

IBM MQSeries Workflow



# Installation Guide

*Version 3.2.2*



IBM MQSeries Workflow



# Installation Guide

*Version 3.2.2*

**Note!**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 291.

**Seventh Edition (July 2000)**

This edition applies to version 3, release 2, modification 2 of IBM MQSeries Workflow (product number 5697-FM3) and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About this book

This book explains how to set up MQSeries Workflow components on workstations running UNIX, OS/2 Warp, and Windows based operating platforms.

It is assumed that you are familiar with:

- UNIX based operating systems, if you intend installing MQSeries Workflow components on AIX, HP-UX, or Sun Solaris.
- Windows based operating systems, if you intend installing MQSeries Workflow components on Windows 95, 98, 2000, or NT.
- OS/2 Warp, if you intend installing MQSeries Workflow components on OS/2 Warp.
- IBM's DB2 relational database management system.
- IBM's MQSeries communications product.

You should be familiar with the components of an MQSeries Workflow system and understand how an MQSeries Workflow system is structured. For an introduction to MQSeries Workflow, see the *IBM MQSeries Workflow: Concepts and Architecture* book.

Hereafter MQSeries Workflow is abbreviated to MQ Workflow.

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## Who should read this book

This book is for system administrators who do the following:

- Install and configure MQ Workflow and its prerequisite and corequisite products.
- Install corrective service updates and new releases of MQ Workflow.

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## How this book is organized

This book has been restructured to make it easier to use, it now consists of the following parts:

- "Part 1. About MQ Workflow" on page 1 describes which components can be installed on which platforms, explains what a configuration and profile are, and describes the steps required to set up MQ Workflow.
- "Part 2. Planning your MQ Workflow setup" on page 11 describes the choices that you must make before starting to install MQ Workflow, the prerequisite software, and the platform requirements.

- “Part 3. Installing and configuring MQ Workflow on UNIX” on page 49 describes how to install, configure, and verify MQ Workflow components on AIX, HP-UX, and Sun Solaris.
- “Part 4. Installing and configuring MQ Workflow on Windows” on page 93 describes how to install, configure, and verify MQ Workflow components on Microsoft Windows.
- “Part 5. Installing and configuring MQ Workflow on OS/2 Warp” on page 137 describes how to install, configure, and verify MQ Workflow components on OS/2 Warp.
- The appendixes contain useful DB2 and MQSeries commands; information about MQ Workflow variables; details regarding language settings; information about files that are updated during installation; a full description on how to install a stand-alone system and perform an unattended installation; instructions for migrating from a previous release; details about deleting MQ Workflow from a workstation; and installation messages.

At the back of this book is a glossary that defines terms as they are used in this book, a bibliography, and an index.

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## Task road map

Use Table 1 to find the information you need to perform the most common MQ Workflow installation and configuration tasks.

*Table 1. MQ Workflow installation task road map*

If you want to...	Refer to...
Understand the sequence of actions required to set up MQ Workflow.	“Steps in setting up MQ Workflow” on page 9
Understand which type of setup you require, and the prerequisites for installing MQ Workflow.	“Part 2. Planning your MQ Workflow setup” on page 11
Install DB2 and MQSeries.	“Chapter 5. Installing the prerequisite software” on page 41
Install and configure MQ Workflow.	<ul style="list-style-type: none"> <li>• “Part 3. Installing and configuring MQ Workflow on UNIX” on page 49</li> <li>• “Part 4. Installing and configuring MQ Workflow on Windows” on page 93</li> <li>• “Part 5. Installing and configuring MQ Workflow on OS/2 Warp” on page 137</li> </ul>

Table 1. MQ Workflow installation task road map (continued)

If you want to...	Refer to...
Set up a stand-alone MQ Workflow installation that is suitable for test and demonstration purposes, without having to refer to any other parts of the book.	<ul style="list-style-type: none"> <li>• “Appendix E. Stand-alone setup on Windows NT/2000” on page 207</li> <li>• “Appendix F. Quick server setup on AIX” on page 217</li> <li>• “Appendix G. Quick server setup on Sun Solaris” on page 223</li> <li>• “Appendix H. Quick server setup on HP-UX” on page 233</li> </ul>
Perform an unattended installation and configuration of MQ Workflow on Windows, OS/2 Warp or UNIX.	“Appendix I. Unattended installation and configuration” on page 241
Migrate MQ Workflow data from a previous release.	“Appendix K. Migrating from a previous release” on page 265
Remove an MQ Workflow installation.	“Appendix L. Deleting MQ Workflow” on page 273
Diagnose configuration problems.	“Appendix N. Using the configuration checking utility fmczchk” on page 285
Visit the MQ Workflow home page.	<a href="http://www-4.ibm.com/software/ts/mqseries/workflow">http://www-4.ibm.com/software/ts/mqseries/workflow</a>
Contact IBM.	<i>Reader’s Comment Form</i>

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## How to get additional information

Visit the MQ Workflow home page at

<http://www-4.ibm.com/software/ts/mqseries/workflow>

For a list of additional MQ Workflow publications, refer to “MQSeries Workflow publications” on page 299.

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## How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other MQ Workflow documentation, choose one of the following methods:

- Send your comments by e-mail to: [swsdid@de.ibm.com](mailto:swsdid@de.ibm.com)  
Be sure to include the name of the book, the part number of the book, the version of MQ Workflow, and, if applicable, the specific location of the text you are commenting on (for example, a page number or table number).
- Fill out one of the forms at the back of this book and return it by mail, by fax, or by giving it to an IBM representative.

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## Summary of changes

This book contains information previously presented in Version 3.2.1 of the *MQSeries Workflow: Installation Guide*. It includes terminology, maintenance, restructuring, and editorial changes to support MQ Workflow Version 3 Release 2.2. The following summarizes the major changes in this book:

- This book has been restructured to group the chapters for each platform. For more details, see “How this book is organized” on page xi.
- “Chapter 3. Security planning” on page 21 describes which user IDs and groups are used for installing and configuring MQ Workflow.
- “Chapter 4. Planning your installation” on page 25 provides worksheets to help you to plan for configuring MQ Workflow components on a machine.
- “Chapter 7. Configuring on UNIX” on page 59 includes a description of how to configure a VisiBroker Java CORBA agent, how to catalog a remote Runtime database, and changes made to the configuration utility `fmczutil`.
- “Chapter 8. Verifying an MQ Workflow server on UNIX” on page 75 now includes an extended verification test described in “Testing a Windows client connection to a UNIX server” on page 78.
- “Chapter 9. Changing your configuration on UNIX” on page 81 describes how to perform some common tasks that require changes to the MQ Workflow configuration profile.
- Where to find log files, and how to perform a trace are described in:
  - “Chapter 10. Problem determination on UNIX” on page 91
  - “Chapter 14. Problem determination on Windows” on page 135
  - “Chapter 18. Problem determination on OS/2 Warp” on page 147
- “Chapter 12. Configuring MQ Workflow on Windows” on page 97 includes a description of how to configure a VisiBroker Java CORBA agent and how to catalog a remote Runtime database.
- “Appendix B. MQ Workflow variables” on page 159 contains new variables.
- “Appendix C. Language settings” on page 195 has been extended to cover all supported platforms.
- “Appendix F. Quick server setup on AIX” on page 217, “Appendix G. Quick server setup on Sun Solaris” on page 223, and “Appendix H. Quick server setup on HP-UX” on page 233 describe how to set up a complete MQ Workflow system on one machine suitable for testing or evaluation. The description uses the default values, and includes installing DB2 and MQSeries.
- “Appendix K. Migrating from a previous release” on page 265 describes what you have to do to migrate your Runtime database and MQ Workflow profile from MQ Workflow Version 3.1.2, 3.2.0, or 3.2.1.



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## Chapter 1. Introduction

This chapter provides the following background information:

- “Which operating platforms are supported?”
- “Which MQ Workflow components can be installed?”
- “What is an MQ Workflow configuration?” on page 6
- “What is an MQ Workflow profile?” on page 8
- “Steps in setting up MQ Workflow” on page 9

---

### Which operating platforms are supported?

MQ Workflow components can be installed on any of the following supported operating platforms:

- AIX
- HP-UX
- Sun Solaris
- Windows 2000
- Windows NT
- Windows 98
- Windows 95
- OS/2 Warp

All CD-ROMs used to set up MQ Workflow components on workstations are labeled *IBM MQSeries Workflow Version 3.2.2* followed by the name of the operating system it supports.

References to UNIX throughout this book are valid for any of the UNIX based operating systems: AIX, HP-UX, and Sun Solaris. Differences that occur when setting up MQ Workflow components on any of the UNIX based operating systems are indicated, where necessary.

---

### Which MQ Workflow components can be installed?

Table 2 on page 4 lists all MQ Workflow components and indicates on which operating platform each component can be installed. Details and descriptions for each component can be found in the *IBM MQSeries Workflow: Concepts and Architecture* manual, however, for a quick reference, a brief description of each component is also given here.

Table 2. MQ Workflow components and the supported operating systems

MQ Workflow components		UNIX	OS/2 Warp	Windows NT/2000	Windows 95/98
Server		●	●	●	
Client components	Administration Utility	●	●	●	●
	Standard Client			●	●
	Client for Lotus Notes		●	●	●
	API Runtime Libraries	●	●	●	●
	Program Execution Agent	●	●	●	●
Buildtime				●	●
Java CORBA Agent		● <sup>1</sup>	● <sup>2</sup>	●	●
Runtime Database Utilities		●	●	●	●
Java Beans		●		●	●
Lotus Notes Database Templates			●	●	●
API Development Kit		●	●	●	●
Samples		●		●	●

**Notes:**

1. The Java CORBA Agent is not available on HP-UX.
2. The Java CORBA Agent on OS/2 Warp only supports local bindings and includes the Java Beans.

**Server** MQ Workflow servers control the execution of process models throughout your organization. The server category consists of one or more components, such as Execution server, Administration server, Scheduling server, and Cleanup server.

**Clients**

Several types of client components exist. These include:

- **Administration Utility**

The MQ Workflow Administration Utility is the administrator's user interface used to control the operation of MQ Workflow servers and administer an MQ Workflow system.

- **Standard Client**

The MQ Workflow Client provides a standard client GUI to manage processes and work items.

- **Client for Lotus Notes**

The MQ Workflow Client for Lotus Notes provides a customizable workflow client integrated into Lotus Notes.

- **API Runtime Libraries**

The MQ Workflow Client API Runtime Libraries enable the execution of MQ Workflow client applications.

- **Program Execution Agent**

An MQ Workflow Program Execution Agent enables the execution of client programs as defined for process activities.

### **Buildtime**

With MQ Workflow Buildtime you can create process and organization models and define system resources.

### **Java CORBA Agent**

The MQ Workflow Java API CORBA Agent enables the execution of MQ Workflow Client applications built with the Java API Beans.

### **Runtime Database Utilities**

The MQ Workflow Runtime Database Utilities are used to create and populate Runtime databases. There are two types of Runtime Database Utilities:

- **Import/Export utility**

With the MQ Workflow Import/Export utility you can import and export process models, organization models, and system resources, following the syntax of the FlowMark Definition Language (FDL).

- **Database Creation utility**

The MQ Workflow Database Creation utility is required to create an MQ Workflow runtime database and to set up the database structure.

### **Java Beans**

The MQ Workflow Java API Beans can be used to build MQ Workflow client applications written in the Java programming language.

### **Lotus Notes Database Templates**

The MQ Workflow Lotus Notes Database Templates contain Lotus Notes databases for use with the MQ Workflow Client for Lotus Notes and additional sample information.

### **API Development Kit**

The MQ Workflow Development Kit contains everything that application developers need to interface to MQ Workflow, using one or more of the programming languages supported for the various platforms such as C, C++, Java, VisualBasic, REXX and LotusScript. The MQ Workflow ActiveX Controls Development Kit contains

interfaces to workflow client components implemented as ActiveX Controls, that can be used to build a custom workflow client.

### Samples

Several MQ Workflow Samples can be installed, for example business-to-business and Java samples.

---

## What is an MQ Workflow configuration?

Configuring MQ Workflow components is necessary to:

1. Bind installed MQ Workflow components and the prerequisite software, MQSeries and DB2 (and/or Microsoft Access), together.
2. Provide important information and values about MQ Workflow components that are required to perform various setup and administration tasks.

Without configuring the MQ Workflow components you have installed, the database and communications resources required to implement an MQ Workflow system cannot be used, MQ Workflow components cannot communicate with the MQ Workflow system, and no database is available to store process models created with MQ Workflow Buildtime.

To use resources provided by the prerequisite software and perform basic setup tasks, you must configure each MQ Workflow component. To configure an MQ Workflow component, you must supply a group of configuration settings for the MQ Workflow component using the **MQSeries Workflow Configuration Utility**.

Each time you use the MQSeries Workflow Configuration Utility to configure an MQ Workflow component, an *MQ Workflow configuration* is created for that component.

An MQ Workflow configuration contains the group of configuration settings you enter in the MQSeries Workflow Configuration Utility during the configuration process. This group of configuration settings defines how an MQ Workflow component is set up and used.

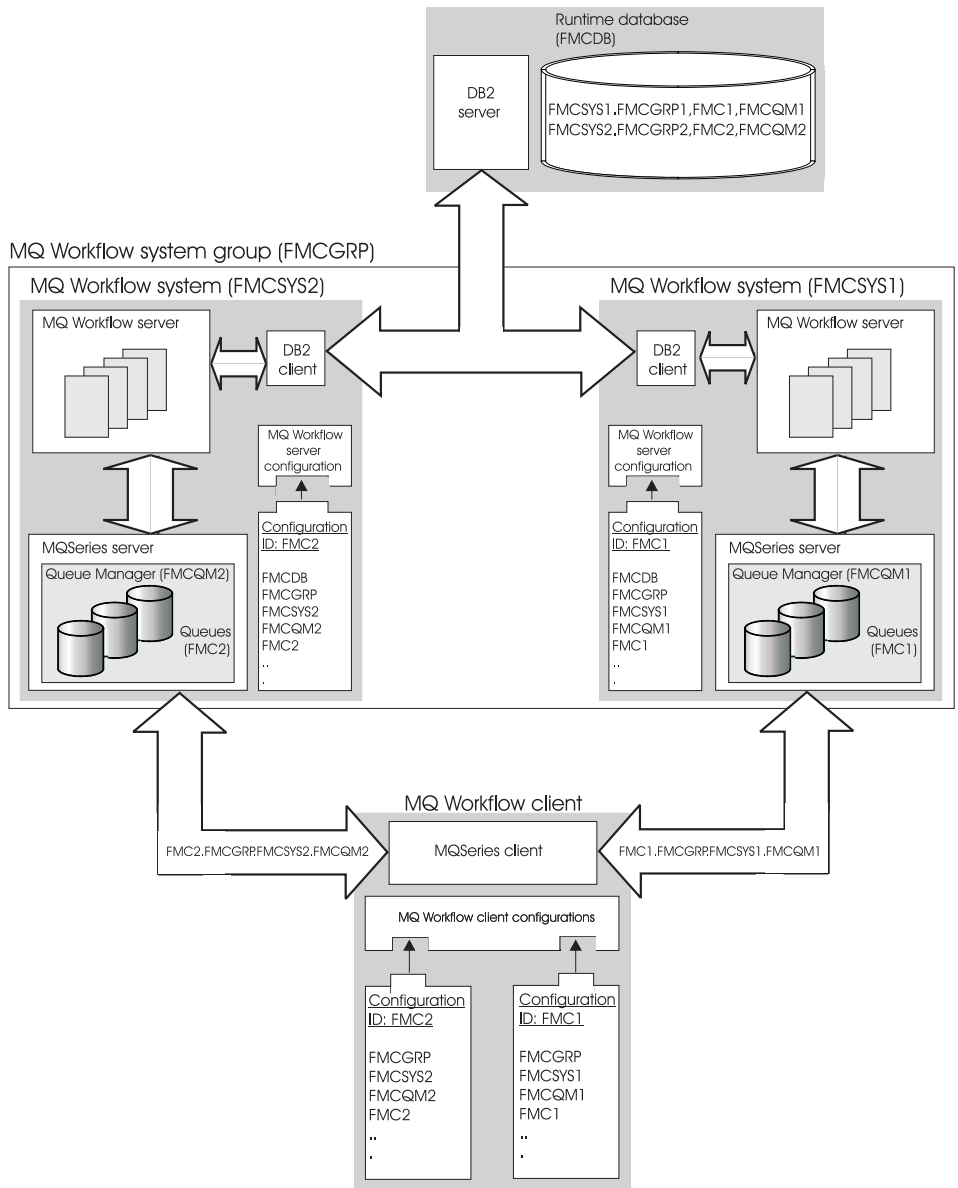


Figure 1. The MQ Workflow client can connect to either MQ Workflow servers.

Figure 1 shows an MQ Workflow system group containing two MQ Workflow systems that use the same Runtime database. Each system is made up primarily of an MQ Workflow server, a DB2 client, and MQSeries components (an MQSeries queue manager and queues).

Figure 1 on page 7 also shows an MQ Workflow client. For this client to make a connection with a particular MQ Workflow system, the client needs to know about the MQ Workflow system to which it wants to connect. The client needs to know the name of the MQ Workflow system and the system group to which it belongs, the name of the system's queue manager used to manage communications, and the queue prefix used to identify queues from which all messages are sent and received. You specify this information when you configure the MQ Workflow server, and provide it again when you configure the MQ Workflow client. By doing so, MQ Workflow server and client configurations are created.

It is possible to configure MQ Workflow components multiple times, each time providing a different group of configuration settings and thereby creating multiple MQ Workflow configurations.

For the MQ Workflow client in Figure 1 on page 7, you could make it possible for the client to connect to both systems by creating two MQ Workflow configurations. Each configuration would contain the group of settings required to connect to a specific MQ Workflow system. A *configuration identifier* is then used to identify each MQ Workflow configuration.

To use an MQ Workflow component with a particular MQ Workflow configuration, you must specify the configuration identifier for that configuration when you start the MQ Workflow component.

---

## What is an MQ Workflow profile?

The configuration data you enter in the MQSeries Workflow Configuration Utility during the definition stage is recorded in one of several MQ Workflow specific profiles. The particular profile used depends on the type of configuration information you supply. Three profiles exist and are collectively referred to as the MQ Workflow profile:

### Configuration profile

The configuration profile contains data that you specify during the configuration stage, such as the name of the MQ Workflow system, the Runtime database and queue manager. This data is used to configure database and communication resources and define settings for MQ Workflow. The configuration profile is created during the configuration stage and can be deleted.

### General configuration profile

The general configuration profile contains configuration-independent data. Currently the general configuration profile is only used to contain the configuration identifier for the default configuration.



## Installation profile

The installation profile contains data that is set during the MQ Workflow installation stage and is independent of the configuration stage. Data such as the MQ Workflow installation directory, language, version number, and MQ Workflow components installed are contained in the installation profile.

“Appendix B. MQ Workflow variables” on page 159 describes each profile, specifies the location of each, and provides definitions, descriptions, and default values for information recorded in each of the different profiles.

---

## Steps in setting up MQ Workflow

Setting up MQ Workflow is a multi-stage process that should be performed in the following sequence:

### Step 1: Choosing an MQ Workflow setup

The first step you must take before doing anything is to decide on how you want to set up MQ Workflow. Several MQ Workflow setups are possible.

### Step 2: Planning your installation

You must plan which components you need on each machine and determine which identifiers, user IDs, resources, and configuration options will be used.

### Step 3: Checking system requirements

You must make sure that your resources meet the requirements for each MQ Workflow component in your setup.

### Step 4: Installing prerequisite software

Before going any further you must install prerequisite software. Knowing where and what to install is important and depends on the MQ Workflow setup you have chosen.

### Step 5: Installing MQ Workflow

Installing MQ Workflow simply copies the software from the MQ Workflow CD-ROM to your workstation and performs basic setup and registration functions.

### Step 6: Configuring MQ Workflow

You must enter configuration information, and create resources for the components that you have installed.

### Step 7: Verifying MQ Workflow

After configuring MQ Workflow, you should check that all components have been configured correctly, and run a simple check that verifies client/server communication and database connectivity.



---

## Part 2. Planning your MQ Workflow setup

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## Chapter 2. Choosing an MQ Workflow setup

The first step you must take to implement MQ Workflow is to decide what kind of MQ Workflow setup you want.

When choosing a setup, typical questions you should ask yourself are:

- Where should the Runtime and Buildtime databases be located?
- How many MQ Workflow servers and client components are needed?
- Where should MQ Workflow servers and client components be installed?
- Where should MQ Workflow Buildtime be installed?
- Are any additional MQ Workflow components needed?

Answers to these questions depend on your company's requirements and system resources.

---

### Types of MQ Workflow setups

MQ Workflow can be set up in many different ways, however, broadly speaking all setups fall into one of the following categories:

- "Setup scenario for stand-alone" on page 14
- "Setup scenario for standard client/server (two-tier)" on page 15
- "Setup scenario for client/server with a dedicated database (three-tier)" on page 16
- "Setup scenario for multiple MQ Workflow servers" on page 17

The following sections briefly describe each setup and give an example illustration for each.

Examining the setup that is closest to your company's needs will give you a starting point for creating your own MQ Workflow setup.

## Setup scenario for stand-alone

The stand-alone workstation scenario is often the first type of MQ Workflow setup implemented. It can be used to become familiar with MQ Workflow functions and for evaluation purposes.

“Appendix E. Stand-alone setup on Windows NT/2000” on page 207 provides a step-by-step guide you can use to fully implement a stand-alone system on Windows NT.

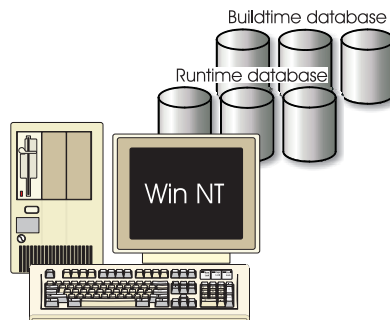
Before installing MQ Workflow components, you must install the prerequisite software: DB2 and MQSeries. MQ Workflow uses DB2 to create and access Runtime and Buildtime databases. MQSeries is used for communication between MQ Workflow components.

After installing the prerequisite software, all MQ Workflow components are installed together on the same Windows NT workstation.

After installation, you must configure MQ Workflow. During the MQ Workflow configuration phase, the Buildtime and Runtime databases are created and MQSeries is customized and configured to work with MQ Workflow.

---

### Standalone setup for Windows NT



Installed MQ Workflow and prerequisite software components:

- All MQ Workflow components
- DB2 Enterprise Edition
- MQSeries client & server

---

*Figure 2. Example of a stand-alone setup*

Figure 2 illustrates a stand-alone MQ Workflow setup on Windows NT.

## Setup scenario for standard client/server (two-tier)

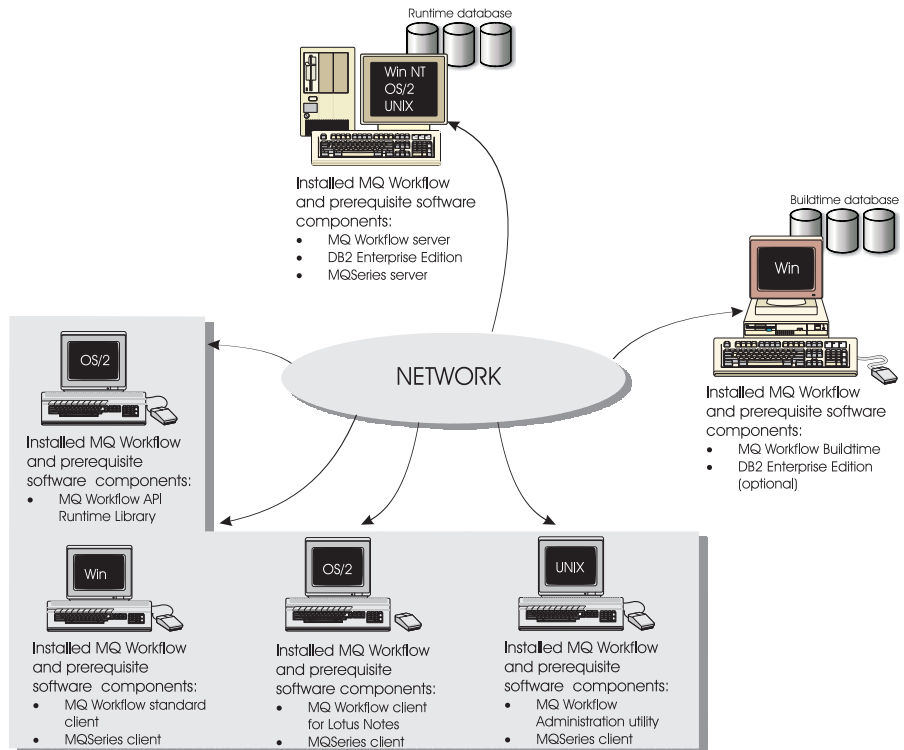
In the standard client/server scenario, the MQ Workflow server, Buildtime, and client components are all installed on their own workstations.

The Runtime database is created on the same workstation as the MQ Workflow server, and the Buildtime database is created on the same workstation as the Buildtime tool.

Before installing MQ Workflow components, you must install the prerequisite software: DB2 and MQSeries. MQSeries is used to connect MQ Workflow clients to the MQ Workflow server and must therefore be installed on all MQ Workflow server and client component workstations.

---

### Standard client/server setup



NOTE: CAE is Client Application Enabler. This must be installed on all workstations where all remote MQ Workflow servers are installed.

Figure 3. Example of a standard client/server setup

DB2 components must be installed on MQ Workflow server and optionally Buildtime workstations so that Runtime and Buildtime databases can be created and accessed.



Using DB2 to create and manage the Buildtime database is optional. MSAccess can be used instead. If you intend using MSAccess, no DB2 components need to be installed on the Buildtime workstation.

This type of setup both optimizes the use of the available resources and improves performance. Use the illustration shown in Figure 3 on page 15 as a basis for planning a standard MQ Workflow client/server setup.

### **Setup scenario for client/server with a dedicated database (three-tier)**

In the dedicated database setup scenario, Buildtime and Runtime databases are created and exist on their own workstations. MQ Workflow server, Buildtime, and client components are also installed on their own workstations.

Before installing MQ Workflow components, you must install the prerequisite software: DB2 and MQSeries. MQSeries is used to connect MQ Workflow clients to the MQ Workflow server and must therefore be installed on all MQ Workflow server and client component workstations.

DB2 components must be installed on the Runtime database and MQ Workflow server workstations and optionally on the Buildtime database and Buildtime workstations so that Runtime and Buildtime databases can be created and accessed.



Using DB2 to create and manage the Buildtime database is optional. MSAccess can be used instead. If you intend using MSAccess, no DB2 components need to be installed on the Buildtime and Buildtime database workstations.

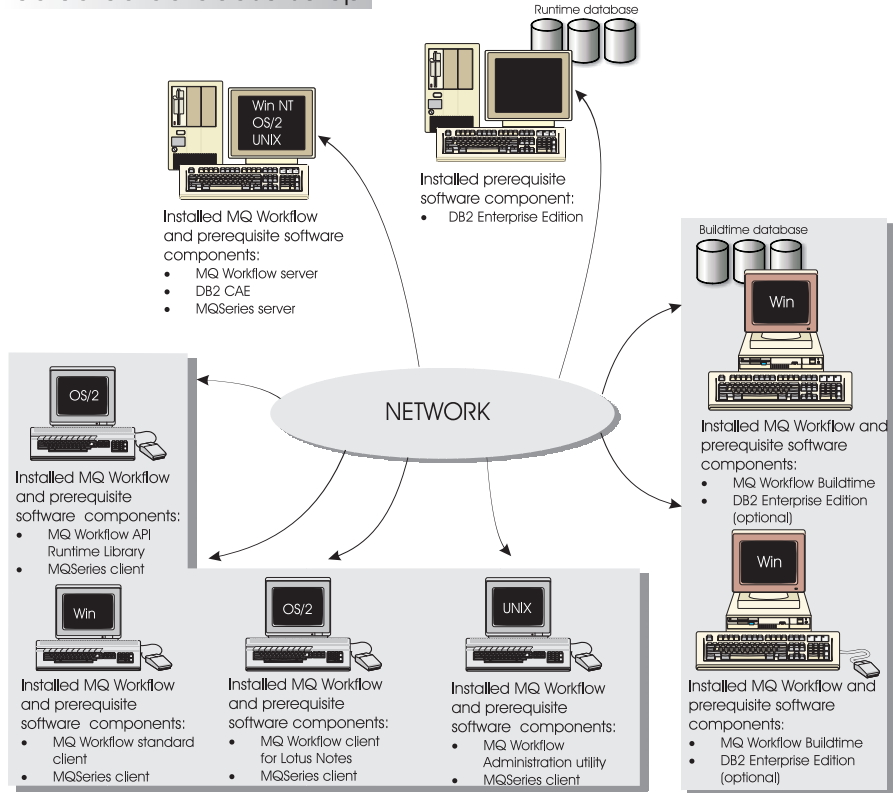
With this type of setup, Runtime and Buildtime data is centralized and contained within databases that are separated from the MQ Workflow system. This simplifies management of MQ Workflow data, and allows easy expansion as the database grows in size.

For servers that are not on the same machine as the Runtime database, you need to configure the local DB2 instance to get access to the remote DB2 instance.

Use the illustration shown in Figure 4 on page 17 as a basis for planning a dedicated database setup.



## Dedicated database setup



NOTE: CAE is Client Application Enabler. This must be installed on all workstations where all remote MQ Workflow servers are installed.

Figure 4. Example of a dedicated database setup

## Setup scenario for multiple MQ Workflow servers

One or more MQ Workflow servers can be added to an existing dedicated database client/server setup. By doing so, the workload is distributed between MQ Workflow servers. This type of setup increases performance by reducing the demand on a single MQ Workflow server and increases the capability to handle more clients.

The Buildtime and Runtime databases, and all MQ Workflow components, are set up on their own workstations.

Before installing MQ Workflow components, you must install the prerequisite software: DB2 and MQSeries. MQSeries is used to connect MQ Workflow

clients to the MQ Workflow server and must therefore be installed on all MQ Workflow server and client component workstations.

DB2 components must be installed on the Runtime database and MQ Workflow server workstations and optionally on the Buildtime database and Buildtime workstations so that Runtime and Buildtime databases can be created and accessed.



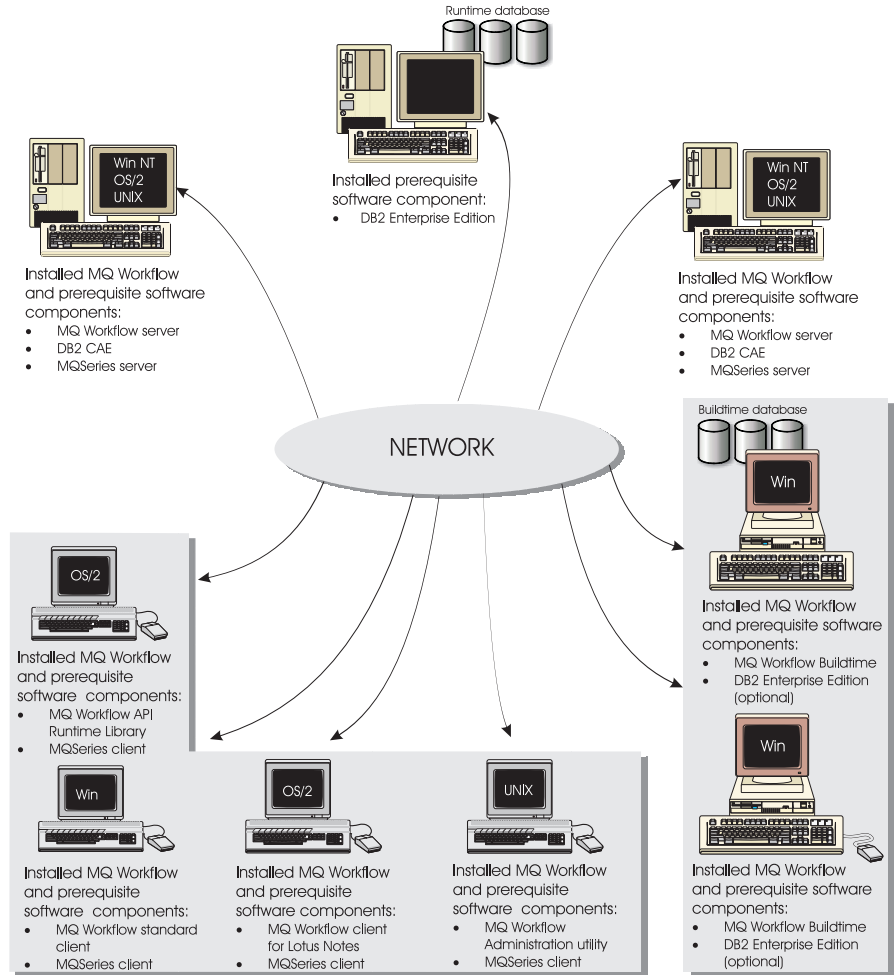
Using DB2 to create and manage the Buildtime database is optional. MSAccess can be used instead. If you intend using MSAccess, no DB2 components need to be installed on the Buildtime and Buildtime database workstations.

With this setup, MQ Workflow client components connect to different MQ Workflow servers, but all MQ Workflow servers access and use the same Runtime database.

For servers that are not on the same machine as the Runtime database, you need to configure the local DB2 instance to get access to the remote DB2 instance.

Use the illustration shown in Figure 5 on page 19 as a basis for planning a multiple MQ Workflow server setup.

## Multiple MQ Workflow server setup



NOTE: CAE is Client Application Enabler. This must be installed on all workstations where all remote MQ Workflow servers are installed.

Figure 5. Example of a multiple server setup



---

## Chapter 3. Security planning

The security options available to you are dependent on the platform on which you are going to install MQ Workflow.

### On Windows and OS/2

The system administrator is assumed to be responsible for the installation and configuration of MQ Workflow, MQSeries, DB2, and any other co-requisite products.

### On UNIX

For a **stand-alone** installation, the system administrator is assumed to be responsible for the installation and configuration of MQ Workflow, MQSeries, DB2, and any other co-requisite products.

In a **complex** setup, the installation and configuration tasks may be shared between the following roles:

- **System administrator** (root) installs MQ Workflow, performs post-installation steps, and defines configurations. Root authority is required for defining a new configuration because some system files are updated. For more information, see “Files updated on UNIX” on page 199.
- **MQ Workflow administrator** is the user ID that owns the MQ Workflow installation infrastructure.
- **Configuration administrator** is the user ID that owns the directories and files relating to an MQ Workflow configuration, it is the only user ID that can change the configuration profile, and is also used to start the MQ Workflow server and the Java CORBA Agent.
- **Principal** user ID is associated with an MQSeries channel. This allows any client that accesses the channel to have the authority of the principal, such a user is known as an MCAUSER (MQ channel agent user). Without using a principal, every client user would have to be known to the queue manager, and be authorized access to the necessary channels.
- **Transaction coordinator** is the user ID with rights to connect to the Runtime database. This user ID is used by the MQSeries queue manager for two-phase commit.
- **MQSeries administrator** user ID is used to create and configure the queue manager.
- **Runtime database creator** is a DB2 administrator user ID, used to attach to the DB2 instance to create the Runtime database.

- **MQ Workflow user who imports FDL** imports and exports FDL to and from the Runtime database, and migrates the Runtime database.
- **Server** user ID is used by all MQ Workflow servers.

The granularity of your security requirements determines how many user IDs you require, and which groups they are members of. Use Table 3 to plan which user IDs will be used to perform which roles. If you use the defaults, the installation and configuration can be performed with the minimum number of user IDs.

Table 3. Planning user IDs, and user groups for installation and configuration

User	User ID	User Groups / IDs		
		MQ Workflow group	MQSeries administrator group	DB2 administration group
		[fmcgrp] <sup>1</sup>	mqm	[db2iadm1] <sup>1</sup>
System administrator	root			
MQ Workflow administrator	[fmc] <sup>1</sup>	●	3	3
Configuration administrator	[fmc <sup>2</sup> ]	●	3	3
Principal <sup>4</sup>	[fmc <sup>2</sup> ]			
Transaction coordinator <sup>5</sup>	[fmc <sup>2</sup> ]			
MQSeries administrator	mqm		●	
Runtime database creator	[fmc]			●
Runtime database user	[fmc]	●	3	3
MQ Workflow user who imports FDL <sup>6</sup>	[ADMIN]	●	3	3

**Notes:**

1. Default IDs are shown in square brackets.
2. The MQ Workflow configuration administrator user ID becomes the default value for the Principal and Transaction coordinator.
3. If you want this administrator to also administer MQSeries and DB2, this user ID must also be a member of these groups.

4. This is the user ID that clients use when accessing a channel as an MCAUSER.
5. This user ID requires authorization to connect to the database.
6. To import an FDL file, you must specify a Workflow user ID which must be stored in the MQ Workflow Runtime database. This is the user ID of the person who is allowed to import process models and topologies into the Runtime database. You do not need to create this user on any machine. This user ID and the initial password "password" are stored in the Workflow Runtime database.

These user IDs will be created during the steps described in "Post-installation for MQ Workflow on UNIX" on page 58.





---

## Chapter 4. Planning your installation

The following installation worksheets summarize the installation options and the information that you will require to successfully install MQSeries Workflow. It is strongly recommended that you complete the worksheets for each machine before starting installation. For the easiest installation, you should use the default values whenever possible.

---

### Machine configuration

Complete Table 4 to plan which software will be installed on each machine.

Table 4. Machine configuration

Identifier/Parameter	Value/Option
TCP/IP address	1
Operating system	<input type="checkbox"/> AIX / <input type="checkbox"/> HP-UX / <input type="checkbox"/> Sun Solaris <input type="checkbox"/> Windows 2000 / <input type="checkbox"/> NT / <input type="checkbox"/> 95 / <input type="checkbox"/> 98 <input type="checkbox"/> OS/2 Warp
Workstation memory	2
Workstation disk space	2
MQ Workflow components required	3 <input type="checkbox"/> All components <input type="checkbox"/> Workflow Server <sup>4</sup> <input type="checkbox"/> Runtime database utilities <input type="checkbox"/> Client <sup>5</sup> <input type="checkbox"/> Java <input type="checkbox"/> Administrative components <input type="checkbox"/> API Runtime Libraries <input type="checkbox"/> Buildtime
Required software	<input type="checkbox"/> MQSeries server <sup>5</sup> <input type="checkbox"/> MQSeries client <sup>5</sup> <input type="checkbox"/> DB2 Enterprise Edition <input type="checkbox"/> DB2 Client Application Enabler
Programming environment	6 <input type="checkbox"/> C <input type="checkbox"/> C++ <input type="checkbox"/> Java <input type="checkbox"/> Visual Basic

**Notes:**

1. Normally, the hostname can be used instead. Only in an HACMP node is the actual address mandatory.
2. These should meet the requirements described in “Hardware and software requirements” on page 32.
3. To find out which components can be installed on each platform, see “Which MQ Workflow components can be installed?” on page 3.
4. For an MQ Workflow server you require DB2 and an MQSeries server.
5. You must not install both the MQSeries client and server on the same machine. For an MQ Workflow client you only require an MQSeries client if the machine does not have an MQSeries server.
6. For a complete list of which programming languages can be used on each platform for developing applications using the MQSeries Workflow API, see “Hardware and software requirements” on page 32. For more information about programming using the Workflow APIs, see *MQSeries Workflow: Programming Guide*.

---

**MQ Workflow configuration information**

Complete Table 5 to plan your configuration.

*Table 5. MQ Workflow configuration information*

Identifier / Parameter	Default value	Your value
Configuration identifier	FMC	1
Configuration administrator user ID	fmc	2
Configuration group	fmcgrp	3

**Notes:**

1. If a configuration already exists with the standard default name FMC, the default name FMC $n$  is suggested, where  $n$  starts at 1 and is incremented until a configuration name is found that does not already exist.
2. The default is the value of the *MQWorkflowAdministrator* set in the installation profile.
3. The default is the value of the *MQWorkflowGroup* set in the installation profile.

## DB2 Runtime database configuration information

Complete Table 6 to plan your Runtime database.

Table 6. DB2 Runtime database configuration information

Identifier / Parameter	Default value	Your value
Database type	new	<input type="checkbox"/> use existing / <input type="checkbox"/> create new
Database location	local	<input type="checkbox"/> local / <input type="checkbox"/> remote
DB2 instance name	db2inst1	<sup>1</sup>
Local DB2 instance name		<sup>2</sup>
Workflow Runtime database name	FMCDB	
User ID of database administrator	fmc	
Database layout file	fmcdblay.ini	<sup>3</sup>
Database location	On UNIX: /var/fmc	<sup>4</sup>
Container location	On Windows: c:\Program Files\MQSeries	
Location of log files	Workflow\rt_db\db2	
Space management for database	system	<input type="checkbox"/> System / <input type="checkbox"/> Database / <input type="checkbox"/> Raw <sup>5</sup>
DB2 user ID to access Runtime database	fmc	<sup>6</sup>

### Notes:

1. This instance must be dedicated to MQ Workflow.
2. Only required if the database location is remote.
3. If the file does not exist it will be created.
4. An empty Runtime database requires between 100 MB and 430 MB, depending on the platform. For more detailed requirements, see “Hardware and software requirements” on page 32.
5. Management by the database using a raw device is only available on AIX.
6. This user ID will be used by the MQ Workflow server and the Import/Export utility (fmcibie) to connect to the database.

---

## MQSeries Workflow system identifiers

If you are installing a server, complete Table 7.

Table 7. MQSeries Workflow system identifiers

Identifier / Parameter	Default value	Your value
System group name	FMCGRP	
System name	FMCSYS	

---

## MQSeries queue manager configuration information

Complete Table 8 to plan your MQSeries queue manager.

Table 8. MQSeries queue manager configuration information

Identifier / Parameter	Default value	Your value
Queue manager name	FMCQM	1
Queue prefix	FMC	2
Type of logging	Circular	3 <input type="checkbox"/> Circular / <input type="checkbox"/> Linear
Log files location	<input type="checkbox"/> MQSeries default	4
Channel definition table	On UNIX: /var/fmc /chltabs/MQWFCHL.TAB  On Windows: c:\Program Files\ MQSeries Workflow \chltabs\MQWFCHL.TAB	
TCP/IP address	<i>yourhostname</i>	5
TCP/IP port	5010 / 14000...	6
Principal name	fmc	7
Cluster name	FMCGRP	8
Repository type	First	9 <input type="checkbox"/> First / <input type="checkbox"/> Additional <sup>10</sup>
First queue manager name	—	10
First queue manager's TCP/IP address	—	10
First queue manager's TCP/IP port	—	10
Transaction coordinator	fmc	

Table 8. MQSeries queue manager configuration information (continued)

Identifier / Parameter	Default value	Your value
User ID to be used to start the queue manager	Other	11 <input type="checkbox"/> Transaction coordinator <input type="checkbox"/> Other mqm group member

**Notes:**

1. The queue manager that is to be used by MQ Workflow.
2. This prefix will be used for all Workflow queues on the machine. To be able to exploit Fastnet capabilities in the future, it is recommended that you use the same queue prefix for all systems in the same system group.
3. The log files record all actions performed by the queue manager. They can be used for error recovery and backups. **Circular** logging keeps all restart data in a ring of log files. It starts by filling the first file in the ring, then moving on to the next, and so on, until all the files are filled. It then goes back to the first file in the ring and starts again. **Linear** logging keeps the log data in a continuous sequence of files. Space is not reused, so you can always retrieve any record logged from the time that the queue manager was created. This type of logging is normally used for audit trails and archiving. Linear logging is suitable for a production system. Circular logging uses less disk space.
4. This is the location of the MQSeries logging file(s) and is used whenever you create a queue manager. If no location is specified, the MQSeries default location will be used.
5. Copy your value from Table 4 on page 25. This item is duplicated here to reflect the exact order that you will need the information during the installation and configuration process.
6. If port 5010 is already used, the next free port at or above 14000 is recommended as the default port to be used by the Workflow queue manager. It is recommended that you use unique port numbers for each queue manager so that you will be able to use fail-over techniques like HACMP on AIX (even if they are running on separate workstations).
7. This is only required on UNIX platforms. The authority of the principal user ID is given to clients that access MQSeries channels as an MCAUSER (MQ channel agent user).
8. *Clustering* is a technique used to group logically associated queue managers together. For MQ Workflow, this logical association exists between queue managers if they belong to MQ Workflow systems that are members of the same MQ Workflow system group. This group of associated queue managers is called a *cluster*.
9. Select additional if this is not the first queue manager in the cluster. The first queue manager configured in the cluster is used to hold a repository of information about all other queue managers. The repository contains

channel and queue definitions for every queue manager in the cluster. All other queue managers need only know the name and location of the first queue manager that holds this repository in order to read definitions for any other queue manager in the cluster. This reduces the overhead involved in explicitly defining channels and queues for every queue manager in the MQ Workflow system group. For more information about clustering, refer to the MQSeries online documentation.

10. If you select the repository type 'additional', then you need information about the first queue manager in the cluster.
11. If the database is remote, or if the queue manager will not be started by the transaction coordinator, then MQSeries needs to store information about the user ID that will be used to connect to the database.

---

## Java CORBA Agent configuration information

Complete Table 9 with your values for the Java agent. For more information about using the Java CORBA Agent, refer to the *IBM MQSeries Workflow: Programming Guide*.

Table 9. Java CORBA Agent configuration information

Identifier / Parameter	Default value	Your value
Locator policy	—	<input type="checkbox"/> Local bindings <input type="checkbox"/> Visibroker Smart Agent <sup>1</sup> <input type="checkbox"/> CORBA Naming Service <sup>1</sup> <input type="checkbox"/> Java RMI <sup>2</sup> <input type="checkbox"/> Interoperable Object Reference <sup>1</sup>
Agent name	MQWFAGENT	3
JDK/JRE Install Directory	—	3
Code version	3220	3
VisiBroker installation directory	—	4
Root name context used to register the CORBA naming service	—	5
Java Interoperable Object Reference (IOR) path	—	6
Agent cycle time	300 seconds	7
Client threshold	1000 objects	8
Client cycle	90 percent of the agent cycle	9

**Notes:**

1. These locator policies require the Inprise VisiBroker Smart agent. If you are using Java Version 1.1.x, you can use VisiBroker V3.3 or 3.4. If you are using JDK or JRE 1.2.x, you must use VisiBroker V3.4. For more information about Inprise VisiBroker see <http://www.inprise.com>.
2. Java RMI agents should only be used for prototyping. They are currently not suited for production purposes.
3. This is not required if you use the 'Local Bindings' locator policy. It is not possible to connect back-level Java API applets or applications to a Java CORBA Agent using the most recent code level. The code level of the Java CORBA Agent and the Java API applets or applications must exactly match, otherwise you will receive an error message indicating that the Java CORBA Agent for the domain could not be located. In order to allow a smooth migration of the back-level (old) clients, a Java CORBA Agent running with the old code level should be in place until the last back level client has been upgraded. A new Java CORBA Agent configuration should be created which uses the most recent code level. If you are using the Visibroker Smart Agent locator policy, the name of the new Java CORBA Agent must be different to the old one.
4. This is only required if you use the 'VisiBroker Smart Agent' locator policy.
5. This is only required if you use the 'CORBA naming service' locator policy.
6. This is only required if you use the 'Interoperable Object Reference' locator policy. This is the location where the agent publishes its IOR file. On Windows this must end with a trailing slash (\).
7. The number of seconds between periodic garbage collection. Valid values are between 30 and 86400.
8. The number of unreferenced objects tolerated by each client before non-periodic garbage collection is performed. Valid values are between 0 and 500000.
9. The ratio between the client-side keep-alive message cycle and the agent-side liveness check. Valid values are between 0 and 100%.

---

## Hardware and software requirements

The recommended hardware and software requirements are described in:

- “Server requirements”
- “Client requirements” on page 35
- “Buildtime requirements” on page 40

### Server requirements

The number and size of process models and process instances residing in the Runtime database, as well as the number of clients concurrently attached to the server, heavily influence the demand for main memory and hard disk space. For systems not used for production (for example development, test, or demonstration systems) less main memory may be sufficient. When setting up your servers, for performance and safety reasons, keep DB2 data and log files (table spaces) on separate disks.

The following recommended values are for a two-tier configuration, where the server and Runtime database reside on the same system:

- “Servers for AIX”
- “Servers for Sun Solaris” on page 33
- “Servers for HP-UX” on page 33
- “Servers for Windows 2000 or NT” on page 34
- “Servers for OS/2 Warp” on page 34

### Servers for AIX

For a two-tier configuration, where the server and Runtime database reside on the same system, you require the following hardware and software:

#### Hardware:

- An RS/6000 uni-processor, SMP, or SP machine as supported by AIX.
- A dedicated graphical display is not necessary. The system console is sufficient.

*Table 10. AIX server hardware requirements*

Operating environment	Main memory	Hard disk space		
		Code and samples	Empty DB2 database	Total recommended
RS/6000	512 MB	265 MB	115 MB	2 GB

#### Software:

- **Operating System:** AIX Version 4.2 or higher; or 4.3.1, or 4.3.2, or 4.3.3.
- IBM MQSeries for AIX Version 5.1 (included in the MQ Workflow package).



- IBM DB2 Universal Database for AIX Version 5.2, or Version 6.1 (included in the MQ Workflow package).
- In a high availability environment:
  - AIX V4.3.1 with HACMP V4.2.2, or
  - AIX V4.3.2 or V4.3.3 with HACMP V4.3.1

### Servers for Sun Solaris

For a two-tier configuration, where the server and Runtime database reside on the same system, you require the following hardware and software:

#### Hardware:

- A Sun workstation with SPARC processor architecture is required.
- A dedicated graphical display is not necessary. The system console is sufficient.

Table 11. Sun Solaris server hardware requirements

Operating environment	Main memory	Hard disk space		
		Code and samples	Empty DB2 database	Total recommended
Sun SPARC	512 MB	120 MB	120 MB	2 GB

#### Software:

- **Operating System:** Sun Solaris Version 7.
- IBM MQSeries for Sun Solaris Version 5.1 (included in the MQ Workflow package).
- IBM DB2 Universal Database for Sun Solaris Version 5.2 or Version 6.1 (included in the MQ Workflow package).

### Servers for HP-UX

For a two-tier configuration, where the server and Runtime database reside on the same system, you require the following hardware and software:

#### Hardware:

- An HP 9000 workstation is required.
- A dedicated graphical display is not necessary. The system console is sufficient.

Table 12. HP-UX server hardware requirements

Operating environment	Main memory	Hard disk space		
		Code and samples	Empty DB2 database	Total recommended
HP 9000	512 MB	150 MB	120 MB	2 GB

**Software:**

- **Operating System:** HP-UX Version 10.20.
- IBM MQSeries for HP-UX Version 5.1 (included in the MQ Workflow package).
- IBM DB2 Universal Database for HP-UX Version 5.2, or Version 6.1 (included in the MQ Workflow package).

**Servers for Windows 2000 or NT**

For a two-tier configuration, where the server and Runtime database reside on the same system, you require the following hardware and software:

**Hardware:**

- A personal computer with Intel-based processor architecture, for example Pentium with 200 MHz, is required. For test or demo purposes, an IBM ThinkPad or portable personal computer is acceptable.

*Table 13. Windows server hardware requirements*

Operating environment	Main memory	Hard disk space		
		Code and samples	Empty DB2 database	Total recommended
Windows 2000	256 MB	150 MB	280 MB	2 GB
Windows NT	256 MB	150 MB	280 MB	2 GB

**Software:**

- **Operating System:** Windows 2000, Windows NT Workstation V4.0 or Windows NT Server V4.0 with service pack 4, 5, or 6a.
- IBM MQSeries for Windows NT Version 5.1 (included in the MQ Workflow package).
- IBM DB2 Universal Database for Windows NT Version 5.2, or Version 6.1 (included in the MQ Workflow package).

**Servers for OS/2 Warp**

For a two-tier configuration, where the server and Runtime database reside on the same system, you require the following hardware and software:

**Hardware:**

- A personal computer supported by OS/2 with Intel-based processor architecture, for example Pentium with 200 MHz, is required.

Table 14. OS/2 server hardware requirements

Operating environment	Main memory	Hard disk space		
		Code and samples	Empty DB2 database	Total recommended
OS/2 Warp Server V4	256 MB	260 MB	100 MB	2 GB
OS/2 Warp V4	256 MB	260 MB	100 MB	2 GB

**Software:**

- **Operating System:** OS/2 Warp V4 or Warp Server V4.
- IBM MQSeries for OS/2 Version 5.1 (included in the MQ Workflow package).
- IBM DB2 Universal Database for OS/2 Version 5.0, 5.2, or Version 6.1 (included in the MQ Workflow package).

**Client requirements**

There are several types of clients. They provide MQ Workflow administration, Runtime database utilities, the standard client application, Lotus Notes interface, and programming APIs (for creating your own clients). Table 2 on page 4 shows which clients are available on which operating systems. The following sections describe the operating and programming environments required.

- “Clients for AIX”
- “Clients for Sun Solaris” on page 36
- “Clients for HP-UX” on page 36
- “Clients for Windows 2000” on page 37
- “Clients for Windows NT” on page 38
- “Clients for Windows 95 or 98” on page 38
- “Clients for OS/2 Warp” on page 39

**Clients for AIX**

Clients on AIX require the following operating and programming environments:

- A workstation capable of running the operating system.
- **Operating System:** AIX Version 4.2, or higher; or 4.3.1, or 4.3.2, or 4.3.3.
- IBM MQSeries for AIX Version 5.1 client (included in the MQ Workflow package).

**Note:** If the MQSeries server will be installed on the same machine, the MQSeries client must not be installed.

- For the development of programs using the MQSeries Workflow APIs, one of:
  - IBM C for AIX Version 3.0 or 5.0 (FlowMark 2.3 compatibility C language API).
  - IBM CSet++ for AIX Version 3.1.4 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility Workflow client API for C++).
  - IBM VisualAge C++ Professional for AIX V4.0.
  - JDK 1.1.6, 1.1.7, 1.1.8, 1.2 (MQSeries Workflow client APIs for Java).

**Note:** It is strongly recommended to install the latest PTF for JDK 1.1.x.

- Inprise VisiBroker Smart Agent Version 3.4 for the Java CORBA Agent (optional). If you are using Java Version 1.1.x, you can also use VisiBroker V3.3.

### **Clients for Sun Solaris**

Clients on AIX require the following operating and programming environments:

- A workstation capable of running the operating system.
- **Operating System:** Sun Solaris Version 7.
- IBM MQSeries for Sun Solaris Version 5.1 client (included in the MQ Workflow package).

**Note:** If the MQSeries server will be installed on the same machine, the MQSeries client must not be installed.

- For the development of programs using the MQSeries Workflow APIs, one of:
  - Sun Workshop Professional C/SPARC Version 5.0.
  - Sun Workshop Professional C++/SPARC Version 5.0.
  - JDK 1.1.6, 1.1.7, 1.1.8, 1.2 (MQSeries Workflow client APIs for Java).
- Inprise VisiBroker Smart Agent Version 3.4 for the Java CORBA Agent (optional). If you are using Java Version 1.1.x, you can also use VisiBroker V3.3.

### **Clients for HP-UX**

Clients on AIX require the following operating and programming environments:

- A workstation capable of running the operating system.
- **Operating System:** HP-UX Version 10.20.
- IBM MQSeries for Sun Solaris Version 5.1 client (included in the MQ Workflow package).

**Note:** If the MQSeries server will be installed on the same machine, the MQSeries client must not be installed.

- For the development of programs using the MQSeries Workflow APIs, one of:
  - HP C/ANSI C Developer's Bundle for HP-UX V10.20 (S700).
  - HP C++ for HP-UX V10.20 (S700).

### **Clients for Windows 2000**

Clients on Windows 2000 require the following operating and programming environments:

- A personal computer with Intel-based processor architecture capable of running the operating system and 64 MB of main memory are recommended.
- **Operating System:** Microsoft Windows 2000.
- IBM MQSeries for Windows NT Version 5.1 client (included in the MQ Workflow package).

**Note:** If the MQSeries server will be installed on the same machine, the MQSeries client must not be installed.

- For the development of programs using the MQSeries Workflow APIs, one of:
  - Microsoft Visual C++ Version 6.0 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility Workflow client API for C++, FlowMark 2.3 compatibility C language API).
  - IBM VisualAge C++ for Windows NT Version 4.0 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility C language API).
  - Microsoft VisualBasic for Windows Version 6.0 (FlowMark 2.3 compatibility VisualBasic language API).
  - JDK 1.1.8, 1.2 (MQSeries Workflow client APIs for Java).
  - Inprise VisiBroker Smart Agent Version 3.4 for the Java CORBA Agent (optional). If you are using Java Version 1.1.x, you can also use VisiBroker V3.3.
- For the development of programs using the MQSeries Workflow ActiveX Controls:
  - Microsoft VisualBasic for Windows Version 6.0.
- For the MQSeries Workflow client for Lotus Notes:
  - Lotus Notes Release 5.
- For an MQSeries Workflow standard client, no additional prerequisites are required.

## **Clients for Windows NT**

Clients on Windows NT require the following operating and programming environments:

- A personal computer with Intel-based processor architecture capable of running the operating system and 64 MB of main memory are recommended.
- **Operating System:** Microsoft Windows NT Workstation V4.0; Service Pack 4, 5, or 6a is required.
- IBM MQSeries for Windows NT Version 5.1 client (included in the MQ Workflow package).

**Note:** If the MQSeries server will be installed on the same machine, the MQSeries client must not be installed.

- For the development of programs using the MQSeries Workflow APIs, one of:
  - Microsoft Visual C++ Version 5.0 or 6.0 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility Workflow client API for C++, FlowMark 2.3 compatibility C language API).
  - IBM VisualAge C++ for Windows NT Version 3.5 or 4.0 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility C language API).
  - Microsoft VisualBasic for Windows Version 5.0 or 6.0 (FlowMark 2.3 compatibility VisualBasic language API).
  - JDK 1.1.6, 1.1.7, 1.1.8, or 1.2 (MQSeries Workflow client APIs for Java)
  - Inprise VisiBroker Smart Agent Version 3.4 for the Java CORBA Agent (optional). If you are using Java Version 1.1.x, you can also use VisiBroker V3.3.
- For the development of programs using the MQSeries Workflow ActiveX Controls:
  - Microsoft VisualBasic for Windows Version 6.0.
- For the MQSeries Workflow client for Lotus Notes:
  - Lotus Notes Release 5.
- For an MQSeries Workflow standard client, no additional prerequisites are required.

## **Clients for Windows 95 or 98**

Clients on Windows 95 or 98 require the following operating and programming environments:

- A personal computer capable of running the operating system and 48 MB of main memory are recommended.
- **Operating System:** Microsoft Windows 98; for Windows 95 Service Pack 1 or OEM Service Release 2 is required.

- IBM MQSeries for Windows 98 or Windows 95 Version 5.1 client (included in the MQ Workflow package).
- For the development of programs using the MQSeries Workflow APIs, one of:
  - Microsoft Visual C++ Version 6.0 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility Workflow client API for C++, FlowMark 2.3 compatibility C language API).
  - IBM VisualAge C++ for Windows NT Version 3.5 or 4.0 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility C language API).
  - Microsoft VisualBasic for Windows Version 6.0 (FlowMark 2.3 compatibility VisualBasic language API).
  - JDK 1.1.6, 1.1.7, 1.1.8, or 1.2 (MQSeries Workflow client APIs for Java)
  - Inprise VisiBroker Smart Agent Version 3.4 for the Java CORBA Agent (optional). If you are using Java Version 1.1.x, you can also use VisiBroker V3.3.
- For the development of programs using the MQSeries Workflow ActiveX Controls:
  - Microsoft VisualBasic for Windows Version 6.0.
- For the MQSeries Workflow client for Lotus Notes:
  - Lotus Notes Release 5.
- For an MQSeries Workflow standard client, no additional prerequisites are required.

### **Clients for OS/2 Warp**

Clients on OS/2 Warp require the following operating and programming environments:

- A Personal Computer capable of running the operating system and at least 32 MB of main memory are recommended.
- **Operating System:** OS/2 Warp Version 4.
- IBM MQSeries for OS/2 Version 5.1 client (included in the MQ Workflow package).
- For the development of programs using the MQSeries Workflow APIs, one of:
  - IBM VisualAge C++ Version 3.0 or 4.0 (MQSeries Workflow client APIs for C and C++, FlowMark 2.3 compatibility Workflow client API for C++, FlowMark 2.3 compatibility C language API).
  - IBM REXX (included in OS/2, FlowMark 2.3 compatibility REXX language API).
  - JDK 1.1.6, 1.1.7, 1.1.8, 1.2 (MQSeries Workflow client APIs for Java).
- For the MQSeries Workflow client for Lotus Notes:

- Lotus Notes Release 4.5. (Hebrew is not supported.)
- For an MQSeries Workflow standard client, no additional prerequisites are required.

## Buildtime requirements

To use the Buildtime you require the following:

- A personal computer with Intel-based processor architecture (for example, Pentium 300 MHz or higher).
- Screen: Resolution 1024x768 (recommended), 432 mm (17 inches), measured diagonally, or larger.
- One of these operating environments:
  - Windows 2000, and for Buildtime database: IBM DB2 Enterprise Edition Version 6.1; or Microsoft Jet Database Engine.
  - Windows NT Workstation V4.0 (Service Pack 4, 5, or 6a is required), and for Buildtime database: IBM DB2 Enterprise Edition Version 5.0, or 5.2, or 6.1; or Microsoft Jet Database Engine.
  - Windows 98, and for Buildtime database (stand-alone or as client): IBM DB2 Personal Edition Version 5.0, or 5.2, or 6.1; or Microsoft Jet Database Engine.
  - Windows 95, Service Pack 1 or OSR2 is required, and for Buildtime database (stand-alone or as client): IBM DB2 Personal Edition Version 5.0, or 5.2, or 6.1; or Microsoft Jet Database Engine.

**Note:** IBM DB2 UDB Version 6.1 is included in the MQ Workflow package.

Operating environment	IBM DB2 UDB		MS Jet Engine	
	Main memory <sup>1</sup>	Hard disk <sup>2</sup>	Main memory <sup>1</sup>	Hard disk <sup>2</sup>
Windows 2000	96 MB	1 GB	64 MB	700 MB
Windows NT	96 MB	1 GB	64 MB	700 MB
Windows 98/95	64 MB	1 GB	64 MB	700 MB

### Notes:

1. Make sure you have sufficient swap space.
2. These recommended values assume that your Buildtime and Buildtime database are on the same machine. The exact space required depends on the complexity of your processes and topology.



---

## Chapter 5. Installing the prerequisite software

Depending on your chosen setup, one or more of the following are prerequisites for MQ Workflow:

- IBM DB2 Universal Database Version 5.2, or higher
- IBM MQSeries Version 5.1 with CSD level 4

CD-ROMs required to install these prerequisites on any of the supported operating platforms are provided as part of the MQ Workflow package.

The following sections describe where and which DB2 and MQSeries components you must install. Brief descriptions how to install DB2 and MQSeries are given in:

- “Appendix E. Stand-alone setup on Windows NT/2000” on page 207
- “Appendix F. Quick server setup on AIX” on page 217
- “Appendix G. Quick server setup on Sun Solaris” on page 223
- “Appendix H. Quick server setup on HP-UX” on page 233

For more details about how to install DB2 and MQSeries, see the *Quick Beginnings* online manuals, contained on the CD-ROMs accessed from the following files:

- **DB2CY.HTM**, for DB2
- **START.HTM**, for MQSeries

These manuals are also available as printed books from IBM.

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### IBM DB2 Universal Database

IBM DB2 Universal Database must be installed prior to installing MQ Workflow.

IBM DB2 Universal Database is used as the database management system to store, retrieve, manipulate, and manage Runtime data within an MQ Workflow system.

IBM DB2 Universal Database can also be used as the database management system for Buildtime data, however, this is optional. Instead of IBM DB2 Universal Database, Microsoft Access can be used. If you decided to use Microsoft Jet Database Engine instead of DB2, no prerequisite software needs to be installed for the Buildtime database. All necessary software drivers are installed automatically during the MQ Workflow configuration stage.

The products and components provided on the IBM DB2 Universal Database CD-ROMs include: *DB2 Universal Database Enterprise Edition*, *DB2 Universal Database Workgroup Edition*, and *DB2 Client Application Enabler*. For MQ Workflow, the DB2 products that you need to install are:

### **DB2 Universal Database Enterprise Edition**

The *DB2 Universal Database Enterprise Edition* allows Buildtime and Runtime databases to be created for holding MQ Workflow data and process models. It also provides a DB2 Universal Database server that enables MQ Workflow Buildtime and MQ Workflow servers installed with the DB2 Client Application Enabler on local and remote workstations to update, control, and manage the Buildtime and Runtime databases, respectively.

DB2 Universal Database Enterprise Edition must be installed on the Runtime database workstation.

### **DB2 Universal Database Workgroup Edition**

On the Buildtime client machine, you can either use the Client Application Enabler to access a remote Buildtime DB2 database, or install the Universal Database Workgroup Edition.

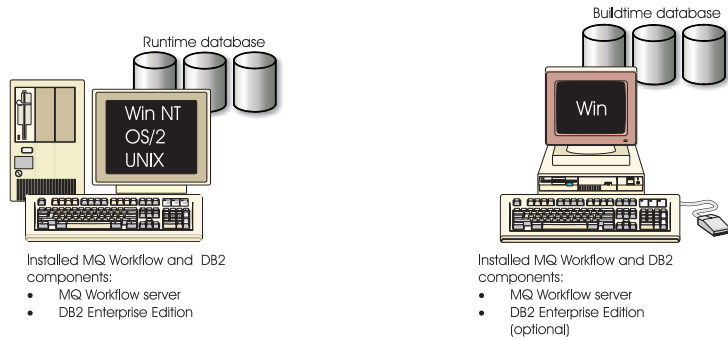
### **DB2 Client Application Enabler**

The *DB2 Client Application Enabler* allows MQ Workflow Buildtime and MQ Workflow servers installed on remote workstations to access local Buildtime and Runtime databases, respectively. The *DB2 Client Application Enabler* must be installed on all **remote** MQ Workflow Buildtime and MQ Workflow server workstations in order to access local Buildtime and Runtime databases created with the DB2 Universal Database Enterprise Edition.

The following diagram illustrates workstations in an MQ Workflow setup where the MQ Workflow server and MQ Workflow Buildtime are locally installed on the same workstation as the Runtime and Buildtime databases, respectively. For such a setup, the DB2 components you must install are listed.

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## Locally installed MQ Workflow Buildtime and MQ Workflow server

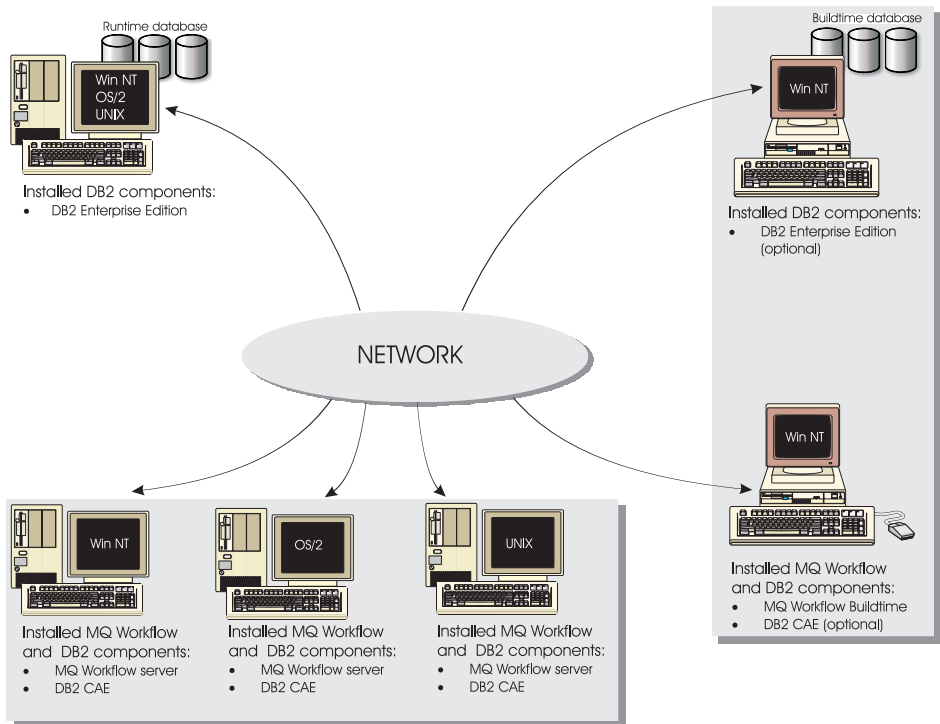


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*Figure 6. Locally installed MQ Workflow Buildtime and MQ Workflow server*

The following diagram illustrates workstations in an MQ Workflow setup where MQ Workflow servers and the MQ Workflow Buildtime are remotely installed from workstations that host the Buildtime and Runtime databases. In such a setup, the DB2 components you must install are listed.

## Remotely installed MQ Workflow Buildtime and MQ Workflow server



NOTE: CAE is Client Application Enabler. This must be installed on all workstations where all remote MQ Workflow servers are installed.

Figure 7. Remotely installed MQ Workflow Buildtime and MQ Workflow servers

When installing DB2, note the following points:



If any of your DB2 client workstations, databases managed by this workstation, or host databases are configured in Japanese, Korean, Simplified Chinese or Traditional Chinese, the component **East Asian Conversion Support** must be installed, too.



During the DB2 installation on Windows NT, the check box **Install Components required to administer remote servers** must be checked.



You can also use IBM DB2 Universal Database Version 5.0. However, when doing so, be sure to apply the maintenance package, CSD 06, to the IBM DB2 Universal Database Version 5.0 installation. Details about this are held in the README.1ST file contained on the MQ Workflow CD-ROM.

The following table summarizes the IBM DB2 Universal Database components you must install on the MQ Workflow server, MQ Workflow Buildtime, Runtime database, and Buildtime database workstations:

<b>Summary of DB2 requirements</b>	
<b>Workstation</b>	<b>DB2 components to install</b>
Runtime database	DB2 Universal Database Enterprise Edition V5.2 or higher.
MQ Workflow server	DB2 Client Application Enabler V5.2 <b>Note:</b> This is only required on the MQ Workflow Server workstation if the Runtime database is located on a different workstation.
Buildtime database	*DB2 Universal Database Enterprise Edition V5.2 or higher. <b>Note:</b> If you use Version 6.1, do not use fix pack 3.
MQ Workflow Buildtime	*DB2 Client Application Enabler V5.2 <b>Note:</b> This is only required on the MQ Workflow Buildtime workstation if the Buildtime database is located on a different workstation.
* Not required if Microsoft Access is used as the Buildtime database.	

## IBM MQSeries

IBM MQSeries Version 5.1 with CSD level 4 must be installed prior to installing MQ Workflow.

IBM MQSeries is IBM's messaging product that enables MQ Workflow components to communicate across similar or different operating-system platforms by sending and receiving data as messages.

Within an MQ Workflow system, the following MQSeries components are used to coordinate and manage communications:

## MQSeries server

An MQSeries server is used to manage messages sent and received by an MQ Workflow server. An MQSeries server must be installed on all workstations where you intend installing MQ Workflow servers.

## MQSeries client

An MQSeries client provides a remote interface to an MQSeries server. MQ Workflow client components (such as the MQ Workflow administration utility, standard client, client for Lotus Notes, or API Runtime Libraries), and the MQ Workflow Java CORBA Agent use MQSeries clients to send messages to and receive messages from an MQSeries server. An MQSeries client must be installed on all workstations where you intend installing the MQ Workflow Java CORBA Agent or MQ Workflow client components.

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### Remotely installed MQ Workflow client components

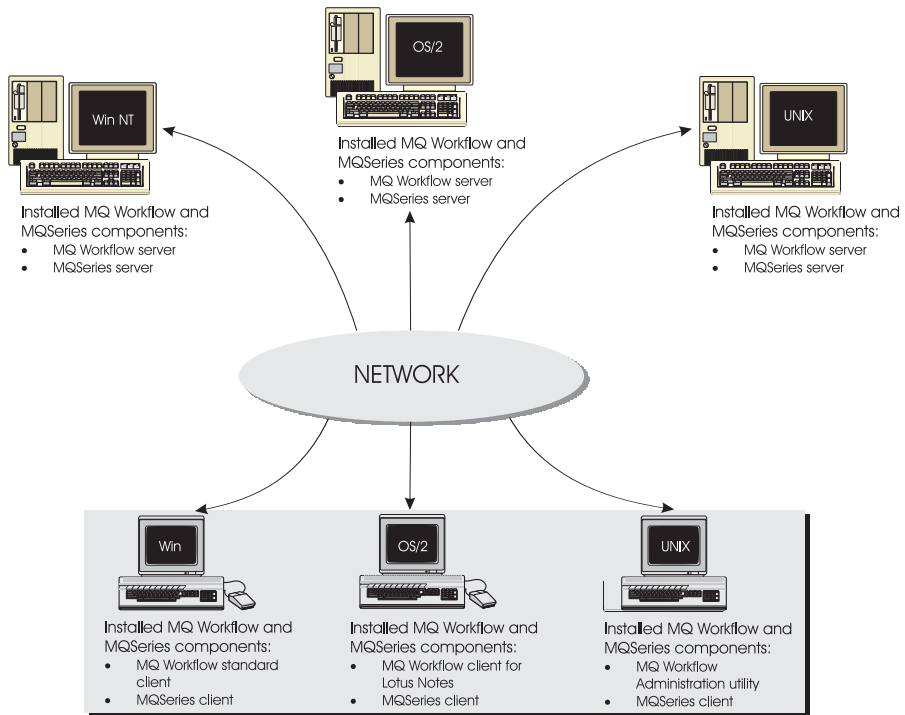


Figure 8. Remotely installed MQ Workflow client components

Figure 8 on page 46 illustrates workstations in an MQ Workflow setup where MQ Workflow client components are installed remotely from MQ Workflow servers. On each workstation, the MQSeries components you must install are listed.

Table 15 shows that only an MQ Workflow server requires an MQSeries server, all other MQ Workflow components only need an MQSeries client (they can also work with an MQSeries server).

*Table 15. Which MQ Workflow components require an MQSeries server or client*

<b>Workstations</b>	<b>MQSeries components to install</b>
MQ Workflow server	MQSeries V5.1 <b>server</b> with CSD level 4
MQ Workflow Administration Utility	MQSeries V5.1 client with CSD level 4
MQ Workflow Standard Client	MQSeries V5.1 client with CSD level 4
MQ Workflow Client for Lotus Notes	MQSeries V5.1 client with CSD level 4
MQ Workflow Java CORBA Agent	MQSeries V5.1 client with CSD level 4
MQ Workflow API Runtime Libraries	MQSeries V5.1 client with CSD level 4
MQ Workflow Program Execution Agent	MQSeries V5.1 client with CSD level 4





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## Chapter 6. Installing on UNIX

This chapter describes the procedures for installing MQ Workflow components on UNIX machines.

**Note:** If you have an old version of MQ Workflow installed and you want to use data from this version with the new release of MQ Workflow, you must migrate your existing installation as explained in “Appendix K. Migrating from a previous release” on page 265. It is important to do this before installing the new version of MQ Workflow.

After performing the steps described in “Creating user ID and groups”, proceed with one of the following:

- “Installing MQ Workflow on AIX” on page 53
- “Installing MQ Workflow on HP-UX” on page 56
- “Installing MQ Workflow on Sun Solaris” on page 57



During the installation procedure, the language version for MQ Workflow is set. The language environment variable, \$LANG or \$LC\_ALL, on your UNIX workstation must be set to the same language. For details about this see “Appendix C. Language settings” on page 195.

---

### Creating user ID and groups

You must create user ID that will be used to install and configure DB2, MQSeries, and MQSeries Workflow.

Table 16. Creating user IDs and groups

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Create the Workflow group	Enter the command: <b>On AIX</b> mkgroup fmcgrp <b>On HP-UX and Sun Solaris</b> groupadd fmcgrp
3	Verify that group <b>mqm</b> exists	Verify that the MQSeries administrator group <b>mqm</b> exists (this is the mandatory group that is created when you install MQSeries). If it does not exist, check that you have installed MQSeries correctly.

Table 16. Creating user IDs and groups (continued)

Step	Description	Action
4	Verify that group <b>db2iadm1</b> exists	Verify that the DB2 administrator group <b>db2iadm1</b> exists (this is the default group that is created when you install DB2). If it does not exist, check that you have installed DB2 correctly. If your DB2 administrator group has a different name, be careful to substitute it whenever the default 'db2iadm1' is mentioned.
5	Create an MQ Workflow administration user	<p>Check your security planning in Table 3 on page 22. The number of user IDs that you plan to use during configuration will affect which groups the <i>MQ Workflow Administrator</i> user ID will be made a member of:</p> <ol style="list-style-type: none"> <li>1. If the configuration is to be performed by the default <i>MQ Workflow Administrator</i> user ID <b>fmc</b> which will have MQSeries and DB2 administration rights (use this for standard and stand-alone setups), enter the command:  <b>On AIX:</b>  <code>mkuser pgrp=fmcgrp groups=mqm,db2iadm1 fmc</code>  <b>On HP-UX and Sun Solaris:</b>  <code>useradd -g mqm -G fmcgrp,db2iadm1 -s /usr/bin/ksh -m fmc</code> </li> <li>2. If the default <i>MQ Workflow Administrator</i> user ID <b>fmc</b> is not going to have MQSeries and DB2 administration rights (use this for higher security), enter the command:  <b>On AIX:</b>  <code>mkuser pgrp=fmcgrp fmc</code>  <b>On HP-UX and Sun Solaris:</b>  <code>useradd -g fmcgrp -s /usr/bin/ksh -m fmc</code> </li> </ol>
6	Set password for user <b>fmc</b>	Enter the command: <code>passwd fmc</code>
7	Create an MQ Workflow configuration administrator	If your <i>Configuration Administrator</i> user ID is not the same as the <i>MQ Workflow Administrator</i> user ID (see your copy of Table 3 on page 22), you should create the <i>Configuration Administrator</i> user ID and make it a member of the necessary groups according to your security planning.
8	Verify Principal user ID	If you plan not to use the <i>MQ Workflow Administrator</i> user ID as the Principal user ID for clients to access MQSeries channels (see your security planning in Table 3 on page 22), then verify that the user ID you plan to use exists.
9	Verify Transaction Coordinator user ID	<p>If you plan not to use the <i>MQ Workflow Administrator</i> user ID as the transaction coordinator user ID for MQSeries to use to access DB2 (see your security planning in Table 3 on page 22), then verify that the user ID you plan to use exists.</p> <p><b>Note:</b> If the database is remote, the transaction coordinator user ID must exist only on the database machine.</p>

## Installing MQ Workflow on AIX

These instructions describe how to install MQ Workflow on an AIX workstation using the AIXwindows version of the System Management Interface Tool (smit). If you install an MQ Workflow Server on a workstation that does not have AIXwindows, use the character-based version of the System Management Interface Tool (smitty). The sequence of panels is the same as for smit.

On AIX, there is a default configuration option, `fmcdefault`, which installs and configures a local, two-tier MQ Workflow system, where the servers and database are on the same machine. This option automatically runs the configuration utility after MQ Workflow has been installed. If you are migrating your installation, you must not use the automatic default configuration option.

If you intend to use the default configuration option, you must first check the following:

1. MQSeries must be already installed and configured.
2. DB2 must have previously been installed and configured with the user ID **db2inst1**.
3. The TCP/IP port number **5010** must not be used by any other application.
4. The DB2 administration group must be **db2iadm1**.
5. The user ID **fmc** must exist, and be a member of the groups **db2iadm1** and **mqm**, as described in “Creating user ID and groups” on page 51

To install MQ Workflow on AIX, you must perform the following:

1. Log on to the workstation as **root**.
2. Insert the MQ Workflow installation disk into the CD-ROM drive.
3. Mount the CD ROM by entering the command:
 

```
mount -oro -v cdrfs /dev/cd0 /cdrom
```
4. Read the **readme.xxx** where *xxx* is your language code, for example **enu** for US English.
5. If you intend to use the automatic default configuration option, add the following DB2 script file
 

```
./home/<db2_instance_owner>/sql1lib/db2profile
```

to the startup script **/home/fmc/.profile** so that it is started automatically.

6. Start the System Management Interface Tool by entering **smit** or **smitty**.
7. Step through the installation windows by selecting the appropriate options until the **MULTI-SELECT LIST** window appears. The options displayed may vary depending on your version:

- a. Select **Software Installation and Maintenance**
  - b. Select **Install and Update Software**
  - c. Select **Install and Update Software from LATEST Available Software**
  - d. Enter the **INPUT device / directory** where the CD-ROM is mounted.
8. In the **MULTI-SELECT LIST** window, the following list of components appears. Select the MQ Workflow components you want to install.

```

fmc                                ALL  fmc_all_filesets
MQSeries Workflow API Development Kit    fmc.api.adt
MQSeries Workflow API Runtime            fmc.api.rte
MQSeries Workflow Administration Utility  fmc.UTIL
MQSeries Workflow Base Common Files      fmc.base
MQSeries Workflow Java API Beans         fmc.java.beans
MQSeries Workflow Java CORBA Agent       fmc.java.agent
MQSeries Workflow Java Documentation     fmc.java.doc
MQSeries Workflow Other Common Files     fmc.baseext
MQSeries Workflow Program Execution Agent fmc.pea
MQSeries Workflow Rtdb and Srvr Common Files fmc.basertdb
MQSeries Workflow Runtime Database Utilities fmc.rtdbutil
MQSeries Workflow Samples                 fmc.samples
MQSeries Workflow Server                  fmc.server
fmcdefault                            ALL  fmcdefault_all_filesets
MQSeries Workflow Default Configuration  fmcdefault.config

```

Selecting the `fmc` package installs all AIX-based MQ Workflow components.

Selecting the `fmcdefault` package is used to install AIX-based MQ Workflow components and configure them automatically with default configuration values. This means that you do not have to configure MQ Workflow components as explained in “Chapter 7. Configuring on UNIX” on page 59.

Selecting both `fmc` and `fmcdefault` is useful for installing a UNIX-based two-tier MQ Workflow setup with preset configuration values.



During the configuration stage, a Runtime database (FMCDB), queue manager (FMCQM), MQ Workflow user ID (`fmc`), and MQ Workflow configuration (FMC) are created. If you remove the default configuration package, these components are deleted without warning.

9. After selecting the MQ Workflow components you want to install, select the appropriate options to start the installation. After starting the installation, program files are copied to the newly created MQ Workflow installation directory, `/usr/lpp/fmc`. This may take several minutes to complete.
10. When the installation is complete, leave `smrit` from the **Exit** menu.

11. If you selected the **default configuration**, the configuration tool will be run automatically to create a configuration based on the default values. After it has completed creating the configuration, you should perform the steps described in “Chapter 8. Verifying an MQ Workflow server on UNIX” on page 75.
12. If you are **installing a new installation**, you must perform the actions described in “Post-installation for MQ Workflow on UNIX” on page 58.
13. If you are **migrating an existing installation**, you should continue performing the migration steps from “Changing directory and file permissions for Version 3.2.2 on UNIX” on page 271.

---

## Installing MQ Workflow on HP-UX

These instructions describe how to install MQ Workflow on an HP-UX system using the HP-UX software install program **swinstall**.

1. Log on to your system as **root**.
2. Insert the MQ Workflow installation disk into the CD-ROM drive.
3. Mount this CD-ROM with a mount point **/cdrom**. For details on how to mount a CD-ROM, refer to the HP 9000 Series 700 or 800 Owner's Guide.
4. Read the **readme.xxx** where *xxx* is your language code, for example **enu** for US English.
5. Invoke the HP-UX software install program by entering at a shell prompt:

### **swinstall**

If the environment variable **DISPLAY** is set correctly, the XWindows version of **swinstall** is displayed, otherwise the terminal version is displayed.

6. In the panel **Source Depot Type:** Select **Network Directory/CDROM**.
7. In the panel **Source Home Name...** enter your host name.
8. On the second MQ Workflow installation disk, find the file **FMC-322.PKG** located in the directory **hpux**.
9. In the panel **Source Depot Path...** enter the fully qualified name of the file **FMC-322.PKG**.
10. Select **OK**. A panel appears displaying **MQSeries Workflow**.
11. Highlight **MQSeries Workflow** and select **Action**, then **Mark For Install** from the menu options.
12. After all MQ Workflow components have been selected, select **Action**, then **Install (analysis)** from the menu options.
13. When **Ready** is displayed in the **Status** field, select **OK**.
14. A panel appears. Select **Yes**.
15. The installation starts and program files are copied to the newly created MQ Workflow installation directory **/opt/fmc**. This may take several minutes to complete.
16. When the installation is complete, select **Done**, and exit **swinstall**.
17. If you are **installing a new installation**, you must perform the actions described in "Post-installation for MQ Workflow on UNIX" on page 58.
18. If you are **migrating an existing installation**, you should continue performing the migration steps from "Changing directory and file permissions for Version 3.2.2 on UNIX" on page 271.



## Installing MQ Workflow on Sun Solaris

These instructions describe how to install MQ Workflow on a machine running Sun Solaris.

1. Log on to your system as root.
2. Insert the MQ Workflow installation disk into the CD-ROM drive. The CD-ROM is mounted automatically.
3. Read the **readme.xxx** where *xxx* is your language code, for example *enu* for US English.
4. Enter the command **pkgadd -d <fully-qualified-name-of-CDROM-image>**. For example, **pkgadd -d /mount-point/solaris/fmc-3.2.2.pkg**.

### Notes:

- a. You cannot use **admintool** to install MQ Workflow for Solaris.
- b. During installation a subdirectory **fmc** is created for MQ Workflow in the base directory. By default, MQ Workflow for Solaris will be installed into **/opt/fmc**. You can specify a different base directory other than **/opt** using the **-R** option. For more information see the **pkgadd** manual.
5. When you are prompted, select the MQSeries Workflow package.
6. The program files are copied to your machine. This may take several minutes.
7. If you get the command prompt without any error messages, the installation is complete.
8. Check that your 'maxusers' setting is high enough, as described in "Kernel configuration parameters".
9. If you are **installing a new installation**, you must perform the actions described in "Post-installation for MQ Workflow on UNIX" on page 58.
10. If you are **migrating an existing installation**, you should continue performing the migration steps from "Changing directory and file permissions for Version 3.2.2 on UNIX" on page 271.

### Kernel configuration parameters

There are recommended values for the Sun Solaris kernel configuration parameters. This summarizes the requirements from the *IBM DB2 Connect: Quick Beginnings*, and *MQSeries for Sun Solaris: Quick Beginnings* manuals :

```
set msgsys:msginfo_msgmax = 65535
set msgsys:msginfo_msgmnb = 65535
set msgsys:msginfo_msgmap = 1026
set msgsys:msginfo_msgmni = 256
set msgsys:msginfo_msgssz = 16
set msgsys:msginfo_msgtql = 1024
set msgsys:msginfo_msgseg = 32768
```

```
set shmsys:shminfo_shmmax = 483183820 (90% of your physical memory)
```

```

set shmsys:shminfo_shmseg = 1024
set shmsys:shminfo_shmmni = 1024
set shmsys:shminfo_shmem = 1024

set semsys:seminfo_sema = 1
set semsys:seminfo_semaem = 16384
set semsys:seminfo_sevmx = 32767
set semsys:seminfo_semmni = 1024 (semmni < semmns)
set semsys:seminfo_semmap = 1026 (semmni + 2)
set semsys:seminfo_semmns = 16384
set semsys:seminfo_semmsl = 100
set semsys:seminfo_semopm = 100
set semsys:seminfo_semmnu = 2048
set semsys:seminfo_semume = 256

set maxusers = 32 (This is the minimum, best to set it higher)

```

**Note:** The default for maxusers is the size of main memory in MB minus 2. For example, if you have 512 MB memory, maxusers defaults to 510. You can omit the set maxusers command from the /etc/system file.

---

## Post-installation for MQ Workflow on UNIX

Before you can configure MQ Workflow, you must perform a number of preliminary steps that prepare your system for configuring MQ Workflow<sup>1</sup>.

Table 17. Post-installation for MQ Workflow on UNIX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Create the MQ Workflow installation profile	If you are using the default administration <AdminUserID> <b>fmc</b> , with a primary group <i>fmcgrp</i> , and the default <ConfigRootDir> <i>/var/fmc</i> , enter the command:  <b>fmczinsx -o env</b>  otherwise enter:  <b>fmczinsx -o env -c &lt;ConfigRootDir&gt; -U &lt;AdminUserID&gt; -G &lt;fmcgrp&gt;</b>
3	Prepare various directories, MQSeries, DB2, and MQ Workflow files	Enter the command:  <b>fmczinsx -o inf</b>
4	Start configuring	Now you are ready to perform the actions described in “Chapter 7. Configuring on UNIX” on page 59.

---

1. It is recommended to create a dedicated file system for MQ Workflow. For a complex setup, it is recommended to create several file systems.

---

## Chapter 7. Configuring on UNIX

This chapter describes how to configure MQ Workflow on any of the supported UNIX based operating systems, and how to create the necessary resources. After completing these steps, you will be ready to verify that your MQ Workflow system is working correctly.

---

### Before creating an MQ Workflow configuration

Before you create an MQ Workflow configuration, you must perform the following:

- “Prepare the DB2 environment”
- “Catalog the remote TCP/IP node” on page 60
- “Catalog the existing remote database” on page 61
- “Copy the channel definition table from the remote database host” on page 61
- “Prepare the Java CORBA Agent” on page 62

### Prepare the DB2 environment

Table 18 describes how you must prepare the DB2 environment.

Table 18. Prepare the DB2 environment

Step	Description	Action
1	Log on	Log on as the MQ Workflow administrator.
2	Add the DB2 profile to the .profile	Add the following command: <code>. /home/db2inst1/sql1lib/db2profile</code>  (substituting your DB2 instance name for the default <b>db2inst1</b> , and make sure that there is a space between the period <code>'.'</code> and the slash <code>'/'</code> ) to the .profile for the following users: <ol style="list-style-type: none"><li>1. <b>fmc</b></li><li>2. Each MQ Workflow configuration administrator user.</li><li>3. The MQSeries administrator if the MQ Workflow configuration administrator is not in the group <b>db2iadm1</b>.</li><li>4. The transaction coordinator if it is different from the MQ Workflow configuration administrator.</li></ol>
3	Start the DB2 instance	<ol style="list-style-type: none"><li>1. Enter the command: <code>db2start</code></li><li>2. Log off as owner of the DB2 instance.</li></ol>

## Catalog the remote TCP/IP node

If you are creating a three-tier setup, or adding a new system to an existing system group, the Runtime database must already exist on another machine, and you must perform the actions in Table 19 to redirect all database requests to the remote machine.

If you are creating the first system in a system group, skip to “Prepare the Java CORBA Agent” on page 62.

Table 19. Catalog the remote TCP/IP node

Step	Description	Action
1	Verify database	<p>On the machine that will host the Runtime database:</p> <ol style="list-style-type: none"> <li>Verify that the DB2 database has been created. <b>Note:</b> For details about creating a new database, see the <i>IBM DB2 Quick Beginnings</i> online manual.</li> <li>Note the following information about this database:               <ol style="list-style-type: none"> <li>Host name or TCP/IP address of the machine that will host the database, <i>computer-name</i>.</li> <li>The name of the DB2 instance on this machine, <i>instance-name</i>.</li> <li>The service name used by this DB2 instance, <i>servicename</i>.</li> <li>Name of the Runtime database, <i>database-name</i> (for configurations that use the default values, this should be <b>FMCDDB</b>).</li> </ol> </li> </ol>
2	Catalog the remote TCP/IP node	<p>On the workstation where you want to install the server:</p> <ol style="list-style-type: none"> <li>Log on with a user ID that has DB2 administration rights (the default is <b>fmcd</b>).</li> <li>Enter the commands:               <pre>db2 CATALOG TCPIP NODE <i>node-name</i> REMOTE <i>computer-name</i>           SERVER <i>servicename</i> REMOTE_INSTANCE <i>instance-name</i> db2 UPDATE DBM CFG USING TP_MON_NAME mqmax db2 TERMINATE</pre> <p>where <i>node-name</i> is a local alias or nickname where the database instance resides. <b>Note:</b> For more information about cataloging a database, see “Access a remote DB2 instance” on page 152.</p> </li> </ol>

## Catalog the existing remote database

If you are creating an additional new system to an existing system group, the Runtime database must already exist on another machine, and you must perform the actions in Table 20 to redirect all database requests to the remote machine.

If you are creating the first system in a system group, and are not creating a three-tier setup, skip to “Prepare the Java CORBA Agent” on page 62.

Table 20. Catalog the existing remote database

Step	Description	Action
1	Catalog the remote database	<p>On the workstation where you want to install the server, enter the command:</p> <pre>db2 CATALOG DATABASE <i>database-name</i> AT NODE <i>node-name</i></pre> <p>where <i>database-name</i> is the name of the database on the remote instance that you gave the local alias or nickname <i>node-name</i>.</p> <p><b>Note:</b> For more information about cataloging a database, see “Access a remote DB2 instance” on page 152.</p>

## Copy the channel definition table from the remote database host

For managing your channel definition tables, you have two options:

1. You can use one channel definition table for all queue managers used in the system group as described in Table 21.
2. You can provide dedicated channel definition tables for each queue manager.

Table 21. Copy the channel definition table from the remote database host

Step	Description	Action
1	Copy the channel definition table from the remote Runtime database host to the local machine	<ol style="list-style-type: none"> <li>1. Use ftp to copy the client channel definition table (in binary mode) from <code>&lt;ConfigurationRootDir&gt;/chltabs/MQWFCHL.TAB</code> on the <b>remotehost</b> to <code>&lt;ConfigurationRootDir&gt;/chltabs/MQWFCHL.TAB</code> on the local machine that you are configuring.</li> <li>2. Assign permissions <code>"mqm:mqm 664"</code> to the local copy of MQWFCHL.TAB.</li> </ol>
2	Copy the modified table back to the remote Runtime database host	<p>Later, after you have created the queue manager, the channel definition table will have been modified, and should be copied back to remote Runtime database host to ensure that the tables are consistent.</p>

## Prepare the Java CORBA Agent

If you intend to use the Inprise VisiBroker Object Request Broker, you must configure it as described in Table 22. For more information about using the Java CORBA Agent, refer to the *IBM MQSeries Workflow: Programming Guide*.

Table 22. Prepare the VisiBroker Smart Agent

Step	Description	Action
1	Install VisiBroker	<ol style="list-style-type: none"> <li>1. Install the Inprise VisiBroker as described in the VisiBroker documentation. For more information about Inprise VisiBroker see <a href="http://www.inprise.com">http://www.inprise.com</a>. <b>Note:</b> If you are using Java Version 1.1.x, you can use VisiBroker V3.3 or 3.4. If you are using JDK or JRE 1.2.x, you must use VisiBroker V3.4.</li> <li>2. Write down the name of the directory where VisiBroker is installed. You will need this information later.</li> </ol>
2	Copy ORB file	Copy the file <code>orb.properties</code> from your <i>&lt;VisiBroker Installation Directory&gt;/docs</i> directory to your <i>&lt;Java Installation Directory&gt;/jre/lib</i> directory.
3	Edit the ORB file	<p>Edit your copy of the <code>orb.properties</code> file in the <i>&lt;Java Installation Directory&gt;/jre/lib</i> directory:</p> <ol style="list-style-type: none"> <li>1. Set the <b>ORBClass</b> variable to point to the VisiBroker:  <code>org.omg.CORBA.ORBClass = com.visigenic.vbroker.orb.ORB</code></li> <li>2. Set the <b>ORBSingletonClass</b> variable to point to the VisiBroker:  <code>org.omg.CORBA.ORBSingletonClass = com.visigenic.vbroker.orb.ORB</code></li> </ol>
4	Edit the CLASSPATH	<p>Edit your <b>CLASSPATH</b> system variable, and make sure that the VisiBroker jar files are listed <b>before</b> the JDK and any application jar files. For example, on AIX:</p> <pre>/usr/lpp/vbroker/lib/vbjorb.jar; /usr/lpp/vbroker/lib/vbjapp.jar; /var/java/JDK1.2/jre/lib ... etc.</pre> <p>For example, on Sun Solaris:</p> <pre>/opt/vbroker/lib/vbjorb.jar; /opt/vbroker/lib/vbjapp.jar; /var/java/JDK1.2/jre/lib ... etc.</pre> <p><b>Note:</b> When running the MQ Workflow Java Agent under Java 2 (SDK1.2.2) you have to use the 'oldjava' launcher which accepts classpath settings in the Java 1.1.x family style.</p>

## Creating an MQ Workflow configuration

The following sections describe how to define a new configuration, select which components you want to configure, and enter the information required for the selected components.

### Enter the configuration identifier and select components

To create a new configuration, you must start the configuration utility as root, and select which components you want to configure. This is described in Table 23.

Table 23. Enter the configuration identifier and select components

Step	Description	Action
1	Start the MQSeries Workflow configuration utility	<ol style="list-style-type: none"> <li>1. Log on as <b>root</b>.</li> <li>2. Enter the command: <b>fmczutil</b></li> </ol>
2	Create a new configuration	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>FMC33201I Configuration Commands Menu: 1 ... List s ... Select c ... Create x ... Exit Configuration Commands Menu</pre> </div> <p>For a new configuration, select <b>c</b>.</p> <p><b>Note:</b> If you are not creating a new configuration, you can use the following options: Option <b>1</b> lists configuration identifiers for all MQ Workflow configurations that have already been defined. Option <b>s</b> allows you to select an already defined MQ Workflow configuration to work on, this option is only displayed if a configuration already exists.</p>
3	Enter configuration identifier	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>Configuration identifier : [FMC]</pre> </div> <p>Press enter to accept the default configuration identifier, or enter your own value.</p>
4	Enter the configuration administrator	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>Configuration administrator : [fmc]</pre> </div> <p>Press Enter to accept the default value for the user that will be allowed to access the configuration-related data, or enter your own value.</p>

Table 23. Enter the configuration identifier and select components (continued)

Step	Description	Action
5	Select the components to configure	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>FMC33210I Select Category Menu: s ... ( ) Server i ... ( ) Runtime Database Utilities c ... ( ) Client j ... ( ) Java Agent a ... all n ... none x ... Exit Select Category Menu</pre> </div> <p><b>Note:</b> Only the components that have been installed will appear in the menu. The Java Agent is not supported on HP-UX.</p> <p>Select one or more components:</p> <ol style="list-style-type: none"> <li>1. To select the components that you want to configure, enter the letter for the option you wish to select. Each time that you make a selection, the menu is redisplayed with an '(X)' indicating which components have been selected. Selected components can be deselected by re-entering the option. <ul style="list-style-type: none"> <li><b>Note:</b> Selecting the server will also include the Runtime database utilities. Select client if you want to use any of the following MQ Workflow clients: administration utility, API Runtime libraries, or Program Execution Agent.</li> </ul> </li> <li>2. When you have selected all components that you want to configure, enter <b>x</b> to exit the selection menu. The configuration utility will then start prompting you for the configuration information needed to configure the components that you have selected.</li> </ol>



## Entering further information

The information that you now have to enter depends on the components that you selected in the previous stage. Table 24 describes what further configuration information you will have to enter.

Table 24. Configuration information required for each selected component

Selected components	Configuration information required			
	Runtime database	Queue manager	Client	Java CORBA Agent
Server	see Table 25	see Table 26		
Runtime Database Utilities	see Table 25			
Client			see Table 27	
Java Agent			see Table 27	see Table 28
all	see Table 25	see Table 26	see Table 27	see Table 28

## Enter information for the Runtime database

If you are not configuring a server or Runtime database utilities, you can skip to “Entering connection information for a client (or Java Agent)” on page 70.

Table 25. Entering information for the Runtime database

Step	Description	Action
1	Select database type	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p>- Configuration of Runtime database ...  u ... ( ) Use an existing Runtime database  n ... (X) Create a new Runtime database</p> </div> <ol style="list-style-type: none"> <li>If you are configuring the first system in a system group, press Enter to select the default option <b>n</b> for a new database.</li> <li>If you are creating an additional system in an existing system group, enter <b>u</b> to use an existing database.</li> </ol>
2	Select local or remote database	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p>l ... (X) Local database  r ... ( ) Remote database</p> </div> <p>enter <b>r</b> if the database will be on a remote machine, or press Enter to accept the default for a database on the local machine.</p>

Table 25. Entering information for the Runtime database (continued)

Step	Description	Action
3	If you selected <b>local database</b> , enter instance name	<p>If you selected <b>local database</b>, and you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>DB2 instance      : [db2inst1] DB2 database      : [FMCDB]</pre> </div> <ol style="list-style-type: none"> <li>1. Enter the DB2 instance that will contain the new Runtime database. <b>Note:</b> The DB2 instance name is case-sensitive on UNIX. For a three-tier setup, the instance and Runtime database will be hosted on a remote machine.</li> <li>2. Enter the database name.</li> </ol>
4	If you selected <b>remote database</b> , enter information for remote database	<p>If you selected <b>remote database</b>, and you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>Local DB2 instance where the remote DB2 instance is cataloged :[db2inst1] DB2 Remote instance      :[db2inst1] DB2 database              : [FMCDB]</pre> </div> <ol style="list-style-type: none"> <li>1. Enter the local DB2 instance where the remote DB2 instance is cataloged.</li> <li>2. Enter the remote DB2 instance.</li> <li>3. Enter the database name.</li> </ol> <p><b>Note:</b> DB2 instance names are case-sensitive on UNIX.</p>
5	Enter database administrator's user ID	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>DB2 user ID of database administrator :[fmc]</pre> </div> <p>Enter the database administrator's user ID.</p>
6	If you are creating a <b>new database</b> , enter database locations	<p>If you are creating a <b>new database</b>, you will see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>DB2 database layout file : [/var/fmc/cfgs/FMC/fmcdblay.ini] DB2 database location    : [/var/fmc/rt_db/db2inst1/FMCDB] DB2 container location   : [/var/fmc/rt_db/db2inst1/FMCDB] DB2 Log files location   : [/var/fmc/rt_db/db2inst1/FMCDB]</pre> </div> <ol style="list-style-type: none"> <li>1. Enter the path to the file that defines the database layout. <b>Note:</b> If the file does not exist, it will be created by the configuration utility.</li> <li>2. Enter the path for the Runtime database.</li> <li>3. Enter the path for its containers.</li> <li>4. Enter the path for the log files for backup and error recovery.</li> </ol> <p><b>Note:</b> For a three-tier setup, or if you do not want to use the default directories, these directories must exist on the machine hosting the Runtime database, and the DB2 instance on the machine hosting the Runtime database must be authorized to access these directories. For more information, see the <i>IBM DB2 Administration Getting Started</i> online manual.</p>

Table 25. Entering information for the Runtime database (continued)

Step	Description	Action
7	If you are creating a <b>new database</b> , select the space management	<p>If you are creating a <b>new database</b>, you will see:</p> <pre> FMC33526I Select space management ...: s ... (X) Managed by system d ... ( ) Managed by database r ... ( ) Managed by database (using raw device) </pre> <p>Select one of the space management options.  <b>Note:</b> The option Raw device is only available on AIX. For more information about space management, see the <i>IBM DB2 Administration Guide</i> online manual.</p>
8	Enter Runtime database user ID	<p>When you see:</p> <pre> DB2 user ID to access Runtime database : [fmc] </pre> <p>Enter the DB2 user ID that is to be used to access the Runtime database.  <b>Note:</b> The default value is the configuration administrator user ID that you specified earlier. During creation of the database this user ID will be granted the required access rights; if the database already exists, access rights for the user can be granted with the configuration utility (<code>fmczutil</code>) option for <i>Grant/Revoke access rights to/from the Runtime database</i>.</p>
9	Enter data to populate the Runtime database	<p>When you see:</p> <pre> System group name      : [FMCGRP] System name            : [FMCSYS] Queue manager name    : [FMCQM] Queue prefix          : [FMC] </pre> <ol style="list-style-type: none"> <li>1. Enter the name of the system group that the Runtime database will serve.</li> <li>2. Enter the name of a system in the system group.</li> <li>3. Enter the name of the queue manager.</li> <li>4. Enter a queue prefix. This is used to set a high level qualifier for queue names in your MQ Workflow system. For details, refer to the MQSeries online documentation.</li> </ol> <p><b>Note:</b> This information will be used to populate the runtime database when it is created. A Runtime database that does not contain this information is not valid, and cannot be used by MQ Workflow. If you are using an existing database, this information is used to generate an FDL file <code>&lt;ConfigurationRootDirectory&gt;/cfigs/&lt;ConfigID&gt;/fd1/fmczns32.fdl</code>, which you can import into the database using the import/export utility.</p>

## Entering queue manager information for a server

If you are not configuring a server, skip to “Entering connection information for a client (or Java Agent)” on page 70.

Table 26. Entering queue manager information for a server

Step	Description	Action
1	Select log type	<p>When you see:</p> <pre> - Configuration of queue manager ... FMC33513I Select log type ...: c ... (X) Circular log l ... ( ) Linear log (prerequisite for backup)                     </pre> <p>Select the logging type that you require by entering <b>c</b> for circular logging, or <b>l</b> for linear logging.</p>
2	Enter log location	<p>When you see:</p> <pre> Queue Manager log files location : []                     </pre> <p>Enter a location where the log files are to be created, or to use the default MQSeries log file location press Enter without specifying a location.</p>
3	Enter channel table	<p>When you see:</p> <pre> Channel definition table file: [/var/fmc/chltabs/MQWFCHL.TAB]                     </pre> <p>Enter the name of the channel definition table.  <b>Note:</b> If the file does not exist, it will be created.</p>
4	Enter TCP/IP information	<p>When you see:</p> <pre> TCP/IP address      : [hostname] TCP/IP port number  : [5010]                     </pre> <ol style="list-style-type: none"> <li>1. Enter the TCP/IP address or hostname of your machine.</li> <li>2. Enter an unused TCP/IP port number.</li> </ol>
5	Enter principal name	<p>When you see:</p> <pre> Principal name      : [fmc]                     </pre> <p>Enter the Principal user ID.  <b>Note:</b> The default value for the principal name is the value you specified as the configuration administrator. During creation of the queue manager and definition of the channels this user ID will be granted the required access rights.</p>

Table 26. Entering queue manager information for a server (continued)

Step	Description	Action
6	Enter the cluster name	<p>When you see:</p> <pre>Cluster name           : [FMCGRP]</pre> <p>Enter the name of the cluster that the queue manager will be a member of. The default value is the name of the MQ Workflow system group.</p>
7	Select the repository type	<p>When you see:</p> <pre>FMC33537I Select repository type for queue manager 'FMCQM' in cluster 'FMCGRP' ...: f ... (X) 'FMCQM' is the first queue manager in cluster 'FMCGRP' a ... ( ) 'FMCQM' is an additional queue manager in cluster 'FMCGRP'</pre> <ol style="list-style-type: none"> <li>1. If you selected to create a new database, press Enter to accept the default selection <b>f</b>.</li> <li>2. If you selected to use an existing database, enter <b>a</b>.</li> </ol>
8	If you selected <b>additional queue manager</b> , enter information about the first queue manager	<p>If you selected <b>additional queue manager</b>, when you see:</p> <pre>FMC33536: Specify information about the first queue manager in cluster 'FMCGRP' Queue manager name      : [] TCP/IP address          : [] TCP/IP port number      : [] Principal name          : [fmc]</pre> <ol style="list-style-type: none"> <li>1. Enter the name of the first queue manager in the cluster.</li> <li>2. Enter the TCP/IP address or hostname of the machine where the first queue manager is located.</li> <li>3. Enter the TCP/IP port number that the first queue manager is using.</li> <li>4. Enter the user ID of the Principal that was defined for the first queue manager.</li> </ol>
9	Enter a transaction coordinator user ID	<p>When you see:</p> <pre>DB2 user ID of transaction coordinator : [fmc]</pre> <p>Enter the user ID that the queue manager should use to access the Runtime database.</p> <p><b>Note:</b> This is required because the MQSeries queue manager is used to coordinate transactions for two-phase commit. The default value for the DB2 user ID of transaction coordinator is the value you specified when prompted for the DB2 user ID to access the Runtime database.</p>

Table 26. Entering queue manager information for a server (continued)

Step	Description	Action
10	If you selected <b>local database</b>	<p>If you selected <b>local database</b>, when you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>FMC33220I Which user ID will regularly start the queue manager 'FMCQM' ?: t ... ( ) the transaction coordinator user ID 'fmc' o ... (X) another user ID within the group 'mqm'</pre> </div> <p>Press Enter to accept the default option <b>o</b> that another mqm group member user ID will be used. Otherwise, enter <b>t</b> if the queue manager will be started by the transaction coordinator user ID.</p>

### Entering connection information for a client (or Java Agent)

If you are configuring any client components or the Java CORBA Agent, you must provide the information described in Table 27. If you have already entered information to configure a server or Runtime database utilities, you have already entered some or all of this information, and the questions will not appear.

Table 27. Entering connection information for a client (or Java agent)

Step	Description	Action
1	Enter client connection information for first system	<p>A client component (or Java agent) requires certain information to be able to establish a connection to a particular MQ Workflow system.</p> <p>If you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>- Configuration of client ... System group name      : [FMCGRP] System name            : [FMCSYS] Queue manager name     : [FMCQM] Queue prefix           : [FMC]</pre> </div> <ol style="list-style-type: none"> <li>1. Enter the name of the system group containing the system.</li> <li>2. Enter the name of the system that the client is to connect to.</li> <li>3. Enter the name of the queue manager that is on the system to connect to.</li> <li>4. Enter the queue prefix used by the queue manager.</li> </ol>
2	Enter channel table	<p>If you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>Channel definition table file: [/var/fmc/chltabs/MQWFCHL.TAB]</pre> </div> <p>Enter the path to the queue manager's channel definition table.  <b>Note:</b> This is the value you noted during step 3 of Table 26 on page 68. Be sure that the client is authorized to access this file.</p>

## Entering information for the Java CORBA Agent

If you are configuring a Java Agent, you must provide the information described in Table 28, otherwise skip to “After entering the configuration information” on page 72.

Table 28. Entering information for the Java CORBA Agent

Step	Description	Action
1	Choose a locator policy and enter additional information for the service	<p>When you see:</p> <pre> - Configuration of Java Agent ... FMC33509I Select locator policy ...: l ... (X) Local bindings v ... ( ) Visibroker Smart Agent c ... ( ) CORBA Naming Service r ... ( ) JAVA RMI i ... ( ) Interoperable Object Reference           </pre> <p>Enter the letter to select a locator policy.  <b>Note:</b> Java RMI Agents should only be used for prototyping. They are currently not suited for production purposes. The default is local bindings, and is marked with an '(X)'.</p>
2	If you did <b>not</b> choose <b>Local bindings</b> , enter agent information	<p>If you did <b>not</b> select <b>Local bindings</b>, when you see:</p> <pre> Agent name           : [MQWAGENT] JDK/JRE Installation Directory : [/usr/java Code Version         : [3220]           </pre> <ol style="list-style-type: none"> <li>1. Enter the name for the Java CORBA Agent.</li> <li>2. Enter directory on your workstation where the Java Development Kit or Java Runtime Environment has been installed.  <b>Note:</b> The bin subdirectory must contain one of the following executables: jre, java, or oldjava.</li> <li>3. Enter the code version for the JAR file used by the Java CORBA Agent.</li> </ol>
3	If you chose <b>Visibroker Smart Agent</b> , enter the installation directory	<p>If you chose <b>Visibroker Smart Agent</b>, when you see:</p> <pre> VisiBroker Installation Directory : []           </pre> <p>Enter the path where VisiBroker is installed.  <b>Note:</b> You wrote this down during “Prepare the Java CORBA Agent” on page 62.</p>
4	If you chose the <b>CORBA Naming Service</b> , enter the root name	<p>If you chose the <b>CORBA Naming Service</b>, when you see:</p> <pre> Root name context : []           </pre> <p>Enter a name to be used to register the agent.</p>

Table 28. Entering information for the Java CORBA Agent (continued)

Step	Description	Action
5	If you chose the option <b>Interoperable Object Reference</b> , enter the IOR path	<p>If you chose the <b>Interoperable Object Reference</b>, when you see:</p> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Java IOR Path : []</p> </div> <p>Enter the location where the agent publishes its Interoperable Object Reference file.</p>
6	Enter garbage collection parameters	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; margin: 10px 0;"> <p>Agent cycle (in seconds) : [300]            Client threshold (number of objects) : [1000]            Client cycle (in % of agent cycle) : [90]</p> </div> <ol style="list-style-type: none"> <li>1. Enter the length of time between periodic garbage collection. Any value between 30 and 86400 seconds is valid.</li> <li>2. Enter the maximum number of unreferenced objects that will be tolerated by each client before a non-periodic garbage collection is triggered. Any value between 0 and 500000 is valid.</li> <li>3. Enter the ratio between the client-side keep-alive message cycle and the agent-side liveness check. Any value between 0% and 100% is valid.</li> </ol>

### After entering the configuration information

Only after you have entered all the necessary configuration information does the configuration tool perform any actions.

Table 29. After entering the configuration information

Step	Description	Action
1	Create the configuration profile	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; margin: 10px 0;"> <pre>c ... Create configuration profile for 'FMC' now s ... Save input to file r ... Review/change input x ... Exit (input for configuration 'FMC' will be lost)</pre> </div> <ol style="list-style-type: none"> <li>1. If you want to proceed, enter <b>c</b>, then various directories and files will be created. For more details about what is created, see “Changes made by the configuration utility fmczutil” on page 201.</li> <li>2. If you want to save the input you have entered into a file, enter <b>s</b>. You will be prompted for a file name, the default is fmczcfg.dat.</li> <li>3. If you want to review the input you have entered, enter <b>r</b>. The values that you have entered will appear as the defaults which you can change if you wish.</li> <li>4. If you want to exit, enter <b>x</b>. Your input will be lost, and you will be returned to the Configuration Commands menu.</li> </ol>



Table 29. After entering the configuration information (continued)

Step	Description	Action
2	If you want to create a new Runtime database	<p>If you have defined a new Runtime database, you will see:</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <pre>Do you want to create the Runtime database 'FMCDDB' now? y ... Yes n ... No</pre> </div> <ol style="list-style-type: none"> <li>1. If you want to create the database later, enter <b>n</b>. How to create the database at a later stage is described in “Creating a Runtime database” on page 83.</li> <li>2. It is recommended that you enter <b>y</b> to create the database now. When you see: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <pre>DB2 user ID of Runtime Database creator : [fmc] Enter password for user ID 'fmc'       : [] Confirm password for user ID 'fmc'    : []</pre> </div> <ol style="list-style-type: none"> <li>a. Enter the user ID that is to be used to create the Runtime database.</li> <li>b. Enter the password for the user ID.</li> <li>c. Enter the password again.</li> </ol> </li> </ol>
3	If you are using an existing Runtime database, you can load the FDL into the Runtime database	<p>If you are using an existing Runtime database, you will see:</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <pre>Do you want to load FDL for system 'FMCSYS' into the Runtime database 'FMCDDB' now? y ... Yes n ... No</pre> </div> <ol style="list-style-type: none"> <li>1. If you do not want to load the new configuration for the system into the Runtime database, or if you want to do it later, enter <b>n</b>.</li> <li>2. It is recommended that you enter <b>y</b> to load the new configuration for the system into the Runtime database. When you see: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <pre>MQ Workflow user ID to import FDL      : [ADMIN] MQ Workflow password for user 'ADMIN'  : [] Enter password for user ID 'fmc'      : [] Confirm password for user ID 'fmc'    : []</pre> </div> <ol style="list-style-type: none"> <li>a. Enter the MQ Workflow user ID that is to be used to import the FDL. <b>Note:</b> The default user is <b>ADMIN</b>. This user ID is an internal Workflow user ID that is defined in the Runtime database. It is not necessary for this user ID to exist at the operating system level.</li> <li>b. Enter the password for the user ID. <b>Note:</b> The default password for the default user ‘ADMIN’ is ‘<b>password</b>’.</li> <li>c. Enter the password for the MQ Workflow Configuration Administrator user ID.</li> <li>d. Enter the password again.</li> </ol> </li> </ol>

Table 29. After entering the configuration information (continued)

Step	Description	Action
4	If you are configuring a server, you can create the queue manager	<p>If you are configuring a server, you will see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin-bottom: 10px;"> <pre>Do you want to create the queue manager 'FMCQM' now? y ... Yes n ... No</pre> </div> <ol style="list-style-type: none"> <li>1. If you do not want to create the queue manager now enter <b>n</b>, you can create it later as described in “Creating a queue manager” on page 84.</li> <li>2. It is recommended that you enter <b>y</b> to create the queue manager now. When you see:           <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin-top: 10px;"> <pre>Enter password for user ID 'fmc' : [] Confirm password for user ID 'fmc' : []</pre> </div> <ol style="list-style-type: none"> <li>a. Enter the password for the Transaction Coordinator user ID that the queue manager will use for two-phase commits on the Runtime database.</li> <li>b. Enter the password again.</li> <li>c. Now the queue manager will be created on behalf of the user mqm.</li> </ol> </li> </ol>
5	Exit the configuration utility	Enter <b>x</b> to exit the utility.
6	Verify your server	Now you have created an MQ Workflow configuration, it should be ready to use. However, it is recommended that you perform the steps described in “Chapter 8. Verifying an MQ Workflow server on UNIX” on page 75.

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## Chapter 8. Verifying an MQ Workflow server on UNIX

The verification process is identical for AIX, HP-UX, and Sun Solaris. After configuration you should verify that the components are working by performing the verification described in Table 30.

This simple verification involves running the configuration checker, starting the MQ Workflow system and administration utility, and shutting the system down again.

Table 30. Verifying MQ Workflow server on UNIX

Step	Description	Action
1	Check identifiers	You need to know your values for the following identifiers: <b>ConfigID</b> The identifier of the server configuration as specified by the root user as described in "Creating an MQ Workflow configuration" on page 63. <b>MQQueueManager</b> Your MQ Workflow system's MQSeries queue manager.
2	Log on	Log on with a user ID that has administration rights for the configuration that is to be verified.
3	Check the server configuration	1. Enter the command <code>fmczchk -y &lt;ConfigID&gt;</code>  <b>Note:</b> You should always check the configuration after creating or changing an MQ Workflow configuration. For information about other options, see "Appendix N. Using the configuration checking utility fmczchk" on page 285. 2. If there were any errors or warnings, check the log file <code>fmczchk.log</code> in the current directory.
4	Start DB2	If DB2 is not already running: 1. Log on as owner of the DB2 instance ( <b>db2inst1</b> is the default) or a user ID in the DB2 administration group ( <b>db2iadm1</b> is the default). 2. Enter the command: <code>db2start</code> 3. Log off as owner of the DB2 instance.

Table 30. Verifying MQ Workflow server on UNIX (continued)

Step	Description	Action
5	Load process data into the Runtime database (optional)	<p>If you already have a process model:</p> <ol style="list-style-type: none"> <li>1. Transfer your process model data <i>yourprocess.fdl</i> to your machine.</li> <li>2. Enter the command:  <pre>fmcibie -i=yourprocess.fdl -u=ADMIN -p=password -o -t -l</pre> <p>where option <b>-o</b> overrides existing definitions in the database, <b>-t</b> translates the process so that an instance can be created, and <b>-l</b> creates a log file with the same name as the FDL file name with the extension of <i>.log</i>.</p> <p><b>Note:</b> You can create process models using the MQSeries Workflow Buildtime component on a Windows 2000 or NT workstation. Your process model and staff definitions are exported as an FDL file.</p> </li> </ol>
6	Start the MQSeries resources	<ol style="list-style-type: none"> <li>1. Log on as user <b>fmc</b> (or a user ID in the group MQM).</li> <li>2. Start the queue manager by entering the command:  <pre>strmqm &lt;MQQueueManager&gt;</pre> </li> <li>3. Start the trigger monitor by entering the command:  <pre>runmqtrm -m&lt;MQQueueManager&gt; -q FMCTRIGGER &amp;</pre> </li> <li>4. Log off.</li> </ol>
7	Start the administration server (and the system)	<ol style="list-style-type: none"> <li>1. Log on as user <b>fmc</b>.</li> <li>2. Enter the command:  <pre>fmcmain -y &lt;ConfigID&gt; &amp;</pre> </li> <li>3. You will also see messages telling you which servers have been started.</li> </ol>

Table 30. Verifying MQ Workflow server on UNIX (continued)

Step	Description	Action
8	Start the administration utility	<ol style="list-style-type: none"> <li>1. Log on as the MQ Workflow configuration administrator.</li> <li>2. Enter the command:  <code>fmcautil -y &lt;ConfigID&gt; -uADMIN -ppassword</code> <p><b>Note:</b> Initially, the user ID is set to 'ADMIN', and the password is set to 'password'. No '&amp;' is required after this command since <code>fmcautil</code> cannot run in the background.</p> </li> <li>3. Verification is successful if you see the administration utility's main menu:</li></ol>
9	Perform other testing (optional)	<p>While the system is running, you can perform other tests.</p> <ul style="list-style-type: none"> <li>• For more information about using the MQ Workflow administration utility to start and stop MQ Workflow server components, see <i>IBM MQSeries Workflow: Administration Guide</i>.</li> <li>• To test a client connection perform "Testing a Windows client connection to a UNIX server" on page 78.</li> </ul>
10	Stop the system	<p>From the administration utility's main menu:</p> <ol style="list-style-type: none"> <li>1. Enter <b>s</b> for system commands.</li> <li>2. Enter <b>d</b> (shutdown system).</li> <li>3. You will see messages reporting which components have been stopped.</li> <li>4. Finally, a message will report that the system has stopped.</li> </ol>
11	Stop the administration utility	Select option <b>x</b> (exit) until you see the command prompt.
12	Shut down other subsystems	<p>If required:</p> <ul style="list-style-type: none"> <li>• Stop the MQSeries queue manager and trigger monitor by entering the command:  <code>endmqm -i &lt;MQQueueManager&gt;</code></li> <li>• Stop DB2 by entering the command:  <code>db2stop</code></li> </ul>
13	Log off	Log off.

## Testing a Windows client connection to a UNIX server

Since the standard client is not available for UNIX, it is recommended that you verify that a Windows client can connect to your UNIX server. This client connection test assumes that you have installed, configured, and verified an MQ Workflow server. For this test you will install and configure an MQ Workflow client on a Windows workstation, and then verify that it can connect to a server.

Table 31. Testing a Windows client connection to a UNIX server

Step	Description	Action
1	Copy the server's channel table to the client machine	Copy the Workflow server's channel table to the client machine in binary mode. <b>Note:</b> If you used the installation defaults, this file is in <code>/var/fmc/chl tabs/MQWFCHL.TAB</code> . For a runtime client on Windows 2000 and NT the file should be copied to the directory <code>C:\Program Files\MQSeries Workflow\chl tabs</code>
2	Prepare a Workflow runtime client	Install and configure a Workflow Runtime client on NT as described in: <ul style="list-style-type: none"><li>• "Part 4. Installing and configuring MQ Workflow on Windows" on page 93 or</li><li>• "Appendix E. Stand-alone setup on Windows NT/2000" on page 207.</li></ul>
3	Check the client configuration	On the client machine: <ol style="list-style-type: none"><li>1. Enter the command: <code>fmczchk -y &lt;ConfigID&gt;</code>  where <code>&lt;ConfigID&gt;</code> is the configuration identifier for the client configuration. <b>Note:</b> For information about other options, see "Appendix N. Using the configuration checking utility <code>fmczchk</code>" on page 285.</li><li>2. If there were any errors or warnings, check the log file <code>fmczchk.log</code> in the current directory.</li></ol>
4	Start the MQ Workflow system	On the server machine: Make sure that the MQ Workflow system and prerequisites are running. Here is a summary of the sequence of commands that must be issued: <ol style="list-style-type: none"><li>1. Start DB2 with the command <code>db2start</code></li><li>2. Start the MQSeries queue manager with the command <code>strmqm &lt;MQQueueManager&gt;</code></li><li>3. Start the MQSeries trigger monitor with the command <code>runmqtrm -m&lt;MQQueueManager&gt; -q FMCTRIGGER &amp;</code></li><li>4. Start the MQ Workflow administration server with the command <code>fmcama in -y &lt;ConfigID&gt; &amp;</code></li></ol>

Table 31. Testing a Windows client connection to a UNIX server (continued)

Step	Description	Action
5	Load a process model into the Runtime database (optional)	<p>If you want to load a process model into the Runtime database:</p> <ol style="list-style-type: none"> <li>1. Change to a directory where you keep your process data.</li> <li>2. Transfer the process data (.fdl file) to a working directory on your MQ Workflow server machine.</li> <li>3. Issue the import command:  <code>fmcibie -i=yourprocess.fdl -u=ADMIN -p=password -o -t -l</code> </li> </ol> <p><b>Note:</b> If the FDL file is not in your current directory, you must specify the full path to it. The initial password for the default user "ADMIN" is "password". Option -o overrides existing definitions in the database. Option -t translates the process so that an instance can be created. Option -l creates a log file with the name <i>yourprocess.log</i></p> <ol style="list-style-type: none"> <li>4. Check the log file <i>yourprocess.log</i> for any errors.</li> </ol> <p><b>Note:</b> Be aware that FDL files can also contain topological information, which might overwrite values in the database. This can cause conflicts with configuration data and the server might refuse to start. For information about using the MQ Workflow graphical tool for creating process models, see <i>IBM MQSeries Workflow: Getting Started with Buildtime</i>.</p>
6	Start the Windows client	<p>On the Windows task bar:</p> <ol style="list-style-type: none"> <li>1. Click on the <b>Start</b> button.</li> <li>2. Select <b>Programs</b>.</li> <li>3. Select <b>MQSeries Workflow</b>.</li> <li>4. Select <b>MQSeries Workflow Client</b>.</li> <li>5. This test is successfully completed if the client establishes a connection to the server without producing any error messages.</li> </ol>

Table 31. Testing a Windows client connection to a UNIX server (continued)

Step	Description	Action
7	Solving problems if the client does not establish a connection	<p>If the client does not establish a connection successfully, check the following:</p> <ol style="list-style-type: none"> <li>1. Are the prerequisite products started?</li> <li>2. Is the MQ Workflow server started?</li> <li>3. Is the correct channel table accessible to the client?</li> <li>4. The channel table must contain data that was configured on the server that you intend to connect to.</li> <li>5. Has the channel table become corrupted?</li> <li>6. Have you checked both the client and server configurations? For details on how to do this, see “Appendix N. Using the configuration checking utility fmczchk” on page 285.</li> <li>7. Were any deviations from the default customization values applied consistently to both the client and the server? For example, check that the system group name, system name, queue manager name, and queue prefix entered for the client configuration match those given during the server configuration.</li> </ol>



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## Chapter 9. Changing your configuration on UNIX

After a configuration has been defined and created, there are occasions when you will want to change your configuration. These changes must be performed using the configuration utility. This chapter describes how to perform the following tasks:

- “Starting the configuration utility”
- “Creating a Runtime database” on page 83
- “Creating a queue manager” on page 84
- “Adding, modifying, or removing connect names” on page 85
- “Changing the password for the Runtime database user ID” on page 87
- “Changing the password for the transaction coordinator user ID” on page 88
- “Granting the right to start and stop the MQSeries Workflow system” on page 88
- “Binding packages” on page 89

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### Starting the configuration utility

Table 32 describes how to start the configuration utility and select a configuration. This action is required for all the tasks for changing your configuration.

Table 32. Starting the configuration utility

Step	Description	Action
1	Log on	1. Log on as the <b>MQ Workflow configuration administrator user</b> . <b>Note:</b> You must not be logged on as root. 2. If you are using AIX, you can skip to step 4.
2	Change to DB2 administration group	If you are about to create or delete a Runtime database on HP-UX or Sun Solaris, you must change to the DB2 administration group by entering the command: <code>newgrp db2iadm1</code> where <code>db2iadm1</code> is your DB2 administration group.
3	Change to MQSeries administration group	If you are about to create a new queue manager on HP-UX or Sun Solaris, you must change to the MQSeries administration group by entering the command: <code>newgrp mqm</code>

Table 32. Starting the configuration utility (continued)

Step	Description	Action
4	Start the configuration utility	Enter the command: fmczutil
5	Select the configuration	<p>When you see:</p> <pre>FMC33201I Configuration Commands Menu:  1 ... List   s ... Select   x ... Exit Configuration Commands Menu</pre> <ol style="list-style-type: none"> <li>Enter <b>1</b> to list all the configurations that have been defined, that you can change.</li> <li>Enter <b>s</b>.</li> <li>When you see:           <pre>Configuration identifier : [FMC]</pre> <p>Enter the configuration identifier for the MQ Workflow configuration for which you want to modify.</p> </li> </ol>
6	Select the Configuration Settings Menu	<ol style="list-style-type: none"> <li>When you see:           <pre>FMC33202I Selected Configuration Commands Menu:  Selected configuration : FMC   c ... Configuration Settings Menu   x ... Exit Selected Configuration Commands Menu</pre> <p>Enter <b>c</b> to display the Configuration Settings Menu.</p> </li> <li>When you see:           <pre>FMC33202I Selected Configuration Commands Menu:  Selected configuration : FMC   c ... Configuration Settings Menu   r ... Runtime Database Commands Menu   q ... Queue Manager Commands Menu   x ... Exit Selected Configuration Commands Menu</pre> <p>Select the option required by the task you wish to perform.  <b>Note:</b> Option <b>r</b> is only available if a server or Runtime Database Utilities are configured and the starting user can execute DB2 commands. Option <b>q</b> is only available if a server is configured and the starting user ID is member of group 'mqm'.</p> </li> </ol>

## Creating a Runtime database

If you have defined a Runtime database as described in “Creating an MQ Workflow configuration” on page 63, but have not created it, you must create the database as described in Table 33.

Table 33. Creating a Runtime database

Step	Description	Action
1	Start the configuration utility	Start the MQSeries Workflow configuration utility and select a configuration as described in Table 32 on page 81.
2	Select the Runtime database commands menu	<p>When you see:</p> <pre>FMC33202I Selected Configuration Commands Menu:       Selected configuration : FMC c ... Configuration Settings Menu r ... Runtime Database Commands Menu q ... Queue Manager Commands Menu x ... Exit Selected Configuration Commands Menu</pre> <p>Enter <b>r</b> for the Runtime Database Commands Menu.</p>
3	Create a new Runtime database	<p>When you see:</p> <pre>FMC33206I Selected Runtime Database Commands Menu:       Selected Runtime database : FMCDB c ... Create p ... Change password x ... Exit Selected Runtime Database Commands Menu</pre> <p><b>Note:</b> The option ‘Create’ is only available if the database does not exist. If the database already exists, you will also see the options ‘Drop’ and ‘Bind’. Option <b>p</b> allows you to set the password used to access the Runtime database.</p> <ol style="list-style-type: none"> <li>If you want to create the database now, enter <b>c</b>.</li> <li>When you see: <pre>Enter password for user ID 'fmc' : [] Confirm password for user ID 'fmc' : []</pre> <ol style="list-style-type: none"> <li>Enter the password for the user ID.</li> <li>Enter the password again.</li> </ol> </li> <li>The Runtime database is being created. This can take a few minutes, during which several messages appear. <p><b>Note:</b> Warning messages during binding can be ignored.</p> </li> <li>When you see the message: <pre>- FMC33911I The new Runtime database FMCDB was created successfully.</pre> <p>The Runtime database has been created successfully.</p> </li> </ol>

Table 33. Creating a Runtime database (continued)

Step	Description	Action
4	Exit the menu	Enter <b>x</b> three times.

## Creating a queue manager

If you have defined a server as described in “Creating an MQ Workflow configuration” on page 63, but have not created it, you must create it as described in Table 34.

Table 34. Creating a queue manager

Step	Description	Action
1	Start the configuration utility	Start the MQSeries Workflow configuration utility and select a configuration as described in Table 32 on page 81.
2	Select the queue manager commands menu	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>FMC33202I Selected Configuration Commands Menu:       Selected configuration : FMC       c ... Configuration Settings Menu       r ... Runtime Database Commands Menu       q ... Queue Manager Commands Menu       x ... Exit Selected Configuration Commands Menu</pre> </div> <p>Enter <b>q</b> for the Queue Manager Commands Menu.</p>

Table 34. Creating a queue manager (continued)

Step	Description	Action
3	Create a new queue manager	<p>When you see:</p> <pre>FMC33208I Selected Queue Manager Commands Menu:       Selected queue manager : FMCQM       c ... Create       d ... Delete       x ... Exit Selected Queue Manager Commands Menu</pre> <ol style="list-style-type: none"> <li>Select <b>c</b> to create a previously defined queue manager. <b>Note:</b> If the queue manager already exists, you will see option <b>d</b>, which allows you to delete the queue manager associated with the configuration.</li> <li>When you see:           <pre>Enter password for user ID 'fmc' : [] Confirm password for user ID 'fmc' : []</pre> <ol style="list-style-type: none"> <li>Enter the password for the user ID.</li> <li>Enter the password again.</li> </ol> <p><b>Note:</b> This is required because the MQSeries queue manager is used as a transaction coordinator for two-phase commit.</p> </li> <li>The queue manager will be created. This may take a few minutes, during which several messages appear.</li> <li>The queue manager creation process has finished and the queue manager has been created successfully when the following message appears:           <pre>- FMC33736I The queue manager FMCQM has been updated successfully.</pre> </li> </ol>
4	Exit the configuration utility	Enter <b>x</b> two times.

## Adding, modifying, or removing connect names

A connect name allows a connection to be established with a particular system. Table 35 describes how to add or modify a connect name.

Table 35. Adding or modifying connect names

Step	Description	Action
1	Start the config.utility	Start the MQSeries Workflow configuration utility and select a configuration as described in Table 32 on page 81.

Table 35. Adding or modifying connect names (continued)

Step	Description	Action
2	Go to Connect Name Commands menu	<p>When you see:</p> <pre style="border: 1px solid black; border-radius: 10px; padding: 10px;"> FMC33202I Selected Configuration Commands Menu:   Selected configuration : FMC   c ... Configuration Settings Menu   r ... Runtime Database Commands Menu   q ... Queue Manager Commands Menu   x ... Exit Selected Configuration Commands Menu                     </pre> <ol style="list-style-type: none"> <li>1. Enter <b>c</b> to display the Configuration Settings menu.</li> <li>2. Enter <b>c</b> to display the Client Settings menu.</li> <li>3. Enter <b>c</b> to display the Connect Name Commands menu.</li> </ol>
3	Specify additional connections	<p>When you see:</p> <pre style="border: 1px solid black; border-radius: 10px; padding: 10px;"> FMC33229I Connect Name Commands Menu:   Selected configuration : FMC   l ... List   s ... Select   a ... Add   x ... Exit Connect Name Commands Menu                     </pre> <ol style="list-style-type: none"> <li>1. If you want to list the connections defined so far, enter <b>l</b>. The connections will be listed, and the Connect Name Commands Menu will be displayed again.</li> <li>2. If you want to modify or remove a connect name, enter <b>s</b>.             <ol style="list-style-type: none"> <li>a. If you want to remove the selected connect name, enter <b>r</b>.</li> <li>b. If you want to modify the queue manager name or queue prefix, enter <b>m</b>, and then enter the new queue manager name and queue prefix.</li> </ol> </li> <li>3. If you want to add information so that the client can connect to another system, enter <b>a</b>.             <ol style="list-style-type: none"> <li>a. When you see:                     <pre style="border: 1px solid black; border-radius: 10px; padding: 10px;"> System group name      : [FMCGRP] System name           : [FMCSYS2] Queue manager name    : [FMCQM2] Queue prefix          : [FMC]                             </pre> <ol style="list-style-type: none"> <li>1) Enter the name of the system group containing the additional system.</li> <li>2) Enter the name of the additional system that the client is to connect to.</li> <li>3) Enter the name of the queue manager to connect to on the additional system.</li> <li>4) Enter the queue prefix used by the queue manager.</li> </ol>                     The Connect Name Commands Menu will be displayed again.                 </li> </ol> </li> <li>4. If you do not want to define more connections, or if you want to define them later, enter <b>x</b>. Otherwise, repeat this step as many times as necessary to define all the connections you require.</li> </ol>

Table 35. Adding or modifying connect names (continued)

Step	Description	Action
4	Exit the configuration utility	Enter <b>x</b> five times.

## Changing the password for the Runtime database user ID

Table 36 describes how to change passwords for the user ID that accesses the Runtime database. If the password of the user ID is changed on the system, you also need to change it within MQSeries Workflow.

Table 36. Changing the password for the Runtime database user ID

Step	Description	Action
1	Start the configuration utility	Start the MQSeries Workflow configuration utility and select a configuration as described in Table 32 on page 81.
2	Select the Runtime database commands menu	<p>When you see:</p> <pre style="border: 1px solid black; border-radius: 10px; padding: 10px;"> FMC33202I Selected Configuration Commands Menu:       Selected configuration : FMC c ... Configuration Settings Menu r ... Runtime Database Commands Menu q ... Queue Manager Commands Menu x ... Exit Selected Configuration Commands Menu           </pre> <p>Enter <b>r</b>.</p>
3	Select the change password option	<p>When you see:</p> <pre style="border: 1px solid black; border-radius: 10px; padding: 10px;"> FMC33206I Selected Runtime Database Commands Menu:       Selected Runtime database : FMCDB d ... Delete b ... Bind packages p ... Change password x ... Exit Selected Runtime Database Commands Menu           </pre> <ol style="list-style-type: none"> <li>1. Enter <b>p</b>.</li> <li>2. Enter the password.</li> <li>3. Enter the password again.</li> </ol>
4	Exit the configuration utility	Enter <b>x</b> three times

## Changing the password for the transaction coordinator user ID

Table 37 describes how to change passwords for the user ID that is used for coordinating transactions. If the password of the user ID is changed on the system, you also need to change it within MQSeries Workflow.

Table 37. Changing the password for the transaction coordinator user ID

Step	Description	Action
1	Start the configuration utility	Start the MQSeries Workflow configuration utility and select a configuration as described in Table 32 on page 81. <b>Note:</b> If the MQ Workflow configuration administrator user is not in the group <b>mqm</b> , you must start the configuration utility with another user ID that is in the group <b>mqm</b> .
2	Select the queue manager commands menu	When you see: <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>FMC33202I Selected Configuration Commands Menu:       Selected configuration : FMC       c ... Configuration Settings Menu       r ... Runtime Database Commands Menu       q ... Queue Manager Commands Menu       x ... Exit Selected Configuration Commands Menu</pre> </div> <ol style="list-style-type: none"> <li>1. Enter <b>q</b> to get the queue manager commands menu.</li> <li>2. Enter <b>c</b> to create/update the queue manager.</li> <li>3. Enter the new password for the transaction coordinator user ID.</li> <li>4. Enter the new password again.</li> <li>5. If the queue manager already exists, ignore the message: "AMQ8110: MQSeries queue manager already exists."</li> <li>6. You will see various messages.</li> <li>7. When you see the message: "FMC33736I The queue manager FMCQM has been updated successfully.", the password has been changed.</li> </ol>
3	Exit the configuration utility	Enter <b>x</b> three times

## Granting the right to start and stop the MQSeries Workflow system

Table 38 on page 89 describes how to grant the right to start and stop the MQSeries Workflow system. To revoke this right, you must run the same utilities, but using different options. MQ Workflow clients do not require these permissions.



Table 38. Granting the right to start and stop the MQSeries Workflow system

Step	Description	Action
1	Grant the user access to the Runtime database.	<ol style="list-style-type: none"> <li>1. Log on with the user ID of the Runtime database creator, or another user ID in the db2iadm1 group.</li> <li>2. Enter the command <code>fmczddb -d database userID</code></li> </ol> <p><b>Note:</b> Entering <code>fmczddb</code> without any parameters displays the command's syntax and options. Use the <code>-r</code> option to revoke access.</p> <ol style="list-style-type: none"> <li>3. Log off</li> </ol>
2	Grant user access to MQSeries queues.	<ol style="list-style-type: none"> <li>1. Log on with the user ID <b>mqm</b>, or another user ID in the <b>mqm</b> group.</li> <li>2. Enter the command <code>fmczdmqa -y ConfigurationID userID</code></li> </ol> <p><b>Note:</b> Entering <code>fmczdmqa</code> without any parameters displays the command's syntax and options. Use the <code>-r</code> option to revoke access.</p> <ol style="list-style-type: none"> <li>3. Log off</li> </ol>
3	Change group membership.	Add the user ID to the MQ Workflow group (the default is <b>fmcgrp</b> ). When revoking rights, remove the user ID from the group.

## Binding packages

After installing a Service Pack, you might have to rebind the database (see the Service Pack's readme file to find out if it is required). Table 39 describes how to bind the Runtime database packages.

Table 39. Binding packages

Step	Description	Action
1	Start the configuration utility	Start the MQSeries Workflow configuration utility and select a configuration as described in Table 32 on page 81.
2	Select the Runtime database commands menu	<p>When you see:</p> <pre> FMC33202I Selected Configuration Commands Menu: Selected configuration : FMC c ... Configuration Settings Menu r ... Runtime Database Commands Menu q ... Queue Manager Commands Menu x ... Exit Selected Configuration Commands Menu </pre> <p>Enter <b>r</b>.</p>

Table 39. Binding packages (continued)

Step	Description	Action
3	Select the bind option	<p>When you see:</p> <pre> FMC33206I Selected Runtime Database Commands Menu: Selected Runtime database : FMCDB c ... Create d ... Delete b ... Bind packages p ... Change password x ... Exit Selected Runtime Database Commands Menu                     </pre> <p>1. Enter <b>b</b>.</p>
4	Exit the configuration utility	Enter <b>x</b> three times.

---

## Chapter 10. Problem determination on UNIX

If you are having problems running MQ Workflow servers or clients, you can try using the following sources of information to solve your problem:

- “Where to find MQ Workflow log files on UNIX”
- “Running an MQ Workflow trace on UNIX”
- “Appendix N. Using the configuration checking utility `fmczchk`” on page 285
- The latest MQ Workflow support information is available at <http://www6.software.ibm.com/MQSWF/Workflow.htm>

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### Where to find MQ Workflow log files on UNIX

You can find MQ Workflow log files in the following locations:

- MQ Workflow:
  1. For general log files, see `/var/fmc/*.log`
  2. For a configuration `<ConfigID>`, see `/var/fmc/cfgs/<ConfigID>/log/*.log`
- DB2:
  1. For example, `<db2inst>`, see `/home/<db2inst>/sql1lib/db2dump/db2diag.log`
- MQSeries:
  1. For general log files, see `/var/mqm/errors/AMQERR0<n>.LOG`
  2. For system log files, see `/var/mqm/qmgrs/@SYSTEM/errors/AMQERR<n>.LOG`
  3. For a particular queue manager, see `/var/mqm/qmgrs/<QueueManagerName>/errors/AMQERR0<n>.LOG`where `<n>` can be 1, 2, or 3

Also, look for any `*.0.FDC` files associated with processes mentioned in `AMQERR01.LOG`.

---

### Running an MQ Workflow trace on UNIX

It may be necessary to run an MQSeries Workflow product trace in order to find the cause of a problem.

Table 40. Running an MQ Workflow trace on UNIX

Step	Description	Action
1	Set the trace level	<p>Enter the command:</p> <pre>fmczchk -c trc:level,filename -y ConfigID</pre> <p>where:</p> <p><b>level</b> Has the value 0 for high-level information, 1, 2, or 3 for increasing levels of detail.</p> <p><b>filename</b> Is the path and file name of the trace file. The extension .log will be added to the file name you specify.</p> <p><b>ConfigID</b> Is the configuration identifier for the system you wish to trace. If you do not specify the -y option, the trace will be performed on the system identified by the <i>DefaultConfigurationID</i> variable that is set in the general configuration profile.</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>If there is a problem reading the Workflow profile, you can define the trace by entering the following commands: <pre>export FMC_TRACE_CRITERIA=&lt;level&gt;,FFFF,FFFFFFFF export FMC_TRACE_FILE=&lt;filename&gt;</pre> </li> <li>In some cases, it may be necessary to make each MQ Workflow module write its own trace file. To activate this, enter the command: <pre>export FMC_SPLIT_TRACES=1</pre> </li> </ol>
2	Recreate the problem situation	<ol style="list-style-type: none"> <li>Restart the MQ Workflow server or component that you wish to trace.</li> <li>Run through your scenario that is causing the problem.</li> </ol>
3	Stop the tracing	<ol style="list-style-type: none"> <li>Stop the MQ Workflow server or component that you have been tracing.</li> <li>Disable tracing by entering the command: <pre>fmczchk -c trc:0 -y ConfigID</pre> </li> </ol>
4	Check the trace file	Check the file <i>filename.log</i>
5	Contact IBM MQSeries Workflow support team (optional)	<p>You can contact the support team via The latest MQ Workflow support information is available at <a href="http://www6.software.ibm.com/MQSWF/Workflow.htm">http://www6.software.ibm.com/MQSWF/Workflow.htm</a></p>

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## Part 4. Installing and configuring MQ Workflow on Windows

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## Chapter 11. Installing on Windows

This chapter describes the procedures for installing MQ Workflow components on workstations running Windows 95, 98, 2000, or NT.

If you have an old version of MQ Workflow installed and you want to use data from this version with the new release of MQ Workflow, you must migrate your existing installation as explained in “Appendix K. Migrating from a previous release” on page 265. It is important to do this before installing the new version of MQ Workflow.

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### Installing the software



For Windows 2000 and NT, make sure that you have **administration rights** before installing MQ Workflow components.

To install MQ Workflow components on a workstation running any of the supported Windows-based platforms:

1. Insert the MQ Workflow installation disk in the CD-ROM drive, the installation program should start automatically. If it does not start automatically, you can start it by opening a command prompt window and entering:  
`x:\WINDOWS\SETUP`  
where *x* is the drive letter for the CD-ROM drive.
2. A window appears containing a list of languages. Select the language that you want to use.

**Note:** After installing MQ Workflow, this language cannot be changed.

3. The **Welcome** window is displayed. Select **Next**.
4. The **Choose destination location** window is displayed with the default directory set as the destination location for installation:

**C:\Program Files\MQSeries Workflow**

If you do not want to use this as your installation directory, enter a new destination location. Select **Next**.

5. On Windows 2000 and NT:
  - a. The **Setup-type** window is displayed containing the following list of MQ Workflow categories:
    - All Components

## Windows

- Administrative Components
- Buildtime
- Clients
- Development Kit
- Java
- Server

Highlight the category that contains the components you want to install and select **Next**.

**Note:** You can only select one category.

- b. The **Select Components** window is displayed containing a list of components. The list depends on the category you previously selected. Choose the MQ Workflow components you want to install. Select **Next**, and then go to step 7.
6. On Windows 98 and 95, the **Select components** window is displayed containing a full list of components. Choose the components you want to install, select **Next**, and then go to step 7.
7. The **Select Program Folder** window is displayed. Select or create a name for the Program folder you want to use for MQ Workflow. When created, this folder appears on the Windows Start menu under Programs with the name you entered. Select **Next**.
8. The **Start Copying Files** window is displayed containing the current settings. If the settings are correct, click **Next**, otherwise click **Back** to correct the settings.
9. The setup program now copies program files to the MQ Workflow installation directory, updates the registry, and creates a list of installed files. This may take several minutes to complete.
10. The **Setup Complete** window is displayed. Click **Finish** to restart your workstation to activate the changes made by the installation program.
11. After the reboot, a registration program is executed, and the installation is complete.
12. The MQ Workflow configuration utility starts automatically. See "Chapter 12. Configuring MQ Workflow on Windows" on page 97.

**Note:** If you install the **Client for Lotus Notes**, make sure you read "Appendix J. Preparing and administering the Lotus Notes database templates" on page 261.



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## Chapter 12. Configuring MQ Workflow on Windows

This chapter describes how to configure MQ Workflow components that have been installed on Windows or OS/2 Warp.

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### Before configuring MQ Workflow

Before you can start configuring MQ Workflow you should check whether the following actions are required:

- “Prepare the Java CORBA Agent”
- “Catalog the existing remote database instance”



For Windows 2000, Windows NT, and OS/2 make sure that you have **administration rights** before configuring MQ Workflow components.

### Prepare the Java CORBA Agent

If you want to use the VisiBroker 3.4 Object Request Broker (ORB), you must customize it as described below:

1. Install the Inprise VisiBroker Version 3.4 as described in the VisiBroker documentation.
2. Copy the file `orb.properties` from the `inprise\vbroker\docs` directory to your Java `\jre\lib` (for example, `x:\Java1.2\jre\lib`)
3. Edit your copy of the `orb.properties` file in your Java `\jre\lib` directory:
  - a. Set the **ORBClass** variable to point to the VisiBroker, for example:  
`org.omg.CORBA.ORBClass = com.visigenic.vbroker.orb.ORB`
  - b. Set the **ORBSingletonClass** variable to point to the VisiBroker, for example: `org.omg.CORBA.ORBSingletonClass = com.visigenic.vbroker.orb.ORB`
4. Edit your **CLASSPATH** system variable, and make sure that the VisiBroker jar files are listed **before** the JDK and any application jar files. For example:  
`x:\inprise\vbroker\lib\vbjorb.jar; x:\inprise\vbroker\lib\vbjapp.jar;`  
`x:\Java1.2\jre\lib`

**Note:** When running the MQ Workflow Java Agent under Java 2 (SDK1.2.2) you have to use the ‘oldjava’ launcher which accepts classpath settings in the Java 1.1.x family style.

### Catalog the existing remote database instance

If you are creating the first system in a system group, and are not creating a three-tier setup, you should skip this section.

## Windows

If you are creating a server in a three-tier setup, or adding a new system to an existing system group, the Runtime database must already exist on another machine, and you must perform the following actions to redirect all database requests to the remote machine:

1. On the machine that will host the Runtime database:
  - a. Verify that the DB2 database has been created.

**Note:** For details about creating a new database, see the *IBM DB2 Quick Beginnings* online manual.

- b. Note the host name or TCP/IP address, *hostname*.
  - c. Note the DB2 instance name, *remotedb2*.
  - d. Note the name of the Runtime database, *dbname* (the default is **FMCDDB**).
2. On the workstation where you want to install the server: Enter the commands:

```
db2 catalog tcpip node localdb2 remote hostname
server servicename remote_instance remotedb2
db2 update dbm cfg using TP_MON_NAME mqmax
db2 terminate
db2 catalog database dbname at node localdb2
```

where:

**localdb2**

is the name of the local DB2 instance serving your database.

**servicename**

the port number for the service, for example 50000.

**dbname, hostname, remotedb2**

are the values that you noted during step 1.

**Note:** For more information about cataloging a database, see “Access a remote DB2 instance” on page 152.

3. Use ftp to copy the client channel definition table from  
<InstallationDirectory>\chl\tabs\MQWFCHL.TAB on the **remotehost** to  
<InstallationDirectory>\chl\tabs\MQWFCHL.TAB on the local machine that  
you are configuring.

### Create a new system in the Runtime database

When you configure the component ‘Server’ or ‘Runtime Database Utilities’ using an existing Runtime database, you have to define the new system in that Runtime database. If the Runtime database is on a remote workstation, you must catalog the existing instance and the existing database as described

in “Catalog the existing remote database instance” on page 97. Finally, you must generate and import an FDL file (*yoursystem.fdl*) that contains the definitions for the additional system.

**Notes:**

1. Systems in the same Runtime database must use the same system group.
2. Systems cannot share queue managers (the queue manger names for different systems **must** be different).

To create and import *yoursystem.fdl*:

1. To create *yoursystem.fdl* using Buildtime:
  - a. Create a new queue manager.
  - b. Create a new system within the system group using the new queue manager.
  - c. Create an execution server for the new system.
  - d. Create a program execution server for the new system.
  - e. Export the new topology objects to *yoursystem.fdl*.
2. To create *yoursystem.fdl* manually:
  - a. Copy the file `<InstallationDirectory>\FDL\fmccins32.fdl` to *yoursystem.fdl* and edit that file.

**Note:** Do not modify the shipped file.

- b. Replace '`<codepage>`' by your codepage value, for example 1252.
- c. Replace all occurrences of `<SystemGroupName>` by the name of the system group defined in the Runtime database.
- d. Replace all occurrences of `<SystemName>` by the name of the new system to be configured.

**Note:** This system must not yet exist in the database.

- e. Replace all occurrences of `<QueueManager>` by the name of the queue manager associated to the system.

**Note:** The queue manager must not yet exist in the database, and it must not yet exist on your workstation.

3. To import the FDL file, enter the command:

```
fmcibie -i=yoursystem.fdl -u=ADMIN -p=password -l
```

where '-l' creates a log file with the same name as the FDL file name with the extension of `.log`.

### How to configure MQ Workflow

The **MQSeries Workflow Configuration Utility** is used to configure installed MQ Workflow components.

After installing MQ Workflow components on a workstation for the first time and rebooting the system, the MQSeries Workflow Configuration Utility should start automatically<sup>2</sup>. If it does not, you can start it manually by selecting the **MQSeries Workflow Configuration Utility** icon found in the **MQSeries Workflow** folder.

The first time the MQSeries Workflow Configuration Utility starts on your workstation, it appears containing an empty **General** page with only the **New...** button enabled.

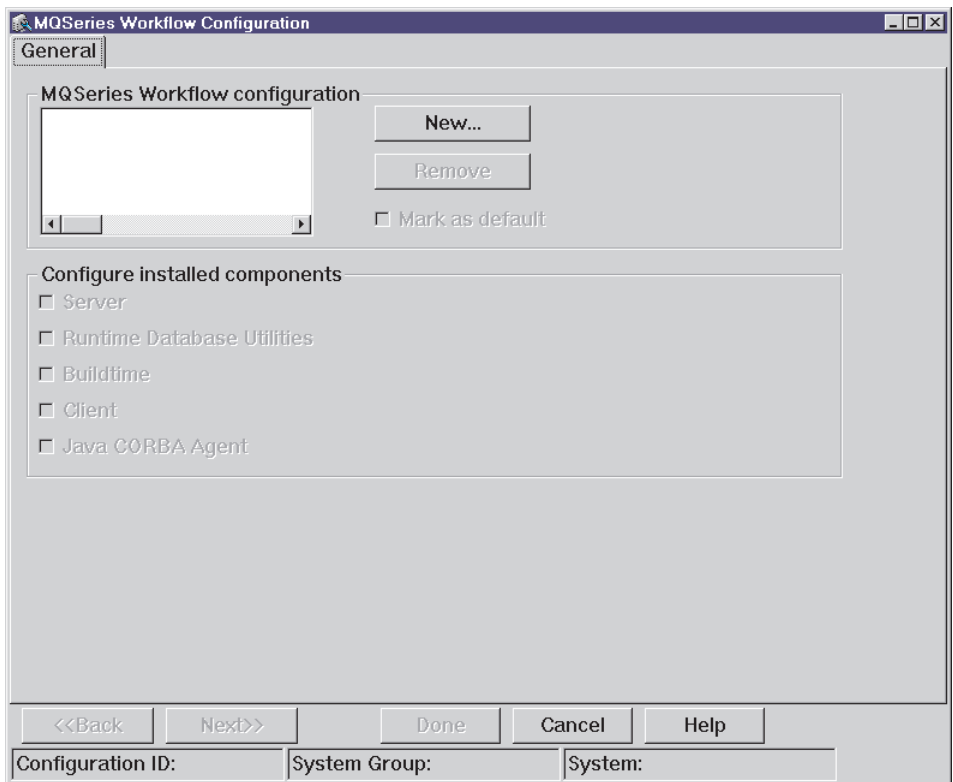


Figure 9. Configuration utility: General page (empty)

The **General** page is used to:

---

2. On OS/2 it must be started manually.

- Specify a configuration ID that is used to identify an MQ Workflow configuration.
- Select the MQ Workflow components that you want to configure.

### Specifying a configuration ID

By clicking on the **New...** button in the **General** page, the **MQSeries Workflow Configuration ID** dialog box appears.

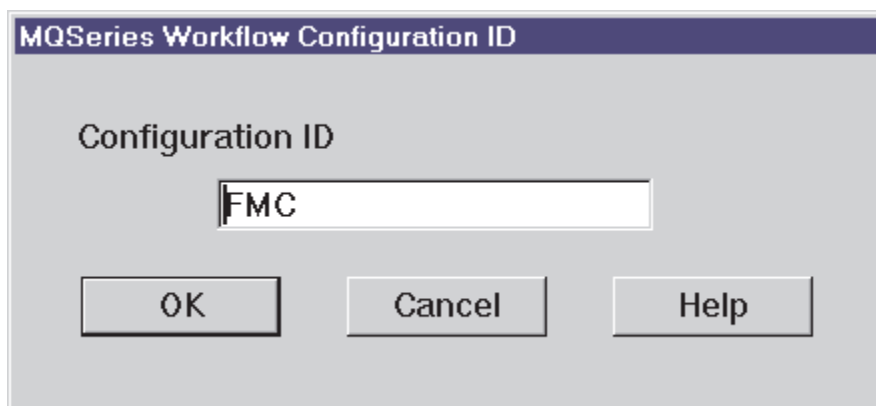


Figure 10. Configuration utility: Configuration ID dialog box

This dialog box allows you to specify a configuration identifier that is used to identify the new configuration you are about to create. A default value is provided. You can use this value or enter a new one.

After specifying a configuration identifier and clicking the **OK** button, the value you specified is displayed in the list box at the top of the **General** page.

The **Remove** button allows the MQ Workflow configuration identified by the selected configuration ID to be removed. It also deletes any databases or queue managers defined in the MQ Workflow configuration.

The **Mark as default** check box sets the MQ Workflow configuration identified by the selected configuration ID to be the default.

### Selecting MQ Workflow components

On the **General** page, the following MQ Workflow components are listed<sup>3</sup>:

- Server
- Runtime Database Utilities
- Buildtime

<sup>3</sup>. Not all options are available on OS/2.

## Windows

- Client
- Java CORBA Agent

Initially all MQ Workflow components are disabled. After a configuration ID has been specified, as explained in “Specifying a configuration ID” on page 101, they become enabled.

The check boxes allow you to select the MQ Workflow components you want to configure. Any components that have not been installed cannot be selected and are indicated with a **not installed** message.

As you select components, pages are added to the MQSeries Workflow Configuration Utility. You can view these pages by clicking on the tabs at the top of the MQSeries Workflow Configuration Utility or by using the <<Back and Next>> buttons located at the bottom of each page.

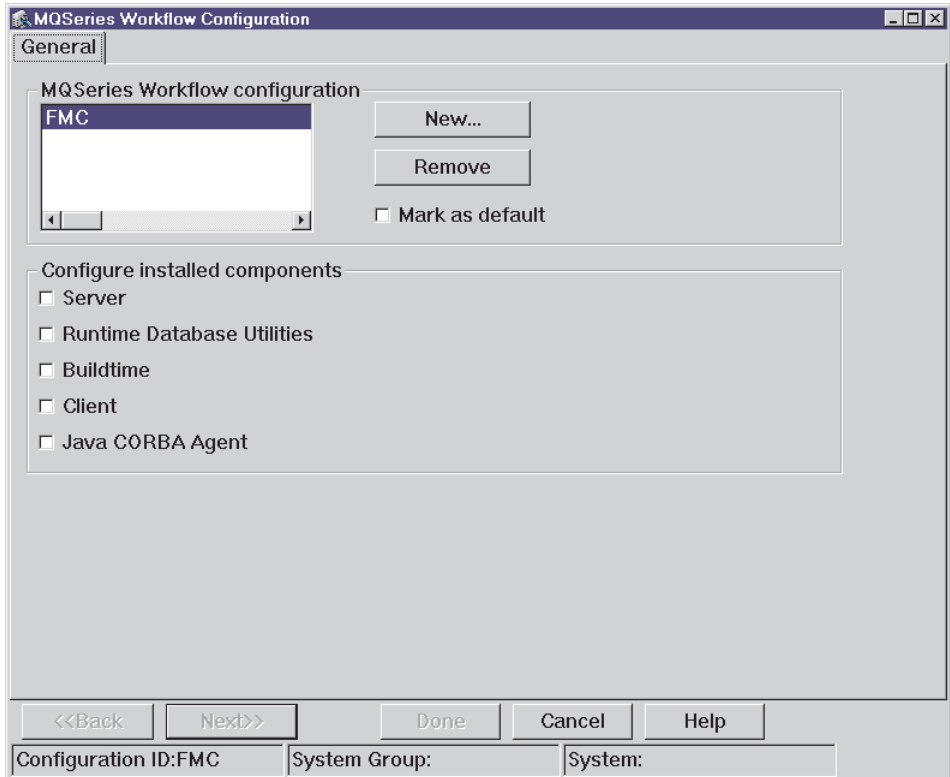


Figure 11. Configuration utility: General page

Selecting the **Client** component adds pages for the following MQ Workflow client components, if they are installed on your workstation:

- Administration utility

- Standard Client
- Client for Lotus Notes
- API Runtime Libraries
- Program Execution Agent

## Configuring MQ Workflow components

After specifying a configuration ID and selecting the MQ Workflow components you want to configure in the **General** page, you must enter configuration data within the pages that are added to the MQSeries Workflow Configuration Utility.

Table 41 lists the pages that are added for each MQ Workflow component selected on the **General** page.

Table 41. Configuration pages added when an MQ Workflow component is selected from the General page

MQ Workflow components selected	Configuration pages added							
	Runtime Database	Queue Manager	Cluster	Client Connections	Buildtime	Buildtime Database	Client	Java CORBA Agent
Server	●	●	●					
Runtime Database Utilities	●							
Buildtime					●	●		
Client				●			●	
Java CORBA Agent				●				●

### Runtime Database

The **Runtime Database** page is added when you select either **Server** or **Runtime Database Utilities** from the **General** page and is used to configure a Runtime database.

To configure a Runtime database, from the topmost list box, select the DB2 instance where your Runtime database is located. The default DB2 instance, **DB2**, should at least be listed.

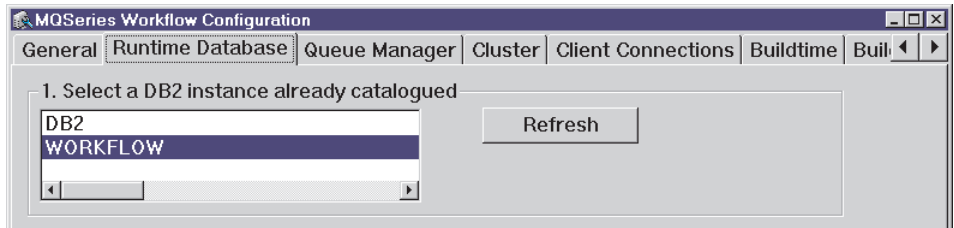


Figure 12. Configuration utility: Runtime Database page (top)

If no other DB2 instance is listed, select the default instance **DB2**. If you do not want to use the default instance, you can use the DB2 control center to add a new one. To add a new DB2 instance, refer to the *IBM DB2 Quick Beginnings* online manual.

The **Refresh** button clears the **Runtime Database** page and allows only available DB2 instances to be displayed.

If the DB2 instance you selected does not contain a valid Runtime database, you must create a new Runtime database as explained in “Creating a Runtime database”.

### Selecting a Runtime database

Selecting a DB2 instance lists all the databases located in that instance within the list box located in the middle of the **Runtime Database** page. From the list of databases displayed, select the Runtime database you want to use.



Figure 13. Configuration utility: Runtime Database page (middle)

If the database you select is not a valid Runtime database, a message appears telling you. If you do not want to use any of the Runtime databases listed, or no valid Runtime databases exist, you must create a new one.

### Creating a Runtime database

To create a new Runtime database, select the **New...** button. The **New DB2 Database** window appears containing default settings. You can use these default settings to create a new Runtime database or enter your own.



The top half of the **New DB2 Database** window is used to specify DB2 specific settings.

The screenshot shows the 'New DB2 Database' configuration window. It features a title bar and several input fields for configuration. The 'Database name' is set to 'FMCDB'. The 'Database location' is 'C:'. The 'Containers location' is 'c:\program files\mqseries wor'. The 'Log files location' is also 'c:\program files\mqseries wor'. A section titled 'MQSeries Workflow settings' contains four fields: 'System Group' (FMCGRP), 'System' (FMCSYS), 'Queue Prefix' (FMC), and 'Queue Manager' (FMCQM). At the bottom, there are three buttons: 'OK', 'Cancel', and 'Help'.

Figure 14. Configuration utility: New DB2 Database window

To create a new Runtime database, you must specify a database name and location, and where its containers are to be located. For error recovery and backup, you can specify a location where log files used to restore lost data are created. The *IBM DB2 Administration Getting Started* online manual describes these settings.

In the lower half of the **New DB2 Database** window, you must specify settings that are used to populate the Runtime database. A database that does not contain these settings is not a valid Runtime database and cannot be used.

In the **System Group** and **System** fields, you must enter names (up to 8 characters) that are used to identify your MQ Workflow system group and system.

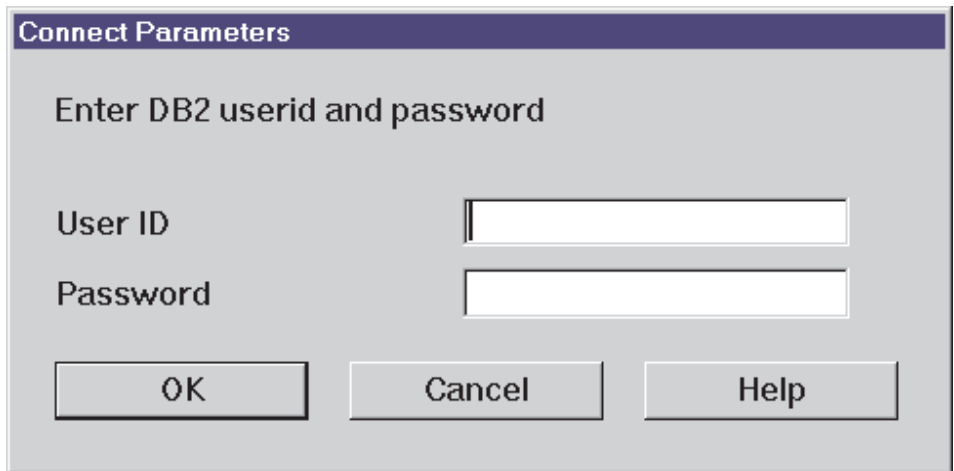
In the **Queue Prefix**, and **Queue Manager** fields you must enter names (up to 8 characters) that uniquely identify's MQSeries specific components used by your MQ Workflow system. The queue prefix is used to set a high level qualifier for queue names in your MQ Workflow system.

## Windows

When you have finished entering values in the **New DB2 Database** window, click the **OK** button. The name you provided for the new Runtime database is displayed in the list box located in the middle of the **Runtime Database** page.

### Setting connect parameters for a Runtime database

To set connection parameters for a Runtime database, select the desired Runtime database and press the **DB2 Connect parameters...** button. A **Connect Parameters** window appears:



The image shows a dialog box titled "Connect Parameters". Inside the dialog, there is a text prompt "Enter DB2 userid and password". Below this prompt are two text input fields. The first field is labeled "User ID" and the second is labeled "Password". At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Help".

Figure 15. Configuration utility: Runtime Database Connect Parameters window

In this window, you must specify user ID (up to 8 characters) and password values that give you administration rights for your workstation.

### Selecting a system

After selecting a valid Runtime database, values for the MQ Workflow system group and system, queue prefix, and queue manager are read from the selected database and displayed in the list box located at the bottom of the **Runtime Database** page.

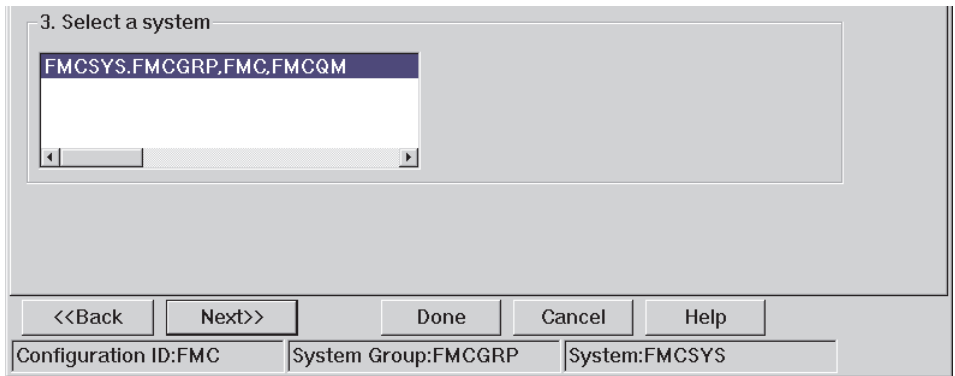


Figure 16. Configuration utility: Runtime Database page (bottom)

The values are displayed in a concatenated string that has the form:  
 <system>.<system group>,<queue prefix>,<queue manager>

If the Runtime database is used by more than one MQ Workflow system, entries for each system that use it are displayed.

Select the string that identifies your MQ Workflow system.

## Queue Manager

The **Queue Manager** page is added when you select **Server** from the **General** page.

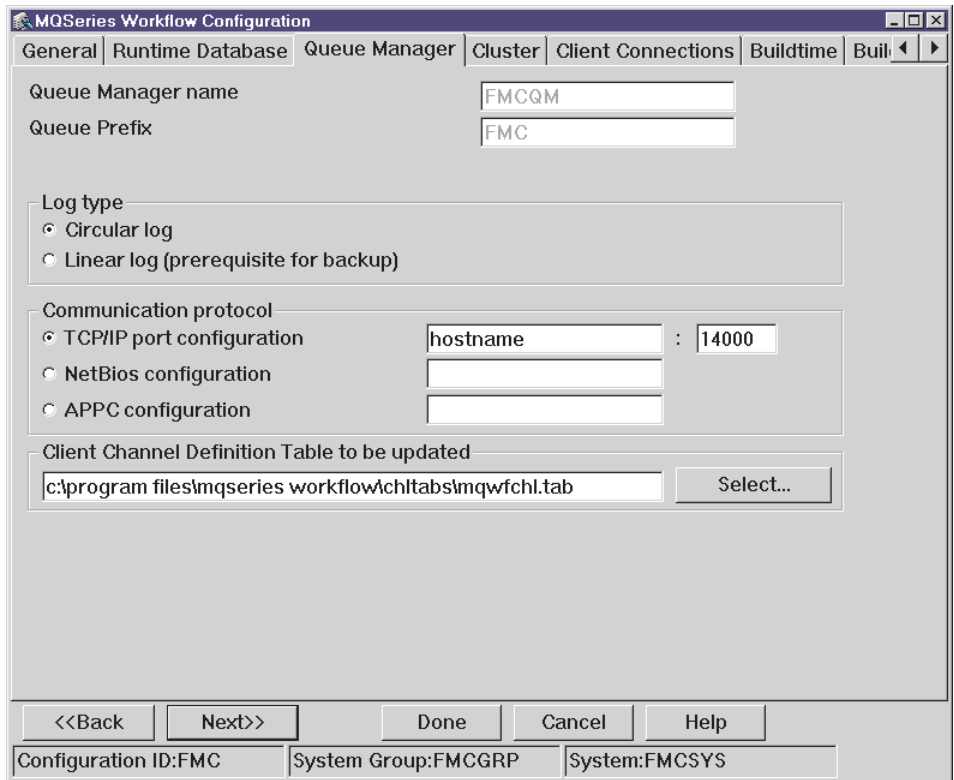


Figure 17. Configuration utility: Queue Manager page

This page is used to configure an MQSeries queue manager on an MQ Workflow server workstation and provide various settings required to set up MQSeries.

Values for the **Queue Manager name** and **Queue Prefix** fields are taken from the Runtime database you selected in the **Runtime Database** page.

### Specifying log types

For error recovery and backup, MQSeries provides a logging facility that uses log files to record all actions performed by the queue manager. How these actions are recorded depends on the log type you select. Two types of logging are possible: *Circular logging* and *Linear logging*. Use the radio buttons to select a log type.

Circular logging keeps all restart data in a ring of log files. It starts by filling the first file in the ring, then moving on to the next, and so on, until all the files are filled. It then goes back to the first file in the ring and starts again.

Linear logging keeps the log data in a continuous sequence of files. Space is not reused, so you can always retrieve any record logged from the time that the queue manager was created. As disk space is finite, you may have to think about some form of archiving.

Details about error logging are contained in the MQSeries online documentation.

### Setting the communications protocol

To specify the communication protocol set up on your workstation, you must select the appropriate radio button and specify the address information in the field(s) opposite:

**For TCP/IP:** Specify the IP address or machine name of your workstation, and an unused port number.

**For NetBIOS:** Specify the Local NetBios name of your workstation.

**For APPC:** Specify the fully-qualified CP name of your workstation.

### Client channel definition table

The client channel definition table is a file that contains address information for MQ Workflow components that use MQSeries, and is used by MQSeries as a lookup table for locating such components.

When an MQ Workflow server is configured, the client channel definition table is created and updated with the MQ Workflow server's address information.

You can specify where you want the table to be created. A default location is provided. If you do not want to use the default, the **Select...** button allows you to specify an alternative location.

When specifying a location, keep in mind that MQ Workflow client components and the Java CORBA Agent must have access to the client channel definition table. It is a good idea to make a note of its location.



MQ Workflow client components and the Java CORBA Agent require access to the client channel definition table in order to locate other MQ Workflow components that have added their address information to the table.

## Cluster

The **Cluster** page is added when you select **Server** from the **General** page.

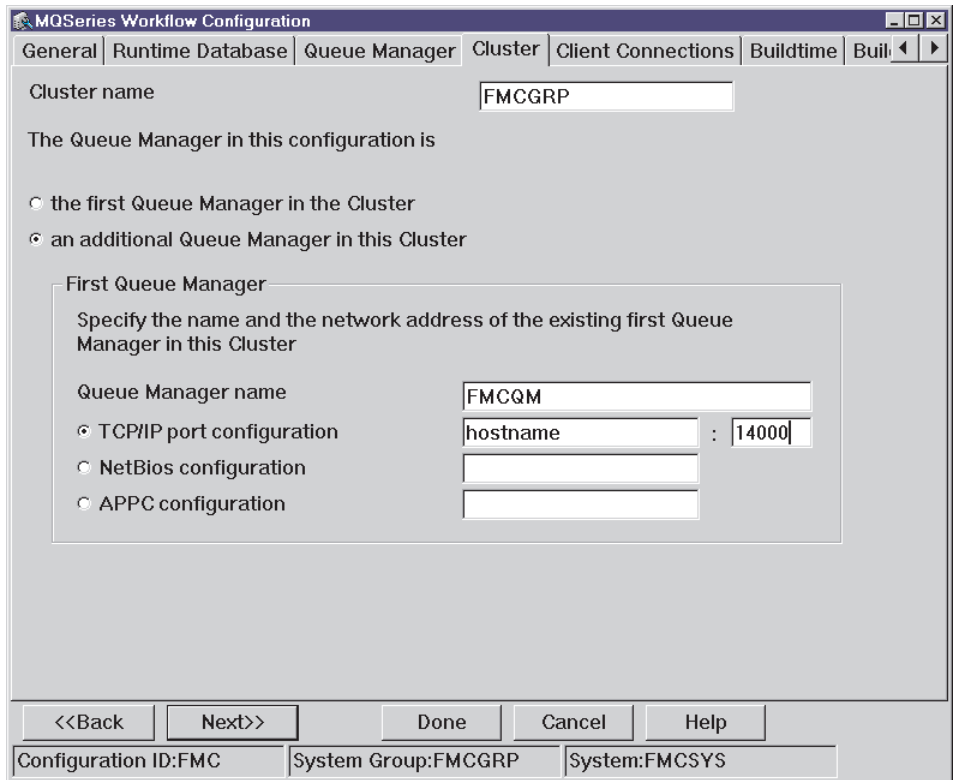


Figure 18. Configuration utility: Cluster page

This page is used to specify values required to implement an MQSeries technique known as *clustering*.

Briefly, clustering is a technique used to group logically associated queue managers together. For MQ Workflow, this logical association exists between queue managers if they belong to MQ Workflow systems that are members of the same MQ Workflow system group. This group of associated queue managers is called a *cluster*.

The first queue manager configured in the cluster is used to hold a repository of information about all other queue managers. The repository contains channel and queue definitions for every queue manager in the cluster. Queue managers need only know the name and location of the first queue manager that holds this repository to get definitions for any other queue manager in the cluster. This reduces the overhead involved in explicitly defining channels and queues for every queue manager in the MQ Workflow system group. For further details about clustering, refer to the MQSeries online documentation.

To associate a queue manager with a particular cluster, enter a name in the **Cluster name** field. Make sure that you use the same cluster name for all queue managers that are members of the same cluster. The default value is the name of the MQ Workflow system group. You can use this value or specify a different one.

The first queue manager configured in the cluster must hold the information repository for all other queue managers. To indicate whether the queue manager is the first or an additional queue manager to be configured in the cluster, select the appropriate radio button.

If you are configuring an additional queue manager in the cluster, you must specify the name of the first queue manager configured in the cluster in the **Queue Manager name** field.

You must also use the radio buttons and the field(s) opposite to specify the communication protocol and the address of the workstation where the first queue manager is located:

**For TCP/IP:** Specify the IP address or machine name and the port number used.

**For NetBIOS:** Specify the Local NetBios name.

**For APPC:** Specify the fully-qualified CP name.

## Client Connections

The **Client Connections** page is added when you select either **Client** or **Java CORBA Agent** from the **General** page.

On this page you specify settings that MQ Workflow client components and the Java CORBA Agent need in order to connect to an MQ Workflow system.

In the field at the top of the **Client Connections** page you must enter the location of the client channel definition table. The location of this table is specified on the **Queue Manager** page as explained in “Client channel definition table” on page 109. To locate the client channel definition table you can use the **Select...** button.

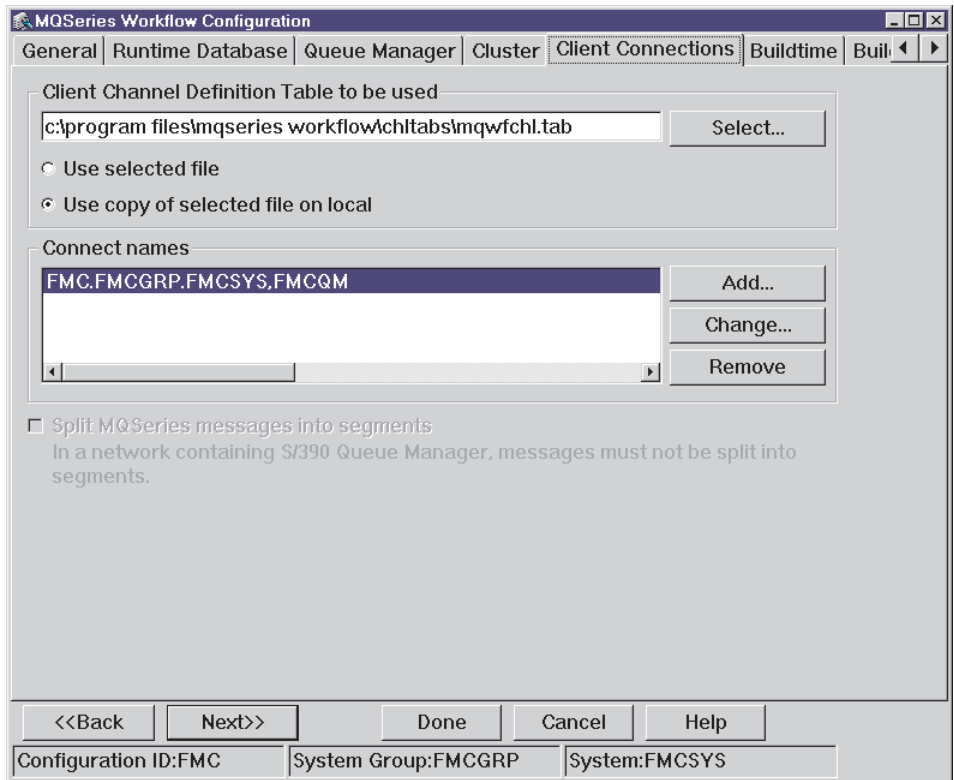


Figure 19. Configuration utility: Client Connections page

MQ Workflow client components and the Java CORBA Agent can read definitions contained in the client channel definition table directly, or copy the table to a local directory and use the local copy. Using a local copy improves system performance. Use the radio buttons to specify whether to read directly from the client channel definition table or to use a local copy.

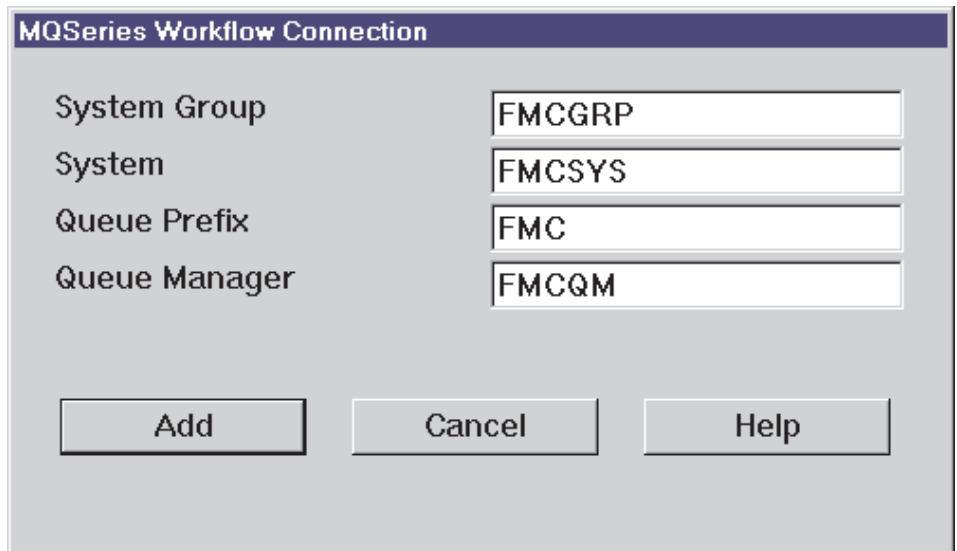
The list box in the middle of the **Client Connections** page is used to list *connect names*. A connect name is a mapping algorithm used to map MQ Workflow client components and the Java CORBA Agent to a specific MQ Workflow system.

A connect name has the following format:

```
<queue prefix>.<system group>.<system>,<queue manager>
```

To specify a connect name, click the **Add...** button. The following window appears:





The image shows a dialog box titled "MQSeries Workflow Connection". It contains four text input fields with the following values: "System Group" is "FMCGRP", "System" is "FMCSYS", "Queue Prefix" is "FMC", and "Queue Manager" is "FMCQM". At the bottom of the dialog, there are three buttons: "Add", "Cancel", and "Help".

Figure 20. Configuration utility: Add Connection window

In the **MQSeries Workflow Connection** window, enter the names for the MQ Workflow system group and system, and MQSeries queue manager and queue prefix that specify a connection to a particular MQ Workflow system.

After clicking the **Add** button, the connect name is displayed in the list box in the middle of the **Client Connections** page shown in Figure 19 on page 112.

Select the connect name that contains the settings for the queue manager of the MQ Workflow system to which you want to connect.

The **Change...** button is used to update a selected connect name.

The **Remove** button is used to remove a selected connect name.

## Buildtime

The **Buildtime** page is added when you select **Buildtime** from the **General** page.

Use this page to specify the Buildtime database type.

The Buildtime database can be created and managed by IBM DB2 Universal Enterprise Edition or Microsoft Access.

To use IBM DB2 Universal Enterprise Edition, select the radio button labeled **IBM DB2 Universal Database**. If DB2 is not installed, this radio button is disabled and cannot be selected.

## Windows

To use Microsoft Access, select the radio button labeled **Microsoft Jet Engine**.

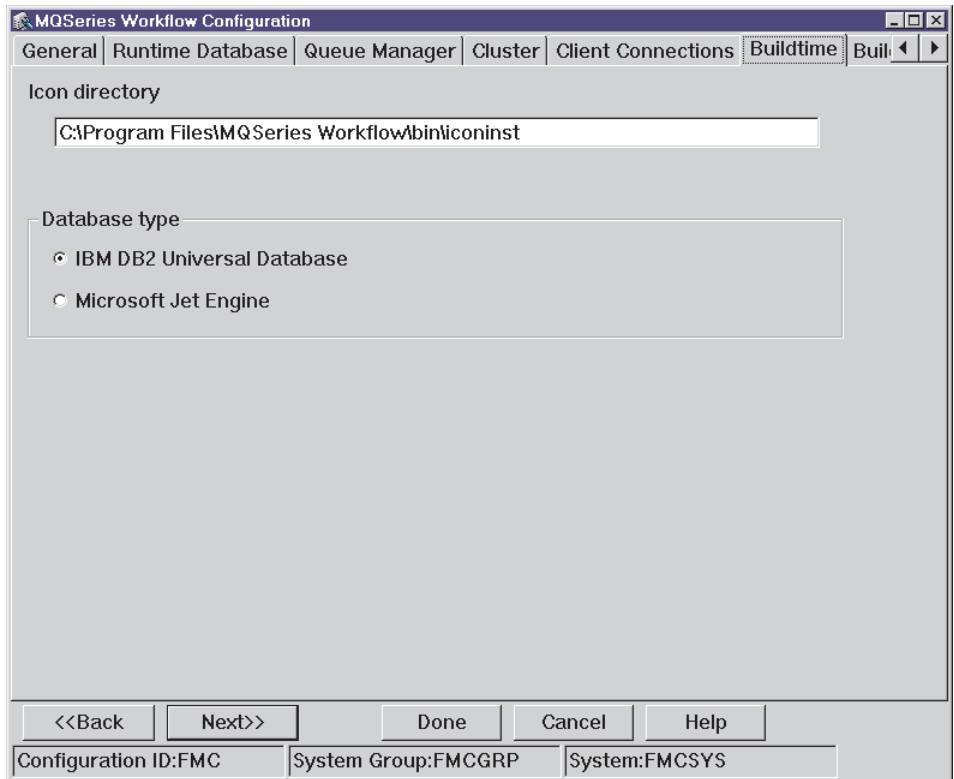


Figure 21. Configuration utility: Buildtime page

The **Icon directory** field is used to specify a directory for holding sample icons for Buildtime.

### Buildtime Database (DB2)

The **Buildtime Database** page is added when you select **Buildtime** from the **General** page.

The **Buildtime Database** page has the following format when **IBM DB2 Universal Database** is selected as the Buildtime database type in the **Buildtime** page:

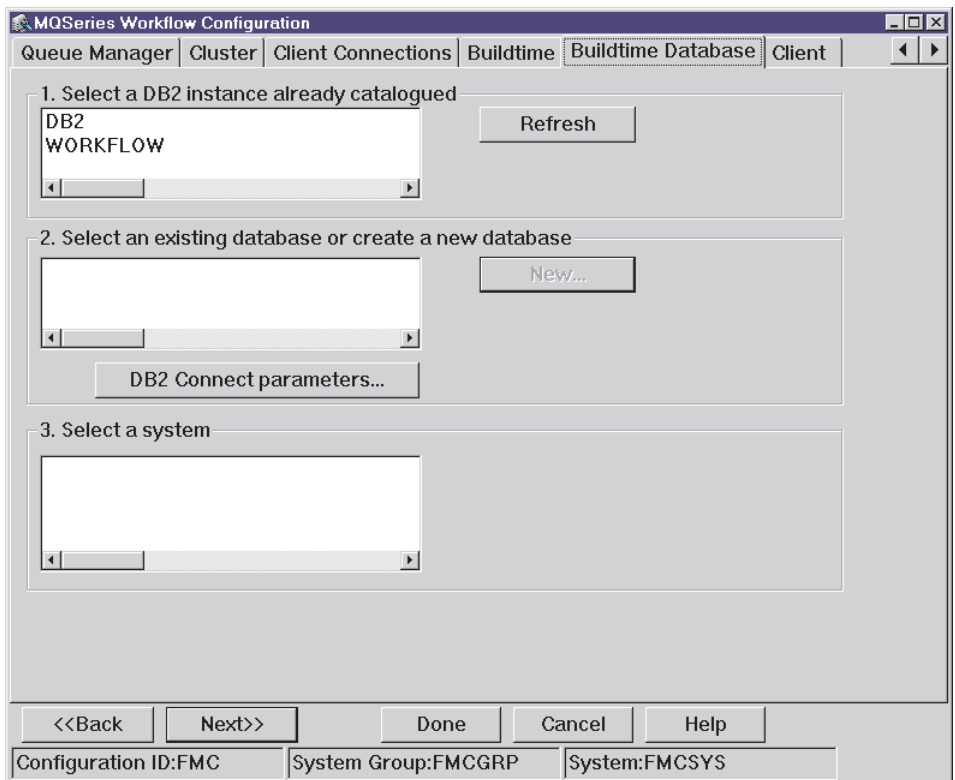


Figure 22. Configuration utility: Buildtime Database page (for DB2)

This page is used to select an existing Buildtime database or create a new one using IBM DB2 Universal Enterprise Edition. The procedure to do this is the same as that used to select or create a Runtime database, as explained in “Runtime Database” on page 103.

If you want to use an existing remote Buildtime database, you must catalog the database in the same way as for a remote Runtime database as described in “Catalog the existing remote database instance” on page 97, then click on refresh, and select the database that you want to use.

### **Buildtime Database (Microsoft Access/Jet database engine)**

The **Buildtime Database** page is added when you select **Buildtime** from the **General** page.

The **Buildtime Database** page has the following format when **Microsoft Jet Engine** is selected as the Buildtime database type in the **Buildtime** page:

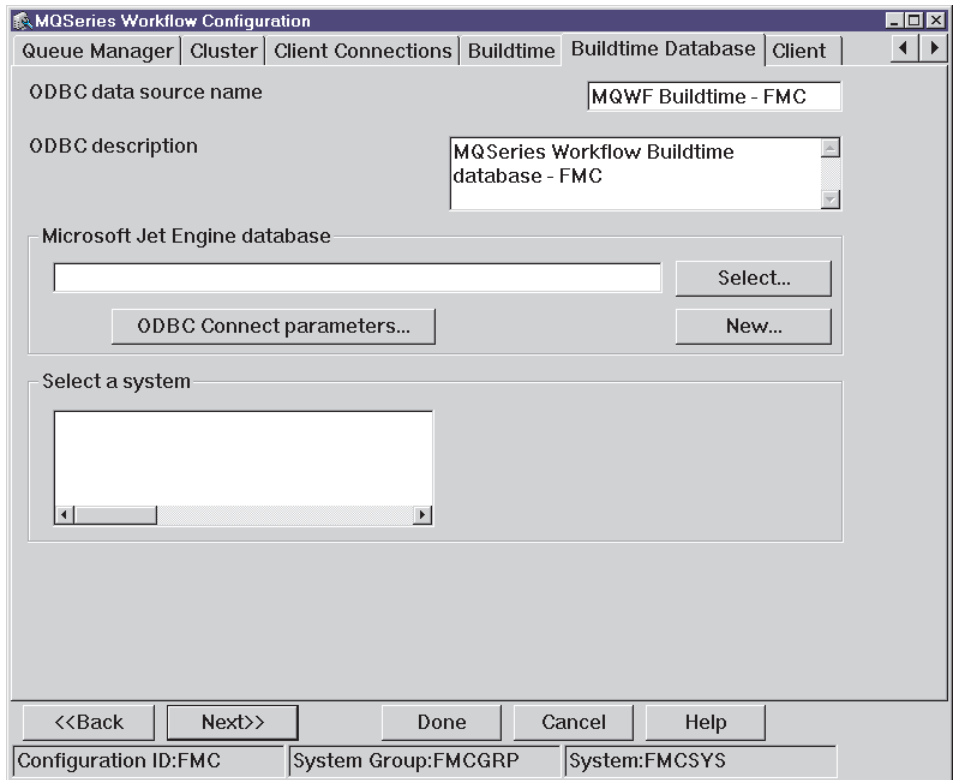


Figure 23. Configuration utility: Buildtime Database page (for Microsoft Jet Engine)

This page is used to select an existing Buildtime database or create a new one using Microsoft Jet database engine.

In the **ODBC data source name** field, provide a name for the ODBC data source used to connect MQ Workflow to the Microsoft Jet database engine.

In the **ODBC description** field you can enter a description used to describe the ODBC data source.

### Selecting a Buildtime database

To use an existing Buildtime database, enter its fully qualified path in the field located in the middle of the page. You can use the **Select...** button to locate it.

If you select a non-valid Buildtime database, a message appears telling you. In this case, you must either select a valid Buildtime database or create a new one as explained in “Creating a Buildtime database” on page 117.

### Creating a Buildtime database

To create a new Buildtime database, click on the **New...** button. The following window appears:

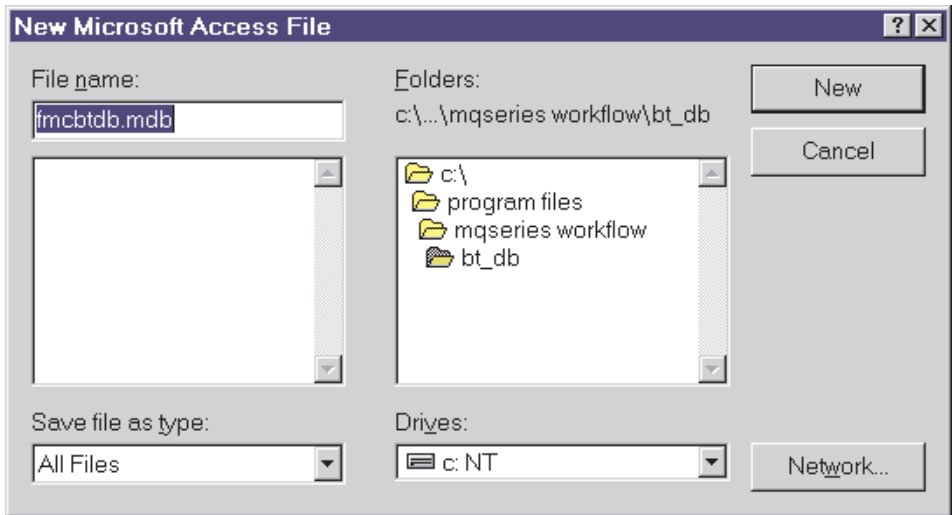


Figure 24. Configuration utility: Create New Buildtime Database window

Use this window to specify a name and location for the new Buildtime database and then click the **New** button. The path to the new Buildtime database appears in the field located in the middle of the **Buildtime Database** page and the following window appears:

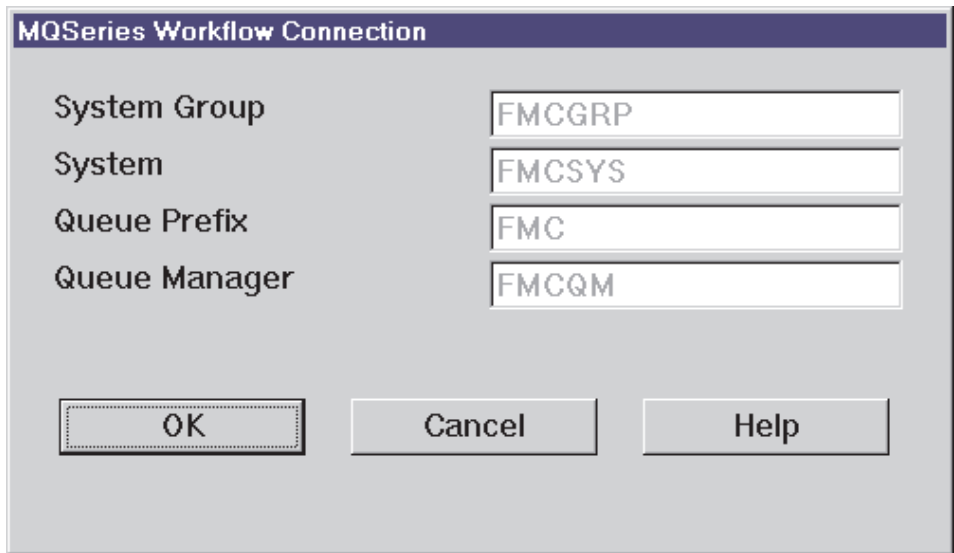


Figure 25. Configuration utility: Connection window

In this window, you must specify settings that are used to populate the Buildtime database. A database that does not contain these settings is not a valid Buildtime database and cannot be used.

In the **System Group** and **System** fields, you must enter names that are used to identify the MQ Workflow system group and system for which Buildtime builds process models.

In the **Queue Prefix**, and **Queue Manager** fields you must enter names that are used to identify MQSeries specific components for the MQ Workflow system for which Buildtime builds process models. The queue manager is responsible for managing communications within the MQ Workflow system. The queue prefix is used to set a high level qualifier for queue names in the MQ Workflow system. For further details, refer to the MQSeries online documentation.

When you have finished entering values in the **MQSeries Workflow Connection** window, click the **OK** button. Values you provided appear as a concatenated string in the list box at the bottom of the **Buildtime Database** page.

### Setting connect parameters for a Buildtime database

To set connection parameters for a Buildtime database, select the desired Buildtime database and press the **ODBC Connect parameters...** button. A **Connect Parameters** window appears.

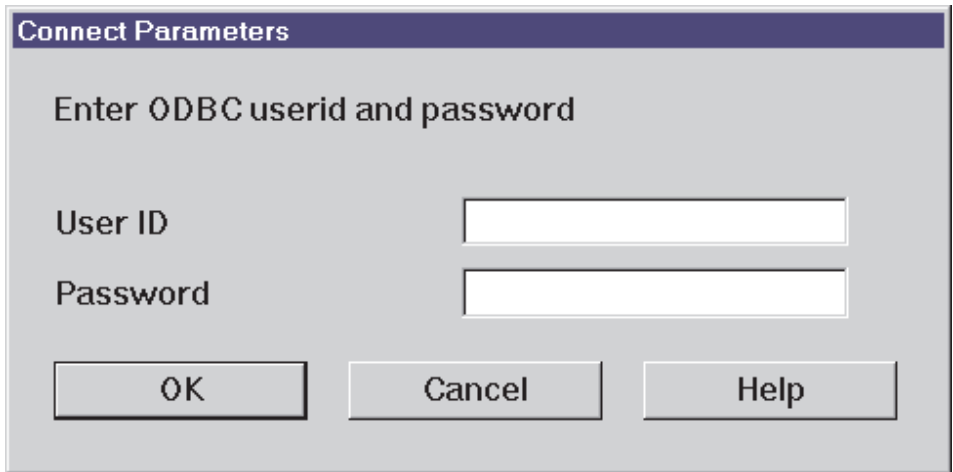


Figure 26. Configuration utility: Connect Parameters window (for ODBC)

In this window, you must specify user ID and password values that give you administration rights for Microsoft Access/Jet Engine.

### Selecting a system

After selecting a valid Buildtime database, values for the MQ Workflow system group and system, queue prefix, and queue manager are read from the database and displayed in the list box located at the bottom of the **Buildtime Database** page. The values are displayed in a concatenated string that has the form:

<system>.<system group>,<queue prefix>,<queue manager>

If the Buildtime database contains settings for more than one MQ Workflow system, entries for each system are displayed.

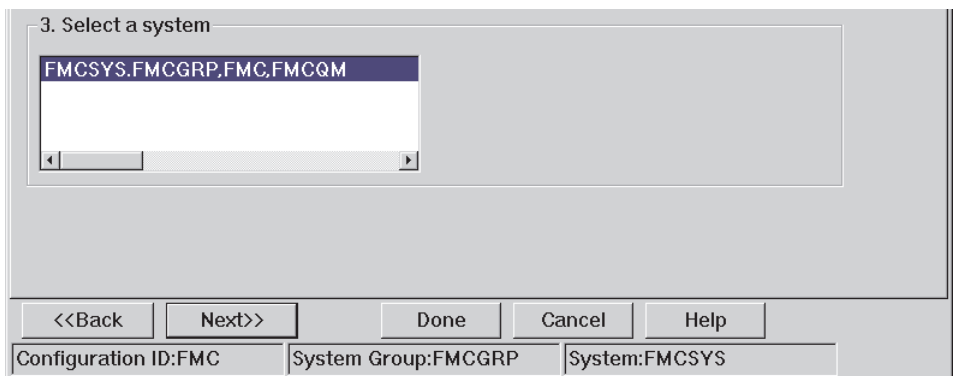


Figure 27. Configuration utility: Buildtime Database page (select a system)

## Windows

Select the string that identifies the MQ Workflow system for which Buildtime is to be used.

### Client

The **Client** page is added when you select **Client** from the **General** page.

The **Client** page is simply used to specify a directory for holding sample icons for MQ Workflow client components.

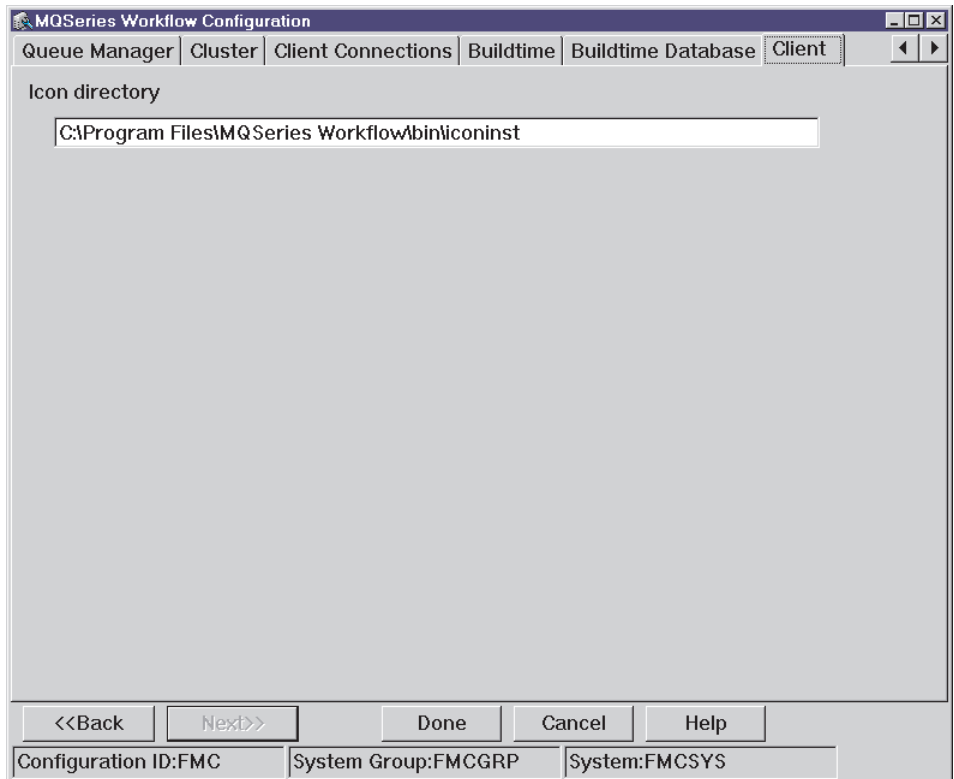


Figure 28. Configuration utility: Client page

Use the **Icon directory** field to specify a directory for holding the sample icons.

### Java CORBA Agent

The **Java CORBA Agent** page is added when you select **Java CORBA Agent** from the **General** page.



This page is used to specify the naming service used by the Java CORBA Agent, and parameters for garbage collection. Where possible, values for these settings are read from your workstation and displayed in the appropriate fields.

The top half of the page contains radio buttons that allow you to choose a locator policy.

Figure 29. Configuration utility: Java CORBA Agent page



Java RMI Agents should only be used for prototyping. They are currently not suited for production purposes.

On OS/2 Warp, only **Local bindings** is supported.

If you select a locator policy other than **Local bindings**, you must also specify:

- A name for the Java CORBA Agent in the **Agent name** field.

## Windows

- The directory where the Java Development Kit and Java Runtime Environment has been installed in the **JDK/JRE Installation Directory** field.
- The code version for the JAR file used by the Java CORBA Agent in the **Code Version** field. The code version is used to specify the version, release, modification, and CSD level of the JAR file to be used for this configuration.

If you select **CORBA Naming Service**, in the **Root name context** field, you must also specify the root name context the Java CORBA Agent will use to register the agent name.

If you select **Interoperable Object Reference**, you must also specify where the agent will publish its Interoperable Object Reference file. You must specify a valid existing directory path with a trailing slash. Only a slash (/) character is accepted as a valid directory separator, for example, E:/InetPub/WWWroot/MQWFJAVA/Agent/. During run time the platform-specific directory separator is used.

The bottom of the **Java CORBA Agent** page is used to specify values for garbage collection.

In the **Agent Cycle** field, specify the length of time between periodic garbage collection. Enter a value anywhere between 30 seconds and 86400 seconds. 300 seconds is the default.

In the **Client Threshold** field, specify the maximum number of unreferenced objects tolerated by each client before non-periodic garbage collection is triggered. Enter a value anywhere between 0 and 500000. 1000 is the default.

In the **Client Cycle** field, specify the ratio between the client-side keep-alive message cycle and the agent-side liveness check. Enter a value between 0% and 100%. 90% is the default.

---

### Starting the MQ Workflow configuration

When you have finished entering configuration data, use the **Done** button at the bottom of the MQSeries Workflow Configuration Utility to start the configuration process.

After clicking the **Done** button, the **Running configuration...** window appears.

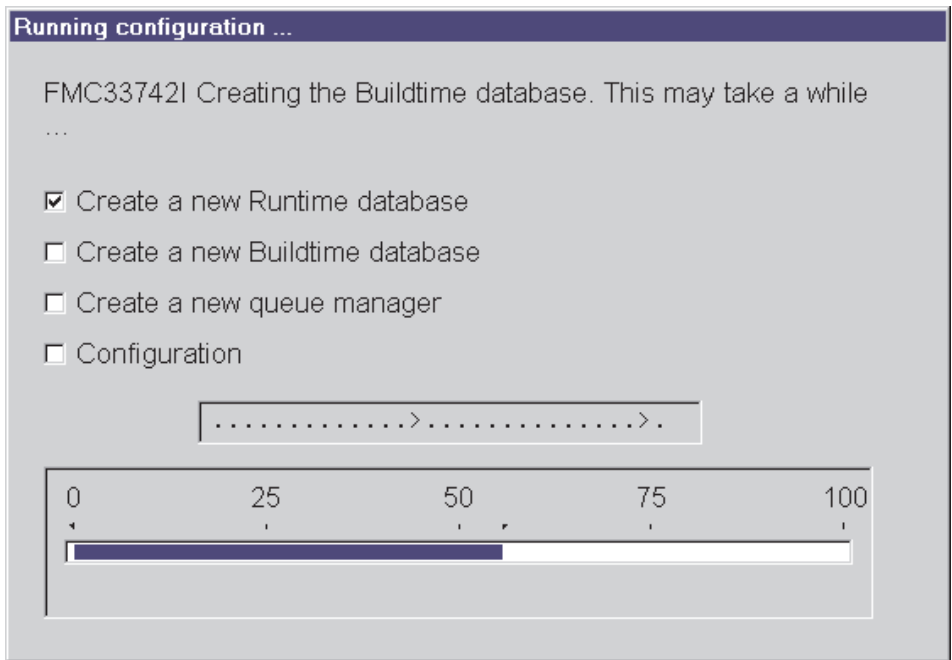


Figure 30. Configuration utility: Running Configuration window

A progress indicator shows how much progress has been made. Check boxes are crossed as each stage in the configuration is completed and a message at the top of the window indicates which step in the configuration process is currently being performed.

When the configuration process is finished the following window appears indicating success:

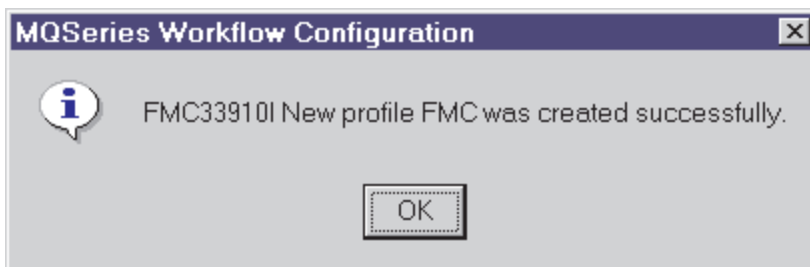


Figure 31. Configuration utility: Profile Created Successfully message box

MQ Workflow is now ready to be used, however, first you should check that MQ Workflow has been configured correctly as explained in “Appendix N. Using the configuration checking utility `fmczchk`” on page 285.



---

## Chapter 13. Verifying MQ Workflow on Windows

The MQ Workflow servers and clients have been installed and configured correctly if they can be started without any error messages appearing. This chapter describes how to start and stop MQ Workflow components on workstations running on Windows 95, 98, 2000 or NT.

---

### Starting components in the right order

An MQ Workflow server consists of the following server components:

- Administration server
- Scheduling server
- Cleanup server
- Execution server

**With the exception of MQ Workflow Buildtime, the Administration server must be started before you start any other MQ Workflow components.**

Values in the Runtime database are used to specify whether other MQ Workflow server components are set to start with the Administration server or not. If not, you must use the MQ Workflow administration utility to start them before any other MQ Workflow components are started.

The MQ Workflow Buildtime can be started at any time.

---

### Starting the Administration server

Since an MQ Workflow server can not be installed on either Windows 98 or Windows 95, the following only applies to Windows 2000 and NT.

The Administration server is always the first MQ Workflow component started in an MQ Workflow system.



Before you can start an Administration server, DB2 and MQSeries services and their subservices must be started. After configuring an MQ Workflow server, these services are set to start automatically after reboot.

You can start the Administration server by using any of the following methods:

- **Method 1:** Manually as a Windows service.

## Windows

- **Method 2:** Automatically as a Windows service.
- **Method 3:** From a command line.

It is recommended to start the Administration server as a Windows service.

### Method 1: Manually as a Windows service

To start the Administration server manually as a Windows service, do the following:

1. To select **services**:

On Windows NT:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
- b. Select **Control Panel**.
- c. Select the **Services** icon. A dialog box appears.

On Windows 2000:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
- b. Select **Control Panel**.
- c. Select **Administrative Tools**.
- d. Select the **Services** icon. A dialog box appears.

2. Within the service window of the dialog box, locate the line that reads **MQSeries Workflow 3.2 – <cfgID>**

Where <cfgID> is replaced by the configuration identifier that identifies the MQ Workflow configuration for your MQ Workflow server. Highlight this line.

3. Click on the **Start** button to the right of the window to start the Administration server.

### Method 2: Automatically as a Windows service

To set up Windows to start the Administration server automatically as a Windows service, do the following:

1. To select **services**:

On Windows NT:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
- b. Select **Control Panel**.
- c. Select the **Services** icon. A dialog box appears.

On Windows 2000:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
- b. Select **Control Panel**.
- c. Select **Administrative Tools**.
- d. Select the **Services** icon. A dialog box appears.

2. Within the service window of the dialog box, locate the line that reads **MQSeries Workflow 3.2 – <cfgID>**  
Where <cfgID> is replaced by the configuration identifier that identifies the MQ Workflow configuration for your MQ Workflow server. Highlight this line.
3. Click on the **Startup** button to the right of the window to modify startup parameters for the Administration server. A dialog window appears titled **Service**.
4. Within the **Service** dialog, under **Startup Type** click on **Automatic** and select **OK**. The Administration server is now set to start automatically during the next system startup. You must reboot your system to start the Administration server.
5. The user ID and password for the Windows **IBM MQSeries** service are saved in the queue manager registry. This is necessary to allow the two-phase commit. If, for security reasons, you do not want to leave the user ID and password in the registry, delete them from the registry and modify the Windows **IBM MQSeries** and **MQSeries Workflow 3.2 – <cfgID>** services as follows:
  - a. To select **services**:  
On Windows NT:
    - 1) On the task bar, click on the Windows **Start** menu and select **Settings**.
    - 2) Select **Control Panel**.
    - 3) Select the **Services** icon. A dialog box appears.  
On Windows 2000:
    - 1) On the task bar, click on the Windows **Start** menu and select **Settings**.
    - 2) Select **Control Panel**.
    - 3) Select **Administrative Tools**.
    - 4) Select the **Services** icon. A dialog box appears.
  - b. Within the service window of the dialog box, locate the line that contains the service name (either **IBM MQSeries** or **MQSeries Workflow 3.2 – <cfgID>**). Highlight this line.
  - c. Click on the **Startup** button to the right of the window to modify startup parameters for the service. A dialog window appears titled **Service**.
  - d. Within the **Service** dialog, under **Log On As:** click on the radio button labeled **This account** and enter your user ID and password.
  - e. Select **OK**.

### Method 3: From a command line

To start the MQ Workflow Server from a command line:

1. Open a command prompt window.
2. Enter the command:

```
fmcamain -c -y <cfgID>
```

Where *<cfgID>* is replaced by the configuration identifier that identifies the MQ Workflow configuration for your MQ Workflow server.

After the Administration server starts, a message appears telling you that it has started. If other MQ Workflow server components have been set to start with the Administration server, messages telling you that these servers have started also appear.

---

### Starting the administration utility

Before starting the administration utility you must start the Administration server as explained in “Starting the Administration server” on page 125.

To use the administration utility to administer a certain MQ Workflow system, you must know the name of the MQ Workflow system and the system group to which it belongs.

To start the administration utility, open a command prompt window and enter the following command:

```
fmcautil -y <cfgID> -g <systemgroup> -s <system> -u <userid> -p <password>
```

Where:

*<cfgID>*

is replaced by the configuration identifier that identifies the MQ Workflow configuration for the administration utility. If you do not specify a value, the value for the environment variable `FMC_DEFAULT_CONFIGURATION` is used. If a value for this environment variable has not been set, the default configuration identifier is used. The default configuration identifier is the one you marked as default on the **General** page in the MQSeries Workflow Configuration Utility.

*<systemgroup>*

is replaced by the MQ Workflow system group that contains the MQ Workflow system you want to administer. If you do not enter a value, the default value is used. The default value is taken from the configuration identified by *<cfgID>*.



<system>

is replaced by the MQ Workflow system you want to administer. If you do not enter a value, the default value is used. The default value is taken from the configuration identified by <cfgID>.

<userid>

is replaced by the user ID used to log on to the administration utility. The user ID is initially set to **ADMIN** during the configuration stage.

<password>

is replaced by the password used to log on to the administration utility. The password is initially set to **password** during the configuration stage.

For more details about the **fmcautil** start command, additional options not listed here, and how to use the administration utility, refer to the *IBM MQSeries Workflow: Administration Guide*.

---

## Starting and stopping other MQ Workflow servers

If MQ Workflow server components are not started together with the Administration server, you must use the MQ Workflow administration utility to start each server component individually.

To check whether MQ Workflow server components have been started or not, use the **Query** command provided by the administration utility.

The administration utility can also be used to stop MQ Workflow server components. Refer to the *IBM MQSeries Workflow: Administration Guide* to find out how to use the MQ Workflow administration utility to start and stop each MQ Workflow server component.

---

## Starting the standard Client

Before starting the standard MQ Workflow Client, the Administration server and all other MQ Workflow server components must already be running.

To start a standard MQ Workflow Client:

1. On the Windows task bar, click on the **Start** menu and select **Programs**.
2. Select the **MQSeries Workflow** program folder.
3. Select the **MQSeries Workflow Client - <cfgID>** icon, where <cfgID> is replaced by the configuration identifier that identifies the MQ Workflow configuration for the standard MQ Workflow Client.
4. The following window appears.

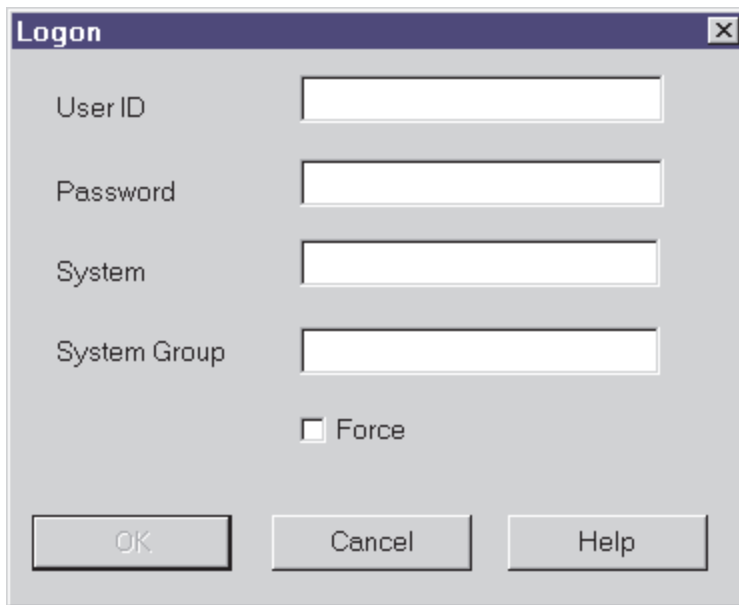


Figure 32. MQ Workflow Client logon window

In this window, enter the Client's user ID and password, and the name of the MQ Workflow system and system group to which the Client should connect.

The user ID and password are initially set to **ADMIN** and **password**, respectively, during the configuration stage.

If *unified logon* has been set in the Runtime database, you are automatically logged on to the MQ Workflow system without the need to specify the Client's user ID and password. Unified logon means that when users have logged on to Windows 2000 or NT with their password, there is no need to further log on to individual applications. MQ Workflow supports unified logon when it is specified in the system properties table during MQ Workflow Buildtime. Refer to the *IBM MQSeries Workflow: Getting Started with Buildtime* book for details about setting unified logon.

---

## Starting Buildtime

To start Buildtime installed on any of the supported Windows based operating platforms:

1. On the Windows task bar, click on the **Start** menu and select **Programs**.
2. Select the **MQSeries Workflow** program folder.

3. Select the **MQSeries Workflow Buildtime - <cfgID>** icon, where <cfgID> is replaced by the configuration identifier that identifies the MQ Workflow configuration for MQ Workflow Buildtime.
4. The following window appears.

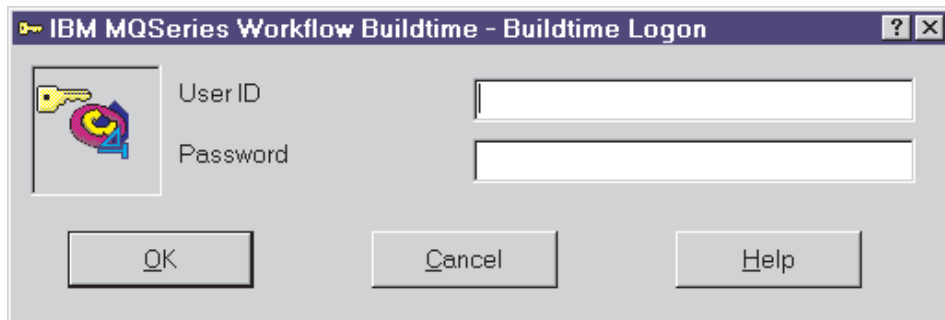


Figure 33. Buildtime logon window

In this window, enter the Buildtime's user ID and password. The user ID and password are initially set to **ADMIN** and **password**, respectively, during the configuration stage.

If *unified logon* has been set in the Buildtime database, you are automatically logged on without the need to specify the Buildtime's user ID and password. Unified logon means that when users have logged on to Windows 2000 or NT with their password, there is no need to further log on to individual applications. MQ Workflow supports unified logon when it is specified in the system properties table during MQ Workflow Buildtime. Refer to the *IBM MQSeries Workflow: Getting Started with Buildtime* book for details about setting unified logon.

---

## Stopping the standard Client

To stop a standard MQ Workflow Client:

1. From the menu bar on the standard MQ Workflow Client screen, select **File**.
2. Select **Exit**.
3. The following window appears.

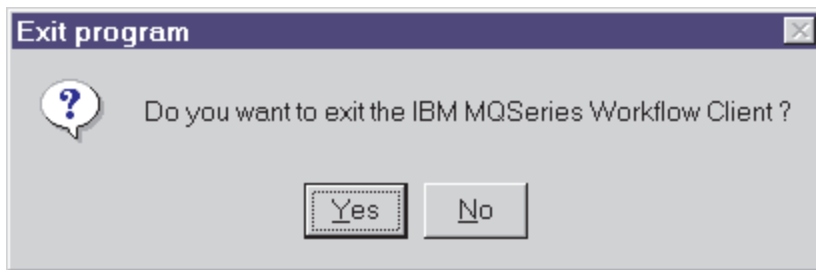


Figure 34. Exit Client window

Click on the **Yes** button. The window closes and the Client stops.

---

### Stopping the Administration server

Since an MQ Workflow server can not be installed on either Windows 98 or Windows 95, the following only applies to Windows 2000 and NT.

You should note that stopping the Administration server also stops all other MQ Workflow server components.

There are two methods used to stop the Administration server:

1. Via the administration utility.
2. Via the service panel.



The methods described here for stopping an MQ Workflow Administration server are the only valid methods. You may find by using methods other than these, MQ Workflow resources are not cleaned up and DB2 and MQSeries are not deregistered.

#### Via the administration utility

To stop an MQ Workflow Administration server via the administration utility:

1. Start the administration utility.
2. From the main menu, select **s**. The system commands menu is displayed.
3. From the system commands menu, select the shutdown system option **d**.  
A message appears to tell you that a system shutdown has been requested.  
As each MQ Workflow Server component is stopped, a message is displayed informing you about the component's change in state.

#### Via the service panel

To stop an MQ Workflow Administration server via the service panel:

1. To select **services**:  
On Windows NT:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
- b. Select **Control Panel**.
- c. Select the **Services** icon. A dialog box appears.

On Windows 2000:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
  - b. Select **Control Panel**.
  - c. Select **Administrative Tools**.
  - d. Select the **Services** icon. A dialog box appears.
2. Within the service window of the dialog box, locate the line that reads **MQSeries Workflow 3.2 – <cfgID>**.  
Where <cfgID> is replaced by the configuration identifier that identifies the MQ Workflow configuration for your MQ Workflow server.  
Highlight this line.
  3. Click on the **Stop** button to the right of the window.

---

### Stopping the administration utility

To stop the administration utility, select **x** from the menu screen until you exit from the administration utility. When control passes to a command prompt, the administration utility has stopped.

For more details about the administration utility refer to the *IBM MQSeries Workflow: Administration Guide*.

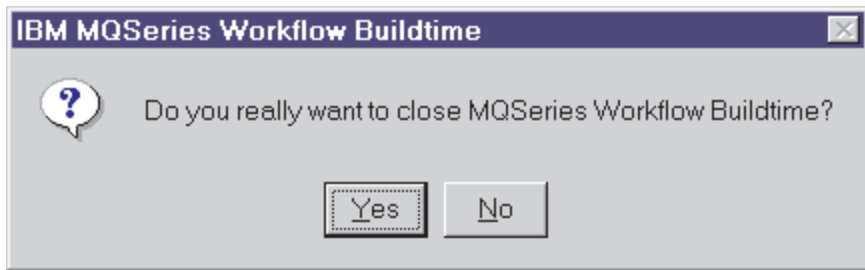
---

### Stopping Buildtime

To stop Buildtime:

1. From the menu bar on the MQ Workflow Buildtime screen, select **Buildtime**.
2. Select **Exit**.
3. The following window appears.

## Windows



*Figure 35. Exit Buildtime window*

Click on the **Yes** button. The window closes and Buildtime stops.

---

## Chapter 14. Problem determination on Windows

If you are having problems running MQ Workflow servers or clients, you can try using the following sources of information to solve your problem:

- “Where to find MQ Workflow log files on Windows”
- “Running an MQ Workflow trace on Windows”
- “Appendix N. Using the configuration checking utility `fmczchk`” on page 285
- The latest MQ Workflow support information is available at <http://www6.software.ibm.com/MQSWF/Workflow.htm>

---

### Where to find MQ Workflow log files on Windows

You can find MQ Workflow log files in the following locations:

- General MQ Workflow log files: `x:\Program Files\MQSeries Workflow\log\*.log`
- For an MQ Workflow configuration `<ConfigID>`: `x:\Program Files\MQSeries Workflow\cfgs\<ConfigID>\log\*.log`

---

### Running an MQ Workflow trace on Windows

It may be necessary to run an MQSeries Workflow product trace in order to find the cause of a problem.

1. Start the trace by entering the command:

```
fmczchk -c trc:level,filename -y ConfigID
```

where

*level* Has the value **0** for high-level information, **1**, **2**, or **3** for increasing levels of detail.

*filename*

Is the path and file name of the trace file. The extension `.log` will be added to the file name you specify. This is optional.

*ConfigID*

Is the configuration identifier for the system you want to trace. If you do not specify the `-y` option, the trace will be performed on the system identified by the *DefaultConfiguration ID* variable that is set in the general configuration profile.

2. Restart the MQ Workflow server or component that you want to trace.
3. Recreate the problem situation.

## Windows

4. Stop the MQ Workflow server or component that you have been tracing.
5. Disable tracing by entering the command:  
`fmczchk -c trc:0 -y ConfigID`
6. Check the trace file *filename.log*
7. The latest MQ Workflow support information is available at <http://www6.software.ibm.com/MQSWF/Workflow.htm>



---

## Part 5. Installing and configuring MQ Workflow on OS/2 Warp

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## Chapter 15. Installing on OS/2 Warp

This chapter describes the procedures for installing MQ Workflow components on workstations running OS/2 Warp.

If you have an old version of MQ Workflow installed and you want to use data from this version with the new release of MQ Workflow, you must migrate your existing installation as explained in “Appendix K. Migrating from a previous release” on page 265. It is important to do this before installing the new version of MQ Workflow.

---

### Installing the software

To install MQ Workflow components on an OS/2 Warp workstation:

1. With the MQ Workflow installation disk in the CD-ROM drive start the installation program by opening an OS/2 Warp command prompt window and entering:

```
x:\OS2\lng\INSTALL
```

where:

*x* is the drive letter for the CD-ROM drive.

*lng* is replaced by a three-letter abbreviation that represents the language version you want to install. For a list of abbreviations refer to “Language settings for OS/2 Warp and Windows” on page 197.

For example, to install the English version of MQ Workflow from your E drive, enter:

```
E:\OS2\ENU\INSTALL
```

2. The **IBM MQSeries Workflow Version 3.2** window is displayed. Select **Continue**.
3. The **Install** window is displayed. Select **Update CONFIG.SYS** and select **OK**. This allows the installation program to add MQ Workflow variables to your **CONFIG.SYS** file automatically. The MQ Workflow variables that are added are described in “Appendix B. MQ Workflow variables” on page 159.

**Note:** The installation program saves your original **CONFIG.SYS** file as **CONFIG.00n** in the root directory of your startup drive, where n is any number starting from 1.

Deselect **Update CONFIG.SYS** and select **OK** if you want to add the settings to the **CONFIG.SYS** file yourself. The installation program writes an updated configuration file named **CONFIG.ADD** to the directory that contains your original **CONFIG.SYS** file. Using the settings in **CONFIG.ADD**, you can manually update the **CONFIG.SYS** file.

4. The **Install-directories** window is displayed containing the following list of components. Select the MQ Workflow components you want to install by clicking on the component.
  - Development Kit
  - Client APIs Runtime Libraries
  - Program Execution Agent
  - Server
  - Runtime Database Utilities
  - Administration Utility
  - Client for Lotus Notes
  - Lotus Notes Database Templates
  - Java CORBA Agent

**Note:** If you install the **Client for Lotus Notes**, make sure you read “Appendix J. Preparing and administering the Lotus Notes database templates” on page 261.

5. The **Installation directory** field contains the directory **D:\FMCOS2**. This is the default directory for installation. If you do not want to use this as your installation directory, enter a new directory path.
6. Select **Install**. Program files are copied to the directory you specified in the **Installation directory** field. This may take several minutes to complete.
7. The **Installation and Maintenance** window is displayed. Click **OK** and restart your workstation to activate the changes made by the installation program.

---

## Chapter 16. Configuring MQ Workflow on OS/2 Warp

To configure MQ Workflow on OS/2 Warp, you must be logged on locally with administration rights. The actions that you must take are almost identical to that for the Windows based operating systems, and are described in “Chapter 12. Configuring MQ Workflow on Windows” on page 97.

If you want to use the Lotus Notes database templates with the MQ Workflow Client for Lotus Notes on OS/2 Warp, the setup and administration is identical to that for the Windows based operating systems, and is described in “Appendix J. Preparing and administering the Lotus Notes database templates” on page 261.



---

## Chapter 17. Verifying MQ Workflow on OS/2 Warp

The MQ Workflow servers and clients have been installed and configured correctly if they can be started without any error messages appearing.

---

### Starting and stopping MQ Workflow on OS/2 Warp

This chapter describes how to start and stop MQ Workflow components on workstations running OS/2 Warp.

#### Starting components in the right order

An MQ Workflow server consists of the following server components:

- Administration server
- Scheduling server
- Cleanup server
- Execution server

**The Administration server must be the first MQ Workflow component you start.**

Values in the Runtime database are used to specify whether other MQ Workflow server components are set to start with the Administration server or not. If not, you must use the MQ Workflow administration utility to start them before any other MQ Workflow components are started.

#### Starting the Administration server

The Administration server is always the first MQ Workflow component started in an MQ Workflow system.

To start the Administration server, do the following:

1. Start DB2 by entering at a command prompt:  
**db2start<sup>4</sup>**
2. Start the MQSeries queue manager by entering at a command prompt:  
**strmqm<sup>4</sup> <MQQueueManager>**

Where *<MQQueueManager>* is replaced by the name of the queue manager defined for your system.

3. Start the TCP/IP listener program by entering at a command prompt:

---

4. "Appendix A. Basic DB2 and MQSeries commands" on page 151 provides information about DB2 and MQSeries commands that may be referenced here.

```
start "MQSeries TCP/IP listener" runmqtsr -t tcp -p4 <port-number> /M  
<MQQueueManager>
```

Where:

<port-number>

is replaced by the port used by your MQ Workflow system's queue manager.

<MQQueueManager>

is replaced by the name of your MQ Workflow system's queue manager.

4. Start the MQSeries trigger monitor by entering at a command prompt:

```
start "MQSeries Trigger Monitor" runmqtrm /M4 <MQQueueManager> /Q  
FMCTRIGGER
```

Where <MQQueueManager> is replaced by your MQ Workflow system's queue manager.

5. Start the Administration server, by entering at a command prompt:

```
fmcamain -y <cfgID>
```

Where <cfgID> is replaced by the configuration identifier that identifies the MQ Workflow configuration for your MQ Workflow server.

After the Administration server starts, a message appears telling you that it has started. If other MQ Workflow server components have been set to start with the Administration server, messages telling you that these servers have started also appear.

### Starting the administration utility

Before starting the administration utility you must start the Administration server as explained in "Starting the Administration server" on page 143.

To start the administration utility, open a command prompt window and enter the following command:

```
fmcautil -y <cfgID> -g <systemgroup> -s <system> -u <userid> -p <password>
```

Where:

<cfgID>

is replaced by the configuration identifier that identifies the MQ Workflow configuration for the administration utility. If you do not specify a value, the value for the environment variable FMC\_DEFAULT\_CONFIGURATION is used. If a value for this environment variable has not been set, the default configuration identifier is used. The default configuration identifier is the one you marked as default on the **General** page in the MQSeries Workflow Configuration Utility.



*<systemgroup>*

is replaced by the MQ Workflow system group that contains the MQ Workflow system you want to administer. If you do not enter a value, the default value is used. The default value is taken from the configuration identified by *<cfgID>*.

*<system>*

is replaced by the MQ Workflow system you want to administer. If you do not enter a value, the default value is used. The default value is taken from the configuration identified by *<cfgID>*.

*<userid>*

is replaced by the user ID used to log on to the administration server. This user ID must have administration rights. The user ID is initially set to **ADMIN** during the configuration stage.

*<password>*

is replaced by the password used to log on to the administration server. The password is initially set to **password** during the configuration stage.

For more details about the **fmcautil** start command, additional options not listed here, and how to use the administration utility, refer to the *IBM MQSeries Workflow: Administration Guide*.

### **Administering another system**

To be able to use the administration utility to administer another MQ Workflow system, you must first perform a client configuration for that remote system using the name of the MQ Workflow system and the system group to which it belongs.

## **Starting and stopping other MQ Workflow servers**

If MQ Workflow server components are not started together with the Administration server, you must use the MQ Workflow administration utility to start each server component individually.

To check whether MQ Workflow server components have been started or not, use the **Query** command provided by the administration utility.

The administration utility can also be used to stop MQ Workflow server components. Refer to the *IBM MQSeries Workflow: Administration Guide* to find out how to use the MQ Workflow administration utility to start and stop each MQ Workflow server component.

## **Stopping the Administration server**

You should note that stopping the Administration server also stops all other MQ Workflow server components.



The method described here for stopping an MQ Workflow Administration server is the only valid method. You may find by using methods other than the one given here, MQ Workflow resources are not cleaned up and DB2 and MQSeries are not deregistered.

An MQ Workflow Administration server installed on OS/2 Warp is stopped via the administration utility. To stop an MQ Workflow Administration server:

1. Start the administration utility.
2. From the main menu, select **s**. The system commands menu is displayed.
3. From the system commands menu, select the shutdown system option **d**.  
A message appears to tell you that a system shutdown has been requested.  
As each MQ Workflow server component is stopped, a message is displayed informing you about the component's change in state.

### Stopping the administration utility

To stop the administration utility installed on OS/2 Warp, select **x** from the menu screen until you exit from the administration utility. When control passes to a command prompt, the administration utility has stopped.

For more details about the administration utility refer to the *IBM MQSeries Workflow: Administration Guide*.

---

## Chapter 18. Problem determination on OS/2 Warp

If you are having problems running MQ Workflow servers or clients, you can try using the following sources of information to solve your problem:

- “Where to find MQ Workflow log files on OS/2”
- “Running an MQ Workflow trace on OS/2”
- “Appendix N. Using the configuration checking utility `fmczchk`” on page 285
- The latest MQ Workflow support information is available at <http://www6.software.ibm.com/MQSWF/Workflow.htm>

---

### Where to find MQ Workflow log files on OS/2

You can find MQ Workflow log files in the following locations:

- General MQ Workflow log files: `D:\FMCOS2\log\*.log`
- For an MQ Workflow configuration `<ConfigID>`:  
`D:\FMCOS2\cfgs\<ConfigID>\log\*.log`

---

### Running an MQ Workflow trace on OS/2

It may be necessary to run an MQSeries Workflow product trace in order to find the cause of a problem.

1. Start the trace by entering the command:

```
fmczchk -c trc:level,filename -y ConfigID
```

where:

*level* Has the value **0** for high-level information, **1**, **2**, or **3** for increasing levels of detail.

*filename*

Is the path and file name of the trace file. The extension `.log` will be added to the file name you specify. This is optional.

*ConfigID*

Is the configuration identifier for the system you want to trace. If you do not specify the `-y` option, the trace will be performed on the system identified by the *DefaultConfiguration ID* variable that is set in the general configuration profile.

2. Restart the MQ Workflow server or component that you want to trace.
3. Recreate the problem situation.
4. Stop the MQ Workflow server or component that you have been tracing.

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5. Disable tracing by entering the command:  
`fmczchk -c trc:0 -y ConfigID`
6. Check the trace file *filename.log*
7. The latest MQ Workflow support information is available at <http://www6.software.ibm.com/MQSWF/Workflow.htm>

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## Part 6. Appendixes



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## Appendix A. Basic DB2 and MQSeries commands

This appendix contains basic DB2 and MQSeries commands that you may need to use during the MQ Workflow setup procedure.

---

### Basic DB2 commands

The following contains information that explains how to:

1. "Start DB2"
2. "Stop DB2"
3. "Access a remote DB2 instance" on page 152
4. "Access a remote DB2 database" on page 153

For additional details not given here refer to the DB2 online books contained on the IBM DB2 Universal Database CD-ROM.



For **Windows**, all DB2 commands must be entered within a DB2 command window. To start a DB2 command window, enter **DB2CMD** at a command prompt.

For any of the **UNIX** based operating platforms and **OS/2 Warp**, DB2 commands can be entered at a command prompt.

### Start DB2

To start DB2 on your workstation, enter the following DB2 command:

**db2start**

When DB2 starts, the following message appears:

```
SQL1063N DB2START processing was successful.
```

If DB2 is already running, the following message appears:

```
SQL1026N The database manager is already active.
```

### Stop DB2

To stop DB2 on your workstation, enter the following DB2 command:

**db2stop**

When DB2 stops, the following message appears:

SSQL1064N DB2STOP processing was successful.

## Access a remote DB2 instance

A remote DB2 instance can be accessed from another workstation via:

- Named pipes
- TCP/IP
- NetBIOS
- IPX/SPX
- APPC

Via any of these communications protocols, a DB2 instance on a remote workstation can be made accessible to your workstation by using the DB2 client configuration assistant, the DB2 control center, or by using the DB2 command **db2 CATALOG**. The following describes how to use this command to access a remote DB2 instance via TCP/IP. For other communication protocols refer to the DB2 *Installing and Configuring DB2 Clients* manual.

To access a remote DB2 instance via TCP/IP, enter the following command and options:

```
db2 CATALOG TCPIP NODE <node-name> REMOTE <computer-name>  
SERVER <port-number> REMOTE_INSTANCE <instance-name>
```

Where:

<node-name> A local alias or nickname that describes the node where the database instance resides. You can choose any name you want, however, all node name values within your local node directory must be unique.

<computer-name> Either the host name or IP address of the remote server workstation where the database instance resides.

<port-number> Either the connection service name or port number.

The connection service name is an arbitrary name used to represent the port number on the client.

The port number used by the client to catalog a TCP/IP node must be the same as the port number that the connection service name maps to in the services file on the server. The connection service name is located in the database manager configuration file on the DB2 server.

This value must not be used by any other applications.



*<instance-name>*

The name of the DB2 instance on the remote workstation.

To verify the catalog entry, enter the following commands:

```
db2 ATTACH TO <node-name> USER <userID> USING <password>
```

```
db2 DETACH
```

For example, to access a DB2 instance called `db2inst1`, located on a workstation named `deptsrv` at the node `srvinst1`, using the port number 60 000, enter the following command and options:

```
db2 CATALOG TCPIP NODE srvinst1 REMOTE deptsrv SERVER 60000  
REMOTE_INSTANCE db2inst1
```

### Access a remote DB2 database

Before you can access a DB2 database installed on a remote workstation you must access the remote DB2 instance for this database as described in “Access a remote DB2 instance” on page 152.

If a DB2 database is installed on a remote workstation, it can be made accessible to your workstation by using the DB2 client configuration assistant, the DB2 control center, or by entering the following DB2 command and options:

```
db2 CATALOG DATABASE <database-name> AT NODE <node-name>
```

Where:

*<database-name>*

is the name of the database on the remote workstation you want to access.

*<node-name>*

A local alias or nickname that describes the node where the database resides. The name you specify must be the same as the name you specified for accessing the remote DB2 instance.

For example, to access a DB2 database called `testdb` on the node `db2rem1`, make the remote database accessible to your workstation by entering the following command and options:

```
db2 CATALOG DATABASE testdb AT NODE db2rem1
```

---

## Basic MQSeries commands

Before you can start an MQ Workflow server, the following MQSeries services must be running:

1. Queue Manager
2. Listener
3. Trigger Monitor

How you start these services depends on your operating system.

On OS/2 Warp and any of the UNIX based operating platforms, each service is started by invoking commands at a command prompt.

On Windows each service is started by setting the startup type for each service to be **Automatic** and then starting MQSeries as a Windows service.

The methods for starting these services on each platform are described in the following.

### Starting MQSeries on Windows 2000 and NT

To start the MQSeries queue manager, listener, and trigger monitor on Windows 2000 and NT, you must start MQSeries as a Windows service. To do this:

1. On the task bar, click on the Windows **Start** button and select **Settings**.
2. From **Settings**, select **Control Panel**.
3. On Windows 2000:
  - a. Within the **Control Panel**, select the **Administrative Tools icon**.
  - b. Select the **Services icon**. A dialog box appears.

On Windows NT:

- a. Within the **Control Panel**, select the **Services icon**. A dialog box appears.
4. Within the service window of the dialog box, locate the line that reads **IBM MQSeries**. Highlight this line.
  5. Click on the **Start** button to the right of the window to start MQSeries. If set to do so, all MQSeries services should now start.

### Making MQSeries services start automatically on Windows 2000 and NT

To make MQSeries services start automatically, perform the following:

1. On the task bar, click on the Windows **Start** button and select **Programs**.
2. From **Programs**, select **IBM MQSeries**.
3. From **IBM MQSeries**, select **MQSeries Services**.
4. Within the **MQServices** window that appears, select **IBM MQSeries Services** from the panel located on the left-hand side of the window.

5. From the list that appears under **IBM MQSeries Services**, select the MQSeries queue manager for your MQ Workflow system. (FMCQM is the default.)
6. From the list of services that appears in the panel located on the right-hand side of the window, check whether the status for the **Queue Manager**, **Listener**, and **Trigger Monitor** services is **Running**. Any service that is not running has not been set to start automatically when MQSeries starts as a Windows service.
7. Select the service.
8. Right-click the mouse button, and choose **All Tasks**, and **Start**.
9. Right-click the mouse button, choose **Properties** and **Automatic**.

Now these services will be started automatically when MQSeries is started as a Windows service.

## Starting MQSeries on OS/2 Warp

For OS/2 Warp, all MQSeries services must be started manually by entering MQSeries commands at a command prompt. Each command is described in the following.

### Start the MQSeries queue manager

To start the MQSeries queue manager, at a command prompt enter:

```
strmqm <MQQueueManager>
```

Where *<MQQueueManager>* is replaced by the queue manager name for your MQ Workflow system. The queue manager name is case sensitive. The queue manager name is specified during the configuration stage as explained in "Queue Manager" on page 107.

For example, to start the MQSeries queue manager called FMCQM, enter:

```
strmqm FMCQM
```

When the MQSeries queue manager starts, the following message appears:

```
MQSeries queue manager started.
```

If the queue manager is already running, the following message appears:

```
MQSeries queue manager is active.
```

### Start the TCP/IP listener program

Starting the TCP/IP listener program on OS/2 Warp is only necessary if TCP/IP is the communications protocol used by MQSeries.

To start the TCP/IP listener program, at a command prompt enter:

```
start "MQSeries TCP/IP listener" runmqslr /t tcp /p <MQport> /M  
<MQQueueManager>
```

Where:

*<MQport>* is replaced by the TCP/IP port number used by the queue manager. The port number is specified during the configuration stage as explained in "Setting the communications protocol" on page 109.

*<MQQueueManager>* is replaced by the queue manager name for your system. Where *<MQQueueManager>* is replaced by the queue manager name for your MQ Workflow system. The queue manager name is case sensitive. The queue manager name is specified during the configuration stage as explained in "Queue Manager" on page 107.

For example, if the MQSeries queue manager name is FMCQM, and the associated TCP/IP port number is 5010, to start the MQSeries TCP/IP listener, enter:

```
start "MQSeries TCP/IP listener" runmqslr /t tcp /p 5010 /M FMCQM
```

### **Start the MQSeries trigger monitor**

To start the MQSeries trigger monitor, at a command prompt enter:

```
start "MQSeries Trigger Monitor" runmqtrm /m <MQQueueManager> /q  
FMCTRIGGER
```

Where *<MQQueueManager>* is replaced by the queue manager name for your MQ Workflow system. The queue manager name is case sensitive. The queue manager name is specified during the configuration stage as explained in "Queue Manager" on page 107.

For example, if the MQSeries queue manager name is FMCQM, to start the MQSeries trigger monitor enter:

```
start "MQSeries Trigger Monitor" runmqtrm /m FMCQM /q FMCTRIGGER
```

## **Starting MQSeries on UNIX**

For any of the UNIX based operating platforms, all MQSeries services except the TCP/IP listener program must be started manually by entering MQSeries commands at a command prompt. The TCP/IP listener program is started automatically. Each command is described in the following.

### Start the MQSeries queue manager

To start the MQSeries queue manager, at a command prompt enter:

```
strmqm <MQQueueManager>
```

Where <MQQueueManager> is replaced by the queue manager name for your MQ Workflow system. The queue manager name is case sensitive. The queue manager name is specified during the configuration stage as explained in “Entering queue manager information for a server” on page 68.

For example, to start the MQSeries queue manager called FMCQM, enter:

```
strmqm FMCQM
```

When the MQSeries queue manager starts, the following message appears:

```
MQSeries queue manager started.
```

If the queue manager is already running, the following message appears:

```
MQSeries queue manager is active.
```

### Start the MQSeries trigger monitor

To start the MQSeries trigger monitor, at a command prompt enter:

```
runmqtrm -m <MQQueueManager> -q FMCTRIGGER &
```

Where <MQQueueManager> is replaced by the queue manager name for your MQ Workflow system. The queue manager name is case sensitive. The queue manager name is specified during the configuration stage as explained in “Entering queue manager information for a server” on page 68.

For example, if the MQSeries queue manager name is FMCQM, to start the MQSeries trigger monitor enter:

```
runmqtrm -m FMCQM -q FMCTRIGGER &
```



---

## Appendix B. MQ Workflow variables

This appendix describes MQ Workflow variables set during the installation and configuration stages in the MQ Workflow setup process, where to find them and how to change their values.

---

### Locating MQ Workflow variables

During the installation and configuration stages in the MQ Workflow setup process, information you supply is used to set the value of MQ Workflow variables. These variables and their values are then recorded in one of several MQ Workflow specific profiles. The particular profile used depends on the type of information you supply:

#### Configuration profile

The configuration profile contains data that you specify during the configuration stage, such as the name of the MQ Workflow system, the Runtime database and queue manager. This data is used to configure database and communication resources and define settings for MQ Workflow. The configuration profile is created during the configuration stage and can be deleted.

#### General configuration profile

The general configuration profile contains data that is common to any configuration in an MQ Workflow system group. Currently it only contains the configuration identifier for the default configuration.

#### Installation profile

The installation profile contains data that is set during the MQ Workflow installation stage and is independent of the configuration stage. Data such as the MQ Workflow installation directory, language, version number, and MQ Workflow components installed are contained in the installation profile.

These profiles are collectively referred to as the MQ Workflow profile. Only where necessary are the specific profile names used.

For any of the Windows platforms, all MQ Workflow variables are held in a single MQ Workflow profile. For all Windows platforms and OS/2 Warp, some information is also saved in your workstation's system environment file.

The location of the MQ Workflow profiles and system environment for any of the supported operating platforms is as follows:

Table 42. Location of the system environment and MQ Workflow profiles

Operating platform	System environment	MQ Workflow profile
UNIX		<p><b>Configuration profile</b>            &lt;ConfigRootDir&gt;/cfgs/&lt;cfgID&gt;/fmcrc</p> <p><b>General configuration profile</b>            &lt;ConfigRootDir&gt;/fmcrc</p> <p><b>Installation profile</b>            /usr/lpp/fmc/fmcrc (for AIX)            /opt/fmc/fmcrc (for HP-UX and Sun Solaris)</p>
OS/2 Warp	CONFIG.SYS	<p><b>Configuration profile</b>            ConfigurationRootDirectory\CFGS            \&lt;cfgID&gt;\FMC.INI</p> <p><b>General configuration profile</b>            ConfigurationRootDirectory\CFGS            \FMC.INI</p> <p><b>Installation profile</b>            bootdrive\OS2\FMC.INI</p>
Windows 2000	Advanced tab, then Environment button	Windows 2000 registry
Windows NT	Environment tab from system icon in control panel	Windows NT registry
Windows 98	AUTOEXEC.BAT	Windows 98 registry
Windows 95	AUTOEXEC.BAT	Windows 95 registry

## Changing values of MQ Workflow variables

Values for each MQ Workflow variable set in the system environment and MQ Workflow profile should be changed if they cause conflicts with other applications on your workstation.



Changing the values of MQ Workflow variables can affect additional files that use the same variables. “Appendix D. Updated files” on page 199 describes the affected files and updates you may need to make to these files after changing values of variables in the MQ Workflow profile or system environment.



## Changing values in the MQ Workflow profile

To change values in the MQ Workflow profile, use the MQSeries Workflow Configuration Utility as explained in:

- “Chapter 7. Configuring on UNIX” on page 59
- “Chapter 9. Changing your configuration on UNIX” on page 81
- “Chapter 12. Configuring MQ Workflow on Windows” on page 97

If you cannot change a variable with the MQSeries Workflow Configuration utility, use the configuration-checking utility explained in “Appendix N. Using the configuration checking utility `fmczchk`” on page 285.



If you use the configuration-checking utility to change a variable which can also be changed with the MQSeries Workflow Configuration Utility, your MQ Workflow system may stop running. Therefore, only use the configuration-checking utility to change variables when they cannot be changed with the MQSeries Workflow Configuration Utility.

The following describes the configuration-checking utility command you should use to change the value of variables in the MQ Workflow profile only when it is not possible to do so with the configuration tools.

There is no syntax checking or any other validation on the entered values when using this command.

To change the values of variables in the MQ Workflow profile using the configuration-checking utility, at a command prompt, enter the command:

```
fmczchk -c inst:[<profile>,<variable>[,<value>]
```

Where:

*<profile>* is the character that represents the profile you want to change:

**m** for configuration profile

**g** for general configuration profile

**i** for installation profile

Normally, you should not need to use the parameters **g** or **i**. If you do not specify the profile, the default **m** is assumed.

*<variable>* is the MQ Workflow profile variable name you want to add or update. See Table 43 on page 163 for a list of MQ Workflow profile variable names.

*<value>* is the new value of the MQ Workflow profile variable. If you do not specify any value here, the variable is deleted from the profile.



It is not recommended to edit any MQ Workflow profile manually.

## Changing values in the system environment

On Windows and OS/2 you can change values in the system environment in the following ways:

- On Windows 2000, in the **Control panel**, select the **System** icon, select the **Advanced** tab, select the **Environment** button, and edit the values there.
- On Windows NT, in the **Control panel**, select the **System** icon, select the **Environment** tab, and edit values there.
- On Windows 98 and 95, open and edit values in the AUTOEXEC.BAT file.
- On OS/2 Warp, open and edit values in the CONFIG.SYS file.

## Guidelines for changing values

When changing values of MQ Workflow variables in the MQ Workflow profile or system environment, adhere to the following guidelines:

- Use descriptive names. For example, use DB2 or MQSeries for the start of a name that describes a DB2 or MQSeries component, respectively.
- Use names that contain letters from A to Z or numbers from 0 to 9.

For details about using special characters for values that refer to DB2 and MQSeries variables see the DB2 and MQSeries documentation.

The conventions and rules to follow when choosing values for particular MQ Workflow variables in the system environment and MQ Workflow profile are shown in Table 43 on page 163 where applicable.

---

## MQ Workflow variables

The following table lists the MQ Workflow variables that are contained in the MQ Workflow profile and system environment. The table contains several entries for each MQ Workflow variable. These are described as follows:

### MQ Workflow variable

This entry contains the name of the MQ Workflow variable as it appears in the MQ Workflow profile or system environment.

### Description

This entry contains a description for the MQ Workflow variable.

### MQSeries Workflow Configuration Utility

This entry contains the name of the page, pop-up window, field, radio button, or check box in the MQSeries Workflow Configuration Utility that is used to set this MQ Workflow variable.

Where the MQSeries Workflow Configuration Utility is not used to set an MQ Workflow variable, this entry contains "Not applicable".

### Default value

This entry contains the default value for the MQ Workflow variable. If no default value is defined for this variable, this entry contains "No default".

### Naming conventions

This entry specifies the rules to adhere to when changing the value of an MQ Workflow variable. Where no rules apply, this entry contains "Not applicable". Options that are contained in the configuration profile are not case sensitive.

### Used by

This entry specifies the name of the MQ Workflow component that is affected when you set the value of this MQ Workflow variable.

Setting the value of some MQ Workflow variables only affects the behavior of the specified component during configuration and does not affect its behavior during run time. This is indicated by the statement (**configuration only**).

### Contained in

This entry specifies the location of each MQ Workflow variable. For Windows, all MQ Workflow variables are held in the Windows registry except for those that are indicated as being located in the system environment.

Table 43. Variables set in the MQ Workflow profile and system environment

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
Agent. CosNaming. Root	The root name context the agent uses to register the agent name. This variable must be specified if Agent.Locator is set to COS_LOCATOR.	No default	Java CORBA Agent using COS_LOCATOR
	<b>Page:</b> Java CORBA Agent <b>Field:</b> Root name context	Maximum length of 254 characters is possible. It can be any alphanumeric string (without slashes). It is case sensitive.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
Agent.IorPath	Directory where the agent will publish its IOR file. This variable must be set if Agent.Locator is set to IOR_LOCATOR.	No default	Java CORBA Agent using IOR_LOCATOR
	<b>Page:</b> Java CORBA Agent <b>Field:</b> Interoperable Object Reference Path	Must be a valid directory. Only a slash character is accepted as a valid directory separator. During run time the platform-specific directory separator is used.	Configuration profile
Agent. JavaHome	This is the directory where the Java Development Kit and Java Runtime Environment has been installed. Must be a valid existing directory path containing the jre, java or oldjava executable.	No default	Java CORBA Agent (configuration only)
	<b>Page:</b> Java CORBA Agent <b>Field:</b> JDK/JRE Installation Directory	Must be a valid existing directory path containing the jre executable.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
Agent.Locator	The locator policy (naming service) used by the Java CORBA Agent. <b>Note:</b> LOC_LOCATOR is not a valid value; if "Local bindings" is selected, Agent.Locator will contain NO VALUE	not set	Java CORBA Agent
	<b>Page:</b> Java CORBA Agent <b>Radio button/Field:</b> Set by selecting one of the following: <ul style="list-style-type: none"> <li>• Local bindings</li> <li>• Visibroker Smart Agent</li> <li>• CORBA Naming Service</li> <li>• Java RMI</li> <li>• Root name context</li> </ul>	If local bindings are used to directly access the C++ API via JNI, this variable is not set. Otherwise this variable can take any of the following values depending on the naming service set:  <b>COS_LOCATOR</b> Uses CORBA Object Service Naming Service.  <b>IOR_LOCATOR</b> Uses an Interoperable Object Reference.  <b>OSA_LOCATOR</b> Uses the Visibroker Smart Agent.  <b>RMI_LOCATOR</b> Uses the Java RMI Protocol.	Configuration profile
Agent.Name	Name of the Java CORBA Agent.	MQWFAGENT	Java CORBA Agent
	<b>Page:</b> Java CORBA Agent <b>Field:</b> Agent name	The name must adhere to the naming rules of the chosen locator policy.	Configuration profile
Agent.Reaper.Cycle	The length of time between periodic garbage collection. It is specified in milliseconds.	300	Java CORBA Agent
	<b>Page:</b> Java CORBA Agent <b>Field:</b> Agent cycle (seconds)	Values between 30 and 86 400 seconds can be specified.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
Agent.Reaper.Ratio	The percentage ratio between the client-side keep-alive message cycle and the agent-side liveliness check.	90	Java CORBA Agent
	<b>Page:</b> Java CORBA Agent <b>Field:</b> Client cycle (% of agent cycle)	Any value between 0 and 100. For Internet applications the recommended value is 50.	Configuration profile
Agent.Reaper.Threshold	The maximum number of unreferenced objects tolerated by each client before nonperiodic garbage collection is triggered.	1 000	Java CORBA Agent
	<b>Page:</b> Java CORBA Agent <b>Field:</b> Client Threshold (objects)	Any value between 0 and 500 000.	Configuration profile
Agent.VisiBrokerHome	This is the directory where the Inprise VisiBroker has been installed.	No default	Java CORBA Agent (configuration only)
	Not applicable	Must be a valid existing directory path containing the Inprise VisiBroker.	Configuration profile
Agent.Version	Version, release, modification, and CSD level of the JAR file to be used for this configuration.	Highest available code level (3220 for MQ Workflow version 3 release 2 modification 2 servicepack 0).	Java CORBA Agent
	<b>Page:</b> Java CORBA Agent <b>Field:</b> Code Version	Must be an existing code level.	Configuration profile
APITimeOut	The timeout value is used for all functions/methods requiring communication between the client and the server.	180 000	Client
	Not applicable	Specified values are in microseconds.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
BTAuth Warning	Show the authorization warning message box in Buildtime.	1	Buildtime
	Not applicable	Can be either 1 for yes, or 0 for no.	User / Configuration profile
BTConfirmDel	Show the deletion confirmation message box in Buildtime.	1	Buildtime
	Not applicable	Can be either 1 for yes, or 0 for no.	User/Configuration profile
BTDatabase Container Directory	Name of the directory where the Buildtime database containers are held. Only required if Buildtime uses DB2 as its database.	Default is the value set in the <b>ConfigurationRootDirectory</b> variable plus the subdirectory path <b>BT_DB\&lt;BTDB2Instance&gt;\&lt;BTDatabaseName&gt;</b>  <b>For Windows 95, 98, NT and 2000:</b> C:\Program Files\MQSeries Workflow\BT_DB\ <BTDB2Instance>\<BTDatabaseName>	Buildtime (configuration only)
	<b>Pop-up window:</b> New DB2 Database <b>Field:</b> Containers location	The value contained here must be a valid path or drive name.	Configuration profile
BTDatabase Location	The location where the Buildtime database is created. This can be on a remote UNIX machine. Only required if Buildtime uses DB2 as its database.	C: (the drive letter where MQ Workflow is installed)	Buildtime (configuration only)
	<b>Pop-up window:</b> New DB2 Database <b>Field:</b> Database location	The value contained here must be a valid drive name.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
BTDatabase LogLocation	Name of the directory where the Buildtime database logs are held. Only required if Buildtime uses DB2 as its database type.	Same as BTDatabaseContainerDirectory	Buildtime (configuration only)
	<b>Page:</b> New DB2 Database <b>Field:</b> Log files location	The value contained here must be a valid path or drive name.	Configuration profile
BTDatabase Name	Buildtime Database name. This value must only be set if DB2 is used and must be the same as the value specified for the variable <i>BTODBCDataSourceName</i> .	FMCBTDB	Buildtime (configuration only)
	<b>Page:</b> Buildtime Database (IBM DB2) <b>Group box/Field:</b> 2. Select an existing database or create a new database	<ul style="list-style-type: none"> <li>• A maximum of 8 characters can be used.</li> <li>• The name must be unique, that is, no other database can have the same name.</li> </ul>	Configuration profile
BTDatabase Password	Password for the user ID used for running Buildtime. Must be specified only when the Buildtime database type is DB2.	No default	Buildtime
	<b>Pop-up window:</b> Buildtime Database ODBC Connect parameters... <b>Field:</b> Password	Only required if the Buildtime user ID is different to that used to create the database.	Configuration profile



Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	MQ Workflow Configuration Utility	Naming conventions	Contained in
BTDatabase Space Management	Indicates whether Buildtime database is managed by the system (S) or by the database itself (D). Only required if Buildtime uses DB2 as its database.	S	Buildtime (configuration only)
	Not applicable	Only the value "S" is valid and cannot be changed.	Configuration profile
BTDatabase Type	Database type used by Buildtime.	MSACCESS	Buildtime (configuration only)
	<b>Page:</b> Buildtime <b>Radio button/Field:</b> Set by selecting one of the following: "IBM DB2 Universal Database" or "Microsoft Jet Engine"	Only the values "MSACCESS" and "DB2" are valid.	Configuration profile
BTDatabase UserID	User ID used to access the Buildtime database.	No default	Buildtime
	<b>Pop-up window:</b> Buildtime Database ODBC Connect parameters... <b>Field:</b> User ID	Only required if the Buildtime user ID is different to that used to create the database.	Configuration profile
BTDB2Instance	Name of a cataloged DB2 Instance to manage the Buildtime Database. Must be specified only when the Buildtime Database type is DB2.	Value of the environment variable DB2Instance.	Buildtime (configuration only)
	<b>Page:</b> Buildtime Database (IBM DB2) <b>Group box/Field:</b> 1. Select a DB2 instance already cataloged	Must be a valid DB2 instance name. For details see the DB2 Administration Guide.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
BTDB2OSType	Operating system of the DB2 Instance (BTDB2Instance) to keep the Buildtime database.	none	
	Not applicable	The operating system is determined by an attachment to the DB2 Instance, but is used to get defaults and validate entries set in BTDatabaseLocation, BTDatabaseContainerDirectory and BTDatabaseLogLocation. The following values are valid: <ul style="list-style-type: none"> <li>• WindowsNT</li> <li>• Windows95</li> <li>• AIX</li> <li>• HPUX</li> <li>• Solaris</li> </ul>	
BTGridSizeX	Dimension of the Buildtime diagram editor grid in the x-direction.	100	Buildtime
	Not applicable	Not applicable	User / Configuration Profile
BTGridSizeY	Dimension of the Buildtime diagram editor grid in the y-direction.	100	Buildtime
	Not applicable	Not applicable	User / Configuration Profile
BTGridVisible	Indicates if the grid within the Buildtime diagram editor is displayed.	1	Buildtime
	Not applicable	Can be either 1 for yes, or 0 for no.	User / Configuration Profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	MQ Workflow Configuration Utility	Naming conventions	Contained in
BTIcon Directory	Path name where the icons for Buildtime are located.	<b>For Windows 95, 98, NT and 2000:</b> C:\Program Files\MQSeries Workflow\BIN\ICONINST	Buildtime
	<b>Page:</b> Buildtime <b>Field:</b> Icon directory	Must be a valid path or directory name.	Configuration profile
BTInitialPalette	Name of the initial Buildtime tools palette.	Standard	Buildtime
	Not applicable	Only "Standard" is currently supported.	User / Configuration Profile
BTMDI Background Color	Background in the Buildtime diagram editor is shown in this color, that is, "grey".	10461087	Buildtime
	Not applicable	Must be a valid decimal RGB code representing the desired color.	User / Configuration Profile
BTODBCData SourceName	ODBC Buildtime database driver name.	For <b>DB2:</b> FMCBTDB, FMCBDB1, FMCBDB2, ... FMCBDB99  For <b>MSACCESS:</b> (for Buildtime) <cfgid>	Buildtime
	<b>Page:</b> Buildtime Database (Microsoft Jet Engine) <b>Field/string:</b> ODBC data source name	For <b>DB2:</b> This must be the same as the value specified for the variable BTDatabaseName.  For <b>MSACCESS:</b> Must be less than 33 characters.	Configuration profile
BTODBC Description	Description for the Buildtime database.	For <b>DB2:</b> Buildtime Database  For <b>MSACCESS:</b> MQSeries Workflow Buildtime Database	Buildtime (configuration only)
	<b>Page:</b> Buildtime Database (MS Access) <b>Field:</b> ODBC description	For <b>DB2:</b> Must be less than 30 characters.  For <b>MSACCESS:</b> Must be less than 40 characters.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
BTODBC FileName	Fully qualified path name of the MS Access database file. Must be specified only when the Buildtime Database type is MSACCESS.	C:\Program Files\MQSeries Workflow\bt_db\fmcbtdb.mdb	Buildtime (configuration only)
	<b>Page:</b> Buildtime Database (MS Access) <b>Field:</b> Microsoft Jet Engine database	Must be a valid path name.	Configuration profile
BTSelection Color	Selected symbols in the Buildtime diagram editor are shown in this color.	2834683	Buildtime
	Not applicable	Must be a valid decimal RGB code representing the desired color.	Configuration profile
Configuration Administrator	(UNIX only) User ID, which is the owner of configuration files and directories. If component server is configured, the administration server (fmcmain) will be started on behalf of this user.	The value of <MQWorkflowAdministrator> set in the installation profile.	Server, runtime database utilities, Clients (configuration only)
	Not applicable	Must be a user ID defined on your workstation. Must be a member of <ConfigurationGroup>	Configuration profile
Configuration Group	(UNIX only) Group, which is the owning group of configuration files and directories.	The value of <MQWorkflowGroup> set in the installation profile.	Server, runtime database utilities, Clients (configuration only)
	Not applicable	Must be an existing group.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
Configuration RootDirectory	Path or directory used to store MQ Workflow configurations.	<b>For UNIX:</b> /var/fmc <b>For OS/2 Warp:</b> D:\FMCOS2 <b>For Windows 95, 98, NT, and 2000:</b> C:\Program Files\MQSeries Workflow	Server, Clients, Buildtime, Administration utility, Configuration Utility
	Not applicable	The value contained here must be a valid path or drive name and cannot be changed.	Installation profile
Configured Components	Configured components on your workstation. The values set for this variable are a subset of the InstalledComponents variable and cannot be changed manually.	No default	Server, Clients, Buildtime, Administration utility (Configuration only)
	<b>Page:</b> General <b>Group box/Field:</b> Configure installed components	Not applicable	User / Configuration Profile
Create Buildtime Database	Specifies whether an existing Buildtime database is to be used or a new Buildtime database has to be created.	"1"	Buildtime (configuration only)
	Not applicable	Can be either "0" (use an existing Buildtime database) or "1" (create a new Buildtime database)	Configuration profile
Create Runtime Database	Specifies whether an existing Runtime database is to be used or a new Runtime database has to be created.	"1"	Server or Runtime database utilities (configuration only)
	Not applicable	Can be either "0" (use an existing Runtime database) or "1" (create a new Runtime database)	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
Default Configuration ID	The value of this variable is used as the default configuration identifier when MQ Workflow executables are called without specifying a configuration parameter (parameter -y) and a value for the FMC_DEFAULT_CONFIGURATION environment variable has not been set.	On UNIX the default is FMC. On other platforms there is no default.	Server, Administration utility, Buildtime, Clients
	<b>Page:</b> General <b>Group box/Field:</b> Mark as default	A maximum of 8 characters can be used. Characters from A-Z or a-z, and numbers from 0-9 are allowed.	General configuration profile
FMC_DEFAULT_CONFIGURATION	The value of this variable is used as the default configuration identifier when MQ Workflow executables are called without specifying a configuration parameter (parameter -y).	On UNIX the default is FMC. On other platforms there is no default.	Server, Administration utility, Buildtime, Clients, Configuration Utility
	Not applicable	A maximum of 8 characters can be used. Characters from A-Z or a-z, and numbers from 0-9 are allowed.	Environment

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	MQ Workflow Configuration Utility	Naming conventions	Contained in
FMLClient ChannelTable	Fully qualified path name of the MQSeries Client Channel Definiton Table for clients.	Default is of the form: <code>&lt;ConfigurationRootDirectory&gt;\chltabs\MQWFCHL.TAB</code>  <b>For UNIX:</b> <code>/var/fmc/chltabs/MQWFCHL.TAB</code>  <b>For OS/2 Warp:</b> <code>D:\FMCOS2\CHLTABS\MQWFCHL.TAB</code>  <b>For Windows 95, 98, NT, and 2000:</b> <code>C:\Program Files\MQSeries Workflow\CHLTABS\MQWFCHL.TAB</code>	Client
	<b>Page:</b> Client Connections  <b>Group box/Field:</b> Client Channel Definition Table to be used	Must be an existing path name.	Configuration profile
FMLConnect Name	Pointer to an MQ Workflow system's queue manager.	FMC.FMCGRP.FMCSYS,FMCQM	Clients
	<b>Page:</b> Client Connections  <b>Group box/Field:</b> Connect names	Must take on the form: <b>queueprefix.systemgroup.system, queuemanager</b>	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
FML Segmentation	Specifies whether MQSeries messages are split into segments. In a network containing OS/390 queue managers, messages must not be split into segments.	0	Client
	<b>Page:</b> Client Connections <b>Check box/Field:</b> Split MQSeries messages into segments	Can be either 0 for not splitting or 1 for splitting	Configuration profile
FMLServer ChannelTable	Fully qualified path name of the MQSeries Client Channel Definition Table which is updated or created by an MQ Workflow Server configuration.	Default is of the form: <ConfigurationRootDirectory>\chltabs\MQWFCHL.TAB  <b>For UNIX:</b> /var/fmc/chltabs/MQWFCHL.TAB  <b>For OS/2 Warp:</b> D:\FMCOS2\CHLTABS\MQWFCHL.TAB  <b>For Windows NT and 2000:</b> C:\Program Files\MQSeries Workflow\CHLTABS\MQWFCHL.TAB	Server (configuration only)
	<b>Page:</b> Queue Manager <b>Group box/Field:</b> Client Channel Definition Table to be updated	Must be a valid path name.	Configuration profile



Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
FolderName	Name of the MQ Workflow folder used to start the MQSeries Workflow Configuration Utility.	MQSeries Workflow	Installation, Configuration Utility
	Not applicable	Only applicable for Windows and OS/2 Warp. The value contained here must be a valid folder name.	Installation profile
Installation Directory	Directory where MQ Workflow is installed.	<b>For AIX:</b> /usr/lpp/fmc <b>For HP-UX:</b> /opt/fmc <b>For Sun Solaris:</b> /opt/fmc <b>For OS/2 Warp:</b> D:\FMCOS2 <b>For Windows 95, 98, NT and 2000:</b> C:\Program Files \MQSeries Workflow	Server, Administration utility, Clients, Buildtime, Configuration Utility
	Not applicable	The value contained here must be a valid path or drive name and cannot be changed.	Installation profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
Installed Components	Installed components on your workstation. The values set for this variable cannot be changed.	Default values depend on the components you installed.	Installation, Configuration Utility
	Not applicable	<b>A:</b> API runtime libraries <b>B:</b> Buildtime <sup>1</sup> <b>C:</b> Java CORBA Agent <sup>2</sup> <b>D:</b> Development kit <b>I:</b> Runtime database utilities <b>J:</b> Java API beans <sup>4</sup> <b>L:</b> Client for Lotus Notes <sup>3</sup> <b>M:</b> Samples <sup>1</sup> <b>N:</b> Lotus Notes database templates <sup>3</sup> <b>P:</b> Program execution agent <b>R:</b> Runtime client <sup>1</sup> <b>S:</b> Server <sup>5</sup> <b>U:</b> Administration utility  <b>Notes:</b> 1. Not available for UNIX and OS/2 Warp. 2. Not available for HP-UX. 3. Not available for UNIX. 4. Not available for OS/2 Warp. 5. Not available for Windows 98/95.	Installation profile
Language	Sets the language version for the MQ Workflow component. <b>Note:</b> For UNIX, if you change the value of this variable, make sure you change the UNIX system language environment variable (\$LANG or \$LC_ALL) also. See "Appendix C. Language settings" on page 195 for details.	<b>For Windows 95, 98, NT, 2000, and OS/2 Warp:</b> Depends on the language installed  <b>For UNIX:</b> enu	Server, Administration utility, Clients, Buildtime, Configuration Utility
	Not applicable	Must be a valid 3-letter value representing the language version for the MQ Workflow component. A list of the possible 3-letter values is shown in "Appendix C. Language settings" on page 195.	Installation profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
LOCPATH	Files for code page conversions.	OnWindows: <InstallationDirectory>\BIN\LOCALE	Server, Administration utility, Clients, Buildtime
	Not applicable	A valid path to the locale files.	System environment
MQBackup Queues	Specifies whether to back up MQSeries queues or not. For this to have an effect, you must set its value before the queue manager has been created.	0	Server (configuration only)
	<p><b>Page:</b> Queue Manager</p> <p><b>Radio button/Field:</b> Set by selecting one of the following:</p> <ul style="list-style-type: none"> <li>• Circular log</li> <li>• Linear log</li> </ul>	Can be either 1 (or L) for back up, or 0 (or C) for do not back up. The default value cannot be changed after the queue manager has been created and the channel definitions have been activated.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
MQCluster Communication Address	If you are configuring an additional system within an existing system group and within an existing MQSeries cluster, this is the host name or address of the workstation the primary system (keeping the MQSeries repository queue manager) is configured on.	No default	Server (configuration only)
	<b>Page:</b> Cluster	<p>This value is only required, if MQClusterMode is set to "A" (additional queue manager). It must be a valid address where MQ Series is running:</p> <p><b>Fully qualified CP name:</b> If APPC is the communication protocol used.</p> <p><b>IP address:</b> If TCP/IP is the communication is used.</p> <p><b>Local NetBios name:</b> If NetBios is the communication protocol used.</p>	Configuration profile
MQClusterFirst QueueManager	If you are configuring an additional system within an existing system group and within an existing MQSeries cluster, this is the name of the queue manager, that is related to the primary system and which keeps the MQSeries repository for the cluster.	The default is the value set for the variable MQQueueManager.	Server (configuration only)
	<b>Page:</b> Cluster	This value is only required, if MQClusterMode is set to "A" (additional queue manager).	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
MQCluster Mode	Specifies whether the queue manager is the first or an additional queue manager to be configured in an MQ Workflow system group.	F	Server (configuration only)
	<b>Page:</b> Cluster	Can only take one of the following values: <b>F</b> First queue manager <b>A</b> Additional queue manager	Configuration profile
MQCluster Name	Name given to the group of queue managers associated with a particular MQ Workflow system group.	The default is the value set for the variable SystemGroup.	Server (configuration only)
	<b>Page:</b> Cluster	Not applicable	Configuration profile
MQCluster Port	If you are configuring an additional system within an existing system group and within an existing MQSeries cluster, this is the port number the MQSeries TCP/IP listener program running on the workstation the primary system (keeping the MQSeries repository queue manager) is configured on is using.	no default	Server (configuration only)
	<b>Page:</b> Cluster	This value is only required, if MQClusterMode is set to "A" (additional queue manager).	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
MQCluster Principal	If you are configuring an additional system within an existing system group and within an existing MQSeries cluster, this is the MCAUSER (MQ channel agent user) used for communication with the repository queue manager.	On UNIX the default is fmc. On other platforms there is no default.	Server (configuration only)
	Not applicable	This value is only required, if MQClusterMode is set to "A" (additional queue manager).	Configuration profile
MQCluster Protocol	If you are configuring an additional system within an existing system group and within an existing MQSeries cluster, this is the protocol used for communication with the repository queue manager.	T	Server (configuration only)
	<b>Page:</b> Cluster	This value is only required, if MQClusterMode is set to "A" (additional queue manager). This can only take one of the following values:  T for TCP/IP N for NetBios S for APPC  <b>Note:</b> For UNIX, only possible value is T.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	MQ Workflow Configuration Utility	Naming conventions	Contained in
MQ Communication Address	Name or address of your MQ Workflow workstation.	Host machine name or IP address.	Server (configuration only)
	<p><b>Page:</b> Queue Manager</p> <p><b>Radio button/Field:</b> Set by selecting one of the following:</p> <ul style="list-style-type: none"> <li>• TCP/IP port configuration (TCP/IP address)</li> <li>• NetBios configuration (NetBios name)</li> <li>• APPC configuration (LU 6.2 name)</li> </ul>	<p>Must be a valid address where the MQ Workflow is running, that is:</p> <p><b>Fully qualified CP name</b> If APPC is the communication protocol used.</p> <p><b>IP address</b> If TCP/IP is the communication protocol used.</p> <p><b>Local NetBios name</b> If NetBios is the communication protocol used.</p>	Configuration profile
MQ Communication Protocol	Communication protocol used by MQ Workflow.	T	Server (configuration only)
	<p><b>Page:</b> Queue Manager</p> <p><b>Group box/Field:</b> Communication Protocol</p>	<p>Can only take one of the following values:</p> <p><b>T</b> for TCP/IP</p> <p><b>N</b> for NetBios</p> <p><b>S</b> for APPC</p> <p><b>Note:</b> For UNIX, only possible value is T.</p>	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
MQLog Directory	Specifies the directory to be used to hold log files for the queue manager. If not specified, the MQSeries default location is used.	None	Server (configuration only)
	Not applicable	Must be an existing directory path. The user ID mqm and group mqm must have full authorities to the log files. If you change the locations of these files, you must give these authorities yourself. This occurs automatically if the log files are in their default locations (see the MQSeries documentation for more information).	Configuration profile
MQPort	Port number.	5010	Server (configuration only)
	<b>Page:</b> Queue Manager <b>Field:</b> TCP/IP port configuration (TCP/IP port number)	A valid port number not used by other applications.	Configuration profile
MQPrefix	The queue prefix allows you to set a high-level qualifier for queue names in an MQ Workflow system.	FMC	Server, Client (configuration only)
	<b>Page:</b> Queue Manager <b>Field:</b> Queue Prefix	A maximum of 8 characters can be used.	Configuration profile
MQPrincipal	User ID that the Object Authority Manager (OAM) uses to grant authorization to use MQSeries resources.	On UNIX the default is fmc. On other platforms there is no default.	Server (configuration only)
	Not applicable	Must be a valid user ID. For further information see the <i>MQSeries System Administration</i> manual.	Configuration profile



Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
MQQueue Manager	Name of the queue manager to be used.	FMCQM	Server, Buildtime (configuration only)
	<b>Page:</b> Queue Manager <b>Field:</b> Queue Manager name	<ul style="list-style-type: none"> <li>The name must be unique, that is, no other queue manager can have the same name.</li> <li>Use uppercase letters.</li> <li>A maximum of 8 characters can be used. However, you can use more if you define your own queues and channels. Examples are located in the subdirectory "mqsc".</li> </ul>	Configuration profile
MQSPREFIX	This value specifies the path to the qmgrs directory, below which the queue manager data is kept. It is effective only when a new queue manager is created.	None	Server (configuration only)
	Not applicable	Must be an existing directory path, which contains a subdirectory "qmgrs". The user ID mqm and group mqm must have full authorities to these directories. See the MQSeries documentation for more information.	Environment
MQTransaction Coordinator	User ID, which is used by MQSeries to coordinate transactions for two-phase commit. It has to have connect authority to the Runtime database.	The value of <RTDatabaseUserID> set in the configuration profile.	Server (configuration only)
	Not applicable	Must be a valid DB2 user ID. For details see the DB2 manuals.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
MQTransactionCoordinatorPassword	Password for the user ID <MQTransactionCoordinator>, which is used by MQSeries to coordinate transactions for two-phase commit. Only required, if <RTDatabaseUserID> and <MQTransactionCoordinator> are not identical.	No default	Server (configuration only)
	Not applicable	Not applicable	Configuration profile
MQTransactionCoordinatorStartsQM	Specifies whether the queue manager is started by the transaction coordinator or not. This parameter affects the XAOpenString stanza in qm.ini regarding the database connect parameters. For more information see the MQSeries documentation. This setting is only respected, if the Runtime database is local. If set to "1", <MQTransactionCoordinator> must be a member of group "mqm".	"0"	Server (configuration only)
	Not applicable	Can be either "0" (queue manager is NOT started by <MQTransactionCoordinator>) or "1" (queue manager is started by <MQTransactionCoordinator>)	Configuration profile
MQWorkflowAdministrator	(UNIX only) User ID, which is the owner of installation files and directories.	fmc	Server, runtime database utilities, Clients (configuration only)
	Not applicable	Must be an existing user ID on your workstation. Must be a member of <MQWorkflowGroup>	Installation profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
MQWorkflow Group	(UNIX only) Group, which is the owning group of installation files and directories.	fmcgrp	Server, runtime database utilities, Clients (configuration only)
	Not applicable	Must be an existing group on your workstation.	Installation profile
NLSPATH	<p>Valid for UNIX, OS/2 Warp, Windows NT and Windows 2000. Sets the search path for the message-catalog file.</p> <p>For each language, a message-catalog file exists. MQ Workflow messages are translated into all of the supported languages which are then contained in the message-catalog file for that language.</p> <p>For details regarding the system and MQWorkflow languages refer to "Appendix C. Language settings" on page 195.</p>	<p><b>On UNIX:</b> There is no need to change this environment variable, it is set automatically.</p> <p><b>On OS/2 Warp:</b> D:\FMCOS2\BIN\%N;</p> <p><b>On Windows NT and 2000:</b> C:\Program Files\MQSeries Workflow\BIN\%N;</p> <p>Where:</p> <p>%L is the system language</p> <p>%N is the MQWorkflow language</p> <p><b>Note:</b> Do not replace %L or %N with actual values.</p>	Server, Administration Utility, Clients, Buildtime, Configuration Utility
	Not applicable	The value contained here must be a valid path name.	System environment
RTDatabase	Name of the Runtime database.	FMCDDB	Server or Runtime database utilities
	<p><b>Page:</b> Runtime Database</p> <p><b>Group box/Field:</b> 2. Select an existing database or create a new database</p>	<ul style="list-style-type: none"> <li>A maximum of 8 characters can be used.</li> <li>The name must be unique, that is, no other database can have the same name.</li> </ul>	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
RTDatabase Container Directory	Name of the directory or path where the Runtime database containers are created.	Default is the value set in the ConfigurationRootDirectory variable plus the subdirectory <b>RT_DB\&lt;RTDB2Instance&gt;\&lt;RTDatabase&gt;</b> .  <b>For UNIX:</b> <ConfigurationRootDirectory>/rt_db/<RTDB2Instance>/FMCDB  <b>For OS/2 Warp:</b> D:\FMCOS2\RT_DB\ <RTDB2Instance>\FMCDB  <b>For Windows NT and 2000:</b> C:\Program Files\MQSeries Workflow\ RT_DB\ <RTDB2Instance>\ FMCDB	Server or Runtime database utilities (configuration only)
	<b>Pop-up window:</b> New DB2 Database  <b>Field:</b> Containers location	The value contained here must be a valid path or drive name.	Configuration profile
RTDatabase Location	Directory or path where the Runtime database is created.	<b>For UNIX:</b> <ConfigurationRootDirectory>/rt_db/<RTDB2Instance>/FMCDB  <b>For OS/2 Warp:</b> D:\FMCOS2\RT_DB\ <RTDB2Instance>\FMCDB  <b>For Windows NT and 2000:</b> C:\Program Files\MQSeries Workflow\ RT_DB\ \<RTDB2Instance>\FMCDB	Server or Runtime database utilities (configuration only)
	<b>Pop-up window:</b> New DB2 Database  <b>Field:</b> Database location	The value contained here must be a valid path or drive name.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	MQ Workflow Configuration Utility	Naming conventions	Contained in
RTDatabase LogLocation	Name of the directory where the Runtime database logs are held.	<b>For UNIX:</b> <ConfigurationRootDirectory> rt_db/<RTDB2Instance>/FMCDB  <b>For Windows NT and 2000:</b> <ConfigurationRootDirectory> \<RTDB2Instance>\FMCDB  <b>For OS/2 Warp:</b> <ConfigurationRootDirectory> \RT_DB\<RTDB2Instance> \FMCDB	Server or Runtime database utilities (configuration only)
	<b>Pop-up window:</b> New DB2 Database  <b>Field:</b> Log files location	The value contained here must be a valid path or drive name.	Configuration profile
RTDatabase MQWorkflow User	MQ Workflow user to import FDL that defines an additional system in an existing Runtime database.	ADMIN	Server, runtime database utilities (configuration only)
	Not applicable	Must be an existing MQ Workflow user defined in the Runtime database with the authority to import topology data.	Configuration profile
RTDatabase Password	Password for the user ID used to access the Runtime database.	No default	Server or Runtime database utilities
	<b>Pop-up window:</b> Connect Parameters  <b>Field:</b> Password	Not applicable	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
RTDatabaseRawDevice	(AIX only) Specifies, whether a raw device should be used for space management of the Runtime database.	"0"	Server or Runtime database utilities (configuration only)
	Not applicable	Only respected, if RTDatabaseSpaceManagement is set to "D" (managed by database). Can be either "0" (do NOT use raw device) or "1" (use raw device)	Configuration profile
RTDatabaseSpaceManagement	Indicates whether the Runtime database is managed by the system (S) or by the database itself (D). The D option should only be chosen by an experienced DB2 administrator. If you select it, the most performance-critical table spaces are implemented as database managed. One container is preallocated for each table space with a maximal size. You should monitor the current size of each container using the DB2 control center and add new containers as soon as the available containers of any table space are 80% full. If the installation is for a UNIX based operating system, raw devices may be selected in conjunction with DB managed.	S	Server or runtime database utilities (configuration only)
	Not applicable	Only the values "S" and "D" are valid.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	MQ Workflow Configuration Utility	Naming conventions	Contained in
RTDatabaseUserStoredInProfile	(UNIX only) Specifies, whether RTDatabaseUserID and RTDatabasePassword will be stored in the configuration profile or not. This setting is only respected, if the Runtime database is local.	"1"	Server or Runtime database utilities (configuration only)
	Not applicable	Can be either "0" (do NOT store values in profile) or "1" (store values in profile)	Configuration profile
RTDatabaseUserID	User ID used to access the Runtime database.	No default	Server or Runtime database utilities
	<b>Pop-up window:</b> Connect Parameters  <b>Field:</b> User ID	Must be a valid DB2 user ID. For details see the DB2 manuals.	Configuration profile
RTDB2Instance	Name of a cataloged DB2 Instance to manage the Runtime database.	Value of the environment variable DB2Instance.	Server or Runtime database utilities (configuration only)
	<b>Page:</b> Runtime Database  <b>Group box/Field:</b> 1. Select a DB2 instance already cataloged	Must be a valid DB2 instance name. For details see the DB2 manuals.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
RTDB2InstanceIsRemote	Specifies, whether the instance name, specified in RTDB2Instance is a local instance or a cataloged node within the instance specified in RTDB2LocalInstance.	"1"	Server or Runtime database utilities (configuration only)
	Not applicable	Can be either "0" (<RTDB2Instance> is a cataloged node) or "1" (<RTDB2Instance> is a local instance)	Configuration profile
RTDB2LocalInstance	Specifies the local DB2 instance used for the Runtime database. For a local Runtime database, this is the instance, that manages the Runtime database; for a remote Runtime database, this is the instance, where the remote node is cataloged, that manages the remote Runtime database.	Value of the environment variable DB2Instance.	Server or Runtime database utilities (configuration only)
	Not applicable	Must be an existing DB2 instance name. For details see the DB2 manuals.	Configuration profile
RTErrrorLogFile	Error Log File. For detailed information see the <i>IBM MQSeries Workflow: Administration Guide</i> .	<b>For Windows and OS/2:</b> <ConfigurationRootDirectory>\cfgs\ <cfgID>\log\fmcerr.log  <b>For UNIX:</b> <ConfigurationRootDirectory>/cfgs/ <cfgID>/log/fmcerr.log	Server
	Not applicable	Fully qualified file name	Configuration profile
RTExecutionServerOperationMode	Operation mode of the execution server.	Standalone	Server
	Not applicable	Only the value "Standalone" is valid and cannot be changed.	Configuration profile



Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	MQ Workflow Configuration Utility	Naming conventions	Contained in
RTIcon Directory	Path name where the Runtime Client icons are located.	<b>For Windows 95, 98, NT and 2000:</b> <ConfigurationDirectory>\BIN\ICONINST	Client
	<b>Page:</b> Client <b>Field:</b> Icon Directory	Must be a valid path or directory name	Configuration profile
RTSystemLogFile	System log file. For detailed information see the <i>IBM MQSeries Workflow: Administration Guide</i> .	<b>For Windows and OS/2:</b> <ConfigurationRootDirectory>\cfgs\ <cfgID>\log\fmcsys.log  <b>For UNIX:</b> <ConfigurationRootDirectory>/cfgs/ <cfgID>/log/fmcsys.log	Server
	Not applicable	Fully qualified file name	Configuration profile
ServiceLevel	Installed service level of MQ Workflow. The value set for this variable cannot be changed.	0	Installation
	Not applicable	Must be numeric.	Installation profile
System	Name of the MQ Workflow system.	FMCSYS	Server, Administration utility, Clients, Buildtime
	<b>Page:</b> All <b>Field:</b> System	A maximum of 8 characters can be used.	Configuration profile
SystemGroup	Name of the MQ Workflow system group.	FMCGRP	Server, Administration utility, Clients, Buildtime
	<b>Page:</b> All <b>Field:</b> System Group	A maximum of 8 characters can be used.	Configuration profile

Table 43. Variables set in the MQ Workflow profile and system environment (continued)

MQ Workflow variable	Description	Default value	Used by
	<b>MQ Workflow Configuration Utility</b>	<b>Naming conventions</b>	<b>Contained in</b>
VRM	Installed version of MQ Workflow. The value set for this variable cannot be changed.	030202	Installation
	Not applicable	VRRMM (Version Release Modification level)	Installation profile

---

## Appendix C. Language settings

This appendix lists the various language versions for MQ Workflow.

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### Language settings for UNIX

When installing MQ Workflow on any of the UNIX based operating platforms, all language versions of MQ Workflow that are supported by the operating system are installed. This means that it is possible to change the language version of MQ Workflow after installing it.

To change the language of MQ Workflow, set the value of the **Language** variable held in the MQ Workflow profile to the 3-letter code that represents the desired language. (See “Appendix B. MQ Workflow variables” on page 159 for details about the MQ Workflow profile and how to set the value of the **Language** variable.) For AIX, there are two sets of 3-letter codes. Either set of 3-letter codes can be used.



When you change the value of the **Language** variable in the MQ Workflow profile, you must also change the UNIX system language to the corresponding language. To change the UNIX system language, you must set the environment variable \$LANG or \$LC\_ALL to the appropriate value.

The following sections list the MQ Workflow 3-letter codes and the corresponding UNIX system language codes for each language.

### MQ Workflow and system language codes for AIX

Table 44 lists the MQ Workflow 3-letter codes and the corresponding AIX system language codes for each language.

*Table 44. MQ Workflow and system language codes for AIX*

Language	Set one (ISO code page)		Set two (PC compatible code page for AIX only)	
	MQ Workflow 3-letter code	UNIX system language code	MQ Workflow 3-letter code	AIX system language code
Brazilian Portuguese	ptb	pt_BR	—	—
Danish	dan	da_DK	DAN	Da_DK
Dutch	nld	nl_NL	NLD	NI_NL
Finnish	fin	fi_FI	FIN	Fi_FI
French	fra	fr_FR	FRA	Fr_FR

Table 44. MQ Workflow and system language codes for AIX (continued)

Language	Set one (ISO code page)		Set two (PC compatible code page for AIX only)	
	MQ Workflow 3-letter code	UNIX system language code	MQ Workflow 3-letter code	AIX system language code
German	deu	de_DE	DEU	De_DE
Hebrew	heb	iw_IL	HEB	Iw_IL
Hungarian	hun	hu_HU	—	—
Italian	ita	it_IT	ITA	It_IT
Japanese	jpn	ja_JP	JPN	Ja_JP
Korean	kor	ko_KR	—	—
Norwegian	nor	no_NO	NOR	No_NO
Polish	plk	pl_PL	—	—
Portuguese	ptg	pt_PT	PTG	Pt_PT
Simplified Chinese	chs	zh_CN	CHS	ZH_CN
			Chs	Zh_CN
Spanish	esp	es_ES	ESP	Es_ES
Traditional Chinese	cht	zh_TW	CHT	Zh_TW
Turkish	trk	tr_TR	—	—
U.S. English	enu	en_US	enu	En_US

## MQ Workflow and system language codes for HP-UX

Table 45 lists the MQ Workflow 3-letter codes and the corresponding AIX system language codes for each language.

Table 45. MQ Workflow and system language codes for HP-UX

Language	MQ Workflow 3-letter code	HP-UX system language code
Brazilian Portuguese	ptb	pt_BR.iso88591
Danish	dan	da_DK.iso88591
Dutch	nld	nl_NL.iso88591
Finnish	fin	fi_FI.iso88591
French	fra	fr_FR.iso88591
German	deu	de_DE.iso88591
Hebrew	heb	iw_IL.iso88598
Hungarian	hun	hu_HU.iso88592
Italian	ita	it_IT.iso88591
Japanese	jpn	ja_JP.eucJP
Korean	kor	ko_KR.eucKR
Norwegian	nor	no_NO.iso88591
Polish	plk	pl_PL.iso88592
Portuguese	ptg	pt_PT.iso88591
Simplified Chinese	chs	zh_CN.hp15CN

Table 45. MQ Workflow and system language codes for HP-UX (continued)

Language	MQ Workflow 3-letter code	HP-UX system language code
Spanish	esp	es_ES.iso88591
Traditional Chinese	cht	zh_TW.eucTW
Turkish	trk	tr_TR.iso88599
U.S. English	enu	en_US.iso88591

## MQ Workflow and system language codes for Sun Solaris

Table 46 lists the MQ Workflow 3-letter codes and the corresponding Sun Solaris system language codes for each language.

Table 46. MQ Workflow and system language codes for Sun Solaris

Language	MQ Workflow 3-letter code	Sun Solaris system language code
Brazilian Portuguese	ptb	pt_BR
Danish	dan	da
Dutch	nld	nl
Finnish	fin	fi
French	fra	fr
German	deu	de
Hebrew	heb	he
Hungarian	hun	hu
Italian	ita	it
Japanese	jpn	ja
Korean	kor	ko
Norwegian	nor	no
Polish	plk	pl
Portuguese	ptg	pt
Simplified Chinese	chs	zh
Spanish	esp	es
Traditional Chinese	cht	zh_TW
Turkish	trk	tr
U.S. English	enu	en_US

---

## Language settings for OS/2 Warp and Windows

For OS/2 Warp, Windows 95, 98, 2000, and NT, the language version of an MQ Workflow component is set at the beginning of the installation. When the language version is set, it cannot be changed.

The **Language** variable in the MQ Workflow profile holds a 3-letter code that represents the installed language version of MQ Workflow. The list of possible 3-letter codes and the language they represent for OS/2 Warp, Windows NT,

Windows 95, 98, 2000, and NT are:

*Table 47. MQ Workflow language codes for OS/2 Warp, Windows 95, 98, 2000, and NT*

<b>Language</b>	<b>3-letter Code</b>
Chinese (Simplified)	CHS
Chinese (Traditional)	CHT
Danish	DAN
Dutch	NLD
English (U.S.)	ENU
Finnish	FIN
French	FRA
German	DEU
Hebrew	HEB
Hungarian	HUN
Italian	ITA
Japanese	JPN
Korean	KOR
Norwegian	NOR
Polish	PLK
Portuguese (Brazilian)	PTB
Portuguese (European)	PTG
Spanish	ESP
Turkish	TRK

---

## Appendix D. Updated files

This appendix describes files on your workstation that are updated during the installation and configuration process. The path and updates for each file are given.



If you change values in the MQ Workflow profile or system environment, you may need to make changes to the files listed in this Appendix. For details about the MQ Workflow profile or system environment see “Appendix B. MQ Workflow variables” on page 159.

---

### Files updated on UNIX

The following lists files that are updated during the installation and configuration stages of the MQ Workflow setup process for any of the UNIX based operating systems.

#### MQ Workflow profile

The MQ Workflow profile is the collective name for the general configuration, installation and configuration profiles that contain MQ Workflow specific data entered during the installation and configuration stages of the MQ Workflow setup process. “Appendix B. MQ Workflow variables” on page 159 contains detailed information about the MQ Workflow profile and its contents.

If the values of MQ Workflow profile variables cause conflicts with other applications, you should change them using one of the available configuration tools, or open the relevant MQ Workflow profile and change the default values directly.



Be aware that some information is kept in more than one place, and editing values directly might cause MQ Workflow to not work correctly.

#### **/etc/inetd.conf**

On **AIX**: The following line is added to this file:

```
fmcl<MQQueueManager><MQPort> stream tcp nowait mqm  
  /usr/mqm/bin/amqcrsta amqcrsta -m <MQQueueManager>
```

On **Sun Solaris** and **HP-UX**: The following line is added to this file:

```
fmcl<MQQueueManager><MQPort> stream tcp nowait mqm  
  /opt/mqm/bin/amqcrsta amqcrsta -m <MQQueueManager>
```

Where:

*<MQQueueManager>*  
is the name for the MQSeries queue manager.

*<MQPort>*  
is the TCP/IP port number.

If you change either the MQSeries queue manager name or TCP/IP port number within the MQ Workflow profile, you must also change them in this line as well as in */etc/services*. Additionally, you need to change the client channel definition table. Refer to “Appendix B. MQ Workflow variables” on page 159 for details about the MQSeries queue manager name and TCP/IP port number.

If you make changes to this file, you must activate the changes made by entering one of the following commands at a command prompt:

**refresh -s inetd**  
(for AIX only)

**kill -1 *<inetd-pid>***  
(for all supported UNIX platforms)

#### ***/etc/services***

The following line is added to this file:

```
fmc|<MQQueueManager><MQPort> <MQPort>/tcp #MQSeries
```

Where:

*<MQQueueManager>*  
is the name for the MQSeries queue manager.

*<MQPort>*  
is the TCP/IP port number.

#### ***/var/mqm/qmgrs/*<MQQueueManager>*/qm.ini***

This is the MQSeries queue manager configuration file where *<MQQueueManager>* is the name for the MQSeries queue manager. During the MQ Workflow configuration procedure the following lines are added to this file:

```
XAResourceManager:  
  Name=<RTDB2Instance> <RTDatabase>  
  SwitchFile=<InstallationDirectory>/db2swit/db2swit  
  XAOpenString=<RTDatabase>,<MQTransactionCoordinator>,  
  <MQTransactionCoordinatorPassword>
```

Where:



*<RTDB2Instance>*

is the name of the cataloged DB2 instance used to manage the Runtime database.

*<RTDatabase>*

is the name of the DB2 database used by MQ Workflow.

*<InstallationDirectory>*

is the name of the directory where MQ Workflow is installed.

*<MQTransactionCoordinator>*

is the user ID for the transaction coordinator.

*<MQTransactionCoordinatorPassword>*

is the password for the transaction coordinator.

The values for *<InstallationDirectory>*, *<RTDatabase>*, and *<RTDB2 Instance>* are taken from the MQ Workflow profile. If you change the values for these variables in the MQ Workflow profile, you must also make the same changes in the `qm.ini` file. Refer to “Appendix B. MQ Workflow variables” on page 159 for details about these variables.

## Changes made by the configuration utility `fmczutil`

After collecting all the information required for a configuration, the configuration utility performs the following actions:

1. Creates a configuration and a log subdirectory, owned by the configuration administrator and configuration group:  
`<CfgRootDir>/cfs/<CfgID>`  
`<CfgRootDir>/cfs/<CfgID>/log`
2. A configuration profile will be created in `<CfgRootDir>/cfs/<CfgID>`, containing the values you have specified. This file can only be changed by the configuration administrator and configuration group members.
3. Based on the components you selected in your configuration, additional directories and files will be created.
4. If you selected ‘Server’, `<CfgRootDir>/cfs/<CfgID>/bin` will be created, and owned by the configuration administrator and configuration group. Executables to start the different types of servers are copied into this directory.
5. If you selected either ‘Server’ or ‘Runtime Database Utilities’, the directories `<CfgRootDir>/cfs/<CfgID>/fd1` and `<CfgRootDir>/cfs/<CfgID>/log/rtdb` will be created. In the `fd1` subdirectory the FDL files used to populate the Runtime database will be created based on the templates located in the installation subdirectory `fd1`. If you selected to create a new Runtime database, `fmczrf32.fdl` will be created; If you selected to use an existing Runtime database, `fmczns32.fdl` will be created.

6. If you selected to create a new Runtime database, then, if necessary, the DB2 database layout file and its directory will be created using default values.
7. If you selected to create a new Runtime database, and the DB2 instance you specified is local, the directories you specified when prompted for
  - DB2 database location
  - DB2 container location
  - Log files location

will be created if you selected the default values. If you decided to specify other values, you have to create the directories before creating the Runtime database. The owner of these directories and files will be the DB2 instance user ID you specified, the owning group will be the primary group of the DB2 instance.

8. If you selected 'Server', the queue manager subdirectories `<CfgRootDir>/qmgrs/<queuemanager>` and `<CfgRootDir>/qmgrs/<queuemanager>/mqc` will be created. In the `mqc` subdirectory the MQSeries files used to define, alter, suspend, and delete queue manager resources such as queues, channels, and aliases will be created based on the templates located in the installation subdirectory `mqc`. Owner of these directories and files will be the user ID 'mqm', the owning group will be 'mqm'.
9. If you selected 'Server', the files `/etc/services` and `/etc/inetd.conf` will be modified to add an entry for the listener program of the new queue manager.
10. If you selected 'Java CORBA Agent' and did not choose the locator policy 'Local bindings', a bin subdirectory `<CfgRootDir>/cfigs/<CfgID>/bin` will be created. An executable to start the Java CORBA Agent will be created within that directory. Owner of the directory and executable will be the user ID you specified when prompted for the configuration administrator, the owning group will be the configuration group.

---

## Files updated on Windows

The following lists files that are updated when MQ Workflow is set up on workstations running Windows 95, 98, 2000, or NT.

### MQ Workflow profile

The MQ Workflow profile is the name given to the set of MQ Workflow specific data contained in the Windows registry entered during the installation and configuration stages of the MQ Workflow setup process. "Appendix B. MQ Workflow variables" on page 159 contains detailed information about the MQ Workflow profile and its contents.

If the values of MQ Workflow profile variables cause conflicts with other applications, you should change them using one of the available configuration tools.

### **Environment**

This is only updated when MQ Workflow components are installed and configured on Windows NT or Windows 2000. Information you supply during the installation stage is used to set the values of variables in the Windows Environment. On Windows NT, it is found by selecting the Environment tab from the system icon in the control panel. On Windows 2000, it is found under Control panel / System icon / Advanced tab / Environment variables.

If the default values contained in the Windows Environment cause conflicts with other applications, open the Environment and change the values directly. To ensure that all programs can use the changes you made, restart your system.

### **AUTOEXEC.BAT**

This is only updated when MQ Workflow components are installed on Windows 98 and Windows 95. Information you supply during the installation stage is used to set the values of variables in the AUTOEXEC.BAT file.

If the default values contained in the AUTOEXEC.BAT file cause conflicts with other applications, open the AUTOEXEC.BAT file and change the values directly. To ensure that all programs can use the changes you made, restart your system.

### **Windows registry**

During the MQ Workflow configuration procedure, the following lines are added to the registry:

```
XAResourceManager:  
  Name=<RTDB2Instance> <RTDatabase>  
  SwitchFile=<InstallationDirectory>/DB2SWIT/DB2SWIT.DLL  
  XAOpenString=<RTDatabase>,<MQTransactionCoordinator>,  
    <MQTransactionCoordinatorPassword>  
  ThreadOfControl=PROCESS
```

Where:

<RTDB2Instance>

is the name of the cataloged DB2 instance used to manage the Runtime database.

<RTDatabase>

is the name of the DB2 database used by MQ Workflow.

<InstallationDirectory>

is the name of the directory where MQ Workflow is installed.

*<MQTransactionCoordinator>*

is the user ID for the transaction coordinator.

*<MQTransactionCoordinatorPassword>*

is the password for the transaction coordinator.

The values for *<InstallationDirectory>*, *<RTDatabase>*, and *<RTDB2 Instance>* are taken from the MQ Workflow profile. If you change the values for these variables in the MQ Workflow profile, you must also make the same changes in the Windows registry as well as in `\etc\services`. Additionally, you need to change the client channel definition table. Refer to “Appendix B. MQ Workflow variables” on page 159 for details about these variables.

### Services file

The Services file has the following path:

#### For Windows 2000/NT:

*Bootdrive*\WINNT\SYSTEM32\DRIVERS\ETC\SERVICES

#### For Windows 98/95:

*Bootdrive*\WINDOWS\SERVICES

For each TCP/IP port number you specify during configuration, an entry with the following syntax is added to the services file:

```
fmc\<MQQueueManager><MQPort> <MQPort>/tcp #MQSeries
```

Where:

*<MQQueueManager>*

is the name for the MQSeries queue manager.

*<MQPort>*

is the TCP/IP port number.

Changing values in the MQ Workflow profile does not affect this file.

---

## Files updated on OS/2 Warp

The following lists files that are updated when MQ Workflow is set up on an OS/2 Warp workstation.

### MQ Workflow profile

The MQ Workflow profile is the collective name for the general configuration, installation and configuration profiles that contain MQ Workflow specific data entered during the installation and configuration stages of the MQ Workflow setup process. “Appendix B. MQ Workflow variables” on page 159 contains detailed information about the MQ Workflow profile and its contents.

If the values of MQ Workflow profile variables cause conflicts with other applications, you should change them using one of the available configuration tools.

## CONFIG.SYS

This is the system environment that contains information you supply during the installation stage.

<MQSeriesDirectory>\QMGRS\*MQQueueManager*\QM.INI

This is the queue manager configuration file, where:

<MQSeriesDirectory>

is the directory where MQSeries is installed.

<MQQueueManager>

is the name for the MQSeries queue manager.

During the MQ Workflow configuration procedure, the following lines are added to this file:

XAResourceManager:

Name=<RTDB2Instance> <RTDatabase>

SwitchFile=<InstallationDirectory>/DB2SWIT/DB2SWIT.DLL

XAOpenString=<RTDatabase>,<MQTransactionCoordinator>,<MQTransactionCoordinatorPassword>

ThreadOfControl=PROCESS

Where:

<RTDB2Instance>

is the name of the cataloged DB2 instance used to manage the Runtime database.

<RTDatabase>

is the name of the DB2 database used by MQ Workflow.

<InstallationDirectory>

is the name of the directory where MQ Workflow is installed.

<MQTransactionCoordinator>

is the user ID for the transaction coordinator.

<MQTransactionCoordinatorPassword>

is the password for the transaction coordinator.

The values for <InstallationDirectory>, <RTDatabase>, and <RTDB2Instance> are taken from the MQ Workflow profile. If you change the values for these variables in the MQ Workflow profile, you must also make the same changes in the QM.INI file. Refer to "Appendix B. MQ Workflow variables" on page 159 for details about these variables.

## Services file

The Services file is located in the directory pointed to by the etc environment variable that is held in the CONFIG.SYS file on your workstation.

For each TCP/IP port number you specify during configuration, an entry with the following syntax is added to the services file:

```
fmcl<MQQueueManager><MQPort> <MQPort>/tcp          #MQSeries
```

Where:

*<MQQueueManager>*

is the name for the MQSeries queue manager.

*<MQPort>*

is the TCP/IP port number.

Changing values in the MQ Workflow profile does not affect this file.

---

## Appendix E. Stand-alone setup on Windows NT/2000

This appendix contains all you need to know in order to setup a stand-alone MQ Workflow system and its prerequisite software on a single Windows NT or 2000 workstation.

---

### Steps for a stand-alone setup

Setting up a stand-alone MQ Workflow system is often the first type of setup performed and is useful for becoming familiar with MQ Workflow functions and evaluation purposes.

The steps involved in setting up a stand-alone MQ Workflow system are described in the following sections and are summarized as follows:

#### Verifying MQ Workflow requirements

Prior to installing and configuring a stand-alone MQ Workflow system, your workstation must meet certain minimum requirements.

#### Installing prerequisite software

DB2 and MQSeries are prerequisites for MQ Workflow and must be installed prior to installing MQ Workflow.

#### Installing MQ Workflow

The installation simply copies the software from the MQ Workflow CD-ROM to your workstation and performs basic setup and registration functions.

#### Configuring MQ Workflow

Configuration must be performed directly after installation for MQ Workflow to use database and communication resources provided by the prerequisite software, DB2 and MQSeries.

#### Checking the MQ Workflow setup

After setting up MQ Workflow, the setup is checked using the MQ Workflow configuration checker.

#### Verifying the MQ Workflow setup

Simple checks are performed to verify that MQ Workflow has been setup correctly and is running.

After performing these steps, you can start MQ Workflow Server, Client, and Buildtime components as explained in:

- "Starting components in the right order" on page 125
- "Starting the standard Client" on page 129

- “Starting Buildtime” on page 130

---

## Verifying MQ Workflow requirements

To install MQ Workflow, your workstation must have access to a CD-ROM drive and meet the following minimum requirements:

	<b>Requirements</b>
Processor	Intel Pentium processor
Speed	200 MHz
Screen resolution	1024x768
Real memory	256 MB
Hard-disk space	3 GB

In addition, you must have the correct version of Windows installed and perform some basic setup and configuration tasks, as follows:

1. Verify that you have **Windows 2000** or **Windows NT Workstation Version 4.0 at Service Pack 4, 5, or 6a** installed on your workstation. The version and service level installed on your system are displayed on the screen during boot time. See the Microsoft Network or the following Microsoft Web site for Windows NT service packs:  
<http://support.microsoft.com/support/ntserver/content/servicepacks/>
2. If you are installing MQ Workflow on an IBM Think Pad, you must reinstall **Service Pack 4, 5, or 6a**. This is required because some files relevant for MQ Workflow are changed when your IBM Think Pad is initially set up.
3. If your workstation has no LAN connection, you must install the **Remote Access Service** from your Windows setup disk to ensure TCP/IP is configured correctly.
4. Create a new Windows user ID with administration rights. This user ID is used later during the MQ Workflow configuration.

### To create a user ID on Windows 2000:

- a. In the **start** menu, click on **select settings -> control panel**, the Control Panel appears.
- b. Select **Users and Passwords**, the Users and Password dialog appears.
- c. Click on the **Add...** button, the Add New User Dialog appears.
- d. Enter a username, and click on **Next**.
- e. Enter a password, confirm the password, and click on **Next**.
- f. Select the **Others** radio button, specify **Administrators** in the combo box, and click on **Finish**.



- g. Close the Users and Password dialog.
- h. Close the Control Panel.

**To create a user ID on Windows NT:**

- a. On the task bar, click on the Windows **Start** menu and select **Programs->Administrative Tools (Common)->User Manager**. The **User Manager** window appears.
  - b. Within the **User Manager** window, from the menu bar select **User->New User...** A **New User** dialog box appears.
  - c. Within the **New User** dialog box:
    - Enter a user name that is a maximum of eight characters long within the **Username** field. Make a note of your new user ID.
    - Enter a password within the **Password** field and confirm the password within the **Confirm Password** field. Make a note of the password and keep it in a safe place.
    - Deselect the **User Must Change Password at Next Logon** check box.
    - Click on the **Groups** button. A **Group Memberships** dialog box appears.
    - Within the **Group Memberships** dialog box, make your new user ID a member of the administrators group by selecting **Administrators** and clicking on **<-Add**. Select **OK**. Control passes back to the **New User** dialog box.
  - d. Select **OK** and close the **User Manager** window.
5. Log off from Windows and log on again specifying the new user ID and password.

---

## Installing prerequisite software

DB2 and MQSeries are prerequisites for MQ Workflow and must be installed before running the MQ Workflow installation on your workstation.

The following gives the minimum steps needed to install the prerequisites, DB2 and MQSeries, for an MQ Workflow stand-alone system.

For further information about MQSeries, see the *MQSeries for Windows NT V5.1 Quick Beginnings* online manual, located as postscript (\*.PS) and HTML files on the *IBM MQSeries for Windows NT, Version 5.1* CD-ROM, in the directory BOOKS.

For further information about DB2, see the *IBM DB2 Universal Database for Windows NT: Quick Beginnings* online manual.

## Installing DB2

The following instructions describe how to install DB2 on Windows NT for an MQ Workflow stand-alone system.



If DB2 is already installed on your workstation, the following steps change the existing DB2 configuration.

1. Insert the CD-ROM labeled **DB2 Universal Database for Windows Operating Environment** into your CD-ROM drive.
2. If the installation does not start automatically, start it by clicking on the **Start** menu on the task bar, selecting **Run...** and entering `x:\Setup.exe` in the **Open** field, where *x* is the drive letter for your CD-ROM drive.
3. Click on **OK**. The **Welcome** window appears.
4. Click on **Next**. The **Select Products** window is displayed.
5. Select **DB2 Universal Database Enterprise Edition** and then click on **Next**. The **Select Installation Type** window is displayed.
6. Select **Custom**. The **Select DB2 Components** window is displayed.
7. Select the following components:
  - Graphical tools
  - DB2 ODBC Driver
  - Documentation
8. Select the drive `x:\SQLLIB`, where *x* is the root directory on your workstation. If DB2 is already installed on your workstation, the current version of DB2 you are now installing uses the same installation directory as your existing installation.
9. Click on **Next**. The **Select Start Options** window appears.
10. Check the **Automatically start the DB2 instance at boot time** check box.
11. Uncheck the **Automatically start the Control Center at boot time** check box.
12. Click on **Next**. The **Customize Communications Protocol** window is displayed.
13. Click on **Next**. The **Enter User name and Password** window is displayed.
14. Enter the new user ID and password that gives you administration rights that you created in step 4 on page 208. Select **Next**.
15. The **Start Copying Files** window appears giving details about the selections you made, such as the selected product name, setup type, target directories, and so on. Select **Install**. Program files for DB2 are copied to your workstation.
16. When the installation is finished, remove the installation disk from the CD-ROM drive.

17. In the **Complete Setup** window, select **Yes, I want to restart my computer now** and then select **Finish**. Your system restarts, activating the changes made by the installation program.
18. After your system has rebooted, several windows open automatically. Close these windows.

## Installing MQSeries

The following instructions describe how to install MQSeries on Windows NT for an MQ Workflow stand-alone system.

1. Insert the CD-ROM labeled **IBM MQSeries for Windows NT** into your CD-ROM drive.
2. If the installation does not start automatically, start it by clicking on the **Start** menu on the task bar, selecting **Run...** and entering `x:\Setup.exe` in the **Open** field, where *x* is the drive letter for your CD-ROM drive.
3. Click on **OK**. The **MQSeries for Windows - Language Selection** window appears.
4. Select the language **English** and click on **OK**. The **Setup** dialog appears as MQSeries prepares the install shield after which the **Welcome** window is displayed.
5. Click on **Next**. The **Read License Conditions** window is displayed.
6. Click on **Yes** to accept the terms of the License Agreement.

Certain prerequisite software must exist on your workstation for MQSeries to install correctly. If:

  - a. The prerequisite software required by MQSeries is not already installed on your workstation, the **Software Requirements** window appears displaying a list of prerequisite software items. If you need any of these items, follow the instructions given in the window to install them. After installing prerequisite software, you must reboot your system, and restart the MQSeries installation.
  - b. The prerequisite software is already installed on your workstation, after the installation program has checked the prerequisite software, the **Choose Installation Folders** window is displayed.
7. To accept the default MQSeries installation folders, click on **Next**. If you do not want to use the defaults given, change them and then click on **Next**. The **Setup Type** window is displayed.
8. Select the **Typical** radio button and then click on **Next**. The **Set Up Default Configuration** window is displayed.
9. Leave the **Set up a default configuration** check box checked and click on **Next**. The **Select Options** window is displayed.
10. Leave both check boxes checked in the **Select Options** window and click on **Next**. The **Join Default Cluster** window is displayed.

11. Select the **Yes, make it the repository for the cluster** radio button and click on **Next**. The **Repository Location** window is displayed.
12. Click on **Next**. The **Select Program Folder** window is displayed.
13. Click on **Next**. This causes a folder called **IBM MQSeries** to be added to the Windows Start menu under Programs. The **Ready to Copy Files** window is displayed.
14. Click on **Next**. Program files are copied to the MQSeries installation directory. This may take some time after which the **Setup Complete** window is displayed.
15. Click on **Finish**. MQSeries is now installed and is set to start automatically as a Windows NT service.

---

## Installing MQ Workflow

Before installing the MQ Workflow stand-alone software, several services that may be running on your system must be stopped, as follows:

- If **IBM Antivirus** is installed on your workstation, make sure you stop the service **AvService**.
- If **Norton Antivirus** is installed on your workstation, make sure you stop the service **NAV Auto-protect**.
- If **Microsoft Outlook** is installed on your workstation, close the application and log off.

After stopping these services, follow the instructions given next that describe how to install a stand-alone MQ Workflow system on a single Windows NT workstation:

1. Insert the MQ Workflow installation disk in the CD-ROM drive.
2. If the installation program does not start automatically, start it by opening a command prompt window and entering:  
`x:\WINDOWS\SETUP`  
where *x* is the drive letter for the CD-ROM drive.
3. Select the language that you want to use. When selected, this language becomes the default for your MQ Workflow stand-alone installation.
4. Click on **Next**. The **Welcome** window is displayed.
5. Click on **Next**. The **Choose Destination Location** window is displayed with the default directory **C:\Program Files\MQSeries Workflow** set as the installation directory for MQ Workflow. If you do not want to use this as your installation directory, enter a new location.
6. Click on **Next**. The **Setup Type** window is displayed.
7. Select **All Components** and click on **Next**. The **Select Components** window is displayed containing a list of components.

8. Select **All Components** and click on **Next**. The **Select Program Folder** window is displayed.
9. Click on **Next**. A folder for MQ Workflow is created and appears on the Windows **Start** menu under **Programs**. The **Start Copying Files** window is displayed.
10. Confirm your selections made and click on **Next**. Program files are copied to the MQ Workflow installation directory.
11. When the installation phase is complete, remove the installation disk from the CD-ROM drive.
12. Click **Finish** to restart your workstation and activate the changes made by the installation program. After rebooting, the MQ Workflow advanced configuration utility starts automatically.

---

## Configuring MQ Workflow

Configuration must be performed directly after installing MQ Workflow so that database and communication resources provided by the prerequisite software, DB2 and MQSeries, can be used. This is done using the MQ Workflow advanced configuration utility that starts automatically after the MQ Workflow installation stage.



It is recommended to use the default values provided during the configuration stage for a test and first time MQ Workflow stand-alone installation.

The MQ Workflow Configuration Utility is made up of several pages. Within each page, set and select values that configure your MQ Workflow stand-alone system as follows:

### General

On the **General** page:

1. Click on **New**.
2. Within the **Configure installed components** group box, check all MQ Workflow component boxes.
3. At the bottom of the page, click on the **Next** button to move to the **Runtime Database** page.

### Runtime Database

On the **Runtime Database** page:

1. Within the **1. Select a DB2 instance already catalogued** group box, select the DB2 instance listed.
2. Within the **2. Select an existing database or create a new database** group box, click on **New...**
3. Click on **OK** to accept all default values.

4. Click on **DB2 Connect parameters...** and enter your user ID and password. Use the user ID and password that you created in step 4 on page 208.
5. At the bottom of the page, click on the **Next** button to move to the **Queue Manager** page.

### **Queue Manager**

On the **Queue Manager** page:

1. In the **Communication Protocol** group box, make sure that TCP/IP is selected. The IP address or host name and port number fields should contain valid values that do not need to be changed.
2. At the bottom of the page, click on the **Next** button to move to the **Cluster** page.

### **Cluster**

On the **Cluster** page:

At the bottom of the page, click on the **Next** button to accept all default values and move to the **Client Connections** page.

### **Client Connections**

On the **Client Connections** page:

At the bottom of the page, click on the **Next** button and move to the **Buildtime** page.

**Note:** If you receive a warning that a connect name must be specified, click on **OK** then click **ADD** to accept the default values.

### **Buildtime**

On the **Buildtime** page:

At the bottom of the page, click on the **Next** button to move to the **Buildtime Database** page.

### **Buildtime Database**

On the **Buildtime Database** page:

1. Within the **1. Select a DB2 instance already catalogued** group box, select the DB2 instance listed.
2. Within the **2. Select an existing database or create a new database** group box, click on **New...**
3. Click on **OK** to accept all default values.
4. At the bottom of the page, click on the **Next** button to move to the **Client** page.

### **Client**

On the **Client** page:

At the bottom of the page, click on the **Next** button to accept all default values and move to the **Java Corba Agent** page.

### Java Corba Agent

On the **Java Corba Agent** page:

At the bottom of the page, click on the **Done** button to accept all default values and configure MQ Workflow with the values set.

A command prompt window appears indicating that configuration is in process. This may take a considerable time, up to 45 minutes. Wait until the configuration is finished.



If errors occur during configuration, check the following log files for further help:

<b>FMCQM.LOG</b>	Queue definition log
<b>@FMCZQQM.LOG</b>	Queue Manager creation log
<b>@FMCZRT.LOG</b>	Runtime DB creation log
<b>@FMCZBT.LOG</b>	Buildtime DB creation log

These files are located in the directory:

c:\Program Files\MQSeries Workflow\CFGs\FMC\LOG

When the configuration phase is complete, reboot your workstation. MQSeries, DB2, and MQ Workflow are automatically started and set to run as Windows NT services.

---

## Checking the MQ Workflow configuration

“Appendix N. Using the configuration checking utility `fmczchk`” on page 285 describes how to use the MQ Workflow configuration-checking utility to check your MQ Workflow configuration. You should note that running the configuration-checking utility produces a log file. All errors found during the configuration-checking process are recorded in this log file. To check if any error or warning messages relating to your MQ Workflow configuration have been recorded in this file:

1. Start the configuration-checking utility by entering at a command prompt:  
**fmczchk**
2. Check the log file `fmczchk.log` that is created in the current directory. It contains all error or warning messages, and other important information.

---

## Verifying the MQ Workflow configuration

To verify that components are communicating correctly, you should check your MQ Workflow installation. This is done by verifying that the MQ Workflow Server installed on your workstation is running and the MQ Workflow Client installed on your workstation can connect to it.

### Verifying the MQ Workflow Server

To verify that the MQ Workflow Server is installed and running:

1. To select **services**:

On Windows NT:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
- b. Select **Control Panel**.
- c. Select the **Services** icon. A dialog box appears.

On Windows 2000:

- a. On the task bar, click on the Windows **Start** menu and select **Settings**.
  - b. Select **Control Panel**.
  - c. Select **Administrative Tools**.
  - d. Select the **Services** icon. A dialog box appears.
2. Within the **Service** window of the dialog box, locate the line that reads **MQSeries Workflow Version 3.2 – FMC**
  3. Verify that the status of this service is **Started**. If the status is **Started**, the MQ Workflow Server is installed and running.

### Verifying the MQ Workflow Client

To verify that an MQ Workflow Client is installed and running and a connection can be made with the MQ Workflow Server:

1. Check that the MQ Workflow Server is started as previously described.
2. Open a command prompt window and start the MQ Workflow administration utility by entering:

**fmcautil -uADMIN -ppassword**

If the MQ Workflow administration utility starts, it is installed and running and has made a connection to the MQ Workflow Server.



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## Appendix F. Quick server setup on AIX

This chapter describes how to set up a two-tier MQ Workflow server, suitable for testing and demonstrations. These instructions are intended to help you create default setups of the following:

- IBM DB2 Universal Database Version 6 (Enterprise Edition)
- IBM MQSeries Version 5.1
- All MQSeries Workflow components that run on AIX

Product CD-ROMs for MQSeries Workflow, IBM DB2 Universal Database Version 6, and MQSeries Version 5.1 are provided with MQ Workflow. For more information about installing these products, see:

- The *IBM DB2 Universal Database for UNIX: Quick Beginnings* manual on the DB2 installation CD-ROM.
- The *MQSeries for AIX: Quick Beginnings* manual on the MQSeries installation CD-ROM.
- “Part 3. Installing and configuring MQ Workflow on UNIX” on page 49.

---

### Verify prerequisites

For a stand-alone MQSeries Workflow server, that is only going to be used for testing or demonstration purposes, you require the following:

*Table 48. Requirements for an AIX stand-alone system*

Processor	RS/6000 uni-processor, SMP or SP2 machine as supported by AIX.
Operating system	AIX V4.2 or higher.
Physical memory	256 MB
Hard disk space	1 GB
Access to a CD-ROM	yes
Programming environment	If you want to develop applications using the MQ Workflow APIs, you must use one of the programming languages or development environments listed in “Client requirements” on page 35.

## Install DB2 Universal Database Version 6

This describes how to install DB2 Universal Database Version 6 on AIX. The installation CDs are included with MQ Workflow.

Table 49. Installing DB2 Universal Database Version 6 on AIX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Check for AIX 4.3.1	If using AIX 4.3.1 you need to check that the <code>ifor_ls.client</code> has been installed.
3	Mount the DB2 CD	<ol style="list-style-type: none"><li>1. Insert the DB2 Installation CD in the drive.</li><li>2. Mount the CD ROM by entering the command: <code>mount -oro -v cdrfs /dev/cd0 /cdrom</code></li></ol>
4	Run the DB2 setup script	<ol style="list-style-type: none"><li>1. Change to the directory <code>/cdrom/unnamed_cdrom</code></li><li>2. Run the DB2 setup script <code>./db2setup</code></li><li>3. Select <b>DB2 UDB Enterprise Edition</b>.</li><li>4. Select <b>OK</b>.</li></ol>
5	Select Create a DB2 Instance	<ol style="list-style-type: none"><li>1. Select <b>Create a DB2 Instance</b><ol style="list-style-type: none"><li>a. In the configuration panel that appears, note the default values.</li><li>b. Select <b>OK</b>.</li><li>c. Note the defaults, and select <b>OK</b>. <b>Note:</b> This creates the group <code>db2iadm1</code>, and two users, <code>db2inst1</code> and <code>db2fenc1</code>. The generated password for these users is <code>ibmdb2</code>.</li></ol></li></ol>
6	Select Install the Administration Server	<ol style="list-style-type: none"><li>1. Select <b>Install the Administration Server</b><ol style="list-style-type: none"><li>a. <code>DB2SYSTEM</code> will be set to your machine's host name.</li><li>b. Keep selecting <b>Continue</b> or <b>OK</b> to complete the installation.</li><li>c. Check the DB2 log for possible problems. The log can be found in <code>/tmp/db2setup.log</code></li><li>d. Note the default values, and select <b>OK</b>. <b>Note:</b> The user <code>dbas</code> will be created.</li><li>e. The message appears: "DB2SYSTEM will be set to 'xxxxx'", where 'xxxxx' is the host name you are installing on.</li></ol></li><li>2. Select <b>OK</b> to complete the installation.</li></ol>
7	Check log files	If there were any error messages during the installation, see <code>/tmp/db2setup.log</code>

---

## Create user IDs and groups

This describes how to create the user IDs required for installing and configuring MQSeries and MQ Workflow.

Table 50. Create user IDs and groups

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Make the groups for MQSeries and MQ Workflow	Enter the commands: mkgroup mqm mkgroup fmcgrp
3	Create users and add them to the groups	Enter the commands: mkuser pgrp=mqm mqm mkuser pgrp=fmcgrp groups=mqm,db2iadm1 fmc
4	Set password for user fmc	Enter the command: passwd fmc <b>Note:</b> It is also recommended to set the password for user ID mqm

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## Install MQSeries Version 5.1 with CSD level 4

This describes how to install MQSeries Version 5.1 on AIX.

Table 51. Installing MQSeries Version 5.1 on AIX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Mount the MQSeries CD ROM	1. Insert the MQSeries Installation CD in the drive. 2. Mount the CD ROM by entering the command: mount -oro -v cdrfs /dev/cd0 /cdrom

Table 51. Installing MQSeries Version 5.1 on AIX (continued)

Step	Description	Action
3	Install MQSeries	<ol style="list-style-type: none"> <li>1. Change to the directory <code>/cdrom/mq_aix</code></li> <li>2. Run either the <b>smit</b> or <b>smitty</b> installation program.               <ol style="list-style-type: none"> <li>a. Select <b>Software Installation and Maintenance</b>.</li> <li>b. Select <b>Install and Update Software</b>.</li> <li>c. Select <b>Install and Update from the latest available Software</b>.</li> <li>d. Select at least the following MQ Workflow components:                   <ol style="list-style-type: none"> <li>1) <code>mqm.server</code></li> <li>2) <code>mqm.java</code> (optional)</li> <li>3) <code>mqm.client</code></li> <li>4) <code>mqm.base</code></li> <li>5) <code>mqm.Server.Bnd</code></li> <li>6) <code>mqm.Client.Bnd</code></li> </ol> </li> <li>e. Continue the installation.</li> </ol> </li> </ol>
4	Install MQSeries CSD 4	<ol style="list-style-type: none"> <li>1. Change to the directory <code>/cdrom/CSD/MQ51/AIX/csd04</code></li> <li>2. Run either the <b>smit</b> or <b>smitty</b> installation program.               <ol style="list-style-type: none"> <li>a. Select <b>Software Installation and Maintenance</b>.</li> <li>b. Select <b>Install and Update Software</b>.</li> <li>c. Select <b>Update Installed Software to Latest Level (Update All)</b>.</li> <li>d. For the input device/directory, enter a dot <code>[.]</code>.</li> <li>e. Continue the installation.</li> </ol> </li> </ol>
5	Create a test queue manager (optional)	<p>If you want to test your installation:</p> <ol style="list-style-type: none"> <li>1. Create a test queue manager by entering the command: <code>crtmqm testqmgr</code></li> <li>2. Start the test queue manager by entering the command: <code>strmqm testqmgr</code></li> <li>3. Stop the a test queue manager by entering the command: <code>endmqm -i testqmgr</code></li> </ol>

## Install MQSeries Workflow

Table 52 describes how to install all MQ Workflow components on AIX, and configure a server using the default values. This uses the automated 'default configuration' facility that is only available for AIX.

Table 52. Install and configure MQSeries Workflow on AIX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Add the language and DB2 profile to the Workflow administrator's profile	<ol style="list-style-type: none"> <li>1. Edit the <code>.profile</code> for the user <code>fmc</code>.</li> <li>2. Add the following commands:  <code>. /home/db2inst1/sqllib/db2profile</code> </li> </ol> <p><b>Note:</b> Make sure that there is a space between the period '.' and the slash '/'.</p>
3	Start the DB2 instance	<ol style="list-style-type: none"> <li>1. Log on as <b>db2inst1</b> (owner of the DB2 instance). The generated password for this user is <code>ibmdb2</code>.</li> <li>2. Enter the command  <code>db2start</code> </li> <li>3. Log off as owner of the DB2 instance.</li> </ol>
4	Mount the MQSeries Workflow CD ROM	<ol style="list-style-type: none"> <li>1. Insert the MQSeries Workflow Installation CD ROM in the drive.</li> <li>2. Mount the CD ROM by entering the command:  <code>mount -oro -v cdrfs /dev/cd0 /cdrom</code> </li> </ol>
5	Install MQ Workflow	<p>Run either the <b>smitt</b> or <b>smitty</b> installation program.</p> <ol style="list-style-type: none"> <li>1. Select <b>Software Installation and Maintenance</b>.</li> <li>2. Select <b>Install and Update Software</b>.</li> <li>3. Select <b>Install and Update from the latest available Software</b>.</li> <li>4. Select the component <b>fmc</b>.</li> <li>5. Select the component <b>fmcdefault</b>.</li> <li>6. Continue the installation.</li> <li>7. After installation, the configuration utility runs automatically. It creates a standard installation based on the default values, and using the user ID <b>fmc</b>.</li> </ol>

Table 52. Install and configure MQSeries Workflow on AIX (continued)

Step	Description	Action
6	Load process data into the Runtime database (optional)	<p>If you already have a process model:</p> <ol style="list-style-type: none"> <li>1. Transfer your process model data <i>yourprocess.fdl</i> to your server machine.  <b>Note:</b> You can create process models using the MQSeries Workflow Buildtime component on a Windows 2000 or NT workstation. Your process model, topology, and staff definitions are exported as an FDL file.</li> <li>2. Enter the command:  <pre>fmcibie -i=yourprocess.fdl -u=ADMIN -p=password -o -t -l</pre> <p>where option <b>-o</b> overrides existing definitions in the database, <b>-t</b> translates the process so that an instance can be created, and <b>-l</b> creates a log file with the same name as the FDL file name with the extension of <i>.log</i>.</p> </li> </ol>
7	Verify the installation and configuration	<p>Perform the actions described in “Chapter 8. Verifying an MQ Workflow server on UNIX” on page 75.  <b>Note:</b> The verification checks that the administration utility (client) can connect to the local administration server. This confirms that the server is set up correctly. If you also want to connect a standard client or Lotus Notes client from a remote machine, perform the actions described in “Testing a Windows client connection to a UNIX server” on page 78.</p>

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## Appendix G. Quick server setup on Sun Solaris

This chapter describes how to set up a two-tier MQ Workflow server, suitable for testing and demonstrations. These instructions are intended to help you create default setups of the following:

- IBM DB2 Universal Database Version 6 (Enterprise Edition)
- IBM MQSeries Version 5.1
- All MQSeries Workflow components that run on Sun Solaris

Product CD-ROMs for MQSeries Workflow, IBM DB2 Universal Database Version 6, and MQSeries Version 5.1 are provided with MQ Workflow. For more information about installing these products, see:

- The *IBM DB2 Universal Database for UNIX: Quick Beginnings* manual on the DB2 installation CD-ROM.
- The *MQSeries for Sun Solaris: Quick Beginnings* manual on the MQSeries installation CD-ROM.
- “Part 3. Installing and configuring MQ Workflow on UNIX” on page 49.

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### Verify prerequisites

For a stand-alone MQSeries Workflow server, that is only going to be used for testing or demonstration purposes, you require the following:

*Table 53. Requirements for a Sun Solaris server*

Processor	SPARC processor architecture as supported by Sun Solaris
Operating system	Sun Solaris Version 7
Physical memory	256 MB
Hard disk space	1 GB
Access to a CD-ROM	yes
Programming environment	If you want to develop applications using the MQ Workflow APIs, you must use one of the programming languages or development environments listed in “Client requirements” on page 35.
Kernel configuration parameters	For a test system, the standard kernel configuration parameters should be sufficient. For more details, see “Kernel configuration parameters” on page 57.

## Install DB2 Universal Database Version 6

This describes how to install DB2 Universal Database on Sun Solaris. The installation CDs are included in the MQ Workflow package.

Table 54. Installing DB2 Universal Database on Sun Solaris

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Ckeck PATH	Make sure that <b>/usr/sbin</b> is in the <b>PATH</b> so that the users and groups can be created automatically.
3	Mount the DB2 CD	<ol style="list-style-type: none"><li>1. Insert the DB2 Installation CD in the drive.</li><li>2. If the Volume Manager is runnig, the CD will be mounted as <b>/cdrom/unnamed_cdrom</b>, otherwise, mount it by issuing the commands: <pre>mkdir -p /cdrom/unnamed_cdrom mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom</pre></li></ol>
4	Run the DB2 setup script	<ol style="list-style-type: none"><li>1. Change to the directory <b>/cdrom/unnamed_cdrom</b></li><li>2. Run the DB2 setup script <b>./db2setup</b></li><li>3. Select <b>DB2 UDB Enterprise Edition</b> by pressing the space bar.</li><li>4. Press <b>OK</b>.</li></ol>
5	Select Create a DB2 Instance	<ol style="list-style-type: none"><li>1. Select <b>Create a DB2 Instance</b><ol style="list-style-type: none"><li>a. In the configuration panel that appears, accept the default values.</li><li>b. Press <b>OK</b>.</li><li>c. The message A system-generated password, <b>ibmdb2</b>, will be used  appears.</li><li>d. When the User-Defined Functions panel appears, accept the default values.</li><li>e. The message A system-generated password, <b>ibmdb2</b>, will be used  appears again.</li></ol></li></ol>



Table 54. Installing DB2 Universal Database on Sun Solaris (continued)

Step	Description	Action
6	Select Create the Administration Server	<ol style="list-style-type: none"> <li>1. Select <b>Create the Administration Server</b> <ol style="list-style-type: none"> <li>a. In the configuration panel use the default values.</li> <li>b. Press <b>OK</b>.</li> <li>c. The password message appears</li> <li>d. The message appears: "DB2SYSTEM will be set to 'xxxxx'", where 'xxxxx' is the host name you are installing on.</li> </ol> </li> <li>2. Press <b>OK</b>.</li> <li>3. Press <b>OK</b>.</li> </ol>
7	Confirm summary report and start installation	<p>When the summary report is displayed:</p> <ol style="list-style-type: none"> <li>1. Select <b>Continue</b>.</li> <li>2. Confirm the warning ('last chance to stop') that appears with <b>OK</b>.</li> <li>3. The installation starts; this may take some time.</li> <li>4. Press <b>OK</b> on the installation summary.</li> <li>5. Select <b>Close</b> at the top level screen.</li> <li>6. Confirm the selection with <b>OK</b>.</li> </ol>
8	Set the swap space	DB2 requires that the physical swap space for Sun Solaris be at least 2 times the size of the physical memory.

## Install MQSeries Version 5.1

This describes how to install MQSeries Version 5.1 on Sun Solaris.

Table 55. Installing MQSeries Version 5.1 on Sun Solaris

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Make sure all prerequisites are met	<ol style="list-style-type: none"> <li>1. Create a group with the name <b>mqm</b>.</li> <li>2. Create a user ID with the name <b>mqm</b> and put it in group <b>mqm</b>.</li> <li>3. Make sure that the file systems have been created with enough space by entering the commands: <pre>mkdir -p -m 755 /var/mqm/log mkdir -p -m 755 /var/mqm/error</pre> <p><b>Note:</b> If /var/mqm is not a separate file system, the installation analysis generates a warning that can be ignored.</p> </li> </ol>

Table 55. Installing MQSeries Version 5.1 on Sun Solaris (continued)

Step	Description	Action
3	Mount the MQSeries CD	<ol style="list-style-type: none"> <li>1. Insert the MQSeries 5.1 Installation CD in the drive.</li> <li>2. If the Volume Manager is running, the CD will be mounted as <b>/cdrom/unnamed_cdrom</b>, otherwise, mount it by issuing the commands:  <pre>mkdir -p /cdrom/unnamed_cdrom mount -F hfsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom</pre> </li> </ol>
4	Install MQSeries	<ol style="list-style-type: none"> <li>1. Change to the directory <b>/cdrom/mq_sol</b>.</li> <li>2. Enter the command: <b>pkgadd -d</b>. (do not forget the dot after the 'd'). <ol style="list-style-type: none"> <li>a. You are asked to choose the packages you want to install. Press Enter for all.</li> <li>b. A message concerning the file system <b>/var/mqm</b> appears. Continue installation? [y,n,q] : <b>y</b></li> <li>c. Enter options to be installed [1-40,all,q,?] <b>all</b></li> <li>d. Install MQM DCE? [y,n,q] : <b>n</b></li> <li>e. [Press RETURN to continue]</li> <li>f. [Press RETURN to continue]</li> <li>g. Do you want to install these as setuid/setgid files [y,n,?,q] <b>y</b></li> <li>h. Do you want to continue with the installation of mqm [y,n,?] <b>y</b></li> <li>i. The product is installed. After a while you get the message: <b>Installation of mqm was successful</b>.</li> <li>j. Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]: <b>q</b></li> </ol> </li> </ol>
5	Install MQSeries CSD 4	Use the <b>pkgadd</b> tool to install CSD 4 from the directory: <b>/cdrom/CSD/MQ51/Solaris/csd04</b>
6	Verify that MQSeries has been installed	Enter the command: <b>pkginfo -l mqm</b>

## Create users and groups

Create a user ID that will be used to configure MQSeries Workflow.

Table 56. Create a Workflow user and group on Sun Solaris

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Make the group for MQ Workflow	Enter the commands: <b>groupadd fmcgrp</b>

Table 56. Create a Workflow user and group on Sun Solaris (continued)

Step	Description	Action
3	Create a user ID and add it to the groups	Enter the commands: useradd -g mqm -G fmcgrp,db2iadm1 -s /usr/bin/ksh -m fmc
4	Set password for user fmc	Enter the command: passwd fmc

## Install and configure MQ Workflow

Table 57 describes how to install all MQ Workflow components on Sun Solaris, and configure a server using the default values.

Table 57. Installing and configuring MQ Workflow on Sun Solaris

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Install the package from the CD-ROM	1. Enter the command: pkgadd -d /cdrom/mqwf_progcd2/solaris/fmc-3.2.2pkg 2. Install component <b>fmc</b>
3	Verify that MQ Workflow has been installed	Enter the command: pkginfo -l fmc
4	Add the language and DB2 profile to the Workflow administrator's profile	1. Edit the .profile for the user fmc 2. Add the following commands: . /home/db2inst1/sqllib/db2profile LANG= <b>xxxxx</b> export LANG  <b>Note:</b> Make sure that there is a space between the period '.' and the slash '/'. Substitute your language code for <b>xxxxx</b> , for example, for U.S. English on AIX use <b>en_US</b> . For a list of language codes, see "Appendix C. Language settings" on page 195.
5	Set the language variables	Enter the command: LANG= <b>xxxxx</b> ;export LANG  where <b>xxxxx</b> is your language code.
6	Invoke the DB2 profile	Enter the command: . /home/db2inst1/sqllib/db2profile  <b>Note:</b> Make sure that there is a space between the period '.' and the slash '/'.

Table 57. Installing and configuring MQ Workflow on Sun Solaris (continued)

Step	Description	Action
7	Start the DB2 instance	<ol style="list-style-type: none"> <li>1. Log on as <b>db2inst1</b> (owner of the DB2 instance). The generated password for this user is <code>ibmdb2</code>.</li> <li>2. Enter the command <code>db2start</code></li> <li>3. Log off as owner of the DB2 instance.</li> </ol>
8	Create the MQ Workflow installation defaults	Enter the command: <code>fmczinsx -o env</code>
9	Create the directory structure for MQ Workflow product files	Enter the command: <code>fmczinsx -o inf</code>
10	Start the MQ Workflow configuration tool	Enter the command: <code>fmczutil</code>
11	Create a new configuration profile	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin: 10px 0;"> <pre>FMC33201I Configuration Commands Menu: l ... List s ... Select c ... Create x ... Exit Configuration Commands Menu</pre> </div> <ol style="list-style-type: none"> <li>1. Enter <b>c</b> to create a new configuration profile.</li> <li>2. Press Enter to accept the default configuration identifier <code>FMC</code>.</li> <li>3. Press Enter to accept the default configuration administrator <code>fmc</code>.</li> <li>4. Enter <b>a</b> to select all components.</li> <li>5. Enter <b>x</b> to exit the selection menu.</li> </ol>

Table 57. Installing and configuring MQ Workflow on Sun Solaris (continued)

Step	Description	Action
12	Enter information for the database	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p>- Configuration of Runtime database ...  u ... ( ) Use an existing Runtime database  n ... (X) Create a new Runtime database</p> </div> <ol style="list-style-type: none"> <li>1. Press Enter to accept the default 'Create a new Runtime database'.</li> <li>2. Press Enter to accept the default 'Local database'.</li> <li>3. Press Enter to accept the default DB2 instance name db2inst1.</li> <li>4. Press Enter to accept the default DB2 database name FMCDB.</li> <li>5. Press Enter to accept the default DB2 database administrator user ID fmc.</li> <li>6. Press Enter to accept the default DB2 database layout file.</li> <li>7. Press Enter to accept the default DB2 database location.</li> <li>8. Press Enter to accept the default DB2 container location.</li> <li>9. Press Enter to accept the default DB2 log files location.</li> <li>10. Press Enter to accept the default space management Managed by system.</li> <li>11. Press Enter to accept the default DB2 user ID to access the Runtime database fmc.</li> <li>12. Press Enter to accept the default system group name FMCGRP.</li> <li>13. Press Enter to accept the default system name FMCSYS.</li> <li>14. Press Enter to accept the default queue manager name FMCQM.</li> <li>15. Press Enter to accept the default queue manager prefix FMC.</li> </ol>

Table 57. Installing and configuring MQ Workflow on Sun Solaris (continued)

Step	Description	Action
13	Enter queue manager information	<p>When you see:</p> <pre> - Configuration of queue manager ... FMC33513I Select log type ...: c ... (X) Circular log l ... ( ) Linear log (prerequisite for backup)                     </pre> <ol style="list-style-type: none"> <li>1. Press Enter to accept the default of circular log type.</li> <li>2. Press Enter to accept the default queue manager log file location.</li> <li>3. Press Enter to accept the default channel definition table file location.</li> <li>4. Enter your TCP/IP address.</li> <li>5. Press Enter to accept the default TCP/IP port number 5010.</li> <li>6. Press Enter to accept the default principal name <code>fmc</code>.</li> <li>7. Press Enter to accept the default cluster name <code>FMCGRP</code>.</li> <li>8. Press Enter to accept the default that the queue manager is the first queue manager in the cluster.</li> <li>9. Press Enter to accept the default DB2 user ID of transaction coordinator <code>fmc</code>.</li> <li>10. Press Enter to accept the default that the queue manager will be started by a member of the group <code>mqm</code>.</li> </ol>
14	Configure the Java Agent	<p>When you see:</p> <pre> - Configuration of client ... - Configuration of Java Agent ... FMC33509I Select locator policy ...: l ... (X) Local bindings v ... ( ) Visibroker Smart Agent c ... ( ) CORBA Naming Service r ... ( ) JAVA RMI i ... ( ) Interoperable Object Reference                     </pre> <ol style="list-style-type: none"> <li>1. Press Enter to accept the default Local Bindings.</li> <li>2. Press Enter to accept the default agent cycle of 300 seconds.</li> <li>3. Press Enter to accept the default client threshold of 1000 objects.</li> <li>4. Press Enter to accept the default client cycle of 90%.</li> </ol>
15	Create configuration profile	<p>When you see:</p> <pre> c ... Create configuration profile for 'FMC' now s ... Save input to file r ... Review/change input x ... Exit (input for configuration 'FMC' will be lost)                     </pre> <p>Enter <b>c</b> to create the profile.</p>

Table 57. Installing and configuring MQ Workflow on Sun Solaris (continued)

Step	Description	Action
16	Create the Runtime database	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>- Do you want to create the Runtime database 'FMCDB' now? y ... Yes n ... No</pre> </div> <ol style="list-style-type: none"> <li>1. Enter <b>y</b> to create the Runtime database.</li> <li>2. Enter the password for user <code>fmc</code></li> <li>3. Enter the password again</li> </ol>
17	Create the queue manager	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>- Do you want to create the queue manager 'FMCQM' now? y ... Yes n ... No</pre> </div> <p>Enter <b>y</b> to create the queue manager.</p>
18	Exit the MQ Workflow configuration tool	Enter <b>x</b> to exit the <code>fmczutil</code> utility.
19	Load process data into the Runtime database (optional)	<p>If you already have a process model:</p> <ol style="list-style-type: none"> <li>1. Transfer your process model data <code>yourprocess.fdl</code> to your machine.</li> <li>2. Log on as user <code>fmc</code>.</li> <li>3. Enter the command: <pre>fmcibie -i=yourprocess.fdl -u=ADMIN -p=password -o -t -l</pre> </li> </ol> <p>where option <b>-o</b> overrides existing definitions in the database, <b>-t</b> translates the process so that an instance can be created, and <b>-l</b> creates a log file with the same name as the FDL file name with the extension of <code>.log</code>.</p> <p><b>Note:</b> You can create process models using the MQSeries Workflow Buildtime component on a Windows 2000 or NT workstation. Your process model and staff definitions are exported as an FDL file.</p>
20	Verify the installation and configuration	<p>Perform the actions described in “Chapter 8. Verifying an MQ Workflow server on UNIX” on page 75.</p> <p><b>Note:</b> The verification checks that the administration utility (client) can connect to the local administration server. This confirms that the server is set up correctly. If you also want to connect a standard client or Lotus Notes client from a remote machine, perform the actions described in “Testing a Windows client connection to a UNIX server” on page 78.</p>





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## Appendix H. Quick server setup on HP-UX

This chapter describes how to set up a two-tier MQ Workflow server, suitable for testing and demonstrations. These instructions are intended to help you create default setups of the following:

- IBM DB2 Universal Database Version 6 (Enterprise Edition)
- IBM MQSeries Version 5.1
- All MQSeries Workflow components that run on HP-UX

Product CD-ROMs for MQSeries Workflow, IBM DB2 Universal Database Version 6, and MQSeries Version 5.1 are provided with MQ Workflow. For more information about installing these products, see:

- The *IBM DB2 Universal Database for UNIX: Quick Beginnings* manual on the DB2 installation CD-ROM.
- The *MQSeries for HP-UX: Quick Beginnings* manual on the MQSeries installation CD-ROM.
- “Part 3. Installing and configuring MQ Workflow on UNIX” on page 49.

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### Verify prerequisites

For a stand-alone MQSeries Workflow server, that is only going to be used for testing or demonstration purposes, you require the following:

*Table 58. Requirements for an HP-UX MQ Workflow server*

Processor	HP 9000
Operating system	HP-UX Version 10.20
Physical memory	256 MB
Hard-disk space	1 GB
Access to a CD-ROM	yes
Programming environment	If you want to develop applications using the MQ Workflow APIs, you must use one of the programming languages or development environments listed in “Client requirements” on page 35.
Kernel configuration parameters	For a test system, the standard kernel configuration parameters should be sufficient.

## Install DB2 Universal Database Version 6

This describes how to install DB2 Universal Database on HP-UX. The installation CDs are included in the MQ Workflow package.

Table 59. Installing DB2 Universal Database on HP-UX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Check PATH	Make sure that <b>/usr/sbin</b> is in the <b>PATH</b> so that the users and groups can be created automatically.
3	Mount the DB2 CD	<ol style="list-style-type: none"><li>1. Insert the DB2 Installation CD in the drive.</li><li>2. Mount the CD-ROM by issuing the commands: mkdir -p /cdrom /usr/sbin/mount /dev/dsk/c0t2d0 /cdrom</li></ol>
4	Run the DB2 setup script	<ol style="list-style-type: none"><li>1. Change to the directory <b>/cdrom</b></li><li>2. Run the DB2 setup script <b>./db2setup</b></li><li>3. Select <b>DB2 UDB Enterprise Edition</b> by pressing the space bar.</li><li>4. Press <b>OK</b>.</li></ol>
5	Select Create a DB2 Instance	<ol style="list-style-type: none"><li>1. Select <b>Create a DB2 Instance</b><ol style="list-style-type: none"><li>a. In the configuration panel that appears, accept the default values.</li><li>b. Press <b>OK</b>.</li><li>c. The message "A system-generated password, ibmdb2, will be used" appears.</li><li>d. When the User-Defined Functions panel appears, accept the default values.</li><li>e. The message "A system-generated password, ibmdb2, will be used" appears again.</li></ol></li></ol>
6	Select Create the Administration Server	<ol style="list-style-type: none"><li>1. Select <b>Create the Administration Server</b><ol style="list-style-type: none"><li>a. In the configuration panel use the default values.</li><li>b. Press <b>OK</b>.</li><li>c. The password message appears</li><li>d. The message appears: "DB2SYSTEM will be set to 'xxxxx'", where 'xxxxx' is the host name you are installing on.</li></ol></li><li>2. Press <b>OK</b>.</li><li>3. Press <b>OK</b>.</li></ol>

Table 59. Installing DB2 Universal Database on HP-UX (continued)

Step	Description	Action
7	Confirm summary report and start installation	When the summary report is displayed: <ol style="list-style-type: none"> <li>1. Select <b>Continue</b>.</li> <li>2. Confirm the warning ('last chance to stop') that appears with <b>OK</b>.</li> <li>3. The installation starts; this may take some time.</li> <li>4. Press <b>OK</b> on the installation summary.</li> <li>5. Select <b>Close</b> at the top level screen.</li> <li>6. Confirm the selection with <b>OK</b>.</li> </ol>
8	Check the swap space	Enter the command: <code>swapinfo</code> to check the swap space. DB2 requires that the physical swap space to be at least two times the size of the physical memory.

## Install MQSeries Version 5.1

This describes how to install MQSeries Version 5.1 on HP-UX.

Table 60. Installing MQSeries Version 5.1 on HP-UX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Make sure all prerequisites are met	<ol style="list-style-type: none"> <li>1. Create a group with the name <b>mqm</b> by entering the command: <code>groupadd mqm</code></li> <li>2. Create a user ID with the name <b>mqm</b> and put it in group <b>mqm</b> by entering the command: <code>useradd -g mqm -s /usr/bin/ksh -m mqm</code></li> <li>3. Make sure that the file systems have been created with enough space by entering the commands: <code>mkdir -p -m 755 /var/mqm/log</code> <code>mkdir -p -m 755 /var/mqm/error</code></li> </ol> <p><b>Note:</b> If /var/mqm is not a separate file system, the installation analysis generates a warning that can be ignored.</p>
3	Mount the MQSeries CD-ROM	<ol style="list-style-type: none"> <li>1. Insert the MQSeries 5.1 Installation CD in the drive.</li> <li>2. Mount the the CD-ROM by issuing the commands: <code>mkdir -p /cdrom/unnamed_cdrom</code> <code>mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom</code></li> </ol> <p><b>Note:</b> This may be different on your system. In case of errors, see your system documentation.</p>

Table 60. Installing MQSeries Version 5.1 on HP-UX (continued)

Step	Description	Action
4	Install MQSeries	<ol style="list-style-type: none"> <li>1. Change to the directory /cdrom/HPUX10.20</li> <li>2. Enter the command: <b>swinstall</b></li> <li>3. Select and install MQSeries.</li> </ol>
5	Install MQSeries CSD 4	Follow the instructions in /cdrom/CSD/MQ51/HPUX10.20/csd04/README.TXT

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## Create user and groups

Create a user ID that will be used to install and configure MQSeries Workflow.

Table 61. Creating a Workflow user and group on HP-UX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .
2	Make the group for MQ Workflow	Enter the commands: groupadd fmcgrp
3	Create user and add it to the groups	Enter the commands: useradd -g mqm -G fmcgrp,db2iadm1 -s /bin/ksh -m fmc
4	Set password for user fmc	Enter the command: passwd fmc

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## Install and configure MQ Workflow

Table 62 describes how to install all MQ Workflow components on HP-UX, and configure a server using the default values.

Table 62. Installing and configuring MQ Workflow on HP-UX

Step	Description	Action
1	Log on as root	Log on as <b>root</b> .

Table 62. Installing and configuring MQ Workflow on HP-UX (continued)

Step	Description	Action
2	Install the package from the CD-ROM	<ol style="list-style-type: none"> <li>1. Insert the MQ Workflow Installation CD in the drive.</li> <li>2. Mount the the CD-ROM by issuing the commands:  <pre>mkdir -p /cdrom/unnamed_cdrom mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom</pre> <p><b>Note:</b> This may be different on your system. In case of errors, see your system documentation.</p> </li> <li>3. Enter the command:  <pre>swinstall</pre> </li> <li>4. Select and install the MQ Workflow component <b>fmc</b>.</li> </ol>
3	Verify that MQ Workflow has been installed	<p>Enter the command:</p> <pre>swlist MQSERIESWorkflow</pre>
4	Add the language and DB2 profile to the Workflow administrator's profile	<ol style="list-style-type: none"> <li>1. Edit the .profile for the user <b>fmc</b>.</li> <li>2. Add the following commands:  <pre>. /home/db2inst1/sqllib/db2profile LANG=xxxxx export LANG</pre> <p><b>Note:</b> Make sure that there is a space between the period '.' and the slash '/'. Substitute your language code for <b>xxxxx</b>, for example, for U.S. English on AIX use <b>en_US</b>. For a list of language codes, see "Appendix C. Language settings" on page 195.</p> </li> </ol>
5	Start the DB2 instance	<ol style="list-style-type: none"> <li>1. Log on as <b>db2inst1</b> (owner of the DB2 instance). The generated password for this user is <b>ibmdb2</b>.</li> <li>2. Enter the command  <pre>db2start</pre> </li> <li>3. Log off as owner of the DB2 instance.</li> </ol>
6	Invoke the language and invoke the DB2 profile	<ol style="list-style-type: none"> <li>1. Log on as <b>root</b>.</li> <li>2. Enter the command:  <pre>. `fmc/.profile</pre> <p><b>Note:</b> Make sure that there is a space between the period ('.') and the '`'.</p> </li> </ol>
7	Set up the MQ Workflow environment	<p>Enter the command:</p> <pre>fmczinsx -o env</pre>
8	Create the directory infrastructure for MQ Workflow product files	<p>Enter the command:</p> <pre>fmczinsx -o inf</pre>

Table 62. Installing and configuring MQ Workflow on HP-UX (continued)

Step	Description	Action
9	Start the MQ Workflow configuration tool	Enter the command: fmczutil
10	Create a new configuration profile	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>FMC33201I Configuration Commands Menu: l ... List s ... Select c ... Create x ... Exit Configuration Commands Menu</pre> </div> <ol style="list-style-type: none"> <li>1. Enter <b>c</b> to create a new configuration profile.</li> <li>2. Press Enter to accept the default configuration identifier <b>FMC</b>.</li> <li>3. Press Enter to accept the default configuration administrator <b>fmc</b>.</li> <li>4. Enter <b>a</b> to select all components.</li> <li>5. Enter <b>x</b> to exit the selection menu.</li> </ol>
11	Enter information for the database	<p>When you see:</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <pre>- Configuration of Runtime database ... u ... ( ) Use an existing Runtime database n ... (X) Create a new Runtime database</pre> </div> <ol style="list-style-type: none"> <li>1. Press Enter to accept the default 'Create a new Runtime database'.</li> <li>2. Press Enter to accept the default 'Local database'.</li> <li>3. Press Enter to accept the default DB2 instance name <b>db2inst1</b>.</li> <li>4. Press Enter to accept the default DB2 database name <b>FMCDB</b>.</li> <li>5. Press Enter to accept the default DB2 database administrator user ID <b>fmc</b>.</li> <li>6. Press Enter to accept the default DB2 database layout file.</li> <li>7. Press Enter to accept the default DB2 database location.</li> <li>8. Press Enter to accept the default DB2 container location.</li> <li>9. Press Enter to accept the default DB2 log files location.</li> <li>10. Press Enter to accept the default space management Managed by system.</li> <li>11. Press Enter to accept the default DB2 user ID to access the Runtime database <b>fmc</b>.</li> <li>12. Press Enter to accept the default system group name <b>FMCGRP</b>.</li> <li>13. Press Enter to accept the default system name <b>FMCSYS</b>.</li> <li>14. Press Enter to accept the default queue manager name <b>FMCQM</b>.</li> <li>15. Press Enter to accept the default queue manager prefix <b>FMC</b>.</li> </ol>

Table 62. Installing and configuring MQ Workflow on HP-UX (continued)

Step	Description	Action
12	Enter queue manager information	<p>When you see:</p> <pre> - Configuration of queue manager ... FMC33513I Select log type ...: c ... (X) Circular log l ... ( ) Linear log (prerequisite for backup)                     </pre> <ol style="list-style-type: none"> <li>1. Press Enter to accept the default of circular log type.</li> <li>2. Press Enter to accept the default queue manager log file location.</li> <li>3. Press Enter to accept the default channel definition table file location.</li> <li>4. Enter your TCP/IP address.</li> <li>5. Press Enter to accept the default TCP/IP port number 5010.</li> <li>6. Press Enter to accept the default principal name <code>fmc</code>.</li> <li>7. Press Enter to accept the default cluster name <code>FMCGRP</code>.</li> <li>8. Press Enter to accept the default that the queue manager is the first queue manager in the cluster.</li> <li>9. Press Enter to accept the default DB2 user ID of transaction coordinator <code>fmc</code>.</li> <li>10. Press Enter to accept the default that the queue manager will be started by a member of the group <code>mqm</code>.</li> </ol>
13	Create configuration profile	<p>When you see:</p> <pre> c ... Create configuration profile for 'FMC' now s ... Save input to file r ... Review/change input x ... Exit (input for configuration 'FMC' will be lost)                     </pre> <p>Enter <b>c</b> to create the profile.</p>
14	Create the Runtime database	<p>When you see:</p> <pre> - Do you want to create the Runtime database 'FMCDB' now? y ... Yes n ... No                     </pre> <ol style="list-style-type: none"> <li>1. Enter <b>y</b> to create the Runtime database.</li> <li>2. Enter the password for user <code>fmc</code>.</li> <li>3. Enter the password again.</li> </ol>
15	Create the queue manager	<p>When you see:</p> <pre> - Do you want to create the queue manager 'FMCQM' now? y ... Yes n ... No                     </pre> <p>Enter <b>y</b> to create the queue manager.</p>

Table 62. Installing and configuring MQ Workflow on HP-UX (continued)

Step	Description	Action
16	Exit the MQ Workflow configuration tool	Enter <code>x</code> to exit the <code>fmczutil</code> utility.
17	Load process data into the Runtime database (optional)	<p>If you already have a process model:</p> <ol style="list-style-type: none"> <li>1. Transfer your process model data <i>yourprocess.fdl</i> to your machine.</li> <li>2. Log on as user <code>fmc</code>.</li> <li>3. Enter the command:  <pre>fmcibie -i=yourprocess.fdl -u=ADMIN -p=password -o -t -l</pre> </li> </ol> <p>where option <code>-o</code> overrides existing definitions in the database, <code>-t</code> translates the process so that an instance can be created, and <code>-l</code> creates a log file with the same name as the FDL file name with the extension of <code>.log</code>.</p> <p><b>Note:</b> You can create process models using the MQSeries Workflow Buildtime component on a Windows 2000 or NT workstation. Your process model and staff definitions are exported as an FDL file.</p>
18	Verify the installation and configuration	<p>Perform the actions described in “Chapter 8. Verifying an MQ Workflow server on UNIX” on page 75.</p> <p><b>Note:</b> The verification checks that the administration utility (client) can connect to the local administration server. This confirms that the server is set up correctly. If you also want to connect a standard client or Lotus Notes client from a remote machine, perform the actions described in “Testing a Windows client connection to a UNIX server” on page 78.</p>



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## Appendix I. Unattended installation and configuration

This chapter describes the concepts and files that are required for an unattended setup of MQ Workflow components. An automatic setup consists of the following steps:

1. Installation:
  - a. There is no unattended installation available for UNIX. This must be performed manually, as described in “Chapter 6. Installing on UNIX” on page 51.
  - b. “Unattended installation on Windows” on page 242.
  - c. “Unattended installation on OS/2 Warp” on page 248.
2. Configuration is described in “Unattended configuration on UNIX, Windows, and OS/2” on page 254.

---

### Command and response files

Two types of files are required for the unattended installation:

#### Command file

This is a batch file which is used to start the unattended installation. The command file starts the installation program and then passes parameter information to it. The parameters specify installation-specific information.

#### Response file

This file contains general or workstation-specific information that is understood by the installation program. The path to the response file is included in the command file. When the command file is started, it calls the response file. The response file then passes the information contained in it to the installation program. The installation program reads a response file instead of prompting you for installation information.

Sample command and response files are contained on the MQ Workflow installation disk. The sample files provided are meant to be used as templates. You can modify a copy of these files by adding or removing entries so that they contain only the parameters and options you want to use for your unattended installation. The valid parameters and options for these files are explained in the following sections for the appropriate operating systems.

---

## Unattended installation

How to perform unattended installation is described in the following sections:

- “Unattended installation on Windows”
- “Unattended installation on OS/2 Warp” on page 248

### Unattended installation on Windows

Command and response files are used to run unattended installation on any of the supported Windows based operating platforms. Before you start the unattended installation you must prepare MQ Workflow command and response files to suit your needs.

The following describes the command and response files and the parameters that can be set in these files.

#### Sample command files

The `WINDOWS\lng` directory on the MQ Workflow installation disk contains the sample command file `MQWFNlng.SMP`, where *lng* is replaced by one of the 3-letter language codes described in “Appendix C. Language settings” on page 195. The 3-letter code chosen depends on the language you want to use.

Use the sample command file, `MQWFNlng.SMP`, as a template and customize it to suit your needs.

For example, to install all MQ Workflow components in U.S. English, use the sample command file, `MQWFNENU.SMP`, and then customize it. You can customize this file so it typically contains the following:

```
U:\WINDOWS\ENU\SETUP.EXE -s -f1U:\WINDOWS\ENU\MQWFALL.ISS -SMS
```

The entries in this example are explained next.

**Command file parameters:** `SETUP.EXE` is the main file of the installation program. The command file must start with a call to the `SETUP.EXE` file. To do this, you must enter in the command file the fully-qualified file name of the `SETUP.EXE` file that is located on the MQ Workflow installation disk, as follows:

```
x:\WINDOWS\lng\SETUP.EXE
```

where:

*x* Is the drive letter for the CD-ROM drive.

*lng* Is replaced by one of the 3-letter language codes described in “Appendix C. Language settings” on page 195. The 3-letter code chosen depends on the language you want to use.

Installation-specific information is passed to the installation program via command-line parameters. Following is a list of command line parameters that can be used with the SETUP.EXE file. Note that a slash (/) or a dash (-) must precede the command line parameters. The command line parameters are not case-sensitive, that is, uppercase and lowercase letters can be used, except for the **-SMS** parameter, which must be specified in uppercase.

When using long path and file name expressions with parameters, enclose the expressions in double quotation marks. The enclosing double quotation marks indicate that spaces within the quotation marks are not to be treated as the beginning of a new command line parameter.

**Note:** Do not insert a space between command line parameters and options.

**-s** This parameter is mandatory and executes a silent, that is, unattended installation. If you do not specify the **-s** option, you are prompted for any information that is needed to complete the installation.

**-f1**<path\response\_file>

This parameter is mandatory and specifies the location and name of the response file (file extension .ISS). If you use this option when running an unattended installation, replace <path\response\_file> with the fully qualified file name of the response file.

**-r** Causes the SETUP.EXE to generate a silent, that is, unattended installation file (.ISS) automatically that can be used for other installations on other systems. The installation file is a record of the installation input and is saved to the Windows directory on your workstation.

**-SMS** Prevents a network connection and the SETUP.EXE from closing before the installation is complete.

**Note:** Specify **-SMS** in uppercase. This parameter is case-sensitive.

### Sample response file

The `WINDOWS\lng` directory on the MQ Workflow installation CD-ROM contains several sample response files, where *lng* is replaced by one of the 3-letter language codes described in “Appendix C. Language settings” on page 195. The 3-letter code chosen depends on the language you want to use.

The sample response files are:

1. For a Windows NT and Windows 2000 unattended installation:

**MQWFALL.ISS** for installing all MQ Workflow components.

**MQWFCLI.ISS** for installing MQ Workflow Clients

(including Client for Lotus Notes and Lotus Notes Database Templates).

**MQWFMISC.ISS**

for installing the MQ Workflow Administration utility and Runtime Database Utilities.

**MQWFBT.ISS**

for installing MQ Workflow Buildtime and the Runtime Database Utilities.

**MQWFSSVR.ISS**

for installing an MQ Workflow Server and the Administration utility.

**MQWFSP.ISS**

for installing MQ Workflow service packs.

2. For a Windows 95 and Windows 98 unattended installation:

**MQWF95.ISS**

for installing all MQ Workflow Windows 95 and Windows 98 components.

**MQWFSP.ISS**

for installing MQ Workflow service packs.

The format of a response file is similar to that of an INI file and an extension of .ISS is used. A response file is a plain text file and consists of several sections that contain:

**Section names**

These are contained in square brackets as in:

```
[InstallShield Silent]
```

**Data entries**

These follow their section names and consist of <name=value> pairs as in:

```
Dlg0=SdWelcome-0
```

Use the sample response files as templates and customize them to suit your needs for installing the MQ Workflow components on any of the supported Windows based operating platforms.

**Format of a response file:** The response files are split into sections and have a certain format. The sections in a response file must be in the following order:

**1. Silent Header section**

All response files begin with a response file silent header. The format of the silent header is:

```
[InstallShield Silent]  
Version=v5.00.000  
File=Response File
```

This header cannot be changed by the installer.

## 2. Application Header section

The response file application header section allows the installer to identify response files visually. It is not used by the installation. The format of this section is:

```
[Application]
Name=MQSeries Workflow
Version=3.2
Company=IBM
```

## 3. Dialog Sequence Section

The dialog sequence section lists all dialogs you would need to use in a normal installation in the order in which they would appear. The format of this section is:

```
[DlgOrder]
Count=7
Dlg0=SdWelcome-0
Dlg1=SdAskDestPath-0
Dlg2=SdSetupTypeEx-0
Dlg3=SdAskOptionsList-0
Dlg4=SdSelectFolder-0
Dlg5=SdStartCopy-0
Dlg6=SdFinishReboot-0
```

The dialog numbering sequence begins at 0. There is no limit to the number of dialogs you can list.

Count=<number of dialogs> specifies the exact number of dialogs listed in the dialog sequence section.



The order and the number of dialogs is significant. If either the number or the order of the dialogs does not match the order or the number of the dialogs expected by the program, the silent installation fails and the log file records the failure.

## 4. Dialog Data Section

Each dialog specified in the dialog sequence section has its own dialog data section containing the values required by the dialogs. The values listed are the same values that the dialog returns in a normal, user input-driven installation. The dialog data section format is:

```
[<DialogIdentifier>]
Result=value
Keyname1=value
Keyname2=value
```

The following data sections are used by MQ Workflow during silent installation.

**SdWelcome-0**

<b>Result=1</b>	Next Button
<b>SdAskDestPath-0</b>	
<b>Result=1</b>	Next Button
<b>szDir=default</b>	Installation directory for MQSeries Workflow. You can either specify a full path, or use the default.
<b>SdSetupTypeEx-0</b>	
<b>Result=All</b>	All Components

By using Result=All you can choose any combination of components, since this setup type contains all available components of MQ Workflow.



The **SdSetupTypeEx-0** data section is only required by Windows NT and Windows 2000.

<b>SdAskOptionsList-0</b>	
<b>Result=1</b>	Next Button
<b>Component-type=string</b>	Only "string" is currently allowed
<b>Component-count=8</b>	The total number of component selections
<b>Component-&lt;#&gt;=&lt;Component&gt;</b>	The components to be installed (numbering begins with 0). For a list of components see file MQWFALL.ISS.
<b>SdSelectFolder-0</b>	
<b>Result=1</b>	Next Button
<b>szFolder=MQSeries Workflow</b>	Folder Name
<b>SdStartCopy-0</b>	
<b>Result=1</b>	Next Button
<b>SdFinishReboot-0</b>	
<b>Result=1</b>	Finish Button
<b>BootOption=3</b>	Possible values are:
<b>0</b>	Do not restart Windows on the workstation.
<b>3</b>	Restart the workstation.

## Starting the unattended installation

Following are procedures for starting the MQ Workflow unattended installation on workstations running any of the supported Windows based operating platforms.

**Note:** *lng* in the following instructions is replaced by one of the 3-letter language codes described in “Appendix C. Language settings” on page 195. The 3-letter code chosen depends on the language you want to use.

To start the unattended installation, use the sample command file *MQWFNlng.SMP* as follows:

1. Access the drive where the CD-ROM is accessible.
2. Select the response file that you want to use from the *WINDOWS\lng* directory contained on the MQ Workflow installation CD-ROM. If you do not want to use the values set in the selected sample response file, copy it from the directory *WINDOWS\lng* to a directory on your workstation and edit it so that it contains the values and options you want. For details about the various sample response file values and options, see “Sample response file” on page 243.
3. Copy the sample command file *MQWFNlng.SMP* from the directory *WINDOWS\lng* on your MQ Workflow installation CD-ROM to a directory on your workstation, for example, *C:\TEMP*.
4. Rename the copied sample command file *MQWFNlng.SMP* to *MQWFlng.BAT*.
5. Edit the *MQWFlng.BAT* file. This file must contain the various parameters that are required for the installation. For details about the various sample command file parameters, see “Sample command files” on page 242.
6. From the directory that contains the new batch file *MQWFlng.BAT*, start the installation by executing the new batch file *MQWFlng.BAT*.

The installation runs through a sequence of events that takes some time to finish.

7. When the installation has finished, open the log file, *SETUP.LOG*, created on your workstation in the Windows system directory, *WINDOWS\SYSTEM32*. Check the end of the file for the result code that states whether the unattended installation has been successful or not. The result code should be 0. If a result code other than 0 appears, contact IBM. The following is a list of possible result codes:

Result Code	Description
0	Success
1	General error
2	Invalid mode

Result Code	Description
3	Required data not found in the SETUP.ISS file
4	Not enough memory available
5	File does not exist
6	Cannot write to the response file
7	Unable to write to the log file
8	Invalid path to the InstallShield silent response file
9	Not a valid list type (string or number)
10	Data type is invalid
11	Unknown error during setup
12	Dialogs are out of order
51	Cannot create the specified folder
52	Cannot access the specified file or folder
53	Invalid option selected



If an error occurs during installation, the unattended installation terminates. Since messages cannot be displayed, the messages are stored in the file FMCSETUP.LOG. The file is either located in the directory specified by the environment variable TEMP or in the subdirectory LOG of the MQ Workflow installation directory.

- If specified in the response file, your workstation automatically reboots after installation has finished.

## Unattended installation on OS/2 Warp

Command and response files are used to run unattended installation on OS/2 Warp. Before you start the unattended installation you must prepare MQ Workflow command and response files to suit your needs.

The following describes the command and response files and the parameters that you can use to prepare these files.

### Sample command file

The `OS2\lng` directory on the MQ Workflow installation disk contains the sample command file `MQWF0lng.SMP`, where `lng` is replaced by one of the 3-letter language codes described in “Appendix C. Language settings” on page 195. The 3-letter code chosen depends on the language you want to use.

Use the sample command file, `MQWF0lng.SMP`, as a template and customize it to suit your needs.

For example, to install all MQ Workflow components in U.S. English, use the sample command file, `MQWFOENU.SMP`, and then customize it. You can customize this file so it typically contains the following:



```
U:\OS2\ENU\INSTALL.EXE /A:I /O:DRIVE /R:U:\OS2\ENU\MQWFALL.RSP /S:U:\OS2\ENU
/T:D:\FMCOS2 /L1:C:\TEMP\FMCINST.LOG /L2:C:\TEMP\FMCHIST.LOG /X
```

The entries in this example are explained next.

**Command file parameters:** INSTALL.EXE is the main file of the installation program. The command file must start with a call to the INSTALL.EXE file. To do this, you must enter in the command file the fully-qualified file name of the INSTALL.EXE file that is located on the MQ Workflow installation disk, as follows:

```
x:\OS2\lng\INSTALL.EXE
```

where:

*x* Is the drive letter for the CD-ROM drive.

*lng* Is replaced by one of the 3-letter language codes described in “Appendix C. Language settings” on page 195. The 3-letter code chosen depends on the language you want to use.

Installation-specific information is passed to the installation program via command-line parameters. The following are **required** parameters that must be included in the command file after the call to the INSTALL.EXE file for an unattended installation:

**/A:**<action>

Specifies the action to be performed. Replace <action> with one of the following values:

**D** for delete

**I** for install

**R** for restore

**U** for update (required when installing the MQ Workflow service pack)

For example, to perform an unattended installation, use **/A:I**

**/O:**<source environment>

Specifies the source environment of the installation. Replace <source environment> with one of the following values:

**DRIVE** if you are installing from a drive on a workstation

**MVS** if you are installing from an MVS system

**VM** if you are installing from a VM system

**VSE** if you are installing from a VSE system

**/R:***<response file>*

Specifies the location of the response file. Replace *<response file>* with the fully qualified file name to the response file. If you specify only the file name of the response file, the following search order is used to find it:

1. The fully qualified file specification
2. The current directory
3. The file name together with the /G: invocation parameter
4. Each directory in the PATH environment variable
5. Each directory in the DPATH environment variable

For example, to specify the location of the English version of the response file on your E drive, use **/R:E:\OS2\ENU\MQWFALL.RSP**

**/S:***<source location>*

Specifies the location of the installation source files. Replace *<source location>* with the drive and directory that contain the installation source files. To specify this location, use **/S:x:\OS2\lng**.

where:

*x* Is the drive letter for the CD-ROM drive.

*lng* Is replaced by one of the 3-letter language codes described in "Appendix C. Language settings" on page 195. The 3-letter code chosen depends on the language you want to use.

**/T:***<install target directory>*

Specifies where you want the product files to be installed. Replace *<install target directory>* with the target drive and directory names for installation. For example, to install MQ Workflow in the directory D:\FMCOS2, use **/T:D:\FMCOS2**

**/X** Specifies that you are performing an unattended installation, that is, the installation is non-interactive. When you specify this option, no indication of the progress is shown on screen. If you do not specify all of the information needed for the installation to complete in the command and response files, errors occur. By specifying this option, not even error messages are displayed on the screen, but are instead logged in the default error log file, EPFINSTS.OUT. You can give the error log file a name other than the default and specify its location by using the **/L1** parameter.

If you do not specify the **/X** option, you are prompted for any information that the installation and maintenance utility needs to

complete the installation. In the interactive mode, progress indication is shown and error messages are displayed to the user in secondary windows.

The following are **optional** parameters that can be included in the command file for an unattended installation:

**/L1:***<error log>*

Specifies the desired location of the error log file. Replace *<error log>* with a fully qualified file name that specifies where you want the error log to be created. The installation and maintenance utility sets the EPFIERRORLOG installation variable to the name you set for *<error log>*. If you do not specify drive and directory names for the error log, the drive and directory where INSTALL.EXE is running is used. If you do not specify a name for the error log, errors are logged to the default error log file, EPFINSTS.OUT.

For example, to log all errors to the file FMCINST.LOG that is located in the directory C:\TEMP, use **/L1:C:\TEMP\FMCINST.LOG**

**/L2:***<history log>*

Specifies the desired location of the history log file. Replace *<history log>* with a fully qualified file name that specifies where you want the history log to be created. If you do not specify drive and directory names for the history log, the drive and directory where INSTALL.EXE is running is used. If you do not specify a name for the history log, no history log is created. The history log is a record of events that occur during the installation process.

For example, to log all events to the file FMCHIST.LOG that is located in the directory C:\TEMP, use **/L2:C:\TEMP\FMCHIST.LOG**

**/TU:***<update target CONFIG.SYS directory>*

Specifies the location of the CONFIG.SYS file and allows the installation program to update it. Replace *<update target CONFIG.SYS directory>* with the fully qualified path name to the CONFIG.SYS file. If you do not specify the drive and directory names, the default C:\ is used.

For example, to update the CONFIG.SYS file located in the root directory D:\, use **/TU:D:\**

### **Sample response file**

The 0S2\lng directory on the MQ Workflow installation CD-ROM contains the sample response file MQWFALL.RSP, where *lng* is replaced by one of the 3-letter language codes described in “Appendix C. Language settings” on page 195. The 3-letter code chosen depends on the language you want to use.

The response file is a plain text file that contains:

### Comment lines

These are lines that contain only white-space characters (blanks and nulls), or have an asterisk (\*) or a semicolon (;) as the first non-white-space character on the line.

### Response lines

These are lines that are used by the installation program to determine which selections and settings to install on the workstation. Response lines contain keywords and their values and are explained in the following.

**Syntax conventions for response files:** The response file uses the following syntax conventions:

1. Lines have a maximum length of 255 bytes.
2. Each keyword cannot contain imbedded spaces.
3. Keywords are not case-sensitive.
4. Keyword-value pairs can appear in any order.
5. Each keyword-value pair must appear on a separate line.

**Keywords used in response files:** The following lists and explains the keywords you can specify in response files.

**Note:** Do not use quotation marks around the values set for keywords (even if the value is more than one word with blanks between the words).

**CFGUPDATE** Specifies whether the CONFIG.SYS file is to be automatically updated. Valid values for this keyword are:

**AUTO** Automatically update the CONFIG.SYS file.  
**MANUAL** Do not update the CONFIG.SYS file.

**COMP** Specifies which components you want to install. To view the list of valid component names that can be installed for a particular language, open the sample response file, MQWFALL.RSP, contained in the directory OS2/*lng*, where *lng* is replaced by one of the 3-letter language codes described in "Appendix C. Language settings" on page 195.

### DELETEBACKUP

Specifies whether to delete backup versions of MQ Workflow. Valid values for this keyword are:

**YES** Deletes existing backup versions  
**NO** Does not delete existing backup versions

**FILE** Specifies the target installation directory. This is only needed if

the Action Code within the command file is '/A:I'. Any valid drive and directory name can be used as the value for this keyword.

**OVERWRITE** Specifies whether to automatically overwrite files during installation. Valid values for this keyword are:

**YES** Overwrites files during installation.

**NO** Does not overwrite files during installation.

**SAVEBACKUP**

Specifies whether to save a backup version of MQ Workflow components when they are updated. Valid values for this keyword are:

**YES** Saves a backup version.

**NO** No backup version is saved.

Use the sample response file as a template and customize it to suit your needs for installing the MQ Workflow components on OS/2 Warp.

**Starting the unattended installation**

Following are procedures for starting the MQ Workflow unattended installation on an OS/2 Warp workstation.

**Note:** *lng* in the following instructions is replaced by one of the 3-letter language codes described in "Appendix C. Language settings" on page 195. The 3-letter code chosen depends on the language you want to use.

To start the unattended installation, use the sample command file *MQWFOlng.SMP* as follows:

1. Access the drive where the MQ Workflow installation CD-ROM disk is located.
2. If you do not want to use the values set in the sample response file, *MQWFALL.RSP*, copy it from the directory *OS2\lng* on your MQ Workflow installation CD-ROM to a directory on your workstation and edit it so that it contains the values and options you want. For details about the various sample response file values and options, see "Sample response file" on page 251.
3. Copy the sample command file *MQWFOlng.SMP* from the directory *OS2\lng* on your MQ Workflow installation CD-ROM to a directory on your workstation, for example, *C:\TEMP*.
4. Rename the copied file *MQWFOlng.SMP* to *MQWFlng.BAT*.

5. Edit the `MQWFlnq.BAT` file. This file must contain the various parameters that are required for the installation. For details about the various sample command file parameters, see “Sample command file” on page 248.
6. From the directory that contains the new batch file `MQWFlnq.BAT`, start the installation by executing the new batch file `MQWFlnq.BAT`.  
The installation runs through a sequence of events that takes some time to finish.
7. When the installation has finished, open the error log created on your workstation and check the end of the file for a statement that indicates whether the unattended installation has been successful or not. The location of the error log depends on whether or not you specified a value for the `<error log>` variable in the `/L1:` option as explained on page 251.
8. Shut down and restart your workstation.

---

## Unattended configuration on UNIX, Windows, and OS/2

After you have installed MQ Workflow on your workstation, you must create a configuration before you can use it.

On OS/2 Warp or any of the supported Windows based operating platforms, MQ Workflow can be configured using the interactive configuration utility, as explained in “Chapter 12. Configuring MQ Workflow on Windows” on page 97. On UNIX platforms, you can use the configuration utility described in “Chapter 7. Configuring on UNIX” on page 59.

After using the configuration utility to configure MQ Workflow, a configuration data file is created which can then be used to run the unattended configuration on workstations where MQ Workflow is installed.

### The configuration data file

After using the configuration utility to configure MQ Workflow, the data file `fmczkcfg.dat` is created. This file contains information about your configuration and is located on your workstation in the subdirectory:

#### On UNIX:

`<ConfigurationRootDirectory>/cfigs/<cfgID>`

#### On Windows and OS/2:

`<ConfigurationRootDirectory>\cfigs\<cfgID>`

where:

`<ConfigurationRootDirectory>`

is the configuration root directory specified in the installation profile.

<cfgID> is the configuration identifier specified during configuration.  
The default is **FMC**.

For example, for Windows NT, the default location for this file is: c:\Program Files\MQSeries Workflow\cfgs\FMC.

The file is made up of a set of lines containing "key=value" pairs. For a description of the keys see "Appendix B. MQ Workflow variables" on page 159.

A sample data file for a client configuration on Windows is shown below:

```
ConfigurationId=FMC
ConfiguredComponents=AR
FMLClientChannelTable=C:\Program Files\MQSeries Workflow\chl\tabs\MQWFCHL.TAB
FMLConnectName=FMC.FMCGRP.FMCSYS,FMCQM
FMLSegmentation=0
MQPrefix=FMC
MQQueueManager=FMCQM
RTIconDirectory=C:\Program Files\MQSeries Workflow\bin\iconinst
System=FMCSYS
SystemGroup=FMCGRP
```

This file can be used as input file to start the unattended configuration on workstations where you have installed MQ Workflow. The contents of the configuration data file are used as input for the configuration. This is especially useful to create client configurations. It can also be used to configure other components.

## The unattended configuration utility

After configuring MQ Workflow with the configuration utility, you can run an unattended configuration on additional workstations where MQ Workflow has been installed but not yet configured.

The unattended configuration utility can be used to:

1. Create a configuration based on a configuration data file.
2. Delete a configuration.
3. List the configurations defined on your workstation.
4. Generate a datafile based on an existing configuration.
5. Generate a default configuration data file.

To invoke the unattended configuration, enter the command with the appropriate options:

```
fmczkcfg -o:<Action> -y:<cfgID> -c:<Comps> -f<I/PFile> -p<user:password> -n
```

Where:

- o:<Action>** Action to be performed by the unattended configuration utility:
- c** Create a configuration.
 

**Note:** The configuration must not exist on the workstation.
  - d** Delete the configuration. This does not delete databases and queue managers.
 

**Note:** The configuration must exist on the workstation.
  - l** List all configurations defined on your workstation.
  - p** If you specified an existing configuration identifier, a configuration data file will be generated that reflects the variables set for this configuration. The configuration data file specified must not exist.
 

If you specified '\*' as the configuration identifier, a configuration data file will be generated that reflects the default settings for a new configuration. If the configuration data file exists, it will be used to overwrite the system defined default values for the keys set in the configuration data file.

**Note:** The defaults for some variables are derived from values of other variables.
- y:<cfgID>** If action 'l' (list) is selected, this option is ignored.
- If action 'c' (create) is selected, the configuration must not exist on your workstation.
- If action 'd' (delete) is selected, the configuration must exist on your workstation.
- If action 'p' (print) is selected, the configuration must exist on your workstation or (to print default values) it must have the value '\*'.
- c:<Comps>** Component to be configured.
- If action 'l' (list) or 'd' (delete) is selected, this option is ignored.
- To configure a component, it must be installed on your workstation. The following are the supported components that can be configured using the unattended configuration utility:



<b>A</b>	API Runtime Libraries
<b>B</b>	Buildtime <sup>1</sup>
<b>C</b>	Java CORBA Agent <sup>2</sup>
<b>I</b>	Runtime Database Utilities
<b>R</b>	Runtime Client <sup>1</sup>
<b>S</b>	Server <sup>3</sup>
<b>U</b>	Administration Utility

**Notes:**

1. Not available for UNIX and OS/2 Warp.
2. Not available for HP-UX.
3. Not available for Windows 98/95.

If this option is not specified, the value for the components to be configured will be retrieved from the key 'ConfiguredComponents' in the configuration data file.

**-f:**<ConfigurationDataFile>

If action 'c' (create) is selected, the configuration data file must exist. It contains input data ('key=value' pairs) used to create the configuration.

If action 'p' (print) is selected, *and an existing configuration is specified*, the configuration data file must not exist. Variables defined for the specified configuration will be written to the configuration data file.

If action 'p' (print) is selected, and '\*' is specified as the configuration identifier, the configuration data file will be used as input and output file. If it already exists, input data ('key=value' pairs) will be read. The configuration data file will be created or updated and will contain all default values for the set of components specified by option '-c' or the key 'ConfiguredComponents' in the configuration data file.

If action 'l' (list) or 'd' (delete) is selected, this option is ignored.

For more information about the configuration data file see "The configuration data file" on page 254.

**-p:**<user:password>

This option is only used, if action 'c' (create) is selected, and one or more of the following components are included in the configuration:

<b>B</b>	Buildtime <sup>1</sup>
----------	------------------------

**I** Runtime Database Utilities  
**S** Server<sup>3</sup>

Passwords will not be written to the configuration data file using the **'-p'** (print) action nor will they be retrieved from the configuration data file. Therefore they have to be provided with the option **'-p'** in the form of user:password pairs.

Keys in the configuration that require an associated password are:

- BTDatabaseUserID (default: not set)
- RTDatabaseUserID (default: fmc)
- RTDatabaseAdministratorUserID (default: fmc)
- RTDatabaseWorkflowUser (default: ADMIN)
- MQTransactionCoordinator (default: fmc)

If more than one password has to be provided, the user:password pairs can be passed by providing the option **'-p'** multiple times (for example, **-p:uid1:pwd1 -p:uid2:pwd2**). Alternatively the user:password pairs can be separated by a comma (',') (for example, **-p:uid1:pwd1,uid2:pwd2**).

**-n** Do not prompt for missing data.

### **Unattended configuration utility examples**

The following sections provide example uses of the unattended configuration utility:

**To display a list of all configurations defined on your workstation:** Enter the command:

```
fmczkcfg -o:l
```

**To print the values of an existing configuration 'FMC':** Enter the command:

```
fmczkcfg -o:p -y:FMC -f:fmc.dat
```

**To print the default values for a configuration including the runtime client component:** Enter the command:

```
fmczkcfg -o:p -y:* -f:dftcli.dat -c:AR
```

**Note:** It is recommended to provide values for system group, system, queue manager and queue prefix to ensure that they match with the values set on the server.

*Sample contents of dftcli.dat:*

```
SystemGroup=MYGRP
System=MYSYS
MQQueueManager=MYQM
MQPrefix=FMC
```

Alternatively you could use the configuration data file from the server configuration to create the client configurations.

**To print the default values for a configuration including the server component:** Enter the command:

```
fmczkcfg -o:p -y:* -f:dftsrv.dat -c:S
```

**Note:** If you want to configure an additional system within an existing system group, it is recommended to provide the values for system group, system, queue manager and queue prefix to ensure their correctness; the system group must be identical to the one defined in the Runtime database; system and queue manager must not be configured on other workstations. The value for CreateRuntimeDatabase must be set to '0'.

*Sample contents of dftsrv.dat:*

```
SystemGroup=MYGRP
System=MYSYS2
MQQueueManager=MYQM2
MQPrefix=FMC
CreateRuntimeDatabase=0
```

**To run an unattended configuration on a workstation and create an MQ Workflow client configuration 'CLI':** Enter the command:

```
fmczkcfg -o:c -y:CLI -f:cli.dat -c:AR
```

**To run an unattended configuration on a workstation and create an MQ Workflow server configuration with configuration identifier 'SVR' using 'svr' with the password 'svrpwd' as the Runtime database user ID and 'xaid' with the password 'xapwd' as the transaction coordinator user ID:** Enter the command:

```
fmczkcfg -o:c -y:SRV -f:srv.dat -c:S -p:svr:svrpwd,xaid:xapwd
```

**Note:** The input file 'srv.dat' must contain at least the following lines:

```
RTDatabaseUserID=svr
MQTransactionCoordinator=xaid
```



---

## Appendix J. Preparing and administering the Lotus Notes database templates

This chapter describes how to prepare and administer the Lotus Notes database templates for use with the MQ Workflow Client for Lotus Notes on either OS/2 Warp or any of the Windows based operating systems.

---

### Installing the client components for Lotus Notes

The installation of the client components consists of these parts:

- Installing the MQ Workflow Client for Lotus Notes
- Installing the Lotus Notes database templates
- Administrating the databases

### Installing the MQ Workflow Client for Lotus Notes

The client is installed by selecting **Client for Lotus Notes** during the installation. For details on how to install the client, see “Chapter 15. Installing on OS/2 Warp” on page 139 and “Chapter 11. Installing on Windows” on page 95.

**Note:** The MQ Workflow Client for Lotus Notes must be installed on the workstations of the Lotus Notes administrator and all users.

### Installing the Lotus Notes database templates

You should be a Lotus Notes administrator to install the database templates on your workstation and then:

1. Customize the installation according to your organization’s needs
2. Provide the MQ Workflow Client for Lotus Notes users with their own database

During the MQ Workflow installation, select the component **Lotus Notes database templates** to install the following parts:

1. Database templates:
  - a. Client database template, stored as FMC4Rxxx.NTF. This database template comprises the client functions for Lotus Notes equivalent to the functions of the Standard Client of MQ Workflow.
  - b. Client sample database template, stored as FMC4Sxxx.NTF, containing additional examples. These examples demonstrate how you can implement MQ Workflow activities in Lotus Notes and how you can extend the standard functions offered by the Standard Client.

Where *xxx* represents the language code as listed in “Language settings for OS/2 Warp and Windows” on page 197.

2. External LotusScript files:
  - a. General Notes functions, stored as EXMP4API.LSS
  - b. Error return codes, stored as EXMP4ARC.LSS

These parts are stored in the directory: `\FMC\LNC` where *FMC* is the installation directory that you specified during the MQ Workflow installation.

The database names for the database templates on the MQ Workflow CD-ROM are **IBM MQSeries Workflow V3R2** and **IBM MQSeries Workflow (Sample)**.

To prepare the MQ Workflow Client for Lotus Notes so that it can be accessed from the Lotus Notes environment, proceed as follows:

1. Copy the database templates into the Lotus Notes data directory, which is usually: `x:\NOTES\DATA` where *x* is the drive letter.
2. Copy the external LotusScript files into the Lotus Notes directory, which is usually: `x:\NOTES` where *x* is the drive letter.

---

## Administrating the database templates

The following steps describe the tasks a Lotus Notes administrator must do to make the MQ Workflow Client for Lotus Notes available to the users.

You can use the sample database template as a basis for the databases that you distribute to your users. The database template is the equivalent to the MQ Workflow Client, whereas the sample database template contains a sample application for a credit request solution. For details on the sample application and options for customizing a database template, see the *IBM MQSeries Workflow: Programming Guide*.

To prepare the sample database template for distribution to the users, follow these steps:

1. Make sure that the database template `FMC4Rxxx.NTF` is in the Lotus Notes data directory.
2. Make sure that the sample database template `FMC4Sxxx.NTF` is in the Lotus Notes data directory.
3. Make sure that the external LotusScript files are in the Lotus Notes directory.
4. Add the database templates to your Lotus Notes workspace:  
Select **File -> Database -> Open** and select the name of the database template that you want to add in the `Filename` field.

5. If you plan to customize one of the templates:
  - a. Select the database.
  - b. Make a copy on your workstation using Lotus Notes **File - Database - New Copy**.
  - c. Make sure **Database design and documents** is selected.
  - d. Make sure **Access Control List** is selected.
  - e. Customize it to your organization's needs and specifications, that is, for example, access control list (ACL), forms, and views.
6. Make sure that the ACL is correct for your installation. The access level of the -Default- group and of the database manager is copied to the database to be used by the user.

Consider the following security aspects:

- For the -Default- group the access level should be **No Access**. Only authorized users should have access to the databases.
  - When databases are created from the template by the database administrator, the administrator becomes manager of the resulting databases. This can be a security problem.
  - To ensure regular design refreshes, the Local Domain server name should be part of the ACL for the template.
  - When you select **Distribute MQSeries Workflow Template**, the user name will be added automatically to the ACL with **Editor** access.
7. Test your changes to be sure to have a sound environment.
  8. Install the resulting database templates on the Lotus Notes server.
  9. Install the external LotusScript files on the Lotus Notes server.
  10. Create a database for each of your Notes Client users. You can use the **Distribute MQSeries Workflow Template** function (see "Creating databases from the database template") to perform this task.
  11. Users must add the database to their Notes workspace.
  12. Make sure that the MQ Workflow Client for Lotus Notes is installed on the workstation of the user (see "Installing the MQ Workflow Client for Lotus Notes" on page 261).

### Creating databases from the database template

The database administrator can automatically create databases from either of the database templates for a user or a group of users in the following way:

1. Select the database template you want to use.
2. In the Lotus Notes Menu select **Actions** and then **Distribute MQSeries Workflow Template**.
3. You are prompted to enter:
  - a. The name of the server where you want to create one or more databases. The server where the template resides is displayed as

default, which is usually the Lotus Notes server. If you leave the field empty, the databases are created on your local workstation.

- b. A directory name for the resulting databases, which is added as subdirectory to the Lotus Notes data directory. The default subdirectory is `fmc`. If you leave the field empty, the databases are stored in the Lotus Notes data directory.
  - c. A user or group name. The Lotus Notes address books can be used to select a group or user name. If you enter a user name manually, it need not be in an address book. However, when you specify a group, the address books of the current session are used to find the members of the group. Make sure that the user names are consistent with the names in the ACL of the server. This is especially important when you use hierarchical names.
4. Select the **Create Database(s)** button:
- a. A database is created from the database template for the specified user or all users of the specified group.
  - b. You are prompted to confirm the database creation for each user so that you can exclude database creation for individual members of the group.
  - c. The database name is the one you specified as name for the template. If no name is specified, the default names are used:  
**IBM MQSeries Workflow V3R2** or  
**IBM MQSeries Workflow (Sample)**  
with a suffix of **for name**, where *name* represents the user's first initial and the last name to distinguish the databases.
  - d. The database file name is *shortuser.NSF*, where *shortuser* consists of the first letter of the first name and the first seven letters of the last name of the user.
  - e. The user is added to the ACL list with **Editor** access. The name that is added corresponds to the user name for which you were prompted in step 3 on page 263. If you created databases for a group, the user names correspond to those entered in the address book as members of the group.
  - f. All documents you may have created are copied to the new database.



## Appendix K. Migrating from a previous release

This appendix contains information and procedures for migrating from MQ Workflow Version 3.1.2 and higher to Version 3.2.2.

If you want to use Buildtime and Runtime data from your existing MQ Workflow installation with the new release of MQ Workflow, you need to migrate the databases **before** installing the new release.

Table 63 shows which actions you must perform if you want to use your existing MQ Workflow profile, Runtime, and Buildtime data. Upgrading from MQ Workflow Version 3.1.2 also requires that you install MQSeries Version 5.1.

Table 63. Required migration actions

Step	Action	Your current version		
		3.1.2	3.2.0	3.2.1
1	Export Buildtime data <sup>5</sup>	●	●	● <sup>1</sup>
2	Back-up Runtime data <sup>5</sup>	●	●	●
3	Migrate profile to V3.2	●		
4	Migrate the Runtime database	●	●	●
5	Migrate the Buildtime database	●	●	<sup>1</sup>
6	Upgrade queue manager to V5.1 with CSD 4	●	● <sup>2</sup>	● <sup>3</sup>
7	Install MQSeries Workflow 3.2.2	●	●	●
8	Change UNIX permissions	●	●	●
9	Import Buildtime data	●	●	<sup>1</sup>
10	Migrate the queue manager	●	●	●
11	Verify migration	4	4	4

### Notes:

1. Your Buildtime database for Version 3.2.1 does not require migration to work with Version 3.2.2.
2. Not required for Sun Solaris.
3. Required only if your MQSeries installation is not with CSD level 4.
4. Verification is optional, but it is strongly recommended.

5. These steps are not described in this manual, for details how to perform these steps, see the appropriate Buildtime and DB2 documentation.

Most of these actions are described in the following sections:

- “MQ Workflow profile migration from Version 3.1.2 to Version 3.2.0”
- “Runtime database migration from Version 3.1.2 or higher to Version 3.2.2” on page 267
- “How to migrate the Buildtime database” on page 270
- “How to upgrade MQSeries to Version 5.1 with CSD level 4” on page 270
- “Install MQ Workflow” on page 271
- “Changing directory and file permissions for Version 3.2.2 on UNIX” on page 271
- “Queue manager migration from Version 3.1.2 or higher to Version 3.2.2” on page 271
- “Migration verification” on page 272

---

## MQ Workflow profile migration from Version 3.1.2 to Version 3.2.0

If you are currently working with MQ Workflow Version 3.1.2, you must migrate the MQ Workflow profile before you can migrate the Runtime database. The profile settings for MQ Workflow Version 3.2.0 and above do not need to be migrated.

To migrate the MQ Workflow profile from Version 3.1.2 to Version 3.2.0:

1. Insert the MQ Workflow installation disk into the CD-ROM drive.
2. Change to the directory on the MQ Workflow installation disk for your operating system:

**For AIX:** `cd x/mig312_320/aix`

**For OS2:** `cd x:\OS2`

**For Windows:** `cd x:\WINDOWS`

where *x* is the drive letter or mount point of the CD-ROM drive.

3. From the command prompt, migrate the MQ Workflow profile by entering the following command:

On AIX: **fmczp320.aix**

On Windows and OS/2: **fmczp320**

The MQ Workflow profile migration starts. This may take a few minutes.

4. When control has passed back to the command prompt, the MQ Workflow profile migration is complete.

---

## Runtime database migration from Version 3.1.2 or higher to Version 3.2.2

If you have already migrated the MQ Workflow profile from MQ Workflow Version 3.1.2 to Version 3.2.0, as previously explained, or you are currently running MQ Workflow Version 3.2.0 or higher, and want to use Runtime data with the new release of MQ Workflow, you must perform the steps given in this section.



**Warning:** If you migrate from Version 3.1.2, all persistent lists will be deleted. A private or public persistent list can be a process template list, a process instance list, or a worklist. If you want to recreate the lists after migration, make sure that you have the filter specification, because after migration they will be deleted in the Runtime database. You can get the filter properties using the Runtime client or API.

To migrate the Runtime database from your current MQ Workflow version to Version 3.2.2 you must perform the following:

1. Make sure that all MQ Workflow Servers are shut down.
2. Back up the existing Runtime database data.



Although this step is not imperative, it is recommended that you back up your Runtime database before performing the migration in case problems occur and you need to restore it again. Details about how to back up a database are given in the DB2 Administration Guide.

3. Log on as the MQ Workflow configuration administrator.
4. At a command prompt, create a temporary directory called **temp322** on your workstation.
5. Change to the directory **temp322** you created.
6. Insert the MQ Workflow installation disk into the CD-ROM drive.
7. Copy all the files for your operating system from the MQ Workflow installation disk to the directory **temp322** you created on your workstation by entering:

<b>For AIX:</b>	<code>tar -xvf x/mig_322/aix/*</code>
<b>For HP-UX:</b>	<code>tar -xvf x/mig_322/hpux/*</code>
<b>For Sun Solaris:</b>	<code>tar -xvf x/mig_322/solaris/*</code>
<b>For Windows NT:</b>	<code>COPY x:\MIG_322\WINDOWS\*.*</code>
<b>For OS2:</b>	<code>COPY x:\MIG_322\OS2\*.*</code>

where *x* is the drive letter for the CD-ROM drive.

8. From the temporary directory **temp322**, invoke the command-line migration tool by entering the following command and options:  
**fmczm322 [-h] [-d] [-i] [-c] [-b] [-n <DB\_Name>] [-u <UserID> -p <Pword>] [-y <cfgID>]**

**Note:** This command and the command-line options are described in “Runtime database migration tool”.

For example, if your existing Runtime database is called FMCDB, no user ID and password are required to access it, and the MQ Workflow configuration is identified by the default configuration ID, then the command to migrate the Runtime database from your current version to Version 3.2.2 would be:

```
fmczm322 -d -c -b -n FMCDB
```

9. When you see the following message:

Database migration completed successfully.

The migration of your Runtime data is complete, and you can delete the temporary directory **temp322**, and its contents.



If errors occur during the migration process, restore the Runtime database data you backed up and repeat the migration procedure. How to restore backed-up data is described in the DB2 Administration Guide.

If persistent errors exist, you should check the log files (\*.log) contained in the temporary directory **temp322** to find the cause.

10. You must make sure that the DB2 heap size parameter **applheapsz** is large enough. To set the heap size to the suggested value of **512** for the database **FMCDB**:
  - a. Log on with a user ID that has DB2 administration rights, for example, **fmc** or **db2inst1**
  - b. Enter:

```
db2 get db cfg for FMCDB
db2 update db cfg for FMCDB using applheapsz 512
```

## Runtime database migration tool

The command-line migration tool **fmczm322** is used to migrate the Runtime database. To invoke the migration tool, the migration command is used followed by the appropriate options as follows:

```
fmczm322 [-h] [-d] [-i] [-c] [-b] [-n <DB_Name>] [-u <UserID> -p <Pword>] [-y <cfgID>]
```

**Note:** The command-line options are entered after the migration command without the square brackets, [ ]. The order in which command-line parameters are entered depends on whether you enter them all together after the command or one at a time. If you enter them all together after the command, the order is not important. If you want to enter them one at a time, you must first perform the schema changes using option **-d**. Then perform data preparation using option **-c** or binding using option **-b** in any order.

The command-line parameters have the following functions:

- h** Invokes online help text that displays and describes all command-line options and the migration tool command.
- i** Reports information about the version of the Runtime database and about the current migration state.
- d** Changes the schema of the Runtime database. The layout and underlying processes of the existing database must be prepared for the next Version of MQ Workflow.
- c** Prepares existing Runtime data. The data contained in the existing Runtime database must be prepared for the next Version of MQ Workflow.
- b** Causes the new packages for Version 3.2.2 to be bound to the Runtime database. New packages must be bound to the Version 3.2.2 Runtime database.
- n <DB\_Name>**  
Specifies which database to migrate. Replace **<DB\_Name>** with the name of the database you want to perform the migration on. If this command-line parameter is not specified, the database name from the MQ Workflow profile is used instead.
- u <UserID>**  
Specifies the user ID used to access the database. Replace **<UserID>** with a valid user ID. If no user ID is specified, access to the database is tried without user ID and password values.
- p <Pword>**  
Specifies the password used access the database. Replace **<Pword>** with a valid password value. The password is only valid when a user ID has been previously specified. If no password is specified, access to the database is tried without a password value.
- y <cfgID>**  
Specifies the configuration ID that is set during the MQ Workflow

configuration stage and which is used to identify an MQ Workflow configuration. If no configuration ID is specified, the default value is used.

For example, to migrate the Runtime database to Version 3.2.2, use the migration command with command-line options as follows:

```
fmczm322 -d -c -b -n FMCDB
```

This assumes your existing Runtime database is called FMCDB, no user ID and password are required to access it, and the MQ Workflow configuration is identified by the default configuration ID.

---

## How to migrate the Buildtime database

To be able to use an existing MQ Workflow Buildtime database, from a version lower than Version 3.2.1, with the new release of MQ Workflow, you must migrate the Buildtime database as described below. Buildtime data from Version 3.2.1 does not need to be migrated.

1. Before you install the new release of MQ Workflow, export your Buildtime data. How to do this is described under "Exporting from Buildtime" in the *IBM MQSeries Workflow: Getting Started with Buildtime* manual.
2. Install and configure the new release of MQ Workflow as described in this book.
3. Import the FDL file that is produced from step 1. How to do this is described under "Importing into Buildtime" in the *IBM MQSeries Workflow: Getting Started with Buildtime* manual.

You can now use your MQ Workflow model data in the new release of MQ Workflow.

---

## How to upgrade MQSeries to Version 5.1 with CSD level 4

Queue managers from your existing MQ Workflow installation must be upgraded so that they can be used with the new release of MQ Workflow.

If you already have MQSeries Version 5.1 installed, you must make sure that it is with CSD level 4.

To upgrade the existing queue managers from a version below Version 5.1, you must install MQSeries Version 5.1 over your existing version.

**Note:** The MQSeries CD-ROM that comes as part of the MQ Workflow package is already with CSD level 4.

The chapters contained in “Part 2. Planning your MQ Workflow setup” on page 11 contain details about MQSeries and the MQSeries components you must install. Details about how to install MQSeries are contained in the *Quick Beginnings* online manual selected from the **start.htm** file on the MQSeries CD-ROM that comes as part of the MQ Workflow package.

---

## Install MQ Workflow

If you are following these instructions sequentially, this is the correct time to install the new version of MQ Workflow according to the instructions for your platform:

1. “Installing MQ Workflow on AIX” on page 53
2. “Installing MQ Workflow on HP-UX” on page 56
3. “Installing MQ Workflow on Sun Solaris” on page 57
4. “Chapter 11. Installing on Windows” on page 95
5. “Chapter 15. Installing on OS/2 Warp” on page 139

---

## Changing directory and file permissions for Version 3.2.2 on UNIX

Due to the changed security concept implemented for MQSeries Workflow Version 3.2.2 some ownerships and access rights for directories and files have to be changed. On UNIX platforms, you must do this by entering the command:

```
fmczinsx -o mig
```

---

## Queue manager migration from Version 3.1.2 or higher to Version 3.2.2

Migrating the existing queue managers creates additional queue definitions required by the new release of MQ Workflow. This will be done by recreating and executing the MQSeries definitions for the queue manager based on the template files in the subdirectory “mqz”.

### Queue manager migration tool

The command-line migration tool **fmczq322** is used to migrate queue managers defined for MQ Workflow configurations. To invoke the migration tool, the migration command is used followed by the appropriate options as follows:

```
fmczq322 [-y <cfgID>]
```

You can perform queue manager migration for a single configuration by specifying the ‘-y’ parameter and the configuration identifier. If you omit the ‘-y’ parameter all queue managers used by MQSeries Workflow will be migrated.

**Note:** On UNIX the executing user of that command must have update authority to the configuration profile, and must be a member of group "mqm"

If you are migrating from MQSeries Workflow Version 3.1.2 you will be prompted for the following data:

- Principal name.
- Cluster name.
- Repository type (first/additional).

If the queue manager is an additional one in the cluster, you will also be prompted for data concerning the primary queue manager:

- Queue manager name.
- TCP/IP address.
- TCP/IP port number.
- Principal name.

For more information see "Entering queue manager information for a server" on page 68.

---

## Migration verification

After performing all necessary migration steps, it is recommended that you verify your system as described for your platform:

- "Chapter 8. Verifying an MQ Workflow server on UNIX" on page 75
- "Chapter 13. Verifying MQ Workflow on Windows" on page 125
- "Chapter 17. Verifying MQ Workflow on OS/2 Warp" on page 143



---

## Appendix L. Deleting MQ Workflow

This appendix explains how to uninstall MQ Workflow installed on workstations running on UNIX, Windows or OS/2 Warp.

---

### Before deleting MQ Workflow

Before you can uninstall MQ Workflow you must:

1. Stop any running MQ Workflow components.



On Windows 2000 and NT, if MQ Workflow Servers are running as a Windows service, they must be stopped via the service panel as explained in “Via the service panel” on page 132.

2. Use either the **configuration utility** to remove all MQ Workflow configurations on workstations running any of the supported UNIX based operating platforms or the **advanced configuration utility** to remove all MQ Workflow configurations on workstations running OS/2 Warp or any of the supported Windows based operating platforms.
3. On Windows and OS/2: By hand, remove the changes made to the files, environment variables, and registry entries during installation and configuration. These changes are described in “Appendix D. Updated files” on page 199.

After performing these steps you can delete MQ Workflow from workstations running any of the supported operating platforms as described in the following sections.

---

### Deleting MQ Workflow on AIX

Use the System Management Interface Tool (smit) to delete selected MQ Workflow components from an AIX workstation.

To delete MQ Workflow components from an AIX workstation, do the following:

1. Log on to the workstation as root and enter the root password.
2. Start the System Management Interface Tool:
  - To use AIX windows, enter **smit** on the command line.
  - To use the character-based interface, enter **smitty** on the command line. The sequence of panels that is subsequently displayed is similar to those described in this section, but are character based.

The System Management Interface Tool window is displayed.

3. In the **System Management** list, select the **Software Installation and Maintenance** option.  
The Software Installation and Maintenance list is displayed.
4. Select the **Software Maintenance and Utilities** option.  
The Software Maintenance and Utilities list is displayed.
5. Select the **Remove Installed Software** option.  
The Remove Software Products list is displayed
6. Select the **List** option for the **SOFTWARE name** field.  
The Multi-select List window is displayed.
7. Select the MQ Workflow components you want to delete from the workstation (all items starting with **fmc**).
8. Select **OK**.  
The Remove Software Products window is displayed.
9. If you want to remove the product installation completely, change the **REMOVE dependent software** field to yes.  
To preview if you can remove the selected software products, select **OK**.  
To finally remove the selected software products, change the **Preview only** field to no.
10. Select **OK**.
11. When you are prompted Are you sure?, select **OK**. The deinstallation program runs and MQ Workflow is removed from your workstation.
12. When the deletion process is completed, leave smit from the **Exit** menu.

---

## Deleting MQ Workflow on HP-UX

Use the HP-UX software deinstallation program **swremove** to delete MQ Workflow from an HP-UX workstation.

To delete MQ Workflow components from an HP-UX workstation, do the following:

1. Log on to the workstation with the MQ Workflow user ID. The default is **fmc**.
2. Export the environment variable UNIX95 by entering the command:  
`export UNIX95`
3. Stop the MQSeries trigger monitor by pressing the keys **<ctrl>** and **c** simultaneously.
4. Stop the MQSeries queue manager by entering at a command prompt:  
**endmqm -i <MQQueueManager>**

Where **<MQQueueManager>** is replaced by the MQ Workflow queue manager name. The default is **FMCQM**.

5. Delete the MQSeries queue manager by entering at a command prompt:  
**dltmqm -i <MQQueueManager>**  
Where *<MQQueueManager>* is replaced by the MQ Workflow queue manager name. The default is FMCQM.
6. Terminate your MQ Workflow user ID session.
7. Log on to the workstation as root and enter the root password.
8. Start the HP-UX software deinstallation program by entering at a command prompt:  
**swremove &**
9. A list of all products installed on your workstation is displayed. Select **MQSERIESWorkflow**.
10. From the **Actions** menu, choose **Mark for Remove**.
11. After the next message appears, click on **OK**.
12. From the **Actions** menu, choose **Remove (analysis)**.
13. A window appears. Click on **OK** as soon as it is highlighted.
14. A **Confirmation** window appears. Click on **Yes**.
15. If an **Error** window appears informing you that your HOME environment variable is not set, click on **OK**.
16. Click on **Done** as soon as it is highlighted. The deinstallation program runs and MQ Workflow is removed from your workstation.
17. From the **File** menu, choose **Exit** to leave the software deinstallation program.

---

## Deleting MQ Workflow on Sun Solaris

Use the software deinstallation program **pkgrm** to delete MQ Workflow from a Sun Solaris workstation.

To delete MQ Workflow components from a Sun Solaris workstation, do the following:

1. Log on to the workstation as root and enter the root password.
2. Start the software deinstallation program by entering at a command prompt:  
**pkgrm fmc**
3. The following message appears:

```
--- top ---
The following package is currently installed:
fmc             MQSeries Workflow
                (sparc) 3.2.2

Do you want to remove this package?
--- bottom ---
```

At the prompt, enter **y**. The deinstallation program runs and MQ Workflow is removed from your workstation.

---

## Deleting MQ Workflow on Windows

Use the Add/Remove Programs application located in the control panel to delete MQ Workflow from a Windows based workstation.

To delete MQ Workflow from a Windows 95, 98, 2000, or NT workstation, do the following:

1. On the task bar, click on the Windows **Start** menu and select **Settings**.
2. From **Settings**, select **Control Panel**.
3. Within the **Control Panel**, select the **Add/Remove Programs** icon. A dialog box appears.
4. Select the **Install/Uninstall** tab (on Windows 2000, select **Change or remove programs**), and from the list of software programs highlight **IBM MQSeries Workflow Version 3.2**.
5. Click on the **Add/Remove** button (on Windows 2000, the **Change/Remove** button).
6. The **Confirm File Deletion** window appears asking you if you want to remove MQ Workflow. Select the **Yes** button to delete all MQ Workflow components.
7. When the deletion is completed, select the **OK** button from the **Remove Programs From Your Computer** window.

---

## Deleting MQ Workflow on OS/2 Warp

Use the Install & Maintain icon located in the MQ Workflow folder on your OS/2 Warp desktop to delete MQ Workflow from a workstation.

To delete MQ Workflow from an OS/2 Warp workstation, do the following:

1. Open the **MQSeries Workflow** folder on your OS/2 desktop.
2. Select the **Install & Maintain** icon by double-clicking on it. The **Installation and Maintenance** panel appears containing an entry that you can select to delete.

3. If the entry is **IBM MQSeries Workflow V3**, highlight it and go to step 4. If it is not **IBM MQSeries Workflow V3**, do the following:
  - a. Select **File** from the menu bar.
  - b. From **File**, open **Catalog**.
  - c. Select **Drive**.
  - d. From the Drive List box, select the drive where MQ Workflow is installed.
  - e. Use the search button to search for the file **fmczilng.icf**, where *lng* is the three-letter language abbreviation of the language you have installed. Refer to “Appendix C. Language settings” on page 195 for a list of the language abbreviations for OS/2 Warp.
  - f. Select **OK**.
  - g. Select **Open**. The **Installation and Maintenance** panel is shown with **IBM MQSeries Workflow V3** as the entry.
  - h. Go to step 4.
4. Select **Action**.
5. Select **Delete** to delete all MQ Workflow components.



---

## Appendix M. Installation messages

This appendix lists all information, warning, and error messages that can be displayed during the MQ Workflow installation procedure. For each message, its message code, text, ID, severity, explanation, and user response is given.

---

**36200**      **unInstaller setup failed to initialize.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_UNINSTSETUP\_FAILED

**Explanation:** The unInstaller setup failed to initialize. The uninstallation key cannot be created or the uninstall log file Uninst.Isu cannot be initialized. The initialization may fail because the log file is corrupted by a previously unsuccessful installation of MQSeries Workflow.

**User Response:** Check that you have enough privileges to update the registry. If the log file Uninst.isu is on your system, check that it is not marked as read-only or system file. If it is from a previously unsuccessful installation, erase the log file.

---

**36201**      **You cannot install on a system without the correct type of operating system - you need Windows NT 4.0 or Windows 95/98 installed. The installation will stop.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_OS\_WRONG

---

**36202**      **MQSeries Workflow requires that the Windows NT 4.0 Service Pack %s or higher is installed.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_NO\_SERVICEPACK

**User Response:** Install the required fix pack for Windows NT 4.0.

---

**36210**      **You must have Administrator rights to install IBM MQSeries Workflow on Windows NT. The installation will stop.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_NO\_ADMINISTRATOR

**Explanation:** If you want to perform the installation, you need Administrator rights on Windows NT.

**User Response:** Log on with a user ID with Administrator rights and start the installation again.

---

**36211**      **This program requires VGA or better resolution.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_NO\_VGARESOLUTION

**Explanation:** Some components of MQSeries Workflow require VGA or a better resolution.

**User Response:** If you need information about how to change the resolution, contact your local system support.

---

**36212**      **The installed video adapter is %s with a resolution of %d x %d. Some components like the Buildtime need a resolution of 800 x 600 or higher.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_RESOLUTION\_TOO\_LESS

**User Response:** If you need information about

how to change the resolution, contact your local system support.

---

**36213**            **Installation messages are saved in file %s.**

**Severity:** Information

**MsgID:** FMC\_INFO\_INSTALLATION  
\_LOG\_FILE

**Explanation:** The log file includes messages to help you determine problems during installation.

**User Response:** If you have encountered problems during installation, use this log file as part of your problem description. The location of the file `fmcsetup.log` is as follows: Before the MQSeries Workflow files are moved to your system, the file is located in the directory specified by the environment variable `TEMP`. After MQSeries Workflow files have been moved, the file is located in the subdirectory 'log' of your installation directory.

---

**36214**            **This program will update your existing installation. Ensure that no MQSeries Workflow programs or services are running. There will be no backup version.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_ALREADY\_INSTALLED

**User Response:** Since the installation will update an existing installation, MQSeries Workflow programs and services must not be running. Stop all MQSeries Workflow programs and services.

---

**36215**            **This program will update your existing installation. Ensure that no MQSeries Workflow programs are running. There will be no backup version.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_ALREADY\_INSTALLED  
\_OS2

**User Response:** Since the installation will

update an existing installation, MQSeries Workflow programs must not be running. Stop all MQSeries Workflow programs.

---

**36216**            **With this installation program you can update MQSeries Workflow from version 3.1.2 to version 3.2. The MQSeries Workflow version installed on your workstation is at the wrong level. The installation will abort.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_INSTALLED\_MQWF  
\_VERSION\_TOO\_LESS

**User Response:** Migrate your installation to MQSeries Workflow version 3.1.2 as described in file `README.MIG` on the MQSeries Workflow version 3.1.2 CD-ROM.

---

**36217**            **The installed MQSeries Workflow version is a later version than the MQSeries Workflow version 3.2 installation. The installation will abort.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_INSTALLED\_MQWF  
\_VERSION\_HIGHER

**User Response:** None

---

**36218**            **The existing MQSeries Workflow version 3.1.2 profile has not been migrated to a profile that can be used by MQSeries Workflow version 3.2. Do you want to migrate it now?**

**Severity:** Warning

**MsgID:** FMC\_WNG\_MIGRATE\_PROFILE  
\_MISSING

**User Response:** If you want to use the existing MQSeries Workflow version 3.1.2 profile settings, you must migrate the profile. "Appendix K. Migrating from a previous release" on page 265 explains how to do this.



---

**36219**      **The existing MQSeries Workflow version 3.1.2 profile cannot be migrated.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_MIGRATE\_PROFILE\_FAILED

**User Response:** Migrating the MQSeries Workflow profile from version 3.1.2 to version 3.2 failed. For more information, see the chapter 'Migrating data from a previous release' in the installation guide.

---

**36220**      **If you want to use Buildtime and Runtime data from your existing MQSeries Workflow installation, you must migrate the databases before continuing with this installation.**

**Severity:** Information

**MsgID:** FMC\_INFO\_MIGRATE\_COMPONENTS

**User Response:** If you want to use Buildtime and Runtime data from your existing MQSeries Workflow installation with the new release of MQSeries Workflow, you need to migrate the databases before installing the new release. "Appendix K. Migrating from a previous release" on page 265 explains how to do this.

---

**36221**      **If you want to use Runtime data from your existing MQSeries Workflow installation, you must migrate the database before continuing with this installation.**

**Severity:** Information

**MsgID:** FMC\_INFO\_MIGRATE\_COMPONENTS\_OS2

**User Response:** If you want to use Runtime data from your existing MQSeries Workflow installation with the new release of MQSeries Workflow, you need to migrate the databases before installing the new release. "Appendix K. Migrating from a previous release" on page 265 explains how to do this.

---

**36222**      **There is not enough disk space available, %ld kilobytes, on the disk %s. %ld kilobytes are required. Set your environment variable TEMP to a directory with more disk space.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_DISKFULL\_TEMP

**Explanation:** The installation requires more temporary disk space.

**User Response:** Set the environment variable to a directory with the required disk space and start the installation again.

---

**36223**      **There is not enough disk space available, %ld kilobytes, on the disk %s. %ld Kilo bytes are required. Make sure that more space is available.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_DISKFULL

**Explanation:** The disk space available in the specified MQSeries Workflow directory is not enough.

**User Response:** Make sure that more disk space is available or choose another destination for the MQSeries Workflow directory.

---

**36226**      **You must select at least one component.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_NO\_COMPONENT\_SELECTED

---

**36228**      **The following command failed: %s. Run this command again after installation.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_COMMAND\_FAILED

**Explanation:** During installation some commands are processed.

**User Response:** Open a command prompt and enter the command displayed in the message.

---

**36229**            **The update of the profile failed.  
Run the command '%s' again.**

**Severity:** Warning

**MsgID:** FMC\_WNG\_PROFILE\_UPDATE\_FAILED

**Explanation:** During installation the MQSeries Workflow installation profile is created. It is required later by the configuration.

**User Response:** Open a command prompt and enter the command displayed in the message.

---

**36250**            **An unexpected error has occurred.  
More information is included in  
file fmcsetup.log in directory %s.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_ABORT\_INSTALLATION

**Explanation:** An unexpected error has occurred. The file fmcsetup.log contains more information. The location of the file fmcsetup.log is as follows: Before the MQSeries Workflow files are moved to your system, it is located in the directory specified by the environment variable TEMP. After MQSeries Workflow files have been moved, the file is located in the subdirectory 'log' of your installation directory.

**User Response:** Contact the MQSeries Workflow Service and provide the file fmcsetup.log.

---

**36251**            **Access to the MQSeries Workflow  
media has been lost.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_MEDIA\_NOT\_AVAILABLE

**Explanation:** The MQSeries Workflow installation media is not available. Check that you still have access to the MQSeries installation media.

**User Response:** If you have removed the

CD-ROM, insert the CD-ROM again and start the installation again. If you accessed the installation media over a network, establish the connection again.

---

**36252**            **A file cannot be copied to your  
system. More information is  
included in file fmcsetup.log in  
directory %s.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_INSTALLING\_FILE

**Explanation:** A file cannot be copied to your system. The file fmcsetup.log contains more information. The location of the file fmcsetup.log can be as follows: Before the MQSeries Workflow files are moved to your system, it is located in the directory specified by the environment variable TEMP. After MQSeries Workflow files have been moved, the file is located in the subdirectory 'log' of your installation directory.

**User Response:** Check that the file is not marked as read-only or system file. If the directory is on the network, check that you have the privileges to create files. Close any running program to ensure that the file is not in use by this program. Start the installation again.

---

**36253**            **A file cannot be copied to your  
system because the target disk is  
full. More information is included  
in file fmcsetup.log in directory  
%s.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_INSTALLING\_FILE\_DISKFULL

**Explanation:** A file cannot be copied to your system because the target disk is full. The file fmcsetup.log contains more information. The location of the file fmcsetup.log can be as follows: Before the MQSeries Workflow files are moved to your system, it is located in the directory specified by the environment variable TEMP. After MQSeries Workflow files have been moved, the file is located in the subdirectory 'log' of your installation directory.

**User Response:** Provide more disk space on your disks.

---

**36254            Unable to allocate memory.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_MEMORY\_NOT\_ENOUGH

**Explanation:** The installation was unable to allocate memory.

**User Response:** Close some programs to free memory or provide more memory.

---

**36255            Unable to create directory %s.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_CREATE\_DIRECTORY\_FAILED

**Explanation:** The installation was unable to create the specified directory.

**User Response:** Check that the specified directory is correct. Check that the drive or any subdirectory in the specified directory is not write-protected. Check that the drive name is valid. If the drive is a network drive, check that you have the network privileges to create subdirectories.

---

**36256            Unable to delete file %s in directory %s.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_DELETE\_FILE

**Explanation:** The installation was unable to delete the specified file.

**User Response:** Check that the file is not a read-only, system, or hidden file. If the directory is on the network, check that you have the privileges to delete files.

---

**36257            Unable to update environment variable %s with value: %s.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_UPDATE\_ENVIRONMENT\_VARIABLE\_W95

**Explanation:** The installation was unable to update an environment variable within the file autoexec.bat.

**User Response:** Check that the file autoexec.bat is not a read-only, system, or hidden file.

---

**36258            Unable to add or replace a line within AUTOEXEC.BAT with value %s.**

**Severity:** Severe

**MsgID:** FMC\_ERROR\_REPLACE\_ENVIRONMENT\_VARIABLE\_W95

**Explanation:** The installation was unable to update an environment variable within the file autoexec.bat.

**User Response:** Check that the file autoexec.bat is not a read-only, system, or hidden file.

---

**36259            Unable to load %s.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_UNABLE\_LOADDLL

**Explanation:** The installation was unable to load the DLL into memory.

**User Response:** Check that the specified DLL is on your system. Use a tool to find out which files are required by the DLL. Check that these files are located within the path of your system. If the checks are successful, restart Windows again.

---

**36262            Failed to get environment variable  
Key: %s Name: %s, Return Code: %d.**

**Severity:** Error

**MsgID:** FMC\_ERROR\_GETENVVAR\_FAILED

**Explanation:** Installation cannot retrieve the value for the specified environment variable name. The file `fmcsetup.log` contains more information. The location of the file `fmcsetup.log` can be as follows: Before the MQSeries Workflow files are moved to your system, it is located in the directory specified by the environment variable `TEMP`. After MQSeries Workflow files have been moved, the file is located in the subdirectory `'log'` of your installation directory.

**User Response:** Contact the MQSeries Workflow Service and provide the file `fmcsetup.log`.

---

**36263**            **Unable to set environment variable (Key: %s, Name: %s).**

**Severity:** Error

**MsgID:** `FMC_ERROR_SETENVVAR_FAILED`

**Explanation:** Installation cannot set the value for the specified environment variable name. The file `fmcsetup.log` contains more information. The location of the file `fmcsetup.log` depends on the following: Before the MQSeries Workflow files are moved to your system, it is located in the directory specified by the environment variable `TEMP`. After MQSeries Workflow files have been moved, the file is located in the subdirectory `'log'` of your installation directory.

**User Response:** Check that you have enough privileges to update the environment.

---

**36332**            **Setup will abort due to missing prerequisite software.**

**Severity:** Error

**MsgID:** `FMC_ERROR_MISSING_PREREQ`

**Explanation:** You have not installed all the prerequisite software.

**User Response:** See “Chapter 5. Installing the prerequisite software” on page 41, install the missing software, then retry.

---

## Appendix N. Using the configuration checking utility `fmczchk`

This chapter describes how to check your MQ Workflow configuration using the MQ Workflow configuration-checking utility `fmczchk`. With this utility you can check the configuration of all components and locate and diagnose configuration problems after installing and configuring MQ Workflow.

---

### Checking the configuration of a component

The MQ Workflow configuration-checking utility can be used to check the configuration of an MQ Workflow Server, Client, or Buildtime running on any of the supported platforms in a standard MQ Workflow Client/Server network or stand-alone system.

To help you configure MQ Workflow, the configuration-checking utility can find and correct installation errors and inconsistencies. That is, you can check if:

- Environment variables are set correctly.
- Network drivers are installed properly.
- Network configuration files have been updated.
- The MQ Workflow profile contains consistent settings.

Start the utility immediately after each change to the MQ Workflow configuration. For example, if you have changed your MQ Workflow configuration, and if MQ Workflow does not run, use the configuration-checking utility.

### Starting the configuration-checking utility

The configuration-checking utility is started and used in the same way for all MQ Workflow components. It is a command-line utility in U.S. English only and is designed to be platform-independent. No additional installation or configuration steps are needed for the utility. It is a self-contained tool, which is copied to the MQ Workflow BIN directory during installation.

To start the utility, type at a command prompt:

```
fmczchk
```

Configuration checking is done in several phases. During each phase one particular MQ Workflow component is checked. Even if the checks for a

component do not complete successfully, the configuration-checking utility proceeds with the checks for all other components. Problems are displayed as soon as they are detected.

In addition, the configuration-checking utility creates a log file called `fmczchk.log` which contains all error or warning messages, and other important information.

## Using command-line options

The configuration-checking utility is a command-line utility. Although you can start the utility without any options, several command-line options are available which can be specified directly after the `fmczchk` command.



The command-line options explained here are valid for MQ Workflow Version 3.2 only. For command-line options for earlier versions, see the MQ Workflow installation guide for that version or refer to the online documentation.

Not all options are described here, for a full description of the **fmczchk** command, see *MQSeries Workflow Administration Guide*.

Command-line options start with a slash (/)<sup>5</sup> or minus (-), and can be followed by an argument.

Arguments to options can be separated from the option letter by an empty string ("), a blank (' '), a colon (:), or an equals sign (=). The options are not case sensitive. Use the following options:

- 322** Specifies that you want to perform checks on MQ Workflow Version 3.2.2. The default is the version with which the utility was created. The checks that are available depend on the MQ Workflow version that you specify. When you start the utility, only those checks are displayed which apply to the defined version.
- b** Selects batch mode. Messages are not written to the console.
- d** Show debug messages. Debug messages are needed by support personnel to help analyze problems. Since these messages are intended for support personnel only, they are not documented here.
- e** Show error messages only. The default is to show error and warning messages and to suppress information messages.
- i** Show all messages, that is, error, warning, and information messages.
- htm, -html**  
Write messages to the `fmczchk0.htm` file instead of the `fmczchk.log`

---

5. Does not apply to AIX, HP-UX, or Sun Solaris.

file. The `fmczchk0.htm` file provides links to online documentation that contains further information describing the configuration-checking utility. Error, warning, and information messages written to the `fmczchk0.htm` file are written as links. Clicking on each message takes you to an online description for that message, which gives you information regarding severity and the user action required for the message.

**-l filename**

Name of the log file. If this file already exists, the messages will be appended to the file.

**-y configurationidentifier**

Allows you to specify a configuration ID other than the default. Specifying a different configuration ID allows you to perform checks on different systems. If this option is not used, the value of the **DefaultConfigurationID** variable set in the general configuration profile is used.

**-c command[;...]**

Performs a task specified by the command. The following are valid commands:

**sca[:filemask;...]**

Specify this command to scan all MQ Workflow executables for the version string. You can restrict the scanning by specifying your own file mask as an optional argument:

```
fmczchk -c sca:dll\fmck*.dll;bin\fmce*.exe
```

**tcp:service,port**

Adds a port to the TCP/IP services file. For example, to add port definitions for MQSeries to your services file:

```
fmczchk -c tcp:fmc\FMQMA5010,5010
```



Port definitions are automatically added to the services file during configuration.

**trc:level[,filename][,split][,flipflop][,filesize]**

Can be used to enable and disable tracing. The trace level can range from 0, for minimum information, to 99, for maximum information. You can optionally specify the name of the trace file. For example, to enable a full trace of system *Config001*, using split tracing, and using 5000 kilobyte flip-flop tracing files, you can enter:

```
fmczchk -y Config001 -c trc:99,/tmp/traces/my_trace,1,1,5000
```

**@cmdfile**

Alternatively, you can create a file containing several

commands that you wish to run. For example, if you create a file `fmczchk.cmd` with the following lines in it:

```
tcp:fmc\FMCQM5010,5010  
sca:dll\fmck*.dll;bin\fmce*.exe
```

You can start the utility as follows:

```
fmczchk @fmczchk.cmd
```



For version 3.2.2 and later, the format of the response file has changed. You must now prefix the commands with the `-c` option. This change allows you to include other command options that previously could not be used in the response file, for example: `-y FMC1`.

## The configuration-checking log file and online documentation

The configuration-checking utility writes a log file with the name `fmczchk.log` in the current directory, where all messages are stored. This log file is intended to be used by your support personnel. The message options you specify after the `fmczchk` command determine what messages are displayed on the screen during the configuration checking routine. These options are ignored when writing to the log file, that is, all messages are recorded in the log file.

A list of all the messages that can be written in the log file is available in the online file `fmczchk.htm`. By specifying the `html` option after the `fmczchk`, as explained on page 286, an HTML file is created instead of the log file. This HTML file contains links that give you access to online documentation. The online documentation gives an explanation, user response, and severity for each message. Each message is made up of a message identifier code and message text. The last character of the message identifier code denotes the message type or severity of the message.

The following shows the format for each type of message identifier code, where *nnn* is a number used to identify each message:

- FMC34*nnn*I** Informational message. No action is required.
- FMC34*nnn*W** Warning message. An action may be required. Check the user response in the online documentation to see if any further action is required.
- FMC34*nnn*E** Error message. An action is required. Check the user response in the online documentation for a solution to the problem.

The log file is not created if it cannot be opened, for example, due to missing write permission in the current directory. However, the configuration utility



continues to display important error and warning messages on the screen. To display all messages on the screen, use option `i` as explained on page 286.



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## Glossary

This glossary defines important terms and abbreviations used in this publication. If you do not find the term you are looking for, refer to the index or the *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.

### A

**administration server.** The MQSeries Workflow component that performs administration functions within an MQSeries Workflow system. Functions include starting and stopping of the MQSeries Workflow system, performing error management, and participating in administrative functions for a system group.

**API.** Application Programming Interface.

**application programming interface.** An interface provided by the MQSeries Workflow workflow manager that enables programs to request services from the MQSeries Workflow workflow manager. The services are provided synchronously.

**audit trail.** A relational table in the database that contains an entry for each major event during execution of a process instance.

**authorization.** The attributes of a user's staff definition that determine the user's level of authority in MQSeries Workflow. The system administrator is allowed to perform all functions.

### B

**Buildtime.** An MQSeries Workflow component with a graphical user interface for creating and maintaining workflow models, administering resources, and the system network definitions.

### C

**cleanup server.** The MQSeries Workflow component that physically deletes information in the MQSeries Workflow Runtime database, which had only been deleted logically.

**configuration profile.** The configuration profile contains data that you specify during the configuration stage, such as the name of the MQ Workflow system, the Runtime database and the queue manager. This data is used to configure database and communication resources and define settings for MQ Workflow. The configuration profile is created during the configuration stage and can be updated and deleted.

**container API.** An MQSeries Workflow API that allows programs executing under the control of MQSeries Workflow to obtain data from the input and output container of the activity and to store data in the output container of the activity.

### D

**domain.** A set of MQSeries Workflow system groups which have the same meta-model, share the same staff information, and topology information. Communication between the components in the domain is via message queuing.

### E

**execution server.** The MQSeries Workflow component that performs the processing of process instances at runtime.

**export.** An MQSeries Workflow utility program for retrieving information from the MQSeries Workflow database and making it available in MQSeries Workflow Definition Language (FDL) or HTML format. Contrast with *import*.

## F

### (FDL) MQSeries Workflow Definition

**Language.** The language used to exchange MQSeries Workflow information between MQSeries Workflow system groups. The language is used by the import and export function of MQSeries Workflow and contains the workflow definitions for staff, programs, data structures, and topology. This allows non-MQSeries Workflow components to interact with MQSeries Workflow. See also *export* and *import*. The name FDL comes from the predecessor product Flowmark.

**fully-qualified name.** A qualified name that is complete; that is, one that includes all names in the hierarchical sequence above the structure member to which the name refers, as well as the name of the member itself.

## G

**general configuration profile.** Contains data that is common to any configuration in an MQ Workflow system group. Currently it only contains the configuration identifier for the default configuration.

## I

**import.** An MQSeries Workflow utility program that accepts information in the MQSeries Workflow definition language (FDL) format and places it in an MQSeries Workflow database. Contrast with *export*.

**installation profile.** Contains data that is set during the MQ Workflow installation stage and is independent of the configuration stage. Data such as the MQ Workflow installation directory, language, version number, and MQ Workflow components installed are contained in the installation profile.

## M

**message queuing.** A communication technique that uses asynchronous messages for communication between software components.

### MQ Workflow configuration administrator.

The user ID that owns the directories and files relating to MQ Workflow configuration. It is the only user ID that can change the configuration profile, and is also used to start the MQ Workflow server and the Java agent.

**MQ Workflow profile.** The collective name for the *configuration profile*, *general configuration profile*, and *installation profile*.

## P

**principal.** The user ID associated with an MQSeries channel, so that any client that accesses the channel, has the authority of the principal. Such a user is known as an MCAUSER (MQ channel agent user). Without using a principal, every client user would have to be known to the queue manager, and be authorized access to the necessary channels.

## S

**scheduling server.** The MQSeries Workflow component that schedules actions based on time events, such as resuming suspended work items, or detecting overdue processes.

**server.** The servers that make up an MQSeries Workflow system are called execution server, Administration server, Scheduling server, and Cleanup server.

**system.** The smallest MQSeries Workflow unit within an MQSeries Workflow domain. It consists of a set of the MQSeries Workflow servers.

**system group.** A set of MQSeries Workflow systems that share the same database.

**system administrator.** (1) A predefined role that conveys all authorizations and that can be



assigned to exactly one person in an MQSeries Workflow system. (2) The person at a computer installation who designs, controls, and manages the use of the computer system.

## R

**transaction coordinator.** The MQSeries queue manager is used to coordinate transactions for two-phase commit. It therefore needs to be able to connect to the Runtime database.

## U

**user ID.** An alphanumeric string that uniquely identifies an MQSeries Workflow user.

## W

**workflow.** The sequence of activities performed in accordance with the business processes of an enterprise.

**Workflow Management Coalition (WfMC).** A non-profit organization of vendors and users of workflow management systems. The Coalition's mission is to promote workflow standards for workflow management systems to allow interoperability between different implementations.



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## Bibliography

To order any of the following publications, contact your IBM representative or IBM branch office.

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### MQSeries Workflow publications

This section lists the publications included in the MQSeries Workflow library.

- *IBM MQSeries Workflow: List of Workstation Server Processor Groups*, GH12-6357, lists the processor groups for MQSeries Workflow.
- *IBM MQSeries Workflow: Concepts and Architecture*, GH12-6285, explains the basic concepts of MQSeries Workflow. It also describes the architecture of MQSeries Workflow and how the components fit together.
- *IBM MQSeries Workflow: Getting Started with Buildtime*, SH12-6286, describes how to use Buildtime of MQSeries Workflow.
- *IBM MQSeries Workflow: Getting Started with Runtime*, SH12-6287, describes how to get started with the Client.
- *IBM MQSeries Workflow: Programming Guide*, SH12-6291, explains the application programming interfaces (APIs).
- *IBM MQSeries Workflow: Installation Guide*, SH12-6288, contains information and procedures for installing and customizing MQSeries Workflow.
- *IBM MQSeries Workflow: Administration Guide*, SH12-6289, explains how to administer an MQSeries Workflow system.

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### MQSeries Workflow for OS/390 publications

This section lists the publications included in the MQSeries Workflow for OS/390 library.

- *MQSeries Workflow for OS/390: Customization and Administration*, SC33-7030, explains how to customize and administer an MQSeries Workflow for OS/390 system.
- *MQSeries Workflow for OS/390: Programming*, SC33-7031, explains the C, C++, Java, and Cobol application programming interfaces (APIs), and the program exits.
- *MQSeries Workflow for OS/390: Messages and Codes*, SC33-7032, explains the MQSeries Workflow for OS/390 system messages and codes.
- *MQSeries Workflow for OS/390: Program Directory*, GI10-0483, explains how to install MQSeries Workflow for OS/390.

---

### Related publications

- *Frank Leymann, Dieter Roller, Production Workflow: Concepts and Techniques* (New Jersey: Prentice Hall PTR, 1999)
- *Frank Leymann, Dieter Roller, "Workflow-based Applications"*, *IBM Systems Journal* 36, no. 1 (1997): 102–123
- *Workflow Handbook 1997*, published in association with WfMC, edited by Peter Lawrence



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