

IBM WebSphere Business Integration Adapters



# Adapter for JText User Guide

*Adapter Version 5.6.x*



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**Note!**

Before using this information and the product it supports, read the information in "Notices" on page 123.

**30September2004**

This edition of this document applies to WebSphere Business Integration Adapter for JText (5724-H03) version 5.6.x, and to all subsequent releases and modifications until otherwise indicated in new editions.

To send us your comments about this document, email [doc-comments@us.ibm.com](mailto:doc-comments@us.ibm.com). We look forward to hearing from you.

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## About this document

The IBM<sup>(R)</sup> WebSphere<sup>(R)</sup> Business Integration Adapter portfolio supplies integration connectivity for leading e-business technologies, enterprise applications, legacy, and mainframe systems. The product set includes tools and templates for customizing, creating, and managing components for business process integration.

This document describes the installation, configuration, business object development, and troubleshooting for the IBM WebSphere Business Integration Adapter for JText<sup>(TM)</sup>.

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## What this document includes

This document describes installation, connector property configuration, business object development, and troubleshooting for the IBM WebSphere Business Integration Adapter for JText.

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## What this document does not include

This document does not describe deployment metrics and capacity planning issues such as server load balancing, number of adapter processing threads, maximum and minimum throughputs, and tolerance thresholds.

Such issues are unique to every customer deployment and must be measured within or close to the exact environment where the adapter is to be deployed. You should contact your IBM services representative to discuss the configuration of your deployment site, and for details on planning and evaluating these kinds of metrics, given your specific configuration.

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## Audience

This document is for WebSphere consultants and customers. You should be familiar with the fundamentals of your integration broker, the fundamentals of business object development, and possibly with data handler development.

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## Related documents

The complete set of documentation available with this product describes the features and components common to all WebSphere Business Integration Adapters installations, and includes reference material on specific components.

You can install related documentation from the following sites:

For general adapter information; for using adapters with WebSphere message brokers (WebSphere MQ Integrator, WebSphere MQ Integrator Broker, WebSphere Business Integration Message Broker); and for using adapters with WebSphere Application Server:

*<http://www.ibm.com/websphere/integration/wbiadapters/infocenter>*

For using adapters with InterChange Server:

<http://www.ibm.com/websphere/integration/wicserver/infocenter>  
<http://www.ibm.com/websphere/integration/wbicollaborations/infocenter>

For more information about message brokers (WebSphere MQ Integrator Broker, WebSphere MQ Integrator, and WebSphere Business Integration Message Broker):

<http://www.ibm.com/software/integration/mqfamily/library/manualsa/>

For more information about WebSphere Application Server:

<http://www.ibm.com/software/webservers/appserv/library.html>

These sites contain simple directions for downloading, installing, and viewing the documentation.

**Note:** Important information about this product may be available in Technical Support Technotes and Flashes issued after this document was published. These can be found on the WebSphere Business Integration Support Web site,

<http://www.ibm.com/software/integration/websphere/support/>

Select the component area of interest and browse the Technotes and Flashes sections.

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## Typographic conventions

This document uses the following conventions:

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courier font	Indicates a literal value, such as a command name, filename, information that you type, or information that the system prints on the screen.
<b>bold</b>	Indicates a new term the first time that it appears.
<i>italic, italic</i>	Indicates a variable name or a cross-reference.
<i>blue outline</i>	A blue outline, which is visible only when you view the manual online, indicates a cross-reference hyperlink. Click inside the outline to jump to the object of the reference.
{ }	In a syntax line, curly braces surround a set of options from which you must choose one and only one.
[ ]	In a syntax line, square brackets surround an optional parameter.
...	In a syntax line, ellipses indicate a repetition of the previous parameter. For example, <code>option[,...]</code> means that you can enter multiple, comma-separated options.
< >	In a naming convention, angle brackets surround individual elements of a name to distinguish them from each other, as in <code>&lt;server_name&gt;&lt;connector_name&gt;tmp.log</code> .
/, \	In this document, backslashes (\) are used as the convention for directory paths. For UNIX installations, substitute slashes (/) for backslashes. All WebSphere business integration system product pathnames are relative to the directory where the product is installed on your system.
%text% and \$text	Text within percent (%) signs indicates the value of the Windows text system variable or user variable. The equivalent notation in a UNIX environment is <code>\$text</code> , indicating the value of the <code>text</code> UNIX environment variable.
<i>ProductDir</i>	Represents the directory where the product is installed.

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## New in this release

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### Version 5.6.x

The release of this document for JText connector version 5.6.x contains the following new features:

- The adapter, running on Windows, provides bidirectional script support for JText meta-data
- Tivoli License Manager enablement
- Support for GB18030 Chinese code has been added for this release
- For this release, the adapter runtime code has been split from the server code line
- Support has been added for secure FTP
- A new Connector-specific boolean property, "NoPoll", has been introduced, to optionally turn off polling. The default value is false. When set to true, the adapter only processes requests and does not poll.

The 5.6.x version of the adapter is supported on the following platforms:

- WIN 2003
- AIX 5.1 and 5.2: this adapter supports 32-bit JVM on a 64-bit platform
- Solaris 9: this adapter supports 32-bit JVM on a 64-bit platform
- HP-UX, 11, 11i
- Linux RedHat AS 3.0, ES 3.0 and WS 3.0
- SUSE LINUX Standard Server 8.1 and Enterprise Server 8.1 SP3
- IBM JRE/JDK 1.4.2

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### Prior versions

Features and changes in prior versions.

#### Version 5.5.x

The release of this document for JText connector version 5.5.x contains the following new features:

- Support for the option to use the MVS FTP SITE commands on MVS datasets is provided with introduction of a new meta-object property named MVSSiteCommand.
- Enhancements to handle large Business Objects and to reduce Out-of-memory errors (for a 1GB RAM configuration) have been implemented. A new meta-object property LargeObject has been introduced for the adapter to work in large object mode.
- A new SortFilesOnTimestamp connector specific property has been added to the Adapter and allows the adapter to pick up event files based on the modification timestamp.

**Note:** This version of the JText adapter is not backward compatible with ADK versions prior to the 4222. It needs ADK 4222 or future versions of the ADK to function correctly.

## Version 5.4.x

Beginning with the 5.4 version, the adapter for JText is no longer supported on Microsoft Windows NT.

Adapter installation information has been moved from this guide. See Chapter 2, Chapter 2, "Installing the JText adapter," on page 15, for the new location of that information.

## Version 5.3.x

The release of this document for JText connector version 5.3.x contains the following new features:

- A new `FTPTransferType` meta object property has been added to allow for ASCII and Binary file transfers.
- An additional data parsing method for binary data, `FixedBOSize`, has been added to the JText Adapter.
- Support for host file system MVS has been enhanced to provide for time stamping to avoid duplicate file names.
- A new `DataProcessingMode` meta object property has been added to the Adapter to enable the reading and writing of Binary data.
- A new meta object attribute, `FTPDataStructure`, has been added to the JText Adapter to provide support for either file or record oriented data structures on remote MVS platforms.

The adapter can now use WebSphere Application Server as an integration broker. For further information, see "Adapter environment" on page 15. The adapter now runs on the following platforms:

- Solaris 7, 8
- AIX 5.x
- HP UX 11.i

## Version 5.2.x

Updated in March, 2003. The "CrossWorlds" name is no longer used to describe an entire system or to modify the names of components or tools, which are otherwise mostly the same as before. For example "CrossWorlds System Manager" is now "System Manager," and "CrossWorlds InterChange Server" is now "WebSphere InterChange Server."

## Version 5.1.x

The release of this document for JText connector version 5.1.x contains the following new or corrected information:

- Documentation of the `theStagingDir` meta-object attribute, which allows the connector to use a staging directory when writing files. The connector writes files that represent business objects to a staging directory and then moves them to the configured output directory so that external processes that might manipulate files in the output directory do not receive the files before they have been completely written. For more information, see "StagingDir" on page 56.
- Documentation of the `IncludeEndBODElimiter` meta-object attribute, which enables the connector to either include the value specified for the `EndBODElimiter` attribute when it writes out files, or to leave the value out of the data stream. For more information, see "IncludeEndBODElimiter" on page 54.

- Documentation of the `FTPFileListingFormat` meta-object attribute, which enables the connector to read in files with format information (such as date and timestamps) that differ depending on the locale. For more information, see “`FTPFileListingFormat`” on page 52.
- Documentation of the `FTPKeepConnectionOpen` meta-object attribute, which enables the connector to maintain a persistent connection with an FTP server. For more information, see “`FTPKeepConnectionOpen`” on page 52.
- Documentation of the `FTPOSPlatform` meta-object attribute, which must be set to the value `MVS` if the FTP server with which the connector communicates is running an MVS platform. For more information, see “`FTPOSPlatform`” on page 53.
- Documentation of the `FTPPollTerminateIfServerDown` meta-object attribute, which allows you to specify whether the connector terminate when an FTP server it is polling for events is unavailable. For more information, see “`FTPPollTerminateIfServerDown`” on page 53.
- Documentation of the `FTPRequestTerminateIfServerDown` meta-object attribute, which allows you to specify whether the connector terminate when performing request processing with an FTP server that is unavailable. For more information, see “`FTPRequestTerminateIfServerDown`” on page 53.
- Revision of the information regarding the `DataEncoding` meta-object attribute. You can set the attribute to any Java-supported encoding. For more information, see “`DataEncoding`” on page 48.

## Version 5.0.x

The connector has been internationalized. For more information, see “Processing locale-dependent data” on page 13 and Appendix A, “Standard configuration properties for connectors,” on page 91.

## Version 4.5.x

WebSphere Business Integration Adapter for JText includes the connector for JText. This adapter operates with both the InterChange Server (ICS) and WebSphere MQ Integrator (WMQI) integration brokers. An integration broker, which is an application that performs integration of heterogeneous sets of applications, provides services that include data routing.

This adapter includes:

- An application component specific to JText
- A sample business object, included in the `\connectors\JText\Samples\` directory
- IBM WebSphere Adapter Framework, which consists of:
  - Connector Framework
  - Development tools (including Business Object Designer and Connector Configurator)
  - APIs (including ODK, JCDK, and CDK)

This manual provides information about using this adapter with both integration brokers: InterChange Server (ICS) and WebSphere MQ Integrator (WMQI).

## Version 4.4.x

The release of this document for JText connector version 4.4.x contains the following changes:

- Support has been added for configuring the connector to use a remote FTP file system. See “Specifying a remote FTP file system” on page 68 for details.
- Documentation of the deprecated `DataHandlerFormatter` and the `ByNameValue`, `ByDelimiter`, and `BySize` formatters has been removed. For documentation on using these formatters, see the JText connector documentation for the 3.0.0 or 2.0.3 releases of the guide for the connector.
- Documentation of dynamic child meta-objects has been clarified, and the manual states that use of the `JTextWrapper` configuration is being deprecated.
- Documentation of the `BODelimiter` meta-object attribute has been clarified.
- The `M0_JText_DHFormatter.txt` file has been removed from the `\repository\Jtext` directory under the product directory.

## Version 4.3.x

IBM WebSphere Business Integration for JText includes the adapter for e-Mail. This adapter operates with both the InterChange Server and WebSphere MQ Integrator integration brokers. An integration broker, which is an application that performs integration of heterogeneous sets of applications, provides services that include data routing.

This adapter includes:

- An application-specific component specific to e-Mail technology.
- A sample, which is located in `\connectors\EMail\samples`.
- IBM WebSphere Adapter Framework, which consists of:
  - Adapter Framework
  - Development tools (including Business Object Designer and Connector Configurator)
  - APIs (including ODK, JCDK, and CDK)

This manual provides instructions about using this adapter with both integration brokers: InterChange Server and WebSphere MQ Integrator.

The adapter has been internationalized. For more information, see “Processing locale-dependent data” on page 13 and Appendix A, “Standard configuration properties for connectors,” on page 91.

## Version 4.2.x

The release of this document for JText connector version 4.2.x contains the following new or corrected information:

- Support has been added for dynamic child meta-objects. The connector can now be configured to use wrapper objects or dynamic child meta-objects for dynamic file specification. See “Using a dynamic child meta-object” on page 4 for details.
- The `EventDataHandler` and `OutputDataHandler` meta-object attributes have been added to allow the connector to directly invoke data handlers rather than invoke them via the `DataHandlerFormatter`. You may use these attributes to directly specify a data handler in the JText connector meta-object rather than indirectly within the `DataHandlerFormatter`’s meta-object. See Table 7 on page 48 for details.
- The new user option `None` has been added for configuring the `EndBODelimiter` meta-object attribute when outputting business objects to a file without any `EndBODelimiter` or newline character. See Table 9 on page 65 for details.

- The DataEncoding meta-object attribute has been added to allow users to specify the UTF8 encoding instead of the default UTF7. See Table 7 on page 48 for details.

The release of the document for JText connector version 4.1.x contained the following new information:

- The connector's archiving feature has been redesigned.
- The naming convention for formatter meta-objects has changed.

**Important:** It is recommended that you use only data handlers and not formatters for business-object processing.

- The CwJTFormatter.jar file is no longer distributed.
- The format and use of the event.log file has changed.
- The process of specifying a data handler has been clarified and corrected.
- The descriptions of event notification and data handler processing have been clarified and corrected.
- A new section on creating custom meta-objects has been added.
- The sections "Problem with event triggering" on page 81 and "JText failure handling" on page 82 have been clarified and corrected.





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## Chapter 1. Overview of the JText adapter

This chapter describes the IBM WebSphere Business Integration Adapter for JText. The adapter enables an integration broker to communicate with an application by exchanging text or binary files. This connector facilitates integration of data with applications that lack an API.

Adapters consist of two parts: the connector framework and the application-specific component. The connector framework, whose code is common to all connectors, acts as an intermediary between the integration broker and the application-specific component. The application-specific component contains code tailored to a particular application. The connector framework provides the following services between the integration broker and the application-specific component:

- Receives and sends business objects
- Manages the exchange of startup and administrative messages

This document contains information about the connector framework and the application-specific component. It refers to both of these components as the adapter.

Topics included in this chapter are:

- “Adapter components”
- “Business objects used by the JText connector” on page 3
- “How the connector works” on page 6
- “Connector features” on page 13
- “Processing locale-dependent data” on page 13
- “Common Event Infrastructure” on page 14
- “Application Response Measurement” on page 14

For more information about the relationship of the integration broker to the connector, see the *System Administration Guide*, or the *Implementation Guide for WebSphere MQ Integrator Broker*

Use the JText adapter when:

- An application does not have a C, C++, or Java standard API through which an integration broker can communicate.
- It is not feasible to have an event table for a custom-built application.
- String or binary files are the most appropriate method for exchanging data.

In these cases, the simplest method for integrating an application into a larger system may be by exchanging string or binary files through the JText connector.

---

### Adapter components

The JText adapter has the following components:

- “Application-specific component” on page 2
- “Data Handlers” on page 2
- “Meta-objects” on page 3

Figure 1 illustrates the JText connector's architecture when IBM WebSphere InterChange Server (ICS) is used as the integration broker.

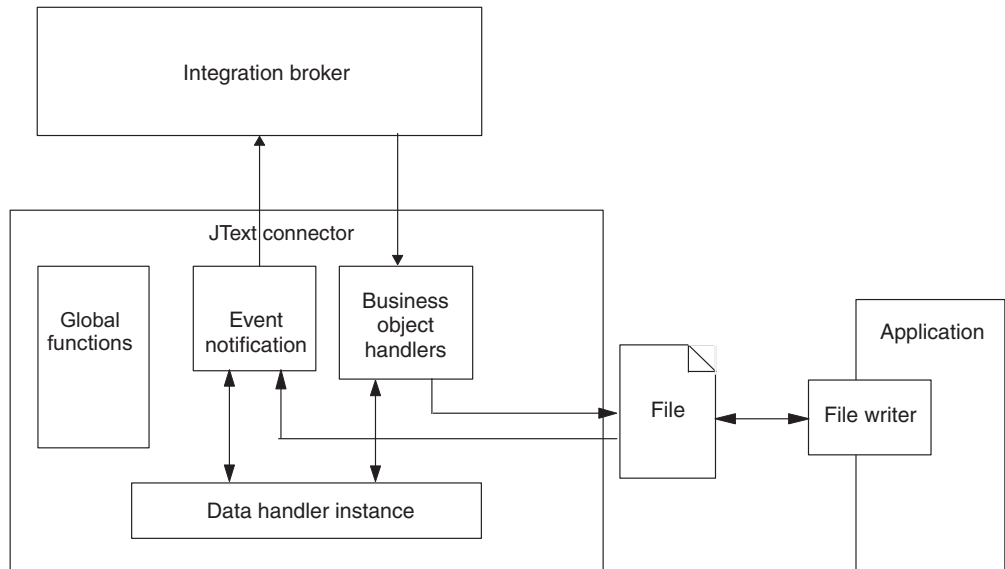


Figure 1. JText connector architecture

## Application-specific component

The JText adapter's application-specific component manipulates files and calls a specified data handler to convert data between business objects and strings or byte arrays. It also handles communication with the integration broker.

## Data Handlers

The goal of the JText connector is to provide conversion between any existing file format and a business object. To do so, it uses the data handler specified in the connector's meta-object configuration.

The data handler performs the conversion without interacting with the file system in any way, either by reading from or writing to files. All interaction with the text file is handled by other connector components.

To handle data conversion, you can use data handlers that IBM WebSphere Business Integration Adapter Framework provides or data handlers that you create to handle specific text-formatting needs. The product provides the following data handlers:

- **NameValue** — Parses text data based on named fields. In this case, the text file contains fields that identify the business object type (`BusinessObject=B0name`), verb (`Verb=verbName`), and number of attributes (`AttributeCount=numericValue`).
- **Delimited** — Used primarily where the efficiency of machine reading is most important. Parses text data based on a specified delimiter that separates the individual fields of a business object's data.
- **FixedWidth** — Parses text data by using fixed-length fields. The field lengths are specified by the `MaxLength` property of each business object attribute. The value of this property is stored in the business object definition.

For more information, see “How data handler processing works” on page 11. For more information about each of the product-delivered data handlers, see the *Data Handler Guide*.

## Meta-objects

In addition to the standard and application-specific connector configuration properties that you set in Connector Configurator, the JText connector has a set of configuration properties that enable you to configure the connector to process different business objects differently. You set these properties by using JText meta-objects. A meta-object is a special kind of business object that contains configuration information.

The connector uses the meta-object information to determine what classes to use to transform strings or byte arrays that it reads from files into business objects, and to format strings or byte arrays from business objects into files. The JText meta-objects specify the directories, file extensions, filenames, business object delimiters, and data handlers to use during event, and request processing.

The JText adapter uses meta-objects internally. It does not send them through the integration broker. For more information about using meta-objects to configure the connector, see Chapter 4, “Using JText connector meta-objects,” on page 45.

---

## Business objects used by the JText connector

Business objects for the JText connector must deliver data in the format required by the data handler specified for conversion. However, the JText connector may not need a set of specially designed business objects comparable to application-specific business objects for an application connector.

For example, the NameValue data handler requires each piece of data to have a string that identifies it (such as CustomerName=Kumar, Region=NE, and Department=HR). Because every generic business object definition contains attributes whose names identify each piece of data, the JText connector can use generic business objects.

However, because generic business objects represent a superset of information required by a multitude of different applications, each generic business object usually contains far more information than is required by any one application.

Therefore, to convert data into a manageable size for each application, a good practice is to create your own business object for each type of data to be processed. In the business object, provide only the data required by the application and the information required by the data handler.

For example, for the FixedWidth data handler, you must ensure that every business object attribute has a value specified for the MaxLength attribute property. For the IBM WebSphere Business Integration Data Handler for XML, other specific information is required. On the other hand, for the NameValue and Delimited data handlers, the business object needs not contain any information that is not already contained in a generic business object. See the *Data Handler Guide* for information specific to each data handler.

In addition to delivering data, a business object can contain information that enables the connector to dynamically obtain the business object’s event filename or to return the output filename to the integration broker. To configure the connector

for this dynamic processing, the application-specific information at the business-object level must contain the following name-value pair:

- `cw_mo_JTextConfig = DynChildMOAttrName`

If the business object contains additional application-specific information that is used by the data handler, the name-value pair must appear first in the business object, and must be separated from the additional application-specific information by a semicolon (;). The connector reads the name-value pair up to the semicolon to determine whether to use dynamic processing, then passes any information that appears after the semicolon to the data handler.

## Using a dynamic child meta-object

A dynamic child meta-object enables the filename to be exchanged with InterChange Server. This section describes:

- “Why use a dynamic child meta-object?”
- “How to use a dynamic child meta-object” on page 4
- “Attributes of a dynamic child meta-object” on page 5

### Why use a dynamic child meta-object?

Create and use a dynamic child meta-object to cause the connector to do the following:

#### Service Call Requests

- Dynamically generate an output filename for each type of business object (based on the value inserted into the child’s `OutFileName` attribute by the integration broker) or for each individual business object (if the integration broker specifies sequencing).

**Note:** The connector uses the child’s `FileWriteMode` attribute to determine whether to overwrite or append to the file specified in the child’s `OutFileName` attribute.

- Return the name of each connector-generated output filename (if the child’s `OutFileName` attribute does not contain a value). In this case, the connector does the following:
  - derives the name from the parent business object’s name
  - writes the object to that file
  - populates the `OutFileName` meta-object attribute with the derived name
  - passes the derived name back to the integration broker, which obtains the dynamically created output filename without having specified it

#### Event Processing

The connector populates the child’s `InFileName` attribute with the name of the file from which the business object was read.

### How to use a dynamic child meta-object

To cause the connector to process the filename dynamically, you must:

1. Create a dynamic child meta-object with specific attributes.
2. In the data business object, add an attribute that represents the dynamic child meta-object.
3. In the data business object, specify the following in the application-specific information at the business-object level:

`cw_mo_JTextConfig = DynChildMOAttrName`

where *DynChildMOAttrName* is the name of the attribute in the data business object that represents the dynamic child business object. For an example, see Figure 2.

**Important:** The `cw_mo_` prefix is required when you use a data handler. If the prefix is missing, the connector writes the dynamic child meta-object to the specified output file as if it were a data business object.

4. In the dynamic child meta-object, specify values for the attributes in the dynamic child meta-object.

### Attributes of a dynamic child meta-object

A dynamic child meta-object must contain the following attributes:

- `FileWriteMode` — A string attribute whose value specifies whether the connector appends to or overwrites an existing output file. The value of this attribute can be either "a" for append or "o" for overwrite. The connector examines only the first letter and does not consider the value's case.
- `InFileName` — A string attribute that is populated with the event file name (file and absolute path from which the business object is obtained).
- `OutFileName` — A string attribute whose value can contain the filename, the absolute path and filename, or an FTP URL for the connector to use when writing to the output file.
  - If this attribute contains only the filename, the connector writes the specified file to the directory from which it was started.
  - If this attribute contains the absolute path and filename, the connector writes the specified file to the specified directory.
  - If this attribute contains only an FTP URL, the connector obtains the login, password, and port values from the `EventDir` attribute of the top-level `JText` meta-object.
  - If this attribute contains an FTP URL that includes the login, password, and port values, the connector uses the values specified in this attribute and overrides those specified in the `EventDir` attribute of the top-level `JText` meta-object.

For more information, see "Specifying a remote FTP file system" on page 68.

Figure 2 illustrates an example Customer business object that contains a dynamic child meta-object.

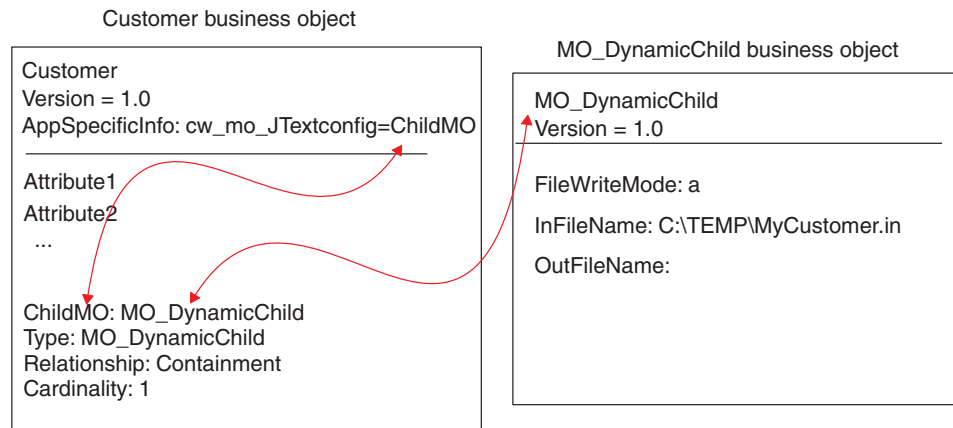


Figure 2. Example of a dynamic child meta-object

## How the connector works

The JText connector communicates with an application through the exchange of text or binary files. It performs the following primary tasks when processing business objects:

- Event notification
- Request processing

This section describes these tasks. It also explains how data handler processing works and how the JText connector processes verbs.

### Event notification

The JText connector handles events differently from other connectors. Unlike connectors that depend on third-party applications, the JText connector does not have an event table. Instead, it treats the event directory as an event table.

The following operations occur when the JText connector handles events:

1. The connector polls for events by checking specified directories for files with specified extensions. The presence of a file with the specified extension in the specified directory is considered the equivalent of an event. The connector reads event files directly from the event directory without interpretation. It uses a parsing method to determine which subsection represents each business object. For more information, see "Polling for specific business objects" on page 65.
2. The connector creates an instance of the data handler (based on values specified in the JText meta-object for the data business object).
3. The connector calls `getBO()` or `getBOByteArray()` on the data handler instance, and sends the string or byte array that represents the business object to it. The connector passes each element that represents a business object to the data

handler. When a file represents multiple business objects, the connector sends only an element (that is, a string or byte array representation of a single business object), not the entire file.

4. The data handler converts the string or byte array to a business object and returns it to the connector. The data handler also reports errors and provides tracing.
5. The data handler performs default verb processing. The person who develops the data handler must specify logic for setting the verbs, because the connector does not provide this logic. For information on how the sample data handlers set verbs, see the *Data Handler Guide*.
6. If the data handler encounters any error that prevents it from creating a business object, the connector archives the string or byte array with the `.fail` extension. If the data handler succeeds, the connector checks for subscriptions to the business object.
  - If the connector does not subscribe to the business object, it writes it to an archive file with the `.unsub` extension.
  - If the connector subscribes to the business object, it sends the business object to the integration broker.
7. If the connector successfully sends the business object to the integration broker, it archives the file with the `.success` or `.partial` extension, depending on whether any business object in the event file has failed processing. If the connector fails to send the business object, it archives the file with the `.fail` extension.

The `JText` connector processes event files in alphabetic order according to their file names. Depending on its configuration, the `JText` connector can pick up all files in the event directory or pick up only those with a specified extension. For more information, see “Specifying multiple event files or multiple event directories” on page 64. The `SortFilesOnTimestamp` property allows the `JText` connector to process event files in the order of their time stamps, from the oldest to the most recent, regardless of their location. In other words, the `JText` connector processes files located in separate directories in the chronological order of their time stamps. For more information, see “SortFilesOnTimestamp” on page 33.

The `PollQuantity` property specifies the maximum number of business objects that the connector can post to the integration broker in a given poll. For example, assume that the value of `PollQuantity` is set to 5 and that there are two files in a directory in which the connector is polling. The first file has four business objects and the second has 12 business objects. On the first poll call, the connector performs the following steps:

1. Sends all four business objects from the first file, archiving each business object as it processes it.
2. Sends the first business object from the second file.

On the second poll call, the connector sends the 2nd through 6th business objects from the second file. On the third poll call, the connector sends the 7th through 11th business objects from the second file. On the fourth poll, the connector sends the last business object. The connector archives each business object after processing it. If any of the business objects in a file fail processing, the connector archives the entire file with the `.orig` extension.

For more information, see:

- On using the `PollQuantity` property to tune performance, see “Tuning the performance of the `JText` connector” on page 77.

- On specifying the event directory and extension, see “Specifying event directories and extensions” on page 58.
- On specifying event processing, see “Specifying event notification” on page 58.

Figure 3 shows an event notification operation (numbers in the graphic do not correlate to the steps outlined above).

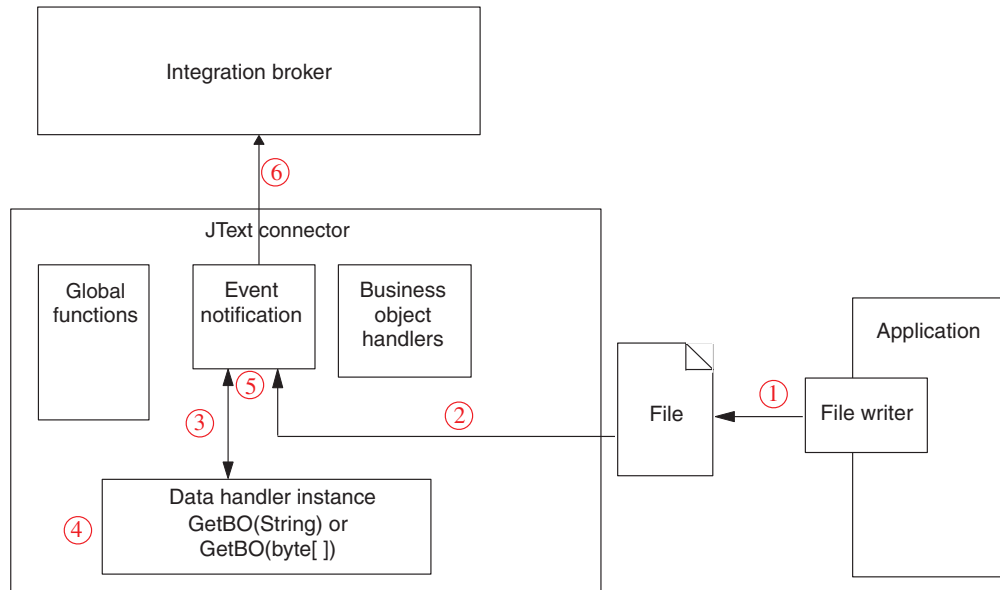


Figure 3. Event notification operation

## Event archiving

After it has processed an event, and if it is configured to enable archiving, the JText connector writes the business object string or byte array representation of one business object into a file in the local archive directory. It names the file with an underscore (`_`), a time stamp, and a file extension that corresponds to the event status. The delivered default extensions are `success`, `partial`, `unsub`, `orig`, and `fail`. The underscore and time stamp are appended after the filename and before the file extension.

The time stamp is an underscore-separated list that contains the year, month, day, hour, minute, second, and millisecond of the system time. It ensures that archived filenames are unique and that the connector does not overwrite an existing file with the same name. The format of the archived file is:

```
BOName_YYYY_MM_DD_HH_MM_SS_sss.[extension]
```

For example, the connector might rename a successfully processed file named `Customer.in` to `Customer_2003_11_15_18_24_59_999.success`.

The JText connector archives a business object to the `.fail` file if a formatting error occurs, or if the connector fails to send the business object to the integration broker. The JText connector archives a business object to a file with an extension of `.unsub` if the connector does not subscribe to it. After you examine these archive files and correct any formatting errors or start the processes that subscribe to the business objects, resubmit the business objects in these files for processing.

For more information on archiving, see “Specifying event archiving” on page 59.



## Default file extensions for event and archive files

Because the JText connector does not use event and archive tables, it updates event status by changing file extensions. Table 1 shows the default file extension values that IBM WebSphere Business Integration Adapter for JText delivers for event and archive files.

Table 1. Default file extensions

File type	Event status/description	Default file extension	Delivered default directory
Event	new	in	UNIX: /tmp/JTextConn/Default/Event Windows: C:\temp\JTextConn\Default\Event
Archive	success (if all the business objects in the event file process successfully, this file contains all the business objects)	success	UNIX: /tmp/JTextConn/Default/Archive Windows: C:\temp\JTextConn\Default\Archive
Archive	success (if some of the business objects in the event file fail processing, this file contains only the successfully processed ones)	partial	UNIX: /tmp/JTextConn/Default/Archive Windows: C:\temp\JTextConn\Default\Archive
Archive	unsubscribed	unsub	UNIX: /tmp/JTextConn/Default/Archive Windows: C:\temp\JTextConn\Default\Archive
Archive	entire original event file (created only if any business object fails processing or is unsubscribed, even if the event file contains only one business object)	orig	UNIX: /tmp/JTextConn/Default/Archive Windows: C:\temp\JTextConn\Default\Archive
Archive	fail	fail	UNIX: /tmp/JTextConn/Default/Archive Windows: C:\temp\JTextConn\Default\Archive
Output	out	out	UNIX: /tmp/JTextConn/Default/Out Windows: C:\temp\JTextConn\Default\Out

**Important:** The access sequence among multiple applications that access and process the same file at the same time is important. Analyze all operations performed on a given file to avoid issues with file locking and incomplete data.

**Note:** The connector treats every file in the event directory with the specified extension as an input file. Ensure that the input file extension differs from the archive file extension, or that the input files and archive files are stored in different directories, to prevent the connector from treating an archived file as an event.

For information on specifying your own file extensions, event directory, and output directory, see Table 7 on page 48..

## Request processing

When processing a service call request, the connector converts the business object to an output string or byte array, then writes it to a file.

Before converting the business object, however, the connector determines whether the business object has been configured for dynamic file naming; that is, whether the business object contains a dynamic child meta-object. In this case, the connector dynamically names the output file or returns the name of the output file that it generates.

This section describes service call request processing when:

- “Data business object does not specify dynamic file naming”
- “Data business object contains a dynamic child meta-object” on page 10

### Data business object does not specify dynamic file naming

When the data business object does not specify dynamic file naming, the connector performs the following operations to handle service call requests:

1. The connector receives a business object request.
2. The connector determines that the `AppSpecificInfo` property at the business-object level must contain the following:  

```
cw_mo_JTextConfig = DynChildMOAttrName
```
3. The connector checks the configuration of the top-level `JText` meta-object to determine which data handler to call. By default, this meta-object specifies the `MO_DataHandler_DefaultNameValueConfig` data-handler meta-object, which represents the `NameValue` data handler.
4. The connector creates an instance of the appropriate data handler and sends the business object to it.
5. The data handler converts the business object to a string or a byte array, which it returns to the configuration. The data handler also reports errors and provides tracing.
6. The connector writes the string or byte array to a file.

For information on configuring the connector to process requests, see “Specifying request processing” on page 60.

### Data business object contains a dynamic child meta-object

When the data business object contains a dynamic child meta-object, the connector performs the following operations to handle service call requests:

1. The connector receives a business object request.
2. The connector determines that the `AppSpecificInfo` property at the business-object level contains the following text:

```
cw_mo_JTextConfig = DynChildMOAttrName
```

**Note:** If the business object’s application-specific information does not specify a dynamic child meta-object and does not contain such a child, the connector processes the business object as described in “Data business object does not specify dynamic file naming” on page 10.

3. The connector gets the name of the output file from the dynamic child meta-object’s `OutFileName` attribute.
  - If this attribute contains a value, the connector checks whether a file by that name already exists. If the file does not exist, the connector creates a new output file, using the value of the attribute to name the file. If the file already

exists, the connector appends to or overwrites the existing file (based on the value of the child meta-object's `FileWriteMode`).

**Important:** If the value of the `FileWriteMode` attribute begins with any value other than an "o", the connector defaults to append mode.

- If this attribute does not contain a value (that is, `OutFileName=CxIgnore`), the connector derives the filename from the name of the parent business object that contains this child meta-object, and uses the configuration of the top-level `JText` meta-object to determine the output file's location. After writing the business object to the file, the connector returns the file's name and path in this attribute.
4. The connector checks the configuration of the top-level `JText` meta-object to determine which data handler to call. By default, this meta-object specifies the `MO_DataHandler_DefaultNameValueConfig` data-handler meta-object, which represents the `NameValue` data handler.
  5. The connector creates an instance of the appropriate data handler and sends the business object to it.
  6. The data handler converts the business object to a string or a byte array, which it returns to the configuration. The data handler also reports errors and provides tracing.
  7. The connector writes the string or byte array to a file whose name it derives in step 3. above.

Figure 4 illustrates the `JText` connector components when the connector processes requests from an integration broker to the destination application.

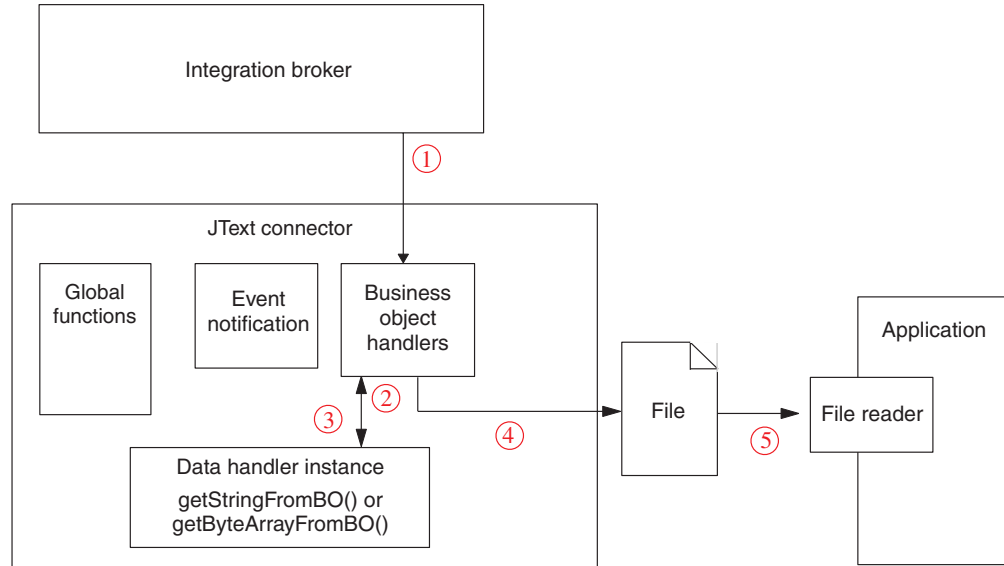


Figure 4. Business object request operation

## How data handler processing works

The connector uses a data handler instance to convert between business objects and strings or byte arrays that are read from event files. The data handler instance also reports errors and provides tracing.

The connector creates an instance of a data handler based on the value of the `EventDataHandler` and `OutputDataHandler` attributes in the top-level `JText`

meta-object. These attributes identify the data-handler meta-object that the connector uses to create the instance of the data handler. The data-handler meta-object can represent a delivered or custom data handler. For more information, see the *Data Handler Guide*.

The connector determines which interface, string or byte array, based on the setting of the `DataProcessingMode` meta-object. For additional information on this meta-object, see Table 7 on page 48

After receiving the configuration information, the connector performs the following steps:

1. Instantiates a data handler.
2. Calls the data handler's `setOption()` method to set the data handler's `TracingSubSystem` attribute to the connector's name. The data handler uses this value to include the connector's name in the trace messages it writes.

After the data handler has been created and configured, the connector calls the appropriate methods in the data handler to perform the conversion of data to or from a business object.

- For event notification, the connector calls the `getB0(String)` or `getB0(byte[])` method on the data handler. The connector passes to the data handler the string from a file that is to be converted to a business object. The data handler returns a business object.
- For request processing, the connector calls the `getStringFromB0()` or `getBytesFromB0()` method on the data handler. The connector passes to the data handler the business object to be converted to a string or byte array. The data handler returns a serialized version of the business object, in the form of a string or byte array.

The `getB0(String)` or `getB0(byte[])` and the `getStringFromB0()` or `getBytesFromB0()` methods always send or receive the entire business object hierarchy of a top-level parent and all of its child business objects, respectively.

In either case, the data handler is responsible for filtering out any meta-object data so that it passes only business object-specific data. The product-delivered data handlers provide this functionality. If you use custom data handlers, they must also provide this functionality.

## Business object verb processing for requests

When handling requests, the JText connector does not handle one verb differently from another. It writes to files without performing update, retrieve, or delete operations, regardless of the verb associated with the business object.

When processing requests, the JText connector sets all attributes with a value of `CxIgnore` to their default values if the following conditions are true:

- The verb is `Create`.
- The connector's `UseDefaults` property is set to `true`.
- The attribute is set to `Required`.
- Default values have been set for the attributes in the business object specification.

---

## Connector features

Along with event notification and business object request processing, the JText connector provides the following capabilities:

- Varied configurations for different business objects; for example, you can configure different business objects to use different directories and file extensions, or different data formats.
- Configuration capabilities for file extensions, directory location for archive file storage, format type, and file sequencing.
- Configuration capabilities for dynamically determining the output filename for each business object, or for returning the full name of a generated output file.
- Failure recovery.
- Custom data handler capabilities, which means that you can create your own data handler without recompiling the connector code. You need only change the configuration properties to use the new class you have created.
- The ability to exchange data with remote FTP locations as well as local file system directories.

For more information, see Chapter 2, “Installing the JText adapter,” on page 15, Chapter 4, “Using JText connector meta-objects,” on page 45, and the *Data Handler Guide*.

## JText differences from other adapters

While the JText connector enables the transfer of data from a source application to a destination application like other adapters, it is unique in the following ways:

- It processes all business objects in the same way. In other words, because it always writes the business object to a file, it performs only Create operations (regardless of the incoming verb).
- It does not interpret the contents of the business objects that it handles. In other words, it reads each business object as a potential string or byte array in which key values have no more significance than other data.
- It uses meta-object values for much of its configuration. For more information, see Chapter 4, “Using JText connector meta-objects,” on page 45.
- It does not have an event table. Instead, it treats the configured event directory as an event table.

---

## Processing locale-dependent data

The connector has been internationalized so that it can support double-byte character sets, and deliver message text in the specified language. When the connector transfers data from a location that uses one character code set to a location that uses a different code set, it performs character conversion to preserve the meaning of the data. The Java runtime environment within the Java Virtual Machine (JVM) represents data in the Unicode character code set. Unicode contains encodings for characters in most known character code sets (both single-byte and multibyte). Most components in the WebSphere business integration system are written in Java. Therefore, when data is transferred between most WebSphere business integration system components, there is no need for character conversion. This adapter supports the processing of bidirectional script data for the Arabic and Hebrew languages when the adapter is run in a Windows environment. Bidirectional processing is not supported in non-Windows environments. To log error and informational messages in the appropriate language and for the appropriate country or territory, configure the Locale standard configuration

property for your environment. For more information on these properties, see Appendix A, "Standard configuration properties for connectors," on page 91.

---

## **Common Event Infrastructure**

This adapter is compatible with IBM's Common Event Infrastructure, a standard for event management that permits interoperability with other IBM WebSphere event-producing applications. If Common Event Infrastructure support is enabled, events produced by the adapter can be received (or used) by another Common Event Infrastructure-compatible application.

For more information refer to the Common Event Infrastructure appendix in this guide.

---

## **Application Response Measurement**

This adapter is compatible with the Application Response Measurement application programming interface (API), an API that allows applications to be managed for availability, service level agreements, and capacity planning. An ARM-instrumented application can participate in IBM Tivoli Monitoring for Transaction Performance, allowing collection and review of data concerning transaction metrics.

For more information refer to the Application Response Measurement appendix in this guide.

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## Chapter 2. Installing the JText adapter

This chapter describes how to install and configure the JText connector.

- “Overview of the installation tasks”
- “Adapter environment”
- “Installing the JText adapter” on page 17
- “Verifying installation” on page 17

---

### Overview of the installation tasks

To install the adapter for JText, you must perform the following tasks:

- Install the integration broker This task, which includes installing the WebSphere business integration system and starting the integration broker, is described in the installation documentation for your broker and operating system.
- Install the adapter and related files This task includes installing the files for the adapter from the software package onto your system. See “Installing the JText adapter” on page 17.

Before installing the adapter, you must understand the adapter environment. For further information, see “Adapter environment.”

### In this chapter

The tasks described in this chapter are as follows:

Table 2. Installing the adapter: task roadmap

Task	Associated procedure(s) (see...)	For more information (see...)
Installing the adapter	“Installing the JText adapter” on page 17.	<i>Installation Guide for WebSphere Business Integration Adapters</i>
Verifying installation	“Verifying installation” on page 17.	

---

### Adapter environment

Before installing, configuring, and using the adapter, you must understand its environmental requirements:

- “Broker compatibility”
- “Adapter platforms” on page 16
- “Adapter prerequisites” on page 17
- “Locale-dependent data” on page 17

### Broker compatibility

The adapter framework that an adapter uses must be compatible with the version of the integration broker (or brokers) with which the adapter is communicating. Version 5.6 of the adapter for JText is supported on the following versions of the adapter framework and with the following integration brokers:

**Adapter framework:** WebSphere Business Integration Adapter Framework version 2.6.

**Integration brokers:**

- WebSphere InterChange Server, versions 4.2.2, 4.3.x
- WebSphere MQ Integrator, version 2.1
- WebSphere MQ Integrator Broker, version 2.1
- WebSphere Business Integration Message Broker, version 5.0.1
- WebSphere Application Server Enterprise, version 5.0.2, with WebSphere Studio Application Developer Integration Edition, version 5.0.1
- WebSphere Business Integration Server Foundation version 5.1.1

See the Release Notes for any exceptions.

**Note:** For instructions on installing the integration broker and its prerequisites, see the following documentation. For WebSphere InterChange Server (ICS), see the System Installation Guide for UNIX or for Windows.

For message brokers (WebSphere MQ Integrator Broker, WebSphere MQ Integrator, and WebSphere Business Integration Message Broker), see Implementing Adapters with WebSphere Message Brokers, and the installation documentation for the message broker. Some of this can be found at the following Web site:

<http://www.ibm.com/software/integration/mqfamily/library/manualsa/>.

For WebSphere Application Server, see Implementing Adapters with WebSphere Application Server and the documentation at:  
<http://www.ibm.com/software/webservers/appserv/library.html>.

## Adapter platforms

The adapter is supported on the following platforms:

- All operating system environments require the Java compiler (IBM JDK 1.4.2for Windows 2000) for compiling custom adapters
- **AIX:**  
**AIX 5.1 with Maintenance Level 4**  
**AIX 5.2 with Maintenance Level 1. This adapter supports 32-bit JVM on a 64-bit platform.**
- **Solaris:**  
Solaris 8 (2.8)with Solaris Patch Cluster dated Feb. 11, 2004 or later  
Solaris 9 (2.9) with Solaris Patch Cluster dated February 11, 2004 or later. This adapter supports 32-bit JVM on a 64-bit platform.
- **HP-UX:**  
HP-UX 11.i (11.11) with June 2003 GOLDBASE11i and June 2003 GOLDAPPS11i bundles
- **Linux:**  
Red Hat Enterprise Linux AS 3.0 with Update 1  
Red Hat Enterprise Linux ES 3.0 with Update 1  
Red Hat Enterprise Linux WS 3.0 with Update 1  
SUSE Linux Enterprise Server x86 8.1 with SP3  
SUSE Linux Standard Server x86 8.1 with SP3
-



**Note:** The TMTP (Tivoli Monitoring for Transaction Performance) component of the WebSphere Business Integration Adapter FrameworkV2.6 is not supported on Linux Red Hat.

- **Windows:**  
Windows 2000 (Professional, Server, or Advanced Server) with Service Pack 4  
Windows XP with Service Pack 1A, for WebSphere Business Integration Adapter Framework (administrative tools only)  
Windows 2003 (Standard Edition or Enterprise Edition)

## Adapter prerequisites

Before running the JText connector, create read/write permissions on the event, output, and archive directories that will contain the text files that the connector reads from and writes to. This needs to be done on both the local and remote servers.

## Locale-dependent data

The connector has been internationalized so that it can support double-byte character sets, and deliver message text in the specified language. When the connector transfers data from a location that uses one character code to a location that uses a different code set, it performs character conversion to preserve the meaning of the data.

The Java runtime environment within the Java Virtual Machine (JVM) represents data in the Unicode character code set. Unicode contains encoding for characters in most known character code sets (both single-byte and multibyte). Most components in the WebSphere business integration system are written in Java. Therefore, when data is transferred between most integration components, there is no need for character conversion. To log error and informational messages in the appropriate language and for the appropriate country or territory, configure the Locale standard configuration property for your environment. For more information on configuration properties, see Appendix A, "Standard configuration properties for connectors," on page 91.

This adapter supports the processing of bidirectional script data for the Arabic and Hebrew languages when the adapter is run in a Windows environment. Bidirectional processing is not supported in non-Windows environments. To use the bidirectional capacity, you must configure the bidirectional standard properties. For more information, refer to the standard configuration properties for connectors in Appendix A, "Standard configuration properties for connectors," on page 91.

---

## Installing the JText adapter

For information on installing WebSphere Business Integration adapter products, refer to the *Installing WebSphere Business Integration Adapters* guide located in the WebSphere Business Integration Adapters Infocenter at the following site:

<http://www.ibm.com/websphere/integration/wbiadapters/infocenter>

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## Verifying installation

The sections below describe the paths and filenames of the product after installation and how to verify your adapter installation.

## Verifying installation on a Windows system

Before you begin: Install the adapter. The Installer copies the standard files associated with the adapter into your system. The utility installs the connector into the *ProductDir*\connectors\JText directory, and adds a shortcut for the connector to the Start menu.

Perform the following step to verify adapter installation on a Windows system: Change to the directory where you installed the adapter *ProductDir*\ and compare the contents to those listed in Table 3.

Table 3 describes the Windows file structure used by the adapter, and shows the files that are automatically installed when you choose to install the adapter through Installer.

Table 3. Windows file structure for the connector

Subdirectory of <i>ProductDir</i>	Description
\connectors\JText\CWJText.jar	Contains classes used by the JText connector only
\connectors\JText\start_JText.bat	The startup script for the generic connector
\connectors\messages\JTextConnector.txt	Message file for the connector
\repository\JText\CN_JText.txt	Repository definition for the connector. The default name is CN_JText.txt.
\connectors\JText\dependencies\commons-net-1.1.0.jar, dependencies\jakarta-oro-2.0.8.jar	Third party.jar packaged with the connector

**Note:** All product pathnames are relative to the directory where the product is installed on your system.

## Verifying installation on a Unix system

Before you begin: Install the adapter. The Installer copies the standard files associated with the adapter into your system. The utility installs the connector agent into the *ProductDir*/connectors/JText directory.

Perform the following step to verify adapter installation on a UNIX system: v Change to the directory where you installed the adapter *ProductDir*/ and compare the contents to those listed in Table 9.

Table 4 describes the UNIX file structure used by the adapter, and shows the files that are automatically installed when you choose to install the adapter through Installer.

Table 4. Unix file structure for the connector

Subdirectory of <i>ProductDir</i>	Description
/connectors/JText/CWJText.jar	Contains classes used by the JText connector only
/connectors/JText/start_JText.bat	The startup script for the generic connector
/connectors/messages/JTextConnector.txt	Message file for the connector
/repository/JText/CN_JText.txt	Repository definition for the connector. The default name is CN_JText.txt.

Table 4. Unix file structure for the connector (continued)

Subdirectory of <i>ProductDir</i>	Description
\repository\JText\MO_JTextConnector_Default	A sample repository definition of the JText connector meta-object.
/connectors/JText/dependencies/commons-net-1.1.0.jar, dependencies/jakarta-oro-2.0.8.jar	Third party.jar packaged with the connector

**Note:** All product pathnames are relative to the directory where the product is installed on your system.



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## Chapter 3. Configuring the JText adapter

This chapter describes how to install and configure the JText connector.

- “Overview of Connector Configurator”
- “Starting Connector Configurator” on page 22
- “Running Configurator from System Manager” on page 23
- “Creating a connector-specific property template” on page 23
- “Creating a new configuration file” on page 26
- “Using an existing file” on page 27
- “Completing a configuration file” on page 28
- “Setting the configuration file properties” on page 29
- “Saving your configuration file” on page 39
- “Changing a configuration file” on page 39
- “Completing the configuration” on page 40
- “Using Connector Configurator in a globalized environment” on page 40
- “Starting the connector” on page 40
- “Starting the connector” on page 40
- “Stopping the connector” on page 42
- “Creating multiple connector instances” on page 42
- “Adding supported business objects” on page 43

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### Overview of Connector Configurator

Connector Configurator allows you to configure the connector component of your adapter for use with these integration brokers:

- WebSphere InterChange Server (ICS)
- WebSphere MQ Integrator, WebSphere MQ Integrator Broker, and WebSphere Business Integration Message Broker, collectively referred to as the WebSphere Message Brokers (WMQI)
- WebSphere Application Server (WAS)

If your adapter supports DB2 Information Integrator, use the WMQI options and the DB2 II standard properties (see the Notes column in the Standard Properties appendix.)

You use Connector Configurator to:

- Create a **connector-specific property template** for configuring your connector.
- Create a **connector configuration file**; you must create one configuration file for each connector you install.
- Set properties in a configuration file.  
You may need to modify the default values that are set for properties in the connector templates. You must also designate supported business object definitions and, with ICS, maps for use with collaborations as well as specify messaging, logging and tracing, and data handler parameters, as required.

The mode in which you run Connector Configurator, and the configuration file type you use, may differ according to which integration broker you are running.

For example, if WMQI is your broker, you run Connector Configurator directly, and not from within System Manager (see “Running Configurator in stand-alone mode” on page 22).

Connector configuration properties include both standard configuration properties (the properties that all connectors have) and connector-specific properties (properties that are needed by the connector for a specific application or technology).

Because **standard properties** are used by all connectors, you do not need to define those properties from scratch; Connector Configurator incorporates them into your configuration file as soon as you create the file. However, you do need to set the value of each standard property in Connector Configurator.

The range of standard properties may not be the same for all brokers and all configurations. Some properties are available only if other properties are given a specific value. The Standard Properties window in Connector Configurator will show the properties available for your particular configuration.

For **connector-specific properties**, however, you need first to define the properties and then set their values. You do this by creating a connector-specific property template for your particular adapter. There may already be a template set up in your system, in which case, you simply use that. If not, follow the steps in “Creating a new template” on page 23 to set up a new one.

## Running connectors on UNIX

Connector Configurator runs only in a Windows environment. If you are running the connector in a UNIX environment, use Connector Configurator in Windows to modify the configuration file and then copy the file to your UNIX environment.

Some properties in the Connector Configurator use directory paths, which default to the Windows convention for directory paths. If you use the configuration file in a UNIX environment, revise the directory paths to match the UNIX convention for these paths. Select the target operating system in the toolbar drop-list so that the correct operating system rules are used for extended validation.

---

## Starting Connector Configurator

You can start and run Connector Configurator in either of two modes:

- Independently, in stand-alone mode
- From System Manager

## Running Configurator in stand-alone mode

You can run Connector Configurator without running System Manager and work with connector configuration files, irrespective of your broker.

To do so:

- From **Start>Programs**, click **IBM WebSphere Business Integration Adapters>IBM WebSphere Business Integration Toolset>Connector Configurator**.
- Select **File>New>Connector Configuration**.
- When you click the pull-down menu next to **System Connectivity Integration Broker**, you can select ICS, WebSphere Message Brokers or WAS, depending on your broker.

You may choose to run Connector Configurator independently to generate the file, and then connect to System Manager to save it in a System Manager project (see “Completing a configuration file” on page 28.)

---

## Running Configurator from System Manager

You can run Connector Configurator from System Manager.

To run Connector Configurator:

1. Open the System Manager.
2. In the System Manager window, expand the **Integration Component Libraries** icon and highlight **Connectors**.
3. From the System Manager menu bar, click **Tools>Connector Configurator**. The Connector Configurator window opens and displays a **New Connector** dialog box.
4. When you click the pull-down menu next to **System Connectivity Integration Broker**, you can select ICS, WebSphere Message Brokers or WAS, depending on your broker.

To edit an existing configuration file:

- In the System Manager window, select any of the configuration files listed in the Connector folder and right-click on it. Connector Configurator opens and displays the configuration file with the integration broker type and file name at the top.
- From Connector Configurator, select **File>Open**. Select the name of the connector configuration file from a project or from the directory in which it is stored.
- Click the Standard Properties tab to see which properties are included in this configuration file.

---

## Creating a connector-specific property template

To create a configuration file for your connector, you need a connector-specific property template as well as the system-supplied standard properties.

You can create a brand-new template for the connector-specific properties of your connector, or you can use an existing connector definition as the template.

- To create a new template, see “Creating a new template” on page 23.
- To use an existing file, simply modify an existing template and save it under the new name. You can find existing templates in your `\WebSphereAdapters\bin\Data\App` directory.

### Creating a new template

This section describes how you create properties in the template, define general characteristics and values for those properties, and specify any dependencies between the properties. Then you save the template and use it as the base for creating a new connector configuration file.

To create a template in Connector Configurator:

1. Click **File>New>Connector-Specific Property Template**.
2. The **Connector-Specific Property Template** dialog box appears.

- Enter a name for the new template in the **Name** field below **Input a New Template Name**. You will see this name again when you open the dialog box for creating a new configuration file from a template.
  - To see the connector-specific property definitions in any template, select that template's name in the **Template Name** display. A list of the property definitions contained in that template appears in the **Template Preview** display.
3. You can use an existing template whose property definitions are similar to those required by your connector as a starting point for your template. If you do not see any template that displays the connector-specific properties used by your connector, you will need to create one.
- If you are planning to modify an existing template, select the name of the template from the list in the **Template Name** table below **Select the Existing Template to Modify: Find Template**.
  - This table displays the names of all currently available templates. You can also search for a template.

### Specifying general characteristics

When you click **Next** to select a template, the **Properties - Connector-Specific Property Template** dialog box appears. The dialog box has tabs for General characteristics of the defined properties and for Value restrictions. The General display has the following fields:

- **General:**
  - Property Type
  - Property Subtype
  - Updated Method
  - Description
- **Flags**
  - Standard flags
- **Custom Flag**
  - Flag

The **Property Subtype** can be selected when **Property Type** is a String. It is an optional value which provides syntax checking when you save the configuration file. The default is a blank space, and means that the property has not been subtyped.

After you have made selections for the general characteristics of the property, click the **Value** tab.

### Specifying values

The **Value** tab enables you to set the maximum length, the maximum multiple values, a default value, or a value range for the property. It also allows editable values. To do so:

1. Click the **Value** tab. The display panel for Value replaces the display panel for General.
2. Select the name of the property in the **Edit properties** display.
3. In the fields for **Max Length** and **Max Multiple Values**, enter your values.

To create a new property value:

1. Right-click on the square to the left of the Value column heading.



2. From the pop-up menu, select **Add** to display the Property Value dialog box. Depending on the property type, the dialog box allows you to enter either a value, or both a value and a range.
3. Enter the new property value and click OK. The value appears in the **Value** panel on the right.

The **Value** panel displays a table with three columns:

The **Value** column shows the value that you entered in the **Property Value** dialog box, and any previous values that you created.

The **Default Value** column allows you to designate any of the values as the default.

The **Value Range** shows the range that you entered in the **Property Value** dialog box.

After a value has been created and appears in the grid, it can be edited from within the table display.

To make a change in an existing value in the table, select an entire row by clicking on the row number. Then right-click in the **Value** field and click **Edit Value**.

## Setting dependencies

When you have made your changes to the **General** and **Value** tabs, click **Next**. The **Dependencies - Connector-Specific Property Template** dialog box appears.

A dependent property is a property that is included in the template and used in the configuration file *only if* the value of another property meets a specific condition. For example, `PollQuantity` appears in the template only if `JMS` is the transport mechanism and `DuplicateEventElimination` is set to `True`.

To designate a property as dependent and to set the condition upon which it depends, do this:

1. In the **Available Properties** display, select the property that will be made dependent.
2. In the **Select Property** field, use the drop-down menu to select the property that will hold the conditional value.
3. In the **Condition Operator** field, select one of the following:
  - == (equal to)
  - != (not equal to)
  - > (greater than)
  - < (less than)
  - >= (greater than or equal to)
  - <=(less than or equal to)
4. In the **Conditional Value** field, enter the value that is required in order for the dependent property to be included in the template.
5. With the dependent property highlighted in the **Available Properties** display, click an arrow to move it to the **Dependent Property** display.
6. Click **Finish**. Connector Configurator stores the information you have entered as an XML document, under `\data\app` in the `\bin` directory where you have installed Connector Configurator.

## Setting pathnames

Some general rules for setting pathnames are:

- The maximum length of a filename in Windows and UNIX is 255 characters.
- In Windows, the absolute pathname must follow the format [Drive:][Directory]\filename: for example, C:\WebSphereAdapters\bin\Data\Std\StdConnProps.xml  
In UNIX the first character should be /.
- Queue names may not have leading or embedded spaces.

---

## Creating a new configuration file

When you create a new configuration file, you must name it and select an integration broker.

You also select an operating system for extended validation on the file. The toolbar has a droplist called **Target System** that allows you to select the target operating system for extended validation of the properties. The available options are: Windows, UNIX, Other (if not Windows or UNIX), and None-no extended validation (switches off extended validation). The default on startup is Windows.

To start Connector Configurator:

- In the System Manager window, select **Connector Configurator** from the **Tools** menu. Connector Configurator opens.
- In stand-alone mode, launch Connector Configurator.

To set the operating system for extended validation of the configuration file:

- Pull down the **Target System:** droplist on the menu bar.
- Select the operating system you are running on.

Then select **File>New>Connector Configuration**. In the New Connector window, enter the name of the new connector.

You also need to select an integration broker. The broker you select determines the properties that will appear in the configuration file. To select a broker:

- In the **Integration Broker** field, select ICS, WebSphere Message Brokers or WAS connectivity.
- Complete the remaining fields in the **New Connector** window, as described later in this chapter.

## Creating a configuration file from a connector-specific template

Once a connector-specific template has been created, you can use it to create a configuration file:

1. Set the operating system for extended validation of the configuration file using the **Target System:** droplist on the menu bar (see “Creating a new configuration file” above).
2. Click **File>New>Connector Configuration**.
3. The **New Connector** dialog box appears, with the following fields:
  - **Name**

Enter the name of the connector. Names are case-sensitive. The name you enter must be unique, and must be consistent with the file name for a connector that is installed on the system.

**Important:** Connector Configurator does not check the spelling of the name that you enter. You must ensure that the name is correct.

- **System Connectivity**

Click ICS or WebSphere Message Brokers or WAS.

- **Select Connector-Specific Property Template**

Type the name of the template that has been designed for your connector. The available templates are shown in the **Template Name** display. When you select a name in the Template Name display, the **Property Template Preview** display shows the connector-specific properties that have been defined in that template.

Select the template you want to use and click **OK**.

4. A configuration screen appears for the connector that you are configuring. The title bar shows the integration broker and connector name. You can fill in all the field values to complete the definition now, or you can save the file and complete the fields later.
5. To save the file, click **File>Save>To File** or **File>Save>To Project**. To save to a project, System Manager must be running. If you save as a file, the **Save File Connector** dialog box appears. Choose \*.cfg as the file type, verify in the File Name field that the name is spelled correctly and has the correct case, navigate to the directory where you want to locate the file, and click **Save**. The status display in the message panel of Connector Configurator indicates that the configuration file was successfully created.

**Important:** The directory path and name that you establish here must match the connector configuration file path and name that you supply in the startup file for the connector.

6. To complete the connector definition, enter values in the fields for each of the tabs of the Connector Configurator window, as described later in this chapter.

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## Using an existing file

You may have an existing file available in one or more of the following formats:

- A connector definition file.  
This is a text file that lists properties and applicable default values for a specific connector. Some connectors include such a file in a `\repository` directory in their delivery package (the file typically has the extension `.txt`; for example, `CN_XML.txt` for the XML connector).
- An ICS repository file.  
Definitions used in a previous ICS implementation of the connector may be available to you in a repository file that was used in the configuration of that connector. Such a file typically has the extension `.in` or `.out`.
- A previous configuration file for the connector.  
Such a file typically has the extension `*.cfg`.

Although any of these file sources may contain most or all of the connector-specific properties for your connector, the connector configuration file will not be complete until you have opened the file and set properties, as described later in this chapter.

To use an existing file to configure a connector, you must open the file in Connector Configurator, revise the configuration, and then resave the file.

Follow these steps to open a \*.txt, \*.cfg, or \*.in file from a directory:

1. In Connector Configurator, click **File>Open>From File**.
2. In the **Open File Connector** dialog box, select one of the following file types to see the available files:
  - Configuration (\*.cfg)
  - ICS Repository (\*.in, \*.out)  
Choose this option if a repository file was used to configure the connector in an ICS environment. A repository file may include multiple connector definitions, all of which will appear when you open the file.
  - All files (\*.\*)  
Choose this option if a \*.txt file was delivered in the adapter package for the connector, or if a definition file is available under another extension.
3. In the directory display, navigate to the appropriate connector definition file, select it, and click **Open**.

Follow these steps to open a connector configuration from a System Manager project:

1. Start System Manager. A configuration can be opened from or saved to System Manager only if System Manager has been started.
2. Start Connector Configurator.
3. Click **File>Open>From Project**.

---

## Completing a configuration file

When you open a configuration file or a connector from a project, the Connector Configurator window displays the configuration screen, with the current attributes and values.

The title of the configuration screen displays the integration broker and connector name as specified in the file. Make sure you have the correct broker. If not, change the broker value before you configure the connector. To do so:

1. Under the **Standard Properties** tab, select the value field for the BrokerType property. In the drop-down menu, select the value ICS, WMQI, or WAS.
2. The Standard Properties tab will display the connector properties associated with the selected broker. The table shows **Property name**, **Value**, **Type**, **Subtype** (if the Type is a string), **Description**, and **Update Method**.
3. You can save the file now or complete the remaining configuration fields, as described in “Specifying supported business object definitions” on page 34..
4. When you have finished your configuration, click **File>Save>To Project** or **File>Save>To File**.

If you are saving to file, select \*.cfg as the extension, select the correct location for the file and click **Save**.

If multiple connector configurations are open, click **Save All to File** to save all of the configurations to file, or click **Save All to Project** to save all connector configurations to a System Manager project.

Before you created the configuration file, you used the **Target System** droplist that allows you to select the target operating system for extended validation of the properties.

Before it saves the file, Connector Configurator checks that values have been set for all required standard properties. If a required standard property is missing a value, Connector Configurator displays a message that the validation failed. You must supply a value for the property in order to save the configuration file.

If you have elected to use the extended validation feature by selecting a value of Windows, UNIX or Other from the **Target System** droplist, the system will validate the property subtypes as well as the type, and it displays a warning message if the validation fails.

---

## Setting the configuration file properties

When you create and name a new connector configuration file, or when you open an existing connector configuration file, Connector Configurator displays a configuration screen with tabs for the categories of required configuration values.

Connector Configurator requires values for properties in these categories for connectors running on all brokers:

- Standard Properties
- Connector-specific Properties
- Supported Business Objects
- Trace/Log File values
- Data Handler (applicable for connectors that use JMS messaging with guaranteed event delivery)

**Note:** For connectors that use JMS messaging, an additional category may display, for configuration of data handlers that convert the data to business objects.

For connectors running on **ICS**, values for these properties are also required:

- Associated Maps
- Resources
- Messaging (where applicable)
- Security

**Important:** Connector Configurator accepts property values in either English or non-English character sets. However, the names of both standard and connector-specific properties, and the names of supported business objects, must use the English character set only.

Standard properties differ from connector-specific properties as follows:

- Standard properties of a connector are shared by both the application-specific component of a connector and its broker component. All connectors have the same set of standard properties. These properties are described in the Standard Properties appendix. You can change some but not all of these values.
- Application-specific properties apply only to the application-specific component of a connector, that is, the component that interacts directly with the application. Each connector has application-specific properties that are unique to its application. Some of these properties provide default values and some do not; you can modify some of the default values. The installation and configuration chapters of each adapter guide describe the application-specific properties and the recommended values.

The fields for **Standard Properties** and **Connector-Specific Properties** are color-coded to show which are configurable:

- A field with a grey background indicates a standard property. You can change the value but cannot change the name or remove the property.
- A field with a white background indicates an application-specific property. These properties vary according to the specific needs of the application or connector. You can change the value and delete these properties.
- Value fields are configurable.
- The **Update Method** field is displayed for each property. It indicates whether a component or agent restart is necessary to activate changed values. You cannot configure this setting.

## Setting standard connector properties

To change the value of a standard property:

1. Click in the field whose value you want to set.
2. Either enter a value, or select one from the drop-down menu if it appears.

**Note:** If the property has a Type of String, it may have a subtype value in the Subtype column. This subtype is used for extended validation of the property.

3. After entering all the values for the standard properties, you can do one of the following:
  - To discard the changes, preserve the original values, and exit Connector Configurator, click **File>Exit** (or close the window), and click **No** when prompted to save changes.
  - To enter values for other categories in Connector Configurator, select the tab for the category. The values you enter for **Standard Properties** (or any other category) are retained when you move to the next category. When you close the window, you are prompted to either save or discard the values that you entered in all the categories as a whole.
  - To save the revised values, click **File>Exit** (or close the window) and click **Yes** when prompted to save changes. Alternatively, click **Save>To File** from either the File menu or the toolbar.

To get more information on a particular standard property, left-click the entry in the Description column for that property in the Standard Properties tabbed sheet. If you have Extended Help installed, an arrow button will appear on the right. When you click on the button, a Help window will open and display details of the standard property.

**Note:** If the hot button does not appear, no Extended Help was found for that property.

If installed, the Extended Help files are located in  
<ProductDir>\bin\Data\Std\Help\<RegionalSetting>\.

## Setting connector-specific configuration properties

For connector-specific configuration properties, you can add or change property names, configure values, delete a property, and encrypt a property. The default property length is 255 characters.

1. Right-click in the top left portion of the grid. A pop-up menu bar will appear. Click **Add** to add a property. To add a child property, right-click on the parent row number and click **Add child**.
2. Enter a value for the property or child property.

**Note:** If the property has a Type of String, you can select a subtype from the Subtype droplist. This subtype is used for extended validation of the property.

3. To encrypt a property, select the **Encrypt** box.
4. To get more information on a particular property, left-click the entry in the Description column for that property. If you have Extended Help installed, a hot button will appear. When you click on the hot button, a Help window will open and display details of the standard property.

**Note:** If the hot button does not appear, no Extended Help was found for that property.

5. Choose to save or discard changes, as described for “Setting standard connector properties” on page 30.

If the Extended Help files are installed and the AdapterHelpName property is blank, Connector Configurator will point to the adapter-specific Extended Help files located in `<ProductDir>\bin\Data\App\Help\<RegionalSetting>\`. Otherwise, Connector Configurator will point to the adapter-specific Extended Help files located in `<ProductDir>\bin\Data\App\Help\<AdapterHelpName>\<RegionalSetting>\`. See the AdapterHelpName property described in the Standard Properties appendix.

The Update Method displayed for each property indicates whether a component or agent restart is necessary to activate changed values.

**Important:** Changing a preset application-specific connector property name may cause a connector to fail. Certain property names may be needed by the connector to connect to an application or to run properly.

## Connector-specific properties

Connector-specific configuration properties provide information needed by the connector at runtime. They also provide a way of changing static information or logic within the connector without having to recode and rebuild the connector.

Table 6 lists the connector-specific configuration properties for the connector. See the sections that follow for explanations of the properties.

*Table 5. Connector-specific configuration properties*

Name	Possible values	Default value	Required?
ArchivingEnabled	true or false	true	Yes
EventLog	<i>Name and location of file</i>	event.log	No
EventRecovery	abort or retry	retry	Yes
FTPPollFrequency	<i>number of poll cycles</i>		No
GenerateTemplate	<i>BOName</i>		No
OutputLog	<i>File that registers the next sequence number for each incoming business object during request processing</i>	Output.Log	No
PollQuantity	<i>Number of events processed at each poll</i>	25	No



Table 5. Connector-specific configuration properties (continued)

Name	Possible values	Default value	Required?
SortFilesOnTimestamp	true or false	False	No
NoPoll	true or false	False	No

**ArchivingEnabled:** Turns on archiving. If this property is set to true, the event file is archived in the archive directory with the specified extension. If this property is set to false, the event file is not archived. In this case, the connector deletes the file after sending all events to the integration broker. For more information, see “Specifying event archiving” on page 59.

The default value is true.

**EventLog:** Provides file storage location for events that are generated by the connector. This file is located in the JText subdirectory in the connectors directory where the product is installed.

The default value is event.log.

**EventRecovery:** Specifies recovery behavior. If this property is set to retry, the connector uses the event.log file to recover failed events. If this property is set to abort, the connector terminates when it encounters a failed event. For more information, see “Event log file” on page 82.

The default value is retry.

**FTPPollFrequency:** Determines how frequently the connector polls an FTP server measured in the number of standard poll cycles. For example, if PollFrequency standard configuration property is set to 10000, and FTPPollFrequency is set to 6, the connector polls the local event directory every 10 seconds and polls the remote directory every 60 seconds. The connector performs FTP polling only if you specify a value for this property. If FTPPollFrequency evaluates to 0 or blank, the connector does not perform FTP polling. By default it does not.

There is no default value for this property.

**GenerateTemplate:** Enables the connector to generate a template for each supported business object after connector startup. The syntax for this property is *BOName;BOName* where the name of a specific business object is substituted for *BOName*. For example, to generate two templates, one for a Customer business object and one for an Item business object, specify *Customer;Item*. For more information, see “Generating sample business objects for testing” on page 78.

There is no default value for this property.

**OutputLog:** Specifies the name of the file that stores the sequence number that the connector uses to create unique output files for each type of business object during request processing. The format of the file is:

*BusinessObjectName = NextSequenceNumber*

where *BusinessObjectName* is the name of the request business object, and *NextSequenceNumber* represents the sequence number of the most recently received business object, incremented by one. For example, if the connector is processing Customer and Item business objects, the output log file might contain the following:



```
Customer = 12
Item = 2
```

This file indicates that the connector has already processed 11 Customers and 1 Item. The next Customer and Item business objects will be written to the Customer\_12.out and Item\_2.out files, respectively. When it receives a request Order business object, the connector adds a new row to the output log file and writes the business object to the Order\_1.out file.

If FileSeqEnabled meta object is set to true, the connector uses this sequence number to uniquely name the output files that it creates for each business object. The connector names each output file by appending an underscore ( \_ ) and the sequence number to the business object's name or to a file whose name is specified in the OutputFileName meta-object attribute. Because the output log is stored in user-readable format, you can use a standard text editor to read the file or to reset its value.

For more information on the OutputFileName attribute, see “Specifying the name of the output file” on page 56. For more information about the output log, see “Specifying request processing” on page 60. For information on returning the generated file's name, see “Returning a file's name” on page 62.

The default is Output.Log.

**PollQuantity:** Specifies the number of events to process for each poll. The connector poll method retrieves the specified number of event records and processes them in a single poll. Processing multiple events per poll can improve performance when the application generates large numbers of events. However, because integration-broker requests are blocked while the poll method is processing events, do not set the number of events too high. If each poll call takes a long time, it delays integration-broker request operations. For more information, see “Tuning the performance of the JText connector” on page 77.

The default value is 25.

**SortFilesOnTimestamp:** Allows the adapter to pick up event files based on the timestamp. This property is ideally set to true when there are only a few huge event files picked up by the adapter during polling. When there are a lot of small event files, this value should be set to false in order to avoid the excess time taken to sort the files at each poll.

The default value is False.

**Note:** Sorting based on the timestamp is supported only on Windows and Unix platforms. Sorting based on timestamp is not supported on MVS platforms. Also, the JText adapter can poll remote files based on the timestamp from FTP site only if the FTP server supports the `mdtm` (modification date and time) command.

**NoPoll:** If this property is set to true, then the adapter will not perform event processing and the adapter can only be used for request processing.

The default value is False.

## Encryption for connector properties

Application-specific properties can be encrypted by selecting the **Encrypt** check box in the Connector-specific Properties window. To decrypt a value, click to clear

the **Encrypt** check box, enter the correct value in the **Verification** dialog box, and click **OK**. If the entered value is correct, the value is decrypted and displays.

The adapter user guide for each connector contains a list and description of each property and its default value.

If a property has multiple values, the **Encrypt** check box will appear for the first value of the property. When you select **Encrypt**, all values of the property will be encrypted. To decrypt multiple values of a property, click to clear the **Encrypt** check box for the first value of the property, and then enter the new value in the **Verification** dialog box. If the input value is a match, all multiple values will decrypt.

### Update method

Refer to the descriptions of update methods found in the Standard Properties appendix.

## Specifying supported business object definitions

Use the **Supported Business Objects** tab in Connector Configurator to specify the business objects that the connector will use. You must specify both generic business objects and application-specific business objects, and you must specify associations for the maps between the business objects.

**Note:** Some connectors require that certain business objects be specified as supported in order to perform event notification or additional configuration (using meta-objects) with their applications. For more information, see the *Connector Development Guide for C++* or the *Connector Development Guide for Java*.

### If ICS is your broker

To specify that a business object definition is supported by the connector, or to change the support settings for an existing business object definition, click the **Supported Business Objects** tab and use the following fields.

**Business object name:** To designate that a business object definition is supported by the connector, with System Manager running:

1. Click an empty field in the **Business Object Name** list. A drop list displays, showing all the business object definitions that exist in the System Manager project.
2. Click on a business object to add it.
3. Set the **Agent Support** (described below) for the business object.
4. In the File menu of the Connector Configurator window, click **Save to Project**. The revised connector definition, including designated support for the added business object definition, is saved to an ICL (Integration Component Library) project in System Manager.

To delete a business object from the supported list:

1. To select a business object field, click the number to the left of the business object.
2. From the **Edit** menu of the Connector Configurator window, click **Delete Row**. The business object is removed from the list display.
3. From the **File** menu, click **Save to Project**.

Deleting a business object from the supported list changes the connector definition and makes the deleted business object unavailable for use in this implementation of this connector. It does not affect the connector code, nor does it remove the business object definition itself from System Manager.

**Agent support:** If a business object has Agent Support, the system will attempt to use that business object for delivering data to an application via the connector agent.

Typically, application-specific business objects for a connector are supported by that connector's agent, but generic business objects are not.

To indicate that the business object is supported by the connector agent, check the **Agent Support** box. The Connector Configurator window does not validate your Agent Support selections.

**Maximum transaction level:** The maximum transaction level for a connector is the highest transaction level that the connector supports.

For most connectors, Best Effort is the only possible choice.

You must restart the server for changes in transaction level to take effect.

### **If a WebSphere Message Broker is your broker**

If you are working in stand-alone mode (not connected to System Manager), you must enter the business object name manually.

If you have System Manager running, you can select the empty box under the **Business Object Name** column in the **Supported Business Objects** tab. A combo box appears with a list of the business object available from the Integration Component Library project to which the connector belongs. Select the business object you want from the list.

The **Message Set ID** is an optional field for WebSphere Business Integration Message Broker 5.0, and need not be unique if supplied. However, for WebSphere MQ Integrator and Integrator Broker 2.1, you must supply a unique **ID**.

### **If WAS is your broker**

When WebSphere Application Server is selected as your broker type, Connector Configurator does not require message set IDs. The **Supported Business Objects** tab shows a **Business Object Name** column only for supported business objects.

If you are working in stand-alone mode (not connected to System Manager), you must enter the business object name manually.

If you have System Manager running, you can select the empty box under the Business Object Name column in the Supported Business Objects tab. A combo box appears with a list of the business objects available from the Integration Component Library project to which the connector belongs. Select the business object you want from this list.

## **Associated maps (ICS)**

Each connector supports a list of business object definitions and their associated maps that are currently active in WebSphere InterChange Server. This list appears when you select the **Associated Maps** tab.

The list of business objects contains the application-specific business object which the agent supports and the corresponding generic object that the controller sends to the subscribing collaboration. The association of a map determines which map will be used to transform the application-specific business object to the generic business object or the generic business object to the application-specific business object.

If you are using maps that are uniquely defined for specific source and destination business objects, the maps will already be associated with their appropriate business objects when you open the display, and you will not need (or be able) to change them.

If more than one map is available for use by a supported business object, you will need to explicitly bind the business object with the map that it should use.

The **Associated Maps** tab displays the following fields:

- **Business Object Name**

These are the business objects supported by this connector, as designated in the **Supported Business Objects** tab. If you designate additional business objects under the Supported Business Objects tab, they will be reflected in this list after you save the changes by choosing **Save to Project** from the **File** menu of the Connector Configurator window.

- **Associated Maps**

The display shows all the maps that have been installed to the system for use with the supported business objects of the connector. The source business object for each map is shown to the left of the map name, in the **Business Object Name** display.

- **Explicit Binding**

In some cases, you may need to explicitly bind an associated map.

Explicit binding is required only when more than one map exists for a particular supported business object. When ICS boots, it tries to automatically bind a map to each supported business object for each connector. If more than one map takes as its input the same business object, the server attempts to locate and bind one map that is the superset of the others.

If there is no map that is the superset of the others, the server will not be able to bind the business object to a single map, and you will need to set the binding explicitly.

To explicitly bind a map:

1. In the **Explicit** column, place a check in the check box for the map you want to bind.
2. Select the map that you intend to associate with the business object.
3. In the **File** menu of the Connector Configurator window, click **Save to Project**.
4. Deploy the project to ICS.
5. Reboot the server for the changes to take effect.

## Resources (ICS)

The **Resource** tab allows you to set a value that determines whether and to what extent the connector agent will handle multiple processes concurrently, using connector agent parallelism.

Not all connectors support this feature. If you are running a connector agent that was designed in Java to be multi-threaded, you are advised not to use this feature, since it is usually more efficient to use multiple threads than multiple processes.

## Messaging (ICS)

The **Messaging** tab enables you to configure messaging properties. The messaging properties are available only if you have set MQ as the value of the `DeliveryTransport` standard property and ICS as the broker type. These properties affect how your connector will use queues.

### Validating messaging queues

Before you can validate a messaging queue, you must:

- Make sure that WebSphere MQ Series is installed.
- Create a messaging queue with channel and port on the host machine.
- Set up a connection to the host machine.

To validate the queue, use the **Validate** button to the right of the **Messaging Type** and **Host Name** fields on the **Messaging** tab.

## Security (ICS)

You can use the **Security** tab in Connector Configurator to set various privacy levels for a message. You can only use this feature when the `DeliveryTransport` property is set to JMS.

By default, Privacy is turned off. Check the **Privacy** box to enable it.

The **Keystore Target System Absolute Pathname** is:

- For Windows:  
`<ProductDir>\connectors\security\<connectorname>.jks`
- For UNIX:  
`opt/IBM/WebSphereAdapters/connectors/security/<connectorname>.jks`

This path and file should be on the system where you plan to start the connector, that is, the target system.

You can use the **Browse** button at the right only if the target system is the one currently running. It is greyed out unless **Privacy** is enabled and the **Target System** in the menu bar is set to Windows.

The **Message Privacy Level** may be set as follows for the three messages categories (All Messages, All Administrative Messages, and All Business Object Messages):

- "" is the default; used when no privacy levels for a message category have been set.
- none  
Not the same as the default: use this to deliberately set a privacy level of none for a message category.
- integrity
- privacy
- integrity\_plus\_privacy

The **Key Maintenance** feature lets you generate, import and export public keys for the server and adapter.

- When you select **Generate Keys**, the Generate Keys dialog box appears with the defaults for the keytool that will generate the keys.
- The keystore value defaults to the value you entered in **Keystore Target System Absolute Pathname** on the Security tab.
- When you select OK, the entries are validated, the key certificate is generated and the output is sent to the Connector Configurator log window.

Before you can import a certificate into the adapter keystore, you must export it from the server keystore. When you select **Export Adapter Public Key**, the Export Adapter Public Key dialog box appears.

- The export certificate defaults to the same value as the keystore, except that the file extension is <filename>.cer.

When you select **Import Server Public Key**, the Import Server Public Key dialog box appears.

- The import certificate defaults to <ProductDir>\bin\ics.cer (if the file exists on the system).
- The import Certificate Association should be the server name. If a server is registered, you can select it from the droplist.

The **Adapter Access Control** feature is enabled only when the value of DeliveryTransport is IDL. By default, the adapter logs in with the guest identity. If the **Use guest identity** box is not checked, the **Adapter Identity** and **Adapter Password** fields are enabled.

## Setting trace/log file values

When you open a connector configuration file or a connector definition file, Connector Configurator uses the logging and tracing values of that file as default values. You can change those values in Connector Configurator.

To change the logging and tracing values:

1. Click the **Trace/Log Files** tab.
2. For either logging or tracing, you can choose to write messages to one or both of the following:
  - To console (STDOUT):  
Writes logging or tracing messages to the STDOUT display.

**Note:** You can only use the STDOUT option from the **Trace/Log Files** tab for connectors running on the Windows platform.

- To File:  
Writes logging or tracing messages to a file that you specify. To specify the file, click the directory button (ellipsis), navigate to the preferred location, provide a file name, and click **Save**. Logging or tracing message are written to the file and location that you specify.

**Note:** Both logging and tracing files are simple text files. You can use the file extension that you prefer when you set their file names. For tracing files, however, it is advisable to use the extension .trace rather than .trc, to avoid confusion with other files that might reside on the system. For logging files, .log and .txt are typical file extensions.

## Data handlers

The data handlers section is available for configuration only if you have designated a value of JMS for DeliveryTransport and a value of JMS for ContainerManagedEvents. Not all adapters make use of data handlers.

See the descriptions under ContainerManagedEvents in Appendix A, Standard Properties, for values to use for these properties. For additional details, see the *Connector Development Guide for C++* or the *Connector Development Guide for Java*.

---

## Saving your configuration file

When you have finished configuring your connector, save the connector configuration file. Connector Configurator saves the file in the broker mode that you selected during configuration. The title bar of Connector Configurator always displays the broker mode (ICS, WMQI or WAS) that it is currently using.

The file is saved as an XML document. You can save the XML document in three ways:

- From System Manager, as a file with a \*.con extension in an Integration Component Library, or
- In a directory that you specify.
- In stand-alone mode, as a file with a \*.cfg extension in a directory folder. By default, the file is saved to \WebSphereAdapters\bin\Data\App.
- You can also save it to a WebSphere Application Server project if you have set one up.

For details about using projects in System Manager, and for further information about deployment, see the following implementation guides:

- For ICS: *Implementation Guide for WebSphere InterChange Server*
- For WebSphere Message Brokers: *Implementing Adapters with WebSphere Message Brokers*
- For WAS: *Implementing Adapters with WebSphere Application Server*

---

## Changing a configuration file

You can change the integration broker setting for an existing configuration file. This enables you to use the file as a template for creating a new configuration file, which can be used with a different broker.

**Note:** You will need to change other configuration properties as well as the broker mode property if you switch integration brokers.

To change your broker selection within an existing configuration file (optional):

- Open the existing configuration file in Connector Configurator.
- Select the **Standard Properties** tab.
- In the **BrokerType** field of the Standard Properties tab, select the value that is appropriate for your broker.

When you change the current value, the available tabs and field selections in the properties window will immediately change, to show only those tabs and fields that pertain to the new broker you have selected.



---

## Completing the configuration

After you have created a configuration file for a connector and modified it, make sure that the connector can locate the configuration file when the connector starts up.

To do so, open the startup file used for the connector, and verify that the location and file name used for the connector configuration file match exactly the name you have given the file and the directory or path where you have placed it.

---

## Using Connector Configurator in a globalized environment

Connector Configurator is globalized and can handle character conversion between the configuration file and the integration broker. Connector Configurator uses native encoding. When it writes to the configuration file, it uses UTF-8 encoding.

Connector Configurator supports non-English characters in:

- All value fields
- Log file and trace file path (specified in the **Trace/Log files** tab)

The drop list for the CharacterEncoding and Locale standard configuration properties displays only a subset of supported values. To add other values to the drop list, you must manually modify the `\Data\Std\stdConnProps.xml` file in the product directory.

For example, to add the locale `en_GB` to the list of values for the Locale property, open the `stdConnProps.xml` file and add the line in boldface type below:

```
<Property name="Locale"
isRequired="true"
updateMethod="component restart">
  <ValidType>String</ValidType>
  <ValidValues>
    <Value>ja_JP</Value>
    <Value>ko_KR</Value>
    <Value>zh_CN</Value>
    <Value>zh_TW</Value>
    <Value>fr_FR</Value>
    <Value>de_DE</Value>
    <Value>it_IT</Value>
    <Value>es_ES</Value>
    <Value>pt_BR</Value>
    <Value>en_US</Value>
    <Value>en_GB</Value>
  <DefaultValue>en_US</DefaultValue>
</ValidValues>
</Property>
```

---

## Starting the connector

A connector must be explicitly started using its **connector start-up script**. On Windows systems the startup script should reside in the connector's runtime directory:

```
ProductDir\connectors\connName
```

where *connName* identifies the connector.

On UNIX systems the startup script should reside in the *UNIX ProductDir/bin* directory.



The name of the startup script depends on the operating-system platform, as Table 6 shows.

Table 6. Startup scripts for a connector

Operating system	Startup script
UNIX-based systems	connector_manager
Windows	start_connName.bat

When the startup script runs, it expects by default to find the configuration file in the *Productdir* (see the commands below). This is where you place your configuration file.

**Note:** You need a local configuration file if the adapter is using JMS transport.

You can invoke the connector startup script in any of the following ways:

- On Windows systems, from the **Start** menu  
Select **Programs>IBM WebSphere Business Integration Adapters>Adapters>Connectors**. By default, the program name is “IBM WebSphere Business Integration Adapters”. However, it can be customized. Alternatively, you can create a desktop shortcut to your connector.
  - From the command line
    - On Windows systems:  
`start_connName connName brokerName [-cconfigFile ]`
    - On UNIX-based systems:  
`connector_manager -start connName brokerName [-cconfigFile ]`where *connName* is the name of the connector and *brokerName* identifies your integration broker, as follows:
    - For WebSphere InterChange Server, specify for *brokerName* the name of the ICS instance.
    - For WebSphere message brokers (WebSphere MQ Integrator, WebSphere MQ Integrator Broker, or WebSphere Business Integration Message Broker) or WebSphere Application Server, specify for *brokerName* a string that identifies the broker.
- Note:** For a WebSphere message broker or WebSphere Application Server on a Windows system, you *must* include the `-c` option followed by the name of the connector configuration file. For ICS, the `-c` is optional.
- From Adapter Monitor, which is launched when you start System Manager running with the WebSphere Application Server or InterChange Server broker: You can load, activate, deactivate, pause, shutdown or delete a connector using this tool.
  - From System Manager (available for all brokers): You can load, activate, deactivate, pause, shutdown or delete a connector using this tool.
  - On Windows systems, you can configure the connector to start as a Windows service. In this case, the connector starts when the Windows system boots (for an Auto service) or when you start the service through the Windows Services window (for a Manual service).

For more information on how to start a connector, including the command-line startup options, refer to one of the following documents:

- For WebSphere InterChange Server, refer to the *System Administration Guide*.
- For WebSphere message brokers, refer to *Implementing Adapters with WebSphere Message Brokers*.
- For WebSphere Application Server, refer to *Implementing Adapters with WebSphere Application Server*.

---

## Stopping the connector

The way to stop a connector depends on the way that the connector was started, as follows:

- If you started the connector from the command line, with its connector startup script:
  - On Windows systems, invoking the startup script creates a separate “console” window for the connector. In this window, type “Q” and press Enter to stop the connector.
  - When using InterChange Server on UNIX-based systems, connectors run in the background so they have no separate window. Instead, run the following command to stop the connector:  

```
connector_manager_connName -stop
```

where *connName* is the name of the connector.
- From Adapter Monitor (WebSphere Business Integration Adapters product only), which is launched when you start System Manager:  
You can load, activate, deactivate, pause, shutdown or delete a connector using this tool.
- From System Monitor (WebSphere InterChange Server product only):  
You can load, activate, deactivate, pause, shutdown or delete a connector using this tool.
- On Windows systems, you can configure the connector to start as a Windows service. In this case, the connector stops when the Windows system shuts down.

---

## Creating multiple connector instances

Creating multiple instances of a connector is in many ways the same as creating a custom connector. You can set your system up to create and run multiple instances of a connector by following the steps below. You must:

- Create a new directory for the connector instance
- Make sure you have the requisite business object definitions
- Create a new connector definition file
- Create a new start-up script

### Create a new directory

You must create a connector directory for each connector instance. This connector directory should be named:

```
ProductDir\connectors\connectorInstance
```

where *connectorInstance* uniquely identifies the connector instance.

If the connector has any connector-specific meta-objects, you must create a meta-object for the connector instance. If you save the meta-object as a file, create this directory and store the file here:

```
ProductDir\repository\connectorInstance
```

## Create business object definitions

If the business object definitions for each connector instance do not already exist within the project, you must create them.

1. If you need to modify business object definitions that are associated with the initial connector, copy the appropriate files and use Business Object Designer to import them. You can copy any of the files for the initial connector. Just rename them if you make changes to them.
2. Files for the initial connector should reside in the following directory:  
ProductDir\repository\initialConnectorInstance

Any additional files you create should be in the appropriate connectorInstance subdirectory of ProductDir\repository.

## Create a connector definition

You create a configuration file (connector definition) for the connector instance in Connector Configurator. To do so:

1. Copy the initial connector's configuration file (connector definition) and rename it.
2. Make sure each connector instance correctly lists its supported business objects (and any associated meta-objects).
3. Customize any connector properties as appropriate.

## Create a start-up script

To create a startup script:

1. Copy the initial connector's startup script and name it to include the name of the connector directory:  
dirname
2. Put this startup script in the connector directory you created in "Create a new directory" on page 42.
3. Create a startup script shortcut (Windows only).
4. Copy the initial connector's shortcut text and change the name of the initial connector (in the command line) to match the name of the new connector instance.

You can now run both instances of the connector on your integration server at the same time.

For more information on creating custom connectors, refer to the *Connector Development Guide for C++ or for Java*.

---

## Adding supported business objects

By default, the JText connector supports the MO\_JTextConnector\_Default and MO\_DataHandler\_Default meta-objects. To fully configure the connector, use Connector Configurator to add other required business objects to its list of supported business objects. Depending on how you use the connector, you may need to add all or many of the following business objects:

- The meta-object for the data handler (which is specified in the EventDataHandler and OutputDataHandler attributes of the MO\_JTextConnector\_Default meta-object). By default, these attributes specify the MO\_DataHandler\_DefaultNameValueConfig data-handler meta-object, which represents the NameValue data handler. For more information, see "Specifying a data handler" on page 75.

- `MO_JTextConnector_BusObjName` — if you create meta-objects for specific business objects. For more information, see “Creating a JText meta-object for a specific business object” on page 75.
- Business objects that are to be read from or written to a file. For more information, see “Business objects used by the JText connector” on page 3.

---

## Chapter 4. Using JText connector meta-objects

A **meta-object** is a WebSphere Business Integration Adapters business object that contains configuration information used by a connector or a data handler. The JText connector requires each of its supported business objects to have an associated JText meta-object for that business object type. This top-level meta-object contains at least one child meta-object.

- The connector uses the top-level JText meta-object to obtain configuration information such as which data handler to use for data conversion, the paths of the business object's event, archive, and output directories, the file extensions for its event, archive, and output files, information that is required if the connector is processing files on an FTP system, and whether the connector generates unique file identifiers for its output files.
- The connector uses a child meta-object to specify configuration values for the data handler to use when converting data between the business object and a string or byte array. By default, the top-level meta-object specifies the NameValue data handler to convert data.

To provide different configuration information for each business object that the connector supports, you can create a custom top-level JText meta-object for each one. Because each top-level meta-object specifies its own data-handler meta-object, the connector can process each type of business object in a different format. The data-handler meta-object eliminates the need to edit a business object definition or to modify the connector itself when you introduce new data formats or make changes to existing formats.

Meta-objects are loaded into memory at startup, making their configuration information available to the connector. Note that meta-objects are not sent to the integration broker for processing. They affect the behavior only of the connector.

A sample JText connector Meta-object is provided in `ProductDir\repository\MO_JTextConnector_Default.jar`. You can import this file by right-clicking and choosing to import from a repository file. See the *System Implementation Guide* for more details.

This chapter describes how to configure the JText connector by using JText meta-objects. For information on using data-handler meta-objects, see the *Data Handler Guide*. Topics included in this chapter include:

- "JText meta-object naming conventions"
- "JText meta-object structure" on page 46
- "Common configuration tasks" on page 57

---

### JText meta-object naming conventions

The name of a top-level JText meta-object has three components, as illustrated by the name of the default top-level meta-object, `MO_JTextConnector_Default`. The components of a top-level JText meta-object name are as follows:

- `MO_` is a prefix that indicates a meta-object.

- `ConnectorInstanceName_` specifies the name of the connector instance, such as `JText`. This name is configurable to support the use of multiple connector instances. For example, a connector named `JText2` might have a meta-object named `MO_JText2Connector_Default`.
- `Default` specifies the name of the associated business object. To create a meta-object for a specific business object, change the string *Default* to the name of the business object, as in `MO_JTextConnector_Customer` for a business object named *Customer*. You can include additional components and underscores in the meta-object name. For example, the `Oracle_Customer` business object would be associated with the `MO_JTextConnector_Oracle_Customer` meta-object. The connector uses default meta-objects whenever corresponding business object-specific meta-objects do not exist.

For information on creating meta-objects for a specific business object, see “Creating a `JText` meta-object for a specific business object” on page 75.

---

## JText meta-object structure

A `JText` meta-object has a hierarchical structure. The default top-level meta-object is named `MO_JTextConnector_Default`. Two attributes of the top-level meta-object, `EventDataHandler` and `OutputDataHandler`, represent child meta-objects that provide configuration information for the data handler that the connector uses. The connector uses the data handler to convert data between business objects and strings or byte arrays.

By default, both of these attributes specify the same data-handler meta-object (`MO_DataHandler_DefaultNameValueConfig`). This data-handler meta-object calls the `NameValue` data handler to actually convert the data. In other words, the delivered default configuration specifies that event and output file conversion use the same data handler. For information on instantiating a data handler, see the *Data Handler Guide*.

**Note:** Because formatter usage has been deprecated in favor of data handler usage, the `EventFormat` and `OutputFormat` attributes that formerly represented a formatter have been removed from the `MO_JTextConnector_Default` meta-object. To use a formatter, you must:

- add the `EventFormat` and `OutputFormat` attributes to the top-level meta-object
- specify the appropriate business object as the `Type` of these attributes
- change the `Type` of the `EventDataHandler` and `OutputDataHandler` attributes to `String`

For information on using a formatter, see the documentation for the 3.0.0 or 2.3.0 release of the `JText` connector.

Figure 5 shows the hierarchical structure for the default `JText` meta-objects and each attribute name and type.

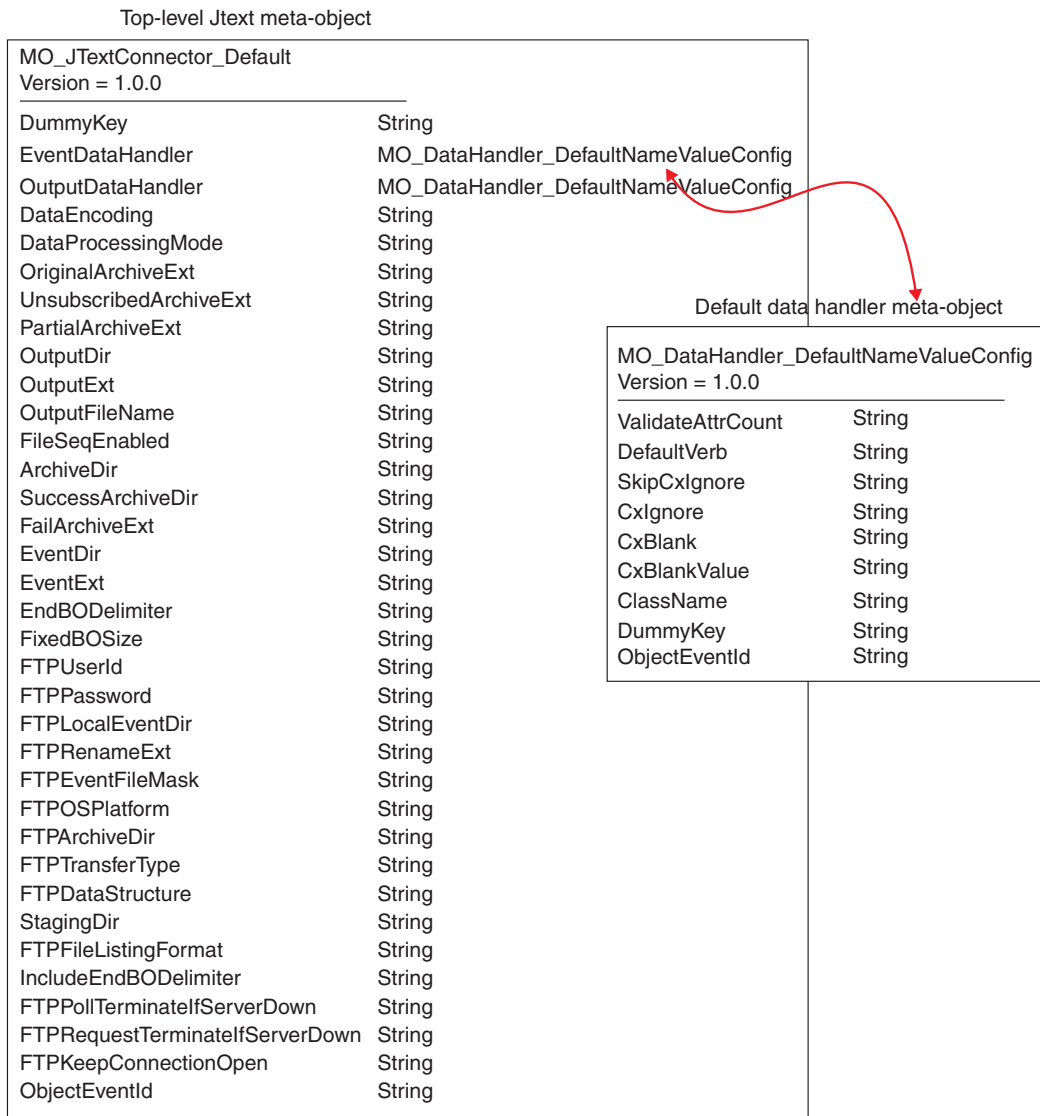


Figure 5. Hierarchical Structure of the JText meta-object

## Creating custom meta-objects

MO\_JTextConnector\_Default, as the top-level JText meta-object, contains configuration information and child meta-objects for the connector. You can create separate top-level meta-objects for each type of business object that the connector handles. These custom meta-objects can contain the same or different child meta-objects to configure the type of data handler. For example, to configure processing differently for the Customer and Item business objects, create the MO\_JTextConnector\_Customer and MO\_JTextConnector\_Item meta-objects, and design these top-level meta-objects to contain different data-handler meta-objects.

At initialization, the connector retrieves a list of its supported meta-objects and business objects from the integration broker. From the names of these objects, the connector determines which business objects have their own associated top-level

meta-objects. At runtime, the connector matches the name of a request business object with one of its supported meta-objects to locate the appropriate configuration information.

For example, assume that the connector supports the following meta-objects:

- MO\_JTextConnector\_Default
- MO\_JTextConnector\_Customer
- MO\_JTextConnector\_Item

and the following business objects:

- Customer
- Item
- Order

When the integration broker sends a request Customer business object, the connector uses the configuration information specified in the MO\_JTextConnector\_Customer meta-object. When the integration broker sends a request Order business object, the connector uses the configuration information specified in the MO\_JTextConnector\_Default meta-object.

## MO\_JTextConnector\_Default attributes

This section describes the attributes in the MO\_JTextConnector\_Default meta-objects.

**Note:** All values in an attribute's DefaultValue property are case-sensitive. Directory information must specify the absolute path of a directory.

Table 7 and the following sections describe the functionality of each attribute in the MO\_JTextConnector\_Default meta-object. Among other information, this table includes the value provided for each simple attribute's DefaultValue property. You can replace the product-delivered value with your own value.

Table 7. Attributes in the MO\_JTextConnector\_Default meta-object definition

Attribute name	Description
ArchiveDir	Specifies the absolute path of the Archive directory. The directory must already exist. The delivered default values are: UNIX: /tmp/JTextConn/Default/archive  Windows:C:\temp\JTextConn\Default\Archive BiDi supported for Windows. All BiDi enabled properties will be transformed from Windows BiDi format into the BiDi.Metadata format, which is an e-Mail connector standard property.
DataEncoding	DataEncoding is the encoding to be used to read and write business object strings. If this property is not specified in the static meta-object, the connector tries to read or write the business object string without using any specific encoding. You can specify any Java-supported encoding set for this attribute.



Table 7. Attributes in the *MO\_JTextConnector\_Default* meta-object definition (continued)

Attribute name	Description
DataProcessing Mode	<p>This attribute provides new flexibility for reading and writing binary files. When set to Binary, this MO property enables JText to read and write binary files from the file system while calling the appropriate data handler interface for BO to byte array and vice versa transformations. The traditional setting for this is Text. In Text mode, the BO to String and vice versa data handler interface is used. When the property is not set, it defaults to Text. Binary mode should only be used with a data handler that appropriately implements the <code>getBO(byte[])</code> and <code>getByteArrayFromBO()</code> methods.</p>
DummyKey	<p>This attribute exists to satisfy the requirement that one attribute in every business object definition have the Key property enabled.</p>
EndBODElimiter	<p>Specifies a delimiter that separates business objects within an input file. For more information on the <code>EndBODElimiter</code> attribute, see “Polling for specific business objects” on page 65.</p> <p>If you do not provide a default value during configuration and the <code>DataProcessingMode</code> is set to Text, the property defaults to the following value: <code>&lt;EndBO:BOName&gt;</code>. When <code>DataProcessingMode</code> is binary, the property defaults to the following value: <code>FF01</code>.</p> <p><b>Note:</b> Since the <code>NameValue</code> data handler is set as the default data handler, the <code>EndBODElimiter</code> value is set to <code>&lt;EndBO:BOName&gt;</code>. If you would like to use another data handler, such as the <code>Delimited</code> data handler, you will have to specify the corresponding value. For the <code>Delimited</code> data handler, the string <code>EOL</code> is a valid <code>EndBODElimiter</code> value.</p>
EndOfFileDelimiter	<p>When <code>DataProcessingMode</code> is binary, and <code>FTPDataStructure</code> is <code>Record</code>, both <code>EndBODElimiter</code> and <code>EndOfFileDelimiter</code> are used. This property is set to the hexadecimal byte that is used for the end of file marker in the record file. If it is not set, the default, <code>FF02</code>, is used.</p>
EventDataHandler	<p>Represents a child meta-object whose attributes provide configuration values for the data handler to be used for event processing (business object string converted to business object). The delivered default value is <code>MO_DataHandler_DefaultNameValueConfig</code></p>

Table 7. Attributes in the *MO\_JTextConnector\_Default* meta-object definition (continued)

Attribute name	Description
EventDir	<p>Specifies the absolute path of the Event directory. The directory must already exist. If you create separate meta-objects for different business objects, and you specify the same EventDir path for both, you must specify unique values for the EventExt attribute in each meta-object. For more information, see “Specifying event directories and extensions” on page 58. To configure the connector to use a remote FTP file system for event processing, specify the FTP URL in this attribute. Optionally, you can use this attribute to specify the following additional information in the URL:</p> <ul style="list-style-type: none"> <li>• the id and password of a user with privileges to connect to the FTP server and perform FTP operations; if not specified in EventDir, must be specified in FTPUserId and FTPPassword.</li> <li>• the FTP port; if not specified in EventDir, the connector uses the default FTP port.</li> <li>• the remote event directory; if not specified in EventDir, the connector polls the event files from the directory to which the connection is established to the FTP server.</li> </ul> <p>Syntax for specifying FTP information in the EventDir attribute is:  <code>ftp://[UserId:password@]FTPserver[:port][RemoteEventDirectory]</code></p> <p>For more information, see “Remote event processing” on page 68. To specify local file information in the EventDir attribute, use the full path of the file. Alternately, you can use a FILE URL, which uses the following format:  <code>[file://]FullPathname</code></p> <p>The delivered default values are:            UNIX: /tmp/JTextConn/Default/event            Windows:C:\temp\JTextConn\Default\Event</p> <p>BiDi supported for Windows. All BiDi enabled properties will be transformed from Windows BiDi format into the BiDi.Metadata format, which is an e-Mail connector standard property.  <b>Note:</b> A new Connector-specific boolean property, “NoPoll”, has been introduced, to optionally turn off polling. The default value is false. When set to true, the adapter only processes requests and does not poll.</p>
EventExt	<p>Specifies the extension of the file used for event notification. If no value is specified, the JText connector polls for files with no file extension. For more information, see “Specifying multiple event files or multiple event directories” on page 64.  <b>Note:</b> The use of an asterisk (*) for this attribute to specify that the connector poll for all files in a single event directory regardless of their extension is no longer supported. The delivered default value is in.</p>
FailArchiveExt	<p>Specifies the file extension used to archive business objects that were not successfully processed. For more information, see “Specifying event archiving” on page 59. The delivered default value is fail.</p>
FileSeqEnabled	<p>Specifies filename sequencing, which outputs each business object to a separate file. The file’s name includes a unique sequence number. For more information, see “Specifying request processing” on page 60. The delivered default value is true.</p>
FixedBOSize	<p>When present with a valid value, this meta-object property overrides the EndBODElimiter property, and provides users an alternative to the traditional delimiter based BO parsing.</p>

Table 7. Attributes in the *MO\_JTextConnector\_Default* meta-object definition (continued)

Attribute name	Description
FTPArchiveDir	<p data-bbox="646 258 1458 342">Specifies the relative path of the archive directory on the FTP server. The directory must already exist. There are several options for using this attribute to specify archiving:</p> <ul data-bbox="646 352 1458 1035" style="list-style-type: none"> <li data-bbox="646 352 1458 468">• Specifying a value for this attribute but no value for the FTPRenameExt attribute causes the connector to append a timestamp to the event filename and move it to the FTP server archive directory specified in this attribute.</li> <li data-bbox="646 478 1458 594">• Specifying a value both for this attribute and the FTPRenameExt attribute causes the connector to rename the processed event filename with a timestamp and the value specified in FTPRenameExt, and move it to the FTP server archive directory specified in this attribute.</li> <li data-bbox="646 604 1458 688">• Specifying no value either for this attribute or the FTPRenameExt attribute causes the connector to delete the processed event file without archiving it.</li> <li data-bbox="646 699 1458 814">• Specifying no value for this attribute but specifying a value for the FTPRenameExt attribute causes the connector to rename the processed event file, adding a timestamp and the value specified in FTPRenameExt, and move it to the directory specified in the EventExt attribute.</li> <li data-bbox="646 825 1458 909">• Specifying / (slash) for this attribute but no value for the FTPRenameExt attribute causes the connector to move the processed event file to the root directory on the FTP server.</li> <li data-bbox="646 919 1458 1035">• Specifying / (slash) for this attribute and a value for the FTPRenameExt attribute causes the connector to rename the processed event filename with the extension specified in FTPRenameExt, and move it to the root directory on the FTP server.</li> </ul> <p data-bbox="646 1056 1458 1098">For more information, see “Specifying event archiving” on page 59. There is no delivered default value for this attribute.</p> <p data-bbox="646 1108 1458 1192">BiDi supported for Windows. All BiDi enabled properties will be transformed from Windows BiDi format into the BiDi.Metadata format, which is an e-Mail connector standard property.</p>
FTPDataStructure	<p data-bbox="646 1203 1458 1283">This attribute is of type String. The user can specify the FTP data structure (either File or Record) to get or put files from or to the remote site. If nothing is specified, Jtext will use 'File' as default value</p>

Table 7. Attributes in the MO\_JTextConnector\_Default meta-object definition (continued)

Attribute name	Description
FTPEventFileMask	<p>Uses embedded wildcard characters to specify the mask or prefix of remote FTP files for event processing. Specify a value for this attribute only to identify the file mask on a mainframe that does not adhere to the same naming standards that apply to UNIX or Windows systems. Using wildcard characters in the file name enables you to specify multiple files for event processing. For example, you can use the following format to specify multiple event files: ACT.Z1UC.INPT*For more information, see “Identifying files on a mainframe: Optional configuration” on page 71. There is no delivered default value.</p> <p>If you are polling, you should provide a very specific mask. For example, if you want to poll all the following event files: USER.JTEXT.TEST001.EVENT, USER.JTEXT.TEST002.EVENT, USER.JTEXT.TEST003.EVENT, USER.JTEXT.TEST004.EVENT, and the FTPArchiveDir is set as / or left blank, and the FTPRenameExt is set as RENAME, then these files would get archived as the following: USER.JTEXT.TEST001.RENAME, USER.JTEXT.TEST002.RENAME, USER.JTEXT.TEST003.RENAME. So, if you provide an FTPEventFileMask=USR.JTEXT.TEST*.*, all the events would get picked up on the first poll. All the archived files would get picked up at the next poll, since even they conform to the same file mask. In order to avoid this, you must provide a very specific mask. For example, like USR.JTEXT.TEST*.EVENT, so that USR.JTEXT.TEST*.RENAME is not picked up during polling.</p> <p><b>Note:</b> Do not specify a mask that is applicable for both event files and archived files.</p>
FTPFileListingFormat	<p>BiDi supported for Windows. All BiDi enabled properties will be transformed from Windows BiDi format into the BiDi.Metadata format, which is an e-Mail connector standard property.</p> <p>Specifies the format in which the JText connector should expect file information to appear when reading in files. This enables the connector to read in files in different locales where date and time information may be stored in different orders within the file format information. To configure the connector to use the format for your locale, specify a semicolon-delimited series of characters that represent the order in which file attributes occur; below is a list that associates the possible characters with the file attributes they represent.</p> <pre data-bbox="613 1276 1414 1331"> P   Permission L   Links U   User G   Group S   Size D   Date M   Month T   Time N   Name </pre>
FTPGetQuantity	<p>A suitable value for this attribute, then, might be P:L:U:G:S:D:M:T:N.</p> <p>Determines the number of files retrieved from the remote FTP URL with each remote poll.</p>
FTPKeepConnectionOpen	<p>Set the Default Value property of this attribute to the value true to cause the JText connector to maintain its connection with an FTP site. If this attribute is set to the value true then the connector only closes the connection when the connector terminates or if the FTP server closes the connection itself (due to a configured timeout, for instance). The connector checks to make sure that the connection is still alive each time it performs a remote operation in order to handle the situation when the FTP server might have closed the connection due to a timeout. If the connection has been closed then the connector re-establishes it. Set the Default Value property of this attribute to the value false to cause the JText connector to open a connection with the FTP server each time it performs an operation and to close the connection when it is finished. Configuring the connector to keep the connection alive can improve the performance of the connector when performing request processing on FTP sites.</p>

Table 7. Attributes in the *MO\_JTextConnector\_Default* meta-object definition (continued)

Attribute name	Description
FTPLocalEventDir	<p>Specifies the local system directory into which the connector downloads event files from the FTP site. You must specify a value for this attribute to enable the connector to process events using FTP. For more information, see “Specifying the local directory” on page 69. There is no delivered default value.</p> <p>BiDi supported for Windows. All BiDi enabled properties will be transformed from Windows BiDi format into the BiDi.Metadata format, which is an e-Mail connector standard property.</p>
FTPSPPlatform	<p>Use this attribute only if configuring the connector to use a remote FTP file system where the remote FTP server is an MVS platform. In this case, specify the value of this attribute as <i>MVS</i>. Case is not significant. For more information, see “Specifying a remote FTP file system” on page 68. There is no delivered default value.</p>
FTPPassword	<p>Specifies the password of the user who has privileges to connect to the FTP server and perform FTP operations. You need not specify a value for this attribute if the password is included in the URL specified in the <i>EventDir</i> or <i>OutputDir</i> attribute. For more information, see “Specifying the FTP URL and login information” on page 68. There is no delivered default value for this attribute.</p>
FTPPollTerminateIfServerDown	<p>Specifies the behavior of the connector when configured to poll the FTP site for events and the FTP site is unavailable. If the <i>Default Value</i> property of the <i>FTPPollTerminateIfServerDown</i> attribute is set to the value <i>true</i> and the FTP site is unavailable when the connector attempts a poll call, then the connector terminates. If the <i>Default Value</i> property of the <i>FTPPollTerminateIfServerDown</i> attribute is set to the value <i>false</i> and the FTP site is unavailable when the connector attempts a poll call, then the connector does not terminate.</p> <p>There is no delivered default value.</p>
FTPRenameExt	<p>Specifies the file extension or suffix that the connector uses to rename the remote FTP file after the connector has polled for it. Renaming the file prevents the connector from polling the same file in the next poll cycle. Alternatively, you can configure the connector to rename the processed event file and move it to an archive directory. For more information, see the <i>FailArchiveExt</i> attribute. For more information, see “Identifying files on a mainframe: Optional configuration” on page 71. There is no delivered default value.</p>
FTPRequestTerminateIfServerDown	<p>Specifies the behavior of the connector when configured to perform request processing and communicate with an FTP site, and the FTP site is unavailable. If the <i>Default Value</i> property of the <i>FTPRequestTerminateIfServerDown</i> attribute is set to the value <i>true</i> and the FTP site is unavailable when the connector attempts to perform request processing, then the connector terminates. If the <i>Default Value</i> property of the <i>FTPRequestTerminateIfServerDown</i> attribute is set to the value <i>false</i> and the FTP site is unavailable when the connector attempts to perform request processing, then the connector does not terminate.</p> <p>There is no delivered default value .</p>
FTPTransferType	<p>This <i>JText</i> meta-object property is used during both event and request processing. The possible values for this property are <i>Binary</i> and <i>ASCII</i>. The property dictates the transfer type <i>JText</i> will use when remotely placing or retrieving files from an FTP server. When the property does not exist, the adapter behavior defaults to <i>Binary</i>.</p>

Table 7. Attributes in the MO\_JTextConnector\_Default meta-object definition (continued)

Attribute name	Description
FTPUserId	Specifies the name of the user who has privileges to connect to the FTP server and perform FTP operations. You need not specify a value for this attribute if the UserId is included in the URL specified in the EventDir or OutputDir attribute. The connector ignores this attribute if it does not find an FTP URL in the EventDir attribute (during event processing) or OutputDir attribute (during request processing). For more information, see “Specifying the FTP URL and login information” on page 68. There is no delivered default value for this attribute.
IncludeEndBODelimiter	Specifies whether or not the value specified for the EndBODelimiter meta-object attribute is included in the string written to a file by the JText connector. If the Default Value property of this attribute is set to true then the connector includes the value specified for the EndBODelimiter attribute when it writes files. If the Default Value property of this attribute is set to false then the connector does not include the value specified in the EndBODelimiter attribute when it writes files.
LargeObject	<p>A flag used to turn on the large object optimization features of JText adapter (when set to true). Setting this flag to true will result in the following changes in the behavior of the archiver:</p> <ol style="list-style-type: none"> <li>1. If an event file has multiple business objects, the archiving will be done only after all the business objects for that event file are processed.</li> <li>2. The original file will not be archived in case the processing of all business objects in that event file results in failure or unsubscribed status.</li> </ol> <p>Also an extra log file will be created internally for keeping track of the archive status.</p>
MVSSiteCommand	Used for issuing MVS FTP site commands. The site command should be specified without SITE or QUOTE keywords. An example for site command value is: LRECL=<value> BLKSIZE=<value>, where <value> represents the site command arguments passed.
ObjectEventID	Placeholder not used by the connector in a meta-object but required by the integration broker. This attribute must be the last attribute in the meta-object. There is no delivered default value.
OriginalArchiveExt	Specifies the file extension used to archive the original event file, which preserves the entire event file for reference in case any of its business objects fail processing or are unsubscribed. For more information, see “Specifying event archiving” on page 59. The delivered default value is orig.
OutputDataHandler	Represents a child meta-object whose attributes provide configuration values for the data handler to be used for service call requests (business object converted to business object string). The delivered default value is MO_DataHandler_DefaultNameValueConfig

Table 7. Attributes in the *MO\_JTextConnector\_Default* meta-object definition (continued)

Attribute name	Description
OutputDir	<p>Specifies the absolute path of the Output directory. The directory must already exist. To configure the connector to use a remote FTP file system for request processing, specify the FTP URL in this attribute. Optionally, you can use this attribute to specify the following additional information in the URL:</p> <ul style="list-style-type: none"> <li>• the UserId and password of a user with privileges to connect to the FTP server and perform FTP operations; if not specified in EventDir, must be specified in FTPUserId and FTPPassword.</li> <li>• the FTP port; if not specified in OutputDir, the connector uses the default FTP port.</li> <li>• the remote output directory; if not specified in OutputDir, the connector loads request files into the default connection directory (the directory on the FTP server to which the connection is established).</li> </ul> <p>Syntax for specifying FTP information in the OutputDir attribute is: <code>ftp://[UserId:password@]FTPserver[:port]</code> For more information, see “Remote request processing” on page 72. To specify local file information in the OutputDir attribute, use the full path of the file. Alternately, you can use a FILE URL, which uses the following format:  <code>[file://]FullPathname</code></p>
OutputExt	<p>The delivered default values are: UNIX: <code>/tmp/JTextConn/Default/out</code>            Windows: <code>c:\temp\JTextConn\Default\Out</code></p> <p>BiDi supported for Windows. All BiDi enabled properties will be transformed from Windows BiDi format into the BiDi.Metadata format, which is an e-Mail connector standard property.</p> <p>Specifies the extension of the file used for request processing. The delivered default value is <code>out</code>.</p> <p><b>Note:</b> If OutputFileName contains no extension, but the OutputExt attribute does contain an extension, the output file is generated with both the file name and the extension. If neither contain an extension, the output file is generated without one.</p>
OutputFileName	<p>Specifies the name and path of the output file into which the connector writes the incoming business object during request processing. If the OutputDir attribute contains a valid output directory, the output file is generated into the specified directory. For more information, see “Specifying the name of the output file” on page 56.</p> <p><b>Note:</b> If OutputFileName and OutputExt attributes do not contain an extension, the output file is generated without an extension. The delivered default value is <code>Native</code>.</p> <p>BiDi supported. If the BiDi format used in the target platform is different from the Windows 2003 format, values for these meta-data attributes will be transformed.</p>
PartialArchiveExt	<p>Specifies the file extension used to archive the successfully processed business objects (when the event file contains multiple business objects, not all of which process successfully). For more information, see “Specifying event archiving” on page 59. The delivered default value is <code>partial</code>.</p>



Table 7. Attributes in the *MO\_JTextConnector\_Default* meta-object definition (continued)

Attribute name	Description
StagingDir	<p>Specifies a directory in which the connector should write files to before moving them into the directory specified by the <code>OutputDir</code> attribute. This is designed to handle environments where other software processes might be monitoring and manipulating the directory into which the JText connector outputs files (such as an FTP process that detects files created by the connector and moves them to another location). In situations such as this, there is a risk that the external process could move the file before it has been completely written. You can specify a staging directory in the <code>StagingDir</code> attribute, therefore, so that the connector writes the file completely to the staging directory and then moves it to the output directory when it is finished, eliminating the risk of the external process picking up an incomplete file.</p> <p>It is recommended that the staging directory and output directory be on the same file system or drive to accommodate different operating systems' approaches to file moving operations. Note that the <code>StagingDir</code> can be a remote directory.</p> <p>There is no delivered default value.</p> <p>BiDi supported for Windows. All BiDi enabled properties will be transformed from Windows BiDi format into the BiDi.Metadata format, which is an e-Mail connector standard property.</p>
SuccessArchiveExt	<p>Specifies the file extension used to archive all successfully processed business objects. For more information, see "Specifying event archiving" on page 59. The delivered default value is <code>success</code>.</p>
UnsubscribedArchiveExt	<p>Specifies the file extension used to archive all unsubscribed business objects. For more information, see "Specifying event archiving" on page 59. The delivered default value is <code>unsub</code>.</p>

**Note:** Attributes `FTPTransferType`, `FTPDataStructure`, `DataProcessingMode`, `EndOfFileDelimiter`, and `FixedBOSize` are not part of the JText meta-object as delivered. To use these attributes, they need to be explicitly added to the meta-object and their default values must be set.

## Specifying the name of the output file

There are three ways to specify the name of the output file:

- Use the `OutputFileName` attribute
 

Use this attribute when you want the connector to write each business object of the same type to separate files with unique sequence numbers, or to append multiple business objects to a single file with a specified name.
- Use a dynamic child meta-object
 

Use a dynamic child meta-object when you want to dynamically generate an output filename for each type of business object or to return the name of a connector-generated output file. See "Using a dynamic child meta-object" on page 4 for details.

There are several ways to use the `OutputFileName` attribute to specify the name of the output file:

- If `OutputFileName` is set to the string `Native` and the `FileSeqEnabled` attribute is set to `true`, the connector sends the business object string to a unique file whose name is derived from the name of the incoming business object, whose extension is derived from the `OutputExt` attribute, and whose path is derived from the `OutputDir` attribute. In this case, the connector's default behavior is to write each business object of the same type to separate files with unique sequence numbers.



To cause the connector to overwrite the output file each time it receives business objects of the same type, set the `FileSeqEnabled` attribute to `false`.

- If `OutputFileName` is set to a string other than `Native` and the `FileSeqEnabled` attribute is set to `true`, the connector handles the value of the output file in one of the following ways:
  - If `OutputFileName` contains an absolute path (including the filename and the extension of the output file, for example, `OutputFileName=C:\temp\Out\test.out`), the connector uses only this attribute to generate the output file. In this case, the connector's default behavior is to write each business object of the same type to separate files with the specified name and with unique sequence numbers.
  - If `OutputFileName` contains the full path and the filename, but not the extension, and the `OutputExt` attribute contains a value, (for example, `OutputFileName=C:\temp\Out\test` and `OutputExt=out`), the connector uses the value of both attributes to generate the output file. In this case, the connector generates a file named `C:\temp\Out\test_1.out`.
  - If `OutputFileName` contains the full path and the filename, but not the extension, and the `OutputExt` attribute does not contain a value, the connector generates the output file without any extension. In this case, the connector generates a file named `C:\temp\Out\test_1`.
  - If `OutputFileName` contains only the filename, and not the path or extension, and the `OutputDir` attribute contains a value, the connector generates the output file in the directory specified by `OutputDir`. If `OutputExt` contains a value, the connector also uses that value. If not, it creates the filename without any extension.

**Note:** If the connector is processing more than one type of business object and `OutputFileName` is set to a string other than `Native`, each business object must have its own top-level meta-object, which specifies a unique output filename. For example, the meta-object used by the `Customer` business object might be `MO_JTextConnector_Customer`, and the meta-object used by `Item` might be `MO_JTextConnector_Item`. Set the value of the `OutputFileName` attribute in each of these meta-objects to a unique value.

- To cause the connector to append multiple business objects to a single file with the specified name, specify a value for `OutputFileName` and set the `FileSeqEnabled` attribute to `false`.
- To cause the connector to overwrite the output file each time it receives business objects of the same type, use a dynamic child meta-object. Specify its absolute path and filename in the `InFileName` attribute and set the `FileWriteMode` attribute to `"o"`. For more information on using a dynamic child meta-object, see "Using a dynamic child meta-object" on page 4.

`Native` is a reserved word.

For more information, see "Specifying request processing" on page 60.

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## Common configuration tasks

This section describes the most common configuration tasks.

- "Specifying event notification" on page 58
- "Specifying event archiving" on page 59
- "Specifying request processing" on page 60
- "Specifying multiple event files or multiple event directories" on page 64

- “Polling for specific business objects” on page 65
- “Specifying a remote FTP file system” on page 68
- “Configuring secure FTP” on page 74
- “Specifying a data handler” on page 75
- “Creating a JText meta-object for a specific business object” on page 75
- “Reading multiple business objects of different types from the same file” on page 76
- “Specifying values for ObjectEventID attributes” on page 76
- “Setting up a second instance of a JText connector” on page 76
- “Tuning the performance of the JText connector” on page 77
- “Generating sample files for testing” on page 78
- “Generating sample business objects for testing” on page 78

## Specifying event notification

This section describes the following:

- “Specifying event directories and extensions”
- “Configuring polling behavior” on page 58

### Specifying event directories and extensions

If you send more than one type of business object to the connector for processing, and each business object type has its own top-level meta-object, the combination of values you specify for the `EventDir` and `EventExt` attributes must be unique for each directory/extension pair for each business object.

In other words, if you specify the same event directory for two business object types, you must specify different event extensions for these business objects. If you specify the same extension for two business object types, you must specify different event directories for these business objects.

For example, assume you have created the `MO_JTextConnector_Customer` and `MO_JTextConnector_Item` meta-objects to provide configuration values for the Customer and Item business objects, respectively. If you instruct the connector to locate the input files for both business objects in the same directory (by specifying the same path in the `EventDir` attribute), you must uniquely identify the input files by specifying different values for the `EventExt` attribute.

Therefore, if the `EventDir` attribute evaluates to `C:\temp\event` for both Customers and Items, the value of the `EventExt` attributes for these two business objects must be different (such as `in` for Customer input files and `inp` for Items).

**Note:** A new Connector-specific boolean property, “NoPoll”, has been introduced, to optionally turn off polling. The default value is false. When set to true, the adapter only processes requests and does not poll.

### Configuring polling behavior

To configure polling behavior, perform the following steps:

1. Configure the following attributes of the `MO_JTextConnector_Default` meta-object:
  - `EventDir`—Specify the absolute path of an existing directory whose files trigger event notification.
  - `EventExt`—The connector looks for files with the delivered-default extension of `in`. If you use this attribute to specify a different extension, the connector

looks for the specified extension. If you leave this attribute empty, the connector polls for files with no extension.

- `EventDataHandler`—Specify the data handler to use for data conversion during event notification.
2. Use Connector Configurator to configure the following connector properties:
    - `PollFrequency`—Specify the interval frequency.
    - `PollQuantity`—Specify the number of events for each polling interval.
    - `PollEndTime`—Specify the time to complete the polling of events.
    - `PollStartTime`—Specify the time to begin the polling of events.
  3. Establish read permissions on the event directory.

## Specifying event archiving

Depending on whether all or some of the business objects in the event file process successfully, the JText connector uses different extensions when it creates the archive file for successfully processed business objects. The connector also writes business objects that fail processing and those that are unsubscribed to differently named archive files.

This section describes the following:

- “Local archive filenames”
- “Configuring local archiving” on page 60

### Local archive filenames

If you retain the delivered default values for the archive extension attributes, the connector creates archive files named as shown below:

- Event file has a single business object

After the JText connector processes an event file that contains a single business object, it creates one of following files in the archive directory:

- `filename_timestamp.success`, to archive a successfully processed business object
- `filename_timestamp.fail`, to archive a business object that was not successfully processed
- `filename_timestamp.unsub`, to archive a business object to which it does not subscribe

If the business object fails processing or is unsubscribed, the connector also creates the `filename_timestamp.orig` file, which preserves the event file as the connector originally received it.

- Event file has multiple business objects, all of which process successfully

After the JText connector successfully processes an event file with multiple business objects, it creates `filename_timestamp.success` in the archive directory.

- Event file has multiple business objects, some of which are unsubscribed or fail processing

After the JText connector processes an event file that contains multiple business objects, it may create all of the following files in the archive directory:

- `filename_timestamp.partial`, to archive all business objects whose processing was successful
- `filename_timestamp.fail`, to archive all business objects whose processing was unsuccessful
- `filename_timestamp.unsub`, to archive all business objects to which the connector does not subscribe

- *filename\_timestamp.orig*, to preserve the event file as the connector originally received it

For example, assume that the `LegacyApp.in` file contains four business objects:

- Contract, which is successfully processed
- Customer, which fails formatting
- Order, which is successfully processed
- Item, to which the connector does not subscribe

In such a case, the connector creates the following files in the archive directory:

- *LegacyApp\_timestamp.partial*, which contains Contract and Order
- *LegacyApp\_timestamp.fail*, which contains Customer
- *LegacyApp\_timestamp.unsub*, which contains Item
- *LegacyApp\_timestamp.orig*, which contains Contract, Customer, Order, and Item

## Configuring local archiving

To configure the connector for archiving, follow these steps:

1. Configure the following attributes of the `M0_JTextConnector_Default` meta-object:
  - `ArchiveDir`—Specify the absolute path of an existing local or FTP server directory into which the connector is to place events (with file extensions that indicate processing status) after they are processed.
  - `SuccessArchiveExt`—Specify the extension for the file that contains the successfully processed business objects (when all business objects process successfully).
  - `PartialArchiveExt`—Specify the extension for the file that contains all the successfully processed business objects (when some of the business objects in the event file do not process successfully).
  - `UnsubscribedArchiveExt`—Specify the extension for the file that contains the business objects to which the connector does not subscribe.
  - `OriginalArchiveExt`—Specify the extension for the file that preserves all the business objects that were contained in the event file.
  - `FailArchiveExt`—Specify the extension for the file that contains the business objects that failed processing.
2. Use Connector Configurator to configure the `ArchivingEnabled` connector property.
3. Establish write permissions on the archive directory.

## Specifying request processing

You can cause the JText connector to write business objects to files whose names are specified dynamically (in each business object instance) or statically (through meta-objects). You can also cause the connector to return each filename that it generates statically; this feature is useful to obtain filenames generated with a unique sequence number. This section contains the following subsections:

- “Dynamic file naming” on page 61
- “Static file naming” on page 61
- “Returning a file’s name” on page 62
- “Differences between local and remote processing” on page 62
- “Configuring the output file” on page 63

## Dynamic file naming

To cause the connector to dynamically generate an output filename for each type of business object, create a dynamic child meta-object. Use the child meta-object:

- either to specify the name of the output file or to receive the name of the generated filename
- to specify whether to append to or overwrite the output file

**Important:** In addition to creating the dynamic child meta-object to enable the connector to generate or return the output filename, if you are using ICS as the integration broker, you must also modify your maps or collaboration logic to insert into the dynamic child meta-object's `InFileName` attribute a path and filename for each business object, and, if required, unique sequence numbers.

For more information, see “Using a dynamic child meta-object” on page 4.

For information about how the connector processes the meta-object, see “Request processing” on page 10.

For information on configuring the connector to use a dynamically generated output filename, see “Configuring the output file” on page 63.

## Static file naming

When you use meta-objects to specify the name of output files, you must restart the connector for any changes to take effect. You can specify whether the connector appends all business objects of a given type to a single file or creates a separate file for each business object.

When it uses the delivered default configuration, the connector creates an output file for each business object it processes. It names the output file for the incoming business object and adds a sequence number to make the name unique; it gives it the extension of `.out`. For example, if it receives the `Customer` and `Item` business objects, the connector writes their data to the `Customer_1.out` and `Item_1.out` output files. For information on obtaining the names of generated output files, see “Returning a file’s name” on page 62. For information on the file that stores the sequence numbers, see “OutputLog” on page 32.

To use the meta-object to configure the name of output files, do the following:

1. Configure the following attributes of the `M0_JTextConnector_Default` meta-object:
  - `OutputDir`—Specify the absolute path of an existing directory to which the connector is to write files when it processes requests. For more information, see “Configuring the output file” on page 63.
  - `OutputExt`—Use this attribute to specify your own extension if you want to change the delivered default configuration, which causes the connector to create files with the `out` extension.
  - `FileSeqEnabled`—Keep set to `true` to cause the connector to output one business object per file, each with a unique sequence number. Set to `false` to cause the connector to output all business objects of a given type to a single file, either by overwriting or appending. For information on configuring overwrite or append behavior, see Table 8 on page 63.

- **OutputFileName**—To cause the connector to append business objects to a single output file rather than overwrite the data in the file or generate unique files for each business object, specify the output file's full path and filename.

To cause the connector to overwrite the output file each time it receives the same type of business object, do not specify a value for **OutputFileName**.

In each of these cases, set **FileSeqEnabled** to false.

For information on configuring overwrite or append behavior, see Table 8 on page 63.

2. Establish write permissions on the output directory.

**Note:** You must create meta-objects for specific business objects if the connector is to use different data formats or file naming conventions for different business objects.

### Returning a file's name

To cause the connector to return the names of the files it generates, do the following:

- Use meta-objects to specify path and filenames and to cause the connector to generate a unique sequence number for each output file. For more information, see "Static file naming" on page 61.
- Use a dynamic child meta-object to cause the connector to return the name of each file it generates. Follow the steps in "Using a dynamic child meta-object" on page 4, but do not specify a value for its **InFileName** attribute. When the connector receives a business object whose dynamic child meta-object specifies **OutFileName=CxIgnore**, it creates a filename based on the configuration of its top-level meta-object, and returns the full path and filename as a value in the **InFileName** attribute.

**Note:** The connector populates the **InFileName** attribute only with a local path, even when processing files over an FTP server.

**Important:** In addition to creating the dynamic child meta-object to enable the connector to generate or return the output filename, if you are using ICS as the integration broker, you must also modify your maps or collaboration logic to insert into the dynamic child meta-object's **InFileName** attribute a path and filename for each business object, and, if required, unique sequence numbers.

### Differences between local and remote processing

The connector processes files remotely in much the same way that it processes them locally. There are, however, a few differences:

- When processing events and generating filenames dynamically, the connector populates the **InFileName** attribute of the dynamic child meta-object only with a local path name and not with a remote path.
- When processing requests, if the connector is not configured for dynamic file naming and **FileSeqEnabled** evaluates to false and the output file already exists:
  - If processing locally, the connector overwrites the existing file.
  - If processing remotely, the connector throws an exception.
- In addition to configuring the standard archive extension attributes for local event processing, when using the connector to process files remotely over an FTP server, you can also configure the **FTPArchiveDir** and **FTPRenameExt**

attributes. These attributes enable you to rename and move the remotely archived file independently of the success of the processing.

For further information see “Specifying remote archiving” on page 69

## Configuring the output file

Table 8 illustrates the possible configuration options for the output file:

Table 8. Specifying output files

Desired output condition	Attributes/property requiring configuration	Attribute/property value
Each business object of a given type is appended to a file whose absolute path and filename is derived at runtime from an attribute in the business object.	Use a dynamic child meta-object AppSpecificInfo (at business-object level) For dynamic child meta-object: OutFileName FileWriteMode	cw_mo_JTextConfig = <i>DynChildMOName</i> <i>user-specified pathname and filename</i> a or append
Each business object of a given type overwrites the output file whose absolute path and filename is derived at runtime from an attribute in the business object.	Use a dynamic child meta-object AppSpecificInfo (at business-object level) For dynamic child meta-object:OutFileName FileWriteMode	cw_mo_JTextConfig = <i>DynChildMOName</i> <i>user-specified pathname and filename</i> o or overwrite
Each business object of a given type is written to its own unique file whose name is derived from the business object’s name and a generated unique sequence number.	OutputDir	<i>user-specified pathname</i>
	FileSeqEnabled	true
	OutputFileName	Native
The connector returns the name of each file it generates. Each business object of a given type is written to its own unique file whose name is derived from the business object’s name and a generated unique sequence number.	Use a dynamic child meta-object AppSpecificInfo (at business-object level) InFileName (in dynamic child meta-object) FileWriteMode (in dynamic child meta-object) Use meta-object configuration: MO_JTextConnector <i>_businessobjectname:</i> OutputDir FileSeqEnabled OutputFileName	cw_mo_JTextConfig = <i>DynChildMOName</i> CxIgnore N/A <i>user-specified pathname</i>
	FileSeqEnabled	true
	OutputFileName	Native
All business objects of a given type are appended to a single file whose name is user-specified.	FileSeqEnabled	false
	OutputFileName	<i>user-specified pathname and filename</i>
Each business object of a given type is written to its own unique file whose name is user-specified plus a unique sequence number.	FileSeqEnabled	true



Table 8. Specifying output files (continued)

Desired output condition	Attributes/property requiring configuration	Attribute/property value
If the connector is processing more than one type of business object and <code>OutputFileName</code> is set to a string other than <code>Native</code> , each business must have its own top-level meta-object. For more information, see “Specifying the name of the output file” on page 56.	<code>OutputFileName</code>	<i>user-specified pathname and filename</i>
	<code>OutputDir</code>	<i>user-specified pathname</i>
Each business object of a given type overwrites the output file, whose name is derived from the business object’s name.	<code>FileSeqEnabled</code>	false
	<code>OutputFileName</code>	Native
The connector returns the name of each file it generates. Each business object of a given type is written to its own unique file whose name is user-specified plus a unique sequence number.	Use a dynamic child meta-object	
	<code>AppSpecificInfo</code> (at business-object level)	<code>cw_mo_JTextConfig = DynChildMOName</code>
	<code>InFileName</code> (in dynamic child meta-object)	<code>CxIgnore</code>
	<code>FileWriteMode</code> (in dynamic child meta-object)	N/A
	Use meta-object configuration: <code>MO_JTextConnector</code> <code>_businessobjectname:</code>	
	<code>FileSeqEnabled</code> <code>OutputFileName</code>	true <i>user-specified pathname and filename</i>

## Specifying multiple event files or multiple event directories

You can configure the connector to pick up only files with a specified extension. You can also configure the connector to pick up files from multiple directories.

**Important:** The use of an asterisk (\*) for the `EventExt` attribute to specify that the connector poll for all files in a single event directory regardless of their extension is no longer supported.

To specify a separate event directory for each business object type, perform the following steps:

1. Create a separate meta-object for each supported business object; for example, create `MO_JTextConnector_Customer` and `MO_JTextConnector_Item`. For more information, see “Creating a JText meta-object for a specific business object” on page 75.
2. Specify the appropriate directory in each meta-object’s `EventDir` attribute.

**Note:** The JText connector processes event files in the order of their time stamps, from the earliest to the most recent, regardless of their location. In other words, the JText connector processes files located in separate directories in the chronological order of their time stamps.



## Polling for specific business objects

Configuration of the JText connector differs depending on whether all your event files are in a single directory, they all have the same extension, they contain a single business object or multiple business objects, they contain business objects of one type or multiple types, and they represent each business object on a single line or on multiple lines.

This section explains the following:

- “Using EndBODelimiter parsing method”
  - “Using non-printable characters for an EndBODelimiter” on page 66
- “Using FixedBOSize parsing method” on page 67

### Using EndBODelimiter parsing method

If no value is specified for the EndBODelimiter meta-object attribute, the connector:

- expects the event file to delimit business object strings with <EndB0:BOName>
- specifies <EndB0:BOName> as the delimiter when it writes business object strings to output files.

If an event file contains only one business object, you can specify EOF (end of file) for this attribute.

If you set the value of the EndBODelimiter attribute to a non-empty string, the string is assumed to be the business object delimiter for every file. If the value is not set or is cleared, the connector assumes the delimiter is <EndB0:BOName>.

**Important:** If DataProcessingMode is set to binary and if there is no value specified for EndBODelimiter, JText will set the default EndBODelimiter to FF01 (2 bytes) and EndOfFileDelimiter to FF02 (2 bytes).

Table 9 illustrates delimiter options.

Table 9. Using the EndBODelimiter attribute

Conditions	Delimiter	Notes
File contains one or more business object strings with one or more types of business object or File contains multiple business object strings of the same type of business object; each string runs over several lines.	<EndB0:BOName> or EOL or user-specified value	<ul style="list-style-type: none"><li>• Specify as many semicolon-separated EOLs as there are new lines between business object strings.</li><li>• Specify a custom delimiter in conjunction with EOLs. A custom delimiter must always be the first element when used with EOL. The following example is valid: customEndB0;EOL;EOL. The following example is <b>not</b> valid: EOL;customEndB0;EOL.</li></ul>

Table 9. Using the EndBODelimiter attribute (continued)

Conditions	Delimiter	Notes
Each file contains only one business object string	EOL For user-specified value	<ul style="list-style-type: none"> <li>Specify as many semicolon-separated EOLs as there are new lines between business object strings.</li> <li>Specify a user-specified delimiter in conjunction with EOLs and EOF if required by the input strings. A custom delimiter must always be the first element when used with EOL. The following example is valid: customEndB0;EOL;EOL. The following example is <b>not</b> valid: EOL;customEndB0;EOL</li> </ul>
File contains multiple business object strings, one per line	EOL	
File contains multiple business object strings of the same type of business object; each string runs over several lines without any separators between business-object strings	None	<p>Can use the delivered default meta-object or a custom meta-object</p> <p><b>Note:</b> This option is available only during service call requests and not for event notification. Do not use this delimiter in conjunction with any other delimiter.</p>

**Note:** If the source file contains empty lines, the connector ignores them.

**Using non-printable characters for an EndBODelimiter:** To poll for files in multiple directories, you must create a meta-object for each supported business object. The value you specify for each meta-object’s EndBODelimiter attribute depends on whether your source file contains a single business object or multiple business objects.

- Files that contain a single business object  
You can specify EOF as the EndBODelimiter if the entire data file contains only one business object string.
- Files that contain multiple business objects  
If your input file contains multiple business objects that have only a new line as the business object delimiter, specify the string EOL in the EndBODelimiter attribute. In this case, the source file contains strings representing multiple business objects of the same type.

**Important:** To poll from a file that contains multiple business object types, you must use the MO\_JTextConnector\_Default meta-object, and must ensure that its EventExt and EventDir attributes correctly point to the directory where this event file is located. To poll for business object types that are represented in separate event files or whose event files are located in different directories, you must create a separate top-level meta-object for each type. Use the EventExt and EventDir attributes to point to the appropriate directory.

To use a custom data handler when polling files that contain multiple business objects of different types, see “Reading multiple business objects of different types from the same file” on page 76.

If using a name/value format, you cannot specify the EOL business object delimiter if the event file splits business object data over multiple lines. For more information, see the *Data Handler Guide*.

The following examples illustrate the delimiter to use for different event file formats:

- File contains four business object strings and uses the non-printable character EOL as the end of business object delimiter:  

```
Sample_B0~Create~1~TableGenKey5~strange~TextConnector_924055528_0
Sample_B0~Create~2~TableGenKey5~strange~TextConnector_924055528_0
Sample_B0~Create~3~TableGenKey5~strange~TextConnector_924055528_0
Sample_B0~Create~4~TableGenKey5~strange~TextConnector_924055528_0
```
- File contains four business object strings and uses a user-specified value and the non-printable character EOL as the end of business object delimiter, that is CustomEndB0;EOL:  

```
Sample_B0~Create~1~TableGenKey5~strange~TextConnector_924055528_0CustomEndB0
Sample_B0~Create~2~TableGenKey5~strange~TextConnector_924055528_0CustomEndB0
Sample_B0~Create~3~TableGenKey5~strange~TextConnector_924055528_0CustomEndB0
Sample_B0~Create~4~TableGenKey5~strange~TextConnector_924055528_0CustomEndB0
```
- File that contains four business object strings and uses the non-printable character EOL;EOL as the end of business object delimiter:  

```
Sample_B0~Create~1~TableGenKey5~strange~TextConnector_924055528_0

Sample_B0~Create~2~TableGenKey5~strange~TextConnector_924055528_0

Sample_B0~Create~3~TableGenKey5~strange~TextConnector_924055528_0

Sample_B0~Create~4~TableGenKey5~strange~TextConnector_924055528_0
```
- File that contains four business object strings and uses None as the end of business object delimiter:  

```
Sample_B0~Create~1~TableGenKey5~strange~TextConnector_924055528_0Sample_B0
~Create~2~TableGenKey5~strange~TextConnector_924055528_0Sample_B0~Create~3
~TableGenKey5~strange~TextConnector_924055528_0Sample_B0~Create~4
~TableGenKey5~strange~TextConnector_924055528_0
```

**Note:** The connector is case-sensitive to the string that you specify, except for the EOL and EOF delimiters.

For more information on creating your own meta-objects, see “Creating a JText meta-object for a specific business object” on page 75.

## Using FixedBOSize parsing method

This meta-object property is only valid in the following instances:

1. When performing event processing.
2. When DataProcessingMode is set to Binary.

When present with a valid value, this meta-object property overrides the EndB0Delimiter property, and provides users an alternative to the traditional delimiter based business object parsing. This property enables the connector to correlate a fixed number of bytes with a single business object. For example, if a file consisted of 300 bytes, and the FixedBOSize property was set to 100, the JText Adapter would convert these three 100 byte length packets through a binary enabled data handler and send them to the ICS.

If both FixedBOSize and EndB0Delimiter have a value set, then Jtext will take FixedBOSize for file parsing and it will ignore EndB0Delimiter.

## Specifying a remote FTP file system

This section describes how to configure the JText adapter to use a remote FTP file system for event and request processing.

**Important:** To enable the connector to use a remote FTP file system, you must specify an FTP URL in the `EventDir` attribute (for event processing) or `OutputDir` attribute (for request processing). You must also resolve all firewall issues before using the connector to perform FTP operations.

This section describes the following:

- “Remote event processing”
- “Remote request processing” on page 72
- “Notes on configuring the connector for FTP transfer” on page 73

### Remote event processing

To configure the connector to use a remote FTP file system for event processing, you must specify the FTP URL, FTP login information, a local directory into which the connector downloads the event files from the remote directory, archiving information, and information related to how the connector behaves when the FTP server is unavailable. This section describes all of these configurations as well as additional optional configurations.

- “Specifying the FTP URL and login information”
- “Specifying the local directory” on page 69
- “Specifying remote archiving” on page 69
- “Specifying remote polling” on page 70
- “How the connector processes events from a remote site” on page 70
- “Identifying files on a mainframe: Optional configuration” on page 71
- “Summary of configuration operations for event processing” on page 71

**Specifying the FTP URL and login information:** The connector polls for events from the directory specified in the `EventDir` meta-object attribute. To configure the connector to use a remote FTP file system for event processing, specify the FTP URL as the value of this attribute. The FTP URL must conform to IETF standards.

In addition to specifying the FTP server in the URL, you can optionally specify the following information in the `EventDir` meta-object attribute:

- Name of a user with privileges to connect to the FTP server and perform FTP operations—If you do not specify the username in `EventDir`, specify it in the `FTPUserId` meta-object attribute.
- Password of a user with privileges to connect to the FTP server and perform FTP operations—If you do not specify the password in `EventDir`, specify it in the `FTPPassword` meta-object attribute.
- Port number—If the port is not specified in `EventDir`, the connector uses the default port.
- Remote event directory—If you do not specify the remote event directory in `EventDir`, the connector polls the event files from the directory to which the connection is established to the FTP server.

**Important:** You can specify the FTP values either in a static top-level meta-object or in a dynamic child meta-object. If the username and password are not specified in any meta-object attribute, the connector terminates

when attempting to connect to the FTP server. For more information, see "Using a dynamic child meta-object" on page 4.

The examples below illustrate three different formats for EventDir attribute values:

**URL only with required values:**

`ftp://ftp.companyA.com`

**URL with optional username and port number values:**

`ftp://companyA:admin@ftp.companyA.com:1433`

**URL with optional username, port number, and remote event directory values:**

`ftp://companyA:admin@ftp.companyA.com:1433/temp/JTextConn/Default/Event`

**URL for Unix / MVS related FTP setup**

`ftp://ftpuser:ftppwd@ftpservers.in.ibm.com:21/home/ftpuser/JText/event`

**Specifying the local directory:** In addition to specifying the FTP URL and related login information, you must specify the location of the local directory into which the connector downloads the event files from the remote directory. To specify the local directory, use the `FTPLocalEventDir` meta-object attribute.

**Important:** If the connector finds a proper FTP URL in `EventDir`, but does not find the `FTPLocalEventDir` meta-object attribute or finds an invalid or a blank value for this attribute, the connector does not start. The connector does not evaluate the `FTPLocalEventDir` attribute when configured to run locally.

**Specifying remote archiving:** You have several options in specifying how the connector handles remote archiving. To specify a remote archive directory, use the `FTPArchiveDir` meta-object attribute. This attribute specifies the relative path of the archive directory on the FTP server. The directory must already exist. There are several options for using this attribute to specify archiving:

- Specifying a value for the `FTPArchiveDir` attribute but no value for the `FTPRenameExt` attribute causes the connector to append a timestamp to the event filename and move it to the remote FTP server archive directory specified in the `FTPArchiveDir` attribute.
- Specifying a value both for the `FTPArchiveDir` attribute and the `FTPRenameExt` attribute causes the connector to rename the processed event filename, adding a timestamp and ignoring the `FTPRenameExt`, then move it to the FTP server archive directory specified in the `FTPArchiveDir` attribute.
- Specifying no value either for the `FTPArchiveDir` or the `FTPRenameExt` attributes causes the connector to delete the processed event file without archiving it.
- Specifying no value for the `FTPArchiveDir` attribute but specifying a value for the `FTPRenameExt` attribute causes the connector to rename the processed event filename with the value specified in `FTPRenameExt`, and move it to the directory specified in the `EventDir` attribute.

**File naming with timestamping for remote FTP servers:** Support for host file systems (MVS) using Sequential datasets has been enhanced by providing for time stamping to avoid duplicate file names. MVS doesn't support special characters, such as "\_", in a dataset or recordset name. On Windows or Unix platforms, we use a time stamp in the original filename while archiving the file. This avoids duplicate filenames in an archive folder, thereby preventing the overwriting of an existing file.

We use the following format for MVS systems to overcome this limitation:

Event File: Test.in

Archived file: Test.TSyymm.TSDDHMM.TSSsSss

Where:        yyyy -- year  
                  MM -- month  
                  DD -- date  
                  HH -- hour  
                  MM -- minutes  
                  Ss -- seconds  
                  Sss -- milliseconds

On MVS platforms the dataset or recordset separator is "." (dot) and maximum number of '.' (dots) allowed in a dataset or recordset is 6 (six) The dataset or recordset name must not exceed 8 characters per "." (dot) and the total number of characters must not exceed 44 characters. Here is an example of a file name in this format:

FTPRenameExt -- ARCHIVE

Archived File -- (SAMPLE).ARCHIVE.TS200304.TS290535.TS42234

**Note:** The members of PDS cannot be renamed with time stamps while archiving. Hence, an alternate mechanism is provided for PDS archival. Each member of a PDS that falls into the FTPEventFileMask is archived under the parent PDS, with filename specified as the FTPRenameExt. The archival file will be rewritten each time with the latest processed file.

**Specifying remote polling:** You can use the "FTPPollFrequency" on page 32 configuration property to set how frequently the connector polls an FTP server measured in the number of standard poll cycles. This setting is useful if the connector is still reading files from the local event directory when it starts the next polling cycle.

For example, if "PollFrequency" on page 110 is set to 10000, and FTPPollFrequency is set to 6, the connector polls the local event directory every 10 seconds and polls the remote directory every 60 seconds. The connector performs FTP polling only if you specify a value for this property. If FTPPollFrequency evaluates to 0 or blank, the connector does not perform FTP polling.

For more information, see "Tuning the performance of the JText connector" on page 77.

**How the connector processes events from a remote site:** When polling for events from a remote site, the connector performs the following steps:

1. Obtains the server name, port number, username, password, and remote event directory from meta-object attributes or default values.
2. Establishes a connection to the remote FTP site to get event files from the remote event directory.
3. Downloads the event files from the remote directory to the local directory specified in the FTPLocalEventDir meta-object attribute.

**Note:** To enable the connector to process events using FTP, this attribute must have a value.

4. Polls the local directory.

Figure 6 illustrates local and remote event processing.

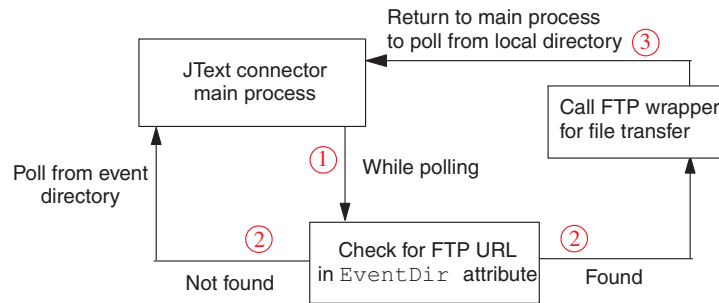


Figure 6. Local and remote event notification operation

**Identifying files on a mainframe: Optional configuration:** Use the `FTPEventFileMask` attribute to identify file extensions on a mainframe that do not adhere to the same naming standards that apply to UNIX or Windows systems. If no value is provided for this attribute, the connector uses the value specified in the `EventExt` attribute.

When specifying a value for `FTPEventFileMask`, you can include wildcard characters. The following example illustrates several possible formats for this attribute:

```

ACT.Z1UC.*
ACT.*.INPT
*.Z1UC.INPT

```

If the connector finds more than one file at the remote site that meets the criteria specified for `FTPEventFileMask`, it does the following:

1. Downloads all specified remote event files to the directory specified in the `FTPLocalEventDir` attribute.
2. Renames the extension of the remote files with the value specified in the `FTPRenameExt` meta-object attribute. Renaming the files prevents the connector from polling the same file in the next poll cycle.
3. Disconnects from the FTP server.
4. Processes the files locally in the directory specified in the `FTPEventFileMask` meta-object attribute.

**Summary of configuration operations for event processing:** To configure the connector to use a remote FTP file system for event processing, specify the following configuration values:

- Specify the FTP URL in the `EventDir` meta-object attribute. Optionally, specify the name and password of a user with privileges to connect to the FTP server and perform FTP operations.
- If you do not specify the login name and password in the `EventDir` meta-object attribute, do so in the `FTPUserId` and `FTPPassword` meta-object attributes.
- If you do not specify the port in the `EventDir` meta-object attribute, the connector uses the default FTP port.
- Use the `FTPLocalEventDir` meta-object attribute to specify the local system directory into which the connector downloads event files from the FTP site.
- On a mainframe that does not adhere to the same naming standards that apply to UNIX or Windows systems, use the `FTPEventFileMask` meta-object attribute to identify files to be polled.



- To configure the connector to work with an MVS FTP server when the remote system is MVS, specify MVS in the FTPOSP1atform attribute.

## Remote request processing

To configure the connector to use a remote FTP file system for request processing, you must specify the FTP URL, FTP login information, and a remote directory into which the connector uploads the request files from the local directory. This section describes all of these configurations as well as additional optional configurations.

- “Specifying the FTP URL and Login Information”
- “How the connector processes service call requests to a remote site” on page 72
- “Summary of configuration operations for request processing” on page 73

**Specifying the FTP URL and Login Information:** The connector uploads service call request files into the directory specified in the `OutputDir` meta-object attribute. To configure the connector to use a remote FTP file system for request processing, specify the FTP URL as the value of this attribute. The FTP URL must conform to IETF standards.

In addition to the FTP URL, you can optionally specify the following information in the `OutputDir` meta-object attribute:

- Name of a user with privileges to connect to the FTP server and perform FTP operations—If you do not specify the username in `OutputDir`, specify it in the `FTPUserId` meta-object attribute.
- Password of a user with privileges to connect to the FTP server and perform FTP operations—If you do not specify the password in `OutputDir`, specify it in the `FTPPassword` meta-object attribute.
- Port number—If the port is not specified in `EventDir`, the connector uses the default port.
- Remote output directory—If you do not specify the remote output directory in `OutputDir`, the connector loads the request files into the default connection directory (the directory on the FTP server to which the connection is established).

**Important:** You can specify the FTP values either in a static top-level meta-object or in a dynamic child meta-object. If the username and password are not specified in any meta-object attribute, the connector terminates by throwing an exception. For more information, see “Using a dynamic child meta-object” on page 4.

The examples below illustrate three different formats for `OutputDir` attribute values:

### URL only with required values:

```
ftp://ftp.companyA.com
```

### URL with optional username and port number values:

```
ftp://companyA:admin@ftp.companyA.com:1433
```

### URL with optional username, port number, and remote output directory values:

```
ftp://companyA:admin@ftp.companyA.com:1433/temp/JTextConn/Default/Out
```

**How the connector processes service call requests to a remote site:** When the connector is configured for FTP processing and it receives a service call request, it performs the following steps:



1. Obtains the server name, port number, username, and password from meta-object attributes or default values.
2. Establishes a connection to the remote FTP site to place service call request files from the local directory.
3. Uploads the request files from the local directory to the remote directory.
4. Disconnects from the remote server.

Figure 7 illustrates local and remote request processing.

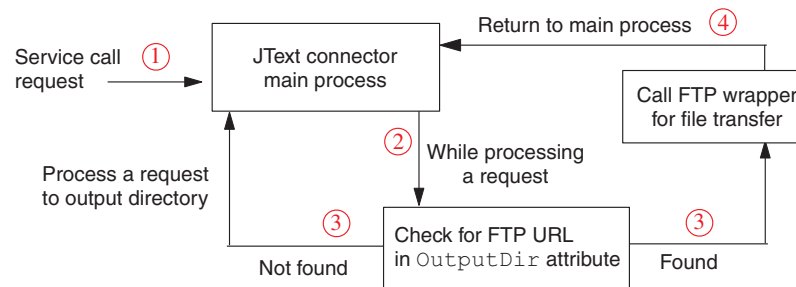


Figure 7. Local and remote request operations

**Summary of configuration operations for request processing:** To configure the connector to use a remote FTP file system for request processing, specify the following configuration values:

- Specify the FTP URL in the `OutputDir` meta-object attribute. Optionally, specify the name and password of a user with privileges to connect to the FTP server and perform FTP operations.
- If you do not specify the login name and password in the `OutputDir` meta-object attribute, do so in the `FTPUserId` and `FTPPassword` meta-object attributes.
- If you do not specify the port in the `OutputDir` meta-object attribute, the connector uses the default port.
- To configure the connector to work with an MVS FTP server when the remote system is MVS, specify `MVS` in the `FTPPlatform` attribute.

### Notes on configuring the connector for FTP transfer

The following features apply to FTP transfer of data:

- The connector uses Binary mode of data transfer when doing FTP operations.
- The connector does not use FTP transfer of data if the value of the `EventDir` or `OutputDir` meta-object attribute does not begin with `ftp://`.
- During event processing, if the event business object contains a dynamic child meta-object with an `InFileName` attribute, the connector populates this attribute with the full path of the file specified in the `FTPLocalEventDir`, but not the path on the remote system.
- Values entered in the `EventExt` and `FTPRenameExt` meta-object attributes cannot be same; if they were the same, the connector would continuously pick up files that it had already picked up earlier.
- The connector does not support file sizes that are not supported by FTP.
- You must consider case sensitivity for file names, extensions, and other components in accordance with the platform of the FTP site.
- Transferring files from a remote FTP site might impact the connector's performance.

- When data is exchanged to or from the remote FTP site, there is a chance that data can be corrupted or lost due to loss of network connection or similar problems.
- The integration broker does not maintain any type of connection cache or pool. Connections are opened and closed for each polling cycle and request processing. Network latency and other configuration outside the control of the connector can impact its performance.
- The value specified for the `FTPLocalEventDir` meta-object attribute can not be specified as the value of the `EventDir` meta-object attribute of any meta-object that does not specify FTP values. This restriction prevents the connector from using values specified in different types of business objects in same directory that require totally different types of processing.
- If the remote event directory or output directory specified at the end of the FTP URL does not exist, the connector shuts down when it interacts with the FTP site. It does not shut down at the time of connector startup.
- When configuring the connector for processing files over an FTP server, you must configure the FTP server to use the UNIX settings required by the Apache Commons Net API.

## Configuring secure FTP

JText adapter uses the SSL (Secure Socket Layer) protocol to establish a secure communication channel between the adapter and the FTP server. For this feature, the FTP server needs to be a secure FTP server supporting this protocol. JText adapter makes use of the IBM JSSE package that is an implementation of the SSL protocol. The adapter works in passive FTP mode and implicit SSL mode. This section describes the additional configurations required to use the secure FTP feature of JText adapter.

To configure secure FTP:

1. Install and configure a secure FTP server supporting SSL protocol. JText adapter uses a SSL protocol to transfer data between client application and FTP server. Therefore, a secure FTP server needs to be installed which supports SSL protocol and configured appropriately for SSL communication. The server should have a private key and a certificate.
2. If applicable, configure the Firewall settings. JText adapter uses a passive FTP mode of data transfer with secure FTP server. Therefore, if there is a firewall between the client and the server, the firewall settings may need to be configured to enable this mode.
3. Set the client trust store. During SSL communication, the server sends its certificate to the client for verification. The client verifies the certificate to ascertain that it is communicating with the intended server. To enable this verification process, the server's certificate should be present in the client's trust store. The server's certificate can be imported into the client's trust store using the `keytool` utility, for example:

```
keytool -import -v -alias serverCert -file server.cert
-keystore clientTrustStore
```

where `server.cert` is the certificate of the server and `clientTrustStore` is the trust store of the client.

4. Set the `trustStore` system property in the adapter start script. The adapter start script should include the following system property,
 

```
-Djavax.net.ssl.trustStore=C:\MyKeyStore\clientTrustStore
```

where `clientTrustStore` is the trust store of the client as specified in Step 3.

5. Make sure that you use `ftps` in the FTP URL. For secure communications, the FTP URL should have `ftps` as the protocol, for example:  
`ftps://host:port/ftkdir`

## Specifying a data handler

To specify a data handler to be used by the JText Connector, perform the following steps:

1. Determine the format used by the application with which the JText connector communicates. Note that only one data handler class can be registered for any given format type.
2. Configure the following child objects of the top-level JText meta-object:
  - `EventDataHandler`—To specify the data handler meta-object to be used for event processing (business object string or byte array to business object conversion).
  - `OutputDataHandler`—To specify the data handler meta-object to be used for the request processing (business object to business object string or byte array conversion).

## Changing the specified data handler

To change the data handler from the delivered default (either to a different delivered one or to a custom data handler), do the following:

- Verify that the connector supports the business object specified as the default value in the `EventDataHandler` and `OutputDataHandler` attributes.
- Verify that the class or jar file that contains the data handler is included in the class path when the connector is started. If you use a delivered data handler, or you add a custom data handler to the `CustDataHandler.jar` file (as recommended in the *Data Handler Guide*), the file is included in the delivered startup script (`start_JText.bat` or `connector_manager_JText.sh`).
- Make sure you specify an appropriate `EndB0Deli miter` value for the data handler that you are using.

For information on creating a data handler, see the *Data Handler Guide*.

## Creating a JText meta-object for a specific business object

When you create a JText meta-object for a specific business object, rename the meta-object to identify the particular business object. For example, to create meta-objects for the Customer and Item business objects, you might name the meta-objects `MO_JTextConnector_Customer` and `MO_JTextConnector_Item`.

**Tip:** Use default meta-objects when all business objects to be written to files have exactly the same configuration. In other words, all text files reside in the same event directory and are written to the same output directory, use the same data handler, and have the same file extension (or should be put into the same file). Create your own meta-objects if the connector must use different processing for different business objects on requests, or if specific processing instructions are required for polling. If you create separate meta-objects for specific business objects, the connector uses your meta-objects for both integration-broker requests and subscription delivery operations.

Any business object for which you do not create a meta-object is configured by the values in the default `MO_JTextConnector_Default` meta-object. For the business object definition for this default meta-object, see the `\repository\JText` directory.

## Reading multiple business objects of different types from the same file

If a text file contains multiple business objects of different types, you must use the `MO_JTextConnector_Default` meta-object, and must ensure that its `EventExt` and `EventDir` attributes correctly point to the directory where this event file is located. Each business object in the file must be separated by the same delimiter.

The delivered data handlers can determine the name of each business object from the input string. In other words, when using the default top-level `JText` meta-object and the delivered data handlers, you need not use the `<EndBO:BOName>` delimiter to identify each type of business object in a file that contains multiple types.

If you develop a custom data handler to convert business object strings to business objects, ensure that it can interpret the business object's type from the input string.

## Specifying values for `ObjectEventID` attributes

You do not have to add `ObjectEventId` attributes to business object strings. For event notification business objects, the connector framework populates these business object attributes if the IDs are not populated by the connector.

For service call request business objects, `ObjectEventId` attributes are either ignored or included in the string written to a file. Whether `ObjectEventId` attributes are included in the output file depends on the data handler that is used.

## Setting up a second instance of a `JText` connector

To set up a second instance of the `JText` connector, follow these steps:

1. Make a copy of the `JText` connector directory and its repository directory and rename them. For example, assume you name the second connector definition `JText2`. After you create the second directories, your directory structure looks like the following:

```
\connectors\JText
\connectors\JText2
\repository\JText
\repository\JText2
```

2. Copy all the meta-objects for the `JText` connector (there should be at least two of them) and modify the name of the business objects. For example, for the `JText2` connector, change the names from `MO_JTextConnector_BOName` to `MO_JText2Connector_BOName`.

There are two ways you can copy the meta-objects:

- Create a text file that contains the `MO_JText2Connector_BOName` meta-object and its children. Use a text editor's search and replace option to replace `MO_JTextConnector_` with `MO_JText2Connector_`.
- Use Business Object Designer to copy the meta-objects one at a time.

**Important:** Before you can manipulate a business object definition in Business Object Designer, you must copy the text from the top of the `\repository\ReposVersion.txt` file to the top of every definition file.

3. In Connector Configurator, copy the connector's definition and rename it to `JText2Connector`. Change the supported meta-objects and business objects.
4. Copy any new definition files into the repository. To use Business Object Designer to copy business object definitions into the repository, select the Save

To Server submenu from the File menu. Alternatively, on ICS, perform the following steps to copy business object definitions into the repository from the operating system:

- a. Copy the text from the top of the `\repository\ReposVersion.txt` file to the top of every definition file.
- b. Use the following `repos_copy` command to copy in the new meta-objects and business objects:

```
repos_copy -sServerName -iFileName
```

5. Refresh the integration broker's administration utility to verify the new business objects.
6. For UNIX, make a copy of the existing connector manager script for the JText connector and change the parameters to refer to JText2. For Windows, make a copy of the existing shortcut for the JText connector and change the parameters to refer to JText2, and modify it to point to the JText2 directory rather than the JText directory.
7. Add a new MQ queue for the new connector. See the *Implementation Guide for WebSphere MQ Integrator Broker* or *System Administration Guide* for information on doing this.
8. Restart the integration broker.
9. In UNIX, run the connector manager script. In Windows, click on the new shortcut.

## Tuning the performance of the JText connector

To tune the polling performance of the JText connector, set the following connector configuration properties as described below.

- `PollQuantity` – This property sets the maximum number of business objects that the connector can deliver to the integration broker in a single call to poll for events. If you set `PollQuantity` to a high value, the connector tries to submit more business objects in one poll. This can improve performance and helps to clear up internal queues and memory usage.

Enabling the connector to post large quantities of business objects to the integration broker, however, can affect other business-integration components. For example, if the message queuing system has been set up with default values, the queues can fill up quickly if the JText connector sends many large business objects through the system. Therefore, when tuning performance, keep in mind that there is an optimal performance setting for `PollQuantity`.

- `PollFrequency` – This connector configuration property specifies the amount of time between polling actions. Setting this property to a longer time slows down the connector during event processing. Setting it to a shorter time ensures that events are picked up, converted to business objects, and delivered quickly.

In other words, the connector picks up new files during each poll call. If the connector does not poll often, it takes longer for it to deliver the files that accrue in the event directory. If the connector polls frequently, it picks up the files more often and delivers them more frequently.

The more frequently the connector polls for events, however, the less time it has for processing requests. If you use the connector primarily for request processing, set `PollFrequency` to a lower value than if you use the connector primarily for event processing.

As with the `PollQuantity` configuration property discussed above, setting `PollFrequency` to an extreme value, such as a very long or short time, can affect the performance of other business-integration components.

- `FTPPollFrequency` – This connector configuration property specifies how frequently the connector polls an FTP server measured in the number of standard poll cycles. For example, if `PollFrequency` is set to 10000, and `FTPPollFrequency` is set to 6, the connector polls the local event directory every 10 seconds and polls the remote directory every 60 seconds. The connector performs FTP polling only if you specify a value for this property. If `FTPPollFrequency` evaluates to 0 or blank, the connector does not perform FTP polling.

In summary, the best approach to improving performance in polling is to set `PollQuantity`, `PollFrequency`, and `FTPPollFrequency` so that they complement each other.

## Generating sample files for testing

You might want to generate a file that looks like the input file that the JText connector expects. This file can assist you in setting up the output formats in the source application. A sample file can also be used for testing.

On ICS, the easiest way to generate a file similar to the input file is as follows:

1. Create a pass-through collaboration that takes as input and sends to the destination the business object that is to be written out to a file.
2. Bind the source port to a connector that supports that business object and can be emulated by Test Connector.
3. Bind the destination port to the JText connector.
4. Input sample values for the business object into Test Connector, and send that business object to the JText connector. The JText connector writes the values to the output file in the configured format.

This process enables you to see multiple business objects written to a single file, which you can use as input during testing.

## Generating sample business objects for testing

You might want to generate business objects that look like ones the JText connector expects. You can populate the business objects with values to use during testing.

To cause the connector to automatically generate business object templates, use the `GenerateTemplate` configuration property. You can generate a definition for each business object that the connector supports.

The connector uses the value of the `GenerateTemplate` property to create an instance of a serialized business object when the connector starts up. A **serialized** business object is the string representation of the business object that the data handler creates. Use Connector Configurator to specify the names of the business objects for this property.

The syntax for this property is `BOName;BOName`, where the name of a specific business object name is substituted for `BOName`. Case is significant. To specify more than one business object, separate the names with a semicolon, as in `Customer;Item`. Ending punctuation is not required. Templates for these business objects are created the next time you start the connector.

The generated templates contain the delivered default values that are set for the attributes of the business objects in the business object's definition. If there is no delivered default value for an attribute, it is either ignored (using `CxIgnore`) or left

blank (using `CxBlank`). One child business object is created for each single-cardinality child business object and two identical instances of a child business object are created for multiple-cardinality business objects.

To begin generating templates for a specified business object, start the connector. The connector writes the template to the same file as the output file. If you do not want to use this feature, leave the `GenerateTemplate` property empty.





---

## Chapter 5. Troubleshooting the JText connector

This chapter includes the following information to help you diagnose problems with the JText connector.

- “Error message logging”
- “Problem with meta-object naming”
- “Problem with event triggering”
- “JText failure handling” on page 82
- “Event log file” on page 82
- “Failure recovery” on page 83
- “Recovery from business object delimiter errors” on page 84
- “Recovery from subscription errors” on page 85
- “Recovery from formatting errors” on page 85
- “Recovery from sending errors” on page 85
- “Data handlers and supported business objects” on page 85

---

### Error message logging

Error messages are logged to the standard connector log file, STDOUT, or to the file specified by the `LogFile` standard connector property.

Errors are also logged to the event log file. For more information on the event log file, see “Event log file” on page 82.

---

### Problem with meta-object naming

During connector startup, the following error message means that the meta-object name does not correspond to the connector instance name.

```
Wrong subscription: JText_Customer doesn't have supporting MO:
this BO is unsubscribed."
```

If the meta-object name does not match the name of the connector instance, the meta-object does not recognize the business objects supported by the connector. To prevent this, name the meta-object to correspond with the connector instance. For example, a meta-object named `MO_JText2Connector_Default` recognizes business objects supported by the JText2 connector.

---

### Problem with event triggering

The connector ignores event files with the following delimiter problems:

- The `EndBODelimiter` attribute in the top-level meta-object is set to a valid value, such as the plus sign (+) or the pipe symbol (|), but the event file does not contain the specified delimiter at the end of each business object.
- The connector is configured to look for the `EndBO:BOName` business object delimiter, but the event file does not contain this delimiter. The connector logs a warning message that states:

```
Unable to create Workunits from file filename. Check EndBODelimiter in the file.
```

In both of the above cases, the file remains in the event directory without any change.

The connector also keeps the file in the event directory without change when device failures occur while a file is being accessed, opened, or closed. For example, if the system tries to access a file when it is out of memory, the connector ignores the file.

---

## JText failure handling

For the JText connector, the following types of errors can occur:

Table 10. JText error types

Type of error	Description
Business object delimiter failures	Business object delimiter failures occur when the <code>EndBODelimiter</code> attribute in the top-level meta-object is set to a valid value, and the event file contains the specified delimiter at the end of each business object, but the data itself uses the delimiter value in its text. When the connector encounters the delimiter value in the text, it sends a partial business object string to the formatter, which fails processing. In this case, the connector writes the event to the <code>filename_timestamp.fail</code> file, which contains records for all business objects that encountered delimiter failures.
Subscription errors	Can occur if the connector can find the business object delimiter and retrieve the business object name, but the business object is not subscribed. In this case, an event is sent to the <code>filename_timestamp.unsub</code> file, which contains records for all unsubscribed business objects.
Formatting errors	Can occur if the connector finds the delimiter with a business object name that does not match the input business object name, or the format in the business object file does not match the format of the meta-object. An event is sent to the <code>filename_timestamp.fail</code> file, which contains records for all business objects that failed formatting.
Sending errors	Can occur if the connector tries to send a business object when the integration broker is down. If the Send operation fails, an event is sent to the <code>filename_timestamp.fail</code> file, which contains records for all business objects that were not successfully sent.

## Event log file

The connector logs information about successfully processed business objects to the `event.log` file. If the connector goes down before it processes all business objects in an event file, it uses this log file during recovery to ensure that it sends each business object only once to the integration broker.

The format of the log file is:

```
EventFileName::1,2,n
```

where `EventFileName` is the name of the current event file, and each number represents the sequence number of a successfully processed business object in that file.

For example, assume that the connector has successfully processed three of the first four business objects in the `Customer.in` file, and that the second business object

failed processing. Assume also that the connector has not yet finished processing `Customer.in`. In this case, the `event.log` file might look like the following on UNIX:

```
$ProductDir/JText/Event/Customer.in:: 1,3,4
```

and like the following on Windows:

```
C:\JText\Event\Customer.in:: 1,3,4
```

If the connector went down before processing the entire `Customer.in` file, at startup the connector uses the information in the log file to resume processing the event file at the point where it had stopped processing. The connector reads the log to get the name of the event file to be recovered and the latest business-object sequence number. Then the connector begins sending to the integration broker all business objects in the event file whose sequence number is greater than the last number in the log file. For example, given the file above, the connector begins processing the fifth business object in the `Customer.in` file.

The connector keeps the contents of the log file in memory to enhance performance. It accesses the file on disk only to update it with a new entry. The connector reads the log file only at recovery time.

For information on how the connector uses the `event.log` file in the recovery process, see “Failure recovery.”

## Failure recovery

**Note:** The following recovery steps do not apply if a disk failure occurs or a disk is full.

To recover from failures during event notification, the connector does the following:

1. The connector processes business object strings from the event file. When it successfully processes an entry, the connector logs the entry in the `event.log` file. It also writes it to a file in the archive directory (specified in the `ArchiveDir` meta-object attribute).
  - If none of the business objects in the event file have failed processing, the connector archives the successfully processed ones in an archive file with the extension specified in the `SuccessArchiveExt` attribute.
  - If any of the business objects in the event file have failed processing, the connector archives the successfully processed ones in an archive file with the extension specified in the `PartialArchiveExt` attribute.
  - After it has written business objects to the file specified in the `SuccessArchiveExt` attribute, if any business object fails processing, the connector changes the extension of this file to the one specified in `PartialArchiveExt`.

The delivered default values for these extensions are `.success` and `.partial`.

2. If errors occur, the connector does the following:
  - Subscription errors—the connector creates the archive file in the archive directory with the extension specified in the `UnsubscribedArchiveExt` meta-object attribute. The delivered default value for this extension is `.unsub`.
  - Formatting errors or sending errors—the connector creates the archive file in the archive directory with the extension specified in the `FailArchiveExt` meta-object attribute. The delivered default value for this extension is `.fail`.

- Business object delimiter errors—the connector creates the archive file in the archive directory with the extension specified in the `FailArchiveExt` attribute. It also backs up the event file by moving it to the archive directory and changing its extension to the one specified in `OriginalArchiveExt`.

The connector does not log the failed business objects to `event.log`.

3. After the connector processes all business objects in an event file, it clears the `event.log` file and begins writing entries to it from the next event file.
4. If the connector goes down before it processes all business objects in an event file, it uses the information in `event.log` to determine where to begin processing during the recovery process. When it comes back up, the connector checks whether there are any entries in the log file.
  - If there are no entries, the connector sends all business objects in the event file to the integration broker.
  - If there are entries, the connector uses this information to resume processing an event file at the point where it had stopped processing. The connector reads the log to get the name of the event file to be recovered and the latest business-object sequence number. Then the connector sends to the integration broker all business objects in the event file whose sequence number is greater than the last number in the log file. For example, if the event file contains 15 business objects and the last sequence number in the log file is 8, the connector sends the last seven business objects to the integration broker.

Using the log file prevents the connector from sending the same event multiple times to the integration broker. The connector keeps the log file in memory to enhance performance. The connector accesses the file on disk only to update it with a new entry, and reads the log file only at recovery time.

If you set the "EventRecovery" on page 32 configuration property to `retry`, the connector at startup automatically recovers outstanding events from a previously processed file. However, if you set this property to `abort`, the connector terminates during startup if there are any events to be recovered.

5. To recover from errors that occurred during the event notification process, you must restart the connector. Before doing this, however, do the following:
  - Examine the files that the connector created for failed and unsubscribed business objects. Make appropriate corrections so that the business object strings can be successfully processed when the connector starts.
  - Copy appropriate files from the archive directory to the event directory and change all `.fail` or `.unsub` extensions to the extension specified in the `EventExt` attribute (by default, `.in`). To facilitate record-keeping, rename these files in a meaningful way. For example, rename `Customer.unsub` to `Customer_unsub_resubmit.in`.
  - You may need to perform additional steps manually to recover, depending on the type of failure that has occurred.

The following guidelines can help you determine what recovery steps to take, based on the type of error that occurred.

### Recovery from business object delimiter errors

The connector writes the business object to an archive file in the archive directory, giving it the extension specified in the `FailArchiveExt` meta-object attribute. To handle recovery for such a failure, do the following:

1. Ensure that the event file contains the business object delimiter, that the delimiter is correct, and that it does not contain the delimiter value in the data itself as text. If the use of the delimiter is not correct, correct it.

2. Review the connector's log file (specified in the `LogFileName` configuration attribute) to determine other reasons why the process failed.
3. Copy the file from the archive directory to the event directory and change the `.fail` extension to the extension specified in the `EventExt` attribute (by default, `.in`). To facilitate record-keeping, rename the file in a meaningful way. For example, rename `Customer.fail` to `Customer_delimiter_error.in`.

### Recovery from subscription errors

The connector writes the business object to a file located in the archive directory, giving it the extension specified in the `UnsubscribedArchiveExt` meta-object attribute. To handle recovery for such a failure, do the following:

1. Open the archived file, find that business object string, and verify that the business object name and verb are subscribed. Make appropriate corrections if necessary.
2. Ensure that the integration broker is running.
3. Copy the file from the archive directory to the event directory and change the `.unsub` extension to the extension specified in the `EventExt` attribute (by default, `.in`). To facilitate record-keeping, rename the file in a meaningful way. For example, rename `Customer.unsub` to `Customer_unsub_resubmit.in`.

### Recovery from formatting errors

The connector writes the business object to a file located in the archive directory, giving it the extension specified in the `FailArchiveExt` meta-object attribute. To handle recovery for such a failure, do the following:

1. Open the archived file and verify that:
  - The business object string format matches the expected format in the meta-object. If there is a mismatch, either change the format type in the meta-object or in the business object string.
  - The formatting syntax of the business object string is correct. If it is incorrect, correct it.
2. Copy the file from the archive directory to the event directory and change the `.fail` extension to the extension specified in the `EventExt` attribute (by default, `.in`). To facilitate record-keeping, rename the file in a meaningful way. For example, rename `Customer.fail` to `Customer_fail_formatting.in`.

### Recovery from sending errors

The connector writes the business object to a file located in the archive directory, giving it the extension specified in the `FailArchiveExt` meta-object attribute. To handle recovery for such a failure, do the following:

1. Verify that all components of the business-integration system are running.
2. Copy the file from the archive directory to the event directory and change the `.fail` extension to the extension specified in the `EventExt` attribute (by default, `.in`). To facilitate record-keeping, rename the file in a meaningful way. For example, rename `Customer.fail` to `Customer_fail_sending.in`.
3. Restart the connector.

## Data handlers and supported business objects

If the connector returns an error stating that the data handler has not been configured, verify that the meta-object for the data handler is included in the list of supported business objects. The most common error returned by the connector states that the `BOPrefix` is not set.

The list of supported business objects for the DHFormatter should include the following:

- `MO_JTextConnector_Default`
- `MO_JTextConnector_BusObjName` (meta-objects created for specific business objects)
- Business objects that are to be read from or written to a file.
- The meta-object for the data handler (which is specified in the `DataHandlerConfigMO` attribute of the `MO_JTextConnector_Default` meta-object).

---

## Chapter 6. Migrating to or upgrading the JText connector

This chapter describes how to upgrade to the 5.6.x version of the JText connector from the 5.3.0 version, and to the 4.0.x version of the JText connector from the 3.2.0 version. It also describes how to upgrade to the JText connector from the Text connector.

**Note:** The JText connector versions 4.4.x and 4.3.x contain no specific configuration changes. They contain only optional configuration changes, none of which is necessary unless you want to take advantage of the new options. See the “New in this release” on page ix section for details.

Topics included in this chapter include:

- “Upgrade scenarios”
- “Upgrading to version 5.6.x from version 5.3.x”
- “Reasons to upgrade to version 4.0.x from version 3.2.0” on page 88
- “Upgrading to version 4.0.x” on page 88
- “Reasons to upgrade from the Text connector” on page 90
- “Upgrading to the JText connector” on page 90

---

### Upgrade scenarios

If you are upgrading to the 4.1.x release of the JText connector from the 4.0.x release, follow the instructions in “Upgrade scenarios” on page 87.

If you are upgrading to the 4.1.x release of the JText connector from the 3.2.0 release, follow the instructions in “Upgrading to version 4.0.x” on page 88 and “Upgrade scenarios” on page 87.

If you are upgrading to the JText connector from the Text connector, follow the instructions in “Upgrading to the JText connector” on page 90.

---

### Upgrading to version 5.6.x from version 5.3.x

This section explains:

- “Meta-object changes” on page 87
- “Architecture changes” on page 88

#### Meta-object changes

The `MO_JTextConnector_Default` meta-object contains six new attributes (`FTPTransferType`, `FixedBOSize`, `DataProcessingMode`, `FTPDataStructure`, `MVSSiteCommand`, and `LargeObject`) that have enhanced the functionality of JText.

You must add these attributes to the JText top-level meta-object, and configure values for them. Use Business Object Designer to add the new attributes, provide your own default values for them, and save the changes to the definition.

Add the six new attributes to each of the meta-objects that you have customized from `MO_JTextConnector_Default`. For example, if you have created your own

meta-object for the Customer and Item business objects, add the new attributes to these meta-objects, provide your own default values for them, and save the changes to the repository.

For more information, see Table 7 on page 48.

## Architecture changes

This section explains:

- “Configuration property changes”

### Configuration property changes

For the 5.6.0 release, two new Connector-specific configuration properties have been added:

- **SortFilesOnTimestamp** - New connector specific property has been added to the adapter and allows the adapter to pick up event files based on the modification timestamp.
- **NoPoll** - A new Connector-specific boolean property has been introduced, to optionally turn off polling. The default value is false. When set to true, the adapter only processes requests and does not poll.

---

## Reasons to upgrade to version 4.0.x from version 3.2.0

With version 4.0.x of the JText connector, the structure of the meta-objects required to configure the connector was dramatically simplified, thus simplifying the configuration process.

Whereas earlier versions of the connector used a meta-object structure that included three levels of hierarchy and at least ten different meta-objects, the 4.0.x version uses only two meta-objects and only two levels of hierarchy. This new version changes the way that you configure the connector but does not change the connector’s functionality.

---

## Upgrading to version 4.0.x

Because the new meta-objects use the same configuration data as previous versions, upgrading does not require changing any configuration values. However, because the new meta-objects store the data in differently named attributes in far fewer meta-objects, upgrading does require the following operations:

- Create new meta-objects.
- Replace the value of each attribute’s `DefaultValue` property in each new meta-object with the customized default values in your existing meta-objects.
- Remove all obsolete meta-objects from the repository.

IBM WBIS Support provides a utility that automates the above operations. To execute these operations manually, perform the following steps:

1. Make a backup of the repository by using the `repos_copy` utility. For example, the following command backs up the entire contents in the `Server1` repository to the output file, `InterChangeRepository.out`:  

```
repos_copy -oInterChangeRepository.out -sServer1 -pmypassword
```
2. For each of your existing top-level meta-objects, create a new meta-object with the same attributes as the new delivered top-level meta-object, `MO_JTextConnector_Default`. For example, if you have created your own meta-object for the Customer business object named according to the previous



- naming convention (MO\_JText\_Customer\_Connector), create a new meta-object for Customer that uses the new naming convention (MO\_JTextConnector\_Customer).
3. Set the default values of the new meta-objects based on the values in the original meta-objects. See Table 11 for the correspondence between the attributes in the original meta-objects and the new ones.
  4. Use System Manager to delete the original set of meta-object definitions from the repository, keeping only the ones just created and MO\_JText\_Default\_DHFormatter.

Table 11 illustrates the correspondence between the original and new attributes, including the names of the original meta-objects. Whereas multiple meta-objects contained the original attributes, MO\_JTextConnector\_Default meta-object contains all of the new attributes.

Table 11. Correspondence of original meta-objects and attributes to new attributes

Original meta-object name	Original attribute name	New attribute name
MO_JText_BOName_Connector	DummyKey	N/A
MO_JText_BOName_ArchiveDir	Directory	ArchiveDir
MO_JText_BOName_ArchiveFileExt	Success	SuccessArchiveExt
	Fail	FailArchiveExt
		UnsubscribedArchiveExt
MO_JText_BOName_EventDir	Directory	EventDir
	FileExt	EventExt
MO_JText_BOName_OutputDir	Directory	OutputDir
	FileExt	OutputExt
	FileSequencingEnabled	FileSeqEnabled
MO_JText_BOName_FormatType		N/A
MO_JText_BOName_ServicePolicy	OutputFileName	OutputFileName
	EndBODelimiter	EndBODelimiter
MO_JText_BOName_FormatService	EventService	EventFormat
	OutputService	OutputFormat

Table 11 does not include the following information

- Attribute(s) corresponding to the MO\_JText\_BOname\_FormatType meta-object  
Previous versions of the connector required you to list all possible formats in the MO\_JText\_BOname\_FormatType meta-object before configuring the formats to use for event and output files. In the new meta-object structure, you need only configure the formats to be used for event and output files. This change is indicated in Table 11 by the absence of corresponding attribute(s) for the MO\_JText\_BOname\_FormatType meta-object.
- Meta-objects for the individual Formatters  
The top-level meta-object has two attributes that contain a Formatter meta-object. The Formatter meta-objects have the same attributes as in the original structure, and are used in the same way. Because three of the four Formatters have been deprecated, the only relevant Formatter meta-object is MO\_JText\_BOname\_\_DHFormatter.

---

## Reasons to upgrade from the Text connector

If your site currently uses the Text connector to communicate between an application and integration broker, consider upgrading to the JText connector for the following reasons:

- Performance. The Text connector processes only one file at a time, which can hinder performance when processing large files or a great number of files.
- Format availability. The Text connector handles few format types.
- Ease of modification. The Text connector is more difficult to modify.

In contrast, the JText connector can be configured to:

- Process multiple files at one time.
- Search multiple locations for specific business objects, thereby increasing performance.
- Accommodate a wider range of format types.

---

## Upgrading to the JText connector

To upgrade to the JText connector from the Text connector:

1. From the product CD, copy the JText directory to the %CROSSWORLD%connectors directory.
2. Open a Command Prompt window and use repos\_copy to add the following two files to the repository: CN\_JText.txt and MO\_JText\_Default.txt.
3. Ensure that the specified directories for the following meta-object attributes have been created: ArchiveDir, EventDir, and OutputDir. If these directories have not been created, create them.
4. Configure the meta-object attributes.
5. Subscribe to the desired business objects.

---

## Appendix A. Standard configuration properties for connectors

This appendix describes the standard configuration properties for the connector component of WebSphere Business Integration adapters. The information covers connectors running with the following integration brokers:

- WebSphere InterChange Server (ICS)
- WebSphere MQ Integrator, WebSphere MQ Integrator Broker, and WebSphere Business Integration Message Broker, collectively referred to as the WebSphere Message Brokers (and shown as WMQI in the Connector Configurator).
- Information Integrator (II)
- WebSphere Application Server (WAS)

If your adapter supports DB2 Information Integrator, use the WMQI options and the DB2 II standard properties (see the Notes column in Table 12 on page 93.)

The properties you set for the adapter depend on which integration broker you use. You choose the integration broker using Connector Configurator. After you choose the broker, Connector Configurator lists the standard properties you must configure for the adapter.

For information about properties specific to this connector, see the relevant section in this guide.

---

### New properties

These standard properties have been added in this release:

- AdapterHelpName
- BiDi.Application
- BiDi.Broker
- BiDi.Metadata
- BiDi.Transformation
- CommonEventInfrastructure
- CommonEventInfrastructureContextURL
- ControllerEventSequencing
- jms.ListenerConcurrency
- jms.TransportOptimized
- ResultsSetEnabled
- ResultsSetSize
- TivoliTransactionMonitorPerformance

---

### Standard connector properties overview

Connectors have two types of configuration properties:

- Standard configuration properties, which are used by the framework
- Application, or connector-specific, configuration properties, which are used by the agent

These properties determine the adapter framework and the agent run-time behavior.

This section describes how to start Connector Configurator and describes characteristics common to all properties. For information on configuration properties specific to a connector, see its adapter user guide.

## Starting Connector Configurator

You configure connector properties from Connector Configurator, which you access from System Manager. For more information on using Connector Configurator, refer to the sections on Connector Configurator in this guide.

Connector Configurator and System Manager run only on the Windows system. If you are running the connector on a UNIX system, you must have a Windows machine with these tools installed.

To set connector properties for a connector that runs on UNIX, you must start up System Manager on the Windows machine, connect to the UNIX integration broker, and bring up Connector Configurator for the connector.

## Configuration property values overview

The connector uses the following order to determine a property's value:

1. Default
2. Repository (valid only if WebSphere InterChange Server (ICS) is the integration broker)
3. Local configuration file
4. Command line

The default length of a property field is 255 characters. There is no limit on the length of a STRING property type. The length of an INTEGER type is determined by the server on which the adapter is running.

A connector obtains its configuration values at startup. If you change the value of one or more connector properties during a run-time session, the property's update method determines how the change takes effect.

The update characteristics of a property, that is, how and when a change to the connector properties takes effect, depend on the nature of the property.

There are four update methods for standard connector properties:

- **Dynamic**  
The new value takes effect immediately after the change is saved in System Manager. However, if the connector is in stand-alone mode (independently of System Manager), for example, if it is running with one of the WebSphere message brokers, you can change properties only through the configuration file. In this case, a dynamic update is not possible.
- **Agent restart (ICS only)**  
The new value takes effect only after you stop and restart the connector agent.
- **Component restart**  
The new value takes effect only after the connector is stopped and then restarted in System Manager. You do not need to stop and restart the agent or the server process.

- **System restart**

The new value takes effect only after you stop and restart the connector agent and the server.

To determine how a specific property is updated, refer to the **Update Method** column in the Connector Configurator window, or see the Update Method column in Table 12 on page 93.

There are three locations in which a standard property can reside. Some properties can reside in more than one location.

- **ReposController**

The property resides in the connector controller and is effective only there. If you change the value on the agent side, it does not affect the controller.

- **ReposAgent**

The property resides in the agent and is effective only there. A local configuration can override this value, depending on the property.

- **LocalConfig**

The property resides in the configuration file for the connector and can act only through the configuration file. The controller cannot change the value of the property, and is not aware of changes made to the configuration file unless the system is redeployed to update the controller explicitly.

---

## Standard properties quick-reference

Table 12 provides a quick-reference to the standard connector configuration properties. Not all connectors require all of these properties, and property settings may differ from integration broker to integration broker.

See the section following the table for a description of each property.

**Note:** In the Notes column in Table 12, the phrase “RepositoryDirectory is set to <REMOTE>” indicates that the broker is InterChange Server. When the broker is WMQI or WAS, the repository directory is set to <ProductDir>\repository

Table 12. Summary of standard configuration properties

Property name	Possible values	Default value	Update method	Notes
AdapterHelpName	One of the valid subdirectories in <ProductDir>\bin\Data\App\Help\ that contains a valid <RegionalSetting> directory	Template name, if valid, or blank field	Component restart	Supported regional settings. Include chs_chn, cht_twn, deu_deu, esn_esp, fra_fra, ita_ita, jpn_jpn, kor_kor, ptb_bra, and enu_usa (default).
AdminInQueue	Valid JMS queue name	<CONNECTORNAME>/ADMININQUEUE	Component restart	This property is valid only when the value of DeliveryTransport is JMS
AdminOutQueue	Valid JMS queue name	<CONNECTORNAME>/ADMINOUTQUEUE	Component restart	This property is valid only when the value of DeliveryTransport is JMS

Table 12. Summary of standard configuration properties (continued)

Property name	Possible values	Default value	Update method	Notes
AgentConnections	1 through 4	1	Component restart	This property is valid only when the value of DeliveryTransport is MQ or IDL, the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
AgentTraceLevel	0 through 5	0	Dynamic if broker is ICS; otherwise Component restart	
ApplicationName	Application name	The value specified for the connector application name	Component restart	
BiDi.Application	Any valid combination of these bidirectional attributes:  1st letter: I,V 2nd letter: L,R 3rd letter: Y, N 4th letter: S, N 5th letter: H, C, N	ILYNN (five letters)	Component restart	This property is valid only if the value of BiDi.Transforma tion is true
BiDi.Broker	Any valid combination of these bidirectional attributes:  1st letter: I,V 2nd letter: L,R 3rd letter: Y, N 4th letter: S, N 5th letter: H, C, N	ILYNN (five letters)	Component restart	This property is valid only if the value of BiDi.Transformation is true. If the value of BrokerType is ICS, the property is read-only.
BiDi.Metadata	Any valid combination of these bidirectional attributes:  1st letter: I,V 2nd letter: L,R 3rd letter: Y, N 4th letter: S, N 5th letter: H, C, N	ILYNN (five letters)	Component restart	This property is valid only if the value of BiDi.Transformation is true.
BiDi.Transformation	true or false	false	Component restart	This property is valid only if the value of BrokerType is not WAS .
BrokerType	ICS, WMQI, WAS	ICS	Component restart	
CharacterEncoding	Any supported code. The list shows this subset: ascii7, ascii8, SJIS, Cp949, GBK, Big5, Cp297, Cp273, Cp280, Cp284, Cp037, Cp437 .	ascii7	Component restart	This property is valid only for C++ connectors.

Table 12. Summary of standard configuration properties (continued)

Property name	Possible values	Default value	Update method	Notes
CommonEventInfrastructure	true or false	false	Component restart	
CommonEventInfrastructureURL	A URL string, for example, corbaloc:iiop:host:2809.	No default value.	Component restart	This property is valid only if the value of CommonEventInfrastructure is true.
ConcurrentEventTriggeredFlows	1 through 32,767	1	Component restart	This property is valid only if the value of RepositoryDirectory is set to <REMOTE> and the value of BrokerType is ICS.
ContainerManagedEvents	Blank or JMS	Blank	Component restart	This property is valid only when the value of Delivery Transport is JMS.
ControllerEventSequencing	true or false	true	Dynamic	This property is valid only if the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
ControllerStoreAndForwardMode	true or false	true	Dynamic	This property is valid only if the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
ControllerTraceLevel	0 through 5	0	Dynamic	This property is valid only if the value of RepositoryDirectory is set to <REMOTE> and the value of BrokerType is ICS.
DeliveryQueue	Any valid JMS queue name	<CONNECTORNAME>/DELIVERYQUEUE	Component restart	This property is valid only when the value of Delivery Transport is JMS.
DeliveryTransport	MQ, IDL, or JMS	IDL when the value of RepositoryDirectory is <REMOTE>, otherwise JMS	Component restart	If the value of RepositoryDirectory is not <REMOTE>, the only valid value for this property is JMS.
DuplicateEventElimination	true or false	false	Component restart	This property is valid only if the value of DeliveryTransport is JMS.
EnableOidForFlowMonitoring	true or false	false	Component restart	This property is valid only if the value of BrokerType is ICS.
FaultQueue	Any valid queue name.	<CONNECTORNAME>/FAULTQUEUE	Component restart	This property is valid only if the value of DeliveryTransport is JMS.
jms.FactoryClassName	CxCommon.Messaging.jms.IBMMQSeriesFactory, CxCommon.Messaging.jms.SonicMQFactory, or any Java class name	CxCommon.Messaging.jms.IBMMQSeriesFactory	Component restart	This property is valid only if the value of DeliveryTransport is JMS.

Table 12. Summary of standard configuration properties (continued)

Property name	Possible values	Default value	Update method	Notes
jms.ListenerConcurrency	1 through 32767	1	Component restart	This property is valid only if the value of <code>jms.TransportOptimized</code> is true.
jms.MessageBrokerName	If the value of <code>jms.FactoryClassName</code> is IBM, use <code>crossworlds.queue.manager</code> .	<code>crossworlds.queue.manager</code>	Component restart	This property is valid only if the value of <code>DeliveryTransport</code> is JMS.
jms.NumConcurrent Requests	Positive integer	10	Component restart	This property is valid only if the value of <code>DeliveryTransport</code> is JMS.
jms.Password	Any valid password		Component restart	This property is valid only if the value of <code>DeliveryTransport</code> is JMS.
jms.TransportOptimized	true or false	false	Component restart	This property is valid only if the value of <code>DeliveryTransport</code> is JMS and the value of <code>BrokerType</code> is ICS.
jms.UserName	Any valid name		Component restart	This property is valid only if the value of <code>DeliveryTransport</code> is JMS.
JvmMaxHeapSize	Heap size in megabytes	128m	Component restart	This property is valid only if the value of <code>RepositoryDirectory</code> is set to <REMOTE> and the value of <code>BrokerType</code> is ICS.
JvmMaxNativeStackSize	Size of stack in kilobytes	128k	Component restart	This property is valid only if the value of <code>RepositoryDirectory</code> is set to <REMOTE> and the value of <code>BrokerType</code> is ICS.
JvmMinHeapSize	Heap size in megabytes	1m	Component restart	This property is valid only if the value of <code>RepositoryDirectory</code> is set to <REMOTE> and the value of <code>BrokerType</code> is ICS.
ListenerConcurrency	1 through 100	1	Component restart	This property is valid only if the value of <code>DeliveryTransport</code> is MQ.
Locale	This is a subset of the supported locales: en_US, ja_JP, ko_KR, zh_CN, zh_TW, fr_FR, de_DE, it_IT, es_ES, pt_BR	en_US	Component restart	



Table 12. Summary of standard configuration properties (continued)

Property name	Possible values	Default value	Update method	Notes
LogAtInterchangeEnd	true or false	false	Component restart	This property is valid only if the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
MaxEventCapacity	1 through 2147483647	2147483647	Dynamic	This property is valid only if the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
MessageFileName	Valid file name	InterchangeSystem.txt	Component restart	
MonitorQueue	Any valid queue name	<CONNECTORNAME> /MONITORQUEUE	Component restart	This property is valid only if the value of DuplicateEventElimination is true and ContainerManagedEvents has no value.
OADAutoRestartAgent	true or false	false	Dynamic	This property is valid only if the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
OADMaxNumRetry	A positive integer	1000	Dynamic	This property is valid only if the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
OADRetryTimeInterval	A positive integer in minutes	10	Dynamic	This property is valid only if the value of Repository Directory is set to <REMOTE> and the value of BrokerType is ICS.
PollEndTime	HH = 0 through 23 MM = 0 through 59	HH:MM	Component restart	
PollFrequency	A positive integer (in milliseconds)	10000	Dynamic if broker is ICS; otherwise Component restart	
PollQuantity	1 through 500	1	Agent restart	This property is valid only if the value of ContainerManagedEvents is JMS.
PollStartTime	HH = 0 through 23 MM = 0 through 59	HH:MM	Component restart	
RepositoryDirectory	<REMOTE> if the broker is ICS; otherwise any valid local directory.	For ICS, the value is set to <REMOTE>  For WMQI and WAS, the value is <ProductDir>\repository	Agent restart	

Table 12. Summary of standard configuration properties (continued)

Property name	Possible values	Default value	Update method	Notes
RequestQueue	Valid JMS queue name	<CONNECTORNAME>/REQUESTQUEUE	Component restart	This property is valid only if the value of DeliveryTransport is JMS
ResponseQueue	Valid JMS queue name	<CONNECTORNAME>/RESPONSEQUEUE	Component restart	This property is valid only if the value of DeliveryTransport is JMS.
RestartRetryCount	0 through 99	3	Dynamic if ICS; otherwise Component restart	
RestartRetryInterval	A value in minutes from 1 through 2147483647	1	Dynamic if ICS; otherwise Component restart	
ResultSetEnabled	true or false	false	Component restart	Used only by connectors that support DB2II.  This property is valid only if the value of DeliveryTransport is JMS, and the value of BrokerType is WMQI.
ResultSetSize	Positive integer	0 (means the results set size is unlimited)	Component restart	Used only by connectors that support DB2II.  This property is valid only if the value of ResultSetEnabled is true.
RHF2MessageDomain	mrm or xml	mrm	Component restart	This property is valid only if the value of DeliveryTransport is JMS and the value of WireFormat is CwXML.
SourceQueue	Any valid WebSphere MQ queue name	<CONNECTORNAME>/SOURCEQUEUE	Agent restart	This property is valid only if the value of ContainerManagedEvents is JMS.
SynchronousRequest Queue	Any valid queue name.	<CONNECTORNAME>/SYNCHRONOUSREQUEST QUEUE	Component restart	This property is valid only if the value of DeliveryTransport is JMS.
SynchronousRequest Timeout	0 to any number (milliseconds)	0	Component restart	This property is valid only if the value of DeliveryTransport is JMS.
SynchronousResponse Queue	Any valid queue name	<CONNECTORNAME>/SYNCHRONOUSRESPONSE QUEUE	Component restart	This property is valid only if the value of DeliveryTransport is JMS.
TivoliMonitorTransaction Performance	true or false	false	Component restart	

Table 12. Summary of standard configuration properties (continued)

Property name	Possible values	Default value	Update method	Notes
WireFormat	CwXML or CwB0	CwXML	Agent restart	The value of this property must be CwXML if the value of RepositoryDirectory is not set to <REMOTE>. The value must be CwB0 if the value of RepositoryDirectory is set to <REMOTE>.
WsifSynchronousRequest Timeout	0 to any number (milliseconds)	0	Component restart	This property is valid only if the value of BrokerType is WAS.
XMLNamespaceFormat	short or long	short	Agent restart	This property is valid only if the value of BrokerType is WMQI or WAS

## Standard properties

This section describes the standard connector configuration properties.

### AdapterHelpName

The AdapterHelpName property is the name of a directory in which connector-specific extended help files are located. The directory must be located in <ProductDir>\bin\Data\App\Help and must contain at least the language directory enu\_usa. It may contain other directories according to locale.

The default value is the template name if it is valid, or it is blank.

### AdminInQueue

The AdminInQueue property specifies the queue that is used by the integration broker to send administrative messages to the connector.

The default value is <CONNECTORNAME>/ADMININQUEUE

### AdminOutQueue

The AdminOutQueue property specifies the queue that is used by the connector to send administrative messages to the integration broker.

The default value is <CONNECTORNAME>/ADMINOUTQUEUE

### AgentConnections

The AgentConnections property controls the number of ORB (Object Request Broker) connections opened when the ORB initializes.

It is valid only if the value of the RepositoryDirectory is set to <REMOTE> and the value of the DeliveryTransport property is MQ or IDL.

The default value of this property is 1.

## AgentTraceLevel

The AgentTraceLevel property sets the level of trace messages for the application-specific component. The connector delivers all trace messages applicable at the tracing level set and lower.

The default value is 0.

## ApplicationName

The ApplicationName property uniquely identifies the name of the connector application. This name is used by the system administrator to monitor the integration environment. This property must have a value before you can run the connector.

The default is the name of the connector.

## BiDi.Application

The BiDi.Application property specifies the bidirectional format for data coming from an external application into the adapter in the form of any business object supported by this adapter. The property defines the bidirectional attributes of the application data. These attributes are:

- Type of text: implicit or visual (I or V)
- Text direction: left-to-right or right-to-left (L or R)
- Symmetric swapping: on or off (Y or N)
- Shaping (Arabic): on or off (S or N)
- Numerical shaping (Arabic): Hindi, contextual, or nominal (H, C, or N)

This property is valid only if the BiDi.Transformation property value is set to true.

The default value is ILYNN (implicit, left-to-right, on, off, nominal).

## BiDi.Broker

The BiDi.Broker property specifies the bidirectional format for data sent from the adapter to the integration broker in the form of any supported business object. It defines the bidirectional attributes of the data, which are as listed under BiDi.Application above.

This property is valid only if the BiDi.Transformation property value is set to true. If the BrokerType property is ICS, the property value is read-only.

The default value is ILYNN (implicit, left-to-right, on, off, nominal).

## BiDi.Metadata

The BiDi.Metadata property defines the bidirectional format or attributes for the metadata, which is used by the connector to establish and maintain a link to the external application. The attribute settings are specific to each adapter using the bidirectional capabilities. If your adapter supports bidirectional processing, refer to section on adapter-specific properties for more information.

This property is valid only if the BiDi.Transformation property value is set to true.

The default value is ILYNN (implicit, left-to-right, on, off, nominal).

## BiDi.Transformation

The BiDi.Transformation property defines whether the system performs a bidirectional transformation at run time.

If the property value is set to true, the BiDi.Application, BiDi.Broker, and BiDi.Metadata properties are available. If the property value is set to false, they are hidden.

The default value is false.

## BrokerType

The BrokerType property identifies the integration broker type that you are using. The possible values are ICS, WMQI (for WMQI, WMQIB or WBIMB), or WAS.

## CharacterEncoding

The CharacterEncoding property specifies the character code set used to map from a character (such as a letter of the alphabet, a numeric representation, or a punctuation mark) to a numeric value.

**Note:** Java-based connectors do not use this property. C++ connectors use the value `ascii7` for this property.

By default, only a subset of supported character encodings is displayed. To add other supported values to the list, you must manually modify the `\Data\Std\stdConnProps.xml` file in the product directory (`<ProductDir>`). For more information, see the Connector Configurator appendix in this guide.

## CommonEventInfrastructure

The Common Event Infrastructure (CEI) is a simple event management function handling generated events. The CommonEventInfrastructure property specifies whether the CEI should be invoked at run time.

The default value is false.

## CommonEventInfrastructureContextURL

The CommonEventInfrastructureContextURL is used to gain access to the WAS server that executes the Common Event Infrastructure (CEI) server application. This property specifies the URL to be used.

This property is valid only if the value of CommonEventInfrastructure is set to true.

The default value is a blank field.

## ConcurrentEventTriggeredFlows

The ConcurrentEventTriggeredFlows property determines how many business objects can be concurrently processed by the connector for event delivery. You set the value of this attribute to the number of business objects that are mapped and delivered concurrently. For example, if you set the value of this property to 5, five business objects are processed concurrently.

Setting this property to a value greater than 1 allows a connector for a source application to map multiple event business objects at the same time and deliver

them to multiple collaboration instances simultaneously. This speeds delivery of business objects to the integration broker, particularly if the business objects use complex maps. Increasing the arrival rate of business objects to collaborations can improve overall performance in the system.

To implement concurrent processing for an entire flow (from a source application to a destination application), the following properties must be configured:

- The collaboration must be configured to use multiple threads by setting its Maximum number of concurrent events property high enough to use multiple threads.
- The destination application's application-specific component must be configured to process requests concurrently. That is, it must be multithreaded, or it must be able to use connector agent parallelism and be configured for multiple processes. The Parallel Process Degree configuration property must be set to a value larger than 1.

The ConcurrentEventTriggeredFlows property has no effect on connector polling, which is single-threaded and is performed serially.

This property is valid only if the value of the RepositoryDirectory property is set to <REMOTE>.

The default value is 1.

## ContainerManagedEvents

The ContainerManagedEvents property allows a JMS-enabled connector with a JMS event store to provide guaranteed event delivery, in which an event is removed from the source queue and placed on the destination queue as one JMS transaction.

When this property is set to JMS, the following properties must also be set to enable guaranteed event delivery:

- PollQuantity = 1 to 500
- SourceQueue = /SOURCEQUEUE

You must also configure a data handler with the MimeType and DHClass (data handler class) properties. You can also add DataHandlerConfigMOName (the meta-object name, which is optional). To set those values, use the **Data Handler** tab in Connector Configurator.

Although these properties are adapter-specific, here are some example values:

- MimeType = text/xml
- DHClass = com.crossworlds.DataHandlers.text.xml
- DataHandlerConfigMOName = MO\_DataHandler\_Default

The fields for these values in the **Data Handler** tab are displayed only if you have set the ContainerManagedEvents property to the value JMS.

**Note:** When ContainerManagedEvents is set to JMS, the connector does not call its pollForEvents() method, thereby disabling that method's functionality.

The ContainerManagedEvents property is valid only if the value of the DeliveryTransport property is set to JMS.

There is no default value.

## ControllerEventSequencing

The ControllerEventSequencing property enables event sequencing in the connector controller.

This property is valid only if the value of the RepositoryDirectory property is set to set to <REMOTE> (BrokerType is ICS).

The default value is true.

## ControllerStoreAndForwardMode

The ControllerStoreAndForwardMode property sets the behavior of the connector controller after it detects that the destination application-specific component is unavailable.

If this property is set to true and the destination application-specific component is unavailable when an event reaches ICS, the connector controller blocks the request to the application-specific component. When the application-specific component becomes operational, the controller forwards the request to it.

However, if the destination application's application-specific component becomes unavailable after the connector controller forwards a service call request to it, the connector controller fails the request.

If this property is set to false, the connector controller begins failing all service call requests as soon as it detects that the destination application-specific component is unavailable.

This property is valid only if the value of the RepositoryDirectory property is set to <REMOTE> (the value of the BrokerType property is ICS).

The default value is true.

## ControllerTraceLevel

The ControllerTraceLevel property sets the level of trace messages for the connector controller.

This property is valid only if the value of the RepositoryDirectory property is set to set to <REMOTE>.

The default value is 0.

## DeliveryQueue

The DeliveryQueue property defines the queue that is used by the connector to send business objects to the integration broker.

This property is valid only if the value of the DeliveryTransport property is set to JMS.

The default value is <CONNECTORNAME>/DELIVERYQUEUE.

## DeliveryTransport

The DeliveryTransport property specifies the transport mechanism for the delivery of events. Possible values are MQ for WebSphere MQ, IDL for CORBA IIOP, or JMS for Java Messaging Service.

- If the value of the RepositoryDirectory property is set to <REMOTE>, the value of the DeliveryTransport property can be MQ, IDL, or JMS, and the default is IDL.
- If the value of the RepositoryDirectory property is a local directory, the value can be only JMS.

The connector sends service-call requests and administrative messages over CORBA IIOP if the value of the RepositoryDirectory property is MQ or IDL.

The default value is JMS.

### WebSphere MQ and IDL

Use WebSphere MQ rather than IDL for event delivery transport, unless you must have only one product. WebSphere MQ offers the following advantages over IDL:

- Asynchronous communication:  
WebSphere MQ allows the application-specific component to poll and persistently store events even when the server is not available.
- Server side performance:  
WebSphere MQ provides faster performance on the server side. In optimized mode, WebSphere MQ stores only the pointer to an event in the repository database, while the actual event remains in the WebSphere MQ queue. This prevents writing potentially large events to the repository database.
- Agent side performance:  
WebSphere MQ provides faster performance on the application-specific component side. Using WebSphere MQ, the connector polling thread picks up an event, places it in the connector queue, then picks up the next event. This is faster than IDL, which requires the connector polling thread to pick up an event, go across the network into the server process, store the event persistently in the repository database, then pick up the next event.

### JMS

The JMS transport mechanism enables communication between the connector and client connector framework using Java Messaging Service (JMS).

If you select JMS as the delivery transport, additional JMS properties such as `jms.MessageBrokerName`, `jms.FactoryClassName`, `jms.Password`, and `jms.UserName` are listed in Connector Configurator. The properties `jms.MessageBrokerName` and `jms.FactoryClassName` are required for this transport.

There may be a memory limitation if you use the JMS transport mechanism for a connector in the following environment:

- AIX 5.0
- WebSphere MQ 5.3.0.1
- ICS is the integration broker

In this environment, you may experience difficulty starting both the connector controller (on the server side) and the connector (on the client side) due to memory use within the WebSphere MQ client. If your installation uses less than 768MB of process heap size, set the following variable and property:

- Set the `LDR_CNTRL` environment variable in the `CWSharedEnv.sh` script.



This script is located in the `\bin` directory below the product directory (`<ProductDir>`). Using a text editor, add the following line as the first line in the `CWSharedEnv.sh` script:

```
export LDR_CNTRL=MAXDATA=0x30000000
```

This line restricts heap memory usage to a maximum of 768 MB (3 segments \* 256 MB). If the process memory grows larger than this limit, page swapping can occur, which can adversely affect the performance of your system.

- Set the value of the `IPCCBaseAddress` property to 11 or 12. For more information on this property, see the *System Installation Guide for UNIX*.

## DuplicateEventElimination

When the value of this property is true, a JMS-enabled connector can ensure that duplicate events are not delivered to the delivery queue. To use this feature, during connector development, the connector must have a unique event identifier set as the business object `ObjectEventId` attribute in the application-specific code.

**Note:** When the value of this property is true, the `MonitorQueue` property must be enabled to provide guaranteed event delivery.

The default value is false.

## EnableOidForFlowMonitoring

When the value of this property is true, the adapter runtime will mark the incoming `ObjectEventID` as a foreign key for flow monitoring.

This property is only valid if the `BrokerType` property is set to ICS.

The default value is false.

## FaultQueue

If the connector experiences an error while processing a message, it moves the message (and a status indicator and description of the problem) to the queue specified in the `FaultQueue` property.

The default value is `<CONNECTORNAME>/FAULTQUEUE`.

## jms.FactoryClassName

The `jms.FactoryClassName` property specifies the class name to instantiate for a JMS provider. This property must be set if the value of the `DeliveryTransport` property is JMS.

The default is `CxCommon.Messaging.jms.IBMMQSeriesFactory`.

## jms.ListenerConcurrency

The `jms.ListenerConcurrency` property specifies the number of concurrent listeners for the JMS controller. It specifies the number of threads that fetch and process messages concurrently within a controller.

This property is valid only if the value of the `jms.OptimizedTransport` property is true.

The default value is 1.

## **jms.MessageBrokerName**

The `jms.MessageBrokerName` specifies the broker name to use for the JMS provider. You must set this connector property if you specify JMS as the delivery transport mechanism (in the `DeliveryTransport` property).

When you connect to a remote message broker, this property requires the following values:

*QueueMgrName:Channel:HostName:PortNumber*

where:

*QueueMgrName* is the name of the queue manager.

*Channel* is the channel used by the client.

*HostName* is the name of the machine where the queue manager is to reside.

*PortNumber* is the port number used by the queue manager for listening

For example:

```
jms.MessageBrokerName = WBIMB.Queue.Manager:CHANNEL1:RemoteMachine:1456
```

The default value is `crossworlds.queue.manager`. Use the default when connecting to a local message broker.

## **jms.NumConcurrentRequests**

The `jms.NumConcurrentRequests` property specifies the maximum number of concurrent service call requests that can be sent to a connector at the same time. Once that maximum is reached, new service calls are blocked and must wait for another request to complete before proceeding.

The default value is 10.

## **jms.Password**

The `jms.Password` property specifies the password for the JMS provider. A value for this property is optional.

There is no default value.

## **jms.TransportOptimized**

The `jms.TransportOptimized` property determines if the WIP (work in progress) is optimized. You must have a WebSphere MQ provider to optimize the WIP. For optimized WIP to operate, the messaging provider must be able to:

1. Read a message without taking it off the queue
2. Delete a message with a specific ID without transferring the entire message to the receiver's memory space
3. Read a message by using a specific ID (needed for recovery purposes)
4. Track the point at which events that have not been read appear.

The JMS APIs cannot be used for optimized WIP because they do not meet conditions 2 and 4 above, but the MQ Java APIs meet all four conditions, and hence are required for optimized WIP.

This property is valid only if the value of `DeliveryTransport` is JMS and the value of `BrokerType` is ICS.

The default value is false.

## **jms.UserName**

the `jms.UserName` property specifies the user name for the JMS provider. A value for this property is optional.

There is no default value.

## **JvmMaxHeapSize**

The `JvmMaxHeapSize` property specifies the maximum heap size for the agent (in megabytes).

This property is valid only if the value for the `RepositoryDirectory` property is set to `<REMOTE>`.

The default value is 128m.

## **JvmMaxNativeStackSize**

The `JvmMaxNativeStackSize` property specifies the maximum native stack size for the agent (in kilobytes).

This property is valid only if the value for the `RepositoryDirectory` property is set to `<REMOTE>`.

The default value is 128k.

## **JvmMinHeapSize**

The `JvmMinHeapSize` property specifies the minimum heap size for the agent (in megabytes).

This property is valid only if the value for the `RepositoryDirectory` property is set to `<REMOTE>`.

The default value is 1m.

## **ListenerConcurrency**

The `ListenerConcurrency` property supports multithreading in WebSphere MQ Listener when ICS is the integration broker. It enables batch writing of multiple events to the database, thereby improving system performance.

This property is valid only with connectors that use MQ transport. The value of the `DeliveryTransport` property must be MQ.

The default value is 1.

## **Locale**

The `Locale` property specifies the language code, country or territory, and, optionally, the associated character code set. The value of this property determines cultural conventions such as collation and sort order of data, date and time formats, and the symbols used in monetary specifications.

A locale name has the following format:

*ll\_TT.codeset*

where:

*ll* is a two-character language code (in lowercase letters)

*TT* is a two-letter country or territory code (in uppercase letters)

*codeset* is the name of the associated character code set (may be optional).

By default, only a subset of supported locales are listed. To add other supported values to the list, you modify the `\Data\Std\stdConnProps.xml` file in the `<ProductDir>\bin` directory. For more information, refer to the Connector Configurator appendix in this guide.

If the connector has not been internationalized, the only valid value for this property is `en_US`. To determine whether a specific connector has been globalized, refer to the user guide for that adapter.

The default value is `en_US`.

## LogAtInterchangeEnd

The `LogAtInterchangeEnd` property specifies whether to log errors to the log destination of the integration broker.

Logging to the log destination also turns on e-mail notification, which generates e-mail messages for the recipient specified as the value of `MESSAGE_RECIPIENT` in the `InterchangeSystem.cfg` file when errors or fatal errors occur. For example, when a connector loses its connection to the application, if the value of `LogAtInterChangeEnd` is `true`, an e-mail message is sent to the specified message recipient.

This property is valid only if the value of the `RespositoryDirectory` property is set to `<REMOTE>` (the value of `BrokerType` is `ICS`).

The default value is `false`.

## MaxEventCapacity

The `MaxEventCapacity` property specifies maximum number of events in the controller buffer. This property is used by the flow control feature.

This property is valid only if the value of the `RespositoryDirectory` property is set to `<REMOTE>` (the value of `BrokerType` is `ICS`).

The value can be a positive integer between 1 and 2147483647.

The default value is 2147483647.

## MessageFileName

The `MessageFileName` property specifies the name of the connector message file. The standard location for the message file is `\connectors\messages` in the product directory. Specify the message file name in an absolute path if the message file is not located in the standard location.

If a connector message file does not exist, the connector uses `InterchangeSystem.txt` as the message file. This file is located in the product directory.

**Note:** To determine whether a connector has its own message file, see the individual adapter user guide.

The default value is `InterchangeSystem.txt`.

## MonitorQueue

The `MonitorQueue` property specifies the logical queue that the connector uses to monitor duplicate events.

It is valid only if the value of the `DeliveryTransport` property is `JMS` and the value of the `DuplicateEventElimination` is `true`.

The default value is `<CONNECTORNAME>/MONITORQUEUE`

## OADAutoRestartAgent

the `OADAutoRestartAgent` property specifies whether the connector uses the automatic and remote restart feature. This feature uses the WebSphere MQ-triggered Object Activation Daemon (OAD) to restart the connector after an abnormal shutdown, or to start a remote connector from System Monitor.

This property must be set to `true` to enable the automatic and remote restart feature. For information on how to configure the WebSphere MQ-triggered OAD feature, see the *Installation Guide for Windows* or *for UNIX*.

This property is valid only if the value of the `RespositoryDirectory` property is set to `<REMOTE>` (the value of `BrokerType` is `ICS`).

The default value is `false`.

## OADMaxNumRetry

The `OADMaxNumRetry` property specifies the maximum number of times that the WebSphere MQ-triggered Object Activation Daemon (OAD) automatically attempts to restart the connector after an abnormal shutdown. The `OADAutoRestartAgent` property must be set to `true` for this property to take effect.

This property is valid only if the value of the `RespositoryDirectory` property is set to `<REMOTE>` (the value of `BrokerType` is `ICS`).

The default value is `1000`.

## OADRetryTimeInterval

The `OADRetryTimeInterval` property specifies the number of minutes in the retry-time interval for the WebSphere MQ-triggered Object Activation Daemon (OAD). If the connector agent does not restart within this retry-time interval, the connector controller asks the OAD to restart the connector agent again. The OAD repeats this retry process as many times as specified by the `OADMaxNumRetry` property. The `OADAutoRestartAgent` property must be set to `true` for this property to take effect.

This property is valid only if the value of the `RespositoryDirectory` property is set to `<REMOTE>` (the value of `BrokerType` is `ICS`).

The default value is `10`.

## PollEndTime

The `PollEndTime` property specifies the time to stop polling the event queue. The format is `HH:MM`, where `HH` is 0 through 23 hours, and `MM` represents 0 through 59 minutes.

You must provide a valid value for this property. The default value is `HH:MM` without a value, and it must be changed.

If the adapter runtime detects:

- `PollStartTime` set and `PollEndTime` not set, or
- `PollEndTime` set and `PollStartTime` not set

it will poll using the value configured for the `PollFrequency` property.

## PollFrequency

The `PollFrequency` property specifies the amount of time (in milliseconds) between the end of one polling action and the start of the next polling action. This is not the interval between polling actions. Rather, the logic is as follows:

- Poll to obtain the number of objects specified by the value of the `PollQuantity` property.
- Process these objects. For some connectors, this may be partly done on separate threads, which execute asynchronously to the next polling action.
- Delay for the interval specified by the `PollFrequency` property.
- Repeat the cycle.

The following values are valid for this property:

- The number of milliseconds between polling actions (a positive integer).
- The word `no`, which causes the connector not to poll. Enter the word in lowercase.
- The word `key`, which causes the connector to poll only when you type the letter `p` in the connector Command Prompt window. Enter the word in lowercase.

The default is 10000.

**Important:** Some connectors have restrictions on the use of this property. Where they exist, these restrictions are documented in the chapter on installing and configuring the adapter.

## PollQuantity

The `PollQuantity` property designates the number of items from the application that the connector polls for. If the adapter has a connector-specific property for setting the poll quantity, the value set in the connector-specific property overrides the standard property value.

This property is valid only if the value of the `DeliveryTransport` property is `JMS`, and the `ContainerManagedEvents` property has a value.

An e-mail message is also considered an event. The connector actions are as follows when it is polled for e-mail.

- When it is polled once, the connector detects the body of the message, which it reads as an attachment. Since no data handler was specified for this mime type, it will then ignore the message.

- The connector processes the first BO attachment. The data handler is available for this MIME type, so it sends the business object to Visual Test Connector.
- When it is polled for the second time, the connector processes the second BO attachment. The data handler is available for this MIME type, so it sends the business object to Visual Test Connector.
- Once it is accepted, the third BO attachment should be transmitted.

## PollStartTime

The PollStartTime property specifies the time to start polling the event queue. The format is *HH:MM*, where *HH* is 0 through 23 hours, and *MM* represents 0 through 59 minutes.

You must provide a valid value for this property. The default value is *HH:MM* without a value, and it must be changed.

If the adapter runtime detects:

- PollStartTime set and PollEndTime not set, or
- PollEndTime set and PollStartTime not set

it will poll using the value configured for the PollFrequency property.

## RepositoryDirectory

The RepositoryDirectory property is the location of the repository from which the connector reads the XML schema documents that store the metadata for business object definitions.

If the integration broker is ICS, this value must be set to set to *<REMOTE>* because the connector obtains this information from the InterChange Server repository.

When the integration broker is a WebSphere message broker or WAS, this value is set to *<ProductDir>\repository* by default. However, it may be set to any valid directory name.

## RequestQueue

The RequestQueue property specifies the queue that is used by the integration broker to send business objects to the connector.

This property is valid only if the value of the DeliveryTransport property is JMS.

The default value is *<CONNECTORNAME>/REQUESTQUEUE*.

## ResponseQueue

The ResponseQueue property specifies the JMS response queue, which delivers a response message from the connector framework to the integration broker. When the integration broker is ICS, the server sends the request and waits for a response message in the JMS response queue.

This property is valid only if the value of the DeliveryTransport property is JMS.

The default value is *<CONNECTORNAME>/RESPONSEQUEUE*.

## RestartRetryCount

The RestartRetryCount property specifies the number of times the connector attempts to restart itself. When this property is used for a connector that is connected in parallel, it specifies the number of times the master connector application-specific component attempts to restart the client connector application-specific component.

The default value is 3.

## RestartRetryInterval

The RestartRetryInterval property specifies the interval in minutes at which the connector attempts to restart itself. When this property is used for a connector that is linked in parallel, it specifies the interval at which the master connector application-specific component attempts to restart the client connector application-specific component.

Possible values for the property range from 1 through 2147483647.

The default value is 1.

## ResultsSetEnabled

The ResultsSetEnabled property enables or disables results set support when Information Integrator is active. This property can be used only if the adapter supports DB2 Information Integrator.

This property is valid only if the value of the DeliveryTransport property is JMS, and the value of BrokerType is WMQI.

The default value is false.

## ResultsSetSize

The ResultsSetSize property defines the maximum number of business objects that can be returned to Information Integrator. This property can be used only if the adapter supports DB2 Information Integrator.

This property is valid only if the value of the ResultsSetEnabled property is true.

The default value is 0. This means that the size of the results set is unlimited.

## RHF2MessageDomain

The RHF2MessageDomain property allows you to configure the value of the field domain name in the JMS header. When data is sent to a WebSphere message broker over JMS transport, the adapter framework writes JMS header information, with a domain name and a fixed value of mrm. A configurable domain name lets you track how the WebSphere message broker processes the message data.

This is an example header:

```
<mcd><Msd>mrm</Msd><Set>3</Set><Type>  
Retek_POPhyDesc</Type><Fmt>CwXML</Fmt></mcd>
```

This property is valid only if the value of BrokerType is WMQI or WAS. Also, it is valid only if the value of the DeliveryTransport property is JMS, and the value of the WireFormat property is CwXML.



Possible values are `mrm` and `xml`. The default value is `mrm`.

## SourceQueue

The `SourceQueue` property designates the JMS source queue for the connector framework in support of guaranteed event delivery for JMS-enabled connectors that use a JMS event store. For further information, see “`ContainerManagedEvents`” on page 102.

This property is valid only if the value of `DeliveryTransport` is `JMS`, and a value for `ContainerManagedEvents` is specified.

The default value is `<CONNECTORNAME>/SOURCEQUEUE`.

## SynchronousRequestQueue

The `SynchronousRequestQueue` property delivers request messages that require a synchronous response from the connector framework to the broker. This queue is necessary only if the connector uses synchronous execution. With synchronous execution, the connector framework sends a message to the synchronous request queue and waits for a response from the broker on the synchronous response queue. The response message sent to the connector has a correlation ID that matches the ID of the original message.

This property is valid only if the value of `DeliveryTransport` is `JMS`.

The default value is `<CONNECTORNAME>/SYNCHRONOUSREQUESTQUEUE`

## SynchronousRequestTimeout

The `SynchronousRequestTimeout` property specifies the time in milliseconds that the connector waits for a response to a synchronous request. If the response is not received within the specified time, the connector moves the original synchronous request message (and error message) to the fault queue.

This property is valid only if the value of `DeliveryTransport` is `JMS`.

The default value is `0`.

## SynchronousResponseQueue

The `SynchronousResponseQueue` property delivers response messages in reply to a synchronous request from the broker to the connector framework. This queue is necessary only if the connector uses synchronous execution.

This property is valid only if the value of `DeliveryTransport` is `JMS`.

The default is `<CONNECTORNAME>/SYNCHRONOUSRESPONSEQUEUE`

## TivoliMonitorTransactionPerformance

The `TivoliMonitorTransactionPerformance` property specifies whether IBM Tivoli Monitoring for Transaction Performance (ITMTP) is invoked at run time.

The default value is `false`.

## WireFormat

The `WireFormat` property specifies the message format on the transport:

- If the value of the RepositoryDirectory property is a local directory, the value is CwXML.
- If the value of the RepositoryDirectory property is a remote directory, the value is CwBO.

## **WsifSynchronousRequestTimeout**

The WsifSynchronousRequestTimeout property specifies the time in milliseconds that the connector waits for a response to a synchronous request. If the response is not received within the specified time, the connector moves the original synchronous request message (and an error message) to the fault queue.

This property is valid only if the value of BrokerType is WAS.

The default value is 0.

## **XMLNamespaceFormat**

The XMLNamespaceFormat property specifies short or long namespaces in the XML format of business object definitions.

This property is valid only if the value of BrokerType is set to WMQI or WAS.

The default value is short.

---

## Appendix B. Application Response Measurement

This adapter is compatible with the Application Response Measurement application programming interface (API), an API that allows applications to be managed for availability, service level agreements, and capacity planning. An ARM-instrumented application can participate in IBM Tivoli Monitoring for Transaction Performance, allowing collection and review of data concerning transaction metrics.

---

### Application Response Measurement instrumentation support

This adapter is compatible with the Application Response Measurement application programming interface (API), an API that allows applications to be managed for availability, service level agreements, and capacity planning. An ARM-instrumented application can participate in IBM Tivoli Monitoring for Transaction Performance, allowing collection and review of data concerning transaction metrics.

#### Required software

In addition to the software prerequisites required for the adapter, you must have the following installed for ARM to operate:

- WebSphere Application Server 5.0.1 (contains the IBM Tivoli Monitoring for Transaction Performance server). This does not have to be installed on the same system as the adapter.
- IBM Tivoli Monitoring for Transaction Performance v. 5.2 Fixpack 1. This must be installed on the same system on which the adapter is installed and configured to point to the system on which the IBM Tivoli Monitoring for Transaction Performance server resides.

Application Response Measurement support is available using any integration broker supported with this release.

**Note:** Application Response Measurement instrumentation is supported on all operating systems supported with this IBM WebSphere Business Integration Adapters release *except* HP-UX (any version) and Red Hat Linux 3.0.

#### Enabling Application Response Measurement

ARM instrumentation is enabled via by setting the standard property `TivoliMonitorTransactionPerformance` in Connector Configurator to "True." By default ARM support is not enabled. (Refer to the "Standard Properties" appendix of this document for more information.)

#### Transaction monitoring

When ARM is enabled, the transactions that are monitored are service events and event deliveries. The transaction is measured from the start of a service request or event delivery to the end of the service request or event delivery. The name of the transaction displayed on the Tivoli Monitoring for Transaction Performance console will start with either SERVICE REQUEST or EVENT DELIVERY. The next part of the name will be the business object verb (such as CREATE, RETRIEVE, UPDATE or DELETE). The final part of the name will be the business object name such as "EMPLOYEE."

For example, the name of a transaction for an event delivery for creation of an employee might be EVENT DELIVERY CREATE EMPLOYEE. Another might be SERVICE REQUEST UPDATE ORDER.

The following metrics are collected by default for each type of service request or event delivery:

- Minimum transaction time
- Maximum transaction time
- Average transaction time
- Total transaction runs

You (or the system administrator of the WebSphere Application Server) can select which of these metrics to display, for which adapter events, by configuring Discovery Policies and Listener Policies for particular transactions from within the Tivoli Monitoring for Transaction Performance console. (Refer to “For more information.”)

## **For more information**

Refer to the IBM Tivoli Monitoring for Transaction Performance documentation for more information. In particular, refer to the *IBM Tivoli Monitoring for Transaction Performance User's Guide* for information about monitoring and managing the metrics generated by the adapter.

---

## Appendix C. Common Event Infrastructure

WebSphere Business Integration Server Foundation includes the Common Event Infrastructure Server Application, which is required for Common Event Infrastructure to operate. The WebSphere Application Server Foundation can be installed on any system (it does not have to be the same machine on which the adapter is installed.)

The WebSphere Application Server Application Client includes the libraries required for interaction between the adapter and the Common Event Infrastructure Server Application. You must install WebSphere Application Server Application Client on the same system on which you install the adapter. The adapter connects to the WebSphere Application Server (within the WebSphere Business Integration Server Foundation) by means of a configurable URL.

Common Event Infrastructure support is available using any integration broker supported with this release.

---

### Required software

In addition to the software prerequisites required for the adapter, you must have the following installed for Common Event Infrastructure to operate:

- WebSphere Business Integration Server Foundation 5.1.1
- WebSphere Application Server Application Client 5.0.2, 5.1, or 5.1.1.  
(WebSphere Application Server Application Client 5.1.1 is provided with WebSphere Business Integration Server Foundation 5.1.1. )

**Note:** Common Event Infrastructure is not supported on any HP-UX or Linux platform.

---

### Enabling Common Event Infrastructure

Common Event Infrastructure functionality is enabled with the standard properties `CommonEventInfrastructure` and `CommonEventInfrastructureContextURL`, configured with Connector Configurator. By default, Common Event Infrastructure is not enabled. The `CommonEventInfrastructureContextURL` property enables you to configure the URL of the Common Event Infrastructure server. (Refer to the “Standard Properties” appendix of this document for more information.)

---

### Obtaining Common Event Infrastructure adapter events

If Common Event Infrastructure is enabled, the adapter generates Common Event Infrastructure events that map to the following adapter events:

- Starting the adapter
- Stopping the adapter
- An application response to a timeout from the adapter agent
- Any `doVerbFor` call issued from the adapter agent
- A `gotAppEvent` call from the adapter agent

For another application (the “consumer application”) to receive the Common Event Infrastructure events generated by the adapter, the application must use the

Common Event Infrastructure event catalog to determine the definitions of appropriate events and their properties. The events must be defined in the event catalog for the consumer application to be able to consume the sending application's events.

The "Common Event Infrastructure event catalog definitions" appendix of this document contains XML format metadata showing, for WebSphere Business Information adapters, the event descriptors and properties the consumer application should search for.

---

## For more information

For more information about Common Event Infrastructure, refer to the Common Event Infrastructure information in the WebSphere Business Integration Server Foundation documentation, available at the following URL:

<http://publib.boulder.ibm.com/infocenter/ws51help>

For sample XML metadata showing the adapter-generated event descriptors and properties a consumer application should search for, refer to "Common Event Infrastructure event catalog definitions."

---

## Common Event Infrastructure event catalog definitions

The Common Event Infrastructure event catalog contains event definitions that can be queried by other applications. The following are event definition samples, using XML metadata, for typical adapter events. If you are writing another application, your application can use event catalog interfaces to query against the event definition. For more information about event definitions and how to query them, refer to the Common Event Infrastructure documentation that is available from the online IBM WebSphere Server Foundation Information Center.

For WebSphere Business Integration adapters, the extended data elements that need to be defined in the event catalog are the keys of the business object. Each business object key requires an event definition. So for any given adapter, various events such as start adapter, stop adapter, timeout adapter, and any doVerbFor event (create, update, or delete, for example) must have a corresponding event definition in the event catalog.

The following sections contain examples of the XML metadata for start adapter, stop adapter, and event request or delivery.

---

### XML format for "start adapter" metadata

```
<eventDefinition name="startADAPTER"
  parent="event">
  <property name="creationTime" //Comment: example value would be
    "2004-05-13T17:00:16.319Z"
    required="true" />
  <property name="globalInstanceId" //Comment: Automatically generated
    by Common Event Infrastructure
    required="true"/>
  <property name="sequenceNumber" //Comment: Source defined number
    for messages to be sent/sorted logically
    required="false"/>
  <property name="version" //Comment: Version of the event
    required="false"
    defaultvalue="1.0.1"/>
```

```

<property name="sourceComponentId"
  path="sourceComponentId"
  required="true"/>
  <property name="application" //Comment: The name#version of the
source application generating the event. Example is "SampleConnector#3.0.0"
  path="sourceComponentId/application" required="false"/>
  <property name="component" //Comment: This will be the name#version
of the source component.
  path="sourceComponentId/component"
  required="true"
  defaultValue="ConnectorFrameWorkVersion#4.2.2"/>
  <property name="componentIdType" //Comment: specifies the format
and meaning of the component
  path="sourceComponentId/componentIdType"
  required="true"
  defaultValue="Application"/>
  <property name="executionEnvironment"
//Comment: Identifies the environment the application is running
in...example is "Windows 2000#5.0"
  path="sourceComponentId/executionEnvironment"
  required="false" />
  <property name="location" //Comment: The value of this is the
server name...example is "WQMI"
  path="sourceComponentId/location"
  required="true"/>
  <property name="locationType" //Comment specifies the format and
meaning of the location
  path="sourceComponentId/locationType"
  required="true"
  defaultValue="Hostname"/>
  <property name="subComponent" //Comment:further distinction
of the logical component
  path="sourceComponentId/subComponent"
  required="true"
  defaultValue="AppSide_Connector.AgentBusinessObjectManager"/>
  <property name="componentType" //Comment: well-defined name
used to characterize all instances of this component
  path="sourceComponentId/componentType"
  required="true"
  defaultValue="ADAPTER"/>
  <property name="situation" //Comment: Defines the type of
situation that caused the event to be reported
  path="situation"
  required="true"/>
  <property name="categoryName" //Comment: Specifies the type
of situation for the event
  path="situation/categoryName"
  required="true"
  defaultValue="StartSituation"/>
  <property name="situationType" //Comment: Specifies the type
of situation and disposition of the event
  path="situation/situationType"
  required="true"
  <property name="reasoningScope" //Comment: Specifies the scope
of the impact of the event
  path="situation/situationType/reasoningScope"
  required="true"
  permittedValue="INTERNAL"
  permittedValue="EXTERNAL"/>
  <property name="successDisposition" //Comment: Specifies the
success of event
  path="situation/situationType/successDisposition"
  required="true"
  permittedValue="SUCCESSFUL"
  permittedValue="UNSUCCESSFUL" />
  <property name="situationQualifier" //Comment: Specifies the
situation qualifiers for this event

```

```

        path="situation/situationType/situationQualifier"
        required="true"
        permittedValue="START_INITIATED"
        permittedValue="RESTART_INITIATED"
        permittedValue="START_COMPLETED" />
</eventDefinition>

```

---

## XML format for "stop adapter" metadata

The metadata for "stop adapter" is the same as that for "start adapter" with the following exceptions:

- The default value for the categoryName property is StopSituation:

```

<property name="categoryName="
  //Comment: Specifies the type
  of situation for the event
    path="situation/categoryName"
    required="true"
    defaultValue="StopSituation"/>

```

- The permitted values for the situationQualifier property differ and are as follows for "stop adapter":

```

<property name="situationQualifier"
  //Comment: Specifies the situation qualifiers for this event
    path="situation/situationType/situationQualifier"
    required="true"
    permittedValue="STOP_INITIATED"
    permittedValue="ABORT_INITIATED"
    permittedValue="PAUSE_INITIATED"
    permittedValue="STOP_COMPLETED"
  />

```

---

## XML format for "timeout adapter" metadata

The metadata for "timeout adapter" is the same as that for "start adapter" and "stop adapter" with the following exceptions:

- The default value for the categoryName property is ConnectSituation:

```

<property name="categoryName="
  //Comment: Specifies the type
  of situation for the event
    path="situation/categoryName"
    required="true"
    defaultValue="ConnectSituation"/>

```

- The permitted values for the situationQualifier property differ and are as follows for "timeout adapter":

```

<property name="situationQualifier" //Comment: Specifies
  the situation qualifiers for this event
    path="situation/situationType/situationQualifier"
    required="true"
    permittedValue="IN_USE"
    permittedValue="FREED"
    permittedValue="CLOSED"
    permittedValue="AVAILABLE"
  />

```



---

## XML format for "request" or "delivery" metadata

At the end of this XML format are the extended data elements. The extended data elements for adapter request and delivery events represent data from the business object being processed. This data includes the name of the business object, the key (foreign or local) for the business object, and business objects that are children of parent business objects. The children business objects are then broken down into the same data as the parent (name, key, and any children business objects). This data is represented in an extended data element of the event definition. This data will change depending on which business object, which keys, and which child business objects are being processed. The extended data in this event definition is just an example and represents a business object named Employee with a key EmployeeId and a child business object EmployeeAddress with a key EmployeeId. This pattern could continue for as much data as exists for the particular business object.

```
<eventDefinition name="createEmployee" //Comment: This
extension name is always the business object verb followed by the business
object name
  parent="event">
  <property name="creationTime" //Comment: example value would be
"2004-05-13T17:00:16.319Z"
  required="true" />
  <property name="globalInstanceId" //Comment: Automatically generated
by Common Event Infrastructure
  required="true"/>
  <property name="localInstanceId" //Comment: Value is business
object verb+business object name+#+app name+ business object identifier
  required="false"/>
  <property name="sequenceNumber" //Comment: Source defined number
for messages to be sent/sorted logically
  required="false"/>
  <property name="version" //Comment: Version of the event...value is
set to 1.0.1
  required="false"
  defaultValue="1.0.1"/>
  <property name="sourceComponentId"
  path="sourceComponentId"
  required="true"/>
  <property name="application" //Comment: The name#version of the
source application generating the event...example is
"SampleConnector#3.0.0"
  path="sourceComponentId/application"
  required="false"/>
  <property name="component" //Comment: This will be the name#version
of the source component.
  path="sourceComponentId/component"
  required="true"
  defaultValue="ConnectorFrameWorkVersion#4.2.2"/>
  <property name="componentIdType" //Comment: specifies the format
and meaning of the component
  path="sourceComponentId/componentIdType"
  required="true"
  defaultValue="Application"/>
  <property name="executionEnvironment" //Comment: Identifies the
environment#version the app is running in...example is "Windows 2000#5.0"
  path="sourceComponentId/executionEnvironment"
  required="false" />
  <property name="instanceId" //Comment: Value is business object
verb+business object name+#+app name+ business object identifier
  path="sourceComponentId/instanceId"
  required="false"
  <property name="location" //Comment: The value of this is the
server name...example is "WQMI"
  path="sourceComponentId/location"
```

```

        required="true"/>
        <property name="locationType" //Comment specifies the format and
meaning of the location
        path="sourceComponentId/locationType"
        required="true"
        defaultValue="Hostname"/>
        <property name="subComponent" //Comment: further distinction of the
logical component-in this case the value is the name of the business
object
        path="sourceComponentId/subComponent"
        required="true"/>
        <property name="componentType" //Comment: well-defined name used
to characterize all instances of this component
        path="sourceComponentId/componentType"
        required="true"
        defaultValue="ADAPTER"/>
        <property name="situation" //Comment: Defines the type of
situation that caused the event to be reported
        path="situation"
        required="true"/>
        <property name="categoryName" //Comment: Specifies the type
of situation for the event
        path="situation/categoryName"
        required="true"
        permittedValue="CreateSituation"
        permittedValue="DestroySituation"
        permittedValue="OtherSituation" />
        <property name="situationType" //Comment: Specifies the type
of situation and disposition of the event
        path="situation/situationType"
        required="true"
        <property name="reasoningScope" //Comment: Specifies the scope
of the impact of the event
        path="situation/situationType/reasoningScope"
        required="true"
        permittedValue="INTERNAL"
        permittedValue="EXTERNAL"/>
        <property name="successDisposition" //Comment: Specifies the
success of event
        path="situation/situationType/successDisposition"
        required="true"
        permittedValue="SUCCESSFUL"
        permittedValue="UNSUCCESSFUL" />
        <extendedDataElements name="Employee" //Comment: name of business
object itself
        type="noValue"
        <children name="EmployeeId"
        type="string"/> //Comment: type is one of the
permitted values within Common Event Infrastructure documentation
        <children name="EmployeeAddress"
        type="noValue"/>
        <children name="EmployeeId"
        type="string"/>
        -
        -
        -
        </extendedDataElements
</eventDefinition>

```

---

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