphere MQ File Transfer Edition.

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Message formats for WebSphere MQ File Transfer Edition

WebSphere MQ File Transfer Edition uses messages in XML format for a number of purposes: to interact with the Web Gateway; to command an agent; to log information about the monitors, schedules, and transfers; and to define information used for configuration. The logical structure of the XML formats used for these purposes described by XML schema.

Each version of WebSphere MQ File Transfer Edition uses an XML schema to validate messages written in XML. The agent extracts the XML schema version and determines whether the schema is supported.

After you have installed WebSphere MQ File Transfer Edition, you can find the WebSphere MQ File Transfer Edition message schema files in the following directory: *install\_directory/samples/schema*. The following schemas are included:

#### Schemas for XML messages used by the Web Gateway

Filespace.xsd

FileSpaceInfo.xsd

UserInfo.xsd

WebFileSpaceList.xsd

WebTransferStatus.xsd

For more information about schemas used by the Web Gateway, see “Administration response and request formats” on page 974 and “Response formats: XML and JSON” on page 953.

**Schemas for XML messages that can be put on an agent command queue**

FileTransfer.xsd

Internal.xsd

Monitor.xsd

PingAgent.xsd

For more information about putting XML messages on an agent command queue, see “Controlling WebSphere MQ File Transfer Edition by putting messages on the agent command queue” on page 372.

**Schemas for XML messages that are published to the SYSTEM.FTE topic**

MonitorList.xsd

MonitorLog.xsd

ScheduleList.xsd

ScheduleLog.xsd

TransferLog.xsd

TransferStatus.xsd

For more information about XML messages that are published to the SYSTEM.FTE topic and the structure of the SYSTEM.FTE topic, see “The SYSTEM.FTE topic” on page 656.

**Other schemas used by WebSphere MQ File Transfer Edition**

fteutils.xsd. This schema contains common element definitions and is included by some of the other schemas.

Notification.xsd

ProtocolBridgeCredentials.xsd

ProtocolBridgeProperties.xsd

ConnectDirectCredentials.xsd

ConnectDirectNodeProperties.xsd

ConnectDirectProcessDefinitions.xsd

Reply.xsd

UserSandboxes.xsd

## Related reference:

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent\_name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

“Protocol bridge credentials file format” on page 622

The ProtocolBridgeCredentials.xml file in the agent configuration directory defines the user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server.

“Protocol bridge properties file format” on page 626

The ProtocolBridgeProperties.xml file in the agent configuration directory defines properties for file protocol servers.

“Connect:Direct credentials file format” on page 634

The ConnectDirectCredentials.xml file in the agent configuration directory defines the user names and credential information that the Connect:Direct agent uses to authorize itself with a Connect:Direct node.

“Connect:Direct node properties file format” on page 637

The ConnectDirectNodeProperties.xml file in the Connect:Direct bridge agent configuration directory specifies information about remote Connect:Direct nodes that are involved in a file transfer.

“Connect:Direct process definitions file format” on page 639

The ConnectDirectProcessDefinitions.xml file in the Connect:Direct bridge agent configuration directory specifies the user-defined Connect:Direct process to start as part of the file transfer.

“Ping agent request message format” on page 912

You can ping an agent by issuing an **ftePingAgent** command or by putting an XML message on the agent command queue. The ping agent request XML must conform to the PingAgent.xsd schema. After you have installed WebSphere MQ File Transfer Edition, you can find the PingAgent.xsd schema file in the following directory: *install\_directory/samples/schema*. The PingAgent.xsd schema imports fteutils.xsd, which is in the same directory.

“Reply message format” on page 913

When an agent receives an XML message on its agent command queue, if a response is required, the agent will send an XML reply message to the reply queue defined in the original message. The reply XML conforms to the Reply.xsd schema. The Reply.xsd schema document is located in the *install\_directory/samples/schema* directory. The Reply.xsd schema imports fteutils.xsd, which is in the same directory.

## Agent status message format

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

The following information is included:

- Agent name
- Platform the agent is running on
- Agent description (if provided)
- Agent's queue manager
- Time zone that the agent is running in
- Agent version
- Agent transfer limits
- State of each of the agent's current transfers. These states are listed in Agent transfer states
- Type of agent

If the agent is a protocol bridge agent the following information is also included:

- Type of protocol bridge agent
- Host name or IP address of the protocol bridge server

If the agent is a web agent the following information is also included:

- Name of the Web Gateway the web agent connects to

The agent status is republished whenever the agent transfer states change, but by default no more than every 30 seconds. You can change this default setting using the `agentStatusPublishRateLimit` agent property, which is described in: Advanced agent properties.

The following example output shows the keys used for each data element in the agent status:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
  <entry key="agentOsName">Windows XP</entry>
  <entry key="agentDescription"/>
  <entry key="queueManager">QM1</entry>
  <entry key="agentTimeZone">Europe/London</entry>
  <entry key="agentVersion">1.00</entry>
  <entry key="agentName">FTEAGENT</entry>
  <entry key="maxDestinationTransfers">25</entry>
  <entry key="maxSourceTransfers">25</entry>
  <entry key="maxQueuedTransfers">100</entry>
  <entry key="DestinationTransferStates">414d51204d554e474f202020202020d857374a60a72622=RunningTransfer
414d51204d554e474f202020202020d857374a69a72622=RunningTransfer
414d51204d554e474f202020202020d857374a75a72622=RunningTransfer
</entry>
  <entry key="SourceTransferStates">414d51204d554e474f202020202020d857374a93a72622=NegotiatingTransfer
414d51204d554e474f202020202020d857374a78a72622=RunningTransfer
</entry>
</properties>
```

```
414d51204d554e474f202020202020d857374aaba72622=NewSenderTransfer
414d51204d554e474f202020202020d857374a63a72622=RunningTransfer
```

```
</entry>
</properties>
```

The following example output shows the keys used for each data element in the agent status of a protocol bridge agent:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
  <entry key="agentOsName">Windows XP</entry>
  <entry key="agentDescription"/>
  <entry key="queueManager">QM1</entry>
  <entry key="agentTimeZone">Europe/London</entry>
  <entry key="agentVersion">1.00</entry>
  <entry key="agentName">BRIDGE</entry>
  <entry key="protocolBridgeType">ftp</entry>
  <entry key="protocolBridgeServerHost">ftpserver.example.org</entry>
  <entry key="maxDestinationTransfers">25</entry>
  <entry key="maxSourceTransfers">25</entry>
  <entry key="maxQueuedTransfers">100</entry>
  <entry key="DestinationTransferStates">414d51204d554e474f202020202020d857374a60a72622=RunningTransfer
</entry>
  <entry key="SourceTransferStates">414d51204d554e474f202020202020d857374a93a72622=NegotiatingTransfer
</entry>
</properties>
```

#### Related reference:

“Agent transfer states” on page 659

An agent that is started publishes its details to the SYSTEM.FTE topic on its coordination queue manager. These details include the states of each of the current transfers that involved that agent. The states are as follows:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/agent\_name/transfer ID topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of Log/agent\_name/transfer\_ID. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/agent\_name/schedule ID topic). This message conforms to the ScheduleLog.xsd XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

### Agent transfer states:

An agent that is started publishes its details to the SYSTEM.FTE topic on its coordination queue manager. These details include the states of each of the current transfers that involved that agent. The states are as follows:

| Transfer state                | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NewSenderTransfer             | A new transfer from the source agent that the negotiation has not started for.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| NewReceiverTransfer           | A new transfer has been created at the destination agent as part of negotiation, but the transfer is not yet running.                                                                                                                                                                                                                                                                                                                                                                                 |
| NegotiatingTransfer           | A source agent is in negotiation with the destination agent before running a transfer.                                                                                                                                                                                                                                                                                                                                                                                                                |
| RunningTransfer               | A transfer from either a source agent or destination agent that is in the normal running state                                                                                                                                                                                                                                                                                                                                                                                                        |
| RecoveringTransfer            | When either a source or destination agent starts the recovery process, any transfers in running state are moved into transfer state. Transfers are moved out of this state into ReSynchronisingTransfer state when a resynchronization message is sent to the peer agent.<br><br>For example, if the destination agent starts the recovery process for a running transfer, the transfer is moved into the ReSynchronisingTransfer state when a resynchronization message is sent to its source agent. |
| ReSynchronisingTransfer       | A transfer source or destination agent has found a problem and has sent a resynchronization message to its respective destination or source agent.                                                                                                                                                                                                                                                                                                                                                    |
| CompletedTransfer             | A destination agent has completed the transfer and has sent a completion message to the source agent. The destination agent is waiting for an acknowledgment message from the source agent.                                                                                                                                                                                                                                                                                                           |
| CompleteReceivedTransfer      | A source agent has received a completion message from the destination agent and has sent a message back to the destination agent to acknowledge the completion message.                                                                                                                                                                                                                                                                                                                               |
| CancelledNewTransfer          | A source agent has received a cancel message for a new transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| CancelledInProgressTransfer   | A source agent has received a cancel message for an in-progress transfer.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ResumingTransfer              | A source agent has received a resynchronize response message and now schedules the transfer to restart.                                                                                                                                                                                                                                                                                                                                                                                               |
| RestartingTransfer            | A source or destination agent has received a resynchronize request message and is waiting for the respective destination or source agent to restart.                                                                                                                                                                                                                                                                                                                                                  |
| WaitingForDestinationCapacity | A source agent has received a DESTINATION_CAPACITY_EXCEEDED error from the destination agent. The transfer is now in a waiting state to be retried after a period.                                                                                                                                                                                                                                                                                                                                    |
| FailedTransferEnding          | The transfer has failed but the completion log message has not been published and the transfer has not been removed from the state store. For example, this state can occur if an agent process is stopped after a failure response has been received from the destination agent but before the subsequent processing has been completed.                                                                                                                                                             |

## Related reference:

“Agent status values” on page 721

The **fteListAgents** and **fteShowAgentDetails** commands produce agent status information. There are several possible values for this status.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent\_name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

## Monitor list message format

The XML messages that are published as retained publications to the topic string SYSTEM.FTE/monitors/*agent\_name/monitor\_name* conform to the MonitorList.xsd schema. Each XML message lists an active monitor belonging to that agent. This information is used by the **fteListMonitors** command and the WebSphere MQ Explorer plug-in to display a list of monitors to the user. The MonitorList.xsd schema document is located in the *install\_directory/samples/schema* directory. The MonitorList.xsd schema imports Monitor.xsd, which is in the same directory.

## Schema

The following schema describes which elements are valid in a monitor list XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  xmlns="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition">

  <xsd:include schemaLocation="Monitor.xsd"/>

  <xsd:element name="monitorList">
    <xsd:complexType>
      <xsd:sequence>
```

```

        <xsd:element name="status" type="monitorStatusType" minOccurs="1" maxOccurs="1"/>
        <xsd:element name="configuration" type="monitorConfigurationType" minOccurs="1" maxOccurs="1"/>
        <xsd:element name="pollInterval" type="pollIntervalType" minOccurs="1" maxOccurs="1"/>
        <xsd:element name="batch" type="batchType" minOccurs="1" maxOccurs="1"/>
        <xsd:any minOccurs="0"/>
    </xsd:sequence>
    <xsd:attribute name="version" type="versionType" use="required"/>
    <xsd:attribute name="agent" type="xsd:string" use="required"/>
    <xsd:attribute name="monitor" type="xsd:string" use="required"/>
</xsd:complexType>
</xsd:element>

<xsd:complexType name="monitorStatusType">
    <xsd:sequence>
        <xsd:any minOccurs="0"/>
    </xsd:sequence>
    <xsd:attribute name="state" type="xsd:token"/>
    <xsd:anyAttribute/>
</xsd:complexType>

<xsd:complexType name="monitorConfigurationType">
    <xsd:sequence>
        <xsd:element name="description" type="xsd:string" minOccurs="1" maxOccurs="1" />
        <xsd:element name="resources" type="monitorResourcesType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="triggerMatch" type="triggerMatchType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="tasks" type="monitorListTasksType" minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
    <xsd:anyAttribute/>
</xsd:complexType>

<xsd:complexType name="monitorListTasksType">
    <xsd:sequence>
        <xsd:element name="task" type="monitorListTaskType" minOccurs="1" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="monitorListTaskType">
    <xsd:sequence>
        <xsd:element name="name" type="monitorTaskNameType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="description" type="xsd:string" minOccurs="0" maxOccurs="1" />
        <xsd:element name="taskXML" type="xsd:string" minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>
</xsd:schema>

```

## Understanding the monitor list message

The elements and attributes used in the monitor list messages are described in the following list:

### <monitorList>

Group element containing the elements describe a monitor that is defined for the agent.

| Attribute | Description                                                              |
|-----------|--------------------------------------------------------------------------|
| agent     | Required. The name of the agent that the resource monitor is defined on. |
| monitor   | Required. The name of the monitor. Unique for this agent.                |
| version   | Required. The version of the monitor list message format.                |

### <status>

The status of the monitor.

| Attribute | Description               |
|-----------|---------------------------|
| state     | The state of the monitor. |

**<configuration>**

Group element containing the elements describe the configuration of the monitor.

**<description>**

A description of the monitor. (Not currently used.)

**<resources>**

The resource or resources being monitored.

**<directory>**

A directory to monitor.

| Attribute      | Description                                                        |
|----------------|--------------------------------------------------------------------|
| recursionLevel | The number of directory levels down from the top level to monitor. |
| id             | The ID of the resource.                                            |

**<queue>**

A queue to monitor.

| Attribute | Description             |
|-----------|-------------------------|
| id        | The ID of the resource. |

**<triggerMatch>**

Element that contains the <conditions> element.

**<conditions>**

Element that contains the condition or conditions that the resource monitor is monitoring for. This element can contain only one of the following elements: <allOf>, <anyOf>, or <condition>.

**<allOf>**

Element that contains the condition or conditions that the resource monitor is monitoring for. This element can contain one or many <condition> elements. For the resource monitor to be triggered all of the conditions inside of this element must be met.

**<anyOf>**

Element that contains the condition or conditions that the resource monitor is monitoring for. This element can contain one or many <condition> elements. For the resource monitor to be triggered only one of the conditions inside of this element must be met.

**<condition>**

Element that contains a single condition that the resource monitor is monitoring for. This element can contain only one of the following elements: <fileMatch>, <fileNoMatch>, <fileSize>, <queueNotEmpty>, <completeGroups>, or <fileSizeSame>. It can also contain a <name> element and a <resource> element.

If the resource that is being monitored is a directory, one of the following three elements must be specified in the condition:

- fileMatch
- fileNoMatch
- fileSize

If the resource that is being monitored is a queue, one of the following two elements must be specified in the condition:

- queueNotEmpty
- completeGroups

**<fileMatch>**

Group element for a file name match condition.

**<pattern>**

Specifies a file name match pattern. Files on the resource must match the pattern in order to satisfy the condition. The default pattern is \* (any file will match).

**<fileNoMatch>**

Group element for an inverse file name match condition.

**<pattern>**

Specifies an inverse file name match pattern. If no files on the monitored resource match, the condition is satisfied. The default pattern is \* (the absence of any file will match).

**<fileSize>**

Group element for a file size comparison.

**<compare>**

Specifies a file size comparison. The value must be a non-negative integer.

| Attribute | Description                                                                                                                                                                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| operator  | Comparison operator to use. Only '>=' is supported.                                                                                                                                                                                                             |
| units     | Specifies file size units, which can be one of: <ul style="list-style-type: none"> <li>• B - bytes</li> <li>• KB - kilobytes</li> <li>• MB - megabytes</li> <li>• GB - gigabytes</li> </ul> The units value is case insensitive, so 'mb' works as well as 'MB'. |

**<pattern>**

File name pattern to match. Default is \* (any file will match).

**<queueNotEmpty>**

This can only be specified if the resource is a queue. Specifies that there must be a message on the queue for the monitor to be triggered.

**<completeGroups>**

This can only be specified if the resource is a queue. Specifies that there must be a complete group of messages present on the queue for the monitor to be triggered. A single transfer task is executed for each complete group on the queue.

**<name>**

Name of the condition.

**<resource>**

Identifies the resource definition to compare the condition against.

| Attribute | Description                         |
|-----------|-------------------------------------|
| id        | Unique identifier for the resource. |

**<tasks>**

Group element to contain elements which specify the tasks to invoke when the monitor trigger conditions are satisfied.

**<task>**

Group element which defines an individual task that the monitor will invoke when the trigger conditions are satisfied. Currently only one task can be specified.

**<name>**

Name of the task. Accepts any alphanumeric characters.

**<description>**

Description of the task. Any text value is allowed.

**<taskXML>**

The XML message that describes the task that the monitor is to perform. The contents of this element are in an escaped XML format.

**<pollInterval>**

The time interval between each check of the resource against the trigger condition.

| Attribute | Description                                                                                                                                                                                                                           |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| units     | Specifies the time units for the poll interval. Valid values are: <ul style="list-style-type: none"> <li>• seconds</li> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul> |

**<batch>**

The maximum number of trigger matches to include in a single batch.

| Attribute | Description                                                        |
|-----------|--------------------------------------------------------------------|
| maxSize   | The maximum number of trigger matches to include in a single batch |

The following XML shows an example of a retained publication which is published to the topic string SYSTEM.FTE/monitors/*agent\_name*/MONITORTWO when the monitor called MONITORTWO is created on AGENT\_JUPITER. The escaped XML within the <taskXML> element describes the task that is submitted when the monitor condition is met.

```
<?xml version="1.0" encoding="UTF-8"?>
<lst:monitorList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:lst="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition MonitorList.xsd"
  version="4.00"
  agent="AGENT_JUPITER"
  monitor="MONITORTWO">
  <status state="started"/>
  <configuration>
    <description/>
    <resources>
      <directory recursionLevel="0" id="">/srv/nfs/incoming</directory>
    </resources>
    <triggerMatch>
      <conditions>
```

```

        <condition>
          <name/>
          <resource id=""/>
          <fileMatch>
            <pattern>*.completed</pattern>
          </fileMatch>
        </condition>
      </conditions>
    </triggerMatch>
    <tasks>
      <task>
        <name/>
        <description/>
        <taskXML>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
          xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
            &lt;originator&gt;&lt;hostName&gt;example.com.&lt;/hostName&gt;
            &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
            &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
            &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
            &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
            &lt;source disposition="leave" recursive="false"&gt;&lt;file
            &gt;/srv/nfs/incoming/*.txt&lt;/file&gt;&lt;/source&gt;
            &lt;destination exist="error" type="directory"&gt;
            &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
            &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;
            &lt;/request&gt;
          </taskXML>
        </task>
      </tasks>
    </configuration>
    <pollInterval units="minutes">1</pollInterval>
    <batch maxSize="1"/>
  </lst:monitorList>

```

## Schedule list message format

The XML message that is published to a retained publication to the topic string SYSTEM.FTE/Scheduler/*agent\_name* conforms to the ScheduleList.xsd schema. This XML message lists all active schedules belonging to that agent. This information is used by the **fteListScheduledTransfers** command and the WebSphere MQ Explorer plug-in to display a list of schedules to the user. The ScheduleList.xsd schema document is located in the *install\_directory/samples/schema* directory. The ScheduleList.xsd schema imports FileTransfer.xsd, which is in the same directory.

## Schema

The following schema describes which elements are valid in a monitor list XML message.

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <xsd:include schemaLocation="FileTransfer.xsd"/>

  <xsd:element name="schedules">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="managedTransfer" type="scheduledManagedTransferType" minOccurs="0" maxOccurs="unbounded" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required" />
      <xsd:attribute name="size" type="xsd:nonNegativeInteger" use="required" />
      <xsd:attribute name="agent" type="xsd:string" use="required" />
    </xsd:complexType>
  </xsd:element>

  <xsd:complexType name="scheduledManagedTransferType">
    <xsd:sequence>

```

```

    <xsd:element name="originator" type="origRequestType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="schedule" type="scheduleListType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="sourceAgent" type="agentType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="destinationAgent" type="agentClientType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="trigger" type="triggerType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="reply" type="replyType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="transferSet" type="transferSetType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="job" type="jobType" maxOccurs="1" minOccurs="0" />
  </xsd:sequence>
  <xsd:attribute name="id" type="idType" use="required"/>
</xsd:complexType>

<xsd:complexType name="scheduleListType">
  <xsd:sequence>
    <xsd:element name="submit" type="submitType" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="repeat" type="repeatType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="next" type="noZoneTimeType" maxOccurs="1" minOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
</xsd:schema>

```

## Understanding the schedule list message

The elements and attributes used in the schedule list messages are described in the following list:

### <schedules>

Group element containing information about all of the schedules defined on a single agent.

| Attribute | Description                                                             |
|-----------|-------------------------------------------------------------------------|
| agent     | Required. The name of the source agent that the schedule is defined on. |
| size      | Required. The number of schedules defined on this agent.                |
| version   | Required. The version of the schedule list message format.              |

### <managedTransfer>

Group element containing information about a single schedule.

| Attribute | Description                                                          |
|-----------|----------------------------------------------------------------------|
| id        | Required. The hexadecimal string ID of the schedule request message. |

### <originator>

The originator of the schedule request.

#### <hostName>

The host name of the machine that the schedule request was submitted from.

#### <userID>

The user ID of the user that submitted the schedule request.

#### <mqmdUserID>

The MQMD user ID of the user that submitted the schedule request.

#### <webBrowser>

If the schedule request was submitted through the Web Gateway, the web browser that the request was submitted from.

**<webUserID>**

If the schedule request was submitted through the Web Gateway, the web user ID of the user that submitted the schedule request.

**<schedule>**

Element that contains the elements that describe when the scheduled transfer occurs.

**<submit>**

Specifies the date and time that the scheduled transfer is due to start.

| Attribute | Description                                                                                                                                                                                                                                                                                                                        |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| timebase  | Specifies which time zone to use. The value of this attribute can be one of the following values: <ul style="list-style-type: none"> <li>• source - use the time zone of the source agent</li> <li>• admin - use the time zone of the administrator issuing the command</li> <li>• UTC - use Coordinated Universal Time</li> </ul> |
| timezone  | The time zone description according to the timebase value                                                                                                                                                                                                                                                                          |

**<repeat>**

Group element that contains details about how often a scheduled transfer repeats, how many times a scheduled transfer repeats, and when a scheduled transfer stops repeating.

| Attribute | Description                                                                                                                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| interval  | The interval units, which must be one of the following values: <ul style="list-style-type: none"> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul> |

**<frequency>**

The time period that must elapse before the transfer repeats.

| Attribute | Description                                                                                                                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| interval  | The interval units, which must be one of the following values: <ul style="list-style-type: none"> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul> |

**<expireTime>**

Optional element that specifies the date and time that a repeating scheduled transfer stops. This element and the <expireCount> element are mutually exclusive.

**<expireCount>**

Optional element that specifies the number of times the scheduled file transfer occurs before stopping. This element and the <expireTime> element are mutually exclusive.

**<next>**

Specifies the date and time when the next scheduled transfer is due to start.

**<sourceAgent>**

Specifies the name of the agent on the system where the source file is located.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | Specifies the name of the agent.     |
| QMgr      | The name of the agent queue manager. |

**<destinationAgent>**

Specifies the name of the agent on the system you want to transfer the file to.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | Specifies the name of the agent.     |
| QMgr      | The name of the agent queue manager. |

**<trigger>**

Optional element that specifies a condition that must be true for the file transfer to take place.

| Attribute | Description                                                                                                                                                                                                                                                                        |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| log       | A flag indicating whether trigger failures are logged. The following are valid values: <ul style="list-style-type: none"> <li>• yes - log entries are created for failed triggered transfers</li> <li>• no - log entries are not created for failed triggered transfers</li> </ul> |

**<reply>**

Specifies the name of the temporary reply queue generated for synchronous file transfers (specified with the **-w** parameter on the command line). The name of the queue is defined by the key **dynamicQueuePrefix** in the `command.properties` configuration file or the default of `WMQFTE.*` if not specified.

| Attribute | Description                                                                                                 |
|-----------|-------------------------------------------------------------------------------------------------------------|
| QMGR      | The name of the command queue manager on which the temporary dynamic queue is generated to receive replies. |

**<transferSet>**

Specifies a group of file transfers you want the scheduled transfer to perform together. During transmission `<transferSet>` is a group element containing `<item>` elements.

| Attribute | Description                                                                                                                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| priority  | Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the priority level of the source agent. |

**<job>**

Optional group element containing job information for the entire transfer specification. `<job>` is a user-defined job name identifier that is added to the log message when the transfer has started. This `<job>` element is the same as the `<job>` element that appears in the transfer log message, which is described in the following topic: "File transfer log message formats" on page 675.

## Example

```
<?xml version="1.0" encoding="UTF-8"?>
<schedules xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  size="2"
  version="4.00"
  agent="AGENT_JUPITER"
  xsi:noNamespaceSchemaLocation="ScheduleList.xsd">
  <managedTransfer id="1">
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <schedule>
      <submit timebase="admin" timezone="Europe/London">2010-01-01T21:00+0000</submit>
      <next>2010-01-01T21:00+0000</next>
    </schedule>
    <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
    <destinationAgent agent="AGENT_SATURN" QMgr="QM_JUPITER"/>
    <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20004E06</reply>
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>/etc/passwd</file>
        </source>
        <destination type="directory" exist="overwrite">
          <file>/tmp</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
  <managedTransfer id="2">
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <schedule>
      <submit timebase="admin" timezone="Europe/London">2010-12-31T09:00+0000</submit>
      <next>2010-12-31T09:00+0000</next>
    </schedule>
    <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
    <destinationAgent agent="AGENT_NEPTUNE" QMgr="QM_JUPITER"/>
    <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20004E09</reply>
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>/etc/passwd</file>
        </source>
        <destination type="directory" exist="overwrite">
          <file>/tmp</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</schedules>
```

## Example template XML message

When a template is created, a message is published to the SYSTEM.FTE topic with a topic string of `Templates/template_ID`. This example XML describes a single template defined in your WebSphere MQ File Transfer Edition network.

```
<?xml version="1.0" encoding="UTF-8"?>
<transferTemplate version="4.00" id="baf9df73-45c2-4bb0-a085-292232ab66bc">
  <name>BASIC_TEMPLATE</name>
  <sourceAgentName>AGENT_JUPITER</sourceAgentName>
  <sourceAgentQMGr>QM_JUPITER</sourceAgentQMGr>
  <destinationAgentName>AGENT_SATURN</destinationAgentName>
  <destinationAgentQMGr>QM_JUPITER</destinationAgentQMGr>
  <fileSpecs>
    <item mode="binary" checksumMethod="MD5">
      <source recursive="false" disposition="leave">
        <file>/etc/passwd</file>
      </source>
      <destination type="directory" exist="overwrite">
        <file>/tmp</file>
      </destination>
    </item>
  </fileSpecs>
  <priority>0</priority>
</transferTemplate>
```

### Related tasks:

“Creating a file transfer template using the WebSphere MQ Explorer” on page 223

You can create a file transfer template from the WebSphere MQ Explorer or from the command line. You can then use that template to create new file transfers using the template details or submit the template to start the file transfer.

### Related reference:

“**fteCreateTemplate** (create new file transfer template)” on page 495

The **fteCreateTemplate** command creates a file transfer template that you can keep for future use. The only required parameter is the **-tn** (*template\_name*) parameter. All other parameters are optional, although if you specify a source file specification, you must also provide a destination file. Similarly, if you specify a destination file, you must also specify a source file specification.

## File transfer status message format

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its `SYSTEM.FTE/Transfers/agent_name/transfer ID` topic), which conforms to the `TransferStatus.xsd` XML schema. The `TransferStatus.xsd` file is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

## Schema

The following schema describes which elements are valid in a transfer status XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>
  <xsd:element name="transaction">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="sourceAgent" type="agentType"
          maxOccurs="1" minOccurs="1"/>
        <xsd:element name="destinationAgent" type="agentType"
          maxOccurs="1" minOccurs="1"/>
        <xsd:element name="transferSet" type="transferSetType"
          maxOccurs="1" minOccurs="1"/>
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
    </complexType>
  </xsd:element>
</xsd:schema>
```

```

        <xsd:attribute name="ID" type="IDType" use="required"/>
    </xsd:complexType>
</xsd:element>

<xsd:complexType name="transferSetType">
    <xsd:sequence>
        <xsd:element name="stats" type="statsType"
            maxOccurs="1" minOccurs="1" />
        <xsd:element name="current" type="currentType"
            maxOccurs="1" minOccurs="0" />
    </xsd:sequence>
    <xsd:attribute name="time" type="xsd:dateTime" use="required" />
</xsd:complexType>

<xsd:complexType name="currentType">
    <xsd:sequence>
        <xsd:element name="source" type="fileSourceType"
            maxOccurs="1" minOccurs="1" />
        <xsd:element name="destination" type="fileDestinationType"
            maxOccurs="1" minOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="transferred" type="xsd:nonNegativeInteger" use="required" />
    <xsd:attribute name="size" type="xsd:nonNegativeInteger" use="required" />
</xsd:complexType>

<xsd:complexType name="statsType">
    <xsd:attribute name="bytes" type="xsd:nonNegativeInteger" use="required" />
    <xsd:attribute name="seconds" type="xsd:decimal" use="required" />
    <xsd:attribute name="currentItem" type="xsd:nonNegativeInteger" use="required" />
    <xsd:attribute name="totalItems" type="xsd:nonNegativeInteger" use="required" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the transfer status message

The elements and attributes used in the transfer status messages are described in the following list:

### <transaction>

Group element that contains all of the elements for the file transfers.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition. |
| ID        | The unique identifier for the file transfer.                                             |

### <sourceAgent>

Specifies the name of the agent on the system where the source file is located.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | The name of the agent.               |
| QMgr      | The name of the agent queue manager. |

### <destinationAgent>

Specifies the name of the agent on the system you want to transfer the file to.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | The name of the agent.               |
| QMgr      | The name of the agent queue manager. |

**<transferSet>**

Specifies a group of file transfers being performed together. All of the files in the transfer must originate at the same source agent and end at the same destination agent.

| Attribute | Description                                        |
|-----------|----------------------------------------------------|
| time      | Specifies the date and time (in date time format). |

**<stats>**

Required. Defines metrics about the transfer, including the number of bytes copied so far, in the given number of seconds. Also supplies the current item number out of the total number of items in the <transferSet>.

| Attribute   | Description                                      |
|-------------|--------------------------------------------------|
| bytes       | Number of bytes copied so far.                   |
| seconds     | Number of seconds taken to transfer those bytes. |
| currentItem | The index of the current item being transferred. |
| totalItems  | The total number of items being transferred.     |

**<current>**

Optional element. Group element that contains elements that specify the file transfer currently in progress. The <current> element indicates how many bytes of data have been transferred so far for the current item and the expected total number of bytes

**<source>**

Group element that contains the element specifying the source file name.

**<file>**

When used with the <source> element, specifies the name of the file you want to transfer. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

**<destination>**

Group element that contains the element specifying the destination file name or specification.

**<file>**

When used with the <destination> element, specifies the name of the file you want to transfer to. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

| Attribute | Description                                                                                                                                      |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| alias     | Specifies an alias for the destination file. This alias is the name of the source file, excluding any directory path specified for the transfer. |
| fileSpace | Specifies the name of the file space where the destination file is written.                                                                      |

**<queue>**

When used with the <destination> element, specifies the name of the queue you want to transfer to. This name is in the format QUEUE or QUEUE@QUEUE\_MANAGER.

## Related reference:

“Transfer progress message examples” on page 674

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Transfers/agent_name/transfer_ID`. The XML examples show the progress message for a single file transfer and for a multiple file transfer.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the `SYSTEM.FTE/Agents/agent name` topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the `FileTransfer.xsd` schema and have the `<request>` element as the root element. The `FileTransfer.xsd` schema document is located in the `install_directory/samples/schema` directory. The `FileTransfer.xsd` schema imports `fteutils.xsd`, which is in the same directory.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its `SYSTEM.FTE/Log/agent name/schedule ID` topic). This message conforms to the `ScheduleLog.xsd` XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the `fteCreateMonitor` command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

## Transfer progress message examples:

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Transfers/agent_name/transfer_ID`. The XML examples show the progress message for a single file transfer and for a multiple file transfer.

### Single file transfer

The following example shows the details of a single file transfer that is in progress.

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d223d0020"
  xsi:noNamespaceSchemaLocation="TransferStatus.xsd">
  <sourceAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <destinationAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <transferSet time="2011-01-26T13:03:26.542Z">
  <stats bytes="1198" seconds="0.018" currentItem="1" totalItems="1"/>
  <current transferred="1151" size="1151">
    <source>
      <file>/etc/passwd</file>
    </source>
    <destination>
      <file>/tmp/passwd</file>
    </destination>
  </current>
</transferSet>
</transaction>
```

```

        </destination>
    </current>
</transferSet>
</transaction>

```

## Multiple file transfer

If there were more files in the transfer set, the transfer status message indicates which one is being processed and how many bytes have been transferred so far.

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    version="4.00"
    ID="414d51205553322e42494e44494e47538b0f404d035c0020"
    xsi:noNamespaceSchemaLocation="TransferStatus.xsd">
    <sourceAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <destinationAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <transferSet time="2011-01-26T13:12:58.636Z">
        <stats bytes="440" seconds="0.082" currentItem="10" totalItems="10"/>
        <current transferred="0" size="0">
            <source>
                <file>/srv/nfs/incoming/file10.txt</file>
            </source>
            <destination>
                <file>/srv/nfs/outgoing/file10.txt</file>
            </destination>
        </current>
    </transferSet>
</transaction>

```

## File transfer log message formats

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

If you want to monitor file transfers or collect data about them, set up a subscription to a wildcard topic tailored to the transfers you are interested in. For example:

```
Log/#
```

or,

```
Log/FTEAGENT/#
```

This subscription can be durable or non-durable. Durable subscriptions continue to exist when a subscribing application's connection to the queue manager is closed. Non-durable subscriptions exist only as long as a subscribing application's connection to the queue manager remains open.

## Schema

The following schema describes which elements are valid in a transfer log XML message.

```

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <xsd:include schemaLocation="fteutils.xsd"/>
    <xsd:element name="transaction">
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element name="action" type="actionType"
                    maxOccurs="1" minOccurs="0"/>
                <xsd:element name="sourceAgent" type="agentExitStatusType"
                    maxOccurs="1" minOccurs="0"/>
                <xsd:element name="sourceWebGateway" type="webGatewayType"
                    maxOccurs="1" minOccurs="0"/>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>
</xsd:schema>

```

```

        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="sourceWebUser"    type="webUserType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="destinationAgent" type="agentExitStatusType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="destinationWebGateway" type="webGatewayType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="destinationWebUser" type="webUserType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="agent"            type="agentExitStatusType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="originator"       type="origRequestType"
        maxOccurs="1"                minOccurs="1"/>
<xsd:element name="status"          type="statusType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="trigger"         type="triggerType"
        maxOccurs="1"                minOccurs="0" />
<xsd:element name="transferSet"     type="transferSetType"
        maxOccurs="1"                minOccurs="1"/>
<xsd:element name="job"             type="jobType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="scheduleLog"     type="scheduleLogType"
        maxOccurs="1"                minOccurs="0"/>
<xsd:element name="statistics"      type="statisticsType"
        maxOccurs="1"                minOccurs="0"/>
</xsd:sequence>
<xsd:attribute name="version"        type="versionType"    use="required"/>
<xsd:attribute name="ID"            type="IDType"        use="required"/>
<xsd:attribute name="relatedID"     type="IDType"        use="optional"/>
<xsd:attribute name="agentRole"     type="agentRoleType" use="optional"/>
</xsd:complexType>
</xsd:element>

<xsd:complexType name="agentExitStatusType">
  <xsd:complexContent>
    <xsd:extension base="agentType">
      <xsd:sequence>
        <xsd:element name="startExits" type="exitGroupType" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="endExits"   type="exitGroupType" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="systemInfo" type="systemInfoType" minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="transferSetType">
  <xsd:sequence>
    <xsd:element name="metaDataSet"    type="metaDataSetType"
      maxOccurs="1"                minOccurs="0" />
    <xsd:element name="call"          type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="preSourceCall" type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="postSourceCall" type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="preDestinationCall" type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="postDestinationCall" type="callGroupType"
      maxOccurs="1"                minOccurs="0"/>
    <xsd:element name="item"          type="itemType"
      maxOccurs="unbounded"        minOccurs="0"/>
  </xsd:sequence>
  <xsd:attribute name="index"        type="xsd:nonNegativeInteger" use="optional" />
  <xsd:attribute name="size"         type="xsd:nonNegativeInteger" use="optional" />
  <xsd:attribute name="startTime"    type="xsd:dateTime"         use="required" />
  <xsd:attribute name="total"        type="xsd:nonNegativeInteger" use="required" />
  <xsd:attribute name="bytesSent"    type="xsd:nonNegativeInteger" use="required" />

```

```

</xsd:complexType>

<xsd:complexType name="itemType">
  <xsd:sequence>
    <xsd:element name="source" type="fileSourceChecksumType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="destination" type="fileDestinationChecksumType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="status" type="statusType"
      maxOccurs="1" minOccurs="1" />
  </xsd:sequence>
  <xsd:attribute name="mode" type="modeType" use="required" />
</xsd:complexType>

<xsd:complexType name="fileSourceChecksumType">
  <xsd:complexContent>
    <xsd:extension base="fileSourceType">
      <xsd:sequence>
        <xsd:element name="checksum" type="checksumType" minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="fileDestinationChecksumType">
  <xsd:complexContent>
    <xsd:extension base="fileDestinationType">
      <xsd:sequence>
        <xsd:element name="checksum" type="checksumType"
          minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="actionType">
  <xsd:simpleContent>
    <xsd:extension base="actionEnumType">
      <xsd:attribute name="time" type="xsd:dateTime" use="required" />
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="actionEnumType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="cancelled"/>
    <xsd:enumeration value="started"/>
    <xsd:enumeration value="progress"/>
    <xsd:enumeration value="completed"/>
    <xsd:enumeration value="malformed"/>
    <xsd:enumeration value="notAuthorized"/>
    <xsd:enumeration value="deleted"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="systemInfoType">
  <xsd:attribute name="architecture" type="xsd:string" use="required"/>
  <xsd:attribute name="name" type="xsd:string" use="required"/>
  <xsd:attribute name="version" type="xsd:string" use="required"/>
</xsd:complexType>

<xsd:element name="malformed">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="action" type="actionType"
        maxOccurs="1" minOccurs="1"/>
      <xsd:element name="agent" type="agentExitStatusType"

```

```

                maxOccurs="1" minOccurs="0"/>
        <xsd:element name="status" type="statusType"
                maxOccurs="1" minOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="version" type="versionType" use="required"/>
    <xsd:attribute name="ID" type="IDType" use="required"/>
    <xsd:attribute name="agentRole" type="agentRoleType" use="required"/>
</xsd:complexType>
</xsd:element>

<xsd:element name="notAuthorized">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="action" type="actionType"
                    maxOccurs="1" minOccurs="1"/>
            <xsd:element name="originator" type="origRequestType"
                    maxOccurs="1" minOccurs="1"/>
            <xsd:element name="authority" type="xsd:string"
                    minOccurs="1" maxOccurs="1"/>
            <xsd:element name="status" type="statusType"
                    maxOccurs="1" minOccurs="1"/>
        </xsd:sequence>
        <xsd:attribute name="version" type="versionType" use="required"/>
        <xsd:attribute name="ID" type="IDType" use="required"/>
        <xsd:attribute name="agentRole" type="agentRoleType" use="required"/>
    </xsd:complexType>
</xsd:element>

<xsd:complexType name="statisticsType">
    <xsd:sequence>
        <xsd:element name="actualStartTime" type="xsd:dateTime"
                maxOccurs="1" minOccurs="0"/>
        <xsd:element name="retryCount" type="xsd:nonNegativeInteger"
                maxOccurs="1" minOccurs="1"/>
        <xsd:element name="numFileFailures" type="xsd:nonNegativeInteger"
                maxOccurs="1" minOccurs="1"/>
        <xsd:element name="numFileWarnings" type="xsd:nonNegativeInteger"
                maxOccurs="1" minOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="webGatewayType">
    <xsd:attribute name="webGatewayName" type="xsd:string" use="optional" />
    <xsd:attribute name="webGatewayAgentName" type="xsd:string" use="optional" />
    <xsd:attribute name="webGatewayAgentQMgr" type="xsd:string" use="optional" />
</xsd:complexType>

<xsd:complexType name="webUserType">
    <xsd:attribute name="webGatewayName" type="xsd:string" use="required" />
    <xsd:attribute name="webGatewayAgentName" type="xsd:string" use="optional" />
    <xsd:attribute name="webGatewayAgentQMgr" type="xsd:string" use="optional" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the transfer log message

### <transaction>

Group element that specifies a group of transfers you want to perform together.

| Attribute | Description                                                                                 |
|-----------|---------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as detailed by WebSphere MQ File Transfer Edition.    |
| ID        | Specifies the unique transaction ID. The ID can be a maximum of 48 alphanumeric characters. |

| Attribute                     | Description                                                                                                                                                                                                                                             |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| relatedID                     | Optional. If the transaction is the delete or download of a file from a file space, <b>relatedID</b> specifies the transaction ID of the transfer that uploaded the file to the file space.                                                             |
| agentRole                     | Optional. Specifies whether the agent concerned is on the source or destination system                                                                                                                                                                  |
| xmlns:xsi                     | Namespace declaration. Indicates that the elements and data types used in this schema derive from the "http://www.w3.org/2001/XMLSchema-instance" namespace.                                                                                            |
| xsi:noNamespaceSchemaLocation | Specifies the name and location of the XML schema document to validate this message against if there is no namespace declaration. The value you specify for this attribute must refer to a WebSphere MQ File Transfer Edition TransferLog.xsd document. |

#### <action>

Describes the status of the file transfer at the time logged by the time attribute. The status can be one of the following values:

- started
- progress
- completed
- cancelled
- malformed (indicates the file transfer request message content can not be interpreted.)
- notAuthorized
- deleted

| Attribute | Description                                                              |
|-----------|--------------------------------------------------------------------------|
| time      | The time that the transfer status was captured, expressed in UTC format. |

#### <sourceAgent>

Specifies the name of the agent on the system where the source file is located. Only one of <sourceAgent>, <sourceWebUser>, and <sourceWebGateway> can be specified.

#### <startExits>

Group element that contains one or more user exit elements. This element can occur once only.

#### <endExits>

Group element that contains one or more user exit elements. This element can occur once only.

#### <systemInfo>

Describes the system architecture, name, and version. This element can occur once only.

| Attribute | Description                                         |
|-----------|-----------------------------------------------------|
| agent     | The name of the agent on the source system.         |
| QMgr      | The name of the queue manager on the source system. |

| Attribute  | Description                                                                                                                                                                                                                                                                                                                                                  |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agentType  | The type of the agent. Valid values are: <ul style="list-style-type: none"> <li>• STANDARD - a normal agent</li> <li>• BRIDGE - a protocol bridge agent</li> <li>• CD_BRIDGE - a Connect:Direct bridge agent</li> <li>• EMBEDDED - an embedded agent</li> <li>• WEB_GATEWAY - a web agent</li> <li>• SFG - a Sterling File Gateway embedded agent</li> </ul> |
| bridgeURL  | Optional. If the agent is a protocol bridge agent, the host name of the system hosting the protocol server.                                                                                                                                                                                                                                                  |
| pnode      | Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct primary node involved in the transfer.                                                                                                                                                                                                                               |
| snode      | Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct secondary node involved in the transfer.                                                                                                                                                                                                                             |
| bridgeNode | Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct node that is part of the Connect:Direct bridge. This is the same node as either the primary node or the secondary node.                                                                                                                                              |

**<sourceWebUser>**

Specifies the name of the web user that uploads the source file to the Web Gateway. Only one of <sourceAgent>, <sourceWebUser>, and <sourceWebGateway> can be specified.

| Attribute           | Description                                                                              |
|---------------------|------------------------------------------------------------------------------------------|
| webGatewayName      | The name of the Web Gateway that receives the file from the web user.                    |
| webGatewayAgentName | The name of the web agent that the Web Gateway uses to send the file to the destination. |
| webGatewayAgentQMgr | The name of the queue manager of the web agent.                                          |

**<sourceWebGateway>**

Specifies the name of the Web Gateway that the source file is downloaded from. Only one of <sourceAgent>, <sourceWebUser>, and <sourceWebGateway> can be specified.

| Attribute           | Description                                                                              |
|---------------------|------------------------------------------------------------------------------------------|
| webGatewayName      | The name of the Web Gateway that receives the file from the web user.                    |
| webGatewayAgentName | The name of the web agent that the Web Gateway uses to send the file to the destination. |
| webGatewayAgentQMgr | The name of the queue manager of the web agent.                                          |

**<destinationAgent>**

Specifies the name of the agent on the system the file was transferred to. Only one of <destinationAgent>, <destinationWebGateway>, and <destinationWebUser> can be specified.

Table 52.

| Attribute  | Description                                                                                                                                                                                                                                                                                                                                                  |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agent      | The name of the agent on the destination system.                                                                                                                                                                                                                                                                                                             |
| QMgr       | The name of the queue manager on the destination system.                                                                                                                                                                                                                                                                                                     |
| agentType  | The type of the agent. Valid values are: <ul style="list-style-type: none"> <li>• STANDARD - a normal agent</li> <li>• BRIDGE - a protocol bridge agent</li> <li>• CD_BRIDGE - a Connect:Direct bridge agent</li> <li>• EMBEDDED - an embedded agent</li> <li>• WEB_GATEWAY - a web agent</li> <li>• SFG - a Sterling File Gateway embedded agent</li> </ul> |
| bridgeURL  | Optional. If the agent is a protocol bridge agent, the host name of the system hosting the protocol server.                                                                                                                                                                                                                                                  |
| pnode      | Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct primary node involved in the transfer.                                                                                                                                                                                                                               |
| snode      | Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct secondary node involved in the transfer.                                                                                                                                                                                                                             |
| bridgeNode | Optional. If the agent is a Connect:Direct bridge agent, the name of the Connect:Direct node that is part of the Connect:Direct bridge. This is the same node as either the primary node or the secondary node.                                                                                                                                              |

**<startExits>**

Group element that contains one or more user exit elements. This element can occur once only.

**<endExits>**

Group element that contains one or more user exit elements. This element can occur once only.

**<systemInfo>**

Describes the system architecture, name, and version. This element can occur once only.

**<destinationWebUser>**

Specifies the name of the web user who downloads the file from the Web Gateway. Only one of <destinationAgent>, <destinationWebGateway>, and <destinationWebUser> can be specified.

| Attribute      | Description                                                           |
|----------------|-----------------------------------------------------------------------|
| webGatewayName | The name of the Web Gateway that receives the file from the web user. |

**<destinationWebGateway>**

Specifies the name of the web user who downloads the file from the Web Gateway. Only one of <destinationAgent>, <destinationWebGateway>, and <destinationWebUser> can be specified.

| Attribute           | Description                                                           |
|---------------------|-----------------------------------------------------------------------|
| webGatewayName      | The name of the Web Gateway that receives the file from the web user. |
| webGatewayAgentName | The name of the web agent that the Web Gateway uses.                  |
| webGatewayAgentQMgr | The name of the queue manager of the web agent.                       |

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<hostName>**

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

The WebSphere MQ user ID that was supplied in the message descriptor (MQMD)

**<webUserID>**

Optional. The user ID that was supplied to the web browser submitting the transfer request.

**<webBrowser>**

Optional. The web browser that the transfer request was submitted from.

**<status>**

The result code and supplement messages.

**<trigger>**

Group element that contains the trigger elements defined in the original transfer request. These elements can be either or both of the following:

**<fileExist>**

Trigger condition based on whether a file exists

**<fileSize>**

Trigger condition based on whether a file meets or exceeds the specified size

**<transferSet>**

Specifies a group of file transfers you want to perform together. During transmission <transferSet> is a group element containing <item> elements.

| Attribute | Description                                                                                                                                                                                                                     |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| startTime | Records the time that the set of transfers started, expressed in UTC format.                                                                                                                                                    |
| total     | Specifies the total number of items in this set of transfers.                                                                                                                                                                   |
| index     | Optional attribute. Specifies the position of the first item in progress of the transfer set. The index attribute increments from zero. For example, if the index is set to 1, the progress message is the second of two items. |
| size      | Optional attribute. Specifies the number of items in the progress report.                                                                                                                                                       |
| priority  | Optional attribute. Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the source agent priority level.     |

**<metaDataSet>**

Group element containing one or more of the following attributes:

**<metaData>**

| Attribute | Description                                                                                                                                                               |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | The key half of a metadata key-value pair. The <metaData> element content contains the value half of the pair. For example <metaData key="testkey1">testvalue1</metaData> |

### <job>

Group element that contains an element specifying job details. <job> is a user-defined job name identifier that is added to the log message when the transfer has started. This <job> element is the same as the <job> element that is included in the transfer request message, which is described in the following topic: "File transfer request message format" on page 881.

#### <name>

The value of name can be any string.

### <scheduleLog>

Group element that contains elements specifying the source and destination file names and locations.

| Attribute | Description                                                      |
|-----------|------------------------------------------------------------------|
| ID        | Matches the schedule ID if the transfer is a scheduled transfer. |

### <item>

Group element that contains elements specifying the source and destination file names and locations.

### <source>

Group element that contains the <file> element or the <queue> element, and the <checksum> element for the file on the source system.

| Attribute          | Description                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| recursive          | Specifies that files are transferred recursively in subdirectories when the <source> element is a directory or contains wildcard characters.                                                                                                                                                                                                                                                 |
| disposition        | Specifies the action that is taken on the <source> element when <source> has successfully been transferred to its destination. The valid options are as follows: <ul style="list-style-type: none"> <li>• leave - the source files are left unchanged.</li> <li>• delete - the source files are deleted from the source system after the source file is successfully transferred.</li> </ul> |
| correlationBoolean | A boolean correlation value. If the source is a Connect:Direct bridge, this specifies whether the Connect:Direct process is user-defined.                                                                                                                                                                                                                                                    |
| correlationString1 | A string correlation value. If the source is a Connect:Direct bridge, this specifies the name of the Connect:Direct process that occurs at the destination of the transfer.                                                                                                                                                                                                                  |
| correlationNum1    | A numeric correlation value. If the source is a Connect:Direct bridge, this specifies the ID number of the Connect:Direct process that occurs at the destination of the transfer.                                                                                                                                                                                                            |

### <queue>

When used with the <source> element, specifies the name of the queue that the transferred messages were read from, which is located on the source agent queue manager.

| Attribute    | Description                                                    |
|--------------|----------------------------------------------------------------|
| messageCount | The number of messages that were read from the queue.          |
| groupId      | The WebSphere MQ group ID of the messages read from the queue. |

### <destination>

Group element that contains the <file> element or the <queue> element, and <checksum> element for the destination.

Only one of <file> and <queue> is present as a child element of destination.

| Attribute          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type               | <p>The type of destination. The valid options are as follows:</p> <ul style="list-style-type: none"> <li>file - specifies a file as the destination</li> <li>directory - specifies a directory as the destination</li> <li>dataset - specifies a z/OS data set as the destination</li> <li>pds - specifies a z/OS partitioned data set as the destination</li> <li>queue- specifies a WebSphere MQ queue as the destination</li> </ul> <p>The options file, directory, dataset, and pds can be present only when the &lt;destination&gt; element has a child element of &lt;file&gt;.</p> <p>The option queue can be present only when the &lt;destination&gt; element has a child element of &lt;queue&gt;.</p> |
| exist              | <p>Specifies the action that is taken if a destination file exists on the destination system. The valid options are as follows:</p> <ul style="list-style-type: none"> <li>error - reports an error and the file is not transferred.</li> <li>overwrite - overwrites the existing destination file.</li> </ul> <p>This attribute cannot be present if the &lt;destination&gt; element has a child element of &lt;queue&gt;.</p>                                                                                                                                                                                                                                                                                  |
| correlationBoolean | A boolean correlation value. If the destination is a Connect:Direct bridge, this specifies whether the Connect:Direct process is user-defined.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| correlationString1 | A string correlation value. If the destination is a Connect:Direct bridge, this specifies the name of the Connect:Direct process that occurs at the destination of the transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| correlationNum1    | A numeric correlation value. If the destination is a Connect:Direct bridge, this specifies the ID number of the Connect:Direct process that occurs at the destination of the transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

### <file>

Specifies the absolute path of the file that was transferred (both at the source and destination). The fully-qualified path is in the format consistent with your operating system, for example C:/from/here.txt. File URIs are not used.

### <queue>

When used with the <destination> element, specifies the name of the queue that was transferred to, which is located on any queue manager that is connected to the destination agent queue manager.

| Attribute     | Description                                                                                                                                                                            |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| messageCount  | The number of messages that were written to the queue.                                                                                                                                 |
| messageLength | The length of the messages written to the queue.                                                                                                                                       |
| groupId       | If the transfer request specified that the file is split into multiple messages, the value of this attribute is the WebSphere MQ group ID of the messages written to the queue.        |
| messageId     | If the transfer request did not specify that the file is split into multiple messages, the value of this attribute is the WebSphere MQ message ID of the message written to the queue. |

#### <checksum>

Optional element.

Specifies the type of hash algorithm that generated the message digest to create the digital signature. Currently WebSphere MQ File Transfer Edition supports Message Digest algorithm 5 (MD5) only. The checksum provides a way for you to confirm the integrity of transferred files is intact.

#### <malformed>

Group element for malformed messages.

| Attribute | Description                              |
|-----------|------------------------------------------|
| version   |                                          |
| ID        |                                          |
| agentRole | Either source agent or destination agent |

#### <statistics>

Group element for statistical information for the transfer (when available).

##### <actualStartTime>

The actual time that the agent started running the transfer. Typically, the time is the same as (or very close to) the start time recorded for the transfer. However, when an agent is busy submitted transfers might be queued until the agent has capacity to run the transfers.

##### <retryCount>

The number of times that the transfer went into the recovery state and was retried by the agent. A transfer can go into a recovery state because the source and destination agents lose communication, either because of a WebSphere MQ network error or because they are not receiving data or acknowledgment messages for a period. This period is determined by the agent properties: transferAckTimeout and transferAckTimeoutRetries.

##### <numFileFailures>

The number of files in the transferSet that failed to transfer successfully.

##### <numFileWarnings>

The number of files in the transferSet that generated warnings while being transferred, but otherwise transferred successfully.

## Examples

Examples of XML messages that conform to this schema are provided for each of the following types of transfer:

- A transfer of a single file
- A transfer that contains multiple files
- A failed file transfer

- A transfer defined with a trigger
- A transfer started by a schedule
- A transfer that calls user exits
- A transfer requested through the Web Gateway
- A transfer through a Connect:Direct bridge node

**Related reference:**

“Single transfer log message examples” on page 686

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a single file transfer being started, in progress, and completed.

“Multiple file transfer log message examples” on page 688

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID` when a transfer that contains multiple files occurs.

“Failed transfer log message examples” on page 691

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a file transfer that fails being started, in progress, and completed.

“Triggered transfer message format” on page 693

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

“User exit message formats” on page 695

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages that are created when a file transfer occurs that contains calls to user exits.

“Additions to message formats for web-based transfers” on page 698

The Started and Completed log messages from a transfer that was requested through the WebSphere MQ File Transfer Edition Web Gateway include extra metadata. This metadata contains information about the HTTP request and about the application server hosting the Web Gateway.

“Connect:Direct bridge transfer message examples” on page 700

The `destinationAgent` or `sourceAgent` element contains additional attributes when the destination agent or source agent is a Connect:Direct bridge agent. The Started log message contains only a subset of the information about the Connect:Direct transfer. The Progress and Completed log messages contain full information about the Connect:Direct transfer.

**Single transfer log message examples:**

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a single file transfer being started, in progress, and completed.

**Single file transfer - started**

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d5120553322e42494e44494e47538b0f404d223d0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:03:26.484Z">started</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <originator>
```

```

    <hostName>dhcp-9-20-240-199.hursley.ibm.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet startTime="2011-01-26T13:03:26.484Z" total="1" bytesSent="0">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">dhcp-9-20-240-199.hursley.ibm.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d223d0020</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
  <scheduleLog ID="3"/>
</transaction>

```

### Single file transfer success - progress

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d223d0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:03:26.615Z">progress</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet index="0" size="1" startTime="2011-01-26T13:03:26.484Z" total="1" bytesSent="1198">
  <item mode="binary">
    <source disposition="leave" type="file">
      <file size="1151" last-modified="2009-11-02T10:37:01.000Z">/etc/passwd</file>
      <checksum method="MD5">2287181c07199f879de28296371cb24c</checksum>
    </source>
    <destination type="file">
      <file size="1151" last-modified="2011-01-26T13:03:26.000Z">/tmp/passwd</file>
      <checksum method="MD5">2287181c07199f879de28296371cb24c</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
</transferSet>
</transaction>

```

### Single file transfer success - completed

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d223d0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:03:26.622Z">completed</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">

```

```

    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <status resultCode="0">
    <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
  </status>
  <transferSet startTime="2011-01-26T13:03:26.484Z" total="1" bytesSent="1198">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d223d0020</metaData>
      <metaData key="com.ibm.wmqfte.ScheduleId">3</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
  <statistics>
    <actualStartTime>2011-01-26T13:03:26.541Z</actualStartTime>
    <retryCount>0</retryCount>
    <numFileFailures>0</numFileFailures>
    <numFileWarnings>0</numFileWarnings>
  </statistics>
</transaction>

```

### Related reference:

“Triggered transfer message format” on page 693

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

“User exit message formats” on page 695

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages that are created when a file transfer occurs that contains calls to user exits.

“Additions to message formats for web-based transfers” on page 698

The Started and Completed log messages from a transfer that was requested through the WebSphere MQ File Transfer Edition Web Gateway include extra metadata. This metadata contains information about the HTTP request and about the application server hosting the Web Gateway.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

### Multiple file transfer log message examples:

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID` when a transfer that contains multiple files occurs.

#### Multiple file transfer - started

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d035c0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"

```

```

        xmlns="">
<action time="2011-01-26T13:12:58.534Z">started</action>
<sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
  <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
</sourceAgent>
<destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
<originator>
  <hostName>example.com</hostName>
  <userID>mqm</userID>
  <mqmdUserID>mqm</mqmdUserID>
</originator>
<transferSet startTime="2011-01-26T13:12:58.534Z" total="6" bytesSent="0">
  <metaDataSet>
    <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingHost">example.com</metaData>
    <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d035c0020</metaData>
    <metaData key="com.ibm.wmqfte.Priority">0</metaData>
  </metaDataSet>
</transferSet>
</transaction>

```

### Multiple file transfer - progress

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d035c0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
<action time="2011-01-26T13:12:58.753Z">progress</action>
<sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
  <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
</sourceAgent>
<destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
  <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
</destinationAgent>
<originator>
  <hostName>example.com.</hostName>
  <userID>mqm</userID>
  <mqmdUserID>mqm</mqmdUserID>
</originator>
<transferSet index="0" size="6" startTime="2011-01-26T13:12:58.534Z" total="6" bytesSent="440">
  <item mode="binary">
    <source disposition="leave" type="file">
      <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file01.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </source>
    <destination type="file">
      <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file01.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
  <item mode="binary">
    <source disposition="leave" type="file">
      <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file02.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </source>
    <destination type="file">
      <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file02.txt</file>
      <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
</transferSet>

```

```

</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file03.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file03.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file04.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file04.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file05.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file05.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
<item mode="binary">
  <source disposition="leave" type="file">
    <file size="0" last-modified="2011-01-26T13:10:19.000Z">/srv/nfs/incoming/file06.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </source>
  <destination type="file">
    <file size="0" last-modified="2011-01-26T13:12:58.000Z">/srv/nfs/outgoing/file06.txt</file>
    <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
  </destination>
  <status resultCode="0"/>
</item>
</transferSet>
</transaction>

```

### Multiple file transfer - completed

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d035c0020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:12:58.766Z">completed</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>

```

```

    <mqmdUserID>mqm</mqmdUserID>
</originator>
<status resultCode="0">
  <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
</status>
<transferSet startTime="2011-01-26T13:12:58.534Z" total="6" bytesSent="440">
  <metaDataSet>
    <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
    <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
    <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d035c0020</metaData>
    <metaData key="com.ibm.wmqfte.Priority">0</metaData>
  </metaDataSet>
</transferSet>
<statistics>
  <actualStartTime>2011-01-26T13:12:58.634Z</actualStartTime>
  <retryCount>0</retryCount>
  <numFileFailures>0</numFileFailures>
  <numFileWarnings>0</numFileWarnings>
</statistics>
</transaction>

```

### Failed transfer log message examples:

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a file transfer that fails being started, in progress, and completed.

#### File transfer failure - started

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d03620020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:19:15.767Z">started</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet startTime="2011-01-26T13:19:15.767Z" total="1" bytesSent="0">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d03620020</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
</transaction>

```

## File transfer failure - progress

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d03620020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:19:15.944Z">progress</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <transferSet index="0" size="1" startTime="2011-01-26T13:19:15.767Z" total="1" bytesSent="0">
    <item mode="binary">
      <source disposition="leave" type="file">
        <file size="0" last-modified="2011-01-26T13:10:19.000Z"/>/srv/nfs/incoming/file01.txt</file>
        <checksum method="MD5">d41d8cd98f00b204e9800998ecf8427e</checksum>
      </source>
      <destination type="file">
        <file>/srv/nfs/outgoing/file01.txt</file>
      </destination>
      <status resultCode="1">
        <supplement>BFGI00006E: File "/srv/nfs/outgoing/file01.txt" already exists.</supplement>
      </status>
    </item>
  </transferSet>
</transaction>
```

## File transfer failure - completed

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  ID="414d51205553322e42494e44494e47538b0f404d03620020"
  agentRole="sourceAgent"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-01-26T13:19:15.948Z">completed</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </sourceAgent>
  <destinationAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER">
    <systemInfo architecture="x86" name="Linux" version="2.6.31-21-generic"/>
  </destinationAgent>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <status resultCode="40">
    <supplement>BFGRP0034I: The file transfer request has
      completed with no files being transferred.
    </supplement>
  </status>
  <transferSet startTime="2011-01-26T13:19:15.767Z" total="1" bytesSent="0">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">AGENT_JUPITER</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">mqm</metaData>
    </metaDataSet>
  </transferSet>
</transaction>
```

```

    <metaData key="com.ibm.wmqfte.OriginatingUser">mqm</metaData>
    <metaData key="com.ibm.wmqfte.OriginatingHost">example.com.</metaData>
    <metaData key="com.ibm.wmqfte.TransferId">414d51205553322e42494e44494e47538b0f404d03620020</metaData>
    <metaData key="com.ibm.wmqfte.Priority">0</metaData>
  </metaDataSet>
</transferSet>
<statistics>
  <actualStartTime>2011-01-26T13:19:15.878Z</actualStartTime>
  <retryCount>0</retryCount>
  <numFileFailures>1</numFileFailures>
  <numFileWarnings>0</numFileWarnings>
</statistics>
</transaction>

```

### Triggered transfer message format:

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

### Trigger single file transfer success - started

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction version="1.00"
  ID="414d5120514d31202020202020202020207e970d492000a102" agentRole="sourceAgent"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2008-11-02T22:05:18.703Z">started</action>
  <sourceAgent agent="FTEAGENT" QMgr="QM1">
    <systemInfo architecture="x86" name="Windows XP"
      version="5.1 build 2600 Service Pack 2" />
  </sourceAgent>
  <destinationAgent agent="FTEAGENT" QMgr="QM1" />
  <originator>
    <hostName>reportserver.com</hostName>
    <userID>USER1</userID>
    <mqmdUserID>USER1 </mqmdUserID>
  </originator>
  <trigger log="yes">
    <fileExist comparison="" value="exist">c:\trigger.txt</fileExist>
  </trigger>
  <transferSet startTime="2008-11-02T22:05:18.703Z" total="1"></transferSet>
</transaction>

```





```

<sourceAgent agent="FTEAGENT" QMgr="QM1">
  <startExits>
    <exit name="class testExits.SourceExit1">
      <status resultCode="proceed">
        <supplement>Source Start, modified metadata</supplement>
      </status>
    </exit>
  </startExits>
</endExits>
  <exit name="class testExits.SourceExit1">
    <status>
      <supplement>Source End</supplement>
    </status>
  </exit>
</endExits>
<systemInfo architecture="x86" name="Windows XP"
  version="5.1 build 2600 Service Pack 2" />
</sourceAgent>
<destinationAgent agent="FTEAGENT" QMgr="QM1">
  <startExits>
    <exit name="class testExits.DestinationExitProceed">
      <status resultCode="proceed">
        <supplement>Destination start, with proceed</supplement>
      </status>
    </exit>
  </startExits>
</endExits>
  <exit name="class testExits.DestinationExitProceed">
    <status>
      <supplement>destination end</supplement>
    </status>
  </exit>
</endExits>
<systemInfo architecture="x86" name="Windows XP"
  version="5.1 build 2600 Service Pack 2" />
</destinationAgent>
<originator>
  <hostName>reportserver.com</hostName>
  <userID>USER1</userID>
  <mqmdUserID>USER1      </mqmdUserID>
</originator>
<transferSet startTime="2008-11-02T22:36:13.046Z" total="1">
  <metaDataSet>
    <metaData key="newkey2">newvalue2</metaData>
    <metaData key="newkey1">newvalue1</metaData>
    <metaData key="newkey4">newvalue4</metaData>
    <metaData key="newkey3">newvalue3</metaData>
    <metaData key="newkey5">newvalue5</metaData>
    <metaData key="testkey1">testvalue1</metaData>
    <metaData key="testkey2">testvalue2</metaData>
  </metaDataSet>
</transferSet>
</transaction>

```

<!--

In this example the source transfer start exit has modified the metadata as follows:

Added keys and values for:

```

newkey1, newvalue1
newkey2, newvalue2
newkey3, newvalue3
newkey4, newvalue4
newkey5, newvalue5

```

Replaced values for:

```

key1 to modifiedValue1

```







## Related reference:

“Single transfer log message examples” on page 686

When a transfer occurs, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages for a single file transfer being started, in progress, and completed.

“Triggered transfer message format” on page 693

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML example shows the log message that is created when a file transfer containing a trigger condition is started.

“User exit message formats” on page 695

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. The XML examples show the log messages that are created when a file transfer occurs that contains calls to user exits.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

## Connect:Direct bridge transfer message examples:

The `destinationAgent` or `sourceAgent` element contains additional attributes when the destination agent or source agent is a Connect:Direct bridge agent. The Started log message contains only a subset of the information about the Connect:Direct transfer. The Progress and Completed log messages contain full information about the Connect:Direct transfer.

## Source agent is Connect:Direct bridge agent

### Started:

```
<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d20092507"
  agentRole="sourceAgent"
  version="4.00"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T13:05:01.838Z">started</action>
  <sourceAgent QMgr="QM_KUIPER" agent="VARUNA" agentType="CD_BRIDGE" bridgeNode="CDNODE_VARUNA">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_KUIPER" agent="IXION"/>
  <originator>
    <hostName>kuiper.example.com.</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <transferSet bytesSent="0" startTime="2011-03-07T13:05:01.838Z" total="1">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">VARUNA</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">IXION</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">kuiper.example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d20092507</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
</transaction>
```

### Progress:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d20092507"
  agentRole="sourceAgent"
  version="4.00"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T13:05:03.448Z">progress</action>
  <sourceAgent QMgr="QM_KUIPER" agent="VARUNA" agentType="CD_BRIDGE"
    bridgeNode="CDNODE_VARUNA" pnode="CDNODE_VARUNA" snode="CDNODE_ERIS">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_KUIPER" agent="IXION" agentType="STANDARD">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </destinationAgent>
  <originator>
    <hostName>kuiper.example.com.</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <transferSet bytesSent="48" index="0" size="1" startTime="2011-03-07T13:05:01.838Z" total="1">
    <item mode="binary">
      <source disposition="leave" processName="f2007567" processNumber="68" type="file">
        <file last-modified="2011-03-07T13:05:02.573Z" size="4">CDNODE_ERIS:D:/AGENTS/CDNODE_ERIS/test.txt</file>
        <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
      </source>
      <destination type="file">
        <file last-modified="2011-03-07T13:05:03.338Z" size="4">D:\AGENTS\IXION\test.txt</file>
        <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
      </destination>
      <status resultCode="0"/>
    </item>
  </transferSet>
</transaction>

```

### Completed:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d20092507"
  agentRole="sourceAgent"
  version="4.00" xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T13:05:03.495Z">completed</action>
  <sourceAgent QMgr="QM_KUIPER" agent="VARUNA" agentType="CD_BRIDGE"
    bridgeNode="CDNODE_VARUNA" pnode="CDNODE_VARUNA" snode="CDNODE_ERIS">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_KUIPER" agent="IXION" agentType="STANDARD">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </destinationAgent>
  <originator>
    <hostName>kuiper.example.com.</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <status resultCode="0">
    <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
  </status>
  <transferSet bytesSent="48" startTime="2011-03-07T13:05:01.838Z" total="1">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">VARUNA</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">IXION</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">kuiper.example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d20092507</metaData>
    </metaDataSet>
  </transferSet>
</transaction>

```

```

        <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
</transferSet>
<statistics>
    <actualStartTime>2011-03-07T13:05:02.041Z</actualStartTime>
    <retryCount>0</retryCount>
    <numFileFailures>0</numFileFailures>
    <numFileWarnings>0</numFileWarnings>
</statistics>
</transaction>

```

## Destination agent is Connect:Direct bridge agent

### Started:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    ID="414d5120514d5f696b6b796f20202020a704654d2008e102"
    agentRole="sourceAgent"
    version="4.00"
    xsi:noNamespaceSchemaLocation="TransferLog.xsd"
    xmlns="">
    <action time="2011-03-07T10:29:44.854Z">started</action>
    <sourceAgent QMgr="QM_ASTEROID" agent="PALLAS" agentType="STANDARD">
        <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
    </sourceAgent>
    <destinationAgent QMgr="QM_ASTEROID" agent="VESTA"/>
    <originator>
        <hostName>belt.example.com.</hostName>
        <userID>sol</userID>
        <mqmdUserID>sol</mqmdUserID>
    </originator>
    <transferSet bytesSent="0" startTime="2011-03-07T10:29:44.854Z" total="1">
        <metaDataSet>
            <metaData key="com.ibm.wmqfte.SourceAgent">PALLAS</metaData>
            <metaData key="com.ibm.wmqfte.DestinationAgent">VESTA</metaData>
            <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
            <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
            <metaData key="com.ibm.wmqfte.OriginatingHost">belt.example.com.</metaData>
            <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d2008e102</metaData>
            <metaData key="com.ibm.wmqfte.Priority">0</metaData>
        </metaDataSet>
    </transferSet>
</transaction>

```

### Progress:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    ID="414d5120514d5f696b6b796f20202020a704654d2008e102"
    agentRole="sourceAgent"
    version="4.00"
    xsi:noNamespaceSchemaLocation="TransferLog.xsd"
    xmlns="">
    <action time="2011-03-07T10:29:46.682Z">progress</action>
    <sourceAgent QMgr="QM_ASTEROID" agent="PALLAS" agentType="STANDARD">
        <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
    </sourceAgent>
    <destinationAgent QMgr="QM_ASTEROID" agent="VESTA" agentType="CD_BRIDGE"
        bridgeNode="CDNODE_VESTA" pnode="CDNODE_VESTA" snode="CDNODE_HYGIEA">
        <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
    </destinationAgent>
    <originator>
        <hostName>belt.example.com.</hostName>
        <userID>sol</userID>
        <mqmdUserID>sol</mqmdUserID>
    </originator>

```

```

<transferSet bytesSent="48" index="0" size="1" startTime="2011-03-07T10:29:44.854Z" total="1">
  <item mode="binary">
    <source disposition="leave" type="file">
      <file last-modified="2011-03-04T14:53:28.323Z" size="4">D:\AGENTS\PALLAS\test.txt</file>
      <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
    </source>
    <destination processName="f2006965" processNumber="59" type="file">
      <file size="4">CDNODE_VESTA:D:/AGENTS/CDNODE_VESTA/test.txt</file>
      <checksum method="MD5">098f6bcd4621d373cade4e832627b4f6</checksum>
    </destination>
    <status resultCode="0"/>
  </item>
</transferSet>
</transaction>

```

### Completed:

```

<?xml version="1.0" encoding="UTF-8"?>
<transaction xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  ID="414d5120514d5f696b6b796f20202020a704654d2008e102"
  agentRole="sourceAgent"
  version="4.00"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2011-03-07T10:29:46.698Z">completed</action>
  <sourceAgent QMgr="QM_ASTEROID" agent="PALLAS" agentType="STANDARD">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </sourceAgent>
  <destinationAgent QMgr="QM_ASTEROID" agent="VESTA" agentType="CD_BRIDGE"
    bridgeNode="CDNODE_VESTA" pnode="CDNODE_VESTA" snode="CDNODE_HYGIEA">
    <systemInfo architecture="x86" name="Windows XP" version="5.1 build 2600 Service Pack 3"/>
  </destinationAgent>
  <originator>
    <hostName>belt.example.com</hostName>
    <userID>sol</userID>
    <mqmdUserID>sol</mqmdUserID>
  </originator>
  <status resultCode="0">
    <supplement>BFGRP0032I: The file transfer request has successfully completed.</supplement>
  </status>
  <transferSet bytesSent="48" startTime="2011-03-07T10:29:44.854Z" total="1">
    <metaDataSet>
      <metaData key="com.ibm.wmqfte.SourceAgent">PALLAS</metaData>
      <metaData key="com.ibm.wmqfte.DestinationAgent">VESTA</metaData>
      <metaData key="com.ibm.wmqfte.MqmdUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingUser">sol</metaData>
      <metaData key="com.ibm.wmqfte.OriginatingHost">belt.example.com.</metaData>
      <metaData key="com.ibm.wmqfte.TransferId">414d5120514d5f696b6b796f20202020a704654d2008e102</metaData>
      <metaData key="com.ibm.wmqfte.Priority">0</metaData>
    </metaDataSet>
  </transferSet>
  <statistics>
    <actualStartTime>2011-03-07T10:29:45.010Z</actualStartTime>
    <retryCount>0</retryCount>
    <numFileFailures>0</numFileFailures>
    <numFileWarnings>0</numFileWarnings>
  </statistics>
</transaction>

```

## Scheduled transfer log message formats

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

### Schema

The following schema describes which elements are valid in a schedule log XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>

  <xsd:element name="schedulelog">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="originator" type="hostUserIDType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="action" type="actionType"
          maxOccurs="1" minOccurs="1"/>
        <xsd:element name="schedule" type="scheduleType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="sourceAgent" type="agentType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="destinationAgent" type="agentClientType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="status" type="statusType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="transferSet" type="transferSetType"
          maxOccurs="1" minOccurs="0"/>
        <xsd:element name="job" type="jobType"
          maxOccurs="1" minOccurs="0"/>
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
      <xsd:attribute name="ID" type="xsd:string" use="required"/>
    </xsd:complexType>
  </xsd:element>

  <xsd:complexType name="actionType">
    <xsd:simpleContent>
      <xsd:extension base="actionEnumType">
        <xsd:attribute name="time" type="xsd:dateTime" use="required" />
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>

  <xsd:simpleType name="actionEnumType">
    <xsd:restriction base="xsd:token">
      <xsd:enumeration value="submit"/>
      <xsd:enumeration value="delete"/>
      <xsd:enumeration value="expire"/>
      <xsd:enumeration value="skipped"/>
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:complexType name="transferSetType">
    <xsd:sequence>
      <xsd:element name="item" type="itemType"
        maxOccurs="unbounded" minOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="size" type="xsd:int" use="required" />
    <xsd:attribute name="priority" type="priorityType" use="optional" />
  </xsd:complexType>

  <xsd:complexType name="itemType">
    <xsd:sequence>
      <xsd:element name="source" type="fileSourceType"

```

```

                maxOccurs="1"      minOccurs="1" />
        <xsd:element name="destination" type="fileDestinationType"
                maxOccurs="1"      minOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="mode" type="modeType" use="required" />
    <xsd:attribute name="checksumMethod" type="checkSumMethod" use="required" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the schedule log message

The elements and attributes used in the schedule log message are described:

### <schedulelog>

Group element that describes a single submitted scheduled file transfer.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as detailed by WebSphere MQ File Transfer Edition. |
| ID        | The unique identifier for the submitted schedule file transfer.                          |

### <originator>

Group element that contains the elements specifying the originator of the request.

### <hostName>

The host name of the system where the source file is located.

### <userID>

The user ID that originated the file transfer.

### <mqmdUserID>

The WebSphere MQ user ID that was supplied in the message descriptor (MQMD)

### <action>

Specifies the action to take with the scheduled transfer matching the ID attribute of <schedulelog> element. This element must be one of the following values:

- submit - new scheduled transfer
- delete - cancel schedule transfer
- expire - schedule transfer entry about to be processed
- skipped - a transfer that was scheduled cannot be started because the agent is offline. This message is logged when the agent becomes available to indicate the transfer was skipped.

| Attribute | Description                                                                    |
|-----------|--------------------------------------------------------------------------------|
| time      | Specifies the date and time the log entry was published (in date time format). |

### <sourceAgent>

Specifies the name of the agent on the system where the source file is located.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | Specifies the name of the agent.     |
| QMgr      | The name of the agent queue manager. |

### <destinationAgent>

Specifies the name of the agent on the system you want to transfer the file to.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | Specifies the name of the agent.     |
| QMgr      | The name of the agent queue manager. |

**<status>**

The result code and supplement messages.

**<transferSet>**

Specifies a group of file transfers you want to perform together. During transmission <transferSet> is a group element containing <item> elements.

| Attribute | Description                                                                                                                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| size      | Specifies the number of transfer items.                                                                                                                                                                        |
| priority  | Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the priority level of the source agent. |

**<item>**

Group element that contains elements specifying the source and destination file names and locations.

| Attribute      | Description                                                                                                                              |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------|
| mode           | Specifies the transfer mode as being either binary or text.                                                                              |
| checksumMethod | Specifies the type of hash algorithm that generates the message digest to create the digital signature. Permitted values are MD5 or none |

**<source>**

Group element that contains the <file> and <checksum> elements for the file on the source system.

| Attribute   | Description                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| recursive   | Specifies that files are transferred recursively in subdirectories when the <source> element is a directory or contains wildcard characters.                                                                                                                                                                                                                                                 |
| disposition | Specifies the action that is taken on the <source> element when <source> has successfully been transferred to its destination. The valid options are as follows: <ul style="list-style-type: none"> <li>• leave - the source files are left unchanged.</li> <li>• delete - the source files are deleted from the source system after the source file is successfully transferred.</li> </ul> |

**<destination>**

Group element that contains the <file> and <checksum> elements for the file on the destination system.

| Attribute | Description                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type      | The type of file or directory at the destination. The valid options are as follows: <ul style="list-style-type: none"> <li>• file - specifies a file as the destination</li> <li>• directory - specifies a directory as the destination</li> <li>• dataset - specifies a z/OS data set as the destination</li> <li>• PDS - specifies a z/OS partitioned data set as the destination</li> </ul> |
| exist     | Specifies the action that is taken if a destination file exists on the destination system. The valid options are as follows: <ul style="list-style-type: none"> <li>• error - reports an error and the file is not transferred.</li> <li>• overwrite - overwrites the existing destination file.</li> </ul>                                                                                    |

### <file>

Specifies the name of the file to transfer. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

| Attribute | Description                                                                                                                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| encoding  | The encoding for a text file transfer.                                                                                                                                                                       |
| EOL       | Specifies the end of line marker. Permitted values are: <ul style="list-style-type: none"> <li>• LF - line feed character only</li> <li>• CRLF - carriage return and line feed character sequence</li> </ul> |

### <job>

Group element that contains an element specifying job details. <job> is a user-defined job name identifier that is added to the log message when the transfer has started. This <job> element is the same as the <job> element that is included in the transfer request message, which is described in the following topic: "File transfer request message format" on page 881.

#### <name>

The value of name can be any string.

## Examples

Examples of XML messages that conform to this schema are provided for each of the following scheduled transfer actions:

- A scheduled transfer is created
- A scheduled transfer is canceled
- A schedule transfer expires

Transfers that are started by a schedule are logged in the same way as a standard transfer. For examples of log messages for transfers started by a schedule, see "Scheduled transfer log message examples" on page 694.

## Related reference:

"Agent status message format" on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

"File transfer request message format" on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

"File transfer status message format" on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

"File transfer log message formats" on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of *Log/agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

"Monitor request message formats" on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

"Message formats for security" on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

## Schedule log examples:

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of *Log/agent\_name/schedule\_ID* when a scheduled transfer action occurs.

### Scheduled transfer log message

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/*Log/agent\_name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema. For example:

```
<?xml version="1.0" encoding="UTF-8"?>
<schedulelog version="1.00" ID="5"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ScheduleLog.xsd">
  <originator>
    <hostName>reportserver.com</hostName>
    <userID>USER1</userID>
  </originator>
  <action time="2008-11-23T21:32:01Z">submit</action>
  <schedule>
    <submit timebase="admin" timezone="Europe/London">2008-11-23T22:00</submit>
  </schedule>
  <sourceAgent agent="FTEAGENT" QMgr="QM1" />
  <destinationAgent agent="FTEAGENT" QMgr="QM1" />
  <status resultCode="0" />
  <transferSet size="1" priority="0">
    <item mode="binary" checksumMethod="MD5">
      <source recursive="false" disposition="leave">
        <file>c:\sourcefiles\source1.doc</file>
      </source>
    </item>
  </transferSet>
</schedulelog>
```

```

    <destination type="file" exist="overwrite">
      <file>c:\destinationfiles\dest1.doc</file>
    </destination>
  </item>
</transferSet>
</schedulelog>

```

This message is a log of the following information:

- Who originated the request
- When the request was submitted
- When the scheduled transfer starts
- The source and destination agent details
- The transfer specification

The ID attribute of the `<schedulelog>` element is a unique ID for this scheduled transfer (in the source agent). This ID used to correlate schedule entries with the actual file transfers.

The `<action>` element value of submit confirms the request has been received.

### Scheduled transfer cancel log message

When a request to cancel a pending scheduled file transfer is received by the agent, the following message is published to the `SYSTEM.FTE/Log/agent_name` topic:

```

<?xml version="1.0" encoding="UTF-8"?>
<schedulelog version="1.00" ID="5"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ScheduleLog.xsd">
  <originator>
    <hostName>reportserver.com</hostName>
    <userID>USER1</userID>
  </originator>
  <action time="2008-11-23T21:56:27Z">delete</action>
  <status resultCode="0" />
</schedulelog>

```

The ID attribute value corresponds to the ID of the pending transfer request ID in the schedules message.

### Scheduled transfer expire log message

When the current time matches the time of the earliest pending file transfer in the schedule list (as indicated by the value of the `<next>` element), a schedule log message is published to indicate that the scheduled transfer entry has expired:

```

<?xml version="1.0" encoding="UTF-8"?>
<schedulelog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00" ID="3"
  xsi:noNamespaceSchemaLocation="ScheduleLog.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <action time="2011-01-26T13:03:26Z">expire</action>
  <sourceAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <status resultCode="0"/>
</schedulelog>

```

The `<action>` element value of "expire" confirms the schedule entry has now been removed from the schedule list and is being processed. A schedule message for the agent is published with the expired entry no longer present.

## Related reference:

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Scheduled transfer log message examples” on page 694

When a transfer is in progress, messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/transfer\_ID*. The XML examples show the log messages that are created when a file transfer occurs as a result of a schedule.

## Monitor log message format

Monitor log messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/Monitors/monitor\_name/monitor\_ID*.

If you want to collect data or view monitor actions, set up a subscription to a wildcard topic tailored to the monitors that you are interested in. For example:

```
Log/#
```

or,

```
Log/agent_name/#
```

This subscription can be durable or non-durable. Durable subscriptions continue to exist when a subscribing application's connection to the queue manager is closed. Non-durable subscriptions exist only as long as a subscribing application's connection to the queue manager remains open.

The MonitorLog.xsd schema document is located in the *install\_directory/samples/schema* directory. The MonitorLog.xsd schema imports fteutils.xsd, which is in the same directory.

## Schema

The following schema describes which elements are valid in a monitor log XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>
  <xsd:element name="monitorLog">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="originator" type="hostUserIDType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="references" type="referencesType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="action" type="monitorActionType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="monitorAgent" type="agentType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="status" type="statusType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="monitorMetaData" type="monitorMetaDataType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="monitorExits" type="exitGroupType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="jobDetails" type="jobType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="taskXMLRequest" type="taskXMLRequestType" maxOccurs="1" minOccurs="0"/>
        <xsd:element name="monitorXMLRequest" type="monitorXMLRequestType" maxOccurs="1" minOccurs="0"/>
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
      <xsd:attribute name="monitorName" type="xsd:string" use="required"/>
      <xsd:attribute name="referenceId" type="xsd:string" use="optional"/>
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="monitorActionType">
    <xsd:simpleContent>
      <xsd:extension base="monitorActionEnumType">
        <xsd:attribute name="time" type="xsd:dateTime" use="required" />
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
</xsd:schema>
```

```

    </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="monitorActionEnumType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="create"/>
    <xsd:enumeration value="delete"/>
    <xsd:enumeration value="start"/>
    <xsd:enumeration value="stop"/>
    <xsd:enumeration value="triggerSatisfied"/>
    <xsd:enumeration value="triggerNotSatisfied"/>
    <xsd:enumeration value="triggerFail"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="monitorMetaDataType">
  <xsd:sequence>
    <xsd:element name="originalMetaData" type="metaDataSetType" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="updatedMetaData" type="metaDataSetType" maxOccurs="unbounded" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="taskXMLRequestType">
  <xsd:sequence>
    <xsd:element name="originalRequest" type="xsd:string" maxOccurs="1" minOccurs="1"/>
    <xsd:element name="updatedRequest" type="xsd:string" maxOccurs="1" minOccurs="0"/>
  </xsd:sequence>
  <xsd:attribute name="taskId" type="xsd:string" use="required"/>
</xsd:complexType>

<xsd:complexType name="referencesType">
  <xsd:sequence>
    <xsd:element name="createRequest" type="xsd:string" maxOccurs="1" minOccurs="0"/>
    <xsd:element name="taskRequest" type="xsd:string" maxOccurs="1" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="monitorXMLRequestType">
  <xsd:simpleContent>
    <xsd:extension base="xsd:string">
      <xsd:attribute name="type" type="xmlContentEnumType" use="required" />
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="xmlContentEnumType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="escapedXML"/>
  </xsd:restriction>
</xsd:simpleType>
</xsd:schema>

```

## Understanding the monitor log message

The elements and attributes used in the monitor log messages are described in the following list:

### <monitorLog>

Group element containing the elements describe an action that has been performed by a monitor.

| Attribute | Description                                               |
|-----------|-----------------------------------------------------------|
| version   | Required. The version of the monitor list message format. |

| Attribute   | Description                                                                             |
|-------------|-----------------------------------------------------------------------------------------|
| monitorName | Required. The name of the monitor. Unique for the agent that the monitor is defined on. |
| referenceId | The ID of the monitor action.                                                           |

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<hostName>**

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

**<references>**

References to the IDs of other messages associated with this monitor action.

**<createRequest>**

The message ID of the XML request message that was used to create the monitor.

**<taskRequest>**

The message ID of the XML request message that the monitor submits as a result of this action.

**<action>**

The action that occurred, which this log message is associated with. The value inside the element can be one of the following: create, delete, start, stop, triggerSatisfied, triggerNotSatisfied, or triggerFail.

**<monitorAgent>**

The agent that is monitoring the resource.

| Attribute | Description                                                                        |
|-----------|------------------------------------------------------------------------------------|
| agent     | Required. The name of the agent.                                                   |
| QMgr      | Optional. The name of the queue manager that the agent connects to.                |
| bridgeURL | Optional. If the agent is a protocol bridge agent, the URL of the protocol server. |

**<status>**

The status of the resource monitor action being logged.

| Attribute  | Description                                        |
|------------|----------------------------------------------------|
| resultCode | Required. The integer result code from the action. |

**<supplement>**

Additional information about the status of the resource monitor action being logged.

**<monitorMetaData>**

Group element that contains the <originalMetaData> and <updatedMetaData> elements.

**<originalMetaData>**

Element that contains one or more <metadata> elements that describe the metadata of the monitor before the action occurs.

**<updatedMetaData>**

Element that contains one or more <metadata> elements that describe the metadata of the monitor after the action occurs.

**<metadata>**

Defines a metadata key-value pair. The key is an attribute of the element; the value is the content of the element.

| Attribute | Description              |
|-----------|--------------------------|
| key       | The key of the metadata. |

**<monitorExits>**

Group element containing one or more <exit> elements.

**<exits>**

Element describing an exit run by the resource monitor.

| Attribute | Description                                      |
|-----------|--------------------------------------------------|
| name      | Required. The name of the resource monitor exit. |

**<status>**

The status of the resource monitor exit that is being logged.

| Attribute  | Description                                      |
|------------|--------------------------------------------------|
| resultCode | Required. The integer result code from the exit. |

**<supplement>**

Additional information about the status of the resource monitor exit that is being logged.

**<jobDetails>**

Element containing a single <name> element.

**<name>**

The name of the job..

**<taskXMLRequest>**

Group element that contains the <originalRequest> and <updatedRequest> elements.

| Attribute | Description                         |
|-----------|-------------------------------------|
| taskId    | The ID of the task request message. |

**<originalRequest>**

Element that contains the escaped XML request message for the task that the monitor performs.

**<updatedRequest>**

Element that contains the updated escaped XML request message for the task that the monitor performs.

**<monitorXMLRequest>**

The monitor XML request.

| Attribute | Description                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------|
| type      | Required. The format of the monitor XML request data inside of the <monitorXMLRequest> element. The only valid value is escapedXML. |

**Examples**

Examples of XML messages that conform to this schema are provided for each of the following monitor actions:

- A monitor is created
- The condition of a monitor is satisfied when the monitor polls the resource
- The condition of a monitor is not satisfied when the monitor polls the resource
- A monitor is deleted

**Related reference:**

“Monitor log examples” on page 714

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/monitor_ID` when a monitor action occurs.

**Monitor log examples:**

Examples of the messages that are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/monitor_ID` when a monitor action occurs.

**Monitor created log message**

```
<?xml version="1.0" encoding="UTF-8"?>
<monitorLog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  monitorName="MONITORTWO"
  referenceId="414d51205553322e42494e44494e47538b0f404d04410020"
  xsi:noNamespaceSchemaLocation="MonitorLog.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <references>
    <createRequest>414d51205553322e42494e44494e47538b0f404d04410020</createRequest>
  </references>
  <action time="2011-01-26T12:41:24Z">start</action>
  <monitorAgent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <status resultCode="0"/>
</monitorLog>
```

**Monitor condition satisfied log message**

```
<?xml version="1.0" encoding="UTF-8"?>
  <monitorLog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    version="4.00"
    monitorName="MONITORONE"
    referenceId="414d51205553322e42494e44494e47538b0f404d09430020"
    xsi:noNamespaceSchemaLocation="MonitorLog.xsd">
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
      <mqmdUserID>mqm</mqmdUserID>
    </originator>
    <references>
      <createRequest>414d51205553322e42494e44494e47538b0f404d09430020</createRequest>
    </references>
    <action time="2011-01-26T12:56:46Z">triggerSatisfied</action>
    <monitorAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <status resultCode="0"/>
    <monitorMetaData>
      <originalMetaData>
        <metaData key="AGENTNAME">AGENT_JUPITER</metaData>
        <metaData key="LASTMODIFIEDDATEUTC">2011-01-26</metaData>
        <metaData key="CURRENTTIMESTAMPUTC">20110126125646793</metaData>
        <metaData key="CURRENTTIMESTAMP">20110126125646793</metaData>
        <metaData key="LASTMODIFIEDDATE">2011-01-26</metaData>
        <metaData key="FILENAME">new.completed</metaData>
        <metaData key="LASTMODIFIEDTIMEUTC">12.56</metaData>
        <metaData key="LASTMODIFIEDTIME">12.56</metaData>
      </originalMetaData>
    </monitorMetaData>
  </monitorLog>
```

```

    <metaData key="FILESIZE">0</metaData>
    <metaData key="FILEPATH">/srv/nfs/incoming/new.completed</metaData>
</originalMetaData>
<updatedMetaData>
  <metaData key="AGENTNAME">AGENT_JUPITER</metaData>
  <metaData key="LASTMODIFIEDDATEUTC">2011-01-26</metaData>
  <metaData key="CURRENTTIMESTAMPUTC">20110126125646793</metaData>
  <metaData key="CURRENTTIMESTAMP">20110126125646793</metaData>
  <metaData key="LASTMODIFIEDDATE">2011-01-26</metaData>
  <metaData key="FILENAME">new.completed</metaData>
  <metaData key="LASTMODIFIEDTIMEUTC">12.56</metaData>
  <metaData key="LASTMODIFIEDTIME">12.56</metaData>
  <metaData key="FILESIZE">0</metaData>
  <metaData key="FILEPATH">/srv/nfs/incoming/new.completed</metaData>
</updatedMetaData>
</monitorMetaData>
<taskXMLRequest taskId="null">
  <originalRequest>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
    xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
      &lt;originator&gt;&lt;hostName&gt;example.com.&lt;/hostName&gt;
      &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
      &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
      &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
      &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
        &lt;source disposition="leave" recursive="false"&gt;
          &lt;file&gt;/srv/nfs/incoming/*.txt&lt;/file&gt;&lt;/source&gt;
          &lt;destination exist="error" type="directory"&gt;
            &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
          &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;&lt;/request&gt;
        &lt;/originalRequest>
      <updatedRequest>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
        xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
          &lt;originator&gt;&lt;hostName&gt;example.com.&lt;/hostName&gt;
          &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
          &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
          &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
          &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
            &lt;source disposition="leave" recursive="false"&gt;
              &lt;file&gt;/srv/nfs/incoming/*.txt&lt;/file&gt;
              &lt;/source&gt;&lt;destination exist="error" type="directory"&gt;
                &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
              &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;&lt;/request&gt;
            &lt;/updatedRequest>
          </taskXMLRequest>
        </monitorLog>

```

### Monitor condition not satisfied log message

```

<?xml version="1.0" encoding="UTF-8"?>
<monitorLog xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  monitorName="MONITORONE"
  referenceId="414d51205553322e42494e44494e47538b0f404d09430020"
  xsi:noNamespaceSchemaLocation="MonitorLog.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
    <mqmdUserID>mqm</mqmdUserID>
  </originator>
  <references>
    <createRequest>414d51205553322e42494e44494e47538b0f404d09430020</createRequest>
  </references>

```

```

    <action time="2011-01-26T12:58:46Z">triggerNotSatisfied</action>
    <monitorAgent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
    <status resultCode="0"/>
</monitorLog>

```

### Monitor deleted log message

```

<?xml version="1.0" encoding="UTF-8"?>
<lst:monitorList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:lst="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  version="4.00"
  agent="AGENT_JUPITER"
  monitor="MONITORONE"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition MonitorList.xsd">
  <status state="deleted"/>
  <configuration>
    <description/>
    <resources>
      <directory recursionLevel="0" id="">/srv/nfs/incoming</directory>
    </resources>
    <triggerMatch>
      <conditions>
        <condition>
          <name/>
          <resource id=""/>
          <fileMatch>
            <pattern>*.completed</pattern>
          </fileMatch>
        </condition>
      </conditions>
    </triggerMatch>
    <tasks>
      <task>
        <name/>
        <description/>
        <taskXML>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;request
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="4.00"
          xsi:noNamespaceSchemaLocation="FileTransfer.xsd"&gt;&lt;managedTransfer&gt;
            &lt;originator&gt;&lt;hostName&gt;example.ibm.com.&lt;/hostName&gt;
            &lt;userID&gt;mqm&lt;/userID&gt;&lt;/originator&gt;
            &lt;sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/&gt;
            &lt;destinationAgent QMgr="QM_JUPITER" agent="AGENT_SATURN"/&gt;
            &lt;transferSet&gt;&lt;item checksumMethod="MD5" mode="binary"&gt;
            &lt;source disposition="leave" recursive="false"&gt;
            &lt;file&gt;/srv/nfs/incoming/*.txt&lt;/file&gt;&lt;/source&gt;
            &lt;destination exist="error" type="directory"&gt;
            &lt;file&gt;/srv/backup&lt;/file&gt;&lt;/destination&gt;
            &lt;/item&gt;&lt;/transferSet&gt;&lt;/managedTransfer&gt;&lt;/request&gt;
          </taskXML>
        </task>
      </tasks>
    </configuration>
    <pollInterval units="minutes">1</pollInterval>
    <batch maxSize="1"/>
</lst:monitorList>

```

## File transfer request message format

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

File transfer messages can have one of following three root elements:

- <request> - for new file transfer requests, managed call requests, or deleting scheduled transfers that are pending
- <cancel> - for canceling file transfers in progress
- <transferSpecifications> - for specifying multiple transfer file groups, used by the **fteCreateTransfer** command

For information about specifying multiple transfer groups by using the <transferSpecifications> element, see Using transfer definition files.

## Schema

The following schema describes which elements are valid in a transfer request XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>
  <xsd:element name="request">
    <xsd:complexType>
      <xsd:choice>
        <xsd:element name="managedTransfer" type="managedTransferType"/>
        <xsd:element name="deleteScheduledTransfer" type="deleteScheduledTransferType" />
        <xsd:element name="managedCall" type="managedCallType"/>
      </xsd:choice>
      <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="cancel">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="originator" type="hostUserIDType"
          maxOccurs="1" minOccurs="1" />
        <xsd:choice>
          <xsd:element name="transfer" type="IDType"
            maxOccurs="1" minOccurs="1" />
          <xsd:element name="call" type="IDType"
            maxOccurs="1" minOccurs="1" />
        </xsd:choice>
        <xsd:element name="reply" type="replyType"
          maxOccurs="1" minOccurs="0" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="transferSpecifications">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="item" type="itemType"
          minOccurs="1" maxOccurs="unbounded" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

```

<xsd:complexType name="managedTransferType">
  <xsd:sequence>
    <xsd:element name="originator" type="origRequestType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="schedule" type="scheduleType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="sourceAgent" type="agentType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="destinationAgent" type="agentClientType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="trigger" type="triggerType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="reply" type="replyType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="transferSet" type="transferSetType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="job" type="jobType"
      maxOccurs="1" minOccurs="0" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="transferSetType">
  <xsd:sequence>
    <xsd:element name="metaDataSet" type="metaDataSetType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="preSourceCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="postSourceCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="preDestinationCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="postDestinationCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="item" type="itemType"
      maxOccurs="unbounded" minOccurs="0" />
  </xsd:sequence>
  <xsd:attribute name="priority" type="priorityType" use="optional" />
</xsd:complexType>

<xsd:complexType name="itemType">
  <xsd:sequence>
    <xsd:element name="source" type="fileSourceType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="destination" type="fileDestinationType"
      maxOccurs="1" minOccurs="1" />
  </xsd:sequence>
  <xsd:attribute name="mode" type="modeType" use="required" />
  <xsd:attribute name="checksumMethod" type="checksumMethod" use="required" />
</xsd:complexType>

<xsd:complexType name="deleteScheduledTransferType">
  <xsd:sequence>
    <xsd:element name="originator" type="origDeleteType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="ID" type="idType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="reply" type="replyType"
      maxOccurs="1" minOccurs="0" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="managedCallType">
  <xsd:sequence>
    <xsd:element name="originator" type="origRequestType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="agent" type="agentType"
      maxOccurs="1" minOccurs="1" />
  </xsd:sequence>

```

```

        <xsd:element name="reply" type="replyType"
            maxOccurs="1" minOccurs="0" />
        <xsd:element name="transferSet" type="callTransferSetType"
            maxOccurs="1" minOccurs="1" />
        <xsd:element name="job" type="jobType"
            maxOccurs="1" minOccurs="0"/>
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="callTransferSetType">
    <xsd:sequence>
        <xsd:element name="metaDataSet" type="metaDataSetType"
            maxOccurs="1" minOccurs="0" />
        <xsd:element name="call" type="commandActionType"
            maxOccurs="1" minOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="priority" type="priorityType" use="optional" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the transfer request message

The elements and attributes used in transfer request messages are described in the following list:

### Element descriptions

#### <request>

Group element containing all the elements required to specify a file transfer request.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition. |

#### <managedTransfer>

Group element that contains all the elements required for a single file transfer or single group of file transfers.

#### <deleteScheduledTransfer>

Group element that contains originator and ID information to cancel a schedule transfer.

#### <managedCall>

Group element that contains all the elements required for a single managed call of a program or executable.

#### <ID>

Unique identifier that specifies the transfer request to delete from the list of pending scheduled transfers.

#### <originator>

Group element that contains the elements specifying the originator of the request.

#### <hostName>

The host name of the system where the source file is located.

#### <userID>

The user ID that originated the file transfer.

#### <mqmdUserID>

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

**<schedule>**

Group element describing the scheduled time for the file transfer, the repeat behavior, and when the next occurrence is due.

**<submit>**

Specifies the date and time that the scheduled transfer is due to start.

| Attribute | Description                                                                                                                                                                                                                                                                                                             |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| timebase  | Specifies which time zone to use. This attribute can have one of the following values: <ul style="list-style-type: none"> <li>• source - use the time zone of the source agent</li> <li>• admin - use the time zone of the administrator issuing the command</li> <li>• UTC - use Coordinated Universal Time</li> </ul> |
| timezone  | The time zone description according to the timebase value                                                                                                                                                                                                                                                               |

**<repeat>**

Group element that contains details about how often a scheduled transfer repeats, how many times a scheduled transfer repeats, and when a scheduled transfer stops repeating.

**<frequency>**

The time period that must elapse before the transfer repeats.

| Attribute | Description                                                                                                                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| interval  | The interval units, which must be one of the following values: <ul style="list-style-type: none"> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul> |

**<expireTime>**

Optional element that specifies the date and time that a repeating scheduled transfer stops. This element and the <expireCount> element are mutually exclusive.

**<expireCount>**

Optional element that specifies the number of times the scheduled file transfer occurs before stopping. This element and the <expireTime> element are mutually exclusive.

**<sourceAgent>**

Specifies the name of the agent on the system where the source file is located.

| Attribute | Description                          |
|-----------|--------------------------------------|
| agent     | Specifies the name of the agent.     |
| QMgr      | The name of the agent queue manager. |

**<destinationAgent>**

Specifies the name of the agent on the system you want to transfer the file to.

| Attribute | Description                      |
|-----------|----------------------------------|
| agent     | Specifies the name of the agent. |

| Attribute  | Description                                                                         |
|------------|-------------------------------------------------------------------------------------|
| QMgr       | The name of the agent queue manager.                                                |
| hostName   | The host name or IP address of the agent queue manager.                             |
| portNumber | The port number used for client connections to the destination agent queue manager. |
| channel    | The channel name used to connect to the destination agent queue manager.            |

#### <trigger>

Optional element that specifies a condition that must be true for the file transfer to take place.

| Attribute | Description                                                                                                                                                                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| log       | A flag indicating whether trigger failures are logged. The valid values are as follows: <ul style="list-style-type: none"> <li>• yes - log entries are created for failed triggered transfers</li> <li>• no - log entries are not created for failed triggered transfers</li> </ul> |

#### <fileExist>

Specifies a comma-separated list of file names located on the same system as the source agent. If a file in this name list satisfies the condition of the trigger, the transfer occurs. This element and the <fileSize> element are mutually exclusive.

| Attribute  | Description                                                                                                                                                                                                                                                                              |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| comparison | Indicates how to evaluate source file names against the name list. The valid values are as follows: <ul style="list-style-type: none"> <li>• = at least one file name in the name list must match</li> <li>• != a minimum of one of the files in the name list does not exist</li> </ul> |
| value      | Indicates the comparison type: <ul style="list-style-type: none"> <li>• exist: file must exist</li> </ul>                                                                                                                                                                                |

#### <fileSize>

Specifies a comma-separated list of file names located on the same system as the source agent. If a file in this name list satisfies the condition of the trigger, the transfer occurs. This element and the <fileExist> element are mutually exclusive.

| Attribute  | Description                                                                                                                                                                                                                                                               |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| comparison | Indicates how to evaluate source file names against the name list. The valid value is as follows: <ul style="list-style-type: none"> <li>• &gt;= one of the file names in the name list exists and has a minimum size as specified in the value attribute</li> </ul>      |
| value      | File size specified as an integer value with units specified as one of the following: <ul style="list-style-type: none"> <li>• B - bytes</li> <li>• KB - kilobytes</li> <li>• MB - megabytes</li> <li>• GB - gigabytes</li> </ul> (the units value is not case-sensitive) |

**<reply>**

Specifies the name of the temporary reply queue generated for synchronous file transfers (specified with the **-w** parameter on the command line). The name of the queue is defined by the key **dynamicQueuePrefix** in the `command.properties` configuration file or the default of `WMQFTE.*` if not specified.

| Attribute  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| detailed   | Whether detailed transfer result information is required in the reply message. Multiple reply messages for each transfer can be generated. The valid values are as follows: <ul style="list-style-type: none"> <li>• true - detailed reply information is required. The format of the information is the same as that published to the transfer log in the progress messages, that is, the <code>&lt;transferSet&gt;</code> element. For more information, see “File transfer log message formats” on page 675. Detailed reply information is present only when the transfer source agent has the <code>enableDetailedReplyMessages</code> property set to true.</li> <li>• false - detailed reply information is not required.</li> </ul> The default value is false. |
| QMGR       | The name of the command queue manager on which the temporary dynamic queue is generated to receive replies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| persistent | Whether the message written to the reply queue is persistent. The valid values are as follows: <ul style="list-style-type: none"> <li>• true - the message is persistent</li> <li>• false - the message is not persistent</li> <li>• qdef - the persistence of the message is defined by the properties of the reply queue</li> </ul> The default value is false.                                                                                                                                                                                                                                                                                                                                                                                                      |

**<transferSet>**

Specifies a group of file transfers you want to perform together or a group of managed calls that you want to perform together. During transmission `<transferSet>` is a group element containing `<item>` elements.

| Attribute | Description                                                                                                                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| priority  | Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the priority level of the source agent. |

**<metaDataSet>**

Optional group element containing one or more metadata items.

**<metaData>**

Specifies the user-defined metadata that is passed to the exit points called by the agent. The element contains the metadata value as a string.

| Attribute | Description               |
|-----------|---------------------------|
| key       | Metadata name as a string |

**<call>**

Group element that contains <command> elements specifying the program or executable to call.

**<command>**

Specifies the program or executable to call. The command must be located on the agent command path. For more information, see Table 29 on page 585. This element can contain optional <argument> elements.

| Attribute  | Description                                                                           |
|------------|---------------------------------------------------------------------------------------|
| name       | The name of the command.                                                              |
| successRC  | The successful return code that this command returns. Default is 0.                   |
| retryCount | The number of times that the command is to be retried if it fails.                    |
| retryWait  | The time, in seconds, to wait between retries of the command.                         |
| type       | The type of program to be called. The valid values are antscript, jcl, or executable. |

**<argument>**

Specifies an argument to pass to the command.

**<item>**

Group element that contains elements specifying the source and destination file names and locations.

| Attribute      | Description                                                                                                                               |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| mode           | Specifies the transfer mode as either binary or text.                                                                                     |
| checksumMethod | Specifies the type of hash algorithm that generates the message digest to create the digital signature. The valid values are MD5 or none. |

**<source>**

Group element that specifies files on the source system and whether they are removed after the transfer completes

| Attribute   | Description                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| recursive   | Specifies that files are transferred recursively in subdirectories when the <source> element is a directory or contains wildcard characters.                                                                                                                                                                                                                                                |
| disposition | Specifies the action that is taken on the <source> element when <source> has successfully been transferred to its destination. The valid values are as follows: <ul style="list-style-type: none"> <li>• leave - the source files are left unchanged.</li> <li>• delete - the source files are deleted from the source system after the source file is successfully transferred.</li> </ul> |

**<file>**

Specifies the transfer source, which can be a file, directory, data set, or PDS name. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

| Attribute              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| alias                  | Specifies an alias for the source file. This alias is the name of the source file, excluding any directory path specified for the transfer.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| EOL                    | Specifies the end of line marker for text transfers. Valid values are: <ul style="list-style-type: none"> <li>• LF - line feed character only</li> <li>• CRLF - carriage return and line feed character sequence</li> </ul>                                                                                                                                                                                                                                                                                                                                             |
| encoding               | The encoding of the source file for a text file transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| delimiter              | Specifies the delimiter that is included between records in record-oriented source files, for example, z/OS data sets. Specify the delimiter value as two hexadecimal digits in the range 00-FF, prefixed by x. For example, x12 or x03,x7F.<br><br>This attribute is available only if you have enabled the V7.0.4.1 function.                                                                                                                                                                                                                                         |
| delimiterType          | Specifies the type of delimiter that is included in the destination file after individual message data. The valid values is as follows: <ul style="list-style-type: none"> <li>• binary - a hexadecimal delimiter</li> </ul> This attribute is available only if you have enabled the V7.0.4.1 function.                                                                                                                                                                                                                                                                |
| delimiterPosition      | Specifies the position to insert delimiters when writing record-oriented source file records to a normal file. The valid values are as follows: <ul style="list-style-type: none"> <li>• prefix - the delimiter is inserted into the destination file before the data from each source record-oriented file record.</li> <li>• postfix - the delimiter is inserted into the destination file after the data from each source record-oriented file record.</li> </ul> This attribute is available only if you have enabled the V7.0.4.1 function.                        |
| includeDelimiterInFile | Specifies whether to include a delimiter between records in record-oriented source files.<br><br>This attribute is available only if you have enabled the V7.0.4.1 function.                                                                                                                                                                                                                                                                                                                                                                                            |
| keepTrailingSpaces     | Specifies whether trailing spaces are to be kept on source records read from a fixed-length-format data set as part of a text mode transfer. The default is that trailing spaces are stripped. The valid values are as follows: <ul style="list-style-type: none"> <li>• true - trailing spaces are kept on source records read from a fixed-length-format data set</li> <li>• false - trailing spaces are stripped from source records read from a fixed-length-format data set</li> </ul> This attribute is available only if you have enabled the V7.0.4.1 function. |

**<queue>**

When used with the <source> element, specifies the name of the queue to transfer from, which must be located on the source agent queue manager. Use the format *QUEUE*. Do not include the queue manager name, the queue must be present on the source agent queue manager. You cannot use the <queue> element inside the <source> element, if you have used it inside of the <destination> element.

| Attribute         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| useGroups         | Specifies whether to transfer only the first complete group of messages from the source queue. The valid values are as follows: <ul style="list-style-type: none"> <li>• true - transfer only the first complete group of messages</li> <li>• false - transfer all messages on the source queue</li> </ul>                                                                                                                                                        |
| groupId           | Specifies the group of messages to read from the source queue. This attribute is valid only when the value of the useGroups attribute is true.                                                                                                                                                                                                                                                                                                                    |
| delimiterType     | Specifies the type of delimiter that is included in the destination file after individual message data. The valid values are as follows: <ul style="list-style-type: none"> <li>• text - a text or Java literal delimiter</li> <li>• binary - a hexadecimal delimiter</li> </ul>                                                                                                                                                                                  |
| delimiter         | Specifies the delimiter that is included in the destination file between individual message data.                                                                                                                                                                                                                                                                                                                                                                 |
| delimiterPosition | Specifies whether the delimiter is included in the destination file before or after individual message data. The valid values are as follows: <ul style="list-style-type: none"> <li>• prefix - the delimiter is included before the data</li> <li>• postfix - the delimiter is included after the data</li> </ul>                                                                                                                                                |
| encoding          | Specifies the source queue encoding.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| waitTime          | Specifies the time, in seconds, for the source agent to wait for either: <ul style="list-style-type: none"> <li>• a message to appear on the source queue, if the queue is empty or has become empty</li> <li>• a complete group to appear on the source queue, if the useGroups attribute has been set to true</li> </ul> For information about setting the waitTime value, see “Guidance for specifying a wait time on a message-to-file transfer” on page 769. |

**<destination>**

Group element that specifies the destination and the behavior if files exist at the destination agent.

You can specify only one of <file> and <queue> as a child element of destination.

| Attribute | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type      | <p>The type of destination. The valid values are as follows:</p> <ul style="list-style-type: none"> <li>file - specifies a file as the destination</li> <li>directory - specifies a directory as the destination</li> <li>dataset - specifies a z/OS data set as the destination</li> <li>pds - specifies a z/OS partitioned data set as the destination</li> <li>queue - specifies a WebSphere MQ queue as the destination</li> <li>filespace- specifies a file space as the destination</li> </ul> <p>The options file, directory, dataset, and pds are valid only when the &lt;destination&gt; element has a child element of &lt;file&gt;.</p> <p>The option queue is valid only when the &lt;destination&gt; element has a child element of &lt;queue&gt;.</p> <p>The option filespace is valid only when the &lt;destination&gt; element has a child element of &lt;filespace&gt;.</p> |
| exist     | <p>Specifies the action that is taken if a destination file exists on the destination system. The valid values are as follows:</p> <ul style="list-style-type: none"> <li>error - reports an error and the file is not transferred.</li> <li>overwrite - overwrites the existing destination file.</li> </ul> <p>This attribute is not valid if the &lt;destination&gt; element has a child element of &lt;queue&gt; or &lt;filespace&gt;.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### <file>

Specifies the transfer destination, which can be a file, directory, data set, or PDS name. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt.

Do not use file URIs.

| Attribute | Description                                                                                                                                                                                                             |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| alias     | Specifies an alias for the destination file. This alias is the name of the source file, excluding any directory path specified for the transfer.                                                                        |
| encoding  | The encoding of the destination file for a text file transfer.                                                                                                                                                          |
| EOL       | Specifies the end of line marker for text transfers. Valid values are: <ul style="list-style-type: none"> <li>LF - line feed character only</li> <li>CRLF - carriage return and line feed character sequence</li> </ul> |

### <queue>

When used with the <destination> element, specifies the name of the queue to transfer to, which can be located on any queue manager that is connected to the destination agent queue manager. Use the format *QUEUE@QM* where *QUEUE* is the name of the queue to put the messages on and *QM* is the queue manager where the queue is located. You cannot use the <queue> element inside the <destination> element, if you have used it inside of the <source> element.

| Attribute                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| delimiter                 | The delimiter to split the file into multiple messages.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| delimiterType             | Specifies the type of delimiter. The valid values are as follows: <ul style="list-style-type: none"> <li>• text - a Java regular expression</li> <li>• binary - a sequence of hexadecimal bytes</li> <li>• size - a number of bytes, kibibytes, or mebibytes. For example, 1 B, 1 K, or 1 M.</li> </ul>                                                                                                                                                                                      |
| delimiterPosition         | Specifies whether the delimiter is expected before or after the data to include in individual messages. The valid options are as follows: <ul style="list-style-type: none"> <li>• prefix - the delimiter is expected before the data</li> <li>• postfix - the delimiter is expected after the data</li> </ul>                                                                                                                                                                               |
| includeDelimiterInMessage | A boolean specifying whether to include the delimiters that were used to split the file into multiple messages at the end of the messages.                                                                                                                                                                                                                                                                                                                                                   |
| encoding                  | Specifies the destination queue encoding.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| persistent                | Specifies whether the messages are persistent. The valid values are as follows: <ul style="list-style-type: none"> <li>• true - the messages are persistent</li> <li>• false - the messages are not persistent</li> <li>• qdef - the persistence value of the messages is defined by the settings on the destination queue</li> </ul>                                                                                                                                                        |
| setMqProps                | A boolean specifying whether WebSphere MQ message properties are set on the first message in a file, and any messages written to the queue when an error occurs.                                                                                                                                                                                                                                                                                                                             |
| unrecognisedCodePage      | Specifies whether a text mode transfer fails or conversion is performed, if the code page of the data is not recognized by the destination queue manager. The valid values are as follows: <ul style="list-style-type: none"> <li>• fail - the transfer reports a failure</li> <li>• binary - the data is converted to the destination code page and the WebSphere MQ message header describing the format of the data is set to MQFMT_NONE.</li> </ul> <p>The default behavior is fail.</p> |

**<filespace>**

Group element specifying the name of the file space to transfer to.

**<name>**

When used with the <filespace> element, the value of this element specifies the name of the file space.

**<preSourceCall>**

Group element specifying a command to call at the source of the transfer, before the transfer starts.

**<postSourceCall>**

Group element specifying a command to call at the source of the transfer, after the transfer completes.

**<preDestinationCall>**

Group element specifying a command to call at the destination of the transfer, before the transfer starts.

### **<postDestinationCall>**

Group element specifying a command to call at the destination of the transfer, after the transfer completes.

### **<command>**

When used with the <preSourceCall>, <postSourceCall>, <preDestinationCall>, or <postDestinationCall> element, this element specifies the command to be called. The command must be located on the agent command path. For more information, see Table 29 on page 585.

| Attribute | Description                                                        |
|-----------|--------------------------------------------------------------------|
| name      | The name of the command to run.                                    |
| successRC | The return code that is expected if the command runs successfully. |

### **<argument>**

When used with the <command> element, this element specifies an argument to be passed in to the command. You can have any number of <argument> elements inside a <command> element.

### **<job>**

Optional group element containing job information for the entire transfer specification. <job> is a user-defined job name identifier that is added to the log message when the transfer has started. This <job> element is the same as the <job> element that appears in the transfer log message, which is described in the following topic: "File transfer log message formats" on page 675.

### **<name>**

When used with the <job> element, the value of this element specifies the name of the job.

### **<transferSpecifications>**

Group element that contains <item> elements for multiple transfer groups. See Using transfer definition files for further details about how to use this element.

### **<cancel>**

Group element containing all the elements required to cancel a file transfer in progress.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition. |

### **<transfer>**

When used with the <cancel> element, the value of this element specifies the transfer request ID to be canceled.

### **<job>**

Group element containing job information.

### **<jobName>**

Specifies logical job identifier.

## **File transfer cancel message format**

A file transfer request returns a 48-character ID that identifies the transfer for a specific agent. This ID is used to cancel transfers.

## **Understanding the transfer cancel message**

The elements and attributes used in transfer cancel messages are described:

### **<cancel>**

Group element containing all the elements required to cancel a file transfer in progress.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition. |

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<hostName>**

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

**<transfer>**

When used with the <cancel> element, the value of this element specifies the transfer request ID to be canceled.

**<job>**

Optional. Group element containing job information.

**<jobName>**

Specifies logical job identifier.

**Examples**

Examples of XML messages that conform to this schema are provided for each of the following requests:

- Create a file transfer
- Create an asynchronous file transfer request
- Cancel a file transfer
- Create a scheduled transfer
- Delete a scheduled transfer
- Create a managed call
- Create a file transfer that includes managed calls

**Related reference:**

“Transfer request examples” on page 894

Examples of the messages that you can put on the agent command queue to request that the agent create or cancel a transfer.

“Scheduled transfer message examples” on page 895

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a schedule.

“Call request message examples” on page 896

Examples of the messages that you can put on the agent command queue to request that the agent creates a managed call or creates a transfer that calls programs.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of `Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its `SYSTEM.FTE/Log/agent_name/schedule ID` topic). This message conforms to the `ScheduleLog.xsd` XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the `fteCreateMonitor` command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

### Transfer request examples:

Examples of the messages that you can put on the agent command queue to request that the agent create or cancel a transfer.

#### Create transfer request

```
<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
version="4.00"
xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/>
    <destinationAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/>
    <transferSet>
      <item checksumMethod="MD5" mode="binary">
        <source disposition="leave" recursive="false">
          <file>/etc/passwd</file>
        </source>
        <destination exist="overwrite" type="directory">
          <file>/tmp</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

#### Create transfer request - asynchronous

When a user requests a blocking synchronous request, that is, they wait for the transfer to complete and receive status messages, the message placed on the command queue contains a reply element that specifies the queue that a reply message is sent to. The following example shows the message placed on the command queue used by FTEAGENT:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="4.00"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
```

```

</originator>
<sourceAgent agent="FTEAGENT"
  QMgr="QM1"/>
<destinationAgent agent="AGENT2"
  QMgr="QM2"/>
<reply QMGR="QM1">WMQFTE.492D0D5502770020</reply>
<transferSet>
  <item mode="binary" checksumMethod="MD5">
    <source recursive="false" disposition="leave">
      <file>c:\sourcefiles\source1.doc</file>
    </source>
    <destination type="file" exist="overwrite">
      <file>c:\destinationfiles\dest1.doc</file>
    </destination>
  </item>
</transferSet>
</managedTransfer>
</request>

```

The <reply> element is populated with the name of the command queue manager where a temporary dynamic queue has been created to receive reply about the successful (or otherwise) completion of the transfer. The name of the temporary dynamic queue is composed of two parts:

- The prefix as defined by the key **dynamicQueuePrefix** in the `command.properties` configuration file (it is WMQFTE. by default)
- The ID of the queue as generated by WebSphere MQ

### Cancel transfer request

```

<?xml version="1.0" encoding="UTF-8"?>
<cancel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>
  <transfer>414D51205553322E42494E444494E47538B0F404D032C0020</transfer>
  <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20002007</reply>
</cancel>

```

### Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the `FileTransfer.xsd` schema and have the <request> element as the root element. The `FileTransfer.xsd` schema document is located in the `install_directory/samples/schema` directory. The `FileTransfer.xsd` schema imports `fteutils.xsd`, which is in the same directory.

### Scheduled transfer message examples:

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a schedule.

#### Create scheduled transfer

```

<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>

```

```

<schedule>
  <submit timebase="admin" timezone="Europe/London">2010-01-01T21:00</submit>
</schedule>
<sourceAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
<destinationAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
<transferSet>
  <item checksumMethod="MD5" mode="binary">
    <source disposition="leave" recursive="false">
      <file>/etc/passwd</file>
    </source>
    <destination exist="overwrite" type="directory">
      <file>/tmp</file>
    </destination>
  </item>
</transferSet>
</managedTransfer>
</request>

```

### Delete scheduled transfer

```

<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <deleteScheduledTransfer>
    <originator>
      <delete>
        <hostName>example.com.</hostName>
        <userID>mqm</userID>
      </delete>
    </originator>
    <ID>1</ID>
    <reply QMGR="US2.BINDINGS">WMQFTE.4D400F8B20003902</reply>
  </deleteScheduledTransfer>
</request>

```

### Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

### Call request message examples:

Examples of the messages that you can put on the agent command queue to request that the agent creates a managed call or creates a transfer that calls programs.

### Managed call request example

```

<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="1.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedCall>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <agent agent="DNWE" QMgr="QM1"/>
    <transferSet>
      <call>
        <command name="echo" successRC="0">
          <argument>call</argument>
          <argument>test</argument>
        </command>
      </call>
    </transferSet>
  </managedCall>
</request>

```

```

        </command>
      </call>
    </transferSet>
  </job>
  <name>managedCallCalls.xml</name>
</job>
</managedCall>
</request>

```

### Managed transfer request example with calls

```

<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="1.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <sourceAgent agent="DNWE" QMgr="QM1"/>
    <destinationAgent agent="DNWE" QMgr="QM1"/>
    <transferSet>
      <preSourceCall>
        <command name="echo" successRC="0">
          <argument>preSourceCall</argument>
          <argument>test</argument>
        </command>
      </preSourceCall>
      <postSourceCall>
        <command name="echo" successRC="0">
          <argument>postSourceCall</argument>
          <argument>test</argument>
        </command>
      </postSourceCall>
      <preDestinationCall>
        <command name="echo" successRC="0">
          <argument>preDestinationCall</argument>
          <argument>test</argument>
        </command>
      </preDestinationCall>
      <postDestinationCall>
        <command name="echo" successRC="0">
          <argument>postDestinationCall</argument>
          <argument>test</argument>
        </command>
      </postDestinationCall>
    </transferSet>
  </job>
  <name>managedTransferCalls.xml</name>
</job>
</managedTransfer>
</request>

```

## Related concepts:

“Specifying programs to run” on page 291

You can run programs on a system where a IBM WebSphere MQ File Transfer Edition agent is running. As part of a file transfer request, you can specify a program to run either before a transfer starts, or after it finishes. Additionally, you can start a program that is not part of a file transfer request by submitting a managed call request.

## Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

## Monitor request message formats

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

The monitor XML must conform to the Monitor.xsd schema using the <monitor> element as the root element. The Monitor.xsd schema document is located in the MessageSchemas directory on the Remote Tools and Documentation DVD. The Monitor.xsd schema imports FileTransfer.xsd, which is in the same location on the DVD.

Monitor messages can have one of the following root elements:

- <monitor> - for creating and starting a new resource monitor
- <deleteMonitor> - for stopping and deleting an existing monitor

There is no command message for the fteListMonitors command as the command directly retrieves matching monitor definitions from the SYSTEM.FTE topic.

## Schema

The following schema describes which elements are valid in a monitor request XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  xmlns="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition">
  <xsd:include schemaLocation="FileTransfer.xsd" />
  <xsd:element name="monitor">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="name" type="monitorNameType"
          minOccurs="1" maxOccurs="1" />
        <xsd:element name="description" type="xsd:string"
          minOccurs="0" maxOccurs="1" />
        <xsd:element name="pollInterval" type="pollIntervalType"
          minOccurs="1" maxOccurs="1" default="10" />
        <xsd:element name="batch" type="batchType"
          minOccurs="0" maxOccurs="1" />
        <xsd:element name="agent" type="agentNameType"
          minOccurs="1" maxOccurs="1" />
        <xsd:element name="resources" type="monitorResourcesType"
          minOccurs="0" maxOccurs="1" />
        <xsd:element name="triggerMatch" type="triggerMatchType"
          maxOccurs="1" minOccurs="1" />
        <xsd:element name="reply" type="replyType"
          maxOccurs="1" minOccurs="0" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

```

        <xsd:element name="tasks" type="monitorTasksType"
            maxOccurs="1" minOccurs="1" />
        <xsd:element name="originator" type="origRequestType"
            maxOccurs="1" minOccurs="1"/>
        <xsd:element name="job" type="jobType"
            maxOccurs="1" minOccurs="0"/>
        <xsd:element name="defaultVariables" type="defaultVariablesType"
            maxOccurs="1" minOccurs="0"/>
    </xsd:sequence>
    <xsd:attribute name="version" type="versionType" use="required" />
</xsd:complexType>
</xsd:element>

<xsd:element name="deleteMonitor">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="name" type="monitorNameType"
                minOccurs="1" maxOccurs="1" />
            <xsd:element name="originator" type="origRequestType"
                maxOccurs="1" minOccurs="1"/>
            <xsd:element name="reply" type="replyType"
                maxOccurs="1" minOccurs="0" />
        </xsd:sequence>
        <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
</xsd:element>

<xsd:complexType name="transferRequestType">
    <xsd:choice>
        <xsd:element name="managedTransfer" type="managedTransferType" />
        <xsd:element name="managedCall" type="managedCallType" />
    </xsd:choice>
    <xsd:attribute name="version" type="versionType" />
</xsd:complexType>

<xsd:complexType name="monitorResourcesType">
    <xsd:choice>
        <xsd:sequence>
            <xsd:element name="directory" type="monitoredDirectoryType"
                minOccurs="1" maxOccurs="unbounded" />
        </xsd:sequence>
        <xsd:element name="queue" type="monitoredQueueType"/>
    </xsd:choice>
</xsd:complexType>

<xsd:complexType name="monitoredDirectoryType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="recursionLevel" type="xsd:nonNegativeInteger" />
            <xsd:attribute name="id" type="resourceIdAttrType" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="monitoredQueueType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="id" type="resourceIdAttrType" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="triggerMatchType">
    <xsd:sequence>
        <xsd:element name="conditions" type="conditionsType"
            minOccurs="1" maxOccurs="1" />
    </xsd:sequence>

```

```

</xsd:complexType>
<xsd:complexType name="conditionsType">
  <xsd:choice minOccurs="1">
    <xsd:element name="allOf" type="listPredicateType"
      minOccurs="1" maxOccurs="1" />
    <xsd:element name="anyOf" type="listPredicateType"
      minOccurs="1" maxOccurs="1" />
    <xsd:element name="condition" type="conditionType"
      minOccurs="1" maxOccurs="1" />
  </xsd:choice>
</xsd:complexType>

<xsd:complexType name="listPredicateType">
  <xsd:choice>
    <xsd:element name="condition" type="conditionType"
      minOccurs="1" maxOccurs="unbounded" />
  </xsd:choice>
</xsd:complexType>

<xsd:complexType name="conditionType">
  <xsd:sequence>
    <xsd:element name="name" type="conditionNameType"
      minOccurs="0" maxOccurs="1" />
    <xsd:element name="resource" type="resourceIdType"
      minOccurs="0" maxOccurs="1" />
    <xsd:choice minOccurs="1">
      <xsd:element name="fileMatch" type="fileMatchConditionType"
        minOccurs="1" maxOccurs="1" />
      <xsd:element name="fileNoMatch" type="fileNoMatchConditionType"
        minOccurs="1" maxOccurs="1" />
      <xsd:element name="fileSize" type="fileSizeConditionType"
        minOccurs="1" maxOccurs="1" />
      <xsd:element name="queueNotEmpty" type="queueNotEmptyConditionType"
        minOccurs="1" maxOccurs="1" />
      <xsd:element name="completeGroups" type="completeGroupsConditionType"
        minOccurs="1" maxOccurs="1" />
      <xsd:element name="fileSizeSame" type="fileSizeSameType"
        minOccurs="1" maxOccurs="1" />
    </xsd:choice>
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="fileMatchConditionType">
  <xsd:sequence>
    <xsd:element name="pattern" type="conditionPatternType"
      minOccurs="0" default="*.*" />
    <xsd:element name="exclude" type="conditionPatternType"
      minOccurs="0" maxOccurs="1" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="fileNoMatchConditionType">
  <xsd:sequence>
    <xsd:element name="pattern" type="conditionPatternType"
      minOccurs="0" default="*.*" />
    <xsd:element name="exclude" type="conditionPatternType"
      minOccurs="0" maxOccurs="1" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="fileSizeConditionType">
  <xsd:sequence>
    <xsd:element name="compare" type="sizeCompareType"
      minOccurs="1" default="0" />
    <xsd:element name="pattern" type="conditionPatternType"
      minOccurs="0" default="*.*" />
  </xsd:sequence>
</xsd:complexType>

```

```

        <xsd:element name="exclude" type="conditionPatternType"
            minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="sizeCompareType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:int">
            <xsd:attribute name="operator" type="sizeOperatorType" use="required" />
            <xsd:attribute name="units" type="fileSizeUnitsType" use="required" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="sizeOperatorType">
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value=">=" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="fileSizeUnitsType">
    <xsd:restriction base="xsd:string">
        <xsd:pattern value="[bB] | [kK] [bB] | [mM] [bB] | [gG] [bB]" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="conditionPatternType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="type" type="patternTypeAttributeType"
                use="optional" default="wildcard"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="patternTypeAttributeType">
    <xsd:restriction base="xsd:token">
        <xsd:enumeration value="regex" />
        <xsd:enumeration value="wildcard" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="conditionNameType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string" />
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="queueNotEmptyConditionType"/>

<xsd:complexType name="completeGroupsConditionType"/>

<xsd:complexType name="fileSizeSameType">
    <xsd:sequence>
        <xsd:element name="pattern" type="conditionPatternType"
            minOccurs="1" maxOccurs="1"/>
        <xsd:element name="exclude" type="conditionPatternType"
            minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="polls" type="positiveIntegerType" use="required" />
</xsd:complexType>

<xsd:complexType name="pollIntervalType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:int">
            <xsd:attribute name="units" type="timeUnitsType"
                use="optional" default="minutes" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

```

```

        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="batchType">
    <xsd:attribute name="maxSize" type="positiveIntegerType" use="required"/>
</xsd:complexType>

<xsd:simpleType name="timeUnitsType">
    <xsd:restriction base="xsd:token">
        <xsd:enumeration value="seconds" />
        <xsd:enumeration value="minutes" />
        <xsd:enumeration value="hours" />
        <xsd:enumeration value="days" />
        <xsd:enumeration value="weeks" />
        <xsd:enumeration value="months" />
        <xsd:enumeration value="years" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="monitorTasksType">
    <xsd:sequence>
        <xsd:element name="task" type="monitorTaskType"
            minOccurs="1" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="monitorTaskType">
    <xsd:sequence>
        <xsd:element name="name" type="monitorTaskNameType"
            minOccurs="1" maxOccurs="1" />
        <xsd:element name="description" type="xsd:string"
            minOccurs="0" maxOccurs="1" />
        <xsd:element name="transfer" type="transferTaskType"
            minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="transferTaskType">
    <xsd:sequence>
        <xsd:element name="request" type="transferRequestType"
            minOccurs="1" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="resourceIdType">
    <xsd:attribute name="id" type="xsd:string" use="optional" />
</xsd:complexType>

<xsd:simpleType name="resourceIdAttrType">
    <xsd:restriction base="xsd:string"></xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="monitorNameType">
    <xsd:restriction base="xsd:string">
        <xsd:pattern value="^[^\*]+" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="agentNameType">
    <xsd:restriction base="xsd:string">
        <xsd:pattern value=".[_%0-9A-Z]*" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="monitorTaskNameType">
    <xsd:restriction base="xsd:string">

```

```

        <xsd:pattern value=".*" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="defaultVariablesType">
    <xsd:sequence>
        <xsd:element name="variable" type="variableType"
            maxOccurs="unbounded" minOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="variableType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="key" type="xsd:string" use="required" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
</xsd:schema>

```

## Understanding the create monitor message

The elements and attributes used in create monitor messages are described:

### Element descriptions

#### <monitor>

Group element containing all the elements required to cancel a file transfer in progress.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition. |

#### <name>

The name of the monitor, unique within the monitor's agent.

#### <description>

Description of the monitor (not currently used).

#### <pollInterval>

The time interval between each check of the resource against the trigger condition.

| Attribute | Description                                                                                                                                                                                                                           |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| units     | Specifies the time units for the poll interval. Valid values are: <ul style="list-style-type: none"> <li>• seconds</li> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul> |

#### <agent>

Name of the agent the monitor is associated with.

#### <resources>

Group element that contains the elements specifying the resources to monitor.

**<directory>**

Fully qualified path specifying the directory on the monitor's agent machine to monitor.

| Attribute      | Description                                                                     |
|----------------|---------------------------------------------------------------------------------|
| recursionLevel | The number of subdirectories to monitor in addition to the specified directory. |
| id             | Unique identifier for the resource.                                             |

**<queue>**

Queue name specifying the queue to monitor on the monitoring agent's queue manager.

**<triggerMatch>**

Group element that contains the elements specifying the trigger conditions to compare with the monitored resource.

**<conditions>**

Group element that contains the elements specifying the type of condition to compare with the monitored resource.

**<allOf>**

Predicate that specifies that all contained conditions must be satisfied.

**<anyOf>**

Predicate that specifies that any contained conditions must be satisfied.

**<condition>**

Defines a comparison condition that will contribute to the overall monitor trigger condition.

**<name>**

Name of the condition.

**<resource>**

Identifies the resource definition to compare the condition against.

| Attribute | Description                         |
|-----------|-------------------------------------|
| id        | Unique identifier for the resource. |

If the resource that is being monitored is a directory, one of the following three elements must be specified in the condition:

- fileMatch
- fileNoMatch
- fileSize

If the resource that is being monitored is a queue, one of the following two elements must be specified in the condition:

- queueNotEmpty
- completeGroups

**<fileMatch>**

Group element for a file name match condition.

**<pattern>**

Specifies a file name match pattern. Files on the resource must match the pattern in order to satisfy the condition. The default pattern is \* (any file will match).

**<fileNoMatch>**

Group element for an inverse file name match condition.

**<pattern>**

Specifies an inverse file name match pattern. If no files on the monitored resource match, the condition is satisfied. The default pattern is \* (the absence of any file will match).

**<fileSize>**

Group element for a file size comparison.

**<compare>**

Specifies a file size comparison. The value must be a non-negative integer.

| Attribute | Description                                                                                                                                                                                                                                                            |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| operator  | Comparison operator to use. Only '>=' is supported.                                                                                                                                                                                                                    |
| units     | Specifies file size units, which can be one of: <ul style="list-style-type: none"> <li>• B - bytes</li> <li>• KB - kilobytes</li> <li>• MB - megabytes</li> <li>• GB - gigabytes</li> </ul> <p>The units value is case insensitive, so 'mb' works as well as 'MB'.</p> |

**<pattern>**

File name pattern to match. Default is \* (any file will match).

**<queueNotEmpty>**

This can only be specified if the resource is a queue. Specifies that there must be a message on the queue for the monitor to be triggered.

**<completeGroups>**

This can only be specified if the resource is a queue. Specifies that there must be a complete group of messages present on the queue for the monitor to be triggered. A single transfer task is executed for each complete group on the queue.

**<reply>**

Optional element that is used to specify reply queue for asynchronous requests.

| Attribute | Description         |
|-----------|---------------------|
| QMGR      | Queue manager name. |

**<tasks>**

Group element to contain elements which specify the tasks to invoke when the monitor trigger conditions are satisfied.

**<task>**

Group element which defines an individual task that the monitor will invoke when the trigger conditions are satisfied. Currently only one task can be specified.

**<name>**

Name of the task. Accepts any alphanumeric characters.

**<description>**

Description of the task. Any text value is allowed.

**<transfer>**

Group element that defines a transfer task.

**<request>**

Group element that defines the type of task. This must contain one of the following elements which are inherited from the FileTransfer.xsd schema definition:

- managedTransfer
- managedCall

| Attribute | Description                                                                                                                                                                            |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| version   | Version of the request as provided by WebSphere MQ File Transfer Edition. This is in the form n.mm where n is the major release version and mm is the minor version. For example 1.00. |

#### <originator>

Group element that contains the elements specifying the originator of the request.

#### <hostName>

The host name of the system where the source file is located.

#### <userID>

The user ID that originated the file transfer.

#### <mqmdUserID>

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

#### <job>

Group element containing job information.

#### <jobName>

Specifies logical job identifier.

#### <defaultVariables>

Group element containing one or more variable elements. These variables are used in variable substitution when monitoring a queue. For more information about variable substitution, see “Customizing tasks with variable substitution” on page 215.

#### <variable>

Element containing the value associated with the key given by the key attribute.

| Attribute | Description                       |
|-----------|-----------------------------------|
| key       | The name of the default variable. |

## Understanding the delete monitor message

The elements and attributes used in delete monitor messages are described:

### Element descriptions

#### <deleteMonitor>

Group element containing all the elements required to stop and delete a monitor.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition. |

#### <name>

Name of monitor to delete.

#### <originator>

Group element that contains the elements specifying the originator of the request.

#### <hostName>

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

**<reply>**

Specifies the name of the temporary reply queue generated for the request. The name of the queue is as defined by the key `dynamicQueuePrefix` in the `command.properties` configuration file. If this is not specified, the queue name has a default value of `WMQFTE`.

| Attribute | Description                                                                                                 |
|-----------|-------------------------------------------------------------------------------------------------------------|
| QMGR      | The name of the command queue manager on which the temporary dynamic queue is generated to receive replies. |

## Examples

Examples of XML messages that conform to this schema are provided for each of the following monitor requests:

- Create a monitor
- Delete a monitor

### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory.

When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer.

You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

### Related reference:

“Monitor request message examples” on page 908

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a monitor.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the `SYSTEM.FTE` topic on its coordination queue manager (on the `SYSTEM.FTE/Agents/agent name` topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the `FileTransfer.xsd` schema and have the `<request>` element as the root element. The `FileTransfer.xsd` schema document is located in the `install_directory/samples/schema` directory. The `FileTransfer.xsd` schema imports `fteutils.xsd`, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its `SYSTEM.FTE/Transfers/agent_name/transfer ID` topic), which conforms to the `TransferStatus.xsd` XML schema. The `TransferStatus.xsd` file is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the `SYSTEM.FTE` topic with a topic string of

`Log/agent_name/transfer_ID`. These messages conform to the schema `TransferLog.xsd`, which is located in the `install_directory/samples/schema` directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/agent name/schedule ID topic). This message conforms to the ScheduleLog.xsd XML schema.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

### Monitor request message examples:

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a monitor.

#### Create monitor request

```
<?xml version="1.0" encoding="UTF-8"?>
<monitor:monitor xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:monitor="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  version="4.00"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition ./Monitor.xsd">
  <name>EXAMPLEMONITOR</name>
  <pollInterval>1</pollInterval>
  <agent>US2.BINDINGS.FILE</agent>
  <resources>
    <directory recursionLevel="0">/srv/nfs/incoming</directory>
  </resources>
  <triggerMatch>
    <conditions>
      <allof>
        <condition>
          <fileMatch>
            <pattern>*.completed</pattern>
          </fileMatch>
        </condition>
      </allof>
    </conditions>
  </triggerMatch>
  <reply QMGR="US2.BINDINGS">WMQFTE.4D400F8B20003702</reply>
  <tasks>
    <task>
      <name/>
      <transfer>
        <request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          version="4.00"
          xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
          <managedTransfer>
            <originator>
              <hostName>example.com.</hostName>
              <userID>mqm</userID>
            </originator>
            <sourceAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
            <destinationAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
            <transferSet>
              <item checksumMethod="MD5" mode="binary">
                <source disposition="leave" recursive="false">
                  <file>/srv/nfs/incoming/*.txt</file>
                </source>
                <destination exist="error" type="directory">
                  <file>/srv/backup</file>
                </destination>
              </item>
            </transferSet>
          </managedTransfer>
        </request>
      </transfer>
    </task>
  </tasks>
</monitor>
```

```

</tasks>
<originator>
  <hostName>example.com.</hostName>
  <userID>mqm</userID>
</originator>
</monitor:monitor>

```

### Delete monitor request

```

<?xml version="1.0" encoding="UTF-8"?>
<monitor:deleteMonitor xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:monitor="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  version="4.00"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition ./Monitor.xsd">
  <name>EXAMPLEMONITOR</name>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>
  <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20003705</reply>
</monitor:deleteMonitor>

```

### Related reference:

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the `fteCreateMonitor` command or using the WebSphere MQ Explorer interface.

### Agent trace request message format

Tracing of an agent is initiated by the arrival of an XML message on the agent command queue, typically as a result of issuing an `fteSetAgentTraceLevel` command. The agent trace request XML must conform to the `AgentTrace.xsd` schema. After you have installed WebSphere MQ File Transfer Edition, you can find the `AgentTrace.xsd` schema file in the following directory: `install_directory/samples/schema`.

### Schema

The following schema describes which elements are valid in an agent trace request XML message.

```

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="http://wmqfte.ibm.com/trace"
  targetNamespace="http://wmqfte.ibm.com/trace">

  <xsd:element name="trace"></xsd:element>

  <xsd:element name="agent" type="agentType"/>
  <xsd:element name="traceLevel" type="traceLevelType"/>
  <xsd:element name="traceClasses" type="traceClassType"/>
  <xsd:element name="stopOnFFDC" type="stopOnFFDCType"/>
  <xsd:simpleType name="traceLevelType">
    <xsd:restriction base="xsd:token">
      <xsd:enumeration value="all"/>
      <xsd:enumeration value="verbose"/>
      <xsd:enumeration value="flow"/>
      <xsd:enumeration value="moderate"/>
      <xsd:enumeration value="off"/>
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:simpleType name="traceClassType">
    <xsd:restriction base="xsd:string"/>
  </xsd:simpleType>

  <xsd:complexType name="agentType">
    <xsd:attribute name="agent" type="xsd:string" use="required" />
    <xsd:attribute name="QMGr" type="xsd:string" use="optional" />
  </xsd:complexType>

```

```

</xsd:complexType>

<xsd:complexType name="stopOnFFDCType">
  <xsd:attribute name="class" type="xsd:string" use="optional" />
  <xsd:attribute name="probe" type="probeType" use="optional" />
</xsd:complexType>

<xsd:simpleType name="probeType">
  <xsd:restriction base="xsd:string">
    <xsd:pattern value="(FFDC_\d{3})|\d+"/>
  </xsd:restriction>
</xsd:simpleType>

</xsd:schema>

```

## Understanding the agent trace request message

The elements and attributes used in the agent trace request messages are described in the following list:

### <trace>

Group element containing all the elements required to specify an agent trace request.

### <agent>

The agent to enable trace on.

| Attribute | Description                                             |
|-----------|---------------------------------------------------------|
| agent     | Required. The name of the agent.                        |
| QMgr      | Optional. The queue manager that the agent connects to. |

### <traceLevel>

The level of trace to enable on the agent. The contents of this element must be one of the following values:

- all
- verbose
- flow
- moderate
- off

### <traceClasses>

The specific agent classes to trace.

### <stopOnFFDC>

Optional. If this element is included in the trace request the agent stops tracing when an FFDC occurs.

| Attribute | Description                                                                                                                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| class     | Optional. The name of an agent class. If an FFDC occurs in this class, the agent stops tracing.<br><br>If this optional attribute is not included the agent will stop tracing when an FFDC occurs in any class. |
| probe     | Optional. The probe ID of the FFDC. If an FFDC occurs with this probe ID, the agent stops tracing.<br><br>The value of this attribute can be in the format FFDC_003 or 3.                                       |

## Examples

Examples of XML messages that conform to this schema are provided for the following trace requests:

- Turn on agent trace
- Turn off agent trace

### Related reference:

“Agent trace request message examples”

Examples of the messages that you can put on the agent command queue to request that the agent turns on agent trace or turns off agent trace.

### Agent trace request message examples:

Examples of the messages that you can put on the agent command queue to request that the agent turns on agent trace or turns off agent trace.

#### Agent trace request - enable

```
<?xml version="1.0" encoding="UTF-8"?>
<trace:trace xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:trace="http://wmqfte.ibm.com/trace"
  version="4.00">
  <trace:originator>
    <trace:request>
      <trace:hostName>example.com.</trace:hostName>
      <trace:userID>mqm</trace:userID>
    </trace:request>
  </trace:originator>
  <trace:agent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <trace:traceLevel>all</trace:traceLevel>
  <trace:traceClasses>com.ibm.wmqfte</trace:traceClasses>
</trace:trace>
```

#### Agent trace request - disable

```
<?xml version="1.0" encoding="UTF-8"?>
<trace:trace xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:trace="http://wmqfte.ibm.com/trace"
  version="4.00">
  <trace:originator>
    <trace:request>
      <trace:hostName>example.com.</trace:hostName>
      <trace:userID>mqm</trace:userID>
    </trace:request>
  </trace:originator>
  <trace:agent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <trace:traceLevel>off</trace:traceLevel>
  <trace:traceClasses/>
</trace:trace>
```

## Related reference:

“Agent trace request message format” on page 909

Tracing of an agent is initiated by the arrival of an XML message on the agent command queue, typically as a result of issuing an **fteSetAgentTraceLevel** command. The agent trace request XML must conform to the AgentTrace.xsd schema. After you have installed WebSphere MQ File Transfer Edition, you can find the AgentTrace.xsd schema file in the following directory: *install\_directory/samples/schema*.

## Ping agent request message format

You can ping an agent by issuing an **ftePingAgent** command or by putting an XML message on the agent command queue. The ping agent request XML must conform to the PingAgent.xsd schema. After you have installed WebSphere MQ File Transfer Edition, you can find the PingAgent.xsd schema file in the following directory: *install\_directory/samples/schema*. The PingAgent.xsd schema imports fteutils.xsd, which is in the same directory.

When the agent receives a ping agent request message on its command queue, if the agent is active, it returns an XML response message to the command or application that put the ping agent request message on the command queue. The response message from the agent is in the format defined by Reply.xsd. For more information about this format, see “Reply message format” on page 913.

## Schema

The following schema describes which elements are valid in an ping agent request XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.ibm.com/xmlns/wmqfte/7.0.1/PingAgent"
  targetNamespace="http://www.ibm.com/xmlns/wmqfte/7.0.1/PingAgent">

  <xsd:include schemaLocation="fteutils.xsd"/>

  <xsd:element name="pingAgent">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="originator" type="origRequestType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="agent" type="agentType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="reply" type="replyType" maxOccurs="1" minOccurs="0" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
  </xsd:element>

</xsd:schema>
```

## Understanding the ping agent request message

The elements and attributes used in the ping agent request messages are described in the following list:

### <pingAgent>

Group element containing all the elements required to specify a ping agent request.

### <originator>

Group element containing all the elements required to specify the originator of the ping request.

### <hostName>

The host name of the machine where the request originated.

### <userID>

The user name of the originator of the request.

### <mqmdUserID>

The MQMD user name of the originator of the request.

**<agent>**

The agent to ping.

| Attribute | Description                                             |
|-----------|---------------------------------------------------------|
| agent     | Required. The name of the agent.                        |
| QMgr      | Optional. The queue manager that the agent connects to. |

**<reply>**

The name of the queue for the agent to send the reply message to.

| Attribute | Description                                                               |
|-----------|---------------------------------------------------------------------------|
| QMGR      | Required. The name of the queue manager where the reply queue is located. |

**Example**

This example shows a ping agent message sent to the agent AGENT\_JUPITER. If AGENT\_JUPITER is active and able to process agent requests, it sends a response message to the queue WMQFTE.4D400F8B20003708 on QM\_JUPITER.

```
<?xml version="1.0" encoding="UTF-8"?>
<ping:pingAgent xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:ping="http://www.ibm.com/xmlns/wmqfte/7.0.1/PingAgent"
  version="4.00">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>
  <agent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20003708</reply>
</ping:pingAgent>
```

**Reply message format**

When an agent receives an XML message on its agent command queue, if a response is required, the agent will send an XML reply message to the reply queue defined in the original message. The reply XML conforms to the Reply.xsd schema. The Reply.xsd schema document is located in the *install\_directory/samples/schema* directory. The Reply.xsd schema imports fteutils.xsd, which is in the same directory.

**Schema**

The following schema describes which elements are valid in a reply XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="TransferLog.xsd"/>
  <xsd:element name="reply">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="transferSet" type="transferSetType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="status" type="statusType" minOccurs="1" maxOccurs="1" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
      <xsd:attribute name="ID" type="IDType" use="required"/>
      <xsd:attribute name="detailedReplyMessagesDisabled" type="xsd:boolean" use="optional"/>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

## Understanding the reply message

The elements and attributes used in the reply messages are described in the following list:

### <reply>

Element containing the elements that specify the reply information.

| Attribute                     | Description                                                                                                                                     |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| ID                            | The ID of the reply.                                                                                                                            |
| version                       | The version of the reply message format.                                                                                                        |
| detailedReplyMessagesDisabled | A notification that the agent has disabled the detailed reply feature (because the enableDetailedReplyMessages agent property is set to false). |
|                               |                                                                                                                                                 |

### <transferSet>

Specifies the transfer result information of the files requested for transfer. For more information, see "File transfer log message formats" on page 675.

### <status>

The status of the action that the agent was requested to perform.

| Attribute  | Description                                                        |
|------------|--------------------------------------------------------------------|
| resultCode | The result code returned from the action that the agent performed. |

### <supplement>

Additional response information about the action that the agent was requested to perform.

## Example

In the following section is an example reply message:

```
<reply version="1.00"          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                               xsi:noNamespaceSchemaLocation="Reply.xsd"
                               ID="0102020300000000000000000000000000000000000000000000000000000000">
  <status resultCode="65">
    <supplement>Additional reply information</supplement>
  </status>
</reply>
```

## Message formats for security

This topic describes the messages published to the coordination queue manager relevant to security.

### Not authorized log message

If user authority checking is enabled the agent can publish not authorized messages to the coordination queue manager. "User authorities on WebSphere MQ File Transfer Edition actions" on page 456 describes how to enable user authority checking.

Every time a user submits a request to perform a restricted action to the agent, either by using a WebSphere MQ File Transfer Edition command or by using the WebSphere MQ Explorer plug-in, the agent checks that the user has the authority to perform the action. If the user fails that authority check, a not authorized log message is published to the coordination queue manager on its SYSTEM.FTE/Log/*agent\_name*/NotAuthorized topic.

This message conforms to the TransferLog.xsd XML schema. For example:

```
<?xml version="1.0" encoding="UTF-8"?>
<notAuthorized version="3.00"
  ID="414d5120716d31202020202020202020204da5924a2010ce03"
  agentRole="sourceAgent"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="TransferLog.xsd"
  xmlns="">
  <action time="2009-08-28T12:31:15.781Z">not_authorized</action>
  <originator>
  <mqmdUserID>test1</mqmdUserID>
  </originator>
  <authority>administration</authority>
  <status resultCode="53">
  <supplement>BFGCH0083E: The user (test1) does not have the authority (ADMINISTRATION) required to shut down agent 'AGENT1'
  &lt;?xml version=&quot;1.0&quot; encoding=&quot;UTF-8&quot;?&gt;
  &lt;internal:request version=&quot;3.00&quot; xmlns:xsi=&quot;http://www.w3.org/2001/XMLSchema-instance&quot; xmlns:internal:shut
  &lt;internal:shutdown agent=&quot;SYSTEM.FTE.COMMAND.AGENT&quot; hostname= &quot;qm1&quot; mode=&quot;controlled&quot;/&
  &lt;reply QMGR=&quot;qm1&quot;&gt;WMQFTE.4A92A54D02CE1020&lt;/reply&gt;
  &lt;/internal:request&gt;
  </supplement>
  </status>
</notAuthorized>
```

This message is a log of the following information:

- Who originated the request
- The level of WebSphere MQ File Transfer Edition access authority required to perform the request
- The status of the request
- The request specification

### Understanding the not authorized log message

The elements and attributes used in the not authorized message are described:

#### <notAuthorized>

Group element that describes a single failed user authorization check.

| Attribute | Description                                                                              |
|-----------|------------------------------------------------------------------------------------------|
| version   | Specifies the version of this element as detailed by WebSphere MQ File Transfer Edition. |
| ID        | The unique identifier for the request that was not authorized.                           |

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<authority>**

Specifies the level of WebSphere MQ File Transfer Edition access authority that the user required to perform the requested action.

**<mqmdUserID>**

The WebSphere MQ user ID that was supplied in the message descriptor (MQMD)

**<action>**

Specifies the authorization status of the request matching the ID attribute of <notAuthorized> element.

| Attribute | Description                                                                    |
|-----------|--------------------------------------------------------------------------------|
| time      | Specifies the date and time the log entry was published (in date time format). |

**<status>**

The result code and supplement messages.

**Related reference:**

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of *Log/agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent\_name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

**Protocol bridge credentials file format**

The ProtocolBridgeCredentials.xml file in the agent configuration directory defines the user names and credential information that the protocol bridge agent uses to authorize itself with the protocol server.

The ProtocolBridgeCredentials.xml file must conform to the ProtocolBridgeCredentials.xsd schema. The ProtocolBridgeCredentials.xsd schema document is located in the *install\_directory/samples/schema* directory of the WMQFTE installation. A template ProtocolBridgeCredentials.xml file is created by the **fteCreateBridgeAgent** command in the agent configuration directory.

The new function for V7.0.4.1 introduces a new <server> element to replace the <serverHost> element that was used in earlier versions.

## Schema - V7.0.4.1 and later

The following schema describes which elements are valid in the ProtocolBridgeCredentials.xml file for V7.0.4.1 (with the new function enabled) and later.

```
<schema targetNamespace="http://wmqfte.ibm.com/ProtocolBridgeCredentials" elementFormDefault="qualified"
        xmlns="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeCredentials">
  <!--
    <?xml version="1.0" encoding="UTF-8"?>
      <tns:credentials xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeCredentials" xmlns:xsi="http://www.w3.org/2001/XMLSchema"
        xsi:schemaLocation="http://wmqfte.ibm.com/ProtocolBridgeCredentials ProtocolBridgeCredentials.xsd">
        <tns:server name="myserver">
          <tns:user name="fred" serverPassword="pwd" serverUserId="bill">
            </tns:user>
          <tns:user name="jane" serverUserId="jane" hostKey="1F:2e:f3">
            <tns:privateKey associationName="test" keyPassword="pwd2">
              .... private key ...
            </tns:privateKey>
          </tns:user>
        </tns:server>
        <tns:server name="server*" pattern="wildcard">
          <tns:user name="fred" serverPassword="pwd" serverUserId="bill">
            </tns:user>
          <tns:user name="jane" serverUserId="jane" hostKey="1F:2e:f3">
            <tns:privateKey associationName="test" keyPassword="pwd2">
              .... private key ...
            </tns:privateKey>
          </tns:user>
        </tns:server>
      </tns:credentials>
    -->
  <element name="credentials" type="tns:credentialsType"/></element>
  <complexType name="credentialsType">
    <choice minOccurs="0" maxOccurs="1">
      <element name="serverHost" type="tns:serverHostType" minOccurs="0" maxOccurs="unbounded"/>
      <element name="server" type="tns:serverType" minOccurs="0" maxOccurs="unbounded"/>
    </choice>
  </complexType>
  <complexType name="serverHostType">
    <sequence>
      <element ref="tns:user" minOccurs="0" maxOccurs="unbounded"/></element>
    </sequence>
    <attribute name="name" type="string" use="required"/></attribute>
  </complexType>
  <complexType name="serverType">
    <sequence>
      <element ref="tns:user" minOccurs="0" maxOccurs="unbounded"/></element>
    </sequence>
    <attribute name="name" type="string" use="required"/></attribute>
    <attribute name="pattern" type="tns:patternType" use="optional" />
  </complexType>
```

```

<element name="user" type="tns:userType"></element>

<complexType name="userType">
  <sequence>
    <element ref="tns:privateKey" minOccurs="0" maxOccurs="unbounded"></element>
  </sequence>
  <attribute name="name" type="string" use="required"></attribute>
  <attribute name="serverUserId" type="string" use="optional"></attribute>
  <attribute name="serverPassword" type="string" use="optional"></attribute>
  <attribute name="hostKey" use="optional">
    <simpleType>
      <restriction base="string">
        <pattern
          value="([a-zA-F0-9]){2}(:([a-zA-F0-9]){2})*">
        </pattern>
      </restriction>
    </simpleType>
  </attribute>
</complexType>

<element name="privateKey" type="tns:privateKeyType"></element>

<complexType name="privateKeyType">
  <simpleContent>
    <extension base="string">
      <attribute name="keyPassword" type="string" use="optional"></attribute>
      <attribute name="associationName" type="string" use="required"></attribute>
    </extension>
  </simpleContent>
</complexType>

<!--
Determines the type of pattern matching to use.
-->
<simpleType name="patternType">
  <restriction base="string">
    <enumeration value="regex" />
    <enumeration value="wildcard" />
  </restriction>
</simpleType>
</schema>

```

## Schema - V7.0.4 and earlier

The following schema describes which elements are valid in the ProtocolBridgeCredentials.xml file for V7.0.4 and earlier.

```

<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="http://wmqfte.ibm.com/ProtocolBridgeCredentials"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeCredentials">

  <element name="credentials" type="tns:credentialsType"></element>

  <complexType name="credentialsType">
    <sequence>
      <element ref="tns:serverHost" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
  </complexType>

  <element name="serverHost" type="tns:serverHostType"></element>

  <complexType name="serverHostType">
    <sequence>
      <element ref="tns:user" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
  </complexType>

```

```

        </sequence>
        <attribute name="name" type="string" use="required"></attribute>
    </complexType>

    <element name="user" type="tns:userType"></element>

    <complexType name="userType">
        <sequence>
            <element ref="tns:privateKey" minOccurs="0" maxOccurs="unbounded"></element>
        </sequence>
        <attribute name="name" type="string" use="required"></attribute>
        <attribute name="serverUserId" type="string" use="optional"></attribute>
        <attribute name="serverPassword" type="string" use="optional"></attribute>
        <attribute name="hostKey" use="optional">
            <simpleType>
                <restriction base="string">
                    <pattern value="([a-fA-F0-9]){2}(:([a-fA-F0-9]){2})*"></pattern>
                </restriction>
            </simpleType>
        </attribute>
    </complexType>

    <element name="privateKey" type="tns:privateKeyType"></element>

    <complexType name="privateKeyType">
        <simpleContent>
            <extension base="string">
                <attribute name="keyPassword" type="string" use="optional"></attribute>
                <attribute name="associationName" type="string" use="required"></attribute>
            </extension>
        </simpleContent>
    </complexType>
</schema>

```

## Understanding the ProtocolBridgeCredentials.xml file

The elements and attributes used in the ProtocolBridgeCredentials.xml file are described in the following list.

### <credentials>

Group element containing elements that describe the credentials used by a protocol bridge agent to connect to a protocol server.

### <server>

If you have enabled the new function for V7.0.4.1, the protocol server that the protocol bridge connects to.

The <server> element is not supported for V7.0.4 or earlier.

| Attribute | Description                                                                                                                       |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------|
| name      | The name of the protocol server.                                                                                                  |
| pattern   | If you have used wildcards or regular expressions to specify the pattern of a protocol server name, use either wildcard or regex. |

### <serverHost>

The host name of the protocol server that the protocol bridge connects to.

If you have enabled the new function for V7.0.4.1, the ProtocolBridgeCredentials.xml file can either contain <serverHost> elements or <server> elements but you cannot use a mixture of the two

different types. When you use <serverHost>, the name is matched against the protocol server's host name. When you use <server>, the name is matched against the protocol server's name (as defined in the ProtocolBridgeProperties.xml file).

| Attribute | Description                                         |
|-----------|-----------------------------------------------------|
| name      | The host name or IP address of the protocol server. |

#### <user>

A user mapping from a WebSphere MQ File Transfer Edition user name to a protocol server user name.

| Attribute      | Description                                                         |
|----------------|---------------------------------------------------------------------|
| name           | The user name that is used with WebSphere MQ File Transfer Edition. |
| serverUserId   | The user name that is used with the protocol server.                |
| serverPassword | The password for the user name used on the protocol server.         |
| hostKey        | The server host SSH fingerprint.                                    |

#### <privateKey>

The private key of a user.

| Attribute       | Description                        |
|-----------------|------------------------------------|
| keyPassword     | The password for the private key.  |
| associationName | A name used for trace and logging. |

#### Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

#### Related tasks:

“Mapping credentials for a file server using the ProtocolBridgeCredentials.xml file” on page 262

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

“Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server” on page 266

This example demonstrates how you can generate and configure the ProtocolBridgeCredentials.xml file. This example is a typical example and the details might vary according to your platform, but the principles remain the same.

“Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file” on page 258

Define the properties of one or more protocol file servers that you want to transfer files to and from using the ProtocolBridgeProperties.xml file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

## Protocol bridge properties file format

The ProtocolBridgeProperties.xml file in the agent configuration directory defines properties for file protocol servers.

The ProtocolBridgeProperties.xml file must conform to the ProtocolBridgeProperties.xsd schema. The ProtocolBridgeProperties.xsd schema document is located in the *install\_directory/samples/schema* directory of the WMQFTE installation. A template file, ProtocolBridgeProperties.xml, is created by the **fteCreateBridgeAgent** command in the agent configuration directory.

## Schema

The following schema describes the ProtocolBridgeProperties.xml file.

**Note:** The maxReconnectRetry and reconnectWaitPeriod attributes are not supported on WebSphere MQ File Transfer Edition V7.0.2, or later.

```

| <schema targetNamespace="http://wmqfte.ibm.com/ProtocolBridgeProperties" elementFormDefault="qualified" xmlns="http://www
|   <!--
|     Example: ProtocolBridgeProperties.xml
|
|     <?xml version="1.0" encoding="UTF-8"?>
|     <tns:serverProperties xmlns:tns="http://wmqfte.ibm.com/ProtocolBridgeProperties"
|       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|       xsi:schemaLocation="http://wmqfte.ibm.com/ProtocolBridgeProperties
|       ProtocolBridgeProperties.xsd">
|       <tns:credentialsFile path="$HOME/ProtocolBridgeCredentials.xml" />
|       <tns:defaultServer name="myserver" />
|       <tns:ftpServer name="myserver" host="myhost.hursley.ibm.com" port="1234" platform="windows"
|       timeZone="Europe/London" locale="en-GB" fileEncoding="UTF-8"
|       listFormat="unix" limitedWrite="false" />
|       <tns:sftpServer name="server1" host="myhost.hursley.ibm.com" platform="windows"
|       fileEncoding="UTF-8" limitedWrite="false">
|       <limits maxListFileNames="10" />
|       </tns:sftpServer>
|     </tns:serverProperties>
|
|   -->
|   <!-- Root element for the document -->
|   <element name="serverProperties" type="tns:serverPropertiesType" />
|   <!--
|     A container for all protocol bridge server properties
|   -->
|   <complexType name="serverPropertiesType">
|     <sequence>
|       <element name="credentialsFile" type="tns:credentialsFileName" minOccurs="0" maxOccurs="1" />
|       <element name="defaultServer" type="tns:serverName" minOccurs="0" maxOccurs="1" />
|       <choice minOccurs="0" maxOccurs="unbounded">
|         <element name="ftpServer" type="tns:ftpServerType" />
|         <element name="sftpServer" type="tns:sftpServerType" />
|         <element name="ftpsServer" type="tns:ftpsServerType" />
|         <element name="ftpsfgServer" type="tns:ftpsfgServerType" />
|         <element name="ftpsfgServer" type="tns:ftpsfgServerType" />
|       </choice>
|     </sequence>
|   </complexType>
|   <!--
|     A container for a server name
|   -->
|   <complexType name="serverName">
|     <attribute name="name" type="tns:serverNameType" use="required" />
|   </complexType>
|   <!--
|     A container for a credentials file name
|   -->
|   <complexType name="credentialsFileName">
|     <attribute name="path" type="string" use="required" />
|   </complexType>
|   <!--
|     A container for all the information about an FTP server
|   -->
|   <complexType name="ftpServerType">

```

```

|     <sequence>
|         <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:ftpServerAttributes" />
|     <attribute name="passiveMode" type="boolean" use="optional" />
| </complexType>
| <!--
|     A container for all the information about an SFG FTP server
| -->
| <complexType name="ftpsfgServerType">
|     <sequence>
|         <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:ftpServerAttributes" />
| </complexType>
| <!--
|     A container for all the information about an SFTP server
| -->
| <complexType name="sftpServerType">
|     <sequence>
|         <element name="limits" type="tns:sftpLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:sftpServerAttributes" />
| </complexType>
| <!--
|     A container for all the information about a FTPS server
| -->
| <complexType name="ftpsServerType">
|     <sequence>
|         <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:ftpsServerAttributes" />
| </complexType>
| <!--
|     A container for all the information about a SFG FTPS server
| -->
| <complexType name="ftpsfgServerType">
|     <sequence>
|         <element name="limits" type="tns:generalLimitsType" minOccurs="0" maxOccurs="1" />
|     </sequence>
|     <attributeGroup ref="tns:ftpsServerAttributes" />
| </complexType>
| <!--
|     Attributes common to all server types
| -->
| <attributeGroup name="generalServerAttributes">
|     <attribute name="name" type="tns:serverNameType" use="required" />
|     <attribute name="host" type="string" use="required" />
|     <attribute name="port" type="nonNegativeInteger" use="optional" />
|     <attribute name="platform" type="tns:platformType" use="required" />
|     <attribute name="fileEncoding" type="string" use="required" />
|     <attribute name="limitedWrite" type="boolean" use="optional" />
|     <attribute name="controlEncoding" type="string" use="optional" />
| </attributeGroup>
| <!--
|     Attributes common to ftp and ftps server types
| -->
| <attributeGroup name="ftpServerAttributes">
|     <attributeGroup ref="tns:generalServerAttributes" />
|     <attribute name="timeZone" type="string" use="required" />
|     <attribute name="locale" type="tns:localeType" use="required" />
|     <attribute name="listFormat" type="tns:listFormatType" use="optional" />
|     <attribute name="listFileRecentDateFormat" type="tns:dateFormatType" use="optional" />
|     <attribute name="listFileOldDateFormat" type="tns:dateFormatType" use="optional" />
|     <attribute name="monthShortNames" type="tns:monthShortNamesType" use="optional" />
| </attributeGroup>
| <!--

```

```

|     Attributes common to ftps server types
| -->
| <attributeGroup name="ftpsServerAttributes">
|   <attributeGroup ref="tns:ftpServerAttributes" />
|   <attribute name="ftpsType" type="tns:ftpsTypeType" use="optional" />
|   <attribute name="trustStore" type="string" use="required" />
|   <attribute name="trustStoreType" type="string" use="optional" />
|   <attribute name="keyStore" type="string" use="optional" />
|   <attribute name="keyStoreType" type="string" use="optional" />
|   <attribute name="ccc" type="boolean" use="optional" />
|   <attribute name="protFirst" type="boolean" use="optional" />
|   <attribute name="auth" type="string" use="optional" />
|   <attribute name="connectTimeout" type="nonNegativeInteger" use="optional" />
|   <attribute name="cipherSuiteList" type="string" use="optional" />
| </attributeGroup>
| <!--
|     A container for limit-type attributes for a server. Limit parameters
|     are optional, and if not specified a system default will be used.
| -->
| <complexType name="generalLimitsType">
|   <attributeGroup ref="tns:generalLimitAttributes" />
| </complexType>
| <complexType name="sftpLimitsType">
|   <attributeGroup ref="tns:generalLimitAttributes" />
|   <attribute name="connectionTimeout" type="nonNegativeInteger" use="optional" />
| </complexType>
| <!--
|     Attributes for limits common to all server types
| -->
| <attributeGroup name="generalLimitAttributes">
|   <attribute name="maxListFileNames" type="positiveInteger" use="optional" />
|   <attribute name="maxListDirectoryLevels" type="nonNegativeInteger" use="optional" />
|   <attribute name="maxReconnectRetry" type="nonNegativeInteger" use="optional" />
|   <attribute name="reconnectWaitPeriod" type="nonNegativeInteger" use="optional" />
|   <attribute name="maxSessions" type="positiveInteger" use="optional" />
|   <attribute name="socketTimeout" type="nonNegativeInteger" use="optional" />
| </attributeGroup>
| <!--
|     The type for matching valid server names. Server names must be at least 2 characters in length and
|     are limited to alphanumeric characters and the following characters: ".", "_", "/" and "%".
| -->
| <simpleType name="serverNameType">
|   <restriction base="string">
|     <pattern value="[0-9a-zA-Z\._/%]{2,}" />
|   </restriction>
| </simpleType>
| <!--
|     The types of platform supported.
| -->
| <simpleType name="platformType">
|   <restriction base="string" />
| </simpleType>
| <!--
|     The type for matching a locale specification.
| -->
| <simpleType name="localeType">
|   <restriction base="string">
|     <pattern value="(.)[-_](.*)" />
|   </restriction>
| </simpleType>
| <!--
|     The types of list format supported (for FTP servers).
| -->
| <simpleType name="listFormatType">
|   <restriction base="string" />
| </simpleType>
| <!--

```

```

|         Date format for FTP client directory listing on an FTP server. This is
|         the format to be passed to methods setDefaultDateFormatStr and
|         setRecentDateFormatStr for Java class:
|         org.apache.commons.net.ftp.FTPClientConfig
|     -->
|     <simpleType name="dateFormatType">
|         <restriction base="string" />
|     </simpleType>
|     <!--
|         A list of language-defined short month names can be specified. These are
|         used for translating the directory listing received from the FTP server.
|         The format is a string of three character month names separated by "|"
|     -->
|     <simpleType name="monthShortNamesType">
|         <restriction base="string">
|             <pattern value="(...\|){11}(...)" />
|         </restriction>
|     </simpleType>
|     <!--
|         The enumerations of the allowed FTPS types: "implicit" & "explicit"
|         If not specified the default is "explicit"
|     -->
|     <simpleType name="ftpsTypeType">
|         <restriction base="string">
|             <enumeration value="explicit" />
|             <enumeration value="implicit" />
|         </restriction>
|     </simpleType>
|     <!--
|         Attribute Group for SFTP Servers
|     -->
|     <attributeGroup name="sftpServerAttributes">
|         <attributeGroup ref="tns:generalServerAttributes" />
|         <attribute name="cipherList" type="string" use="optional" />
|     </attributeGroup>
| </schema>

```

## Understanding the ProtocolBridgeProperties.xml file

The elements and attributes that are used in the ProtocolBridgeProperties.xml file are described in the following list:

### <serverProperties>

Root element of the XML document

### <defaultServer>

The protocol file server that acts as the default server for file transfers

### <ftpServer>

An FTP file server

### <sftpServer>

An SFTP file server

### <ftpsServer>

An FTPS file server

**General server attributes that apply to all types of protocol file server:**

| Attribute       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name            | Required. The name of the protocol file server. Protocol server names must be at least two characters in length, are not case-sensitive, and are limited to alphanumeric characters and the following characters: <ul style="list-style-type: none"> <li>• period (.)</li> <li>• underscore (_)</li> <li>• forward slash (/)</li> <li>• percent sign (%)</li> </ul>                                                                                                                                           |
| host            | Required. The host name or IP address of the protocol file server that you want to send files to or receive files from.                                                                                                                                                                                                                                                                                                                                                                                       |
| port            | Optional. The port number of the protocol file server that you want to send files to or receive files from. If you do not provide a value for this property, the FTP, SFTP, or FTPS standard default port numbers are used. FTPS is available only if you have enabled the 7.0.4.1 function.                                                                                                                                                                                                                  |
| platform        | Required. The platform of the protocol file server that you want to send files to or receive files from. Specify either UNIX or WINDOWS.<br><br>Set this property according to how you enter paths on your FTP, FTPS, or SFTP server. For example, if you are running an FTP server on Windows but when you log in to the server, you must enter UNIX-style paths (that is, with forward slashes), set this value to UNIX and not WINDOWS. Servers running on Windows often present a UNIX-style file system. |
| fileEncoding    | Required. Defines the character encoding used by the file server. This property is used when you transfer files in text mode so that the correct encoding sequences are changed when the files are moved between platforms. For example, UTF-8.                                                                                                                                                                                                                                                               |
| limitedWrite    | Optional. The default mode when writing to a file server is to create a temporary file and then rename that file when the transfer has completed. For a file server that is configured as write only, the file is created directly with its final name. The value of this property can be true or false. The default is false.                                                                                                                                                                                |
| controlEncoding | Optional. The control encoding value for control messages being sent to the protocol file server. This property affects the encoding of the file name that is used and must be compatible with the control encoding of the protocol file server. The default is UTF-8.                                                                                                                                                                                                                                        |

**General attributes that apply to FTP and FTPS servers only:**

| Attribute | Description                                                                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| timeZone  | Required. The time zone of the protocol file server that you want to send files to or receive files from. For example: America/New_York or Asia/Tokyo. |
| locale    | Required. The language used on the protocol file server that you want to send files to or receive files from. For example: en_US or ja_JP              |

| Attribute                | Description                                                                                                                                                                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| listFormat               | Optional. The listing format that defines the format of the file-listed information that is returned from the protocol file server. Use either Windows or UNIX. The default is UNIX.                                                                                                                                |
| listFileRecentDateFormat | Optional. The recent date format (less than a year) for FTP client directory listing on an FTP server. This attribute and the listFileOldDateFormat attribute allow you to redefine the expected date formats that are returned by the protocol file server. The default is as defined by the protocol file server. |
| listFileOldDateFormat    | Optional. The old date format (more than a year) for FTP client directory listing on an FTP server. This attribute and the listFileRecentDateFormat attribute allow you to redefine the expected date formats that are returned by the protocol file server. The default is as defined by the protocol file server. |
| monthShortNames          | Optional. A replacement list of month names that are used to decode date information returned from the file protocol server. This property consists of a list of 12 comma-separated names to override the default locale month values. The default is as defined by the protocol file server.                       |

**General attributes that apply to FTP servers only:**

| Attribute   | Description                                                                                                                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| passiveMode | Optional. Controls whether the connection to the FTP server is passive or active.<br><br>If you set the value of this property to false, the connection is active. If you set the value to true, the connection is passive. The default is false. |

**General attributes that apply to FTPS servers only:**

| Attribute          | Description                                                                                                                                                                                                                                                             |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ftpsType           | Optional. Specifies whether the explicit or implicit form of the FTPS protocol is used. The default is explicit.                                                                                                                                                        |
| trustStore         | Required. The location of the truststore that is used to determine whether the certificate presented by the FTPS server is trusted.                                                                                                                                     |
| trustStorePassword | Required. The password that is used to access the truststore.                                                                                                                                                                                                           |
| trustStoreType     | Optional. The format of the truststore file. The default is JKS.                                                                                                                                                                                                        |
| keyStore           | Optional. The location of the keystore that is used to provide certificate information if challenged by the FTPS server. The default is for the protocol bridge to not be able to connect to FTPS servers that are configured to require the authentication of clients. |

| Attribute        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| keyStorePassword | Optional. The password that is used to access the keystore. This property is optional unless you set the protocolBridgeFTPSSKeyStore attribute, in which case it is required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| keyStoreType     | Optional. The format of the keystore file. The default is JKS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ccc              | Optional. Selects whether a clear (unencrypted) command channel is used when authentication has completed. The default value is false, which means that the command channel remains encrypted for the entire duration of the FTPS session. This attribute is applicable only when the ftpsType is set to explicit.                                                                                                                                                                                                                                                                                                                                                                                |
| protFirst        | Optional. Specifies whether the <b>USER/PASS</b> commands are issued to the FTPS server before or after the <b>PBSZ/PROT</b> commands. The default value is false, which means <b>USER/PASS</b> commands are sent first followed by <b>PBSZ/PROT</b> commands. This attribute is applicable only when the ftpsType is set to explicit.                                                                                                                                                                                                                                                                                                                                                            |
| auth             | Optional. Specifies the protocol that is specified as part of the <b>AUTH</b> command. A specified protocol will be tried first, then the default is to try TLS, SSL, TLS-C, or TLS-P until the FTPS server does not reject with a 504 reply code. This attribute is applicable only when the ftpsType is set to explicit.                                                                                                                                                                                                                                                                                                                                                                        |
| cipherSuiteList  | <p>Specifies a comma-separated list of one or more cipher suite names. A cipher suite specifies the protocol, hash algorithm, and encryption algorithm that are used, and how many bits are used in the encryption key when data is exchanged between the agent and the FTPS server. The list supplied is used in the negotiation between the agent and the FTPS server.</p> <p>If you do not specify a value, the default set of ciphers enabled by Java is used in the negotiation between the agent and the FTPS server.</p> <p>For a list of valid cipher suite values, see Cipher suites in the IBM SDK and Runtime Environment Java Technology Edition Version 7 product documentation.</p> |

### <limits>

Container element for attributes that are common to all types of server and for attributes that are specific to a type of server:

#### General limit attributes that apply to all types of protocol file server:

| Attribute              | Description                                                                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| maxListFileNames       | Optional. The maximum number of names collected when scanning a directory on the protocol file server for file names. The default is 999999999. |
| maxListDirectoryLevels | Optional. The maximum number of directory levels on the protocol server to recursively scan for file names. The default is 1000.                |

| Attribute                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| maxReconnectRetry<br>(This attribute is now deprecated.)   | <b>Deprecated.</b> This attribute is not supported on WebSphere MQ File Transfer Edition V7.0.2, or later.<br><br>Optional. The maximum number of times a protocol server tries to reconnect before the protocol bridge agent stops trying. The default is 2.                                                                                                                                                                      |
| reconnectWaitPeriod<br>(This attribute is now deprecated.) | <b>Deprecated.</b> This attribute is not supported on WebSphere MQ File Transfer Edition V7.0.2, or later.<br><br>Optional. The maximum number of times a protocol server tries to reconnect before the protocol bridge agent stops trying. The default is 2.                                                                                                                                                                      |
| maxSessions                                                | Optional. The maximum number of sessions for the protocol server. This number must be greater than or equal to the sum of the maximum number of source and destination transfers for the protocol bridge agent. The default is the sum of the values for the agent properties maxSourceTransfers and maxDestinationTransfers, which is 50 if the default values for maxSourceTransfers and maxDestinationTransfers are being used. |
| socketTimeout                                              | Optional. The socket timeout in seconds. The value of this attribute is used during file streaming. The default is 30 seconds.                                                                                                                                                                                                                                                                                                     |

**Limit attribute that applies to SFTP servers only:**

| Attribute         | Description                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connectionTimeout | Optional. The time, in seconds, to wait for a response from the protocol file server to a connection request. A timeout indicates that the protocol file server is not available. The default value is 30 seconds.                                                                                                                                    |
| cipherList        | Optional. Specifies a comma-separated list of ciphers that are used to communicate between the protocol bridge agent and the SFTP server. The ciphers are called in the order that they are specified in this list. The cipher must be available on the server and the client before it can be used. The default is aes128-cbc,aes192-cbc,aes256-cbc. |

## Related concepts:

“The protocol bridge” on page 254

The protocol bridge enables your WebSphere MQ File Transfer Edition (WMQFTE) network to access files stored on a file server outside your WMQFTE network. This file server can use the FTP, FTPS (if you have enabled the Version 7.0.4.1 function), or SFTP network protocols. Each file server needs at least one dedicated agent. The dedicated agent is known as the protocol bridge agent.

## Related tasks:

“Defining properties for protocol file servers using the ProtocolBridgeProperties.xml file” on page 258

Define the properties of one or more protocol file servers that you want to transfer files to and from using the ProtocolBridgeProperties.xml file, which is provided by WebSphere MQ File Transfer Edition in the agent configuration directory.

“Mapping credentials for a file server using the ProtocolBridgeCredentials.xml file” on page 262

Map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by using the default credential mapping function of the protocol bridge agent. WebSphere MQ File Transfer Edition provides an XML file that you can edit to include your credential information.

“Example: How to configure a protocol bridge agent to use private key credentials with a UNIX SFTP server” on page 266

This example demonstrates how you can generate and configure the ProtocolBridgeCredentials.xml file. This example is a typical example and the details might vary according to your platform, but the principles remain the same.

## Connect:Direct credentials file format

The ConnectDirectCredentials.xml file in the agent configuration directory defines the user names and credential information that the Connect:Direct agent uses to authorize itself with a Connect:Direct node.

The ConnectDirectCredentials.xml file must conform to the ConnectDirectCredentials.xsd schema. The ConnectDirectCredentials.xsd schema document is located in the *install\_directory/samples/schema* directory of the WMQFTE installation. A template ConnectDirectCredentials.xml file is created by the **fteCreateCDAgent** command in the agent configuration directory.

## Schema

The following schema describes which elements are valid in the ConnectDirectCredentials.xml file.

```
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="http://wmqfte.ibm.com/ConnectDirectCredentials"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ConnectDirectCredentials">

  <element name="credentials" type="tns:credentialsType"></element>

  <complexType name="credentialsType">
    <sequence>
      <element name="pnode" type="tns:pnodeType"
        minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
  </complexType>

  <complexType name="pnodeType">
    <sequence>
      <element name="user" type="tns:userType"
        minOccurs="0" maxOccurs="unbounded"/>
    </sequence>
    <attribute name="name" type="string" use="required"/>
    <attribute name="pattern" type="tns:patternType" use="optional"/>
  </complexType>

  <complexType name="userType">
```

```

<sequence>
  <element name="snode" type="tns:snodeType"
    minOccurs="0" maxOccurs="unbounded"/>
</sequence>
<attribute name="name" type="string" use="required"/>
<attribute name="ignorecase" type="boolean" use="optional"/>
<attribute name="pattern" type="tns:patternType" use="optional"/>
<attribute name="cdUserId" type="string" use="required"/>
<attribute name="cdPassword" type="string" use="required"/>
<attribute name="pnodeUserId" type="string" use="optional"/>
<attribute name="pnodePassword" type="string" use="optional"/>
</complexType>

<complexType name="snodeType">
  <attribute name="name" type="string" use="required"/>
  <attribute name="pattern" type="tns:patternType" use="optional"/>
  <attribute name="userId" type="string" use="required"/>
  <attribute name="password" type="string" use="required"/>
</complexType>

<simpleType name="patternType">
  <restriction base="string">
    <enumeration value="regex"/>
    <enumeration value="wildcard"/>
  </restriction>
</simpleType>
</schema>

```

## Understanding the ConnectDirectCredentials.xml file

The elements and attributes used in the ConnectDirectCredentials.xml file are described in the following list.

### <credentials>

Group element containing elements that describe the credentials used by a Connect:Direct bridge agent to connect to a Connect:Direct node.

### <pnode>

The primary node (PNODE) in the Connect:Direct transfer. This node initiates the connection to the secondary node (SNODE).

Attribute	Description
name	The name of the Connect:Direct node. The value of this attribute can be a pattern that matches many node names.
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>wildcard - wildcards are used</li> <li>regex - Java regular expressions are used</li> </ul>

### <user>

The WebSphere MQ user that submits the transfer request.

Attribute	Description
name	The user name that is used with WebSphere MQ File Transfer Edition. The value of this attribute can be a pattern that matches many user names.

Attribute	Description
ignorecase	Specifies whether the case of the name is ignored. Valid values for the ignorecase attribute are <ul style="list-style-type: none"> <li>• true - the name is not case sensitive</li> <li>• false - the name is case sensitive</li> </ul>
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>• wildcard - wildcards are used</li> <li>• regex - Java regular expressions are used</li> </ul>
cdUserId	The user name that is used by the Connect:Direct bridge to connect to its associated Connect:Direct node.
cdPassword	The password associated with the user name specified by the cdUserId attribute.
pnodeUserId	The user name that is used by the Connect:Direct primary node.
pnodePassword	The password associated with the user name specified by the pnodeUserId attribute.

#### <snode>

The Connect:Direct node that performs the role of secondary node (SNODE) during the Connect:Direct file transfer.

Attribute	Description
name	The name of the Connect:Direct node. The value of this attribute can be a pattern that matches many node names.
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>• wildcard - wildcards are used</li> <li>• regex - Java regular expressions are used</li> </ul>
userId	The user name used to connect to this node during a file transfer.
password	The password associated with the user name specified by the userId attribute.

### Example

In this example, the Connect:Direct bridge agent connects to the Connect:Direct node pnode1. When a WebSphere MQ user with the user name beginning with the prefix fteuser followed by a single character, for example fteuser2, requests a transfer involving the Connect:Direct bridge, the Connect:Direct bridge agent will use the user name cduser and the password passw0rd to connect to the Connect:Direct node pnode1. When the Connect:Direct node pnode1 performs its part of the transfer it uses the user name pnodeuser and the password passw0rd1.

If the secondary node in the Connect:Direct transfer has a name that begins with the prefix FISH, the node pnode1 uses the user name fishuser and the password passw0rd2 to connect to the secondary node. If the secondary node in the Connect:Direct transfer has a name that begins with the prefix CHIPS, the node pnode1 uses the user name chipsuser and the password passw0rd3 to connect to the secondary node.

```

<tns:credentials xsi:schemaLocation="http://wmqfte.ibm.com/ConnectDirectCredentials ConnectDirectCredentials.xsd">
  <tns:pnode name="pnode1" pattern="wildcard">
    <tns:user name="fteuser?" pattern="wildcard" ignorecase="true"
      cdUserId="cduser" cdPassword="passwd"
      pnodeUserId="pnodeuser" pnodePassword="passwd1">
      <tns:snode name="FISH*" pattern="wildcard"
        userId="fishuser" password="passwd2"/>
      <tns:snode name="CHIPS*" pattern="wildcard"
        userId="chipsuser" password="passwd3"/>
    </tns:user>
  </tns:pnode>
</tns:credentials>

```

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related reference:

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Connect:Direct process definitions file format

The `ConnectDirectProcessDefinitions.xml` file in the Connect:Direct bridge agent configuration directory specifies the user-defined Connect:Direct process to start as part of the file transfer.

The `ConnectDirectProcessDefinitions.xml` file must conform to the `ConnectDirectProcessDefinitions.xsd` schema. The `ConnectDirectProcessDefinitions.xsd` schema document is located in the `install_directory/samples/schema` directory of the WMQFTE installation. A template `ConnectDirectProcessDefinitions.xml` file is created by the **fteCreateCDAgent** command in the agent configuration directory.

## Schema

The following schema describes which elements are valid in the `ConnectDirectProcessDefinitions.xml` file.

```

<schema targetNamespace="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions">

  <element name="cdprocess" type="tns:cdprocessType"/></element>

  <complexType name="cdprocessType">
    <sequence>
      <element name="processSet" type="tns:processSetType"
        minOccurs="0" maxOccurs="unbounded"/></element>
    </sequence>
  </complexType>

  <complexType name="processSetType">

```

```

    <sequence>
      <element name="condition" type="tns:conditionType"
        minOccurs="0" maxOccurs="1" />
      <element name="process" type="tns:processType"
        minOccurs="1" maxOccurs="1" />
    </sequence>
  </complexType>

  <complexType name="conditionType">
    <choice minOccurs="0" maxOccurs="unbounded">
      <element name="match" type="tns:matchType" />
      <element name="defined" type="tns:definedType" />
    </choice>
  </complexType>

  <complexType name="matchType">
    <attribute name="variable" type="string" use="required" />
    <attribute name="value" type="string" use="required" />
    <attribute name="pattern" type="tns:patternType" use="optional" />
  </complexType>

  <complexType name="definedType">
    <attribute name="variable" type="string" use="required" />
  </complexType>

  <complexType name="processType">
    <sequence>
      <element name="preTransfer" type="tns:transferType"
        minOccurs="0" maxOccurs="1" />
      <element name="transfer" type="tns:transferType"
        minOccurs="0" maxOccurs="1" />
      <element name="postTransferSuccess" type="tns:transferType"
        minOccurs="0" maxOccurs="1" />
      <element name="postTransferFailure" type="tns:transferType"
        minOccurs="0" maxOccurs="1" />
    </sequence>
  </complexType>

  <complexType name="transferType">
    <attribute name="process" type="string" use="required" />
  </complexType>

  <simpleType name="patternType">
    <restriction base="string">
      <enumeration value="regex" />
      <enumeration value="wildcard" />
    </restriction>
  </simpleType>
</schema>

```

## Understanding the ConnectDirectProcessDefinitions.xml file

The elements and attributes used in the ConnectDirectProcessDefinitions.xml file are described in the following list.

### cdProcess

The root element of the XML document.

### processSet

Group element containing all the information about a set of user-defined processes.

### condition

Group element containing the conditions that a transfer is tested against to determine whether the set of processes contained in the processSet element are used.

**match**

A condition that tests whether a the value of a variable matches a given value.

Attribute	Description
variable	Specifies a variable. The value of this variable is compared with the value of the value attribute. The variable is an intrinsic symbol. For more information, see "Substitution variables for use with user-defined Connect:Direct processes" on page 746.
value	Specifies a pattern to match against the value of the variable specified by the variable attribute.
pattern	Specifies the type of pattern that is used for the value of the value attribute. Valid values for the pattern attribute are <ul style="list-style-type: none"> <li>• wildcard - wildcards are used</li> <li>• regex - Java regular expressions are used</li> </ul> This attribute is optional and the default is wildcard.

**defined**

A condition that tests whether a variable has been defined.

Attribute	Description
variable	Specifies a variable. If this variable exists, the match condition is satisfied. The variable is an intrinsic symbol. For more information, see "Substitution variables for use with user-defined Connect:Direct processes" on page 746.

**process**

Group element containing the information about where to locate the Connect:Direct processes to call when a match is found.

**transfer**

The Connect:Direct process to call during a transfer request.

Attribute	Description
process	Optional. Specifies the name of a file that contains a Connect:Direct process to call during a transfer request. The file path is relative to the Connect:Direct bridge agent configuration directory. This attribute is optional, the default is to use a process generated by WMQFTE.

**Example**

In this example, there are three processSet elements.

The first processSet element specifies that if a transfer request has a **%FTESNODE** variable with a value that matches the pattern `Client*` and a **%FTESUSER** variable with a value of `Admin`, the Connect:Direct bridge agent submits the Connect:Direct process located in the `agent_configuration_directory/AdminClient.cdp` as part of the transfer.

The second processSet element specifies that if a transfer request has a **%FTESNODE** variable with a value that matches the pattern `Client*`, the Connect:Direct bridge agent submits the Connect:Direct process located in the `agent_configuration_directory/Client.cdp` as part of the transfer. The Connect:Direct bridge agent reads the processSet elements in the order that they are defined, and if it finds a match, it

uses the first match and does not look for another match. For transfer requests that match the conditions of both the first and second processSet, the Connect:Direct bridge agent calls only the processes specified by the first processSet.

The third processSet element has no conditions and matches all transfers. If the transfer request does not match the conditions of the first or second processSet, the Connect:Direct bridge agent submits the Connect:Direct process specified by the third condition. This process is located in the *agent\_configuration\_directory/Default.cdp* as part of the transfer.

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:cdprocess xmlns:tns="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/ConnectDirectProcessDefinitions ConnectDirectProcessDefinitions

  <tns:processSet>
    <tns:condition>
      <tns:match variable="%FTESNODE" value="Client*" pattern="wildcard" />
      <tns:match variable="%FTESUSER" value="Admin" pattern="wildcard" />
    </tns:condition>
    <tns:process>
      <tns:transfer process="AdminClient.cdp" />
    </tns:process>
  </tns:processSet>

  <tns:processSet>
    <tns:condition>
      <tns:match variable="%FTESNODE" value="Client*" pattern="wildcard" />
    </tns:condition>
    <tns:process>
      <tns:transfer process="Client.cdp" />
    </tns:process>
  </tns:processSet>

  <tns:processSet>
    <tns:process>
      <tns:transfer process="Default.cdp" />
    </tns:process>
  </tns:processSet>

</tns:cdprocess>
```

#### **Related concepts:**

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

#### **Related tasks:**

“Specifying the Connect:Direct process to start by using the ConnectDirectProcessDefinition.xml file” on page 184

Specify which Connect:Direct process to start as part of a WebSphere MQ File Transfer Edition transfer. WebSphere MQ File Transfer Edition provides an XML file that you can edit to specify process definitions.

#### **Related reference:**

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

## Connect:Direct node properties file format

The `ConnectDirectNodeProperties.xml` file in the Connect:Direct bridge agent configuration directory specifies information about remote Connect:Direct nodes that are involved in a file transfer.

The `ConnectDirectNodeProperties.xml` file must conform to the `ConnectDirectNodeProperties.xsd` schema. The `ConnectDirectNodeProperties.xsd` schema document is located in the `install_directory/samples/schema` directory of the WMQFTE installation. A template `ConnectDirectNodeProperties.xml` file is created by the `fteCreateCDAgent` command in the agent configuration directory.

## Schema

The following schema describes which elements are valid in the `ConnectDirectNodeProperties.xml` file.

```
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://wmqfte.ibm.com/ConnectDirectNodeProperties"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tns="http://wmqfte.ibm.com/ConnectDirectNodeProperties">

  <element name="nodeProperties" type="tns:nodePropertiesType"></element>

  <complexType name="nodePropertiesType">
    <sequence>
      <element name="node" type="tns:nodeType" minOccurs="0" maxOccurs="unbounded"></element>
    </sequence>
  </complexType>

  <complexType name="nodeType">
    <attribute name="name" type="string" use="required" />
    <attribute name="pattern" type="tns:patternType" use="optional" />
    <attribute name="type" type="string" use="required" />
  </complexType>

  <simpleType name="patternType">
    <restriction base="string">
      <enumeration value="regex" />
      <enumeration value="wildcard" />
    </restriction>
  </simpleType>

</schema>
```

## Understanding the `ConnectDirectNodeProperties.xml` file

The elements and attributes used in the `ConnectDirectNodeProperties.xml` file are described in the following list.

### **nodeProperties**

Root element of the XML document.

### **node**

Specifies one or more Connect:Direct nodes.

Attribute	Description
name	A pattern that identifies the names of Connect:Direct nodes that use the definitions specified by the node element. Pattern matching is not case sensitive.
pattern	Specifies the type of pattern that is used for the value of the name attribute. Valid values for the pattern attribute are: <ul style="list-style-type: none"> <li>wildcard - wildcards are used</li> <li>regex - Java regular expressions are used</li> </ul> For information about the types of regular expressions used by WMQFTE, see "Regular expressions used by WebSphere MQ File Transfer Edition" on page 746.
type	Specifies the operating system type of the Connect:Direct node or nodes that match the pattern given by the name attribute. Valid values for the type attribute are: <ul style="list-style-type: none"> <li>Windows - the node runs on Windows</li> <li>UNIX - the node runs on UNIX or Linux</li> <li>z/OS, zos, os/390, or os390 - the node runs on z/OS</li> </ul> The value of this attribute is not case sensitive.

## Example

In this example, the file specifies that all Connect:Direct nodes that have a name that begins with "cdnodew" run on a Windows platform, all Connect:Direct nodes that have a name that begins with "cdnodeu" run on a UNIX platform, and that all Connect:Direct nodes that have a name that begins with "cdnodez" run on z/OS. The file specifies that all other Connect:Direct nodes run on a UNIX platform. The Connect:Direct bridge agent searches for matches from the top of the file to the bottom and uses the first match that it finds.

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:nodeProperties xmlns:tns="http://wmqfte.ibm.com/ConnectDirectNodeProperties"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://wmqfte.ibm.com/ConnectDirectNodeProperties
    ConnectDirectNodeProperties.xsd">

  <tns:node name="cdnodew*" pattern="wildcard" type="windows" />
  <tns:node name="cdnodeu.*" pattern="regex" type="unix" />
  <tns:node name="cdnodez*" pattern="wildcard" type="zos" />
  <tns:node name="*" pattern="wildcard" type="unix" />

</tns:nodeProperties>
```

### Related concepts:

“The Connect:Direct bridge” on page 269

From Version 7.0.4 of WebSphere MQ File Transfer Edition, you can transfer files to and from an existing IBM Sterling Connect:Direct network. Use the Connect:Direct bridge, which is a component of WebSphere MQ File Transfer Edition, to transfer files between WMQFTE and IBM Sterling Connect:Direct.

### Related reference:

“fteCreateCDAgent (create a Connect:Direct bridge agent)” on page 486

The fteCreateCDAgent command creates a WebSphere MQ File Transfer Edition agent and its associated configuration for use with the Connect:Direct bridge. This command is provided with WebSphere MQ File Transfer Edition Server and Client.

“Regular expressions used by WebSphere MQ File Transfer Edition” on page 746

WebSphere MQ File Transfer Edition uses regular expressions in a number of scenarios. For example, regular expressions are used to match user IDs for Connect:Direct security credentials, to split a file into multiple messages by creating a new message each time a regular expression is matched, and to specify a set of files to transfer in a file transfer request. The regular expression syntax used by WebSphere MQ File Transfer Edition is the syntax supported by the `java.util.regex` API. This regular expression syntax is similar to, but not the same as, the regular expression syntax used by the Perl language.

---

## Developing applications

### Running programs before or after a transfer

#### Examples of using `fteCreateTransfer` to start programs

From Version 7.0.4.1, you can use the `fteCreateTransfer` command to specify programs to run before or after a transfer.

In addition to using `fteCreateTransfer`, there are other ways to invoke a program before or after a transfer. For more information, see “Specifying programs to run” on page 291.

All these examples use the following syntax to specify a program:

```
[type:]commandspec[, [retrycount][, [retrywait][, successrc]]]
```

For more information about this syntax, see “`fteCreateTransfer` (create new file transfer)” on page 509.

#### Running an executable program

The following example specifies an executable program called `mycommand` and passes two arguments, `a` and `b`, to the program.

```
mycommand(a,b)
```

To run this program at the source agent `AGENT1` before the transfer starts, use the following command:

```
fteCreateTransfer -sa AGENT1 -da AGENT2 -presrc mycommand(a,b) destinationSpecification sourceSpecification
```

#### Running, and retrying, an executable program

The following example specifies an executable program called `simple`, which does not take any arguments. A value of 1 is specified for `retrycount` and a value of 5 is specified for `retrywait`. These values mean that the program will be retried once if it does not return a successful return code, after a wait of five seconds. No value is specified for `successrc`, so the only successful return code is the default value of 0.

```
executable:simple,1,5
```

To run this program at the source agent AGENT1 after the transfer has completed, use the following command:

```
fteCreateTransfer -sa AGENT1 -da AGENT2 -postsrc executable:simple,1,5 destinationSpecification sourceSpecification
```

### Running an Ant script and specifying successful return codes

The following example specifies an Ant script called `myscript` and passes two properties to the script. The script is run using the `fteAnt` command. The value for `successrc` is specified as `>2&<7&!5|0|14`, which specifies that return codes of 0, 3, 4, 6, and 14 indicate success.

```
antscript:myscript(prop1=fred,prop2=bob),,,>2&<7&!5|0|14
```

To run this program at the destination agent AGENT2 before the transfer has started, use the following command:

```
fteCreateTransfer -sa AGENT1 -da AGENT2 -predst "antscript:myscript(prop1=fred,prop2=bob),,,>2&<7&!5|0|14" destinationSp
```

### Running an Ant script and specifying targets to call

The following example specifies an Ant script called `script2` and two targets, `target1` and `target2`, to call. The property `prop1` is also passed in, with a value of `recmf(F,B)`. The comma (,) and parentheses in this value are escaped using a backslash character (\).

```
antscript:script2(target1,target2,prop1=recmf\F\B),,,>2&<7&!5|0|14
```

To run this program at the destination agent AGENT2 after the transfer has completed, use the following command:

```
fteCreateTransfer -sa AGENT1 -da AGENT2 -postdst "antscript:script2(target1,target2,prop1=recmf\F\B),,,>2&<7&!5|0|14
```

### Running a JCL script

The following example specifies a JCL script called `zosbatch`. A value of 3 is specified for `retrycount`, a value of 30 is specified for `retrywait` and a value of 0 is specified for `successrc`. These values mean that the script will be retried three times if it does not return a successful return code of 0, with a wait of thirty seconds between each attempt.

```
jcl:zosbatch,3,30,0
```

To run this program at the source agent AGENT1 after the transfer has completed, use the following command:

```
fteCreateTransfer -sa AGENT1 -da AGENT2 -postsrc jcl:zosbatch,3,30,0 destinationSpecification sourceSpecification
```

### Related concepts:

“Specifying programs to run” on page 291

You can run programs on a system where a IBM WebSphere MQ File Transfer Edition agent is running. As part of a file transfer request, you can specify a program to run either before a transfer starts, or after it finishes. Additionally, you can start a program that is not part of a file transfer request by submitting a managed call request.

### Related reference:

“**fteCreateTransfer** (create new file transfer)” on page 509

The **fteCreateTransfer** command creates and starts a new file transfer from the command line. With this command you can start a file transfer immediately, schedule a file transfer for a future time and date, repeat a scheduled transfer one or more times, and trigger a file transfer based on certain conditions.

## Working with the Web Gateway

### Web Gateway API reference

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

This reference topic describes the API for user actions. For administrative actions such as creating and deleting file spaces, see “Web Gateway administration API reference” on page 966.

### Resource types

The following WebSphere MQ File Transfer Edition object types are supported by this specification:

**File** A file transferred to or from a WebSphere MQ File Transfer Edition agent.

#### Filespace

A logical area containing files that have been sent to the user or group associated with that file space.

#### Transfer

An instance of a WebSphere MQ File Transfer Edition transfer.

### HTTP verbs

The HTTP verbs in the following table are supported by this specification.

HTTP verb	WebSphere MQ File Transfer Edition operations
POST	<ul style="list-style-type: none"><li>• Upload a file or files to a destination agent</li></ul>
GET	<ul style="list-style-type: none"><li>• Retrieve the status of a previous transfer</li><li>• Retrieve a list of files in a file space</li><li>• Download a file from a file space</li></ul>
DELETE	<ul style="list-style-type: none"><li>• Delete, and optionally download, a file from a file space</li></ul>

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“HTTP headers and HTML form fields for using the Web Gateway”

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“Content types for using the Web Gateway” on page 952

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of `application/xml` or `application/json`.

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“HTTP response codes” on page 414

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

**HTTP headers and HTML form fields for using the Web Gateway:**

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

The HTTP convention is to preface custom headers with `x-` followed by a product-specific identifier. WebSphere MQ File Transfer Edition uses the product identifier `fte-`.

For the possible values of each header or form field listed below, see the topic that describes the equivalent WebSphere MQ File Transfer Edition command and parameter. For example, the set of possible values for the `x-fte-action` header is the set of possible values for the `fteCreateTransfer` command when used with the `-de` parameter.

Header name	Form field name	Supported object types and verbs	Command-line command and parameter	Description	Example usage of header	Example usage of form field
x-fte-action	action	File (POST)	fteCreateTransfer -de	Specifies the action to take if the destination file exists. Valid options are: <ul style="list-style-type: none"> <li>• overwrite</li> <li>• error - This is the default.</li> </ul>	x-fte-action:overwrite	<input type="HIDDEN" name="action" value="overwrite"/>
x-fte-priority	priority	File (POST)	fteCreateTransfer -pr	Specifies the priority of the transfer.	x-fte-priority:5	<input type="HIDDEN" name="priority" value="5"/>
x-fte-type	type	File (POST)	fteCreateTransfer -t	Specifies whether the transfer is in binary or text mode. Valid options are: <ul style="list-style-type: none"> <li>• text</li> <li>• binary - This is the default.</li> </ul>	x-fte-type:binary	<input type="HIDDEN" name="type" value="binary"/>
x-fte-checksum	checksum	File (POST)	fteCreateTransfer -cs	Specifies the checksum algorithm to use to check that the transfer sent the data correctly. Valid options are: <ul style="list-style-type: none"> <li>• none</li> <li>• MD5 - This is the default.</li> </ul>	x-fte-checksum:MD5	<input type="HIDDEN" name="checksum" value="MD5"/>
x-fte-metadata	metadata	File (POST)	fteCreateTransfer -md	Specifies metadata to associate with the transfer.  The metadata header or form field can be specified multiple times within a single request.	x-fte-metadata:a=b,c=d,e=f	<input type="HIDDEN" name="metadata" value="a=b,c=d,e=f"/>
x-fte-jobname	jobname	File (POST)	fteCreateTransfer -jn	Specifies to job name to associate with the transfer.	x-fte-jobname:BatchOrder_1	<input type="HIDDEN" name="jobname" value="BatchOrder_1"/>
x-fte-postdest	postdest	File (POST)	fteAnt, where the ant script that is called contains a nested postdst element	Specifies a command to execute at the destination agent when the file transfer has completed. Supports all attributes available to a program invocation. For more details of these attributes, see the topic "Program invocation nested elements" on page 1009	x-fte-postdest:[command=type=executable,successrc=0]	<input type="HIDDEN", name="postdest" value="[command=virus_scan.sh, type=executable,successrc=0]"/>

Header name	Form field name	Supported object types and verbs	Command-line command and parameter	Description	Example usage of header	Example usage of form field
x-fte-postdest-args	postdest-args	File (POST)	fteAnt, where the Ant script that is called specifies <b>arg</b> elements on a postdst element	Specifies one or more arguments to pass to a command if a command has been specified using the x-fte-postdest header. Only valid if the type attribute specified in the x-fte-postdest header is executable. Supports all attributes available to a program invocation. For more details of these attributes, see the topic "Program invocation nested elements" on page 1009.	x-fte-postdest-args:[argument1, argument2]	<input type="HIDDEN" name="postdest-args" value="[argument1, argument2]" />
x-fte-postdest-properties	postdest-properties	File (POST)	fteAnt, where the Ant script that is called specifies <b>property</b> elements on a postdst element	Specifies one or more properties to pass to an Ant script if an Ant script has been specified using the x-fte-postdest header. Only valid if the type attribute specified in the x-fte-postdest header is antscript. Supports all attributes available to a program invocation. For more details of these attributes, see the topic "Program invocation nested elements" on page 1009.	x-fte-postdest-properties:[scanspeed=fast, resultoutput=scan.log]	<input type="HIDDEN" name="postdest-properties" value="[scanspeed=fast, resultoutput=scan.log]" />
x-fte-postdest-targets	postdest-targets	File (POST)	fteAnt, where the Ant script that is called specifies <b>target</b> elements on a postdst element	Specifies one or more targets to run from an Ant script if an Ant script has been specified using the x-fte-postdest header. Only valid if the type attribute specified in the x-fte-postdest header is antscript. For more details, see the topic "Program invocation nested elements" on page 1009.	x-fte-postdest-targets:[scanfile]	<input type="HIDDEN" name="postdest-targets" value="[scanfile]" />

Header name	Form field name	Supported object types and verbs	Command-line command and parameter	Description	Example usage of header	Example usage of form field
x-fte-include-file-in-response	None	File (DELETE)	None	Specifies whether the deleted file is included in the HTTP response. The default is false.	x-fte-include-file-in-response:true  Specifies whether the deleted file is included in the HTTP response. The default is false.	None
x-fte-check-integrity	None	File space (GET)	None	On a request to view the contents of a file space, specifies that an integrity check should be carried out on the file space files. On a request to list all file spaces, specifies that an integrity check should be carried out on the file space root. The default is false.	x-fte-check-integrity:true	None

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“Content types for using the Web Gateway” on page 952

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of application/xml or application/json.

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“HTTP response codes” on page 414

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

“Web Gateway administration API reference” on page 966

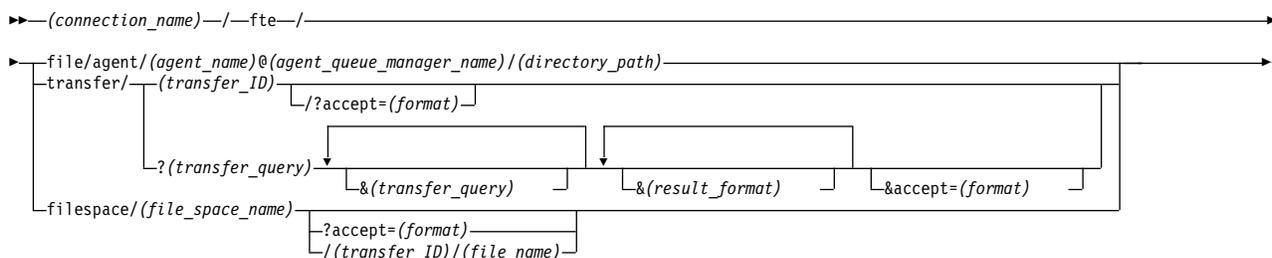
The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

### Uniform Resource Identifier syntax for using the Web Gateway:

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

WebSphere MQ File Transfer Edition resources are distinguished from each other by their types. A resource is addressed by its resource type and an identifying token.

### WMQFTE Uniform Resource Identifier syntax diagram



### Parameters

#### (connection\_name)

Required. The host name and, optionally, the port of the server hosting the WebSphere MQ File Transfer Edition Web Gateway. Not case-sensitive.

#### fte

Required. Prefix indicating that the URI is addressed to the WebSphere MQ File Transfer Edition Web Gateway. Case-sensitive.

#### file

Optional. Indicates that you are addressing a file resource. Case-sensitive.

#### agent

Optional. Indicates that the type of destination is an agent. Case-sensitive.

#### (agent\_name)

Optional. The name of the agent to send the file to. Not case-sensitive, agent names are converted to uppercase.

#### (agent\_queue\_manager\_name)

Required. The name of the queue manager used by the agent to send the file to. Case-sensitive.

#### (directory\_path)

Optional. The path of the directory on the destination agent file system that you are addressing. The directory path must contain only unreserved or escaped characters. Case-sensitive.

If the *directory\_path* part of the URI begins with a forward slash (/) character, in addition to the forward slash character used as a path separator, the *directory\_path* is resolved as an absolute path. If you want to upload a file to an absolute path, you must encode the forward slash as the string %2F so that it is not removed. If you do not want Web Gateway uploads to be able to write to an absolute path on the destination agent's file system, you must configure user or agent sandboxing on the destination agent.

If the *directory\_path* does not begin with an additional forward slash character, the directory path is resolved relative to the transfer root directory of the destination agent.

#### **transfer**

Optional. Indicates that you are addressing a transfer resource. Case-sensitive.

#### **(transfer\_ID)**

Optional. The transfer ID is the unique 48 character hexadecimal string that identifies the transfer. Not case-sensitive.

#### **accept=(format)**

Optional. Specifies the format of the response that the Web Gateway returns. The value of *format* is one of the following values:

- **JSON** - Specifies that the response is in JavaScript Object Notation.
- **XML** - Specifies that the response is in XML format. This is the default.

Not case-sensitive. You can also set the format of the response using the **Accept:** header in the request. The format that is set using the URI takes priority over the format set using the **Accept:** header.

#### **(transfer\_query)**

Optional. Requests information about all transfers that match the query, from the WebSphere MQ File Transfer Edition Web Gateway. You can specify multiple queries, separated by the ampersand character (&), but only one of each type of query.

The query can be one of the following types:

- **srcagent=(agent\_name)**
- **destagent=(agent\_name)**
- **agent=(agent\_name)**
- **status=(status\_value)**
- **metadata=(metadata\_info)**
- **endafter=(date)**
- **endbefore=(date)**
- **startafter=(date)**
- **startbefore=(date)**
- **srcfile=(file\_path)**
- **destfile=(file\_path)**
- **jobname=(job\_name)**
- **returncode=(return\_code)**

For more information about these queries, see “Query parameters” on page 947.

#### **fileSpace**

Optional. Indicates that you are addressing a file space resource. Case-sensitive.

#### **(file\_space\_name)**

Optional. The name of the file space you are addressing. This is the name of the user associated with the file space. Case-sensitive.

*(file\_name)*

Optional. The name of the file to download. If a file name has a space character in the name this character must be represented by the string %20 in the URI. Case-sensitive.

*(result\_format)*

- **sortby**=(*sort\_by\_values*)
- **sort**=(*sort\_values*)
- **start**=(*start\_value*)
- **count**=(*count\_value*)

For more information about these result formats, see “Result format parameters” on page 950.

### Query parameters

**srcagent**=(*agent\_name*)

Requests information about transfers that have *agent\_name* as the source agent. The value of *agent\_name* is not case-sensitive, agent names are converted to uppercase.

If you use the **srcagent** query you cannot use the **agent** query.

**destagent**=(*agent\_name*)

Requests information about transfers that have *agent\_name* as the destination agent. The value of *agent\_name* is not case-sensitive, agent names are converted to uppercase.

If you use the **destagent** query you cannot use the **agent** query.

**agent**=(*agent\_name*)

Requests information about transfers that have *agent\_name* as either the source agent, the destination agent or both. The value of *agent\_name* is not case-sensitive, agent names are converted to uppercase.

If you use the **agent** query you cannot use the **srcagent** or **destagent** query.

**status**=(*status\_value*)

Requests information about transfers that have *status\_value* as their transfer status. The value of *status\_value* is case-sensitive and is a comma-separated list enclosed in square brackets. The comma-separated list contains one or many of the following values:

- **submitted**
- **started**
- **success**
- **partial success**
- **cancelled**
- **failure**

**metadata**=(*metadata\_info*)

Requests information about transfers that have *metadata\_info* as part of their metadata.

The value of *metadata\_info* is in one of the following formats:

**name** The name part of a metadata name-value pair. If the transfer has metadata with this name and any value the transfer matches the query.

**name=value**

A metadata name-value pair. If the transfer has metadata with this name and this value the transfer matches the query.

**endafter**=(*date*)

Requests information about transfers that completed after the date given by the *date* value. The value of *date* is in one of the following formats:

**yyyy-MM-ddTHH:mm:ss**

The date and time. For example, 2010-08-26T12:25:40.

**yyyy-MM-ddTHH:mm**

The date and time, without seconds. For example, 2010-08-26T12:25, which is evaluated as 2010-08-26T12:25:00.

**yyyy-MM-ddTHH**

The date and time, without seconds and minutes. For example, 2010-08-26T12, which is evaluated as 2010-08-26T12:00:00.

**yyyy-MM-dd**

The date. For example, 2010-08-26, which is evaluated as 2010-08-26T00:00:00.

**yyyy-MM**

The date without days. For example, 2010-08, which is evaluated as 2010-07-31T23:59:59.

**yyyy** The year. For example, 2010, which is evaluated as 2009-12-31T23:59:59.

The date and time are in Coordinated Universal Time (UTC).

You can specify a date in a different timezone by adding a four-digit number, prefaced by a plus (+) sign or minus (-) sign, to the end of the date to indicate the difference in time between UTC and the timezone you are using. For example, to specify 7pm on the 26th August 2010 in the timezone for San Francisco, Pacific Daylight Time, which is 7 hours behind UTC, use the following value:  
2010-08-26T19:00-0700.

**endbefore=(date)**

Requests information about transfers that completed before the date given by the *date* value. The value of *date* is in one of the following formats:

**yyyy-MM-ddTHH:mm:ss**

The date and time. For example, 2010-08-26T12:25:40.

**yyyy-MM-ddTHH:mm**

The date and time, without seconds. For example, 2010-08-26T12:25, which is evaluated as 2010-08-26T12:25:00.

**yyyy-MM-ddTHH**

The date and time, without seconds and minutes. For example, 2010-08-26T12, which is evaluated as 2010-08-26T12:00:00.

**yyyy-MM-dd**

The date. For example, 2010-08-26, which is evaluated as 2010-08-26T00:00:00.

**yyyy-MM**

The date without days. For example, 2010-08, which is evaluated as 2010-07-31T23:59:59.

**yyyy** The year. For example, 2010, which is evaluated as 2009-12-31T23:59:59.

The date and time are in Coordinated Universal Time (UTC).

You can specify a date in a different timezone by adding a four-digit number, prefaced by a plus (+) sign or minus (-) sign, to the end of the date to indicate the difference in time between UTC and the timezone you are using. For example, to specify 7pm on the 26th August 2010 in the timezone for San Francisco, Pacific Daylight Time, which is 7 hours behind UTC, use the following value:  
2010-08-26T19:00-0700.

**startafter=(date)**

Requests information about transfers that started after the date given by the *date* value. The value of *date* is in one of the following formats:

**yyyy-MM-ddTHH:mm:ss**

The date and time. For example, 2010-08-26T12:25:40.

**yyyy-MM-ddTHH:mm**

The date and time, without seconds. For example, 2010-08-26T12:25, which is evaluated as 2010-08-26T12:25:00.

**yyyy-MM-ddTHH**

The date and time, without seconds and minutes. For example, 2010-08-26T12, which is evaluated as 2010-08-26T12:00:00.

**yyyy-MM-dd**

The date. For example, 2010-08-26, which is evaluated as 2010-08-26T00:00:00.

**yyyy-MM**

The date without days. For example, 2010-08, which is evaluated as 2010-07-31T23:59:59.

**yyyy** The year. For example, 2010, which is evaluated as 2009-12-31T23:59:59.

The date and time are in Coordinated Universal Time (UTC).

You can specify a date in a different timezone by adding a four-digit number, prefaced by a plus (+) sign or minus (-) sign, to the end of the date to indicate the difference in time between UTC and the timezone you are using. For example, to specify 7pm on the 26th August 2010 in the timezone for San Francisco, Pacific Daylight Time, which is 7 hours behind UTC, use the following value:  
2010-08-26T19:00-0700.

**startbefore=(date)**

Requests information about transfers that started before the date given by the *date* value. The value of *date* is in one of the following formats:

**yyyy-MM-ddTHH:mm:ss**

The date and time. For example, 2010-08-26T12:25:40.

**yyyy-MM-ddTHH:mm**

The date and time, without seconds. For example, 2010-08-26T12:25, which is evaluated as 2010-08-26T12:25:00.

**yyyy-MM-ddTHH**

The date and time, without seconds and minutes. For example, 2010-08-26T12, which is evaluated as 2010-08-26T12:00:00.

**yyyy-MM-dd**

The date. For example, 2010-08-26, which is evaluated as 2010-08-26T00:00:00.

**yyyy-MM**

The date without days. For example, 2010-08, which is evaluated as 2010-07-31T23:59:59.

**yyyy** The year. For example, 2010, which is evaluated as 2009-12-31T23:59:59.

The date and time are in Coordinated Universal Time (UTC).

You can specify a date in a different timezone by adding Z to the end of the date in any of the listed formats. The value of Z is a four-digit number indicating the difference in time between UTC and the timezone you are using. For example, to specify 7pm on the 26th August 2010 in the timezone for San Francisco, Pacific Daylight Time, which is 7 hours behind UTC, use the following value:  
2010-08-26T19:00-0700.

**srcfile=(file\_path)**

Requests information about transfers that have *file\_path* as the full source file path. Case-sensitive.

If a file path contains a space character, this character must be represented by the string %20 in the query.

**destfile=(*file\_path*)**

Requests information about transfers that have *file\_path* as the full destination file path. Case-sensitive.

If a file path contains a space character, this character must be represented by the string %20 in the query.

**jobname=(*job\_name*)**

Requests information about transfers that have *job\_name* as their job name. Job name is case-sensitive.

**returncode=(*return\_code*)**

Requests information about transfers that have *return\_code* as their return code. The return code of a transfer is a positive integer. For a list of possible return codes, see "Return codes for WebSphere MQ File Transfer Edition" on page 409.

**transferid=(*transfer\_ID*)**

Optional. The transfer ID is the unique 48 character hexadecimal string that identifies the transfer that transferred the file to the file space. Not case-sensitive.

**Result format parameters**

**sortby=(*sort\_by\_values*)**

Specifies which value to sort the results by. For a transfer query the value of *sort\_by\_value* is one of the following values:

- **srcagent**
- **destagent**
- **status**
- **startdate**
- **enddate**
- **jobname**

By default the results are sorted by **startdate**.

**sort=(*sort\_value*)**

Specifies whether the results that are returned are sorted in ascending or descending order of the value specified for **sortby** query. The value of *sort\_value* is one of the following values:

- **ascending**
- **descending**

You can only specify the **sort** query if you have specified the **sortby** query.

**start=(*start\_value*)**

Specifies the index of the first result to return. The value of *start\_value* is 0 or a positive integer. The first result found by the Web Gateway has an index of 0.

**count=(*count\_value*)**

Specifies the number of results to return. The value of *count\_value* is a positive integer that is less than 100. You can only return 100 results at a time.

**Examples**

For example, to use a POST request to transfer a file resource to a destination agent called ACCOUNTS, which uses an agent queue manager called DEPT1, use the following URI:

`http://example.org/wmqfte/file/agent/ACCOUNTS@DEPT1/`

In this example:

- `http://example.org` is the host system.
- `/wmqfte` indicates the URI is a WebSphere MQ File Transfer Edition URI.
- `/file` indicates that the resource being addressed is a file resource.
- `/agent/ACCOUNTS@DEPT1/` is the identifying token. This identifying token is a combination of the destination type, in this case `agent`, a destination agent name, in this case `ACCOUNTS`, and the destination agent queue manager name prefixed by an `@` sign, in this case `@DEPT1`.

For example, to address a transfer resource:

`http://example.org/wmqfte/transfer/414d5120514d5f4c4d343336303920201159c54820027102`

In this example:

- `http://example.org` is the host system.
- `/wmqfte` indicates the URI is a WebSphere MQ File Transfer Edition URI.
- `/transfer` indicates that the resource being addressed is a transfer resource.
- `/414d5120514d5f4c4d343336303920201159c54820027102` is the identifying token, which in this case is the hexadecimal transfer ID.

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Content types for using the Web Gateway” on page 952

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of `application/xml` or `application/json`.

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“HTTP response codes” on page 414

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer

Edition Web Gateway.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

### Content types for using the Web Gateway:

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of `application/xml` or `application/json`.

### Request

Content transferred to WebSphere MQ File Transfer Edition using HTTP must be in one of the formats in the following table.

*Table 53. The WMQFTE resources and HTTP verbs that accept different media-types*

Media-type	Valid WMQFTE resources	Allowed verbs
multipart/form-data	File (transfers of multiple files or transfers with metadata)	POST, GET, DELETE
application/xml	Transfer, Filespace	POST, GET, DELETE

When you POST a file as part of a multipart request any media type can be used in each multipart boundary. The media type of the file determines whether the file transfer is in binary or text mode, unless the mode is overridden with the `x-fte-type` header.

*Table 54. The transfer mode used by default for different media-types*

Media-type	Transfer mode used
text/*	text
application/xml	binary
Any other media-type	binary

### Response body

The Web Gateway can return a response with a media type of `application/xml` or `application/json` in response to both file upload requests (POST of a FILE resource) and transfer status requests (GET of a TRANSFER resource). For more information about JSON and XML response formats, see “Response formats: XML and JSON” on page 953. The Web Gateway can return a response with any media type in response to a file download request (GET of a FILESPACE resource).

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

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“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“Response formats: XML and JSON”

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“HTTP response codes” on page 414

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

**Response formats: XML and JSON:**

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

You can specify the format of the response from the Web Gateway by including the `Accept: return-type` header in the request or by including the query `accept=return-type` in the URI. You can use a web application to parse the content of the XML or JSON response and display it in an appropriate format to a web user.

The default format is XML. If you specify the format using both the `Accept:` header and the query `accept=` in the URI, the Web Gateway returns a response in the format specified by the query in the URI.

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

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“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Transfer query response formats”

When you request the status of a transfer or multiple transfers from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format.

“File space query response formats” on page 961

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the `Accept:` header.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

“Content types for using the Web Gateway” on page 952

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of `application/xml` or `application/json`.

“HTTP response codes” on page 414

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

*Transfer query response formats:*

When you request the status of a transfer or multiple transfers from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format.

**XML**

The following example shows the format of a simple transfer query XML response.

```
<transfers xsi:noNamespaceSchemaLocation="WebTransferStatus.xsd">
  <transfer end-time="2010-08-26T12:00:00.260Z"
    start-time="2010-08-26T11:55:00.076Z"
    status="Success"
    id="414d51205745422e46544520202020c1a1a34b03720120">
  </transfer>
</source>
```

```

<agent qmgr="QM_JUPITER" name="AGENT_CALLISTO"/>
<metadata>
  <key value="FIRST_JOB" name="com.ibm.wmqfte.JobName"/>
  <key value="AGENT_CALLISTO" name="com.ibm.wmqfte.SourceAgent"/>
  <key value="AGENT_EUROPA" name="com.ibm.wmqfte.DestinationAgent"/>
  <key value="serenity.example.com."
    name="com.ibm.wmqfte.OriginatingHost"/>
  <key value="user1" name="com.ibm.wmqfte.MqmdUser"/>
  <key value="414d51205745422e46544520202020c1a1a34b03720120"
    name="com.ibm.wmqfte.TransferId"/>
  <key value="user1" name="com.ibm.wmqfte.OriginatingUser"/>
</metadata>
</source>
<destination>
<agent qmgr="QM_JUPITER" name="AGENT_EUROPA"/>
<metadata>
  <key value="FIRST_JOB" name="com.ibm.wmqfte.JobName"/>
  <key value="AGENT_CALLISTO" name="com.ibm.wmqfte.SourceAgent"/>
  <key value="AGENT_EUROPA" name="com.ibm.wmqfte.DestinationAgent"/>
  <key value="user1" name="com.ibm.wmqfte.MqmdUser"/>
  <key value="serenity.example.com."
    name="com.ibm.wmqfte.OriginatingHost"/>
  <key value="user1" name="com.ibm.wmqfte.OriginatingUser"/>
  <key value="414d51205745422e46544520202020c1a1a34b03720120"
    name="com.ibm.wmqfte.TransferId"/>
</metadata>
</destination>
<stats retry-count="0" file-warnings="0" file-failures="0"
  bytes-transferred="259354303"/>
<result text="BFGRP0032I: The file transfer request has successfully completed."
  code="0"/>
<transfer-set>
  <file result-code="0" mode="text">
    <source-file name="/home/user1/output.zip">
      <attribute-values last-modified="2010-08-19T14:16:57.000Z"
        file-size="259354303" disposition="leave"
        checksum-value="98611a272a27d373f92d73a08cf0d4f4"
        checksum-method="MD5"/>
    </source-file>
    <destination-file name="/tmp/output.zip">
      <attribute-values last-modified="2010-08-26T12:00:00.000Z"
        file-size="259354303" exists-action="error"
        checksum-value="98611a272a27d373f92d73a08cf0d4f4"
        checksum-method="MD5"/>
    </destination-file>
  </file>
</transfer-set>
</transfer>
</transfers>

```

## JSON

The following example shows the format of a simple transfer query JSON response.

```

{
  "transfers" : {
    "transfer" : {
      "end-time" : "2010-08-26T12:00:00.260Z",
      "status" : "Success",
      "start-time" : "2010-08-26T11:55:00.076Z",
      "id" : "414d51205745422e46544520202020c1a1a34b03720120",
      "result" : {
        "code" : "0",
        "text" : "BFGRP0032I: The file transfer request has successfully completed."
      }
    }
  }
}

```

```

"destination" : {
  "metadata" : {
    "key" : [
      {
        "name" : "com.ibm.wmqfte.JobName",
        "value" : "FIRST_JOB"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.SourceAgent",
        "value" : "AGENT_CALLISTO"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.DestinationAgent",
        "value" : "AGENT_EUROPA"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.MqmdUser",
        "value" : "user1"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.OriginatingHost",
        "value" : "serenity.example.com."
      }
      ,
      {
        "name" : "com.ibm.wmqfte.OriginatingUser",
        "value" : "user1"
      }
      ,
      {
        "name" : "com.ibm.wmqfte.TransferId",
        "value" : "414d51205745422e46544520202020c1a1a34b03720120"
      }
    ]
  }
}
,
"agent" : {
  "name" : "AGENT_EUROPA",
  "qmgr" : "QM_JUPITER"
}
,
"stats" : {
  "bytes-transferred" : "259354303",
  "retry-count" : "0",
  "file-warnings" : "0",
  "file-failures" : "0"
}
,
"transfer-set" : {
  "file" : {
    "result-code" : "0",
    "mode" : "text",
    "source-file" : {
      "name" : "\\home\\user1\\output.zip",
      "attribute-values" : {
        "last-modified" : "2010-08-19T14:16:57.000Z",
        "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
        "checksum-method" : "MD5",
        "file-size" : "259354303",
        "disposition" : "leave"
      }
    }
  }
}
}

```



## Understanding the transfer query response

The names of the elements and attributes in the XML response format and the names of the objects in the JSON response format are the same. These elements, attributes, and objects are described in the following list:

### transfers

Group containing transfer information for all of the transfers that match the query.

### transfer

Group containing the information for a single transfer.

Attribute or object	Description
end-time	The time that the transfer finished in Coordinated Universal Time.
start-time	The time that the transfer started in Coordinated Universal Time.
status	The status of the transfer.
id	The unique hexadecimal ID of the transfer.

**source** Group containing information about the source of the transfer.

### destination

Group containing information about the destination of the transfer.

**agent** Specifies the name and queue manager of an agent. When used within the element or object **source** this element or object specifies the source agent information; when used within the element or object **destination** this element or object specifies the destination agent information.

Attribute or object	Description
name	The name of the agent.
qmgr	The queue manager that the agent connects to.

### metadata

Group containing transfer information in name-value pairs.

**key** Specifies a name-value pair.

Attribute or object	Description
name	The identifier of a piece of metadata.
value	The value of a piece of metadata.

**stats** Specifies information about the whole transfer.

Attribute or object	Description
retry-count	The number of times that the transfer went into recovery and was tried again by the agent.
file-warnings	The number of files in the transfer set that generated warnings while being transferred, but otherwise transferred successfully.
file-failures	The number of files in the transfer set that failed to transfer successfully.
bytes-transferred	The number of bytes transferred in this transfer.

**result** Specifies the return code and supplementary information of the transfer.

Attribute or object	Description
code	The return code of the transfer. For more information, see "Return codes for WebSphere MQ File Transfer Edition" on page 409.
text	The supplementary information of a transfer.

#### **transfer-set**

Group containing information about the files that were transferred.

**file** Group containing information about one file in the transfer.

Attribute or object	Description
result-code	The return code of the transfer of the individual file. For more information, see "Return codes for files in a transfer" on page 413.
mode	The transfer mode. Valid values are: <ul style="list-style-type: none"><li>• text</li><li>• binary</li></ul>

#### **source-file**

Specifies the name of the source file.

Attribute or object	Description
name	The name of the file on the source system.

#### **destination-file**

Specifies the name of the destination file.

Attribute or object	Description
name	The name of the file on the destination system.

#### **attribute-values**

Specifies additional information about the file being transferred. When used within the element or object **source-file** this element or object specifies information about the file on the source system; when used within the element or object **destination-file** this element or object specifies information about the file on the destination system.

Attribute or object	Description
file-size	The size of the file.
exists-action	Specifies what to do if the destination file already exists. Valid values are: <ul style="list-style-type: none"><li>• error</li><li>• overwrite</li></ul> <p>This attribute is valid only when the attribute-values element or object is used within the destination-file element or object.</p>

Attribute or object	Description
disposition	Specifies what to do with the source file after the transfer is complete. Valid values are: <ul style="list-style-type: none"> <li>• delete</li> <li>• leave</li> </ul> This attribute is valid only when the attribute-values element or object is used within the source-file element or object.
checksum-method	The method used to produce a checksum value of this file.
checksum-value	The checksum value of the file.
last-modified	The time when the file was last modified, in Coordinated Universal Time.

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related tasks:**

“Example: Viewing the status of a file transfer using an HTTP request” on page 305

You can view the status of your file transfer by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns information in XML format that describes the current status of the specified transfer. To view the status of file transfers by using the Web Gateway, you must have a database logger in your WebSphere MQ File Transfer Edition network.

“Example: Querying multiple file transfers using an HTTP request” on page 307

You can query the status of multiple file transfers by submitting a request through the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns information in either XML or JSON format that describes the status of the transfers that match the query.

**Related reference:**

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“File space query response formats” on page 961

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the `Accept:` header.

“File space information response format” on page 975

When you request information about the definition and attributes of a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in XML format or in JSON format. The XML response conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

*File space query response formats:*

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the `Accept:` header.

## XML

The following example shows the format of a simple file space query XML response.

```
<fileSpaces xsi:noNamespaceSchemaLocation="WebFileSpaceList.xsd">
  <fileSpace size="1" name="james">
    <file fileLink="/wmqfte/filespace/james/414d51205745422e46544520202020c1a1a34b03720120/file.zip"
      transferLink="/wmqfte/transfer/414d51205745422e46544520202020c1a1a34b03720120"
      transferID="414d51205745422e46544520202020c1a1a34b03720120"
      name="/tmp/ae55bc7">
      <attribute-values mode="text" time="2010-08-26T19:00:02.000Z"
        file-size="259354303"
        checksum-value="98611a272a27d373f92d73a08cf0d4f4"
        checksum-method="none"/>
    </file>
  </fileSpace>
</fileSpaces>
```

The XML response conforms to the schema `WebFileSpaceList.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

## JSON

The following example shows the format of a simple file space query JSON response.

```
{
  "fileSpaces" : {
    "fileSpace" : {
      "name" : "james",
      "size" : "1",
      "file" : {
        "transferLink" : "\\wmqfte\\transfer\\414d51205745422e46544520202020c1a1a34b03720120",
        "fileLink" : "\\wmqfte\\filespace\\1234\\414d51205745422e46544520202020c1a1a34b03720120\\file.zip",
        "name" : "\\tmp\\ae55bc7",
        "transferID" : "414d51205745422e46544520202020c1a1a34b03720120",
        "attribute-values" : {
          "checksum-value" : "98611a272a27d373f92d73a08cf0d4f4",
          "checksum-method" : "none",
          "time" : "2010-08-26T19:00:02.000Z",
          "file-size" : "259354303",
          "mode" : "text"
        }
      }
    }
  }
}
```

## Understanding the file space query response

The names of the elements and attributes in the XML response format and the names of the objects in the JSON response format are the same. These elements, attributes, and objects are described in the following list:

### filespaces

Group containing file space information.

### fileSpace

Group containing the information for a single file space.

Attribute or object	Description
size	The number of files in the file space returned by the query.
name	The name of the file space.

**file** Group containing the file information.

Attribute or object	Description
fileLink	Part of the URI used to download the file from the file space.  The full URI for downloading the file is <i>host-name/fileLink</i>
transferLink	Part of the URI used to view the transfer information of the transfer that put the file in the file space.  The full URI for viewing the transfer information is <i>host-name/transferLink</i>
transferID	The unique hexadecimal ID of the transfer that put the file in the file space.
name	The file path of the file on the system that hosts the file space.

### attribute-values

Specifies additional information about the file being transferred.

Attribute or object	Description
file-size	The size of the file.
mode	The mode of the transfer. Valid values are: <ul style="list-style-type: none"><li>• text</li><li>• binary</li></ul>
checksum-method	The method used to produce a checksum value of this file.
checksum-value	The checksum value of the file.
time	The time when the file was transferred to the file space, in Coordinated Universal Time.
integrity-check-result	The result of an integrity check on the file. Valid values are: <ul style="list-style-type: none"><li>• OK</li><li>• MISSING_FILESYSTEM</li><li>• MISSING_DATABASEENTRY</li></ul>

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related tasks:**

“Example: Listing all files in a file space” on page 314

You can list the contents of a file space by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the contents of a file space. You are authorized to list the contents of a file space if you are the owner of the file space or you have the security role `wmqfte-admin`.

“Example: Listing a specific subset of the files in a file space” on page 315

You can query the contents of a file space by submitting an HTTP request containing a query to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format describing only those files in the filespace that match the query.

**Related reference:**

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“Transfer query response formats” on page 954

When you request the status of a transfer or multiple transfers from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format.

“File space information response format” on page 975

When you request information about the definition and attributes of a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in XML format or in JSON format. The XML response conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

**HTTP response codes:**

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway.

The header of a response returned by the Web Gateway contains an HTTP response code. The HTTP header in the following example contains the HTTP response code 200 OK:

HTTP/1.1 200 OK  
 Server: WAS/6.0  
 Content-length: 0

The following table describes the possible values for the HTTP response code and an example of an associated WebSphere MQ File Transfer Edition error code that can be returned. For more information about the WebSphere MQ File Transfer Edition error codes, see Diagnostic messages.

Table 55. HTTP response codes

HTTP response code	Example WebSphere MQ File Transfer Edition error code	Example description
200 OK	None	A valid request has been handled correctly and optionally a response has been provided to the user.
202 Accepted	None	A valid request has been handled correctly but WebSphere MQ File Transfer Edition does not guarantee that the requested action has completed.  For example, a file upload transfer request has been handled and submitted to a WebSphere MQ File Transfer Edition agent but the transfer has not yet taken place.
400 Bad Request	BFGWI0001	The URI is not valid because it is missing a resource type.
403 Forbidden	BFGWI0056	There is no WebSphere MQ Message Descriptor (MQMD) user identifier defined for the user.
404 Not Found	BFGWI0015	The requested resource cannot be found.
405 Method Not Allowed	BFGWI0016	The requested resource does not support the HTTP verb that has been used in the request.  For example, a GET has been used against a resource that only allows POST or DELETE.
410 Resource Gone	BFGWI0031	The requested resource is no longer available. For example, the requested file has been deleted from the file space.
413 Request Entity Too Large	BFGWI0026	The request contains a file that is too large to be handled by the server.
415 Unsupported Media Type	BFGWI0017	A request has been received with a media type, specified by the Content-type HTTP header, that is not supported.
500 Internal Server Error	BFGWI0018	An internal error has been encountered when handling the request. An FFDC or ABEND file has been produced.

Table 55. HTTP response codes (continued)

HTTP response code	Example WebSphere MQ File Transfer Edition error code	Example description
502 Bad Gateway	BFGWI0019	The request cannot be completed because an error occurred outside WebSphere MQ File Transfer Edition. For example, a WebSphere MQ queue manager is not available.
503 Service Unavailable	BFGWI0020	The destination is temporarily unavailable. For example, a WebSphere MQ queue is full.
504 Gateway Timeout	BFGWI0021	An attempt to complete the request has timed out because of time limits imposed by WebSphere MQ File Transfer Edition, or because of time limits imposed by the HTTP client.

**Related concepts:**

“Troubleshooting the Web Gateway” on page 416

Use the following reference information and examples to help you diagnose errors returned from the Web Gateway.

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte.

“Content types for using the Web Gateway” on page 952

File transfer requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway must correspond to certain media types. Responses from the Web Gateway have a media type of application/xml or application/json.

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“Web Gateway administration API reference”

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

## Web Gateway administration API reference

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

This reference information describes the API for administering Web Gateway objects such as file spaces. For information on the API for non-administrative tasks, see “Web Gateway API reference” on page 940.

## Resource types

The following WebSphere MQ File Transfer Edition object types are supported by this specification:

### Filespace

A logical area containing files that have been sent to the user or group associated with that file space.

**User** A set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID. These mappings control the MQMD user ID that is used for a file transfer request.

## HTTP verbs

The HTTP verbs in the following table are supported by this specification.

HTTP verb	WebSphere MQ File Transfer Edition operations
POST	<ul style="list-style-type: none"><li>• Create an instance of a file space.</li><li>• Modify the configuration of an existing file space.</li><li>• Create a set of mappings between web user ID and MQMD user ID.</li><li>• Modify or add to the set of mappings between web user ID and MQMD user ID.</li></ul>
GET	<ul style="list-style-type: none"><li>• View the current configuration of a file space. This configuration includes the file space name, the maximum size of the file space and the list of people who are authorized to write to the file space.</li><li>• List all the file spaces that currently exist.</li><li>• View the current set of mappings between web user ID and MQMD user ID.</li></ul>
DELETE	<ul style="list-style-type: none"><li>• Delete an instance of a file space.</li><li>• Delete the set of mappings, or a subset of the mappings, between web user ID and MQMD user ID.</li></ul>

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“HTTP headers for administering the Web Gateway”

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term `/admin`.

“Content types for administering the Web Gateway” on page 971

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of `application/xml`. Responses from the Web Gateway also have a media type of `application/xml`.

“HTTP response codes from the Web Gateway administration API” on page 972

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway administration API.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“File space administration logging format” on page 982

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

**HTTP headers for administering the Web Gateway:**

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

The HTTP convention is to preface custom headers with x- followed by a product-specific identifier. WebSphere MQ File Transfer Edition uses the product identifier fte-. For details of the headers that are supported by the Web Gateway API, see “HTTP headers and HTML form fields for using the Web Gateway” on page 941. There are no additional headers defined for administration purposes.

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term /admin.

“Content types for administering the Web Gateway” on page 971

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of application/xml. Responses from the Web Gateway also have a media type of application/xml.

“HTTP response codes from the Web Gateway administration API” on page 972

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway administration API.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema FileSpaceInfo.xsd, which is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“File space administration logging format” on page 982

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

“Web Gateway API reference” on page 940

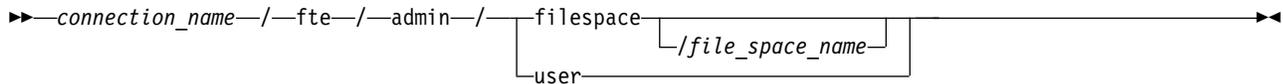
The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

## Uniform Resource Identifier syntax for administering the Web Gateway:

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term /admin.

WebSphere MQ File Transfer Edition resources are distinguished from each other by their types. A resource is addressed by its resource type and an identifying token.

### WebSphere MQ File Transfer Edition Administration Uniform Resource Identifier syntax diagram



### Parameters

#### *connection\_name*

Required. The host name and, optionally, the port of the server hosting the Web Gateway. Not case-sensitive.

#### **fte**

Required. Indicates that the URI is addressed to the Web Gateway. Case-sensitive.

#### **admin**

Required. Indicates that you are using the administrative functions of the Web Gateway. Case-sensitive.

#### **file\_space**

Indicates that you are addressing a file space resource. For more information about file spaces, see “File spaces” on page 334. Case-sensitive.

One of the parameters **file\_space** or **user** is required.

#### *file\_space\_name*

The name of the file space you are addressing. This is the name of the user associated with the file space. The value of *file\_space\_name* must be 255 characters or fewer in length. Case-sensitive.

Only applicable if you specify **file\_space**. Optional if you use the HTTP verb GET, required if you use POST or DELETE. If you use the HTTP verb GET and do not provide a value for *file\_space\_name*, the Web Gateway returns a list of all file spaces.

#### **user**

Indicates that you are addressing the set of mappings between web user ID and MQMD user ID. For more information about the format of this set of mappings, see “XML format for mapping web user ID to an MQMD user ID” on page 980. Case-sensitive.

One of the parameters **file\_space** or **user** is required.

### Examples

For example, to address a file space resource that is owned by the user sarah, use the following URI:

```
http://example.org/wmqfte/admin/file_space/sarah/
```

In this example:

- `http://example.org` is the host system.
- `/wmqfte` indicates that the URI is a WebSphere MQ File Transfer Edition URI.

- /admin indicates that you are accessing administrative functions of the Web Gateway.
- /fileSpace indicates that the resource being addressed is a file space resource.
- /sarah/ is the identifying token. This token is the name of the file space, which is also the name of the user who owns the file space.

For example, to address the set of mappings between user ID and MQMD ID, use the following URI:

```
http://example.org/wmqfte/admin/user
```

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“Content types for administering the Web Gateway” on page 971

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of `application/xml`. Responses from the Web Gateway also have a media type of `application/xml`.

“HTTP response codes from the Web Gateway administration API” on page 972

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway administration API.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“File space administration logging format” on page 982

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

## Content types for administering the Web Gateway:

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of `application/xml`. Responses from the Web Gateway also have a media type of `application/xml`.

### Request

Content transferred to WebSphere MQ File Transfer Edition using HTTP, as part of a request to the administration API, must be in one of the formats in the following table.

Media-type	Valid WebSphere MQ File Transfer Edition resources	Allowed verbs
<code>application/xml</code>	Filespace	<ul style="list-style-type: none"><li>• POST (create an instance of a file space)</li><li>• GET (view the current configuration of a file space)</li><li>• DELETE (delete an instance of a file space)</li></ul>

### Response body

If an HTTP request is successful, the Web Gateway returns a response with a media type of `application/xml`. For details of the XML schema for this response, see “File space information response format” on page 975.

#### Related concepts:

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295  
Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

#### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term `/admin`.

“HTTP response codes from the Web Gateway administration API” on page 972

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer

Edition Web Gateway administration API.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema FileSpaceInfo.xsd, which is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“File space administration logging format” on page 982

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

### HTTP response codes from the Web Gateway administration API:

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway administration API.

The header of a response returned by the Web Gateway contains an HTTP response code. The HTTP header in the following example contains the HTTP response code 200 OK:

```
HTTP/1.1 200 OK
Server: WAS/6.0
Content-length: 0
```

The following table describes the possible values for the HTTP response code and some of the additional WebSphere MQ File Transfer Edition error codes that can be returned by the administration API:

Table 56. HTTP response codes

HTTP response code	Example WebSphere MQ File Transfer Edition error codes	Example description
200 OK	None	A valid request has been handled correctly and optionally a response has been provided to the user.
202 Accepted	None	A valid request has been handled correctly but WebSphere MQ File Transfer Edition does not guarantee that the requested action has completed.
400 Bad Request	BFGWI0501	The URI is not valid because it is missing an administration resource type.
404 Not Found	BFGWI0515	The requested resource cannot be found. For example, the file space does not exist.

Table 56. HTTP response codes (continued)

HTTP response code	Example WebSphere MQ File Transfer Edition error codes	Example description
405 Method Not Allowed	BFGWI0516	The requested resource does not support the HTTP verb that has been used in the request.  For example, a HEAD method is used on <code>/admin/filespace/<i>file_space_name</i>/</code> and the only valid methods are POST, GET or DELETE.
415 Unsupported Media Type	BFGWI0517	An administration request has been received with a media type, specified by the Content-type HTTP header, that is not supported. For more information on the media types supported by the administration API, see the topic "Content types for administering the Web Gateway" on page 971
500 Internal Server Error	BFGWI0018	An internal error has been encountered when handling the request. An FFDC or ABEND file has been produced.
502 Bad Gateway	BFGWI0019	The request cannot be completed because an error occurred outside WebSphere MQ File Transfer Edition. For example, a WebSphere MQ queue manager is not available.
503 Service Unavailable	BFGWI0020	The destination is temporarily unavailable. For example, a WebSphere MQ queue is full.
504 Gateway Timeout	BFGWI0021	An attempt to complete the request has timed out because of time limits imposed by WebSphere MQ File Transfer Edition, or because of time limits imposed by the HTTP client.

For information about additional WebSphere MQ File Transfer Edition error response codes that can be returned by the Web Gateway, see the topic Diagnostic messages.

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term `/admin`.

“Content types for administering the Web Gateway” on page 971

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of `application/xml`. Responses from the Web Gateway also have a media type of `application/xml`.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“File space administration logging format” on page 982

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

**Administration response and request formats:**

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON). You can submit requests to create, modify, and delete file spaces, or map user names to MQMD user IDs to the Web Gateway only in XML format.

You can specify the format of the response from the Web Gateway by including the `Accept: return-type` header in the request or by including the query `accept=return-type` in the URI. You can use a web application to parse the content of the XML or JSON response and display it in an appropriate format to a web user.

The default format is XML. If you specify the format using both the `Accept:` header and the query `accept=` in the URI, the Web Gateway returns a response in the format specified by the query in the URI.

**Related reference:**

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“File space information response format”

When you request information about the definition and attributes of a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in XML format or in JSON format. The XML response conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“HTTP headers and HTML form fields for using the Web Gateway” on page 941

You can customize a request to create or retrieve a resource by using HTTP headers or HTML form fields. Each parameter maps to a property or function of WebSphere MQ File Transfer Edition.

“Uniform Resource Identifier syntax for using the Web Gateway” on page 945

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`.

*File space information response format:*

When you request information about the definition and attributes of a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in XML format or in JSON format. The XML response conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

## XML

The following example shows the format of a simple file space information XML response.

```
<filespaces xsi:noNamespaceSchemaLocation="FileSpaceInfo.xsd">
  <filespace transfers="1" location="/tmp/filespace/daniel" name="daniel">
    <quota bytes="1048576"/>
    <writers>
      <authorized>
        <agent-user>daniel</agent-user>
        <agent-user>SYS.ADMIN.*</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>dave</agent-user>
      </unauthorized>
    </writers>
  </filespace>
</filespaces>
```

## JSON

The following example shows the format of a simple file space information JSON response.

```
{
  "filesystems":{
    "filesystem":{
      "transfers":"1",
      "location":"/tmp/filespace/daniel",
      "name":"daniel",
      "writers":{
        "authorized":{
          "agent-user":"daniel",
          "agent-user":"SYS.ADMIN.*"
        },
        "unauthorized":{
          "agent-user":"dave"
        }
      },
      "quota":{
        "bytes":"1048576"
      }
    }
  }
}
```

### Understanding the file space information response

The elements and attributes of the file space information response are described in the following list:

#### **filesystems**

Group containing one or more <filesystem> elements.

#### **filesystem**

Group containing the information for the file space.

Attribute	Description
transfers	The number of transfers that are in progress to the file space.
location	The location in the file system of the file space.
name	The name of the file space.
integrity-check-result	The result of an integrity check on the file space. Valid values are: <ul style="list-style-type: none"><li>• OK</li><li>• MISSING_FILESYSTEM</li><li>• MISSING_DATABASEENTRY</li></ul>

**quota** Element describing the amount of file system space that the file space can use.

Attribute	Description
bytes	The maximum number of bytes that the file space can use.

#### **writers**

Group containing information about which users are authorized and not authorized to access the file space.

#### **authorized**

Group containing a list of users that are authorized to access the file space.

**unauthorized**

Group containing a list of users that are not authorized to access the file space. If a user name or a user wildcard match appears in both the authorized and the unauthorized lists, they are not authorized to access the file space.

**agent-user**

Element containing the name of the user that is authorized or unauthorized. This user name can include wildcard characters, to match multiple users.

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Using the WebSphere MQ File Transfer Edition Web Gateway” on page 301

You can upload files, query the files in a file space, view the status of file transfers, and delete files from a file space by creating HTTP requests that you submit to the Web Gateway.

“Example HTTP flows” on page 303

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample requests and the corresponding HTTP responses from the Web Gateway.

**Related tasks:**

“Example: Listing all file spaces” on page 326

You can list all file spaces by submitting an HTTP request to the WebSphere MQ File Transfer Edition Web Gateway. The Web Gateway returns a response in XML or JSON format that lists the names of the file spaces, the quota of each file space, and the users who are authorized and not authorized to write to each file space.

**Related reference:**

“Response formats: XML and JSON” on page 953

The WebSphere MQ File Transfer Edition Web Gateway returns responses to queries in one of two formats: XML or JavaScript Object Notation (JSON).

“Transfer query response formats” on page 954

When you request the status of a transfer or multiple transfers from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format.

“File space query response formats” on page 961

When you request a list of some or all of the files in a file space from the WebSphere MQ File Transfer Edition Web Gateway the response is returned in either JSON or XML format, depending on what you have specified using the `Accept:` header.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

*File space create or alter request format:*

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

The following example shows the format of an XML request to create a file space.

```
<filespaces>
  <filepace>
    <quota bytes="1048576"/>
    <writers>
      <authorized>
        <agent-user>SYS.ADMIN.*</agent-user>
      </authorized>
      <unauthorized>
        <agent-user>dave</agent-user>
      </unauthorized>
    </writers>
  </filepace>
</filespaces>
```

The following example shows the format of an XML request to modify the configuration of an existing file space. You must use the `action=add`, `action=remove` and `action=overwrite` attributes to change the lists of authorized and unauthorized writers.

```
<filespaces>
  <filepace>
    <quota bytes="2097152"/>
    <writers>
      <authorized action="add">
        <agent-user>emily</agent-user>
      </authorized>
      <unauthorized action="remove">
        <agent-user>dave</agent-user>
      </unauthorized>
    </writers>
  </filepace>
</filespaces>
```

### Understanding the file space creation or modification request

The elements and attributes of the request are described in the following list:

#### **filespaces**

Element containing a single `<filepace>` element.

#### **filepace**

Group element containing the information for a file space.

**quota** Element describing the amount of file system space that the file space can use. If a user submits a file transfer request that would cause the file space to exceed its quota, the transfer fails and an error is produced.

Attribute	Description
bytes	The maximum number of bytes that the file space can use.

#### **writers**

Group containing information about which users are authorized and not authorized to access the file space.

#### **authorized**

Group containing a list of users that are authorized to access the file space.

Attribute	Description
action	The action to take on the agent-user names specified in the child elements. Valid options are: <ul style="list-style-type: none"> <li>• add - add new agent-user names to the authorized list</li> <li>• remove - remove agent-user names from the authorized list</li> <li>• overwrite - replace all of the existing authorized list with the list provided.</li> </ul>

### unauthorized

Group containing a list of users that are not authorized to access the file space. If a user is included in both the authorized and unauthorized lists, they are not authorized to access the file space.

Attribute	Description
action	The action to take on the agent-user names specified in the child elements. Valid options are: <ul style="list-style-type: none"> <li>• add - add new agent-user names to the unauthorized list</li> <li>• remove - remove agent-user names from the unauthorized list</li> <li>• overwrite - replace all of the existing unauthorized list with the list provided.</li> </ul>

### agent-user

Element containing the name of the user that is authorized or unauthorized. This user name can include wildcard characters, to match multiple users.

#### Related concepts:

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

#### Related tasks:

“Example: Creating a file space” on page 323

Before a file can be transferred to a user file space, you must create a file space for that user. You can create a file space by using the WebSphere MQ File Transfer Edition Web Gateway.

#### Related reference:

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term /admin.

“Content types for administering the Web Gateway” on page 971

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of application/xml. Responses from the Web Gateway also have a media type of application/xml.

“HTTP response codes from the Web Gateway administration API” on page 972

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway administration API.

“XML format for mapping web user ID to an MQMD user ID”

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“File space administration logging format” on page 982

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

*XML format for mapping web user ID to an MQMD user ID:*

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

The following example shows the format of an XML request to create a set of mappings. To modify an existing set of mappings, use the same format.

```
<users>
  <user>
    <userID>mike</userID>
    <mqmdUserID>mqmike</mqmdUserID>
  </user>
  <user>
    <userID>lisa</userID>
    <mqmdUserID>mq1isa</mqmdUserID>
  </user>
</users>
```

If you attempt to start a file upload with a web user ID that is not mapped to an MQMD user ID, the value of the defaultMQMDUserID initialization parameter is used. The value of this parameter is set when you deploy the Web Gateway application to an application server environment. For more information, see “Deploying the Web Gateway with WebSphere Application Server Version 7.0” on page 169 and “Preparing to deploy the Web Gateway with WebSphere Application Server Community Edition” on page 152.

## Understanding the request to create or change user ID mappings

The elements and attributes of the request are described in the following list:

**users** Group element containing <user> elements.

**user** Element containing the information for a user of the Web Gateway.

**userID**

Element containing the web user ID for the user. This is the user ID that is defined in the application server environment that hosts the Web Gateway.

**mqmdUserID**

Element containing the name of the MQMD user ID (the WebSphere MQ user ID that is supplied in the message descriptor) to use in file upload transfers initiated by the user.

The mqmdUserID attribute has a maximum length of 12 characters.

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

**Related tasks:**

“Example: Mapping web user IDs to MQMD user IDs” on page 332

When you submit file uploads to the WebSphere MQ File Transfer Edition Web Gateway, the Web Gateway determines which WebSphere MQ Message Descriptor (MQMD) user ID to use for the transfer. You can define a set of mappings between web user ID and MQMD user ID by using the Web Gateway.

**Related reference:**

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is /wmqfte. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term /admin.

“Content types for administering the Web Gateway” on page 971

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of application/xml. Responses from the Web Gateway also have a media type of application/xml.

“HTTP response codes from the Web Gateway administration API” on page 972

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway administration API.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema FileSpaceInfo.xsd, which is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File space administration logging format”

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

### **File space administration logging format:**

When a file space is created, altered, or deleted the changes to the file space are logged in the event log of the application server hosting the Web Gateway. This allows an administrator to view the changes that have been made to file spaces.

### **Log format**

FTELOG: *operation - status*. Requested by *user\_ID* at *host\_name*.  
Information: *information*

### **operation**

The operation that was requested to be performed on the file space. The values of operation are:

- create file space
- modify file space
- delete file space

**status** Whether the requested operation was successful. The values of status are:

- successful
- failed, in this case a reason for the failure is also given

### **user\_ID**

The user name of the user that requested the file space operation.

### **host\_name**

The host name of the system that the user made the request from.

### **information**

Information about the request. For example:

File space: fred, quota: 123456 bytes, added authorized writers: [tom dick harry],  
added unauthorized writers: [tarzan jane], removed unauthorized writers: [bob]

These log messages are written to the application server's event log. These files can be found in the following directories:

- For WebSphere Application Server version 7.0, *WAS7\_install\_location/profiles/profile\_name/logs/server\_name*
- For WebSphere Application Server Community Edition, *WASCE\_install\_location/var/log*

**Related concepts:**

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Administering the WebSphere MQ File Transfer Edition Web Gateway” on page 320

You can create and delete file spaces and control the users that have access to individual file spaces.

“Example HTTP flows for administration” on page 322

You can construct HTTP requests and submit them to the WebSphere MQ File Transfer Edition Web Gateway. These examples show you sample administration requests and the corresponding HTTP responses from the Web Gateway.

**Related reference:**

“Web Gateway administration API reference” on page 966

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for administration of file transfer artifacts.

“HTTP headers for administering the Web Gateway” on page 967

You can customize a request to create or retrieve a resource using HTTP headers. There are no headers defined for use with the administration API for the WebSphere MQ File Transfer Edition Web Gateway.

“Uniform Resource Identifier syntax for administering the Web Gateway” on page 969

A WebSphere MQ File Transfer Edition Uniform Resource Identifier (URI) is distinguished from other WebSphere MQ URIs by the context root specified at deploy time. The recommended context root is `/wmqfte`. The URI used for administration tasks is distinguished from existing WebSphere MQ File Transfer Edition URIs by the term `/admin`.

“Content types for administering the Web Gateway” on page 971

HTTP requests that you submit to the WebSphere MQ File Transfer Edition Web Gateway administration API must have a media type of `application/xml`. Responses from the Web Gateway also have a media type of `application/xml`.

“HTTP response codes from the Web Gateway administration API” on page 972

Status codes are returned in HTTP responses to requests made to the WebSphere MQ File Transfer Edition Web Gateway administration API.

“File space create or alter request format” on page 977

You can request to create or alter a file space from the WebSphere MQ File Transfer Edition Web Gateway by including content in XML format in the HTTP request. The XML format conforms to the schema `FileSpaceInfo.xsd`, which is located in the `install_directory/samples/schema` directory of your WMQFTE installation.

“XML format for mapping web user ID to an MQMD user ID” on page 980

You can create a set of mappings between web user ID and WebSphere MQ Message Descriptor (MQMD) user ID by submitting a request to the WebSphere MQ File Transfer Edition Web Gateway. The HTTP request must include content in the following XML format.

“Web Gateway API reference” on page 940

The WebSphere MQ File Transfer Edition Web Gateway defines a RESTful HTTP application programming interface (API) for creating transfers, downloading files from file spaces and viewing the status of submitted transfers using HTTP requests and responses.

**fteCreateWebAgent (create a WebSphere MQ File Transfer Edition web agent)**

The **fteCreateWebAgent** command creates an agent and its associated configuration for use with the Web Gateway. This command is provided with WebSphere MQ File Transfer Edition Server.

## Purpose

Use the **fteCreateWebAgent** command to create a web agent. This command provides you with the MQSC commands that you must run on the queue manager that is used by the agent to create the following agent queues:

- SYSTEM.FTE.AUTHADM1.*agent\_name*
- SYSTEM.FTE.AUTHAGT1.*agent\_name*
- SYSTEM.FTE.AUTHMON1.*agent\_name*
- SYSTEM.FTE.AUTHOPS1.*agent\_name*
- SYSTEM.FTE.AUTHSCH1.*agent\_name*
- SYSTEM.FTE.AUTHTRN1.*agent\_name*
- SYSTEM.FTE.COMMAND.*agent\_name*
- SYSTEM.FTE.DATA.*agent\_name*
- SYSTEM.FTE.EVENT.*agent\_name*
- SYSTEM.FTE.REPLY.*agent\_name*
- SYSTEM.FTE.STATE.*agent\_name*

Because the agent is for use with the Web Gateway, two queues are created in addition to the above list:

- SYSTEM.FTE.WEB.RESP.*agent\_name*
- SYSTEM.FTE.WEB.gateways.*gateway\_name*

These queues are internal system queues that you must not modify, delete, or read messages from unless you are deleting the agent. The MQSC commands to run are also supplied in a file in the following location: *configuration\_directory\coordination\_qmgr\_name\agents\agent\_name\agent\_name\_create.mqsc*.

If you later want to delete the agent, this command also provides you with the MQSC commands you must run to clear then delete the queues belonging to the agent. The MQSC commands are in a file in the following location: *configuration\_directory\coordination\_qmgr\_name\agents\agent\_name\agent\_name\_delete.mqsc*.

WebSphere MQ File Transfer Edition provides advanced agent properties that help you configure agents. These properties are described in Properties files for WebSphere MQ File Transfer Edition.

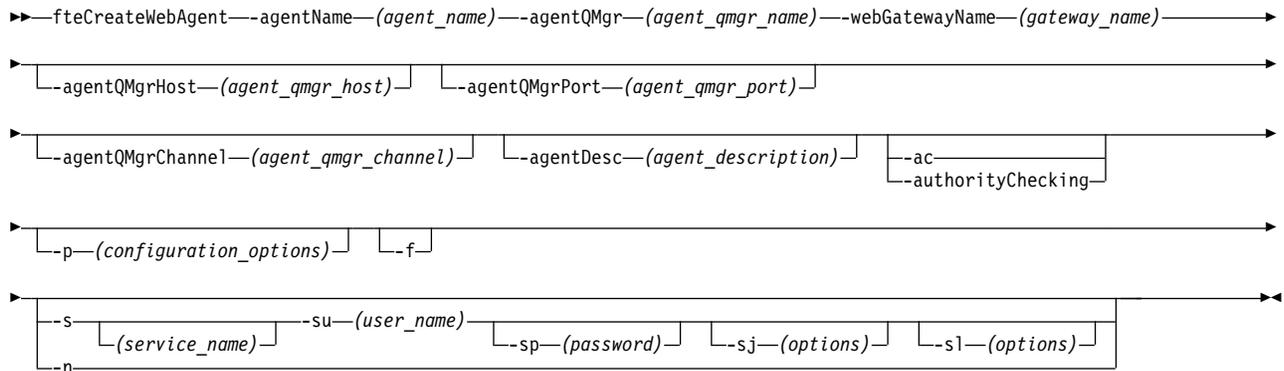
**Note:** The user that your web agent runs as must be the same as, or in the same group as, the user that your application server runs as.

## Limitations of the web agent

- A web agent can be only the source agent for transfers initiated by a Web Gateway. If you attempt to perform a transfer with a web agent as the source by another method, the transfer fails with return code 68 (TRANSFER\_NOT\_SUPPORTED).
- A web agent can only be the destination agent for a transfer when the destination is specified as a file space. If you attempt to perform a transfer with a web agent as the destination agent but a different destination type the transfer will fail with the following error message: BFGCH0103: The transfer request specifies Web Gateway agent '*web\_agent\_name*' as the destination agent. Web Gateway agents can be the destination only for a transfer to a file space.
- A web agent cannot monitor a resource. If you attempt to create a resource monitor for a web agent, the command fails with return code 113 (MONITOR\_NOT\_SUPPORTED).

## Syntax

## fteCreateWebAgent



## Parameters

- agentName** (*agent\_name*)  
Required. The name of the agent to create. The agent name must be unique to its coordination queue manager.  
  
For more information about naming agents, see Object naming conventions .
- agentQMGr** (*agent\_qmgr\_name*)  
Required. The name of the agent queue manager.
- webGatewayName** (*gateway\_name*)  
Required. The name of the Web Gateway that the agent is a component of.  
  
For more information about naming Web Gateways, see Object naming conventions .
- agentQMGrHost** (*agent\_qmgr\_host*)  
Optional. The host name or IP address of the agent queue manager. If you do not specify this parameter, a bindings mode connection is assumed.
- agentQMGrPort** (*agent\_qmgr\_port*)  
Optional. The port number used for client connections to the agent queue manager. This parameter is used only if you have also specified the **agentQMGrHost** parameter. If you do not specify the **agentQMGrPort** parameter, a default port of 1414 is used.
- agentQMGrChannel** (*agent\_qmgr\_channel*)  
Optional. This parameter is used only if you have also specified the **agentQMGrHost** parameter. If you do not specify the **agentQMGrChannel** parameter, a default channel of SYSTEM.DEF.SVRCONN is used.
- agentDesc** (*agent\_description*)  
Optional. A description of the agent, which is displayed in WebSphere MQ Explorer.
- ac** or **-authorityChecking**  
Optional. This parameter enables authority checking. If you specify this parameter, the agent checks that users who are submitting requests are authorized to perform the requested action.
- p** (*configuration\_options*)  
Optional. The name of the set of configuration options that is used to create the agent. By convention, this is the name of a coordination queue manager. If you do not specify this parameter, the default set of configuration options is used.
- f** Optional. Forces the command to overwrite the existing configuration.

**-s** (*service\_name*)

Optional (Windows only). Indicates that the agent is to run as a Windows service. If you do not specify *service\_name*, the service is named `fteAgent<AGENT><QMGR>`, where *AGENT* is the agent name and *QMGR* is your agent queue manager name.

The display name for the service, which is shown in the Windows **Services** window in the **Name** column, is always **IBM WMQFTE agent <AGENT>@<QMGR>**.

**-su** (*user\_name*)

Optional (Windows only). When the agent is to run as a Windows service, this parameter specifies the name of the account under which the service should run. To run the agent using a Windows domain user account specify the value in the form `DomainName\UserName`. To run the service using an account from the local built-in domain specify the value in the form `UserName`.

The Windows user account that you specify using the **-su** parameter must have the **Log on as a service** right. For information about how to grant this right, see “Guidance for running an agent or database logger as a Windows service” on page 402.

Required when **-s** specified. Equivalent to **-serviceUser**.

**-sp** (*password*)

Optional (Windows only). Password for the user account set by **-su** or **-serviceUser** parameter.

This parameter is only valid when **-s** is specified. Equivalent to **-servicePassword**. If you do not specify this parameter when you specify the **-s** parameter, a warning message is produced. This message warns you that you must set the password using the Windows Services tool before the service will start successfully.

**-sj** (*options*)

Optional (Windows only). When the agent is started as a Windows service, defines a list of options in the form of **-D** or **-X** that will be passed to the JVM. The options are separated using a number sign (#) or semicolon (;) character. If you need to embed any # or ; characters, put them inside single quotation marks.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceJVMOptions**.

**-sl** (*options*)

Optional (Windows only). Sets the Windows service log level. Valid options are: `error`, `info`, `warn`, `debug`. The default is `info`. This option can be useful if you are having problems with the Windows service. Setting it to `debug` gives more detailed information in the service log file.

This parameter is only valid when **-s** is specified. Equivalent to **-serviceLogLevel**.

**-n** Optional (Windows only). Indicates that the agent is to be run as a normal process. This is mutually exclusive with the **-s** option. If neither the **-s** nor the **-n** option is specified, then the agent is configured as a normal Windows process.

Equivalent to **-normal**.

**-?** or **-h**

Optional. Displays the command syntax.

## Example

In this example, the agent `WEBAGENT1` is created with an agent queue manager `QM_NEPTUNE` and the Web Gateway `GATEWAY_ONE`. The agent uses the default coordination queue manager:

```
fteCreateWebAgent -agentName WEBAGENT1 -webGatewayName GATEWAY_ONE -agentQMGr QM_NEPTUNE
                  -agentQMGrHost myhost.ibm.com -agentQMGrPort 1415 -agentQMGrChannel CHANNEL1
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

**Related concepts:**

“The WebSphere MQ File Transfer Edition Web Gateway” on page 22

The Web Gateway provides a RESTful API, which you can use to interact with your WebSphere MQ File Transfer Edition network.

“Scenarios for the Web Gateway” on page 293

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition agents and retrieve the status of transfers using an HTTP client.

“How the Web Gateway fits into your WebSphere MQ File Transfer Edition topology” on page 295

Use the WebSphere MQ File Transfer Edition Web Gateway to transfer files to WebSphere MQ File Transfer Edition (WMQFTE) agents and retrieve the status of transfers using an HTTP client.

“Guidance for running an agent or database logger as a Windows service” on page 402

You can run a WebSphere MQ File Transfer Edition agent, and the stand-alone database logger, as Windows services. If you are having a problem with these Windows services, you can use the service log files and the information in this topic to diagnose the issue.

**Related tasks:**

“Preparing to deploy the Web Gateway” on page 152

Before deploying the WebSphere MQ File Transfer Edition Web Gateway, you must set up your application server environment and dependent modules. This section describes the setup tasks for WebSphere MQ and two different application servers.

“Deploying the WebSphere MQ File Transfer Edition Web Gateway” on page 168

The WebSphere MQ File Transfer Edition Web Gateway must be deployed to an application server that is compatible with Java Platform, Enterprise Edition 5. The deployment process for different application servers varies. This section outlines the deployment process for two application servers.

“Starting an agent as a Windows service” on page 191

In Version 7.0.3 or later of WebSphere MQ File Transfer Edition, you can start an agent as a Windows service. When you log off Windows, your agent continues running and can receive file transfers.

**Related reference:**

“Web agent fails to start” on page 428

If you receive an error from the **fteStartAgent** command, and you are attempting to start a web agent, check that the `SYSTEM.FTE.WEB.gateway_name` queue exists.

## Database tables used by the Web Gateway

The WebSphere MQ File Transfer Edition Web Gateway uses the following database tables to configure and secure user file spaces.

- **FILE\_SPACE**
- **FILE\_SPACE\_ENTRY**
- **PERMISSIONS**
- **USER\_MQMD\_MAPPING**
- **WEBGATEWAY\_CONFIG**

Do not delete or modify these tables or any of the data contained in them.

The Web Gateway also uses the audit information in the database logger tables to provide the user with transfer information. For more information, see “Database logger tables” on page 753.

The database tables used by the Web Gateway can be located in the same database as the tables used by the database logger, as long as the two sets of tables have different schema names.

## Related tasks:

“Setting up a database for use with file spaces” on page 150

Before you can use file spaces you must set up database tables for the Web Gateway to store file space information in. You can create these tables in your existing log database, or create a new database to contain the tables.

## Related reference:

“Database logger tables” on page 753

When you have installed and configured the database logger, the following database tables are created:

# Using Apache Ant with WebSphere MQ File Transfer Edition

## fteAnt (run Ant tasks in a WebSphere MQ File Transfer Edition environment)

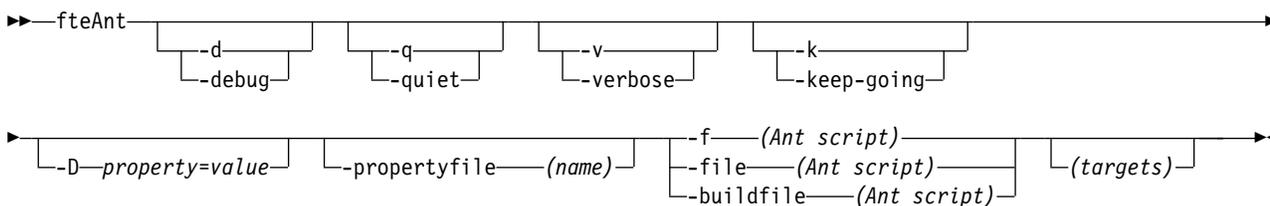
The **fteAnt** command runs Ant scripts in an environment that has WebSphere MQ File Transfer Edition Ant tasks available.

## Purpose

Use the **fteAnt** command to run an Ant script in an environment with WebSphere MQ File Transfer Edition. Unlike the standard **ant** command, **fteAnt** requires that you define a script file.

## Syntax

### fteAnt



## Parameters

### -debug or -d

Optional. Generate debugging output.

### -quiet or -q

Optional. Generate minimal output.

### -verbose or -v

Optional. Generate verbose output.

### -keep-going or -k

Optional. Execute all targets that do not depend on failed targets.

### -D *property=value*

Optional. Use *value* for a given *property*. Properties set with **-D** take precedence over those set in a properties file.

The **com.ibm.wmqfte.propertyset** property is available only if you have enabled the new function included with Version 7.0.4.1. Use the property **com.ibm.wmqfte.propertyset** to specify the set of configuration options used for Ant tasks. Use the name of a non-default coordination queue manager as the value for this property. Ant tasks then use the set of configuration options associated with this non-default coordination queue manager. If you do not specify this property, the default set of configuration options based on the default coordination queue manager is used. If you specify the **cmdqm** attribute for an Ant task, this attribute takes precedence over the set of configuration options

specified for the **fteAnt** command. This behavior applies regardless of whether you are using the default set of configuration options or specifying a set with the **com.ibm.wmqfte.propertyset** property.

**-propertyfile** (*name*)

Optional. Load all properties from a file with **-D** properties taking precedence.

**-f** (*Ant script*), **-file** (*Ant script*), or **-buildfile** (*Ant script*)

Required. Specifies the name of the Ant script to run.

*targets*

Optional. The name of one or more targets to run from the Ant script. If you do not specify a value for this parameter, the default target for the script is run.

**-version**

Optional. Displays the WebSphere MQ File Transfer Edition command and Ant versions.

**-?** or **-h**

Optional. Displays command syntax.

## Example

In this example, the target **copy** in Ant script `fte_script.xml` is run and the command writes debugging output to standard out.

```
fteAnt -d -f fte_script.xml copy
```

## Return codes

0 Command completed successfully.

1 Command ended unsuccessfully.

Other status return codes can also be specified from Ant scripts, for example by using the Ant fail task.

### Related concepts:

“Getting started using Ant scripts with WebSphere MQ File Transfer Edition” on page 352

Using Ant scripts with WebSphere MQ File Transfer Edition allows you to coordinate complex file transfer operations from an interpreted scripting language.

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition”

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

“Sample Ant tasks” on page 354

There are a number of sample Ant scripts provided with your installation of WebSphere MQ File Transfer Edition. These samples are located in the directory `install_dir/samples/fteant`. Each sample script contains an `init` target, edit the properties set in the `init` target to run these scripts with your configuration.

## Ant tasks provided by WebSphere MQ File Transfer Edition

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### Tasks

- “fte:awaitoutcome” on page 991
- fte:call

- fte:cancel
- fte:filecopy
- fte:filemove
- fte:ignoreoutcome
- fte:ping
- fte:uuid

## Nested parameters

The following nested parameters describe nested sets of elements, which are common across several of the supplied Ant tasks:

- fte:filespec
- fte:metadata
- Parameters for program invocation

### Related concepts:

“Getting started using Ant scripts with WebSphere MQ File Transfer Edition” on page 352

Using Ant scripts with WebSphere MQ File Transfer Edition allows you to coordinate complex file transfer operations from an interpreted scripting language.

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“**fteAnt** (run Ant tasks in a WebSphere MQ File Transfer Edition environment)” on page 468

The **fteAnt** command runs Ant scripts in an environment that has WebSphere MQ File Transfer Edition Ant tasks available.

“Sample Ant tasks” on page 354

There are a number of sample Ant scripts provided with your installation of WebSphere MQ File Transfer Edition. These samples are located in the directory *install\_dir/samples/fteant*. Each sample script contains an *init* target, edit the properties set in the *init* target to run these scripts with your configuration.

“fte:awaitoutcome” on page 991

Waits for a **fte:filecopy**, **fte:filemove**, or **fte:call** operation to complete.

“fte:call” on page 992

You can use the **fte:call** task to remotely call scripts and programs.

“fte:cancel” on page 994

Cancels a WebSphere MQ File Transfer Edition managed transfer or managed call. A managed transfer might have been created using the **fte:filecopy** or **fte:filemove** tasks. A managed call might have been created using the **fte:call** task.

“fte:filecopy” on page 995

The **fte:filecopy** task copies files between WebSphere MQ File Transfer Edition agents. The file is not deleted from the source agent.

“fte:filemove” on page 998

The **fte:filemove** task moves files between WebSphere MQ File Transfer Edition agents. When a file has been successfully transferred from the source agent to the destination agent, the file is deleted from the source agent.

“fte:ignoreoutcome” on page 1001

Ignore the outcome of a **fte:filecopy**, **fte:filemove**, or **fte:call** command. When you specify a **fte:filecopy**, **fte:filemove**, or **fte:call** task to have an outcome of *defer*, the Ant task allocates resources to tracking this outcome. If you are no longer interested in the outcome, you can use the **fte:ignoreoutcome** task to free those resources.

“fte:ping” on page 1001

Pings an agent to elicit a response and so determines if the agent is able to process transfers.

“fte:uuid” on page 1002

Generates a pseudo-random unique identifier and assigns it to a given property. For example, you can use this identifier to generate job names for other file transfer operations.

“fte:filespec” on page 1003

The **fte:filespec** parameter is used as a nested element in other tasks. Use **fte:filespec** to describe a mapping between one or more source files, directories or data sets, and a destination. Typically this element is used when expressing a set of files, directories, or data sets to move or copy.

“fte:metadata” on page 1008

Metadata is used to carry additional user-defined information with a file transfer operation.

“Program invocation nested elements” on page 1009

Programs can be started using one of five nested elements: **fte:presrc**, **fte:predst**, **fte:postdst**, **fte:postsrc**, and **fte:command**. These nested elements instruct an agent to call an external program as part of its processing. Before you can start a program, you must ensure that the command is in a location specified by the `commandPath` property in the `agent.properties` file of the agent that runs the command.

### **fte:awaitoutcome:**

Waits for a **fte:filecopy**, **fte:filemove**, or **fte:call** operation to complete.

### **Attributes**

**id** Required. Identifies the transfer to await an outcome from. Typically, this is a property set by the `idProperty` attribute of the **fte:filecopy**, **fte:filemove**, or **fte:call** tasks.

### **rcproperty**

Required. Names a property to store the return code of the **fte:awaitoutcome** task in.

### **timeout**

Optional. The maximum amount of time, in seconds, to wait for the operation to complete. The minimum timeout is one second. If you do not specify a timeout value, the **fte:awaitoutcome** task waits forever for the outcome of the operation to be determined.

### **Example**

In this example a file copy is started, and its identifier is stored in the `copy.id` property. While the copy is progressing, other processing can take place. The **fte:awaitoutcome** statement is used to wait until the copy operation completes. The **fte:awaitoutcome** statement identifies which operation to wait for using the identifier stored in the `copy.id` property. The **fte:awaitoutcome** stores a return code indicating the outcome of the copy operation into a property called `copy.result`.

```
<!-- issue a file copy request -->
<fte:filecopy cmdqm="qm1@localhost@1414@SYSTEM.DEF.SVRCONN"
  src="agent1@qm1"
  dst="agent1@qm1"
  idproperty="copy.id"
  outcome="defer"/>

<!-- do some other things -->

<!-- get the result of the file copy -->
<fte:awaitoutcome id="{copy.id}" rcProperty="copy.result"/>
```

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### **fte:call:**

You can use the **fte:call** task to remotely call scripts and programs.

This task allows you to send a **fte:call** request to an agent. The agent processes this request by running a script or program and returning the outcome. The commands to call must be accessible to the agent. Ensure the `commandPath` property value in the `agent.properties` file includes the location of the commands to call. Any path information specified by the command nested element must be relative to the locations specified by the `commandPath` property. By default `commandPath` is empty so that the agent cannot call any commands. For more information about this property, see `Using commandPath`.

For more information about the `agent.properties` file, see “The `agent.properties` file” on page 583.

### Attributes

#### **agent**

Required. Specifies the agent to submit the **fte:call** request to. Specify the agent information in the form: `agentname@qmgrname` where `agentname` is the name of the agent and `qmgrname` is the name of the queue manager that this agent is directly connected to.

#### **cmdqm**

Optional. The command queue manager to submit the request to. Specify this information in the form `qmgrname@host@port@channel`, where:

- `qmgrname` is the name of the queue manager
- `host` is the optional host name of the system where the queue manager is running
- `port` is the optional port number that the queue manager is listening on
- `channel` is the optional SVRCONN channel to use

If you omit the `host`, `port`, or `channel` information for the command queue manager, the connection information specified in the `command.properties` file is used. For more information, see “The `command.properties` file” on page 580.

If you do not use the `cmdqm` attribute, the task defaults to using the `com.ibm.wmqfte.ant.commandQueueManager` property, if this property is set. If the `com.ibm.wmqfte.ant.commandQueueManager` property is not set, a connection to the default queue manager, defined in the `command.properties` file, is attempted.

#### **idproperty**

Optional unless you have specified an outcome of `defer`. Specifies the name of a property to assign the transfer identifier to. Transfer identifiers are generated at the point a transfer request is submitted and you can use transfer identifiers to track the progress of a transfer, diagnose problems with a transfer, and cancel a transfer.

You cannot specify this property if you have also specified an outcome property of `ignore`. However, you must specify `idproperty` if you have also specified an outcome property of `defer`.

#### **jobname**

Optional. Assigns a job name to the **fte:call** request. You can use job names to create logical groups of transfers. Use the “`fte:uuid`” on page 1002 task to generate pseudo-unique job names. If you do not

use the `jobname` attribute, the task defaults to using the `com.ibm.wmqfte.ant.jobName` property value, if this property is set. If you do not set this property, no job name is associated with the **fte:call** request.

#### **origuser**

Optional. Specifies the originating user identifier to associate with the **fte:call** request. If you do not use the `origuser` attribute, the task defaults to using the user ID that is used to run the Ant script.

#### **outcome**

Optional. Determines whether the task waits for the **fte:call** operation to complete before returning control to the Ant script. Specify one of the following options:

**await** The task waits for the **fte:call** operation to complete before returning. When an outcome of `await` is specified the `idproperty` attribute is optional.

**defer** The task returns as soon as the **fte:call** request has been submitted and assumes that the outcome of the call operation is dealt with later using either the `awaitoutcome` or `ignoreoutcome` tasks. When an outcome of `defer` is specified the `idproperty` attribute is required.

**ignore** If the outcome of the **fte:call** operation is not important, you can specify a value of `ignore`. The task then returns as soon as the **fte:call** request has been submitted, without allocating any resources for tracking the outcome of the command. When an outcome of `ignore` is specified the `idproperty` attribute cannot be specified.

If you do not specify the `outcome` attribute, the task defaults to using the value `await`.

#### **rcproperty**

Optional. Specifies the name of a property to assign the result code of the **fte:call** request to. The result code reflects the overall outcome of the **fte:call** request.

You cannot specify this property if you have also specified an `outcome` property of `ignore` or `defer`. However, you must specify `rcproperty` if you have specified an outcome of `await`.

### **Parameters specified as nested elements**

#### **fte:command**

Specifies the command to be called by the agent. You can only associate a single `fte:command` element with a given **fte:call** operation. The command to be called must be located on the path specified by the `commandPath` property in the agent's `agent.properties` file.

#### **fte:metadata**

You can specify metadata to associate with the call operation. This metadata is recorded in the log messages generated by the call operation. You can only associate a single block of metadata with a given transfer element; however this block can contain many pieces of metadata.

### **Example**

This example shows how to call a command at AGENT1 running on queue manager QM1. The command to call is the script `command.sh`, and the script is called with a single argument of `xyz`. The command `command.sh` is located on the path specified by the `commandPath` property in the agent's `agent.properties` file.

```
<fte:call cmdqm="QM0@localhost@1414@SYSTEM.DEF.SVRCONN"
  agent="AGENT1@QM1"
  rcproperty="call.rc"
  origuser="bob"
  jobname="{job.id}">
  <fte:command command="command.sh" successrc="1" retrycount="5" retrywait="30">
    <fte:arg value="xyz"/>
  </fte:command>
</fte:call>
```

```
<fte:metadata>
  <fte:entry name="org.foo.accountName" value="BDG3R"/>
</fte:metadata>
```

```
</fte:call>
```

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### fte:cancel:

Cancels a WebSphere MQ File Transfer Edition managed transfer or managed call. A managed transfer might have been created using the **fte:filecopy** or **fte:filemove** tasks. A managed call might have been created using the **fte:call** task.

### Attributes

#### agent

Required. Specifies the agent to submit the **fte:cancel** request to. The value is in the form: *agentname@qmgrname* where *agentname* is the name of the agent and *qmgrname* is the name of the queue manager that this agent is directly connected to.

#### cmdqmq

Optional. The command queue manager to submit the request to. Specify this information in the form *qmgrname@host@port@channel*, where:

- *qmgrname* is the name of the queue manager
- *host* is the optional host name of the system where the queue manager is running
- *port* is the optional port number that the queue manager is listening on
- *channel* is the optional SVRCONN channel to use

If you omit the *host*, *port*, or *channel* information for the command queue manager, the connection information specified in the `command.properties` file is used. For more information, see “The `command.properties` file” on page 580.

If you do not use the `cmdqmq` attribute, the task defaults to using the `com.ibm.wmqfte.ant.commandQueueManager` property, if this property is set. If the `com.ibm.wmqfte.ant.commandQueueManager` property is not set, a connection to the default queue manager, defined in the `command.properties` file, is attempted.

**id** Required. Specifies the transfer identifier of the transfer to cancel. Transfer identifiers are generated at the point a transfer request is submitted by both the `fte:filecopy` and `fte:filemove` tasks.

#### origuser

Optional. Specifies the originating user identifier to associate with the **cancel** request. If the `origuser` attribute is not used, the task defaults to using the user ID that is used to run the Ant script.

### Example

The example sends a **fte:cancel** request to the command queue manager `qm0`. The **fte:cancel** request is targeted at `agent1` on queue manager `qm1` for the transfer identifier populated by the `transfer.id` variable. The request is run using the “bob” user ID.

```
<fte:cancel cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
  agent="agent1@qm1"
  id="${transfer.id}"
  origuser="bob"/>
```

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### **fte:filecopy:**

The **fte:filecopy** task copies files between WebSphere MQ File Transfer Edition agents. The file is not deleted from the source agent.

### Attributes

#### **cmdqm**

Optional. The command queue manager to submit the request to. Specify this information in the form *qmgrname@host@port@channel*, where:

- *qmgrname* is the name of the queue manager
- *host* is the optional host name of the system where the queue manager is running
- *port* is the optional port number that the queue manager is listening on
- *channel* is the optional SVRCONN channel to use

If you omit the *host*, *port*, or *channel* information for the command queue manager, the connection information specified in the `command.properties` file is used. For more information, see “The `command.properties` file” on page 580.

If you do not use the `cmdqm` attribute, the task defaults to using the `com.ibm.wmqfte.ant.commandQueueManager` property, if this property is set. If the `com.ibm.wmqfte.ant.commandQueueManager` property is not set, a connection to the default queue manager, defined in the `command.properties` file, is attempted.

#### **dst**

Required. Specifies the destination agent for the copy operation. Specify this information in the form: *agentname@qmgrname* where *agentname* is the name of the destination agent and *qmgrname* is the name of the queue manager that this agent is directly connected to.

#### **idproperty**

Optional unless you have specified an outcome of `defer`. Specifies the name of a property to assign the transfer identifier to. Transfer identifiers are generated at the point a transfer request is submitted and you can use transfer identifiers to track the progress of a transfer, diagnose problems with a transfer, and cancel a transfer.

You cannot specify this property if you have also specified an outcome property of `ignore`. However, you must specify `idproperty` if you have also specified an outcome property of `defer`.

#### **jobname**

Optional. Assigns a job name to the copy request. You can use job names to create logical groups of transfers. Use the “`fte:uuid`” on page 1002 task to generate pseudo-unique job names. If you do not use the `jobname` attribute, the task defaults to using the `com.ibm.wmqfte.ant.jobName` property value, if this property is set. If you do not set this property, no job name is associated with the copy request.

**origuser**

Optional. Specifies the originating user identifier to associate with the copy request. If you do not use the `origuser` attribute, the task defaults to using the user ID that is used to run the Ant script.

**outcome**

Optional. Determines whether the task waits for the copy operation to complete before returning control to the Ant script. Specify one of the following options:

**await** The task waits for the copy operation to complete before returning. When an outcome of `await` is specified the `idproperty` attribute is optional.

**defer** The task returns as soon as the copy request has been submitted and assumes that the outcome of the copy operation is dealt with later using either the `awaitoutcome` or `"fte:ignoreoutcome"` on page 1001 tasks. When an outcome of `defer` is specified the `idproperty` attribute is required.

**ignore** If the outcome of the copy operation is not important, you can specify a value of `ignore`. The task then returns as soon as the copy request has been submitted, without allocating any resources for tracking the outcome of the transfer. When an outcome of `ignore` is specified the `idproperty` attribute cannot be specified.

If you do not specify the outcome attribute, the task defaults to using the value `await`.

**priority**

Optional. Specifies the priority to associate with the copy request. In general, higher priority transfer requests take precedence over lower priority requests. The priority value must be in the range 0 - 9 (inclusive). A priority value of 0 is the lowest priority and a value of 9 is the highest priority. If you do not specify the priority attribute, the transfer defaults to a priority of 0.

**rcproperty**

Optional. Specifies the name of a property to assign the result code of the copy request to. The result code reflects the overall outcome of the copy request.

You cannot specify this property if you have also specified an outcome property of `ignore` or `defer`. However, you must specify `rcproperty` if you specify an outcome of `await`.

**src**

Required. Specifies the source agent for the copy operation. Specify this information in the form: `agentname@qmgrname` where `agentname` is the name of the source agent and `qmgrname` is the name of the queue manager that this agent is directly connected to.

**Parameters specified as nested elements****fte:filespec**

Required. You must specify at least one file specification that identifies the files to copy. You can specify more than one file specification if required. See the `fte:filespec` topic for more information.

**fte:metadata**

You can specify metadata to associate with the copy operation. This metadata is carried with the transfer and is recorded in the log messages generated by the transfer. You can only associate a single block of metadata with a given transfer element; however this block can contain many pieces of metadata. See the `fte:metadata` topic for more information.

**fte:presrc**

Specifies a program invocation to take place at the source agent before the transfer starts. You can only associate a single `fte:presrc` element with a given transfer. See the program invocation topic for more information.

**fte:predst**

Specifies a program invocation to take place at the destination agent before the transfer starts. You can only associate a single `fte:predst` element with a given transfer. See the program invocation topic for more information.

**fte:postsrc**

Specifies a program invocation to take place at the source agent after the transfer has completed. You can only associate a single `fte:postsrc` element with a given transfer. See the program invocation topic for more information.

**fte:postdst**

Specifies a program invocation to take place at the destination agent after the transfer has completed. You can only associate a single `fte:postdst` element with a given transfer. See the program invocation topic for more information.

If `fte:presrc`, `fte:predst`, `fte:postsrc`, `fte:postdst`, and `exits` do not return a success status, the rules are as follows in the order specified:

1. Run the source start exits. If source start exits fail the transfer fails and nothing further is run.
2. Run the pre-source call (when present). If the pre-source call fails, the transfer fails and nothing further is run.
3. Run the destination start exits. If the destination start exits fail the transfer fails and nothing further is run.
4. Run the pre-destination call (when present). If the pre-destination call fails, the transfer fails and nothing further is run.
5. Perform the file transfers.
6. Run the source and destination end exits. There is no failure status for these exits.
7. If the file transfer failed (if some files transferred successfully, this is not deemed a failure), nothing further is run.
8. Run the post-destination call (when present). If the post-destination call fails, the transfer fails and nothing further is run.
9. Run the post-source call (when present). If the post-source call fails, the transfer fails.

**Examples**

This example shows a basic file transfer between agent1 and agent2. The command to start the file transfer is sent to a queue manager called `qm0`, using a client transport mode connection. The result of the file transfer operation is assigned to the property called `copy.result`.

```
<fte:filecopy cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
  src="agent1@qm1" dst="agent2@qm2"
  rcproperty="copy.result">

  <fte:filespec srcfilespec="/home/fteuser1/file.bin" dstfile="/home/fteuser2/file.bin"/>
</fte:filecopy>
```

This example shows the same file transfer, but with the addition of metadata and a program start to take place at the source agent after the transfer has completed.

```
<fte:filecopy cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
  src="agent1@qm1" dst="agent2@qm2"
  rcproperty="copy.result">

  <fte:metadata>
    <fte:entry name="org.example.departId" value="ACCOUNTS"/>
    <fte:entry name="org.example.batchGroup" value="A1"/>
  </fte:metadata>

  <fte:filespec srcfilespec="/home/fteuser1/file.bin" dstfile="/home/fteuser2/file.bin"/>
```

```
<fte:postsrc command="/home/fteuser2/scripts/post.sh" successsrc="1" >
  <fte:arg value="/home/fteuser2/file.bin"/>
</fte:postsrc>
</fte:filecopy>
```

#### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352  
WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989  
WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

#### fte:filemove:

The **fte:filemove** task moves files between WebSphere MQ File Transfer Edition agents. When a file has been successfully transferred from the source agent to the destination agent, the file is deleted from the source agent.

#### Attributes

##### cmdqm

Optional. The command queue manager to submit the request to. Specify this information in the form *qmgrname@host@port@channel*, where:

- *qmgrname* is the name of the queue manager
- *host* is the optional host name of the system where the queue manager is running
- *port* is the optional port number that the queue manager is listening on
- *channel* is the optional SVRCONN channel to use

If you omit the *host*, *port*, or *channel* information for the command queue manager, the connection information specified in the `command.properties` file is used. For more information, see “The `command.properties` file” on page 580.

If you do not use the `cmdqm` attribute, the task defaults to using the `com.ibm.wmqfte.ant.commandQueueManager` property, if this property is set. If the `com.ibm.wmqfte.ant.commandQueueManager` property is not set, a connection to the default queue manager, defined in the `command.properties` file, is attempted.

##### dst

Required. Specifies the destination agent for the copy operation. Specify this information in the form: *agentname@qmgrname* where *agentname* is the name of the destination agent and *qmgrname* is the name of the queue manager that this agent is directly connected to.

##### idproperty

Optional unless you have specified an outcome of `defer`. Specifies the name of a property to assign the transfer identifier to. Transfer identifiers are generated at the point a transfer request is submitted and you can use transfer identifiers to track the progress of a transfer, diagnose problems with a transfer, and cancel a transfer.

You cannot specify this property if you have also specified an outcome property of `ignore`. However, you must specify `idproperty` if you have also specified an outcome property of `defer`.

##### jobname

Optional. Assigns a job name to the move request. You can use job names to create logical groups of transfers. Use the `fte:uid` task to generate pseudo-unique job names. If you do not use the `jobname` attribute, the task defaults to using the `com.ibm.wmqfte.ant.jobName` property value, if this property is set. If you do not set this property, no job name is associated with the move request.

**origuser**

Optional. Specifies the originating user identifier to associate with the move request. If you do not use the `origuser` attribute, the task defaults to using the user ID that is used to run the Ant script.

**outcome**

Optional. Determines whether the task waits for the move operation to complete before returning control to the Ant script. Specify one of the following options:

**await** The task waits for the move operation to complete before returning. When an outcome of `await` is specified the `idproperty` attribute is optional.

**defer** The task returns as soon as the move request has been submitted and assumes that the outcome of the move operation is dealt with later using either the `"fte:awaitoutcome"` on page 991 or `"fte:ignoreoutcome"` on page 1001 task. When an outcome of `defer` is specified the `idproperty` attribute is required.

**ignore** If the outcome of the move operation is not important, you can specify a value of `ignore`. The task then returns as soon as the move request has been submitted, without allocating any resources for tracking the outcome of the transfer. When an outcome of `ignore` is specified the `idproperty` attribute cannot be specified.

If you do not specify the outcome attribute, the task defaults to using the value `await`.

**priority**

Optional. Specifies the priority to associate with the move request. In general, higher priority transfer requests take precedence over lower priority requests. The priority value must be in the range 0 - 9 (inclusive). A priority value of 0 is the lowest priority and a value of 9 is the highest priority. If you do not specify the `priority` attribute, the transfer defaults to a priority of 0.

**rcproperty**

Optional. Specifies the name of a property to assign the result code of the move request to. The result code reflects the overall outcome of the move request.

You cannot specify this property if you have also specified an outcome property of `ignore` or `defer`. However, you must specify `rcproperty` if you have specified an outcome of `await`.

**src**

Required. Specifies the source agent for the move operation. Specify this information in the form: `agentname@qmgrname` where `agentname` is the name of the source agent and `qmgrname` is the name of the queue manager that this agent is directly connected to.

**Parameters specified as nested elements****fte:filespec**

Required. You must specify at least one file specification that identifies the files to move. You can specify more than one file specification if required. See the `fte:filespec` topic for more information.

**fte:metadata**

Optional. You can specify metadata to associate with the file move operation. This metadata is carried with the transfer and is recorded in the log messages generated by the transfer. You can only associate a single block of metadata with a given transfer element; however this block can contain many pieces of metadata. See the `fte:metadata` topic for more information.

**fte:presrc**

Optional. Specifies a program invocation to take place at the source agent before the transfer starts. You can only associate a single `fte:presrc` element with a given transfer. See the program invocation topic for more information.

**fte:predst**

Optional. Specifies a program invocation to take place at the destination agent before the transfer starts. You can only associate a single `fte:predst` element with a given transfer. See the program invocation topic for more information.

**fte:postsrc**

Optional. Specifies a program invocation to take place at the source agent after the transfer has completed. You can only associate a single `fte:postsrc` element with a given transfer. See the program invocation topic for more information.

**fte:postdst**

Optional. Specifies a program invocation to take place at the destination agent after the transfer has completed. You can only associate a single `fte:postdst` element with a given transfer. See the program invocation topic for more information.

If `fte:presrc`, `fte:predst`, `fte:postsrc`, `fte:postdst`, and `exits` do not return a success status, the rules are as follows in the order specified:

1. Run the source start exits. If source start exits fail the transfer fails and nothing further is run.
2. Run the pre-source call (when present). If the pre-source call fails, the transfer fails and nothing further is run.
3. Run the destination start exits. If the destination start exits fail the transfer fails and nothing further is run.
4. Run the pre-destination call (when present). If the pre-destination call fails, the transfer fails and nothing further is run.
5. Perform the file transfers.
6. Run the destination end exits. There is no failure status for these exits.
7. If the transfer is successful (if some files transfer successfully, the transfer is considered successful), run the post-destination call (if present). If the post-destination call fails, the transfer fails.
8. Run the source end exits. There is no failure status for these exits.
9. If the transfer is successful, run the post-source call (if present). If the post-source call fails, the transfer fails.

**Examples**

This example shows a basic file move between `agent1` and `agent2`. The command to start the file move is sent to a queue manager called `qm0`, using a client transport mode connection. The result of the file transfer operation is assigned to the property called `move.result`.

```
<fte:filemove cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
  src="agent1@qm1" dst="agent2@qm2"
  rcproperty="move.result">

  <fte:filespec srcfilespec="/home/fteuser1/file.bin" dstfile="/home/fteuser2/file.bin"/>

</fte:filemove>
```

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### **fte:ignoreoutcome:**

Ignore the outcome of a **fte:filecopy**, **fte:filemove**, or **fte:call** command. When you specify a **fte:filecopy**, **fte:filemove**, or **fte:call** task to have an outcome of *defer*, the Ant task allocates resources to tracking this outcome. If you are no longer interested in the outcome, you can use the **fte:ignoreoutcome** task to free those resources.

### Attributes

**id** Required. Identifies the outcome that is no longer of interest. Typically you specify this identifier using a property that you set using the *idproperty* attribute of the “*fte:filecopy*” on page 995, “*fte:filemove*” on page 998, or “*fte:call*” on page 992 task.

### Example

This example shows how you can use the *fte:ignoreoutcome* task to free the resources allocated to tracking the outcome of the earlier “*fte:filecopy*” on page 995 task.

```
<!-- issue a file copy request -->
<fte:filecopy cmdqm="qm1@localhost@1414@SYSTEM.DEF.SVRCONN"
             src="agent1@qm1" dst="agent1@qm1"
             idproperty="copy.id"
             outcome="defer"/>

<!-- do some other things -->

<!-- decide that the result of the copy is not interesting -->
<fte:ignoreoutcome id="{copy.id}"/>
```

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### **fte:ping:**

Pings an agent to elicit a response and so determines if the agent is able to process transfers.

### Attributes

#### **agent**

Required. Specifies the agent to submit the **fte:ping** request to. The value is in the form: *agentname@qmgrname* where *agentname* is the name of the agent and *qmgrname* is the name of the queue manager that this agent is directly connected to.

#### **cmdqm**

Optional. The command queue manager to submit the request to. Specify this information in the form *qmgrname@host@port@channel*, where:

- *qmgrname* is the name of the queue manager
- *host* is the optional host name of the system where the queue manager is running
- *port* is the optional port number that the queue manager is listening on
- *channel* is the optional SVRCONN channel to use

If you omit the *host*, *port*, or *channel* information for the command queue manager, the connection information specified in the `command.properties` file is used. For more information, see “The `command.properties` file” on page 580.

If you do not use the `cmdqm` attribute, the task defaults to using the `com.ibm.wmqfte.ant.commandQueueManager` property, if this property is set. If the `com.ibm.wmqfte.ant.commandQueueManager` property is not set, a connection to the default queue manager, defined in the `command.properties` file, is attempted.

### **rcproperty**

Required. Names a property to store the return code of the **ping** operation in.

### **timeout**

Optional. The maximum amount of time, in seconds, for the task to wait for the agent to respond. The minimum timeout is zero seconds, however a timeout of minus one can also be specified such that the command waits forever for the agent to respond. If no value is specified for the `timeout` then the default is to wait up to 5 seconds for the agent to respond.

### **Example**

This example sends a **fte:ping** request to `agent1` hosted by `qm1`. The **fte:ping** request waits 15 seconds for the agent to respond. The outcome of the **fte:ping** request is stored in a property called `ping.rc`.

```
<fte:ping agent="agent1@qm1" rcproperty="ping.rc" timeout="15"/>
```

### **Return codes**

- 0** Command completed successfully.
- 2** Command timed out.

### **Related reference:**

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352  
WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989  
WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### **fte:uuid:**

Generates a pseudo-random unique identifier and assigns it to a given property. For example, you can use this identifier to generate job names for other file transfer operations.

### **Attributes**

#### **length**

Required. The numeric length of UUID to generate. This length value does not include the length of any prefix, specified by the `prefix` parameter.

#### **property**

Required. The name of the property to assign the generated UUID to.

**prefix**

Optional. A prefix to add to the generated UUID. This prefix is not counted as part of the length of the UUID, as specified by the length parameter.

**Example**

This example defines a UUID that starts with the letters ABC followed by 16 pseudo-random hex characters. The UUID is assigned to a property named `uuid.property`.

```
<fte:uuid length="16" property="uuid.property" prefix="ABC"/>
```

**Related reference:**

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

**fte:filespec:**

The **fte:filespec** parameter is used as a nested element in other tasks. Use **fte:filespec** to describe a mapping between one or more source files, directories or data sets, and a destination. Typically this element is used when expressing a set of files, directories, or data sets to move or copy.

**Nested by:**

- The `fte:filecopy` task
- The `fte:filemove` task

**Attributes****Source specification attributes**

You must specify one of `srcfilespec` or `srcqueue`.

**srcfilespec**

Specifies the source of the file operation. The value of this attribute can include a wildcard.

**srcqueue**

Specifies the source of the transfer is a queue. The transfer moves data from messages stored on the queue specified by this attribute. You cannot specify this attribute if the **fte:filespec** task is nested within the **fte:filecopy** task.

The `srcqueue` attribute is not supported when the source agent is a protocol bridge agent.

**Destination specification attributes**

You must specify one of `dstdir`, `dstds`, `dstfilespace`, `dstfile`, `dstqueue` or `dstpds`.

**dstdir**

Specifies a directory as the destination for a file operation.

**dstds**

Specifies a data set as the destination for a file operation.

This attribute is supported only when the destination agent is running on the z/OS platform.

**dstfile**

Specifies a file as the destination for a file operation.

**dstfilespace**

Specifies a file space as the destination for a file operation.

**dstpds**

Specifies a partitioned data set as the destination for a file operation.

This attribute is supported only when the destination agent is running on the z/OS platform.

**dstqueue**

Specifies a queue as the destination for a file to message operation. You can optionally include a queue manager name in this specification, using the format `QUEUE@QUEUEMANAGER`. If you do not specify a queue manager name the destination agent queue manager is used. You must specify a valid queue name that exists on the queue manager.

If you specify the `dstqueue` attribute, you cannot specify the `srcqueue` attributes because these attributes are mutually exclusive.

The `dstqueue` attribute is not supported when the destination agent is a protocol bridge agent.

**Source option attributes****srcencoding**

Optional. The character set encoding used by the file to transfer.

You can specify this attribute only when the `conversion` attribute is set to a value of `text`. If you do not specify the `srcencoding` attribute, the character set of the source system is used for text transfers.

**srceol**

Optional. The end of line delimiter used by the file being transferred. The valid values are as follows:

- `CRLF` - Use a carriage return character followed by a line-feed character as the end of line delimiter. This convention is typical for Windows systems.
- `LF` - Use a line-feed character as the end of line delimiter. This convention is typical for UNIX systems.

You can specify this attribute only when the `conversion` attribute is set to a value of `text`. If you do not specify the `srceol` attribute, text transfers automatically determine the correct value based on the operating system of the source agent.

**srckeeptrailingspaces**

Optional. This attribute is available only if you have enabled the Version 7.0.4.1 function. Determines whether trailing spaces are kept on source records read from a fixed-length-format data set as part of a text mode transfer. The valid values are as follows:

- `true` - trailing spaces are kept.
- `false` - trailing spaces are stripped.

If you do not specify the `srckeeptrailingspaces` attribute, a default value of `false` is specified.

You can specify this attribute only if you also specify the `srcfilespec` attribute and you set the `conversion` attribute to a value of `text`.

**srcmsgdelimbytes**

Optional. Specifies one or more byte values to insert as the delimiter when appending multiple messages to a binary file. Each value must be specified as two hexadecimal digits in the range 00-FF, prefixed by `x`. Multiple bytes must be comma-separated. For example, `srcmsgdelimbytes="x08,xA4"`. You can specify the `srcmsgdelimbytes` attribute only if you have also specified the `srcqueue` attribute. You cannot specify the `srcmsgdelimbytes` attribute if you have also specified the value `text` for the `conversion` attribute.

**srcmsgdelimtext**

Optional. Specifies a sequence of text to insert as the delimiter when appending multiple messages to a text file. You can include Java escape sequences for String literals in the delimiter. For example,

`srcmsgdelimtext="\u007d\n"`. The text delimiter is inserted after each message by the source agent. The text delimiter is encoded to binary format using the source encoding of the transfer. Each message is read in binary format, the encoded delimiter is appended in binary format to the message, and the result is transferred in binary format to the destination agent. If the source agent code page includes shift-in and shift-out states, the agent assumes that each message is in the shift-out state at the end of the message. At the destination agent the binary data is converted in the same way as a file to file text transfer. You can only specify the `srcmsgdelimtext` attribute if you have also specified the `srcqueue` attribute and a value of text for the conversion attribute.

#### **srcmsgdelimposition**

Optional. Specifies the position that the text or binary delimiter is inserted into. The valid values are as follows:

- `prefix` - the delimiters are inserted into the destination file before the data from each message.
- `postfix` - the delimiters are inserted into the destination file after the data from each message.

You can specify the `srcmsgdelimposition` attribute only if you have also specified one of the `srcmsgdelimbytes` or `srcmsgdelimtext` attributes.

#### **srcmsggroups**

Optional. Specifies that the messages are grouped by WebSphere MQ group ID. The first complete group is written to the destination file. If this attribute is not specified, all messages on the source queue are written to the destination file. You can specify the `srcmsggroups` attribute only if you have also specified the `srcqueue` attribute.

#### **srcqueuetimeout**

Optional. Specifies the time, in seconds, to wait for one of the following conditions to be met:

- For a new message to be written to the queue.
- If the `srcmsggroups` attribute was specified, for a complete group to be written on the queue.

If neither of these conditions are met within the time specified by the value of `srcqueuetimeout`, the source agent stops reading from the queue and completes the transfer. If the `srcqueuetimeout` attribute is not specified, the source agent stops reading from the source queue immediately if the source queue is empty or, in the case where the `srcmsggroups` attribute is specified, if there is no complete group on the queue. You can specify the `srcqueuetimeout` attribute only if you have also specified the `srcqueue` attribute.

For information about setting the `srcqueuetimeout` value, see "Guidance for specifying a wait time on a message-to-file transfer" on page 769.

#### **srcrcdelimbytes**

Optional. This attribute is available only if you have enabled the Version 7.0.4.1 function. Specifies one or more byte values to insert as the delimiter when appending multiple records from a record-oriented source file to a binary file. You must specify each value as two hexadecimal digits in the range 00-FF, prefixed by x. Multiple bytes must be comma-separated. For example:

```
srcrcdelimbytes="x08,xA4"
```

You can specify the `srcrcdelimbytes` attribute only if the transfer source file is record oriented, for example a z/OS data set, and the destination file is a normal, non-record-oriented file. You cannot specify the `srcrcdelimbytes` attribute if you have also specified the value text for the conversion attribute.

#### **srcrcdelimpos**

Optional. This attribute is available only if you have enabled the Version 7.0.4.1 function. Specifies the position that the binary delimiter is inserted into. The valid values are as follows:

- `prefix` - the delimiters are inserted into the destination file before the data from each source record-oriented file record.
- `postfix` - the delimiters are inserted into the destination file after the data from each source record-oriented file record.

You can specify the `srcrecdelimpos` attribute only if you have also specified the `srcrecdelimbytes` attribute.

## Destination option attributes

### **dstencoding**

Optional. The character set encoding to use for the transferred file.

You can specify this attribute only when the conversion attribute is set to a value of `text`. If the `dstencoding` attribute is not specified, the character set of the destination system is used for text transfers.

### **dsteol**

Optional. The end of line delimiter to use for the transferred file. The valid values are as follows:

- `CRLF` - Use a carriage return character followed by a line-feed character as the end of line delimiter. This convention is typical for Windows systems.
- `LF` - Use a line-feed character as the end of line delimiter. This convention is typical for UNIX systems.

You can specify this attribute only when the conversion attribute is set to a value of `text`. If you do not specify the `dsteol` attribute, text transfers automatically determine the correct value based on the operating system of the destination agent.

### **dstmsgdelimbytes**

Optional. Specifies the hexadecimal delimiter to use when splitting a binary file into multiple messages. All the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ `LAST_MSG_IN_GROUP` flag set. The format for specifying a hexadecimal byte as a delimiter is `xNN`, where `N` is a character in the range 0-9 or a-f. You can specify a sequence of hexadecimal bytes as a delimiter by specifying a comma-separated list of hexadecimal bytes, for example: `x3e,x20,x20,xbf`.

You can specify the `dstmsgdelimbytes` attribute only if you have also specified the `dstqueue` attribute and the transfer is in binary mode. You can specify only one of the `dstmsgsize`, `dstmsgdelimbytes`, and `dstmsgdelimpattern` attributes.

### **dstmsgdelimpattern**

Optional. Specifies the Java regular expression to use when splitting a text file into multiple messages. All the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ `LAST_MSG_IN_GROUP` flag set. The format for specifying a regular expression as a delimiter is a regular expression enclosed in parentheses, (*regular\_expression*), or enclosed in double quotation marks, "*regular\_expression*". For more information, see "Regular expressions used by WebSphere MQ File Transfer Edition" on page 746.

By default, the length of the string that the regular expression can match is limited by the destination agent to five characters. You can change this behavior using the `maxDelimiterMatchLength` agent property. For more information, see "Advanced agent properties" on page 584.

You can specify the `dstmsgdelimpattern` attribute only if you have also specified the `dstqueue` attribute and the transfer is in text mode. You can specify only one of the `dstmsgsize`, `dstmsgdelimbytes`, and `dstmsgdelimpattern` attributes.

### **dstmsgdelimposition**

Optional. Specifies the position that the text or binary delimiter is expected to be in. The valid values are as follows:

- `prefix` - The delimiters are expected at the beginning of each line.
- `postfix` - The delimiters are expected at the end of each line.

You can specify the `dstmsgdelimposition` attribute only if you have also specified the `dstmsgdelimpattern` attribute.

**dstmsgincludedelim**

Optional. Specifies whether to include the delimiter that is used to split the file into multiple messages in the messages. If the `dstmsgincludedelim` attribute is specified, the delimiter is included at the end of the message that contains the file data preceding the delimiter. By default the delimiter is not included in the messages. You can specify the `dstmsgincludedelim` attribute only if you have also specified one of the `dstmsgdelimpattern` and `dstmsgdelimbytes` attributes.

**dstmsgpersist**

Optional. Specifies whether messages written to the destination queue are persistent. The valid values are as follows:

- `true` - Write persistent messages to the destination queue. This is the default value.
- `false` - Write non-persistent messages to the destination queue.
- `qdef` - The persistence value is taken from the `DefPersistence` attribute of the destination queue.

You can specify this attribute only when the `dstqueue` attribute is also specified.

**dstmsgprops**

Optional. Specifies whether the first message written to the destination queue by the transfer has WebSphere MQ message properties set. Possible values are:

- `true` - Set message properties on the first message created by the transfer.
- `false` - Do not set message properties on the first message created by the transfer. This is the default value.

For more information, see “WebSphere MQ message properties set on messages written to destination queues” on page 762.

You can specify this attribute only when the `dstqueue` attribute is also specified.

**dstmsgsize**

Optional. Specifies whether to split the file into multiple fixed-length messages. All of the messages have the same WebSphere MQ group ID; the last message in the group has the WebSphere MQ `LAST_MSG_IN_GROUP` flag set. The size of the messages is specified by the value of `dstmsgsize`. The format of `dstmsgsize` is `<length><units>`, where *length* is a positive integer value and *units* is one of the following values:

- `B` - Bytes. The minimum value allowed is two times the maximum bytes-per-character value of the code page of the destination messages.
- `K` - Kibibytes. This is equivalent to 1024 bytes.
- `M` - Mebibytes. This is equivalent to 1024 kibibytes.

If the file is transferred in text mode, and is in a double-byte character set or multibyte character set, the file is split into messages on the closest character boundary to the specified message size.

You can specify the `dstmsgsize` attribute only if you have also specified the `dstqueue` attribute. You can specify only one of the `dstmsgsize`, `dstmsgdelimbytes`, and `dstmsgdelimpattern` attributes.

**dstunsupportedcodepage**

Optional. Specifies the action to take if the destination queue manager, as specified by the `dstqueue` attribute, does not support the code page used when transferring file data to a queue as a text transfer. The valid values for this attribute are as follows:

- `binary` – continue the transfer but do not apply code page conversion to the data being transferred. Specifying this value is equivalent to not setting the conversion attribute to `text`.
- `fail` – do not continue with the transfer operation. The file is recorded as having failed to transfer. This is the default.

You can only specify the `dstunsupportedcodepage` attribute if you have also specified the `dstqueue` attribute and a value of `text` for the conversion attribute.

**Other attributes**

**checksum**

Optional. Determines the algorithm used to checksum transferred files.

- MD5 - use the MD5 hashing algorithm.
- NONE - do not use a checksum algorithm.

If you do not specify the checksum attribute, a default value of MD5 is used.

**conversion**

Optional. Specifies the type of conversion to apply to the file as it is being transferred. Possible values are:

- binary - apply no conversion.
- text - apply code page conversion between the source and destination systems. Also apply conversion of line delimiters. The `srcencoding`, `dstencoding`, `srceol` and `dsteol` attributes influence the conversion that is applied.

If you do not specify the conversion attribute, a default value of binary is specified.

**overwrite**

Optional. Determines whether an existing destination file or data set can be overwritten by the operation. When you specify a value of `true`, any existing destination file or data sets are overwritten. When you specify a value of `false`, the existence of a duplicate file or data set at the destination results in the operation failing. If the `overwrite` attribute is not specified, a default value of `false` is specified.

**recurse**

Optional. Determines whether the file transfer recurses into subdirectories. When you specify a value of `true`, the transfer recurses into subdirectories. When you specify a value of `false`, the transfer does not recurse into subdirectories. If the `recurse` attribute is not specified, a default value of `false` is specified.

**Example**

This example specifies a `fte:filespec` with a source file of `file1.bin` and a destination file of `file2.bin`.

```
<fte:filespec srcfilespec="/home/fteuser/file1.bin" dstfile="/home/fteuser/file2.bin"/>
```

**Related reference:**

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

**fte:metadata:**

Metadata is used to carry additional user-defined information with a file transfer operation.

See “Metadata for user exit routines” on page 1013 for more information about how WebSphere MQ File Transfer Edition uses metadata.

**Nested by:**

- The `fte:filecopy` task
- The `fte:filemove` task
- The `fte:call` task

## Parameters specified as nested elements

### **fte:entry**

You must specify at least one entry inside the `fte:metadata` nested element. You can choose to specify more than one entry. Entries associate a key name with a value. Keys must be unique in a block of `fte:metadata`

### Entry attributes

#### **name**

Required. The name of the key belonging to this entry. This name must be unique across all entry parameters nested inside a `fte:metadata` element.

#### **value**

Required. The value to assign to this entry.

### Example

This example shows a `fte:metadata` definition that contains two entries.

```
<fte:metadata>
  <fte:entry name="org.foo.partColor" value="red"/>
  <fte:entry name="org.foo.partSize" value="medium"/>
</fte:metadata>
```

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

### Program invocation nested elements:

Programs can be started using one of five nested elements: `fte:presrc`, `fte:predst`, `fte:postdst`, `fte:postsrc`, and `fte:command`. These nested elements instruct an agent to call an external program as part of its processing. Before you can start a program, you must ensure that the command is in a location specified by the `commandPath` property in the `agent.properties` file of the agent that runs the command.

Even though each program invocation element has a different name, they share the same set of attributes and the same set of nested elements. Programs can be started by the **fte:filecopy**, **fte:filemove**, and **fte:command** Ant tasks. If you have configured a Web Gateway to allow files to be uploaded to an agent, configure `fte:postdst` program invocations by specifying the `x-fte-postdest` header or using the `postdest` form field in the HTTP request.

You cannot invoke programs from a Connect:Direct bridge agent.

### Ant tasks that can invoke programs:

- The `fte:filecopy` task nests program invocation parameters using the `fte:predst`, `fte:postdst`, `fte:presrc`, and `fte:postsrc` nested elements.
- The `fte:filemove` task nests program invocation parameters using the `fte:predst`, `fte:postdst`, `fte:presrc`, and `fte:postsrc` nested elements.
- The `fte:call` task nests program invocation parameters using the `fte:command` nested element.

### Attributes

#### **command**

Required. Names the program to call. For the agent to be able to run a command, the command must

be in a location specified by the `commandPath` property in the agent's `agent.properties` file. For more information, see “The `commandPath` property” on page 461. Any path information specified in the `command` attribute is considered relative to a location specified by the `commandPath` property. When `type` is `executable`, an executable program is expected otherwise a script appropriate for the call type is expected.

#### **retrycount**

Optional. The number of times to retry calling the program if the program does not return a success return code. The program named by the `command` attribute is called up to this number of times. The value assigned to this attribute must be non-negative. If you do not specify the `retrycount` attribute, a default value of zero is used.

#### **retrywait**

Optional. The time to wait, in seconds, before trying the program invocation again. If the program named by the `command` attribute does not return a success return code and the `retrycount` attribute specifies a non-zero value, this parameter determines the time to wait between retries. The value assigned to this attribute must be non-negative. If you do not specify the `retrywait` attribute, a default value of zero is used.

#### **successrc**

Optional. The value of this attribute is used to determine when the program invocation successfully runs. The process return code for the command is evaluated using this expression. The value can be composed of one or more expressions combined with a vertical bar character (`|`) to signify Boolean OR, or an ampersand (`&`) character to signify Boolean AND. Each expression can be one of the following types of expression:

- A number to indicate an equality test between the process return code and the number.
- A number prefixed with a `>` character to indicate a greater-than test between the number and the process return code.
- A number prefixed with a `<` character to indicate a less-than test between the number and the process return code.
- A number prefixed with a `!` character to indicate a not-equal-to test between the number and the process return code.

For example: `>2&<7&!5|0|14` is interpreted as the following return codes being successful: 0, 3, 4, 6, 14. All other return codes are interpreted as being unsuccessful. If you do not specify the `successrc` attribute, a default value of zero is used. This means that the command is judged to have successfully run if, and only if, it returns a code of zero.

#### **type**

Optional. The value of this attribute specifies what type of program is being called. Specify one of the following options:

##### **executable**

The task calls an executable program. Can have additional arguments specified using the `arg` nested element. The program is expected to be accessible on the `commandPath` and where applicable have execute permission set. UNIX scripts can be called as long as they specify a shell program (for example, first line of shell script file is: `#!/bin/sh`). Command output written to `stderr` or `stdout` is sent to the WebSphere MQ File Transfer Edition log for the call. However, the amount of data output is limited by the agent configuration. The default is 10K bytes of data, but you can override this default using the agent property: `maxCommandOutput`.

##### **antscript**

The task runs the specified Ant script, using the `fteAnt` command. Properties can be specified using the `property` nested element. Ant targets can be specified using the `target` nested element. The Ant script is expected to be accessible on the `commandPath`. Ant output written to `stderr` or `stdout` is sent to the WebSphere MQ File Transfer Edition log for the call.

However, the amount of data output is limited by the agent configuration. The default is 10K bytes of data but you can override this default using the agent property: `maxCommandOutput`.

**jcl** The value `jcl` is supported on z/OS only and runs the specified z/OS JCL script. The JCL is submitted as a job and requires the job card to be present. When the job is submitted successfully the JCL command output, written to the WebSphere MQ File Transfer Edition log, contains the following text: `JOB job_name(job_id)` where:

- *job\_name* is the name of the job identified by the job card in the JCL.
- *job\_id* is the z/OS system generated job ID.

If the job cannot be submitted successfully, the JCL script command fails and writes a message to the log indicating the reason for the failure (for example no job card is present). To understand whether the job has been run or completed successfully, use a system service such as SDSF. WebSphere MQ File Transfer Edition does not provide the information because it only submits the job; the system then determines when to run the job and how the job output is presented. Because a JCL script is submitted as a batch job it is not advisable to specify `jcl` for a `presrc` or `predst` nested element because you only know that the job has been submitted successfully and not whether it ran to completion successfully before the transfer starts. There are no nested elements that are valid with a type of `jcl`.

The following example shows a JCL job:

```
//MYJOB JOB
//*
//MYJOB EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=H
//SYSUT1 DD DSN=FRED.DEMO.TXT,DISP=SHR
//SYSUT2 DD DSN=BOB.DEMO.TXT,DISP=(NEW,CATLG),
// RECFM=VB,LRECL=133,BLKSIZE=2048,
// SPACE=(TRK,(30,5),RLSE)
//SYSIN DD DUMMY
```

## Parameters specified as nested elements

### **fte:arg**

Only valid where the value of the type attribute is executable. Use nested `fte:arg` elements to specify arguments to the program that is being called as part of the program invocation. The program arguments are built from the values specified by the `fte:arg` elements in the order that the `fte:arg` elements are encountered. You can choose to specify zero or more `fte:arg` elements as nested elements of a program invocation.

### **fte:property**

Only valid where the value of the type attribute is `antscript`. Use the name and value attributes of the nested `fte:property` elements to pass in name-value pairs to the Ant script. You can choose to specify zero or more `fte:property` elements as nested elements of a program invocation.

### **fte:target**

Only valid where the value of the type attribute is `antscript`. Specify a target in the Ant script to call. You can choose to specify zero or more `fte:target` elements as nested elements of a program invocation.

## Arg attributes

### **value**

Required. The value of the argument to pass to the program being called.

## Property attributes

### **name**

Required. The name of a property to pass to the Ant script.

**value**

Required. The value to associate with the property name being passed to the Ant script.

**Examples**

This example shows an `fte:postsrc` program invocation being specified as part of an `fte:filecopy` task. The program invocation is for a program called `post.sh` and is supplied a single argument of `/home/fteuser2/file.bin`.

```
<fte:filecopy cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
  src="agent1@qm1" dst="agent2@qm2"
  rcproperty="copy.result">
  <fte:filespec srcfilespec="/home/fteuser1/file.bin" dstfile="/home/fteuser2/file.bin"/>

  <fte:postsrc command="post.sh" successsrc="1" >
    <fte:arg value="/home/fteuser2/file.bin"/>
  </fte:postsrc>
</fte:filecopy>
```

This example shows an `fte:command` program invocation being specified as part of a `fte:call` task. The program invocation is for an executable called `command.sh`, which is not passed any command-line arguments. If `command.sh` does not return a success return code of 1, the command is tried again after 30 seconds.

```
<fte:call cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
  agent="agent1@qm1"
  rcproperty="call.rc"
  origuser="bob"
  jobname="{job.id}">
  <fte:command command="command.sh" successsrc="1" retrycount="5" retrywait="30"/>
</fte:call>
```

This example shows an `fte:command` program invocation being specified as part of a `fte:call` task. The program invocation is for the copy and compress targets in an Ant script called `script.xml`, which is passed two properties.

```
<fte:call cmdqm="qm0@localhost@1414@SYSTEM.DEF.SVRCONN"
  agent="agent1@qm1"
  rcproperty="call.rc"
  origuser="bob"
  jobname="{job.id}">
  <fte:command command="script.xml" type="antscript">
    <property name="src" value="AGENT5@QM5"/>
    <property name="dst" value="AGENT3@QM3"/>
    <target name="copy"/>
    <target name="compress"/>
  </fte:command>
</fte:call>
```

### Related concepts:

“Specifying programs to run” on page 291

You can run programs on a system where a IBM WebSphere MQ File Transfer Edition agent is running. As part of a file transfer request, you can specify a program to run either before a transfer starts, or after it finishes. Additionally, you can start a program that is not part of a file transfer request by submitting a managed call request.

### Related reference:

“Using Apache Ant with WebSphere MQ File Transfer Edition” on page 352

WebSphere MQ File Transfer Edition provides tasks that you can use to integrate file transfer function into the Apache Ant tool.

“Ant tasks provided by WebSphere MQ File Transfer Edition” on page 989

WebSphere MQ File Transfer Edition provides a number of Ant tasks that you can use to access file transfer capabilities.

## Working with user exits for customization

### Metadata for user exit routines

There are three different types of metadata that can be supplied to user exit routines for WebSphere MQ File Transfer Edition: environment, transfer, and file metadata. This metadata is presented as maps of Java key-value pairs.

#### Environment metadata

Environment metadata is passed to all user exit routines and describes the agent runtime environment that the user exit routine is being called from. This metadata is read-only and cannot be updated by any user exit routine.

Table 57.

Key	Description
AGENT_VERSION_KEY	Version number for the agent runtime that calls the exit routine.
AGENT_PRODUCT_DIRECTORY_KEY	The name of the directory that the agent code has been installed in.
AGENT_CONFIGURATION_DIRECTORY_KEY	The name of the directory that contains the agent's configuration information.

The key names and value names given in Table 1 are constants that are defined in the EnvironmentMetaDataConstants interface.

#### Transfer metadata

Transfer metadata is passed to all user exit routines. The metadata consists of system-supplied values and user-supplied values. If you change any system-supplied values, these changes are ignored. The initial user-supplied values for the source transfer start user exit are based on those values you supply when you define the transfer. The source agent can change user-supplied values as part of the processing of the source transfer start user exit. This user exit is called before the entire file transfer starts. These changes are used in subsequent calls to other exit routines that relate to that transfer. Transfer metadata is applied to an entire transfer.

Although all user exits can read values from the transfer metadata, only the source transfer start user exit can change transfer metadata

You cannot use transfer metadata to propagate information between different file transfers.

The system-supplied transfer metadata is detailed in Table 2:

Table 58.

Key	Description
TRANSFER_ID_KEY	The identifier of the transfer
MQMD_USER_KEY	The MQMD user field from the message used to submit the transfer request
JOB_NAME_KEY	The job name associated with the transfer request
ORIGINATING_USER_KEY	The user name specified as the originating user ID in the transfer request
ORIGINATING_HOST_KEY	The host name specified as the originating host name in the transfer request
SOURCE_AGENT_KEY	The name of the agent that is the source of the transfer
DESTINATION_AGENT_KEY	The name of the agent that is the destination for the transfer.

The key names and value names given in Table 2 are constants that are defined in the TransferMetaDataConstants interface.

## File metadata

The file metadata is passed to the source transfer start exit as part of the file specification. There is separate file metadata for the source and destination files.

You cannot use file metadata to propagate information between different file transfers.

Table 59.

Key	Permitted values	Description
FILE_CONVERSION_KEY	FILE_CONVERSION_TEXT_VALUE FILE_CONVERSION_BINARY_VALUE	Determines the type of conversion applied to the file contents.
FILE_TYPE_KEY	FILE_TYPE_FILE_VALUE FILE_TYPE_DIRECTORY_VALUE FILE_TYPE_DATASET_VALUE FILE_TYPE_PDS_VALUE FILE_TYPE_QUEUE_VALUE FILE_TYPE_FILE_SPACE_VALUE	Determines the destination file, queue, or file space specification.
FILE_SPACE_NAME		Determines the name of the file space. <b>Note:</b> This metadata can be used only if the FILE_TYPE_KEY is FILE_TYPE_FILE_SPACE_VALUE
FILE_SPACE_ALIAS		Determines the alias of a file in the file space. <b>Note:</b> This metadata can be used only if the FILE_TYPE_KEY is FILE_TYPE_FILE_SPACE_VALUE
FILE_CHECKSUM_METHOD_KEY	FILE_CHECKSUM_METHOD_NONE_VALUE FILE_CHECKSUM_METHOD_MD5_VALUE	Determines the checksum method to use when transferring the file.
FILE_ENCODING_KEY		Determines the encoding used for a text file.

Table 59. (continued)

Key	Permitted values	Description
FILE_END_OF_LINE_KEY	FILE_END_OF_LINE_LF_VALUE FILE_END_OF_LINE_CRLF_VALUE	Determines the character sequence that denotes the end of a line: <LF> or <CR><LF>.
DESTINATION_EXIST_KEY	DESTINATION_EXIST_KEY_ERROR_VALUE DESTINATION_EXIST_KEY_OVERWRITE_VALUE	Determines the file transfer behavior if the destination file exists.
SOURCE_DISPOSITION_KEY	SOURCE_DISPOSITION_LEAVE_VALUE SOURCE_DISPOSITION_DELETE_VALUE	Determines the disposition of a source file after the transfer has completed. That is, the action that is taken on a source file when that source file has successfully been transferred to its destination.

The key names and value names given in Table 3 are constants that are defined in the FileMetaDataConstants interface.

**Related concepts:**

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

“Java interfaces for user exit routines” on page 1022

Use the topics in this section for reference information about Java interfaces for user exit routines.

**Related reference:**

“Resource monitor user exits”

Resource monitor user exits allow you to configure custom code to run when a monitor's trigger condition is satisfied, before the associated task is started.

“Agent properties for user exits” on page 1020

In addition to the standard properties in the agent.properties file, there are several advanced properties specifically for user exit routines. These properties are not included by default so if you want to use any of them, you must manually edit the agent.properties file. If you make a change to agent.properties file while that agent is running, stop and restart the agent to pick up the changes.

**Resource monitor user exits**

Resource monitor user exits allow you to configure custom code to run when a monitor's trigger condition is satisfied, before the associated task is started.

Resource monitor user exits use the existing infrastructure for user exits. The monitor user exits are called after a monitor has triggered but before the corresponding task has been run by the monitor's task. This allows the user exit to modify the task to be run and decide whether a task should proceed or not. You can modify the monitor task by updating the monitor metadata, which is then used for variable substitution in the task document created by the creation of the original monitor. Alternatively, the monitor exit can replace or update the task definition XML string passed as a parameter. The monitor exit can return a result code of either 'proceed' or 'cancel' for the task. If cancel is returned, the task will not be started and the monitor will not start again until the monitored resource matches the trigger conditions. If the resource has not changed, the trigger will not start. As with the other user exits, you can chain monitor exits together. If one of the exits returns a cancel result code, the overall result is cancel and the task is not started.

- A map of environment metadata (same as other user exits)
- A map of monitor metadata including immutable system metadata and mutable user metadata. The immutable system metadata is as follows:
  - FILENAME - name of the file that satisfied the trigger condition
  - FILEPATH - path to the file that satisfied the trigger condition
  - FILESIZE (in bytes - this metadata might not be present) - size of the file that satisfied the trigger condition
  - LASTMODIFIEDDATE (Local) - date that the file that satisfied the trigger condition was last changed. This date is expressed as the local date of the time zone the agent is running in and is formatted as an ISO 8601 date.
  - LASTMODIFIEDTIME (Local) - time in local format that the file that satisfied the trigger condition was last changed. This time is expressed as the local time of the time zone the agent is running in and is formatted as an ISO 8601 time.
  - LASTMODIFIEDDATEUTC - date in universal format that the file that satisfied the trigger condition was last changed. This date is expressed as the local date converted to the UTC time zone and is formatted as an ISO 8601 date.
  - LASTMODIFIEDTIMEUTC - time in universal format that the file that satisfied the trigger condition was last changed. This time is expressed the local time converted to the UTC time zone and is formatted as an ISO 8601 time.
  - AGENTNAME - the monitor agent name
- An XML string representing the task to be run as a result of the monitor trigger.

Monitor exits return the following data:

- An indicator that specifies whether to progress further (proceed or cancel)
- A string to insert into the trigger-satisfied log message

As a result of running the monitor exit code, the monitor metadata and task definition XML string that were originally passed as parameters might also have been updated.

The value of the agent property `monitorExitClasses` (in the `agent.properties` file) specifies which monitor exit classes to load, with each exit class separated by a comma. For example:

```
monitorExitClasses=testExits.TestExit1,testExits.testExit2
```

The interface to the monitor user exit is:

```
package com.ibm.wmqfte.exitroutine.api;

import java.util.Map;

/**
 * An interface that is implemented by classes that want to be invoked as part of
 * user exit routine processing. This interface defines a method that will be
 * invoked immediately prior to starting a task as the result of a monitor trigger
 */
public interface MonitorExit {

    /**
     * Invoked immediately prior to starting a task as the result of a monitor
     * trigger.
     *
     * @param environmentMetaData
     *      meta data about the environment in which the implementation
     *      of this method is running. This information can only be read,
     *      it cannot be updated by the implementation. The constant
     *      defined in EnvironmentMetaDataConstants class can
     *      be used to access the data held by this map.
     */
}
```

```

    * @param monitorMetaData
    *         meta data to associate with the monitor. The meta data passed
    *         to this method can be altered, and the changes will be
    *         reflected in subsequent exit routine invocations. This map
    *         also contains keys with IBM reserved names. These entries are
    *         defined in the <code>MonitorMetaDataConstants</code> class and
    *         have special semantics. The the values of the IBM reserved names
    *         cannot be modified by the exit
    *
    * @param taskDetails
    *         An XML String representing the task to be executed as a result of
    *         the monitor triggering. This XML string may be modified by the
    *         exit
    *
    * @return  a monitor exit result object which is used to determine if the
    *         task should proceed, or be cancelled.
    */
    MonitorExitResult onMonitor(Map<String, String> environmentMetaData,
                               Map<String, String> monitorMetaData,
                               Reference<String> taskDetails);
}

```

The constants for the IBM-reserved values in the monitor metadata are as follows:

```

package com.ibm.wmqfte.exitroutine.api;

/**
 * Constants for IBM reserved values placed into the monitor meta data
 * maps used by the monitor exit routines.
 */
public interface MonitorMetaDataConstants {

    /**
     * The value associated with this key is the name of the trigger
     * file associated with the monitor. Any modification performed
     * to this property by user exit routines will be ignored.
     */
    final String FILE_NAME_KEY = "FILENAME";

    /**
     * The value associated with this key is the path to the trigger
     * file associated with the monitor. Any modification performed
     * to this property by user exit routines will be ignored.
     */
    final String FILE_PATH_KEY = "FILEPATH";

    /**
     * The value associated with this key is the size of the trigger
     * file associated with the monitor. This will not be present in
     * the cases where the size cannot be determined. Any modification
     * performed to this property by user exit routines will be ignored.
     */
    final String FILE_SIZE_KEY = "FILESIZE";

    /**
     * The value associated with this key is the local date on which
     * the trigger file associated with the monitor was last modified.
     * Any modification performed to this property by user exit routines
     * will be ignored.
     */
    final String LAST_MODIFIED_DATE_KEY = "LASTMODIFIEDDATE";

    /**
     * The value associated with this key is the local time at which
     * the trigger file associated with the monitor was last modified.
     * Any modification performed to this property by user exit routines
     * will be ignored.
     */
}

```

```

*/
final String LAST_MODIFIED_TIME_KEY = "LASTMODIFIEDTIME";

/**
 * The value associated with this key is the UTC date on which
 * the trigger file associated with the monitor was last modified.
 * Any modification performed to this property by user exit routines
 * will be ignored.
 */
final String LAST_MODIFIED_DATE_KEY_UTC = "LASTMODIFIEDDATEUTC";

/**
 * The value associated with this key is the UTC time at which
 * the trigger file associated with the monitor was last modified.
 * Any modification performed to this property by user exit routines
 * will be ignored.
 */
final String LAST_MODIFIED_TIME_KEY_UTC = "LASTMODIFIEDTIMEUTC";

/**
 * The value associated with this key is the name of the agent on which
 * the monitor is running. Any modification performed to this property by
 * user exit routines will be ignored.
 */
final String MONITOR_AGENT_KEY = "AGENTNAME";
}

```

## Example monitor user exit

This example class implements the `MonitorExit` interface. This example adds a custom substitution variable into the monitor metadata called `REDIRECTEDAGENT` that will be populated with a value of `LONDON` if the hour of the day is odd, and a value of `PARIS` for even hours. The monitor exit result code is set to always return `proceed`.

```

package com.ibm.wmqfte.monitor;

import java.util.Calendar;
import java.util.Map;

import com.ibm.wmqfte.exitroutine.api.MonitorExit;
import com.ibm.wmqfte.exitroutine.api.MonitorExitResult;
import com.ibm.wmqfte.exitroutine.api.Reference;

/**
 * Example resource monitor user exit that changes the monitor mutable
 * metadata value between 'LONDON' and 'PARIS' depending on the hour of the day.
 */
public class TestMonitorExit implements MonitorExit {

    // custom variable that will substitute destination agent
    final static String REDIRECTED_AGENT = "REDIRECTEDAGENT";

    public MonitorExitResult onMonitor(
        Map<String, String> environmentMetaData,
        Map<String, String> monitorMetaData,
        Reference<String> taskDetails) {

        // always succeed
        final MonitorExitResult result = MonitorExitResult.PROCEED_RESULT;

        final int hour = Calendar.getInstance().get(Calendar.HOUR_OF_DAY);

        if (hour%2 == 1) {
            monitorMetaData.put(REDIRECTED_AGENT, "LONDON");

```

```

    } else {
        monitorMetaData.put(REDIRECTED_AGENT, "PARIS");
    }

    return result;
}
}

```

The corresponding task for a monitor that makes use of the *REDIRECTEDAGENT* substitution variable could look similar to the following:

```

<?xml version="1.0" encoding="UTF-8"?>
<request version="4.00"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="AGENT1"
      QMgr="QM1"/>
    <destinationAgent agent="{REDIRECTEDAGENT}"
      QMgr="QM2"/>
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="delete">
          <file>c:\sourcefiles\reports.doc</file>
        </source>
        <destination type="file" exist="overwrite">
          <file>c:\destinationfiles\reports.doc</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>

```

Before this transfer is started, the value of the `<destinationAgent>` element's `agent` attribute is replaced with either LONDON or PARIS.

You must specify the substitution variable in the monitor exit class and the task definition XML in uppercase.

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

“Metadata for user exit routines” on page 1013

There are three different types of metadata that can be supplied to user exit routines for WebSphere MQ File Transfer Edition: environment, transfer, and file metadata. This metadata is presented as maps of Java key-value pairs.

“Java interfaces for user exit routines” on page 1022

Use the topics in this section for reference information about Java interfaces for user exit routines.

#### Related reference:

“Agent properties for user exits” on page 1020

In addition to the standard properties in the `agent.properties` file, there are several advanced properties specifically for user exit routines. These properties are not included by default so if you want to use any of them, you must manually edit the `agent.properties` file. If you make a change to `agent.properties` file while that agent is running, stop and restart the agent to pick up the changes.

## Agent properties for user exits

In addition to the standard properties in the `agent.properties` file, there are several advanced properties specifically for user exit routines. These properties are not included by default so if you want to use any of them, you must manually edit the `agent.properties` file. If you make a change to `agent.properties` file while that agent is running, stop and restart the agent to pick up the changes.

The user exit routines are called in the order listed.

Table 60. Agent properties for user exits

Property name	Description
<code>sourceTransferEndExitClasses</code>	Specifies a comma-separated list of classes that implement a source transfer end exit routine.
<code>sourceTransferStartExitClasses</code>	Specifies a comma-separated list of classes that implement a source transfer start exit routine.
<code>destinationTransferStartExitClasses</code>	Specifies a comma-separated list of classes that implement a destination transfer start user exit routine.
<code>destinationTransferEndExitClasses</code>	Specifies a comma-separated list of classes that implement a destination transfer end user exit routine.
<code>exitClassPath</code>	<p>Specifies a platform-specific, character-delimited list of directories that act as the class path for user exit routines.</p> <p>The agent's exit directory is searched before any entries in this class path.</p> <p>If you are using this property on Windows, use a forward slash character (/) as a path delimiter, not the backslash character (\). For example:  <code>exitClassPath=C:/IBM/MQ/Java/lib/com.ibm.mqjms.jar;C:/IBM/MQ/Java/lib</code></p>
<code>exitNativeLibraryPath</code>	Specifies a platform-specific, character-delimited list of directories that act as the native library path for user exit routines.
<code>monitorExitClasses</code>	Specifies a comma-separated list of classes that implement a monitor exit routine. For more information, see "Resource monitor user exits" on page 1015.
<code>protocolBridgeCredentialExitClasses</code>	Specifies a comma-separated list of classes that implement a protocol bridge credential user exit routine. For more information, see "Mapping credentials for a file server using exit classes" on page 264.
<code>protocolBridgePropertiesExitClasses</code>	<p>This property is available only if you have enabled the Version 7.0.4.1 function.</p> <p>Specifies a comma-separated list of classes that implement a protocol bridge server properties user exit routine. For more information, see "Looking up protocol file server properties by using exit classes" on page 259.</p>
<code>IOExitClasses</code>	<p>This property is available only if you have enabled the Version 7.0.4.1 function.</p> <p>Specifies a comma-separated list of classes that implement an I/O user exit routine. List only the classes that implement the <code>IOExit</code> interface, that is, do not list classes that implement the other I/O user exit interfaces, for example <code>IOExitResourcePath</code> and <code>IOExitChannel</code>. For more information, see "Using WebSphere MQ File Transfer Edition transfer I/O user exits" on page 361.</p>

## Order of exit invocation

The source and destination exits are invoked in the following order:

1. SourceTransferStartExit
2. DestinationTransferStartExit
3. DestinationTransferEndExit
4. SourceTransferEndExit

## Chaining source and destination exits

If you specify multiple exits, the first exit in the list is invoked first, followed by the second exit, and so on. Any changes made by the first exit are passed as input to the exit that is subsequently invoked and so on. For example, if there are two source transfer start exits any changes made to the transfer metadata by the first exit are input to the second exit. Each exit returns its own result. If all the exits of a given type return PROCEED as a transfer result code, the overall result is PROCEED. If one or more exits return CANCEL\_TRANSFER, the overall result is CANCEL\_TRANSFER. All of the result codes and strings returned by the exits are output in the transfer log.

If the overall result from the source transfer start exit is PROCEED, the transfer proceeds using any changes made by the exits. If the overall result is CANCEL\_TRANSFER, the source transfer end exits are invoked and then the transfer is canceled. The completion status in the transfer log is "cancelled".

If the overall result from the destination transfer start exits is PROCEED, the transfer proceeds using any changes made by the exits. If the overall result is CANCEL\_TRANSFER, the destination transfer end exits are invoked, then the source transfer end exits are invoked. Finally the transfer is canceled. The completion status in the transfer log is "cancelled".

If a source or destination exit needs to pass information to following exits either in the chain or in the order of execution it must be done by updating the transfer metadata. The usage of the transfer metadata is exit implementation specific. For instance, if an exit sets the return result to CANCEL\_TRANSFER and needs to communicate to the following exits that the transfer has been canceled it must be done by setting a transfer metadata value in a way understood by the other exits.

## Example

```
sourceTransferStartExitClasses=com.ibm.wmqfte.test.MFTTestSourceTransferStartExit
sourceTransferEndExitClasses=com.ibm.wmqfte.test.MFTTestSourceTransferEndExit
destinationTransferStartExitClasses=com.ibm.wmqfte.test.MFTTestDestinationTransferStartExit
destinationTransferEndExitClasses=com.ibm.wmqfte.test.MFTTestDestinationTransferEndExit
exitClassPath=C:/IBM/MQ/Java/lib/com.ibm.mqjms.jar;C:/IBM/MQ/Java/lib/com.ibm.mq.jar
```

**Related concepts:**

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

“Metadata for user exit routines” on page 1013

There are three different types of metadata that can be supplied to user exit routines for WebSphere MQ File Transfer Edition: environment, transfer, and file metadata. This metadata is presented as maps of Java key-value pairs.

“Java interfaces for user exit routines”

Use the topics in this section for reference information about Java interfaces for user exit routines.

**Related reference:**

“Resource monitor user exits” on page 1015

Resource monitor user exits allow you to configure custom code to run when a monitor's trigger condition is satisfied, before the associated task is started.

**Java interfaces for user exit routines**

Use the topics in this section for reference information about Java interfaces for user exit routines.

**Related concepts:**

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

**Related reference:**

“DestinationTransferStartExit.java interface” on page 1025

“DestinationTransferEndExit.java interface” on page 1024

“IOExit.java interface” on page 1026

“IOExitChannel.java interface” on page 1028

“IOExitLock.java interface” on page 1030

“IOExitPath.java interface” on page 1031

“IOExitProperties.java interface” on page 1032

“IOExitRecordChannel.java interface” on page 1036

“IOExitRecordResourcePath.java interface” on page 1037

“IOExitResourcePath.java interface” on page 1039

“IOExitWildcardPath.java interface” on page 1044

“MonitorExit.java interface” on page 1044

“ProtocolBridgeCredentialExit.java interface” on page 1045

“ProtocolBridgeCredentialExit2.java interface” on page 1047

“ProtocolBridgePropertiesExit.java interface” on page 1048

“SourceFileExitFileSpecification.java interface” on page 1049

“SourceTransferStartExit.java interface” on page 1052

“SourceTransferEndExit.java interface” on page 1051

### **CDCredentialExit.java interface:**

#### **CDCredentialExit.java**

```
package com.ibm.wmqfte.exitroutine.api;
```

```
import java.util.Map;
```

```
/**
```

```
 * An interface that is implemented by classes that are invoked as part of
 * user exit routine processing. This interface defines methods that are
 * invoked by a Connect:Direct bridge agent to map the WebSphere MQ user ID of the transfer to credentials
 * that are used to access the Connect:Direct node.
 * There will be one instance of each implementation class per Connect:Direct bridge agent. The methods
 * can be called from different threads so the methods must be synchronized.
 */
```

```
public interface CDCredentialExit {
```

```
/**
```

```
 * Invoked once when a Connect:Direct bridge agent is started. It is intended to initialize
 * any resources that are required by the exit
```

```
 *
```

```
 * @param bridgeProperties
```

```
 * The values of properties defined for the Connect:Direct bridge.
```

```
 * These values can only be read, they cannot be updated by
```

```
 * the implementation.
```

```
 *
```

```
 * @return true if the initialisation is successful and false if unsuccessful
```

```
 * If false is returned from an exit the Connect:Direct bridge agent does not
```

```
 * start.
```

```
 */
```

```
public boolean initialize(final Map<String, String> bridgeProperties);
```

```
/**
```

```
 * Invoked once per transfer to map the WebSphere MQ user ID in the transfer message to the
 * credentials to be used to access the Connect:Direct node.
```

```
 *
```

```
 * @param mqUserId The WebSphere MQ user ID from which to map to the credentials to be used
 * to access the Connect:Direct node
```

```
 * @param snode The name of the Connect:Direct SNODE specified as the cdNode in the
```

```
 * file path. This is used to map the correct user ID and password for the
```

```
 * SNODE.
```

```
 * @return A credential exit result object that contains the result of the map and
```

```
 * the credentials to use to access the Connect:Direct node
```

```
 */
```

```
public CDCredentialExitResult mapMQUserId(final String mqUserId, final String snode);
```

```
/**
```

```
 * Invoked once when a Connect:Direct bridge agent is shutdown. This method releases
```

```
 * any resources that were allocated by the exit
```

```
 *
```

```
 * @param bridgeProperties
```

```
 * The values of properties defined for the Connect:Direct bridge.
```

```
 * These values can only be read, they cannot be updated by
```

```
 * the implementation.
```

```
 *
```

```

    * @return
    */
    public void shutdown(final Map<String, String> bridgeProperties); }

```

## DestinationTransferEndExit.java interface:

### DestinationTransferEndExit.java

```
package com.ibm.wmqfte.exitpoint.api;
```

```

/**
 * An interface that is implemented by classes that want to be invoked as part of
 * user exit routine processing. This interface defines a method that will be
 * invoked immediately after completing a transfer on the agent acting as the
 * destination of the transfer.
 */
public interface DestinationTransferEndExit {

    /**
     * Invoked immediately after the completion of a transfer on the agent acting as
     * the destination of the transfer.
     *
     * @param transferExitResult
     *     a result object reflecting whether or not the transfer completed
     *     successfully.
     *
     * @param sourceAgentName
     *     the name of the agent acting as the source of the transfer.
     *
     * @param destinationAgentName
     *     the name of the agent acting as the destination of the
     *     transfer. This is the name of the agent that the
     *     implementation of this method will be invoked from.
     *
     * @param environmentMetaData
     *     meta data about the environment in which the implementation
     *     of this method is running. This information can only be read,
     *     it cannot be updated by the implementation. The constants
     *     defined in <code>EnvironmentMetaDataConstants</code> class can
     *     be used to access the data held by this map.
     *
     * @param transferMetaData
     *     meta data to associate with the transfer. The information can
     *     only be read, it cannot be updated by the implementation. This
     *     map may also contain keys with IBM reserved names. These
     *     entries are defined in the <code>TransferMetaDataConstants</code>
     *     class and have special semantics.
     *
     * @param fileResults
     *     a list of file transfer result objects that describe the source
     *     file name, destination file name and result of each file transfer
     *     operation attempted.
     *
     * @return
     *     an optional description to enter into the log message describing
     *     transfer completion. A value of <code>null</code> can be used
     *     when no description is required.
     */
    String onDestinationTransferEnd(TransferExitResult transferExitResult,
        String sourceAgentName,
        String destinationAgentName,
        Map<String, String>environmentMetaData,
        Map<String, String>transferMetaData,
        List<FileTransferResult>fileResults);
}

```

### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357  
You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

### Related reference:

“SourceTransferStartExit.java interface” on page 1052

“SourceTransferEndExit.java interface” on page 1051

“DestinationTransferStartExit.java interface”

“MonitorExit.java interface” on page 1044

“ProtocolBridgeCredentialExit.java interface” on page 1045

### DestinationTransferStartExit.java interface:

#### DestinationTransferStartExit.java

```
package com.ibm.wmqfte.exitpoint.api;
```

```
/**  
 * An interface that is implemented by classes that want to be invoked as part of  
 * user exit routine processing. This interface defines a method that will be  
 * invoked immediately prior to starting a transfer on the agent acting as the  
 * destination of the transfer.  
 */  
public interface DestinationTransferStartExit {  
  
    /**  
     * Invoked immediately prior to starting a transfer on the agent acting as  
     * the destination of the transfer.  
     *  
     * @param sourceAgentName  
     *         the name of the agent acting as the source of the transfer.  
     *  
     * @param destinationAgentName  
     *         the name of the agent acting as the destination of the  
     *         transfer. This is the name of the agent that the  
     *         implementation of this method will be invoked from.  
     *  
     * @param environmentMetaData  
     *         meta data about the environment in which the implementation  
     *         of this method is running. This information can only be read,  
     *         it cannot be updated by the implementation. The constants  
     *         defined in EnvironmentMetaDataConstants class can  
     *         be used to access the data held by this map.  
     *  
     * @param transferMetaData  
     *         meta data to associate with the transfer. The information can  
     *         only be read, it cannot be updated by the implementation. This  
     *         map may also contain keys with IBM reserved names. These  
     *         entries are defined in the TransferMetaDataConstants  
     *         class and have special semantics.  
     *  
     * @param fileSpecs  
     *         a list of file specifications that govern the file data to  
     *         transfer. The implementation of this method can modify the  
     *         entries in this list and the changes will be reflected in the  
     *         files transferred. However, new entries may not be added and  
     *         existing entries may not be removed.
```

```

*
* @return a transfer exit result object which is used to determine if the
* transfer should proceed, or be cancelled.
*/
TransferExitResult onDestinationTransferStart(String sourceAgentName,
                                             String destinationAgentName,
                                             Map<String, String> environmentMetaData,
                                             Map<String, String> transferMetaData,
                                             List<Reference<String>> fileSpecs);

```

### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

### Related reference:

“SourceTransferStartExit.java interface” on page 1052

“SourceTransferEndExit.java interface” on page 1051

“DestinationTransferEndExit.java interface” on page 1024

“MonitorExit.java interface” on page 1044

“ProtocolBridgeCredentialExit.java interface” on page 1045

### IOExit.java interface:

#### IOExit.java

```
package com.ibm.wmqfte.exitroutine.api;
```

```
import java.io.IOException;
import java.util.Map;
```

```
import com.ibm.wmqfte.exitroutine.api.IOExitRecordResourcePath.RecordFormat;
```

```
/**
 * An interface that is implemented by classes that you want to be invoked as
 * part of user exit routine processing. This interface defines methods that
 * will be invoked during transfers to perform the underlying file system I/O
 * work for WMQFTE transfers.
 * <p>
 * The {@link #initialize(Map)} method will be called once when the exit is
 * first installed. The WMQFTE agent properties are passed to this method, thus
 * enabling the exit to understand its environment.
 * <p>
 * The {@link #isSupported(String)} method will be invoked during WMQFTE
 * transfers to determine whether the user exit should be used. If the
 * {@link #isSupported(String)} method returns a value of {@code true}, the
 * {@link #newPath(String)} method will be invoked for the paths specified for
 * the transfer request. The returned {@link IOExitPath} instance from a
 * {@link #newPath(String)} method invocation will then be used by the WMQFTE
 * transfer to obtain information about the resource and to transfer data to or
 * from the resource.
 * <p>
 * To obtain transfer context for an I/O exit, a {@link SourceTransferStartExit}
 * or {@link DestinationTransferStartExit} as appropriate, should be installed
 * to enable information to be seen by this exit. The
 * {@link SourceTransferStartExit} or {@link DestinationTransferStartExit} are
 * passed the transfer's environment, metadata, and a list of file
 * specifications for the transfer. The paths for the file specifications are
 * the paths passed to the I/O exit's {@link #newPath(String)} method.

```

```

* <p>
* Note also that the {@link #isSupported(String)} and {@link #newPath(String)}
* methods might be called at other times by a WMQFTE agent and not just during
* transfers. For example, at transfer setup time the I/O system is queried to
* resolve the full resource paths for transfer.
*/
public interface IOExit {

/**
 * Invoked once when the I/O exit is first required for use. It is intended
 * to initialize any resources that are required by the exit.
 *
 * @param agentProperties
 *     The values of properties defined for the WMQFTE agent. These
 *     values can only be read, they cannot be updated by the
 *     implementation.
 * @return {@code true} if the initialization is successful and {@code
 *     false} if unsuccessful. If {@code false} is returned from an
 *     exit, the exit will not be used.
 */
boolean initialize(final Map<String, String> agentProperties);

/**
 * Indicates whether this I/O user exit supports the specified path.
 * <p>
 * This method is used by WMQFTE to determine whether the I/O user exit
 * should be used within a transfer. If no I/O user exit returns true for
 * this method, the default WMQFTE file I/O function will be used.
 *
 * @param path
 *     The path to the required I/O resource.
 * @return {@code true} if the specified path is supported by the I/O exit,
 *     {@code false} otherwise
 */
boolean isSupported(String path);

/**
 * Obtains a new {@link IOExitPath} instance for the specified I/O resource
 * path.
 * <p>
 * This method will be invoked by WMQFTE only if the
 * {@link #isSupported(String)} method has been called for the path and
 * returned {@code true}.
 *
 * @param path
 *     The path to the required I/O resource.
 * @return A {@link IOExitPath} instance for the specified path.
 * @throws IOException
 *     If the path cannot be created for any reason.
 */
IOExitPath newPath(String path) throws IOException;

/**
 * Obtains a new {@link IOExitPath} instance for the specified I/O resource
 * path and passes record format and length information required by the
 * WMQFTE transfer.
 * <p>
 * Typically this method will be called for the following cases:
 * <ul>
 * <li>A path where a call to {@link #newPath(String)} has previously
 * returned a {@link IOExitRecordResourcePath} instance and WMQFTE is
 * re-establishing a new {@link IOExitPath} instance for the path, from an
 * internally-serialized state. The passed recordFormat and recordLength
 * will be the same as those for the original
 * {@link IOExitRecordResourcePath} instance.</li>
 * <li>A transfer destination path where the source of the transfer is
 * record oriented. The passed recordFormat and recordLength will be the

```

```

* same as those for the source.</li>
* </ul>
* The implementation can act on the record format and length information as
* deemed appropriate. For example, for a destination agent if the
* destination does not already exist and the source of the transfer is
* record oriented, the passed recordFormat and recordLength information
* could be used to create an appropriate record-oriented destination path.
* If the destination path already exists, the passed recordFormat and
* recordLength information could be used to perform a compatibility check
* and throw an {@link IOException} if the path is not compatible. A
* compatibility check could ensure that a record oriented path's record
* format is the same as the passed record format or that the record length
* is greater or equal to the passed record length.
* <p>
* This method will be invoked by WMQFTE only if the
* {@link #isSupported(String)} method has been called for the path and
* returned {@code true}.
*
* @param path
*     The path to the required I/O resource.
* @param recordFormat
*     The advised record format.
* @param recordLength
*     The advised record length.
* @return A {@link IOExitPath} instance for the specified path.
* @throws IOException
*     If the path cannot be created for any reason. For example,
*     the passed record format or length is incompatible with the
*     path's actual record format or length.
*/
IOExitPath newPath(String path, RecordFormat recordFormat, int recordLength)
    throws IOException;

```

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

#### Related reference:

“Using WebSphere MQ File Transfer Edition transfer I/O user exits” on page 361

You can use WebSphere MQ File Transfer Edition transfer I/O user exits to configure custom code to perform the underlying file system I/O work for WebSphere MQ File Transfer Edition transfers.

#### IOExitChannel.java interface:

##### IOExitChannel.java

```

package com.ibm.wmqfte.exitroutine.api;

import java.io.IOException;
import java.nio.ByteBuffer;

/**
 * Represents a channel that enables data to be read from or written to an
 * {@link IOExitResourcePath} resource.
 */
public interface IOExitChannel {

    /**
     * Obtains the data size for the associated {@link IOExitResourcePath} in
     * bytes.
     *
     * @return The data size in bytes.
     * @throws IOException
     *     If a problem occurs while attempting obtain the size.
     */
}

```

```

long size() throws IOException;

/**
 * Closes the channel, flushing any buffered write data to the resource and
 * releasing any locks.
 *
 * @throws RecoverableIOException
 *         If a recoverable problem occurs while closing the resource.
 *         This means that WMQFTE can attempt to recover the transfer.
 * @throws IOException
 *         If some other I/O problem occurs. For example, the channel might
 *         already be closed.
 */
void close() throws RecoverableIOException, IOException;

/**
 * Reads data from this channel into the given buffer, starting at this
 * channel's current position, and updates the current position by the
 * amount of data read.
 * <p>
 * Data is copied into the buffer starting at its current position and up to
 * its limit. On return, the buffer's position is updated to reflect the
 * number of bytes read.
 *
 * @param buffer
 *         The buffer that the data is to be copied into.
 * @return The number of bytes read, which might be zero, or -1 if the end of
 *         data has been reached.
 * @throws RecoverableIOException
 *         If a recoverable problem occurs while reading the data. For a
 *         WMQFTE transfer this means that it will attempt to recover.
 * @throws IOException
 *         If some other I/O problem occurs. For a WMQFTE transfer this
 *         means that it will be failed.
 */
int read(ByteBuffer buffer) throws RecoverableIOException, IOException;

/**
 * Writes data to this channel from the given buffer, starting at this
 * channel's current position, and updates the current position by the
 * amount of data written. The channel's resource is grown to accommodate
 * the data, if necessary.
 * <p>
 * Data is copied from the buffer starting at its current position and up to
 * its limit. On return, the buffer's position is updated to reflect the
 * number of bytes written.
 *
 * @param buffer
 *         The buffer containing the data to be written.
 * @return The number of bytes written, which might be zero.
 * @throws RecoverableIOException
 *         If a recoverable problem occurs while writing the data. For a
 *         WMQFTE transfer this means that it will attempt to recover.
 * @throws IOException
 *         If some other I/O problem occurs. For a WMQFTE transfer this
 *         means that it will be failed.
 */
int write(ByteBuffer buffer) throws RecoverableIOException, IOException;

/**
 * Forces any updates to this channel's resource to be written to its
 * storage device.
 * <p>
 * This method is required to force changes to both the resource's content
 * and any associated metadata to be written to storage.
 *
 * @throws RecoverableIOException

```

```

*         If a recoverable problem occurs while performing the force.
*         For a WMQFTE transfer this means that it will attempt to
*         recover.
* @throws IOException
*         If some other I/O problem occurs. For a WMQFTE transfer this
*         means that it will be failed.
*/
void force() throws RecoverableIOException, IOException;

/**
 * Attempts to lock the entire resource associated with the channel for
 * shared or exclusive access.
 * <p>
 * The intention is for this method not to block if the lock is currently
 * unavailable.
 *
 * @param shared
 *         {@code true} if a shared lock is required, {@code false} if an
 *         exclusive lock is required.
 * @return A {@link IOExitLock} instance representing the newly acquired
 *         lock or null if the lock cannot be obtained.
 * @throws IOException
 *         If a problem occurs while attempting to acquire the lock.
 */
IOExitLock tryLock(boolean shared) throws IOException;
}

```

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

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#### IOExitLock.java interface:

##### IOExitLock.java

```

package com.ibm.wmqfte.exitroutine.api;

import java.io.IOException;

/**
 * Represents a lock on a resource for either shared or exclusive access.
 * {@link IOExitLock} instances are returned from
 * {@link IOExitChannel#tryLock(boolean)} calls and WMQFTE will request the
 * release of the lock at the appropriate time during a transfer. Additionally, when
 * a {@link IOExitChannel#close()} method is called it will be the
 * responsibility of the channel to release any associated locks.
 */
public interface IOExitLock {

    /**
     * Releases the lock.
     * <p>
     * After this method has been successfully called the lock is to be deemed as invalid.
     *
     * @throws IOException
     *         If the channel associated with the lock is not open or
     *         another problem occurs while attempting to release the lock.
     */
    void release() throws IOException;
}

```

```

/**
 * Indicates whether this lock is valid.
 * <p>
 * A lock is considered valid until its @ {@link #release()} method is
 * called or the associated {@link IOExitChannel} is closed.
 *
 * @return {@code true} if this lock is valid, {@code false} otherwise.
 */
boolean isValid();

/**
 * @return {@code true} if this lock is for shared access, {@code false} if
 *         this lock is for exclusive access.
 */
boolean isShared();
}

```

### Related concepts:

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### IOExitPath.java interface:

#### IOExitPath.java

```
package com.ibm.wmqfte.exitroutine.api;
```

```

/**
 * Represents an abstract path that can be inspected and queried by WMQFTE for
 * transfer purposes.
 * <p>
 * There are two types of path supported:
 * <ul>
 * <li>{@link IOExitResourcePath} - Represents a path that denotes a data
 * resource. For example, a file, directory, or group of database records.</li>
 * <li>{@link IOExitWildcardPath} - Represents a wildcard path that can be
 * expanded to multiple {@link IOExitResourcePath} instances.</li>
 * </ul>
 */
public abstract interface IOExitPath {

    /**
     * Obtains the abstract path as a {@link String}.
     *
     * @return The abstract path as a {@link String}.
     */
    String getPath();

    /**
     * Obtains the name portion of this abstract path as a {@link String}.
     * <p>
     * For example, a UNIX-style file system implementation evaluates the
     * path {@code /home/fteuser/file1.txt} as having a name of {@code
     * file1.txt}.
     *
     * @return the name portion of this abstract path as a {@link String}.
     */
    String getName();
}

```

```

* Obtains the parent path for this abstract path as a {@link String}.
* <p>
* For example, a UNIX-style file system implementation evaluates the
* path {@code /home/fteuser/file1.txt} as having a parent path of {@code
* /home/fteuser}.
*
* @return The parent portion of the path as a {@link String}.
*/
String getParent();

/**
* Obtains the abstract paths that match this abstract path.
* <p>
* If this abstract path denotes a directory resource, a list of paths
* for all resources within the directory are returned.
* <p>
* If this abstract path denotes a wildcard, a list of all paths
* matching the wildcard are returned.
* <p>
* Otherwise null is returned, because this abstract path probably denotes a
* single file resource.
*
* @return An array of {@link IOExitResourcePath}s that
*         match this path, or null if this method is not applicable.
*/
IOExitResourcePath[] listPaths();
}

```

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

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#### IOExitProperties.java interface:

##### IOExitProperties.java

```
package com.ibm.wmqfte.exitroutine.api;
```

```

/**
* Properties that determine how WMQFTE treats an {@link IOExitPath} for certain
* aspects of I/O. For example, whether to use intermediate files.
*/
public class IOExitProperties {

    private boolean rereadSourceOnRestart = true;
    private boolean rechecksumSourceOnRestart = true;
    private boolean rechecksumDestinationOnRestart = true;
    private boolean useIntermediateFileAtDestination = true;
    private boolean requiresSingleThreadedChannelIO = false;

    /**
    * Determines whether the I/O exit implementation expects the resource to be
    * re-read from the start if a transfer is restarted.
    *
    * @return {@code true} if, on restart, the I/O exit expects the source
    *         resource to be opened at the beginning and re-read from the
    *         beginning (the {@link IOExitPath#openForRead(long)} method is
    *         always invoked with 0L as an argument). {@code false} if, on
    *         restart, the I/O exit expects the source to be opened at the
    *         offset that the source agent intends to start reading from (the

```

```

*      {@link IOExitPath#openForRead(long)} method can be invoked with a
*      non-zero value as its argument).
*/
public boolean getRereadSourceOnRestart() {
    return rereadSourceOnRestart;
}

/**
 * Sets the value to determine whether the I/O exit implementation expects
 * the resource to be re-read from the beginning if a transfer is restarted.
 * <p>
 * The default is {@code true}. The I/O exit should call this method when
 * required to change this value.
 *
 * @param rereadSourceOnRestart
 *      {@code true} if, on restart, the I/O exit expects the source
 *      resource to be opened at the beginning and re-read from the
 *      beginning (the {@link IOExitPath#openForRead(long)} method
 *      is always invoked with 0L as an argument). {@code false}
 *      if, on restart, the I/O exit expects the source to be opened
 *      at the offset that the source agent intends to start reading
 *      from (the {@link IOExitPath#openForRead(long)} method can be
 *      invoked with a non-zero value as its argument).
 */
public void setRereadSourceOnRestart(boolean rereadSourceOnRestart) {
    this.rereadSourceOnRestart = rereadSourceOnRestart;
}

/**
 * Determines whether the I/O exit implementation requires the source
 * resource to be re-checkedsummed if the transfer is restarted.
 * Re-checkedsumming takes place only if the
 * {@link #getRereadSourceOnRestart()} method returns {@code true}.
 *
 * @return {@code true} if, on restart, the I/O exit expects the already-
 *         transferred portion of the source to be re-checkedsummed for
 *         inconsistencies. Use this option in environments
 *         where the source could be changed during a restart. {@code
 *         false} if, on restart, the I/O exit does not require the
 *         already-transferred portion of the source to be re-checkedsummed.
 */
public boolean getRechecksumSourceOnRestart() {
    return rechecksumSourceOnRestart;
}

/**
 * Sets the value to determine whether the I/O exit implementation requires
 * the source resource to be re-checkedsummed if the transfer is restarted.
 * Re-checkedsumming takes place only if the
 * {@link #getRereadSourceOnRestart()} method returns {@code true}.
 * <p>
 * The default is {@code true}. The I/O exit should call this method when
 * required to change this value.
 *
 * @param rechecksumSourceOnRestart
 *      {@code true} if, on restart, the I/O exit expects the already
 *      transferred portion of the source to be re-checkedsummed
 *      for inconsistencies. Use this option in environments
 *      where the source could be changed during a restart.
 *      {@code false} if, on restart, the I/O exit does not
 *      require the already-transferred portion of the source to be
 *      re-checkedsummed.
 */
public void setRechecksumSourceOnRestart(boolean rechecksumSourceOnRestart) {
    this.rechecksumSourceOnRestart = rechecksumSourceOnRestart;
}

```

```

/**
 * Determines whether the I/O exit implementation requires the destination
 * resource to be re-checksummed if the transfer is restarted.
 *
 * @return {@code true} if, on restart, the I/O exit expects the already
 *         transferred portion of the destination to be re-checksummed to
 *         check for inconsistencies. This option should be used in
 *         environments where the destination could have been changed while
 *         a restart is occurring. {@code false} if, on restart, the I/O exit
 *         does not require the already transferred portion of the
 *         destination to be re-checksummed.
 */
public boolean getRechecksumDestinationOnRestart() {
    return rechecksumDestinationOnRestart;
}

/**
 * Sets the value to determine whether the I/O exit implementation requires
 * the destination resource to be re-checksummed if the transfer is
 * restarted.
 * <p>
 * The default is {@code true}. The I/O exit should call this method when
 * required to change this value.
 *
 * @param rechecksumDestinationOnRestart
 *        {@code true} if, on restart, the I/O exit expects the already-
 *        transferred portion of the destination to be re-checksummed
 *        for inconsistencies. Use this option in environments
 *        where the destination could have been changed during a
 *        restart. {@code false} if, on restart, the I/O exit does not
 *        require the already-transferred portion of the destination
 *        to be re-checksummed.
 */
public void setRechecksumDestinationOnRestart(
    boolean rechecksumDestinationOnRestart) {
    this.rechecksumDestinationOnRestart = rechecksumDestinationOnRestart;
}

/**
 * Determines whether the I/O exit implementation requires the use of an
 * intermediate file when writing the data at the destination. The
 * intermediate file mechanism is typically used to prevent an incomplete
 * destination resource from being processed.
 *
 * @return {@code true} if data should be written to an intermediate file at
 *         the destination and then renamed (to the requested destination
 *         path name as specified in the transfer request) after the transfer is
 *         complete. {@code false} if data should be written directly to the
 *         requested destination path name without the use of an
 *         intermediate file.
 */
public boolean getUseIntermediateFileAtDestination() {
    return useIntermediateFileAtDestination;
}

/**
 * Sets the value to determine whether the I/O exit implementation requires
 * the use of an intermediate file when writing the data at the destination.
 * The intermediate file mechanism is typically used to prevent an
 * incomplete destination resource from being processed.
 *
 * <p>
 * The default is {@code true}. The I/O exit should call this method when
 * required to change this value.
 *
 * @param useIntermediateFileAtDestination
 *        {@code true} if data should be written to an intermediate file

```

```

*         at the destination and then renamed (to the requested
*         destination path name as specified in the transfer request) after
*         the transfer is complete. {@code false} if data should be written
*         directly to the requested destination path name without the
*         use of an intermediate file
*/
public void setUseIntermediateFileAtDestination(
    boolean useIntermediateFileAtDestination) {
    this.useIntermediateFileAtDestination = useIntermediateFileAtDestination;
}

/**
 * Determines whether the I/O exit implementation requires
 * {@link IOExitChannel} instances to be accessed by a single thread only.
 *
 * @return {@code true} if {@link IOExitChannel} instances are to be
 *         accessed by a single thread only.
 */
public boolean requiresSingleThreadedChannelIO() {
    return requiresSingleThreadedChannelIO;
}

/**
 * Sets the value to determine whether the I/O exit implementation requires
 * channel operations for a particular instance to be accessed by a
 * single thread only.
 *
 * <p>
 * For certain I/O implementations it is necessary that resource path
 * operations such as open, read, write, and close are invoked only from a
 * single execution {@link Thread}. When set {@code true}, WMQFTE ensures
 * that the following are invoked on a single thread:
 *
 * <ul>
 * <li>{@link IOExitResourcePath#openForRead(long)} method and all methods of
 * the returned {@link IOExitChannel} instance.</li>
 * <li>{@link IOExitResourcePath#openForWrite(boolean)} method and all
 * methods of the returned {@link IOExitChannel} instance.</li>
 * </ul>
 *
 * <p>
 * This has a slight performance impact, hence enable single-threaded channel
 * I/O only when absolutely necessary.
 *
 * <p>
 * The default is {@code false}. The I/O exit should call this method when
 * required to change this value.
 *
 * @param requiresSingleThreadedChannelIO
 *         {@code true} if {@link IOExitChannel} instances are to be
 *         accessed by a single thread only.
 */
public void setRequiresSingleThreadedChannelIO(boolean requiresSingleThreadedChannelIO) {
    this.requiresSingleThreadedChannelIO = requiresSingleThreadedChannelIO;
}
}

```

### Related concepts:

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### IOExitRecordChannel.java interface:

#### IOExitRecordChannel.java

```
package com.ibm.wmqfte.exitroutine.api;

import java.io.IOException;
import java.nio.ByteBuffer;

/**
 * Represents a channel that enables records of data to be read from or written
 * to an {@link IOExitRecordResourcePath} resource.
 * <p>
 * This is an extension of the {@link IOExitChannel} interface such that the
 * {@link #read(java.nio.ByteBuffer)} and {@link #write(java.nio.ByteBuffer)}
 * methods are expected to deal in whole records of data only. That is, the
 * {@link java.nio.ByteBuffer} returned from the read method and passed to the
 * write method is assumed to contain one or more complete records.
 */
public interface IOExitRecordChannel extends IOExitChannel {

    /**
     * Reads records from this channel into the given buffer, starting at this
     * channel's current position, and updates the current position by the
     * amount of data read.
     * <p>
     * Record data is copied into the buffer starting at its current position
     * and up to its limit. On return, the buffer's position is updated to
     * reflect the number of bytes read.
     * <p>
     * Only whole records are copied into the buffer.
     * <p>
     * For a fixed-record-format resource, this might be multiple records. The
     * amount of data in the return buffer does not necessarily need to be a
     * multiple of the record length, but the last record is still to be treated
     * as a complete record and padded as required by the caller.
     * <p>
     * For a variable-format resource, this is a single whole record of a size
     * corresponding to the amount of return data or multiple whole records with
     * all except the last being treated as records of maximum size.
     *
     * @param buffer
     *         The buffer that the record data is to be copied into.
     * @return The number of bytes read, which might be zero, or -1 if the end of
     *         data has been reached.
     * @throws RecoverableIOException
     *         If a recoverable problem occurs while reading the data. For a
     *         WMQFTE transfer this means that it will attempt to recover.
     * @throws IOException
     *         If some other I/O problem occurs, for example, if the passed
     *         buffer is insufficient to contain at least one complete
     *         record). For a WMQFTE transfer this means that it will be
     *         failed.
     */
    int read(ByteBuffer buffer) throws RecoverableIOException, IOException;
```

```

/**
 * Writes records to this channel from the given buffer, starting at this
 * channel's current position, and updates the current position by the
 * amount of data written. The channel's resource is grown to accommodate
 * the data, if necessary.
 * <p>
 * Record data is copied from the buffer starting at its current position
 * and up to its limit. On return, the buffer's position is updated to
 * reflect the number of bytes written.
 * <p>
 * The buffer is expected to contain only whole records.
 * <p>
 * For a fixed-record-format resource, this might be multiple records and if
 * there is insufficient data in the buffer for a complete record, the
 * record is to be padded as required to complete the record.
 * <p>
 * For a variable-record format resource the buffer is normally expected to
 * contain a single record of length corresponding to the amount of data
 * within the buffer. However, if the amount of data within the buffer
 * exceeds the maximum record length, the implementation can either:
 * <ol>
 * <li>throw an {@link IOException} indicating that it cannot handle the
 * situation.</li>
 * <li>Consume a record's worth of data from the buffer, leaving the remaining
 * data within the buffer.</li>
 * <li>Consume all the buffer data and just write what it can to the current
 * record. This effectively truncates the data.</li>
 * <li>Consume all the buffer data and write to multiple records.</li>
 * </ol>
 *
 * @param buffer
 *     The buffer containing the data to be written.
 * @return The number of bytes written, which might be zero.
 * @throws RecoverableIOException
 *     If a recoverable problem occurs while writing the data. For a
 *     WMQFTE transfer this means that it will attempt to recover.
 * @throws IOException
 *     If some other I/O problem occurs. For a WMQFTE transfer this
 *     means that it will be failed.
 */
int write(ByteBuffer buffer) throws RecoverableIOException, IOException;
}

```

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#### IOExitRecordResourcePath.java interface:

##### IOExitRecordResourcePath.java

```
package com.ibm.wmqfte.exitroutine.api;
```

```
import java.io.IOException;
```

```

/**
 * Represents a path that denotes a record-oriented data resource (for example,
 * a z/OS data set). It allows the data to be located, the record format to be
 * understood, and {@link IOExitRecordChannel} instances to be created for read

```

```

* or write operations.
*/
public interface IOExitRecordResourcePath extends IOExitResourcePath {

/**
 * Record formats for record-oriented resources.
 */
public enum RecordFormat {
    FIXED, VARIABLE
}

/**
 * Obtains the record length for records that are maintained by the resource
 * denoted by this abstract path.
 * <p>
 * For a resource with fixed-length records, the data for each record read
 * and written is assumed to be this length.
 * <p>
 * For a resource with variable-length records, this is the maximum length
 * for a record's data.
 * <p>
 * This method should return a value greater than zero, otherwise it can
 * result in the failure of a WMQFTE transfer that involves this abstract
 * path.
 *
 * @return The record length, in bytes, for records maintained by the
 *         resource.
 */
int getRecordLength();

/**
 * Obtains record format, as a {@link RecordFormat} instance, for records
 * that are maintained by the resource denoted by this abstract path.
 *
 * @return A {@link RecordFormat} instance for the record format for records
 *         that are maintained by the resource denoted by this abstract
 *         path.
 */
RecordFormat getRecordFormat();

/**
 * Opens a {@link IOExitRecordChannel} instance for reading data from the
 * resource denoted by this abstract path. The current data byte position
 * for the resource is expected to be the passed position value, such that
 * when {@link IOExitRecordChannel#read(java.nio.ByteBuffer)} is called,
 * data starting from that position is read.
 * <p>
 * Note that the data byte read position will be on a record boundary.
 *
 * @param position
 *         The required data byte read position.
 * @return A new {@link IOExitRecordChannel} instance allowing data to be
 *         read from the resource denoted by this abstract path.
 * @throws RecoverableIOException
 *         If a recoverable problem occurs while attempting to open the
 *         resource for reading. This means that WMQFTE can attempt to
 *         recover the transfer.
 * @throws IOException
 *         If some other I/O problem occurs.
 */
IOExitRecordChannel openForRead(long position)
    throws RecoverableIOException, IOException;

/**
 * Opens a {@link IOExitRecordChannel} instance for writing data to the
 * resource denoted by this abstract path. Writing of data, using the
 * {@link IOExitRecordChannel#write(java.nio.ByteBuffer)} method, starts at

```

```

* either the beginning of the resource or end of the current data for the
* resource, depending on the specified append parameter.
*
* @param append
*     When {code true} indicates that data written to the resource
*     should be appended to the end of the current data. When
*     {code false} indicates that writing of data is to start at
*     the beginning of the resource; any existing data is lost.
* @return A new {@link IOExitRecordChannel} instance allowing data to be
*     written to the resource denoted by this abstract path.
* @throws RecoverableIOException
*     If a recoverable problem occurs while attempting to open the
*     resource for writing. This means that WMQFTE can attempt to
*     recover the transfer.
* @throws IOException
*     If some other I/O problem occurs.
*/
IOExitRecordChannel openForWrite(boolean append)
    throws RecoverableIOException, IOException;
}

```

### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

### Related reference:

“Using WebSphere MQ File Transfer Edition transfer I/O user exits” on page 361

You can use WebSphere MQ File Transfer Edition transfer I/O user exits to configure custom code to perform the underlying file system I/O work for WebSphere MQ File Transfer Edition transfers.

### IOExitResourcePath.java interface:

#### IOExitResourcePath.java

```

package com.ibm.wmqfte.exitroutine.api;

import java.io.IOException;

/**
 * Represents a path that denotes a data resource (for example, a file,
 * directory, or group of database records). It allows the data to be located
 * and {@link IOExitChannel} instances to be created for read or write
 * operations.
 * <p>
 * There are two types of data resources as follows:
 * <ul>
 * <li>Directory - a container for other data resources. The
 * {@link #isDirectory()} method returns {code true} for these.</li>
 * <li>File - a data container. This allows data to be read from or written to
 * it. The {@link #isFile()} method returns {code true} for these.</li>
 * </ul>
 */
public interface IOExitResourcePath extends IOExitPath {

    /**
     * Creates a new {@link IOExitResourcePath} instance for a child path of the
     * resource denoted by this abstract path.
     * <p>
     * For example, with a UNIX-style path, {code
     * IOExitResourcePath("/home/fteuser/test").newPath("subtest")} could be
     * equivalent to: {code IOExitResourcePath("/home/fteuser/test/subtest")}
     *
     * @param child
     *     The child path name.
     * @return A new {@link IOExitResourcePath} instance that represents a child

```

```

*         of this path.
*/
IOExitResourcePath newPath(final String child);

/**
 * Creates the directory path for the resource denoted by this abstract
 * path, including any necessary but nonexistent parent directories. If the
 * directory path already exists, this method has no effect.
 * <p>
 * If this operation fails, it might have succeeded in creating some of the
 * necessary parent directories.
 *
 * @throws IOException
 *         If the directory path cannot be fully created, when it does
 *         not already exist.
 */
void makePath() throws IOException;

/**
 * Obtains the canonical path of the abstract path as a {@link String}.
 * <p>
 * A canonical path is defined as being absolute and unique. For example,
 * the path can be represented as UNIX-style relative path: {@code
 * test/file.txt} but the absolute and unique canonical path representation
 * is: {@code /home/fteuser/test/file.txt}
 *
 * @return The canonical path as a {@link String}.
 * @throws IOException
 *         If the canonical path cannot be determined for any reason.
 */
String getCanonicalPath() throws IOException;

/**
 * Tests if this abstract path is an absolute path.
 * <p>
 * For example, a UNIX-style path, {@code /home/fteuser/test} is an absolute
 * path, whereas {@code fteuser/test} is not.
 *
 * @return {@code true} if this abstract path is an absolute path, {@code
 *         false} otherwise.
 */
boolean isAbsolute();

/**
 * Tests if the resource denoted by this abstract path exists.
 *
 * @return {@code true} if the resource denoted by this abstract path
 *         exists, {@code false} otherwise.
 * @throws IOException
 *         If the existence of the resource cannot be determined for any
 *         reason.
 */
boolean exists() throws IOException;

/**
 * Tests whether the calling application can read the resource denoted by
 * this abstract path.
 *
 * @return {@code true} if the resource for this path exists and can be
 *         read, {@code false} otherwise.
 * @throws IOException
 *         If a problem occurs while attempting to determine if the
 *         resource can be read.
 */
boolean canRead() throws IOException;

/**

```

```

* Tests whether the calling application can modify the resource denoted by
* this abstract path.
*
* @return {@code true} if the resource for this path exists and can be
*         modified, {@code false} otherwise.
* @throws IOException
*         If a problem occurs while attempting to determine if the
*         resource can be modified.
*/
boolean canWrite() throws IOException;

/**
* Tests whether the specified user is permitted to read the resource
* denoted by this abstract path.
* <p>
* When WMQFTE invokes this method, the user identifier is the MQMD user
* identifier for the requesting transfer.
*
* @param userId
*         User identifier to test for access.
* @return {@code true} if the resource for this abstract path exists and is
*         permitted to be read by the specified user, {@code false}
*         otherwise.
* @throws IOException
*         If a problem occurs while attempting to determine if the user
*         is permitted to read the resource.
*/
boolean readPermitted(String userId) throws IOException;

/**
* Tests whether the specified user is permitted to modify the resource
* denoted by this abstract path.
* <p>
* When WMQFTE invokes this method, the user identifier is the MQMD user
* identifier for the requesting transfer.
*
* @param userId
*         User identifier to test for access.
* @return {@code true} if the resource for this abstract path exists and is
*         permitted to be modified by the specified user, {@code false}
*         otherwise.
* @throws IOException
*         If a problem occurs while attempting to determine if the user
*         is permitted to modify the resource.
*/
boolean writePermitted(String userId) throws IOException;

/**
* Tests if the resource denoted by this abstract path is a directory-type
* resource.
*
* @return {@code true} if the resource denoted by this abstract path is a
*         directory type resource, {@code false} otherwise.
*/
boolean isDirectory();

/**
* Creates the resource denoted by this abstract path, if it does not
* already exist.
*
* @return {@code true} if the resource does not exist and was successfully
*         created, {@code false} if the resource already existed.
* @throws RecoverableIOException
*         If a recoverable problem occurs while attempting to create
*         the resource. This means that WMQFTE can attempt to recover
*         the transfer.
* @throws IOException

```

```

*           If some other I/O problem occurs.
*/
boolean createNewPath() throws RecoverableIOException, IOException;

/**
 * Tests if the resource denoted by this abstract path is a file-type
 * resource.
 *
 * @return {@code true} if the resource denoted by this abstract path is a
 *         file type resource, {@code false} otherwise.
 */
boolean isFile();

/**
 * Obtains the last modified time for the resource denoted by this abstract
 * path.
 * <p>
 * This time is measured in milliseconds since the epoch (00:00:00 GMT,
 * January 1, 1970).
 *
 * @return The last modified time for the resource denoted by this abstract
 *         path, or a value of 0L if the resource does not exist or a
 *         problem occurs.
 */
long lastModified();

/**
 * Deletes the resource denoted by this abstract path.
 * <p>
 * If the resource is a directory, it must be empty for the delete to work.
 *
 * @throws IOException
 *         If the delete of the resource fails for any reason.
 */
void delete() throws IOException;

/**
 * Renames the resource denoted by this abstract path to the specified
 * destination abstract path.
 * <p>
 * The rename should still be successful if the resource for the specified
 * destination abstract path already exists and it is possible to replace
 * it.
 *
 * @param destination
 *        The new abstract path for the resource denoted by this
 *        abstract path.
 * @throws IOException
 *        If the rename of the resource fails for any reason.
 */
void renameTo(IOExceptionResourcePath destination) throws IOException;

/**
 * Creates a new path to use for writing to a temporary resource that did
 * not previously exist.
 * <p>
 * The implementation can choose the abstract path name for the temporary
 * resource. However, for clarity and problem diagnosis, the abstract path
 * name for the temporary resource should be based on this abstract path
 * name with the specified suffix appended and additional characters to make
 * the path unique (for example, sequence numbers), as required.
 * <p>
 * When WMQFTE transfers data to a destination it normally attempts to first
 * write to a temporary resource then on transfer completion renames the
 * temporary resource to the required destination. This method is called by
 * WMQFTE to create a new temporary resource path. The returned path should
 * be new and the resource should not previously exist.

```

```

*
* @param suffix
*     Recommended suffix to use for the generated temporary path.
*
* @return A new {@link IOExitResourcePath} instance for the temporary
*     resource path, that did not previously exist.
* @throws RecoverableIOException
*     If a recoverable problem occurs whilst attempting to create
*     the temporary resource. This means that WMQFTE can attempt to
*     recover the transfer.
* @throws IOException
*     If some other I/O problem occurs.
*/
IOExitResourcePath createTempPath(String suffix)
    throws RecoverableIOException, IOException;

/**
* Opens a {@link IOExitChannel} instance for reading data from the resource
* denoted by this abstract path. The current data byte position for the
* resource is expected to be the passed position value, such that when
* {@link IOExitChannel#read(java.nio.ByteBuffer)} is called, data starting
* from that position is read.
*
* @param position
*     The required data byte read position.
* @return A new {@link IOExitChannel} instance allowing data to be read
*     from the resource denoted by this abstract path.
* @throws RecoverableIOException
*     If a recoverable problem occurs while attempting to open the
*     resource for reading. This means that WMQFTE can attempt to
*     recover the transfer.
* @throws IOException
*     If some other I/O problem occurs.
*/
IOExitChannel openForRead(long position) throws RecoverableIOException,
    IOException;

/**
* Opens a {@link IOExitChannel} instance for writing data to the resource
* denoted by this abstract path. Writing of data, using the
* {@link IOExitChannel#write(java.nio.ByteBuffer)} method, starts at either
* the beginning of the resource or end of the current data for the
* resource, depending on the specified append parameter.
*
* @param append
*     When {@code true} indicates that data written to the resource
*     should be appended to the end of the current data. When
*     {@code false} indicates that writing of data is to start at
*     the beginning of the resource; any existing data is lost.
* @return A new {@link IOExitChannel} instance allowing data to be written
*     to the resource denoted by this abstract path.
* @throws RecoverableIOException
*     If a recoverable problem occurs whilst attempting to open the
*     resource for writing. This means that WMQFTE can attempt to
*     recover the transfer.
* @throws IOException
*     If some other I/O problem occurs.
*/
IOExitChannel openForWrite(boolean append) throws RecoverableIOException,
    IOException;

/**
* Tests if the resource denoted by this abstract path is in use by another
* application. Typically, this is because another application has a lock on
* the resource either for shared or exclusive access.
*
* @return {@code true} if resource denoted by this abstract path is in use

```

```

    *          by another application, {@code false} otherwise.
    */
    boolean inUse();

    /**
     * Obtains a {@link IOExitProperties} instance for properties associated
     * with the resource denoted by this abstract path.
     * <p>
     * WMQFTE will read these properties to govern how a transfer behaves when
     * interacting with the resource.
     *
     * @return A {@link IOExitProperties} instance for properties associated
     *         with the resource denoted by this abstract path.
     */
    IOExitProperties getProperties();
}

```

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

#### Related reference:

“Using WebSphere MQ File Transfer Edition transfer I/O user exits” on page 361

You can use WebSphere MQ File Transfer Edition transfer I/O user exits to configure custom code to perform the underlying file system I/O work for WebSphere MQ File Transfer Edition transfers.

#### IOExitWildcardPath.java interface:

##### IOExitWildcardPath.java

```

package com.ibm.wmqfte.exitroutine.api;

/**
 * Represents a path that denotes a wildcard. This can be used to match multiple
 * resource paths.
 */
public interface IOExitWildcardPath extends IOExitPath {

```

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

#### Related reference:

“Using WebSphere MQ File Transfer Edition transfer I/O user exits” on page 361

You can use WebSphere MQ File Transfer Edition transfer I/O user exits to configure custom code to perform the underlying file system I/O work for WebSphere MQ File Transfer Edition transfers.

#### MonitorExit.java interface:

##### MonitorExit.java

```

package com.ibm.wmqfte.exitroutine.api;

import java.util.Map;

/**
 * An interface that is implemented by classes that want to be invoked as part of
 * user exit routine processing. This interface defines a method that will be
 * invoked immediately prior to starting a task as the result of a monitor trigger
 */
public interface MonitorExit {

```

```

/**
 * Invoked immediately prior to starting a task as the result of a monitor
 * trigger.
 *
 * @param environmentMetaData
 *     meta data about the environment in which the implementation
 *     of this method is running. This information can only be read,
 *     it cannot be updated by the implementation. The constant
 *     defined in <code>EnvironmentMetaDataConstants</code> class can
 *     be used to access the data held by this map.
 *
 * @param monitorMetaData
 *     meta data to associate with the monitor. The meta data passed
 *     to this method can be altered, and the changes will be
 *     reflected in subsequent exit routine invocations. This map
 *     also contains keys with IBM reserved names. These entries are
 *     defined in the <code>MonitorMetaDataConstants</code> class and
 *     have special semantics. The the values of the IBM reserved names
 *     cannot be modified by the exit
 *
 * @param taskDetails
 *     An XML String representing the task to be executed as a result of
 *     the monitor triggering. This XML string may be modified by the
 *     exit
 *
 * @return a monitor exit result object which is used to determine if the
 *     task should proceed, or be cancelled.
 */
MonitorExitResult onMonitor(Map<String, String> environmentMetaData,
                           Map<String, String> monitorMetaData,
                           Reference<String> taskDetails);
}

```

#### Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

#### Related reference:

“SourceTransferStartExit.java interface” on page 1052

“SourceTransferEndExit.java interface” on page 1051

“DestinationTransferStartExit.java interface” on page 1025

“DestinationTransferEndExit.java interface” on page 1024

“ProtocolBridgeCredentialExit.java interface”

#### ProtocolBridgeCredentialExit.java interface:

##### ProtocolBridgeCredentialExit.java

```

package com.ibm.wmqfte.exitroutine.api;

import java.util.Map;

```

```

/**
 * An interface that is implemented by classes that are to be invoked as part of
 * user exit routine processing. This interface defines methods that will
 * be invoked by a protocol bridge agent to map the MQ user id of the transfer to credentials
 * that are to be used to access the protocol server.
 * There will be one instance of each implementation class per protocol bridge agent. The methods
 * can be called from different threads so the methods must be synchronized.
 */
public interface ProtocolBridgeCredentialExit {

    /**
     * Invoked once when a protocol bridge agent is started. It is intended to initialize
     * any resources that are required by the exit
     *
     * @param bridgeProperties
     *         The values of properties defined for the protocol bridge.
     *         These values can only be read, they cannot be updated by
     *         the implementation.
     *
     * @return true if the initialization is successful and false if unsuccessful
     *         If false is returned from an exit the protocol bridge agent will not
     *         start
     */
    public boolean initialize(final Map<String> bridgeProperties);

    /**
     * Invoked once for each transfer to map the MQ user id in the transfer message to the
     * credentials to be used to access the protocol server
     *
     * @param mqUserId The MQ user id from which to map to the credentials to be used
     *         access the protocol server
     * @return A credential exit result object that contains the result of the map and
     *         the credentials to use to access the protocol server
     */
    public CredentialExitResult mapMQUserId(final String mqUserId);

    /**
     * Invoked once when a protocol bridge agent is shutdown. It is intended to release
     * any resources that were allocated by the exit
     *
     * @param bridgeProperties
     *         The values of properties defined for the protocol bridge.
     *         These values can only be read, they cannot be updated by
     *         the implementation.
     *
     * @return
     */
    public void shutdown(final Map<String> bridgeProperties);
}

```

### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

### Related tasks:

“Mapping credentials for a file server using exit classes” on page 264

If you do not want to use the default credential mapping function of the protocol bridge agent, you can map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping. If you configure credential mapping user exits, they take the place of the default credential mapping function.

### ProtocolBridgeCredentialExit2.java interface:

#### ProtocolBridgeCredentialExit2.java

```
package com.ibm.wmqfte.exitroutine.api;
```

```
/**
 * An interface that is implemented by classes that are invoked as part of user
 * exit routine processing. This interface defines methods that are invoked by a
 * protocol bridge agent to map the MQ user ID of the transfer to credentials
 * used to access a specified protocol bridge server. There will be one instance
 * of each implementation class for each protocol bridge agent. The methods can
 * be called from different threads so the methods must be synchronized.
 */
public interface ProtocolBridgeCredentialExit2 extends
    ProtocolBridgeCredentialExit {

    /**
     * Invoked once for each transfer to map the MQ user ID in the transfer
     * message to the credentials used to access a specified protocol server.
     *
     * @param endPoint
     *     Information that describes the protocol server to be accessed.
     * @param mqUserId
     *     The MQ user ID from which to map the credentials used to
     *     access the protocol server.
     * @return A {@link CredentialExitResult} instance that contains the result
     *     of the map and the credentials to use to access the protocol
     *     server.
     */
    public CredentialExitResult mapMQUserId(
        final ProtocolServerEndPoint endPoint, final String mqUserId);
}
```

## Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

## Related tasks:

“Mapping credentials for a file server using exit classes” on page 264

If you do not want to use the default credential mapping function of the protocol bridge agent, you can map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping. If you configure credential mapping user exits, they take the place of the default credential mapping function.

## ProtocolBridgePropertiesExit.java interface:

### ProtocolBridgePropertiesExit.java

```
package com.ibm.wmqfte.exitroutine.api;

import java.util.Map;
import java.util.Properties;

/**
 * An interface that is implemented by classes that are to be invoked as part of
 * user exit routine processing. This interface defines methods that will be
 * invoked by a protocol bridge agent to look up properties for protocol servers
 * that are referenced in transfers.
 * <p>
 * There will be one instance of each implementation class for each protocol
 * bridge agent. The methods can be called from different threads so the methods
 * must be synchronised.
 */
public interface ProtocolBridgePropertiesExit {

    /**
     * Invoked once when a protocol bridge agent is started. It is intended to
     * initialize any resources that are required by the exit.
     *
     * @param bridgeProperties
     *        The values of properties defined for the protocol bridge.
     *        These values can only be read, they cannot be updated by the
     *        implementation.
     * @return {@code true} if the initialization is successful and {@code
     *         false} if unsuccessful. If {@code false} is returned from an exit
     *         the protocol bridge agent will not start.
     */
    public boolean initialize(final Map<String, String> bridgeProperties);

    /**
     * Obtains a set of properties for the specified protocol server name.
     * <p>
     * The returned {@link Properties} must contain entries with key names
     * corresponding to the constants defined in
     * {@link ProtocolServerPropertyConstants} and in particular must include an
     * entry for all appropriate constants described as required.
     *
     * @param protocolServerName
     *        The name of the protocol server whose properties are to be
     *        returned. If a null or a blank value is specified, properties
     *        for the default protocol server are to be returned.
     * @return The {@link Properties} for the specified protocol server, or null
     *         if the server cannot be found.
     */
    public Properties getProtocolServerProperties(
        final String protocolServerName);
}
```

```

/**
 * Invoked once when a protocol bridge agent is shut down. It is intended to
 * release any resources that were allocated by the exit.
 *
 * @param bridgeProperties
 *       The values of properties defined for the protocol bridge.
 *       These values can only be read, they cannot be updated by the
 *       implementation.
 */
public void shutdown(final Map<String, String> bridgeProperties);
}

```

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

#### Related tasks:

“Mapping credentials for a file server using exit classes” on page 264

If you do not want to use the default credential mapping function of the protocol bridge agent, you can map user credentials in WebSphere MQ File Transfer Edition to user credentials on the file server by writing your own user exit. WebSphere MQ File Transfer Edition provides a sample user exit that performs user credential mapping. If you configure credential mapping user exits, they take the place of the default credential mapping function.

#### SourceFileExitFileSpecification.java interface:

##### SourceFileExitFileSpecification.java

```

/*
 * Licensed Materials - Property of IBM
 *
 * "Restricted Materials of IBM"
 *
 * 5724-H72
 *
 * © Copyright IBM Corp. 2012, 2018. All Rights Reserved.
 *
 * US Government Users Restricted Rights - Use, duplication or
 * disclosure restricted by GSA ADP Schedule Contract with
 * IBM Corp.
 */
package com.ibm.wmqfte.exitroutine.api;

import java.util.Map;

/**
 * A specification of the file names to use for a file transfer, as evaluated by the
 * agent acting as the source of the transfer.
 */
public final class SourceFileExitFileSpecification {

    private final String sourceFileSpecification;
    private final String destinationFileSpecification;
    private final Map<String, String> sourceFileMetaData;
    private final Map<String, String> destinationFileMetaData;

    /**
     * Constructor. Creates a source file exit file specification.
     *
     * @param sourceFileSpecification
     *       the source file specification to associate with the source file
     *       exit file specification.
     */
}

```

```

* @param destinationFileSpecification
*     the destination file specification to associate with the
*     source file exit file specification.
*
* @param sourceFileMetaData
*     the source file meta data.
*
* @param destinationFileMetaData
*     the destination file meta data .
*/
public SourceFileExitFileSpecification(final String sourceFileSpecification,
                                       final String destinationFileSpecification,
                                       final Map<String, String> sourceFileMetaData,
                                       final Map<String, String> destinationFileMetaData) {
    this.sourceFileSpecification = sourceFileSpecification;
    this.destinationFileSpecification = destinationFileSpecification;
    this.sourceFileMetaData = sourceFileMetaData;
    this.destinationFileMetaData = destinationFileMetaData;
}

/**
 * Returns the destination file specification.
 *
 * @return the destination file specification. This represents the location,
 *         on the agent acting as the destination for the transfer, where the
 *         file should be written. Exit routines installed into the agent
 *         acting as the destination for the transfer may override this value.
 */
public String getDestination() {
    return destinationFileSpecification;
}

/**
 * Returns the source file specification.
 *
 * @return the source file specification. This represents the location where
 *         the file data will be read from.
 */
public String getSource() {
    return sourceFileSpecification;
}

/**
 * Returns the file meta data that relates to the source file specification.
 *
 * @return the file meta data that relates to the source file specification.
 */
public Map<String, String> getSourceFileMetaData() {
    return sourceFileMetaData;
}

/**
 * Returns the file meta data that relates to the destination file specification.
 *
 * @return the file meta data that relates to the destination file specification.
 */
public Map<String, String> getDestinationFileMetaData() {
    return destinationFileMetaData;
}
}

```

## Related concepts:

“Metadata for user exit routines” on page 1013

There are three different types of metadata that can be supplied to user exit routines for WebSphere MQ File Transfer Edition: environment, transfer, and file metadata. This metadata is presented as maps of Java key-value pairs.

## SourceTransferEndExit.java interface:

### SourceTransferEndExit.java

```
package com.ibm.wmqfte.exitpoint.api;

/**
 * An interface that is implemented by classes that want to be invoked as part of
 * user exit routine processing. This interface defines a method that will be
 * invoked immediately after completing a transfer on the agent acting as the
 * source of the transfer.
 */
public interface SourceTransferEndExit {

    /**
     * Invoked immediately after the completion of a transfer on the agent acting as
     * the source of the transfer.
     *
     * @param transferExitResult
     *     a result object reflecting whether or not the transfer completed
     *     successfully.
     *
     * @param sourceAgentName
     *     the name of the agent acting as the source of the transfer.
     *     This is the name of the agent that the implementation of this
     *     method will be invoked from.
     *
     * @param destinationAgentName
     *     the name of the agent acting as the destination of the
     *     transfer.
     *
     * @param environmentMetaData
     *     meta data about the environment in which the implementation
     *     of this method is running. This information can only be read,
     *     it cannot be updated by the implementation. The constants
     *     defined in EnvironmentMetaDataConstants class can
     *     be used to access the data held by this map.
     *
     * @param transferMetaData
     *     meta data to associate with the transfer. The information can
     *     only be read, it cannot be updated by the implementation. This
     *     map may also contain keys with IBM reserved names. These
     *     entries are defined in the TransferMetaDataConstants
     *     class and have special semantics.
     *
     * @param fileResults
     *     a list of file transfer result objects that describe the source
     *     file name, destination file name and result of each file transfer
     *     operation attempted.
     *
     * @return
     *     an optional description to enter into the log message describing
     *     transfer completion. A value of null can be used
     *     when no description is required.
     */
    String onSourceTransferEnd(TransferExitResult transferExitResult,
        String sourceAgentName,
        String destinationAgentName,
        Map<String, String>environmentMetaData,
        Map<String, String>transferMetaData,
```

```
List<FileTransferResult>fileResults);
```

```
}
```

#### Related concepts:

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

#### Related reference:

“SourceTransferStartExit.java interface”

“DestinationTransferStartExit.java interface” on page 1025

“DestinationTransferEndExit.java interface” on page 1024

“MonitorExit.java interface” on page 1044

“ProtocolBridgeCredentialExit.java interface” on page 1045

#### SourceTransferStartExit.java interface:

##### SourceTransferStartExit.java

```
package com.ibm.wmqfte.exitpoint.api;
```

```
import java.util.List;
```

```
import java.util.Map;
```

```
/**
```

```
 * An interface that is implemented by classes that want to be invoked as part of  
 * user exit routine processing. This interface defines a method that will be  
 * invoked immediately prior to starting a transfer on the agent acting as the  
 * source of the transfer.
```

```
*/
```

```
public interface SourceTransferStartExit {
```

```
/**
```

```
 * Invoked immediately prior to starting a transfer on the agent acting as  
 * the source of the transfer.
```

```
 *
```

```
 * @param sourceAgentName
```

```
 *     the name of the agent acting as the source of the transfer.
```

```
 *     This is the name of the agent that the implementation of this  
 *     method will be invoked from.
```

```
 *
```

```
 * @param destinationAgentName
```

```
 *     the name of the agent acting as the destination of the  
 *     transfer.
```

```
 *
```

```
 * @param environmentMetaData
```

```
 *     meta data about the environment in which the implementation  
 *     of this method is running. This information can only be read,  
 *     it cannot be updated by the implementation. The constants  
 *     defined in EnvironmentMetaDataConstants class can  
 *     be used to access the data held by this map.
```

```
 *
```

```
 * @param transferMetaData
```

```
 *     meta data to associate with the transfer. The meta data passed  
 *     to this method can be altered, and the changes to will be  
 *     reflected in subsequent exit routine invocations. This map may  
 *     also contain keys with IBM reserved names. These entries are
```

```

*          defined in the <code>TransferMetaDataConstants</code> class and
*          have special semantics.
*
* @param fileSpecs
*          a list of file specifications that govern the file data to
*          transfer. The implementation of this method can add entries,
*          remove entries, or modify entries in this list and the changes
*          will be reflected in the files transferred.
*
* @return  a transfer exit result object which is used to determine if the
*          transfer should proceed, or be cancelled.
*/
TransferExitResult onSourceTransferStart(String sourceAgentName,
    String destinationAgentName,
    Map<String, String> environmentMetaData,
    Map<String, String> transferMetaData,
    List<SourceFileExitFileSpecification>fileSpecs);
}

```

**Related concepts:**

“Customizing WebSphere MQ File Transfer Edition with user exit routines” on page 357

You can customize the features of WebSphere MQ File Transfer Edition by using your own programs known as user exit routines.

**Related reference:**

“SourceFileExitFileSpecification.java interface” on page 1049

“SourceTransferEndExit.java interface” on page 1051

“DestinationTransferStartExit.java interface” on page 1025

“DestinationTransferEndExit.java interface” on page 1024

“MonitorExit.java interface” on page 1044

“ProtocolBridgeCredentialExit.java interface” on page 1045

## Message formats for messages you can put on the agent command queue

The following XML schemas define the formats for messages that can be put on the agent command queue to request that the agent perform an action. The XML message can be placed on the agent command queue by using the command-line commands or by an application.

## Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

“Ping agent request message format” on page 912

You can ping an agent by issuing an **ftePingAgent** command or by putting an XML message on the agent command queue. The ping agent request XML must conform to the PingAgent.xsd schema. After you have installed WebSphere MQ File Transfer Edition, you can find the PingAgent.xsd schema file in the following directory: *install\_directory/samples/schema*. The PingAgent.xsd schema imports fteutils.xsd, which is in the same directory.

“Reply message format” on page 913

When an agent receives an XML message on its agent command queue, if a response is required, the agent will send an XML reply message to the reply queue defined in the original message. The reply XML conforms to the Reply.xsd schema. The Reply.xsd schema document is located in the *install\_directory/samples/schema* directory. The Reply.xsd schema imports fteutils.xsd, which is in the same directory.

## File transfer request message format

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

File transfer messages can have one of following three root elements:

- <request> - for new file transfer requests, managed call requests, or deleting scheduled transfers that are pending
- <cancel> - for canceling file transfers in progress
- <transferSpecifications> - for specifying multiple transfer file groups, used by the **fteCreateTransfer** command

For information about specifying multiple transfer groups by using the <transferSpecifications> element, see Using transfer definition files.

## Schema

The following schema describes which elements are valid in a transfer request XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="fteutils.xsd"/>
  <xsd:element name="request">
    <xsd:complexType>
      <xsd:choice>
        <xsd:element name="managedTransfer" type="managedTransferType"/>
        <xsd:element name="deleteScheduledTransfer" type="deleteScheduledTransferType" />
        <xsd:element name="managedCall" type="managedCallType"/>
      </xsd:choice>
      <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

```

    </xsd:complexType>
</xsd:element>

<xsd:element name="cancel">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="originator" type="hostUserIDType"
        maxOccurs="1" minOccurs="1" />
      <xsd:choice>
        <xsd:element name="transfer" type="IDType"
          maxOccurs="1" minOccurs="1" />
        <xsd:element name="call" type="IDType"
          maxOccurs="1" minOccurs="1" />
      </xsd:choice>
      <xsd:element name="reply" type="replyType"
        maxOccurs="1" minOccurs="0" />
    </xsd:sequence>
    <xsd:attribute name="version" type="versionType" use="required" />
  </xsd:complexType>
</xsd:element>

<xsd:element name="transferSpecifications">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="item" type="itemType"
        minOccurs="1" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

<xsd:complexType name="managedTransferType">
  <xsd:sequence>
    <xsd:element name="originator" type="origRequestType"
      maxOccurs="1" minOccurs="1"/>
    <xsd:element name="schedule" type="scheduleType"
      maxOccurs="1" minOccurs="0"/>
    <xsd:element name="sourceAgent" type="agentType"
      maxOccurs="1" minOccurs="1"/>
    <xsd:element name="destinationAgent" type="agentClientType"
      maxOccurs="1" minOccurs="1"/>
    <xsd:element name="trigger" type="triggerType"
      maxOccurs="1" minOccurs="0"/>
    <xsd:element name="reply" type="replyType"
      maxOccurs="1" minOccurs="0"/>
    <xsd:element name="transferSet" type="transferSetType"
      maxOccurs="1" minOccurs="1"/>
    <xsd:element name="job" type="jobType"
      maxOccurs="1" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="transferSetType">
  <xsd:sequence>
    <xsd:element name="metaDataSet" type="metaDataSetType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="preSourceCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="postSourceCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="preDestinationCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="postDestinationCall" type="commandActionType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="item" type="itemType"
      maxOccurs="unbounded" minOccurs="0" />
  </xsd:sequence>
  <xsd:attribute name="priority" type="priorityType" use="optional" />

```

```

</xsd:complexType>

<xsd:complexType name="itemType">
  <xsd:sequence>
    <xsd:element name="source" type="fileSourceType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="destination" type="fileDestinationType"
      maxOccurs="1" minOccurs="1" />
  </xsd:sequence>
  <xsd:attribute name="mode" type="modeType" use="required" />
  <xsd:attribute name="checksumMethod" type="checkSumMethod" use="required" />
</xsd:complexType>

<xsd:complexType name="deleteScheduledTransferType">
  <xsd:sequence>
    <xsd:element name="originator" type="origDeleteType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="ID" type="idType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="reply" type="replyType"
      maxOccurs="1" minOccurs="0" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="managedCallType">
  <xsd:sequence>
    <xsd:element name="originator" type="origRequestType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="agent" type="agentType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="reply" type="replyType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="transferSet" type="callTransferSetType"
      maxOccurs="1" minOccurs="1" />
    <xsd:element name="job" type="jobType"
      maxOccurs="1" minOccurs="0" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="callTransferSetType">
  <xsd:sequence>
    <xsd:element name="metaDataSet" type="metaDataSetType"
      maxOccurs="1" minOccurs="0" />
    <xsd:element name="call" type="commandActionType"
      maxOccurs="1" minOccurs="1" />
  </xsd:sequence>
  <xsd:attribute name="priority" type="priorityType" use="optional" />
</xsd:complexType>

</xsd:schema>

```

## Understanding the transfer request message

The elements and attributes used in transfer request messages are described in the following list:

### Element descriptions

#### <request>

Group element containing all the elements required to specify a file transfer request.

Attribute	Description
version	Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition.

**<managedTransfer>**

Group element that contains all the elements required for a single file transfer or single group of file transfers.

**<deleteScheduledTransfer>**

Group element that contains originator and ID information to cancel a schedule transfer.

**<managedCall>**

Group element that contains all the elements required for a single managed call of a program or executable.

**<ID>**

Unique identifier that specifies the transfer request to delete from the list of pending scheduled transfers.

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<hostName>**

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

**<schedule>**

Group element describing the scheduled time for the file transfer, the repeat behavior, and when the next occurrence is due.

**<submit>**

Specifies the date and time that the scheduled transfer is due to start.

Attribute	Description
timebase	Specifies which time zone to use. This attribute can have one of the following values: <ul style="list-style-type: none"> <li>• source - use the time zone of the source agent</li> <li>• admin - use the time zone of the administrator issuing the command</li> <li>• UTC - use Coordinated Universal Time</li> </ul>
timezone	The time zone description according to the timebase value

**<repeat>**

Group element that contains details about how often a scheduled transfer repeats, how many times a scheduled transfer repeats, and when a scheduled transfer stops repeating.

**<frequency>**

The time period that must elapse before the transfer repeats.

Attribute	Description
interval	The interval units, which must be one of the following values: <ul style="list-style-type: none"> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul>

**<expireTime>**

Optional element that specifies the date and time that a repeating scheduled transfer stops. This element and the <expireCount> element are mutually exclusive.

**<expireCount>**

Optional element that specifies the number of times the scheduled file transfer occurs before stopping. This element and the <expireTime> element are mutually exclusive.

**<sourceAgent>**

Specifies the name of the agent on the system where the source file is located.

Attribute	Description
agent	Specifies the name of the agent.
QMgr	The name of the agent queue manager.

**<destinationAgent>**

Specifies the name of the agent on the system you want to transfer the file to.

Attribute	Description
agent	Specifies the name of the agent.
QMgr	The name of the agent queue manager.
hostName	The host name or IP address of the agent queue manager.
portNumber	The port number used for client connections to the destination agent queue manager.
channel	The channel name used to connect to the destination agent queue manager.

**<trigger>**

Optional element that specifies a condition that must be true for the file transfer to take place.

Attribute	Description
log	A flag indicating whether trigger failures are logged. The valid values are as follows: <ul style="list-style-type: none"> <li>• yes - log entries are created for failed triggered transfers</li> <li>• no - log entries are not created for failed triggered transfers</li> </ul>

### <fileExist>

Specifies a comma-separated list of file names located on the same system as the source agent. If a file in this name list satisfies the condition of the trigger, the transfer occurs. This element and the <fileSize> element are mutually exclusive.

Attribute	Description
comparison	Indicates how to evaluate source file names against the name list. The valid values are as follows: <ul style="list-style-type: none"><li>• = at least one file name in the name list must match</li><li>• != a minimum of one of the files in the name list does not exist</li></ul>
value	Indicates the comparison type: <ul style="list-style-type: none"><li>• exist: file must exist</li></ul>

### <fileSize>

Specifies a comma-separated list of file names located on the same system as the source agent. If a file in this name list satisfies the condition of the trigger, the transfer occurs. This element and the <fileExist> element are mutually exclusive.

Attribute	Description
comparison	Indicates how to evaluate source file names against the name list. The valid value is as follows: <ul style="list-style-type: none"><li>• &gt;= one of the file names in the name list exists and has a minimum size as specified in the value attribute</li></ul>
value	File size specified as an integer value with units specified as one of the following: <ul style="list-style-type: none"><li>• B - bytes</li><li>• KB - kilobytes</li><li>• MB - megabytes</li><li>• GB - gigabytes</li></ul> (the units value is not case-sensitive)

### <reply>

Specifies the name of the temporary reply queue generated for synchronous file transfers (specified with the **-w** parameter on the command line). The name of the queue is defined by the key **dynamicQueuePrefix** in the **command.properties** configuration file or the default of **WMQFTE.\*** if not specified.

Attribute	Description
detailed	Whether detailed transfer result information is required in the reply message. Multiple reply messages for each transfer can be generated. The valid values are as follows: <ul style="list-style-type: none"><li>• true - detailed reply information is required. The format of the information is the same as that published to the transfer log in the progress messages, that is, the &lt;transferSet&gt; element. For more information, see "File transfer log message formats" on page 675. Detailed reply information is present only when the transfer source agent has the <b>enableDetailedReplyMessages</b> property set to true.</li><li>• false - detailed reply information is not required.</li></ul> The default value is false.

Attribute	Description
QMGR	The name of the command queue manager on which the temporary dynamic queue is generated to receive replies.
persistent	Whether the message written to the reply queue is persistent. The valid values are as follows: <ul style="list-style-type: none"> <li>• true - the message is persistent</li> <li>• false - the message is not persistent</li> <li>• qdef - the persistence of the message is defined by the properties of the reply queue</li> </ul> The default value is false.

#### <transferSet>

Specifies a group of file transfers you want to perform together or a group of managed calls that you want to perform together. During transmission <transferSet> is a group element containing <item> elements.

Attribute	Description
priority	Priority level of the transfer. Priority is a value in the range 0-9, where 0 is the lowest priority. The default priority level is 0 and by default the transfer uses the priority level of the source agent.

#### <metaDataSet>

Optional group element containing one or more metadata items.

#### <metaData>

Specifies the user-defined metadata that is passed to the exit points called by the agent. The element contains the metadata value as a string.

Attribute	Description
key	Metadata name as a string

#### <call>

Group element that contains <command> elements specifying the program or executable to call.

#### <command>

Specifies the program or executable to call. The command must be located on the agent command path. For more information, see Table 29 on page 585. This element can contain optional <argument> elements.

Attribute	Description
name	The name of the command.
successRC	The successful return code that this command returns. Default is 0.
retryCount	The number of times that the command is to be retried if it fails.
retryWait	The time, in seconds, to wait between retries of the command.
type	The type of program to be called. The valid values are antscript, jcl, or executable.

#### <argument>

Specifies an argument to pass to the command.

**<item>**

Group element that contains elements specifying the source and destination file names and locations.

Attribute	Description
mode	Specifies the transfer mode as either binary or text.
checksumMethod	Specifies the type of hash algorithm that generates the message digest to create the digital signature. The valid values are MD5 or none.

**<source>**

Group element that specifies files on the source system and whether they are removed after the transfer completes

Attribute	Description
recursive	Specifies that files are transferred recursively in subdirectories when the <source> element is a directory or contains wildcard characters.
disposition	Specifies the action that is taken on the <source> element when <source> has successfully been transferred to its destination. The valid values are as follows: <ul style="list-style-type: none"> <li>• leave - the source files are left unchanged.</li> <li>• delete - the source files are deleted from the source system after the source file is successfully transferred.</li> </ul>

**<file>**

Specifies the transfer source, which can be a file, directory, data set, or PDS name. Use the fully qualified path in the format consistent with your operating system, for example C:/from/here.txt. Do not use file URIs.

Attribute	Description
alias	Specifies an alias for the source file. This alias is the name of the source file, excluding any directory path specified for the transfer.
EOL	Specifies the end of line marker for text transfers. Valid values are: <ul style="list-style-type: none"> <li>• LF - line feed character only</li> <li>• CRLF - carriage return and line feed character sequence</li> </ul>
encoding	The encoding of the source file for a text file transfer.
delimiter	Specifies the delimiter that is included between records in record-oriented source files, for example, z/OS data sets. Specify the delimiter value as two hexadecimal digits in the range 00-FF, prefixed by x. For example, x12 or x03,x7F.  This attribute is available only if you have enabled the V7.0.4.1 function.
delimiterType	Specifies the type of delimiter that is included in the destination file after individual message data. The valid values is as follows: <ul style="list-style-type: none"> <li>• binary - a hexadecimal delimiter</li> </ul> This attribute is available only if you have enabled the V7.0.4.1 function.

Attribute	Description
delimiterPosition	<p>Specifies the position to insert delimiters when writing record-oriented source file records to a normal file. The valid values are as follows:</p> <ul style="list-style-type: none"> <li>• prefix - the delimiter is inserted into the destination file before the data from each source record-oriented file record.</li> <li>• postfix - the delimiter is inserted into the destination file after the data from each source record-oriented file record.</li> </ul> <p>This attribute is available only if you have enabled the V7.0.4.1 function.</p>
includeDelimiterInFile	<p>Specifies whether to include a delimiter between records in record-oriented source files.</p> <p>This attribute is available only if you have enabled the V7.0.4.1 function.</p>
keepTrailingSpaces	<p>Specifies whether trailing spaces are to be kept on source records read from a fixed-length-format data set as part of a text mode transfer. The default is that trailing spaces are stripped. The valid values are as follows:</p> <ul style="list-style-type: none"> <li>• true - trailing spaces are kept on source records read from a fixed-length-format data set</li> <li>• false - trailing spaces are stripped from source records read from a fixed-length-format data set</li> </ul> <p>This attribute is available only if you have enabled the V7.0.4.1 function.</p>

**<queue>**

When used with the <source> element, specifies the name of the queue to transfer from, which must be located on the source agent queue manager. Use the format *QUEUE*. Do not include the queue manager name, the queue must be present on the source agent queue manager. You cannot use the <queue> element inside the <source> element, if you have used it inside of the <destination> element.

Attribute	Description
useGroups	<p>Specifies whether to transfer only the first complete group of messages from the source queue. The valid values are as follows:</p> <ul style="list-style-type: none"> <li>• true - transfer only the first complete group of messages</li> <li>• false - transfer all messages on the source queue</li> </ul>
groupId	<p>Specifies the group of messages to read from the source queue. This attribute is valid only when the value of the useGroups attribute is true.</p>
delimiterType	<p>Specifies the type of delimiter that is included in the destination file after individual message data. The valid values are as follows:</p> <ul style="list-style-type: none"> <li>• text - a text or Java literal delimiter</li> <li>• binary - a hexadecimal delimiter</li> </ul>
delimiter	<p>Specifies the delimiter that is included in the destination file between individual message data.</p>

Attribute	Description
delimiterPosition	Specifies whether the delimiter is included in the destination file before or after individual message data. The valid values are as follows: <ul style="list-style-type: none"> <li>• prefix - the delimiter is included before the data</li> <li>• postfix - the delimiter is included after the data</li> </ul>
encoding	Specifies the source queue encoding.
waitTime	Specifies the time, in seconds, for the source agent to wait for either: <ul style="list-style-type: none"> <li>• a message to appear on the source queue, if the queue is empty or has become empty</li> <li>• a complete group to appear on the source queue, if the useGroups attribute has been set to true</li> </ul> For information about setting the waitTime value, see “Guidance for specifying a wait time on a message-to-file transfer” on page 769.

### <destination>

Group element that specifies the destination and the behavior if files exist at the destination agent.

You can specify only one of <file> and <queue> as a child element of destination.

Attribute	Description
type	The type of destination. The valid values are as follows: <ul style="list-style-type: none"> <li>• file - specifies a file as the destination</li> <li>• directory - specifies a directory as the destination</li> <li>• dataset - specifies a z/OS data set as the destination</li> <li>• pds - specifies a z/OS partitioned data set as the destination</li> <li>• queue - specifies a WebSphere MQ queue as the destination</li> <li>• filespace- specifies a file space as the destination</li> </ul> The options file, directory, dataset, and pds are valid only when the <destination> element has a child element of <file>. The option queue is valid only when the <destination> element has a child element of <queue>. The option filespace is valid only when the <destination> element has a child element of <filespace>.
exist	Specifies the action that is taken if a destination file exists on the destination system. The valid values are as follows: <ul style="list-style-type: none"> <li>• error - reports an error and the file is not transferred.</li> <li>• overwrite - overwrites the existing destination file.</li> </ul> This attribute is not valid if the <destination> element has a child element of <queue> or <filespace>.

**<file>**

Specifies the transfer destination, which can be a file, directory, data set, or PDS name. Use the fully qualified path in the format consistent with your operating system, for example `C:/from/here.txt`. Do not use file URIs.

Attribute	Description
alias	Specifies an alias for the destination file. This alias is the name of the source file, excluding any directory path specified for the transfer.
encoding	The encoding of the destination file for a text file transfer.
EOL	Specifies the end of line marker for text transfers. Valid values are: <ul style="list-style-type: none"> <li>• LF - line feed character only</li> <li>• CRLF - carriage return and line feed character sequence</li> </ul>

**<queue>**

When used with the `<destination>` element, specifies the name of the queue to transfer to, which can be located on any queue manager that is connected to the destination agent queue manager. Use the format `QUEUE@QM` where `QUEUE` is the name of the queue to put the messages on and `QM` is the queue manager where the queue is located. You cannot use the `<queue>` element inside the `<destination>` element, if you have used it inside of the `<source>` element.

Attribute	Description
delimiter	The delimiter to split the file into multiple messages.
delimiterType	Specifies the type of delimiter. The valid values are as follows: <ul style="list-style-type: none"> <li>• text - a Java regular expression</li> <li>• binary - a sequence of hexadecimal bytes</li> <li>• size - a number of bytes, kibibytes, or mebibytes. For example, 1 B, 1 K, or 1 M.</li> </ul>
delimiterPosition	Specifies whether the delimiter is expected before or after the data to include in individual messages. The valid options are as follows: <ul style="list-style-type: none"> <li>• prefix - the delimiter is expected before the data</li> <li>• postfix - the delimiter is expected after the data</li> </ul>
includeDelimiterInMessage	A boolean specifying whether to include the delimiters that were used to split the file into multiple messages at the end of the messages.
encoding	Specifies the destination queue encoding.
persistent	Specifies whether the messages are persistent. The valid values are as follows: <ul style="list-style-type: none"> <li>• true - the messages are persistent</li> <li>• false - the messages are not persistent</li> <li>• qdef - the persistence value of the messages is defined by the settings on the destination queue</li> </ul>
setMqProps	A boolean specifying whether WebSphere MQ message properties are set on the first message in a file, and any messages written to the queue when an error occurs.

Attribute	Description
unrecognisedCodePage	<p>Specifies whether a text mode transfer fails or conversion is performed, if the code page of the data is not recognized by the destination queue manager. The valid values are as follows:</p> <ul style="list-style-type: none"> <li>• fail - the transfer reports a failure</li> <li>• binary - the data is converted to the destination code page and the WebSphere MQ message header describing the format of the data is set to MQFMT_NONE.</li> </ul> <p>The default behavior is fail.</p>

### <fileSpace>

Group element specifying the name of the file space to transfer to.

### <name>

When used with the <fileSpace> element, the value of this element specifies the name of the file space.

### <preSourceCall>

Group element specifying a command to call at the source of the transfer, before the transfer starts.

### <postSourceCall>

Group element specifying a command to call at the source of the transfer, after the transfer completes.

### <preDestinationCall>

Group element specifying a command to call at the destination of the transfer, before the transfer starts.

### <postDestinationCall>

Group element specifying a command to call at the destination of the transfer, after the transfer completes.

### <command>

When used with the <preSourceCall>, <postSourceCall>, <preDestinationCall>, or <postDestinationCall> element, this element specifies the command to be called. The command must be located on the agent command path. For more information, see Table 29 on page 585.

Attribute	Description
name	The name of the command to run.
successRC	The return code that is expected if the command runs successfully.

### <argument>

When used with the <command> element, this element specifies an argument to be passed in to the command. You can have any number of <argument> elements inside a <command> element.

### <job>

Optional group element containing job information for the entire transfer specification. <job> is a user-defined job name identifier that is added to the log message when the transfer has started. This <job> element is the same as the <job> element that appears in the transfer log message, which is described in the following topic: "File transfer log message formats" on page 675.

### <name>

When used with the <job> element, the value of this element specifies the name of the job.

### <transferSpecifications>

Group element that contains <item> elements for multiple transfer groups. See Using transfer definition files for further details about how to use this element.

### <cancel>

Group element containing all the elements required to cancel a file transfer in progress.

Attribute	Description
version	Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition.

### <transfer>

When used with the <cancel> element, the value of this element specifies the transfer request ID to be canceled.

### <job>

Group element containing job information.

### <jobName>

Specifies logical job identifier.

## File transfer cancel message format

A file transfer request returns a 48-character ID that identifies the transfer for a specific agent. This ID is used to cancel transfers.

## Understanding the transfer cancel message

The elements and attributes used in transfer cancel messages are described:

### <cancel>

Group element containing all the elements required to cancel a file transfer in progress.

Attribute	Description
version	Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition.

### <originator>

Group element that contains the elements specifying the originator of the request.

### <hostName>

The host name of the system where the source file is located.

### <userID>

The user ID that originated the file transfer.

### <mqmdUserID>

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

### <transfer>

When used with the <cancel> element, the value of this element specifies the transfer request ID to be canceled.

### <job>

Optional. Group element containing job information.

### <jobName>

Specifies logical job identifier.

## Examples

Examples of XML messages that conform to this schema are provided for each of the following requests:

- Create a file transfer
- Create an asynchronous file transfer request
- Cancel a file transfer
- Create a scheduled transfer
- Delete a scheduled transfer
- Create a managed call
- Create a file transfer that includes managed calls

### Related reference:

“Transfer request examples” on page 894

Examples of the messages that you can put on the agent command queue to request that the agent create or cancel a transfer.

“Scheduled transfer message examples” on page 895

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a schedule.

“Call request message examples” on page 896

Examples of the messages that you can put on the agent command queue to request that the agent creates a managed call or creates a transfer that calls programs.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of Log/*agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

### Transfer request examples:

Examples of the messages that you can put on the agent command queue to request that the agent create or cancel a transfer.

## Create transfer request

```
<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
version="4.00"
xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <sourceAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/>
    <destinationAgent QMgr="QM_JUPITER" agent="AGENT_JUPITER"/>
    <transferSet>
      <item checksumMethod="MD5" mode="binary">
        <source disposition="leave" recursive="false">
          <file>/etc/passwd</file>
        </source>
        <destination exist="overwrite" type="directory">
          <file>/tmp</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

## Create transfer request - asynchronous

When a user requests a blocking synchronous request, that is, they wait for the transfer to complete and receive status messages, the message placed on the command queue contains a reply element that specifies the queue that a reply message is sent to. The following example shows the message placed on the command queue used by FTEAGENT:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="4.00"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>reportserver.com</hostName>
      <userID>USER1</userID>
    </originator>
    <sourceAgent agent="FTEAGENT"
      QMgr="QM1"/>
    <destinationAgent agent="AGENT2"
      QMgr="QM2"/>
    <reply QMGR="QM1">WMQFTE.492D0D5502770020</reply>
    <transferSet>
      <item mode="binary" checksumMethod="MD5">
        <source recursive="false" disposition="leave">
          <file>c:\sourcefiles\source1.doc</file>
        </source>
        <destination type="file" exist="overwrite">
          <file>c:\destinationfiles\dest1.doc</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

The <reply> element is populated with the name of the command queue manager where a temporary dynamic queue has been created to receive reply about the successful (or otherwise) completion of the transfer. The name of the temporary dynamic queue is composed of two parts:

- The prefix as defined by the key **dynamicQueuePrefix** in the `command.properties` configuration file (it is WMQFTE, by default)

- The ID of the queue as generated by WebSphere MQ

### Cancel transfer request

```
<?xml version="1.0" encoding="UTF-8"?>
<cancel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>
  <transfer>414D51205553322E42494E444494E47538B0F404D032C0020</transfer>
  <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20002007</reply>
</cancel>
```

### Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

### Scheduled transfer message examples:

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a schedule.

#### Create scheduled transfer

```
<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <schedule>
      <submit timebase="admin" timezone="Europe/London">2010-01-01T21:00</submit>
    </schedule>
    <sourceAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
    <destinationAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
    <transferSet>
      <item checksumMethod="MD5" mode="binary">
        <source disposition="leave" recursive="false">
          <file>/etc/passwd</file>
        </source>
        <destination exist="overwrite" type="directory">
          <file>/tmp</file>
        </destination>
      </item>
    </transferSet>
  </managedTransfer>
</request>
```

#### Delete scheduled transfer

```
<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="4.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <deleteScheduledTransfer>
    <originator>
```

```

        <delete>
          <hostName>example.com.</hostName>
          <userID>mqm</userID>
        </delete>
      </originator>
    </ID>1</ID>
    <reply QMGR="US2.BINDINGS">WMQFTE.4D400F8B20003902</reply>
  </deleteScheduledTransfer>
</request>

```

### Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

### Call request message examples:

Examples of the messages that you can put on the agent command queue to request that the agent creates a managed call or creates a transfer that calls programs.

#### Managed call request example

```

<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="1.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedCall>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <agent agent="DNWE" QMgr="QM1"/>
    <transferSet>
      <call>
        <command name="echo" successRC="0">
          <argument>call</argument>
          <argument>test</argument>
        </command>
      </call>
    </transferSet>
    <job>
      <name>managedCallCalls.xml</name>
    </job>
  </managedCall>
</request>

```

#### Managed transfer request example with calls

```

<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  version="1.00"
  xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
  <managedTransfer>
    <originator>
      <hostName>example.com.</hostName>
      <userID>mqm</userID>
    </originator>
    <sourceAgent agent="DNWE" QMgr="QM1"/>
    <destinationAgent agent="DNWE" QMgr="QM1"/>
    <transferSet>
      <preSourceCall>
        <command name="echo" successRC="0">
          <argument>preSourceCall</argument>

```

```

        <argument>test</argument>
      </command>
    </preSourceCall>
  </postSourceCall>
  <command name="echo" successRC="0">
    <argument>postSourceCall</argument>
    <argument>test</argument>
  </command>
</postSourceCall>
<preDestinationCall>
  <command name="echo" successRC="0">
    <argument>preDestinationCall</argument>
    <argument>test</argument>
  </command>
</preDestinationCall>
<postDestinationCall>
  <command name="echo" successRC="0">
    <argument>postDestinationCall</argument>
    <argument>test</argument>
  </command>
</postDestinationCall>
</transferSet>
<job>
  <name>managedTransferCalls.xml</name>
</job>
</managedTransfer>
</request>

```

#### Related concepts:

“Specifying programs to run” on page 291

You can run programs on a system where a IBM WebSphere MQ File Transfer Edition agent is running. As part of a file transfer request, you can specify a program to run either before a transfer starts, or after it finishes. Additionally, you can start a program that is not part of a file transfer request by submitting a managed call request.

#### Related reference:

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

## Monitor request message formats

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the fteCreateMonitor command or using the WebSphere MQ Explorer interface.

The monitor XML must conform to the Monitor.xsd schema using the <monitor> element as the root element. The Monitor.xsd schema document is located in the MessageSchemas directory on the Remote Tools and Documentation DVD. The Monitor.xsd schema imports FileTransfer.xsd, which is in the same location on the DVD.

Monitor messages can have one of the following root elements:

- <monitor> - for creating and starting a new resource monitor
- <deleteMonitor> - for stopping and deleting an existing monitor

There is no command message for the fteListMonitors command as the command directly retrieves matching monitor definitions from the SYSTEM.FTE topic.

## Schema

The following schema describes which elements are valid in a monitor request XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  xmlns="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition">

<xsd:include schemaLocation="FileTransfer.xsd" />

  <xsd:element name="monitor">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="name" type="monitorNameType"
          minOccurs="1" maxOccurs="1" />
        <xsd:element name="description" type="xsd:string"
          minOccurs="0" maxOccurs="1" />
        <xsd:element name="pollInterval" type="pollIntervalType"
          minOccurs="1" maxOccurs="1" default="10" />
        <xsd:element name="batch" type="batchType"
          minOccurs="0" maxOccurs="1" />
        <xsd:element name="agent" type="agentNameType"
          minOccurs="1" maxOccurs="1" />
        <xsd:element name="resources" type="monitorResourcesType"
          minOccurs="0" maxOccurs="1" />
        <xsd:element name="triggerMatch" type="triggerMatchType"
          maxOccurs="1" minOccurs="1" />
        <xsd:element name="reply" type="replyType"
          maxOccurs="1" minOccurs="0" />
        <xsd:element name="tasks" type="monitorTasksType"
          maxOccurs="1" minOccurs="1" />
        <xsd:element name="originator" type="origRequestType"
          maxOccurs="1" minOccurs="1" />
        <xsd:element name="job" type="jobType"
          maxOccurs="1" minOccurs="0" />
        <xsd:element name="defaultVariables" type="defaultVariablesType"
          maxOccurs="1" minOccurs="0" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
  </xsd:element>

  <xsd:element name="deleteMonitor">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="name" type="monitorNameType"
          minOccurs="1" maxOccurs="1" />
        <xsd:element name="originator" type="origRequestType"
          maxOccurs="1" minOccurs="1" />
        <xsd:element name="reply" type="replyType"
          maxOccurs="1" minOccurs="0" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
  </xsd:element>

  <xsd:complexType name="transferRequestType">
    <xsd:choice>
      <xsd:element name="managedTransfer" type="managedTransferType" />
      <xsd:element name="managedCall" type="managedCallType" />
    </xsd:choice>
    <xsd:attribute name="version" type="versionType" />
  </xsd:complexType>

  <xsd:complexType name="monitorResourcesType">
    <xsd:choice>
      <xsd:sequence>
```

```

        <xsd:element name="directory" type="monitoredDirectoryType"
            minOccurs="1" maxOccurs="unbounded" />
    </xsd:sequence>
    <xsd:element name="queue" type="monitoredQueueType"/>
</xsd:choice>
</xsd:complexType>

<xsd:complexType name="monitoredDirectoryType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="recursionLevel" type="xsd:nonNegativeInteger" />
            <xsd:attribute name="id" type="resourceIdAttrType" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="monitoredQueueType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="id" type="resourceIdAttrType" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="triggerMatchType">
    <xsd:sequence>
        <xsd:element name="conditions" type="conditionsType"
            minOccurs="1" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="conditionsType">
    <xsd:choice minOccurs="1">
        <xsd:element name="allOf" type="listPredicateType"
            minOccurs="1" maxOccurs="1" />
        <xsd:element name="anyOf" type="listPredicateType"
            minOccurs="1" maxOccurs="1" />
        <xsd:element name="condition" type="conditionType"
            minOccurs="1" maxOccurs="1" />
    </xsd:choice>
</xsd:complexType>

<xsd:complexType name="listPredicateType">
    <xsd:choice>
        <xsd:element name="condition" type="conditionType"
            minOccurs="1" maxOccurs="unbounded" />
    </xsd:choice>
</xsd:complexType>

<xsd:complexType name="conditionType">
    <xsd:sequence>
        <xsd:element name="name" type="conditionNameType"
            minOccurs="0" maxOccurs="1" />
        <xsd:element name="resource" type="resourceIdType"
            minOccurs="0" maxOccurs="1" />
        <xsd:choice minOccurs="1">
            <xsd:element name="fileMatch" type="fileMatchConditionType"
                minOccurs="1" maxOccurs="1" />
            <xsd:element name="fileNoMatch" type="fileNoMatchConditionType"
                minOccurs="1" maxOccurs="1" />
            <xsd:element name="fileSize" type="fileSizeConditionType"
                minOccurs="1" maxOccurs="1" />
            <xsd:element name="queueNotEmpty" type="queueNotEmptyConditionType"
                minOccurs="1" maxOccurs="1" />
            <xsd:element name="completeGroups" type="completeGroupsConditionType"
                minOccurs="1" maxOccurs="1" />
            <xsd:element name="fileSizeSame" type="fileSizeSameType" />
        </xsd:choice>
    </xsd:sequence>
</xsd:complexType>

```

```

        minOccurs="1"          maxOccurs="1"/>
    </xsd:choice>
</xsd:sequence>
</xsd:complexType>

<xsd:complexType name="fileMatchConditionType">
    <xsd:sequence>
        <xsd:element name="pattern" type="conditionPatternType"
            minOccurs="0" default="*.*" />
        <xsd:element name="exclude" type="conditionPatternType"
            minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="fileNoMatchConditionType">
    <xsd:sequence>
        <xsd:element name="pattern" type="conditionPatternType"
            minOccurs="0" default="*.*" />
        <xsd:element name="exclude" type="conditionPatternType"
            minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="fileSizeConditionType">
    <xsd:sequence>
        <xsd:element name="compare" type="sizeCompareType"
            minOccurs="1" default="0" />
        <xsd:element name="pattern" type="conditionPatternType"
            minOccurs="0" default="*.*" />
        <xsd:element name="exclude" type="conditionPatternType"
            minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="sizeCompareType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:int">
            <xsd:attribute name="operator" type="sizeOperatorType" use="required" />
            <xsd:attribute name="units" type="fileSizeUnitsType" use="required" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="sizeOperatorType">
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value=">=" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="fileSizeUnitsType">
    <xsd:restriction base="xsd:string">
        <xsd:pattern value="[bB] | [kK] [bB] | [mM] [bB] | [gG] [bB]" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="conditionPatternType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="type" type="patternTypeAttributeType"
                use="optional" default="wildcard"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:simpleType name="patternTypeAttributeType">
    <xsd:restriction base="xsd:token">
        <xsd:enumeration value="regex" />
    </xsd:restriction>
</xsd:simpleType>

```

```

        <xsd:enumeration value="wildcard" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="conditionNameType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string" />
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="queueNotEmptyConditionType"/>

<xsd:complexType name="completeGroupsConditionType"/>

<xsd:complexType name="fileSizeSameType">
    <xsd:sequence>
        <xsd:element name="pattern" type="conditionPatternType"
            minOccurs="1" maxOccurs="1"/>
        <xsd:element name="exclude" type="conditionPatternType"
            minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="polls" type="positiveIntegerType" use="required" />
</xsd:complexType>

<xsd:complexType name="pollIntervalType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:int">
            <xsd:attribute name="units" type="timeUnitsType"
                use="optional" default="minutes" />
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="batchType">
    <xsd:attribute name="maxSize" type="positiveIntegerType" use="required"/>
</xsd:complexType>

<xsd:simpleType name="timeUnitsType">
    <xsd:restriction base="xsd:token">
        <xsd:enumeration value="seconds" />
        <xsd:enumeration value="minutes" />
        <xsd:enumeration value="hours" />
        <xsd:enumeration value="days" />
        <xsd:enumeration value="weeks" />
        <xsd:enumeration value="months" />
        <xsd:enumeration value="years" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="monitorTasksType">
    <xsd:sequence>
        <xsd:element name="task" type="monitorTaskType"
            minOccurs="1" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="monitorTaskType">
    <xsd:sequence>
        <xsd:element name="name" type="monitorTaskNameType"
            minOccurs="1" maxOccurs="1" />
        <xsd:element name="description" type="xsd:string"
            minOccurs="0" maxOccurs="1" />
        <xsd:element name="transfer" type="transferTaskType"
            minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
</xsd:complexType>

```

```

<xsd:complexType name="transferTaskType">
  <xsd:sequence>
    <xsd:element name="request" type="transferRequestType"
      minOccurs="1" maxOccurs="1" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="resourceIdType">
  <xsd:attribute name="id" type="xsd:string" use="optional" />
</xsd:complexType>

<xsd:simpleType name="resourceIdAttrType">
  <xsd:restriction base="xsd:string"></xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="monitorNameType">
  <xsd:restriction base="xsd:string">
    <xsd:pattern value="[^%\\*]+" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="agentNameType">
  <xsd:restriction base="xsd:string">
    <xsd:pattern value="[%_0-9A-Z]*" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="monitorTaskNameType">
  <xsd:restriction base="xsd:string">
    <xsd:pattern value=".*" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="defaultVariablesType">
  <xsd:sequence>
    <xsd:element name="variable" type="variableType"
      minOccurs="unbounded" minOccurs="1" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="variableType">
  <xsd:simpleContent>
    <xsd:extension base="xsd:string">
      <xsd:attribute name="key" type="xsd:string" use="required" />
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>
</xsd:schema>

```

## Understanding the create monitor message

The elements and attributes used in create monitor messages are described:

### Element descriptions

#### <monitor>

Group element containing all the elements required to cancel a file transfer in progress.

Attribute	Description
version	Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition.

**<name>**

The name of the monitor, unique within the monitor's agent.

**<description>**

Description of the monitor (not currently used).

**<pollInterval>**

The time interval between each check of the resource against the trigger condition.

Attribute	Description
units	Specifies the time units for the poll interval. Valid values are: <ul style="list-style-type: none"> <li>• seconds</li> <li>• minutes</li> <li>• hours</li> <li>• days</li> <li>• weeks</li> <li>• months</li> <li>• years</li> </ul>

**<agent>**

Name of the agent the monitor is associated with.

**<resources>**

Group element that contains the elements specifying the resources to monitor.

**<directory>**

Fully qualified path specifying the directory on the monitor's agent machine to monitor.

Attribute	Description
recursionLevel	The number of subdirectories to monitor in addition to the specified directory.
id	Unique identifier for the resource.

**<queue>**

Queue name specifying the queue to monitor on the monitoring agent's queue manager.

**<triggerMatch>**

Group element that contains the elements specifying the trigger conditions to compare with the monitored resource.

**<conditions>**

Group element that contains the elements specifying the type of condition to compare with the monitored resource.

**<allOf>**

Predicate that specifies that all contained conditions must be satisfied.

**<anyOf>**

Predicate that specifies that any contained conditions must be satisfied.

**<condition>**

Defines a comparison condition that will contribute to the overall monitor trigger condition.

**<name>**

Name of the condition.

**<resource>**

Identifies the resource definition to compare the condition against.

Attribute	Description
id	Unique identifier for the resource.

If the resource that is being monitored is a directory, one of the following three elements must be specified in the condition:

- fileMatch
- fileNoMatch
- fileSize

If the resource that is being monitored is a queue, one of the following two elements must be specified in the condition:

- queueNotEmpty
- completeGroups

**<fileMatch>**

Group element for a file name match condition.

**<pattern>**

Specifies a file name match pattern. Files on the resource must match the pattern in order to satisfy the condition. The default pattern is \* (any file will match).

**<fileNoMatch>**

Group element for an inverse file name match condition.

**<pattern>**

Specifies an inverse file name match pattern. If no files on the monitored resource match, the condition is satisfied. The default pattern is \* (the absence of any file will match).

**<fileSize>**

Group element for a file size comparison.

**<compare>**

Specifies a file size comparison. The value must be a non-negative integer.

Attribute	Description
operator	Comparison operator to use. Only >=' is supported.
units	Specifies file size units, which can be one of: <ul style="list-style-type: none"> <li>• B - bytes</li> <li>• KB - kilobytes</li> <li>• MB - megabytes</li> <li>• GB - gigabytes</li> </ul> <p>The units value is case insensitive, so mb' works as well as MB'.</p>

**<pattern>**

File name pattern to match. Default is \* (any file will match).

**<queueNotEmpty>**

This can only be specified if the resource is a queue. Specifies that there must be a message on the queue for the monitor to be triggered.

**<completeGroups>**

This can only be specified if the resource is a queue. Specifies that there must be a complete group of messages present on the queue for the monitor to be triggered. A single transfer task is executed for each complete group on the queue.

**<reply>**

Optional element that is used to specify reply queue for asynchronous requests.

Attribute	Description
QMGR	Queue manager name.

**<tasks>**

Group element to contain elements which specify the tasks to invoke when the monitor trigger conditions are satisfied.

**<task>**

Group element which defines an individual task that the monitor will invoke when the trigger conditions are satisfied. Currently only one task can be specified.

**<name>**

Name of the task. Accepts any alphanumeric characters.

**<description>**

Description of the task. Any text value is allowed.

**<transfer>**

Group element that defines a transfer task.

**<request>**

Group element that defines the type of task. This must contain one of the following elements which are inherited from the FileTransfer.xsd schema definition:

- managedTransfer
- managedCall

Attribute	Description
version	Version of the request as provided by WebSphere MQ File Transfer Edition. This is in the form n.mm where n is the major release version and mm is the minor version. For example 1.00.

**<originator>**

Group element that contains the elements specifying the originator of the request.

**<hostName>**

The host name of the system where the source file is located.

**<userID>**

The user ID that originated the file transfer.

**<mqmdUserID>**

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

**<job>**

Group element containing job information.

**<jobName>**

Specifies logical job identifier.

**<defaultVariables>**

Group element containing one or more variable elements. These variables are used in variable substitution when monitoring a queue. For more information about variable substitution, see "Customizing tasks with variable substitution" on page 215.

**<variable>**

Element containing the value associated with the key given by the key attribute.

Attribute	Description
key	The name of the default variable.

## Understanding the delete monitor message

The elements and attributes used in delete monitor messages are described:

### Element descriptions

#### <deleteMonitor>

Group element containing all the elements required to stop and delete a monitor.

Attribute	Description
version	Specifies the version of this element as supplied by WebSphere MQ File Transfer Edition.

#### <name>

Name of monitor to delete.

#### <originator>

Group element that contains the elements specifying the originator of the request.

#### <hostName>

The host name of the system where the source file is located.

#### <userID>

The user ID that originated the file transfer.

#### <mqmdUserID>

Optional. The WebSphere MQ user ID that was supplied in the message descriptor (MQMD).

#### <reply>

Specifies the name of the temporary reply queue generated for the request. The name of the queue is as defined by the key `dynamicQueuePrefix` in the `command.properties` configuration file. If this is not specified, the queue name has a default value of `WMQFTE`.

Attribute	Description
QMGR	The name of the command queue manager on which the temporary dynamic queue is generated to receive replies.

## Examples

Examples of XML messages that conform to this schema are provided for each of the following monitor requests:

- Create a monitor
- Delete a monitor

## Related concepts:

“Resource monitoring” on page 204

You can monitor WebSphere MQ File Transfer Edition resources; for example, a queue or a directory. When a condition on this resource is satisfied, the resource monitor starts a task, such as a file transfer. You can create a resource monitor by using the **fteCreateMonitor** command or the Monitors view in the WebSphere MQ File Transfer Edition plug-in for WebSphere MQ Explorer.

## Related reference:

“Monitor request message examples” on page 908

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a monitor.

“Agent status message format” on page 658

When an agent is created or started, the agent publishes its details to the SYSTEM.FTE topic on its coordination queue manager (on the SYSTEM.FTE/Agents/*agent name* topic).

“File transfer request message format” on page 881

File transfers are initiated by XML messages arriving at an agent command queue, typically as a result of a user issuing a file transfer command or by using the WebSphere MQ Explorer plug-in. The transfer request XML must conform to the FileTransfer.xsd schema and have the <request> element as the root element. The FileTransfer.xsd schema document is located in the *install\_directory/samples/schema* directory. The FileTransfer.xsd schema imports fteutils.xsd, which is in the same directory.

“File transfer status message format” on page 671

Messages are published to the coordination queue manager to indicate transfer status of each file in the transfer set. Every time a request for file transfer is processed by the agent, a transaction message is published to the coordination queue manager (on its SYSTEM.FTE/Transfers/*agent\_name/transfer ID* topic), which conforms to the TransferStatus.xsd XML schema. The TransferStatus.xsd file is located in the *install\_directory/samples/schema* directory of your WMQFTE installation.

“File transfer log message formats” on page 675

File transfer log messages are published to the SYSTEM.FTE topic with a topic string of *Log/agent\_name/transfer\_ID*. These messages conform to the schema TransferLog.xsd, which is located in the *install\_directory/samples/schema* directory of your WebSphere MQ File Transfer Edition installation.

“Scheduled transfer log message formats” on page 704

Every time a request for a scheduled file transfer is processed by the agent, a schedule log message is published to the coordination queue manager (on its SYSTEM.FTE/Log/*agent name/schedule ID* topic). This message conforms to the ScheduleLog.xsd XML schema.

“Message formats for security” on page 915

This topic describes the messages published to the coordination queue manager relevant to security.

## Monitor request message examples:

Examples of the messages that you can put on the agent command queue to request that the agent create or delete a monitor.

### Create monitor request

```
<?xml version="1.0" encoding="UTF-8"?>
<monitor:monitor xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:monitor="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  version="4.00"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition ./Monitor.xsd">
  <name>EXAMPLEMONITOR</name>
  <pollInterval>1</pollInterval>
  <agent>US2.BINDINGS.FILE</agent>
  <resources>
    <directory recursionLevel="0">/srv/nfs/incoming</directory>
  </resources>
  <triggerMatch>
    <conditions>
```

```

    <allOf>
      <condition>
        <fileMatch>
          <pattern>*.completed</pattern>
        </fileMatch>
      </condition>
    </allOf>
  </conditions>
</triggerMatch>
<reply QMGR="US2.BINDINGS">WMQFTE.4D400F8B20003702</reply>
<tasks>
  <task>
    <name/>
    <transfer>
      <request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        version="4.00"
        xsi:noNamespaceSchemaLocation="FileTransfer.xsd">
        <managedTransfer>
          <originator>
            <hostName>example.com.</hostName>
            <userID>mqm</userID>
          </originator>
          <sourceAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
          <destinationAgent QMgr="US2.BINDINGS" agent="US2.BINDINGS.FILE"/>
          <transferSet>
            <item checksumMethod="MD5" mode="binary">
              <source disposition="leave" recursive="false">
                <file>/srv/nfs/incoming/*.txt</file>
              </source>
              <destination exist="error" type="directory">
                <file>/srv/backup</file>
              </destination>
            </item>
          </transferSet>
        </managedTransfer>
      </request>
    </transfer>
  </task>
</tasks>
<originator>
  <hostName>example.com.</hostName>
  <userID>mqm</userID>
</originator>
</monitor:monitor>

```

### Delete monitor request

```

<?xml version="1.0" encoding="UTF-8"?>
<monitor:deleteMonitor xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:monitor="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition"
  version="4.00"
  xsi:schemaLocation="http://www.ibm.com/xmlns/wmqfte/7.0.1/MonitorDefinition ./Monitor.xsd">
  <name>EXAMPLEMONITOR</name>
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>
  <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20003705</reply>
</monitor:deleteMonitor>

```

## Related reference:

“Monitor request message formats” on page 898

Resource monitors are created when a suitable XML message arrives at an agent's command queue, typically as a result of a user issuing the `fteCreateMonitor` command or using the WebSphere MQ Explorer interface.

## Agent trace request message format

Tracing of an agent is initiated by the arrival of an XML message on the agent command queue, typically as a result of issuing an `fteSetAgentTraceLevel` command. The agent trace request XML must conform to the `AgentTrace.xsd` schema. After you have installed WebSphere MQ File Transfer Edition, you can find the `AgentTrace.xsd` schema file in the following directory: `install_directory/samples/schema`.

## Schema

The following schema describes which elements are valid in an agent trace request XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="http://wmqfte.ibm.com/trace"
  targetNamespace="http://wmqfte.ibm.com/trace">

  <xsd:element name="trace"></xsd:element>

  <xsd:element name="agent" type="agentType"/>
  <xsd:element name="traceLevel" type="traceLevelType"/>
  <xsd:element name="traceClasses" type="traceClassType"/>
  <xsd:element name="stopOnFFDC" type="stopOnFFDCType"/>
  <xsd:simpleType name="traceLevelType">
    <xsd:restriction base="xsd:token">
      <xsd:enumeration value="all"/>
      <xsd:enumeration value="verbose"/>
      <xsd:enumeration value="flow"/>
      <xsd:enumeration value="moderate"/>
      <xsd:enumeration value="off"/>
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:simpleType name="traceClassType">
    <xsd:restriction base="xsd:string"/>
  </xsd:simpleType>

  <xsd:complexType name="agentType">
    <xsd:attribute name="agent" type="xsd:string" use="required" />
    <xsd:attribute name="QMGr" type="xsd:string" use="optional" />
  </xsd:complexType>

  <xsd:complexType name="stopOnFFDCType">
    <xsd:attribute name="class" type="xsd:string" use="optional" />
    <xsd:attribute name="probe" type="probeType" use="optional" />
  </xsd:complexType>

  <xsd:simpleType name="probeType">
    <xsd:restriction base="xsd:string">
      <xsd:pattern value="(FFDC_\d{3})|\d+"/>
    </xsd:restriction>
  </xsd:simpleType>

</xsd:schema>
```

## Understanding the agent trace request message

The elements and attributes used in the agent trace request messages are described in the following list:

### <trace>

Group element containing all the elements required to specify an agent trace request.

**<agent>**

The agent to enable trace on.

Attribute	Description
agent	Required. The name of the agent.
QMgr	Optional. The queue manager that the agent connects to.

**<traceLevel>**

The level of trace to enable on the agent. The contents of this element must be one of the following values:

- all
- verbose
- flow
- moderate
- off

**<traceClasses>**

The specific agent classes to trace.

**<stopOnFFDC>**

Optional. If this element is included in the trace request the agent stops tracing when an FFDC occurs.

Attribute	Description
class	Optional. The name of an agent class. If an FFDC occurs in this class, the agent stops tracing.  If this optional attribute is not included the agent will stop tracing when an FFDC occurs in any class.
probe	Optional. The probe ID of the FFDC. If an FFDC occurs with this probe ID, the agent stops tracing.  The value of this attribute can be in the format FFDC_003 or 3.

**Examples**

Examples of XML messages that conform to this schema are provided for the following trace requests:

- Turn on agent trace
- Turn off agent trace

### Related reference:

“Agent trace request message examples” on page 911

Examples of the messages that you can put on the agent command queue to request that the agent turns on agent trace or turns off agent trace.

### Agent trace request message examples:

Examples of the messages that you can put on the agent command queue to request that the agent turns on agent trace or turns off agent trace.

#### Agent trace request - enable

```
<?xml version="1.0" encoding="UTF-8"?>
<trace:trace xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:trace="http://wmqfte.ibm.com/trace"
  version="4.00">
  <trace:originator>
    <trace:request>
      <trace:hostName>example.com.</trace:hostName>
      <trace:userID>mqm</trace:userID>
    </trace:request>
  </trace:originator>
  <trace:agent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <trace:traceLevel>all</trace:traceLevel>
  <trace:traceClasses>com.ibm.wmqfte</trace:traceClasses>
</trace:trace>
```

#### Agent trace request - disable

```
<?xml version="1.0" encoding="UTF-8"?>
<trace:trace xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:trace="http://wmqfte.ibm.com/trace"
  version="4.00">
  <trace:originator>
    <trace:request>
      <trace:hostName>example.com.</trace:hostName>
      <trace:userID>mqm</trace:userID>
    </trace:request>
  </trace:originator>
  <trace:agent agent="US2.BINDINGS.FILE" QMgr="US2.BINDINGS"/>
  <trace:traceLevel>off</trace:traceLevel>
  <trace:traceClasses/>
</trace:trace>
```

### Related reference:

“Agent trace request message format” on page 909

Tracing of an agent is initiated by the arrival of an XML message on the agent command queue, typically as a result of issuing an **fteSetAgentTraceLevel** command. The agent trace request XML must conform to the AgentTrace.xsd schema. After you have installed WebSphere MQ File Transfer Edition, you can find the AgentTrace.xsd schema file in the following directory: *install\_directory/samples/schema*.

### Ping agent request message format

You can ping an agent by issuing an **ftePingAgent** command or by putting an XML message on the agent command queue. The ping agent request XML must conform to the PingAgent.xsd schema. After you have installed WebSphere MQ File Transfer Edition, you can find the PingAgent.xsd schema file in the following directory: *install\_directory/samples/schema*. The PingAgent.xsd schema imports fteutils.xsd, which is in the same directory.

When the agent receives a ping agent request message on its command queue, if the agent is active, it returns an XML response message to the command or application that put the ping agent request message on the command queue. The response message from the agent is in the format defined by Reply.xsd. For more information about this format, see “Reply message format” on page 913.

## Schema

The following schema describes which elements are valid in an ping agent request XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.ibm.com/xmlns/wmqfte/7.0.1/PingAgent"
  targetNamespace="http://www.ibm.com/xmlns/wmqfte/7.0.1/PingAgent">

  <xsd:include schemaLocation="fteutils.xsd" />

  <xsd:element name="pingAgent">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="originator" type="origRequestType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="agent" type="agentType" maxOccurs="1" minOccurs="1"/>
        <xsd:element name="reply" type="replyType" maxOccurs="1" minOccurs="0" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required" />
    </xsd:complexType>
  </xsd:element>

</xsd:schema>
```

## Understanding the ping agent request message

The elements and attributes used in the ping agent request messages are described in the following list:

### <pingAgent>

Group element containing all the elements required to specify a ping agent request.

### <originator>

Group element containing all the elements required to specify the originator of the ping request.

#### <hostName>

The host name of the machine where the request originated.

#### <userID>

The user name of the originator of the request.

#### <mqmdUserID>

The MQMD user name of the originator of the request.

### <agent>

The agent to ping.

Attribute	Description
agent	Required. The name of the agent.
QMGr	Optional. The queue manager that the agent connects to.

### <reply>

The name of the queue for the agent to send the reply message to.

Attribute	Description
QMGR	Required. The name of the queue manager where the reply queue is located.

## Example

This example shows a ping agent message sent to the agent AGENT\_JUPITER. If AGENT\_JUPITER is active and able to process agent requests, it sends a response message to the queue WMQFTE.4D400F8B20003708 on QM\_JUPITER.

```
<?xml version="1.0" encoding="UTF-8"?>
<ping:pingAgent xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:ping="http://www.ibm.com/xmlns/wmqfte/7.0.1/PingAgent"
  version="4.00">
  <originator>
    <hostName>example.com.</hostName>
    <userID>mqm</userID>
  </originator>
  <agent agent="AGENT_JUPITER" QMgr="QM_JUPITER"/>
  <reply QMGR="QM_JUPITER">WMQFTE.4D400F8B20003708</reply>
</ping:pingAgent>
```

## Reply message format

When an agent receives an XML message on its agent command queue, if a response is required, the agent will send an XML reply message to the reply queue defined in the original message. The reply XML conforms to the Reply.xsd schema. The Reply.xsd schema document is located in the *install\_directory/samples/schema* directory. The Reply.xsd schema imports fteutils.xsd, which is in the same directory.

## Schema

The following schema describes which elements are valid in a reply XML message.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:include schemaLocation="TransferLog.xsd"/>
  <xsd:element name="reply">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="transferSet" type="transferSetType" minOccurs="0" maxOccurs="1" />
        <xsd:element name="status" type="statusType" minOccurs="1" maxOccurs="1" />
      </xsd:sequence>
      <xsd:attribute name="version" type="versionType" use="required"/>
      <xsd:attribute name="ID" type="IDType" use="required"/>
      <xsd:attribute name="detailedReplyMessagesDisabled" type="xsd:boolean" use="optional"/>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

## Understanding the reply message

The elements and attributes used in the reply messages are described in the following list:

### <reply>

Element containing the elements that specify the reply information.

Attribute	Description
ID	The ID of the reply.
version	The version of the reply message format.
detailedReplyMessagesDisabled	A notification that the agent has disabled the detailed reply feature (because the enableDetailedReplyMessages agent property is set to false).

### <transferSet>

Specifies the transfer result information of the files requested for transfer. For more information, see "File transfer log message formats" on page 675.

**<status>**

The status of the action that the agent was requested to perform.

Attribute	Description
resultCode	The result code returned from the action that the agent performed.

**<supplement>**

Additional response information about the action that the agent was requested to perform.

**Example**

In the following section is an example reply message:

```
<reply version="1.00"          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                               xsi:noNamespaceSchemaLocation="Reply.xsd"
                               ID="0102020300000000000000000000000000000000000000000000000000000000">
  <status resultCode="65">
    <supplement>Additional reply information</supplement>
  </status>
</reply>
```

---

**Diagnostic messages**

Diagnostic messages are available here in numerical order, grouped according to the part of WebSphere MQ File Transfer Edition from which they originate.

For details of these messages, see IBM Knowledge Center: [https://www.ibm.com/support/knowledgecenter/SSEP7X\\_7.0.4/com.ibm.wmqfte.doc/messages\\_main.htm](https://www.ibm.com/support/knowledgecenter/SSEP7X_7.0.4/com.ibm.wmqfte.doc/messages_main.htm)

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