

WebSphere MQ for HP-UX



# Quick Beginnings

*Version 7.0*



WebSphere MQ for HP-UX



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*Version 7.0*

**Note**

Before using this information and the product it supports, be sure to read the general information under notices at the back of this book.

**First edition (April 2008)**

This edition of the book applies to:

- IBM WebSphere MQ for HP-UX, Version 7.0

and to any subsequent releases and modifications until otherwise indicated in new editions.

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## Chapter 1. Migrating to WebSphere MQ for HP-UX Version 7.0

Follow this information to migrate from previous versions of WebSphere® MQ for HP-UX to WebSphere MQ for HP-UX Version 7.0.

If you want to migrate to WebSphere MQ Version 7.0, complete this task.

If you migrate from a previous level of this product without first backing up your system, you **cannot** revert to your previous level, so back up your system **before** you install WebSphere MQ Version 7.0. This will enable you to back out the upgrade if necessary. If you back out the upgrade, however, you cannot recover any work performed by WebSphere MQ Version 7.0.

1. Stop all Websphere MQ applications on the machine and any applications accessing remote machines. This includes any vendor products used to monitor or control WebSphere MQ.
2. End all WebSphere MQ activity.
  - a. Log in as a WebSphere MQ administrator.
  - b. Use the **endmqm** command to stop all running queue managers.
  - c. Stop any listeners associated with the queue managers, using the command:  
`endmq1sr -m QMgrName`
  - d. To check that you have stopped all of them, enter the following:  
`ps -ef | grep mq`

Check that there are no processes listed that are running command lines beginning amq or runmq. Ignore any that start with amqi.

3. Login as root.
4. Function supplied by the SupportPacs in the table below has been superseded by function in WebSphere MQ Version 7.0. Remove these SupportPacs before installing WebSphere MQ Version 7.0.

Table 1. SupportPacs superseded by WebSphere MQ Version 7.0

SupportPac™ Number	Description
MA0Y	WebSphere MQ Bridge for HTTP
MA6P	WebSphere MQ - XA libraries for use with TX-series on HP-UX for IPF

**Note:** If you installed SupportPac MACS, remove the directory `/usr/mqm/inc64` and its contents.

Please review any other installed SupportPacs for their applicability to WebSphere MQ for HP-UX Version 7.0.

5. Uninstall any WebSphere MQ service updates and then uninstall WebSphere MQ.
6. Install WebSphere MQ Version 7.0 by following the tasks set out in *Quick Beginnings for HP-UX*.

---

## Important information for Beta driver users

If you have previously installed a WebSphere MQ Version 7.0 Beta driver, you **must** uninstall this driver and clean up any remaining files **before** you install the GA version of WebSphere MQ Version 7.0.

---

## After you have migrated to WebSphere MQ Version 7.0

Perform these tasks immediately after you migrate to WebSphere MQ Version 7.0.

Immediately after you migrate to WebSphere MQ Version 7.0, you must start your queue managers at least once to migrate your file system structure before you start any WebSphere MQ listeners. Otherwise, you will not be able to start WebSphere MQ listeners after migration.

If you cannot connect to a migrated queue manager using MQ Explorer and receive the error message “SYSTEM.MQEXPLORER.REPLY.MODEL not defined”, run the following command on that queue manager:

```
strmqm -c
```

This command refreshes existing system objects with default values (for example, setting the MCAUSER attribute of a channel definition to blanks), and creates the queue required by the WebSphere MQ Explorer.

---

## Chapter 2. Installing a WebSphere MQ server

Information describing how to install a WebSphere MQ Version 7.0 server.

This chapter describes how to install a WebSphere MQ Version 7.0 server. The information covers topics such as preparing for installation and verifying your installation, as well as installation itself. If you already have an installation of WebSphere MQ, and are migrating to WebSphere MQ Version 7.0 see Chapter 1, "Migrating to WebSphere MQ for HP-UX Version 7.0," on page 1 before installing WebSphere MQ Version 7.0.

WebSphere MQ for HP-UX can be installed as a server or a client.

A WebSphere MQ server is an installation of one or more queue managers that provide queueing services to one or more clients. All the WebSphere MQ objects, for example queues, exist only on the queue manager machine (the WebSphere MQ server machine), and not the client. A WebSphere MQ server can also support local WebSphere MQ applications.

A WebSphere MQ client is a component that allows an application running on one system to communicate with a queue manager running on another system. The output from the call is sent back to the client, which passes it back to the application. To install a WebSphere MQ client see, Chapter 3, "Installing a WebSphere MQ client," on page 31.

It is possible to have both a server and a client installation on the same machine, for instructions on how to do this see, Chapter 4, "Installing a client on the same machine as a server," on page 49.

See the WebSphere MQ System Administration Guide for an introduction to WebSphere MQ concepts and objects.

For information on the components that can be included in the server and client installations see, "WebSphere MQ Components" on page 18.

The installation process is divided into the following set of tasks, complete all of these tasks in sequence:

---

### Preparing for installation

Before you install WebSphere MQ, complete the following tasks.

#### Checking hardware and software requirements

This section details the operating system requirements, the prerequisite software and optional software required for using WebSphere MQ Version 7.0.

##### Checking the operating environment - PA-RISC platform

Check through this topic to identify which hardware and software is supported for use with WebSphere MQ for HP-UX as a server on the PA-RISC platform.

Before you install WebSphere MQ Version 7.0, you must check that your system meets the hardware and operating system software requirements set for this product and the particular components you intend to install on it.

**Note:** WebSphere MQ does not support host names that contain spaces. If you install WebSphere MQ on a computer with a host name that contains spaces, you will be unable to create any queue managers.

## Hardware

WebSphere MQ for HP-UX, Version 7.0 runs on any Hewlett Packard PA-RISC 64-bit computer.

## Operating System (PA-RISC)

The operating systems supported by WebSphere MQ for HP-UX, Version 7.0, on the PA-RISC platform are:

- HP-UX 11i v2 (11.23)
- HP-UX 11i v3 (11.31)

## Connectivity Requirements

Check that the system has 64-bit compatible communications hardware that supports at least one of the following:

- TCP/IP
- HP SNAplus2 Version 7 (For SNA LU 6.2 connectivity)

TCP/IP is part of the base operating system.

IPv6 feature support is available with HP Transport Optional Upgrade Release (TOUR)

## Storage Requirements

The storage requirements for the WebSphere MQ for HP-UX, Version 7.0 depend on which components you install, and how much working space you need. This, in turn, depends on the number of queues that you use, the number and size of the messages on the queues, and whether the messages are persistent. You also require archiving capacity on disk, tape or other media.

*Table 2. Storage requirements for a WebSphere MQ server*

Storage Requirements	Storage Requirement in MB in /opt
WebSphere MQ Server installation	325
IBM® Global Security Kit V7 (32-bit)	16
IBM Global Security Kit V7 (64-bit)	14

You can use the `df -k` command to determine the amount of free space on your system.

Disk storage is also required for

- Prerequisite software
- Optional software

- Your application programs

## Checking the operating environment - Itanium platform

Check through this topic to identify which hardware and software is supported for use with WebSphere MQ for HP-UX as a server on the Itanium® platform.

Before you install WebSphere MQ Version 7.0, you must check that your system meets the hardware and operating system software requirements set for this product and the particular components you intend to install on it.

**Note:** WebSphere MQ does not support host names that contain spaces. If you install WebSphere MQ on a computer with a host name that contains spaces, you will be unable to create any queue managers.

## Hardware

WebSphere MQ for HP-UX, Version 7.0 runs on any Itanium system hardware that is explicitly compatible and fully capable of running the specified operating system, all the corresponding supporting software shown below, and any associated applications unmodified.

## Operating System (Itanium)

The operating systems supported by WebSphere MQ for HP-UX, Version 7.0, on the Itanium platform are:

- HP-UX 11i v2 (11.23) for IPF
- HP-UX 11i v3 (11.31) for IPF

## Connectivity Requirements

Check that the system has 64-bit compatible communications hardware that supports at least one of the following:

- TCP/IP
- HP SNAplus2 Version 7 (For SNA LU 6.2 connectivity)

TCP/IP is part of the base operating system.

IPv6 feature support is available with HP Transport Optional Upgrade Release (TOUR)

## Storage Requirements

The storage requirements for the WebSphere MQ for HP-UX, Version 7.0 depend on which components you install, and how much working space you need. This, in turn, depends on the number of queues that you use, the number and size of the messages on the queues, and whether the messages are persistent. You also require archiving capacity on disk, tape or other media.

*Table 3. Storage requirements for a WebSphere MQ server*

Storage Requirements	Storage Requirement in MB in /opt
WebSphere MQ Server installation	325
IBM Global Security Kit V7 (64-bit)	14

You can use the `df -k` command to determine the amount of free space on your system.

Disk storage is also required for

- Prerequisite software
- Optional software
- Your application programs

### **Checking optional software - PA-RISC platform**

Check through this topic to identify which additional software is supported for use with WebSphere MQ for HP-UX as a server on the PA-RISC platform.

### **Compilers for HP-UX (PA-RISC platform) applications**

The following compilers are supported for WebSphere MQ for HP-UX applications on the PA-RISC platform:

- HP C/ANSI C Developer Bundle for HP-UX 11i2
- HP aCC Version A.06.12

#### *Figure 1. C/C++*

- Micro Focus Server Express V4.0
- Micro Focus Server Express V5.0

#### *Figure 2. COBOL*

- 32 bit
  - HP-UX SDK for the Java platform and JDK V1.4
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V1.4.2
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V5.0 (SR1 or above)
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V6.0
- 64 bit:
  - HP-UX SDK for the Java platform and JDK V1.4
  - IBM 64-bit SDK for HP-UX Java 2 Technology Edition V1.4.2
  - IBM 64-bit SDK for HP-UX Java 2 Technology Edition V5.0 (SR1 or above)
  - IBM 64-bit SDK for HP-UX Java 2 Technology Edition V6.0 (SR1 or above)

The HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V5.0, HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium, and the IBM 64-bit SDK for HP-UX Java 2 Technology Edition V5.0 are supplied with WebSphere MQ, and can be installed during the installation process described in this document.

#### *Figure 3. Java*

### **Databases**

The following databases are supported:

- IBM DB2<sup>®</sup> V9.1 for Linux<sup>®</sup>, Unix and Windows<sup>®</sup>
- IBM DB2 V9.5 for Linux, Unix and Windows
- Informix<sup>®</sup> Dynamic Server (IDS) V10 with Client SDK V2.90
- Informix Dynamic Server (IDS) V10.50 with Client SDK V2.91
- Oracle 10g Release 2
- Oracle 11g Release 1



- Sybase Adaptive Server Enterprise (ASE) V15 and Sybase SDK V15

### **Transaction monitors**

The following transaction processing monitors (coordination through X/Open XA interface) are supported:

- IBM TXSeries® V6.0
- IBM TXSeries V6.1
- IBM TXSeries V6.2
- BEA Tuxedo V9.1

### **Java™ Messaging and SOAP transport**

If you want to use Java Messaging and SOAP (Simple Object Access Protocol) Support, you need a Java Runtime Environment Version 1.4.2 or later. An appropriate runtime environment is provided in the JDKs provided on the WebSphere MQ Server CD-ROM. These JDK packages can be selected for install during the installation procedure described in this book, see *WebSphere MQ for HP-UX Quick Beginnings* “WebSphere MQ Components” on page 18 for package information.

The JDKs available on the server CD-ROM are:

- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, Version 5.0
- IBM 64-bit SDK for HP-UX Java 2 Technology Edition V5.0

These JDKs provide support for SOAP and are FIPS 140-2 compliant.

For a list of alternative JDKs, see:

[www.ibm.com/software/integration/websphere/mqplatforms/supported.html](http://www.ibm.com/software/integration/websphere/mqplatforms/supported.html)

For further information about using Java with WebSphere MQ, see *WebSphere MQ Using Java*.

For further information about SOAP with WebSphere MQ, see *WebSphere MQ Using Web Services* .

If your JDK has not been supplied by IBM you should be aware that:

- The JDK might not be FIPS level 140-2 compliant and by using it with WebSphere MQ, WebSphere MQ Version 7.0 will not comply with the FIPS 140-2 standards.
- SOAP is not supported.

On HP-UX, the 32-bit and 64-bit JDKs are typically installed to the same directory `/opt/mqm/java/sdk/bin`. To run a 64-bit or 32-bit JVM use the `-d64` or `-d32` parameters on the command line when running a Java application to ensure the correct JVM is used.

### **Secure Sockets Layer (SSL)**

If you want to use the SSL support with WebSphere MQ for HP-UX, you need to install the IBM Global Security Kit (GSKit) V7 packages: `gsk7bas` and `gsk7bas64`. These are supplied with WebSphere MQ as components available for installation. If

you are migrating from WebSphere MQ Version 5.3 and have no other requirement for the IBM Global Security Kit V6 you can uninstall it using the process described in the topic *Uninstalling WebSphere MQ in WebSphere MQ for HP-UX Quick Beginnings.*, the package name is gsk6bas.

To use SSL, WebSphere MQ clients on HP-UX 11i v1 and HP-UX 11i v2 must be built:

- Using the C++ compiler (not the C compiler)
- Using POSIX threads
- With the compiler options: `-Wl,+b/opt/ibm/gsk7/lib:/opt/mqm/lib`

### Checking optional software - Itanium platform

Check through this topic to identify which additional software is supported for use with WebSphere MQ for HP-UX as a server on the Itanium platform.

### Compilers for HP-UX (Itanium platform) applications

The following compilers are supported for WebSphere MQ for HP-UX applications on the Itanium platform:

- HP C/ANSI C Developer's Bundle V6.02 or later maintenance
- HP aCC A.06.12

#### Figure 4. C/C++

- Micro Focus Server Express V4.0
- Micro Focus Server Express V5.0

#### Figure 5. COBOL

- 32-bit
  - HP-UX IPF Software Development Kit for the Java™ 2 platform
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM® for IBM Software, V1.4.2 for 32-bit Itanium
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 32-bit Itanium (SR1 or above)
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V6.0 for 32-bit Itanium
- 64-bit
  - HP-UX IPF Software Development Kit for the Java 2 platform
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V1.4.2 for 64-bit Itanium
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium (SR1 or above)
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V6.0 for 64-bit Itanium

These products are supplied with WebSphere MQ, and can be installed during the installation process described in this document:

- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 32-bit Itanium
- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium

#### Figure 6. Java

### Databases

The following databases are supported:

- DB2 Universal Database™ V9.1
- DB2 Universal Database V9.5

- Informix Dynamic Server (IDS) V10 plus Client SDK V2.90
- Informix Dynamic Server (IDS) V10.50 plus Client SDK V2.91
- Oracle 10g Release 2
- Oracle 11g Release 1
- Sybase Adaptive Server Enterprise (ASE) V15 and Sybase SDK V15

### Transaction monitors

The following transaction processing monitors (coordination through X/Open XA interface) are supported:

- IBM TXSeries V6.1
- IBM TXSeries V6.2
- BEA Tuxedo V9.1

### Java Messaging and SOAP transport

If you want to use Java Messaging and SOAP (Simple Object Access Protocol) Support, you need an IBM Java 2 SDK and Runtime Environment Version 1.4.2 or later. An appropriate runtime environment is provided in the JDK provided on the WebSphere MQ Server CD-ROM. This JDK package can be selected for install during the installation procedure described in this book, see *WebSphere MQ for HP-UX Quick Beginnings* “WebSphere MQ Components” on page 18 for package information.

The JDKs available on the server CD-ROM is:

- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 32-bit Itanium
- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium

These JDKs provide support for SOAP and are FIPS 140-2 compliant.

For a list of alternative JDKs, see:

[www.ibm.com/software/integration/websphere/mqplatforms/supported.html](http://www.ibm.com/software/integration/websphere/mqplatforms/supported.html)

For further information about using Java with WebSphere MQ, see *WebSphere MQ Using Java*.

For further information about SOAP with WebSphere MQ, see *WebSphere MQ Using Web Services* .

If your JDK has not been supplied by IBM you should be aware that:

- The JDK might not be FIPS level 140-2 compliant and by using it with WebSphere MQ, WebSphere MQ Version 7.0 will not comply with the FIPS 140-2 standards.
- SOAP is not supported.

On HP-UX, the 32-bit and 64-bit JDKs are typically installed to the same directory `/opt/mqm/java/sdk/bin`. To run a 64-bit or 32-bit JVM use the `-d64` or `-d32` parameters on the command line when running a Java application to ensure the correct JVM is used.

## Secure Sockets Layer (SSL)

If you want to use the SSL support with WebSphere MQ for HP-UX, you need to install the IBM Global Security Kit (GSKit) V7 package: `gsk7bas64`. This is supplied with WebSphere MQ as one of the components available for installation.

**Note:** WebSphere MQ for HP-UX on Itanium does not support 32-bit SSL. The WebSphere MQ documentation generally describes the use of the 32-bit GSKit commands (`gsk7cmd`, `gsk7ikm`, and `gsk7capicmd`). On the HP-UX for Itanium platform, you must use the equivalent 64-bit variants `gsk7cmd_64`, `gsk7ikm_64`, and `gsk7capicmd_64`.

To use SSL, WebSphere MQ clients on HP-UX 11i v2 must be built:

- Using the C++ compiler (not the C compiler)
- Using POSIX threads
- With the compiler options: `-Wl,+b/opt/ibm/gsk7/lib:/opt/mqm/lib`

## Setting up the user ID and group ID

WebSphere MQ requires a user ID of the name `mqm`, with a primary group of `mqm`. The `mqm` user ID owns the directories and files that contain the resources associated with the product. Create the user ID and group IDs as described in the following sections.

- “Creating the user ID and group”
- “Adding existing user IDs to the group”

### Creating the user ID and group

Create the required user ID and group ID *before* you install WebSphere MQ. Both user ID and group ID must be set to `mqm`. For stand-alone machines, you can create the new user ID and group IDs locally; for machines administered in a network information services (NIS) domain, an administrator must create the IDs on the NIS master server machine.

It is also suggested that you set the `mqm` user’s home directory to `/var/mqm`.

You can use the System Administration Manager (SAM) to work with user IDs.

### Adding existing user IDs to the group

If you want to run administration commands, for example `crtmqm` (create queue manager) or `strmqm` (start queue manager), your user ID must be a member of the `mqm` group.

Users do not need `mqm` group authority to run applications that use the queue manager; it is needed only for the administration commands.

## Setting the JAVA\_HOME environment variable

You must set the `JAVA_HOME` environment variable to `/opt/mqm/ssl/jre`. You can set this using the following command:

```
export JAVA_HOME=/opt/mqm/ssl/jre
```

## Creating WebSphere MQ file systems

The installation directory for the WebSphere MQ product code is `/opt/mqm`. Working data is stored in `/var/mqm`. You cannot change these locations. The IBM Global Security Kit (GSKit) must also be installed into its default location. (The GSKit enables you to use SSL security on Windows and UNIX® systems.)

The topics contained in this section describe how to prepare your file system for installing WebSphere MQ. Perform these tasks before installation.

### Creating a file system for the product code

This topic describes how to prepare the `/opt/mqm` file system into which the WebSphere MQ code will be installed should you not have enough storage space available in the file system.

The approximate amount of storage space required for a server installation is detailed below.

*Table 4. Storage requirements for a WebSphere MQ server*

Storage Requirements	Storage Requirement in MB in /usr	Storage Requirement in MB in /opt
WebSphere MQ Server installation	6	247
IBM Global Security Kit V7 (32-bit)	0	16
IBM Global Security Kit V7 (64-bit)	0	14

The WebSphere MQ product code is installed in `/opt`. If you cannot install the product code in the `/opt` file system because the file system is too small to contain the product, you can do one of the following:

1. CAN SOMEONE CHECK THE WORDING OF THIS STEP? Create a new file system and mount it as `/opt/mqm`. If you choose this option, the new file system must be created and mounted before installing the product code.
2. Create a new directory anywhere on your machine, and create a symbolic link from `/opt/mqm` to this new directory. For example:

```
mkdir /bigdisk/mqm
ln -s /bigdisk/mqm /opt/mqm
```

If you choose this option, the new directory must be created, and the link created, before installing the product code.

The file system into which the code is installed can be a remote network device, for example, NFS. However, you must define the mount options defined on that device to allow `setuid` programs, including those which are `setuid` root, to run.

### Creating a file system for the working data

*Before* you install WebSphere MQ for HP-UX, create and mount a file system called `/var/mqm` which is owned by user and is of group `mqm`. If possible, use a partition strategy with a separate volume for the WebSphere MQ data. This means that other system activity is not affected if a large amount of WebSphere MQ work builds up.

To determine the size of the /var/mqm file system for a server installation, consider:

- The maximum number of messages in the system at one time.
- Contingency for message buildups, if there is a system problem.
- The average size of the message data, plus 500 bytes for the message header.
- The number of queues.
- The size of log files and error messages.
- The amount of SSL trace that is written to the /var/mqm/trace directory.

Allow 50 MB as a minimum for a WebSphere MQ server and 15 MB as a minimum for a WebSphere MQ client.

### Creating separate file systems for working data:

You can also create separate file systems for your log data (/var/mqm/log) and error files (/var/mqm/errors). If possible, store log files on a different physical disk from the WebSphere MQ queues (/var/mqm).

If you create separate file systems:

- The /var/mqm and /var/mqm/log directories *must* be on a local file system.
- The /var/mqm/errors directory can be NFS mounted. However, if you choose to NFS-mount /var/mqm/errors, the error logs might be lost if the network fails.

If you are creating separate file systems, allow a minimum of 30 MB of storage for /var/mqm for a server installation and 15 MB of storage for /var/mqm for a client installation. Also allow 20 MB of storage for /var/mqm/log, and 4 MB of storage for /var/mqm/errors for both client and sever installations.

If you want to use individual queues that will hold more than 2 GB of data, you must enable /var/mqm to use large files.

The size of the log file depends on the log settings that you use. The minimum sizes above are for circular logging using the default settings. For further information on log sizes see the WebSphere MQ System Administration Guide.

## Displaying messages in your national language

After installing WebSphere MQ you can configure the LANG environment variable to display messages from a different national language message catalog.

Messages in U.S. English are automatically installed with WebSphere MQ.

If you require messages in a different language, perform the following steps:

1. Install the appropriate message catalog (see “WebSphere MQ Components” on page 18).
2. To select messages in a different language, ensure the **LANG** environment variable is set to the identifier for the language you want to install:

```
export LANG=de_De.iso88591
```

The message identifiers for the message catalogs are as follows:

Identifier	Language
cs_CZ	Czech
de_DE	German

Identifier	Language
es_ES	Spanish
fr_FR	French
hu_HU	Hungarian
it_IT	Italian
ja_JP	Japanese
ko_KR	Korean
pl_PL	Polish
pt_BR	Brazilian Portuguese
ru_RU	Russian
zh_CN	Simplified Chinese
zh_TW	Traditional Chinese

## Implications of a 64-bit queue manager

When using the 64-bit queue manager, the use of the LIBPATH and LD\_LIBRARY\_PATH environment variable is not advised. Setting these environment variables might result in you not being able to run any WebSphere MQ commands. By default, the installation will operate as in previous versions of WebSphere MQ, with symbolic links being created from /usr/lib, /usr/bin and /usr/include to the appropriate files within the WebSphere MQ tree structure. In the case of /usr/lib the symbolic links will be to the 32-bit WebSphere MQ libraries provided for customer 32-bit applications.

**Note:** No symbolic links are required for the 64-bit WebSphere MQ libraries required by WebSphere MQ commands.

All WebSphere MQ commands are 64-bit and have a built in path to the WebSphere MQ 64-bit libraries, however, this can be overridden by the use of LIBPATH and thus can cause WebSphere MQ commands to fail to run. The recommended way of using WebSphere MQ commands and your applications is as follows:

- Unset LIBPATH and LD\_LIBRARY\_PATH and build your applications with a built in path to the appropriate WebSphere MQ libraries, this is detailed in the appropriate WebSphere MQ book for your type of WebSphere MQ application.
- If you need to set LIBPATH or LD\_LIBRARY\_PATH, consider not including /usr/lib in the path you specify in the variable. If you need to include /usr/lib in your LIBPATH or LD\_LIBRARY\_PATH then in order to avoid errors running 64-bit WebSphere MQ applications or WebSphere MQ commands, consider removing the symbolic links from /usr/lib to the 32-bit WebSphere MQ libraries using the **dltmqlnk** command. The symbolic links can be restored with the **crtmqlnk** command. You also need to build your applications with a built in path to the appropriate WebSphere MQ libraries.  
Note that both the **dltmqlnk** command and the **crtmqlnk** command are scripts, and take no parameters.
- If you cannot use either of the first two options, run your applications in a different environment to the one which issues any WebSphere MQ commands.

**Note:** WebSphere MQ libraries are in the following locations: /opt/mqm/lib (32-bit libraries) and /opt/mqm/lib64 (64-bit libraries).

---

## Server installation procedure

This section tells you how to install the WebSphere MQ for HP-UX server. If you want to install the WebSphere MQ client see Chapter 3, “Installing a WebSphere MQ client,” on page 31.

Before you start the installation procedure, make sure you have prepared your system as described in “Preparing for installation” on page 3.

The installation method allows you to select which components you would like to install, for a list of the components and their corresponding filesets see “WebSphere MQ Components” on page 18.

See “Installation procedure” on page 16 for the standard installation procedure.

Alternatively, see “Non-interactive installation” on page 17.

## Kernel configuration

WebSphere MQ uses semaphores and shared memory. It is possible, therefore, that the default kernel configuration is not adequate.

Before installation, review the machine’s configuration and increase the values if necessary. The minimum recommended values of the Tunable Kernel parameters are given in Figure 7 on page 15. These values might need to be increased if you obtain any First Failure Support Technology™ (FFST™) records.

### Note:

1. On platforms earlier than HP-UX 11i v1.6 (11.22), if you intended to run a high number of concurrent connections to WebSphere MQ, you were required to configure the number of kernel timers (CALLOUTS) by altering the NCALLOUT kernel parameter. On HP-UX 11i v1.6 (11.22) platforms or later, the NCALLOUT parameter is obsolete as the kernel automatically adjusts the data structures.
2. Semaphore and swap usage does not vary significantly with message rate or message persistence.
3. WebSphere MQ queue managers are generally independent of each other. Therefore system Tunable Kernel parameters, for example shmmni, semmni, semmns, and semmnu need to allow for the number of queue managers in the system.

See the HP-UX documentation for information about changing these values.



```

shmmax          536870912
shmseg          1024
shmmni          1024
semaem          16384
semvmx          32767
semms           16384
semnmi          1024 (semnmi < semms)
semnmu          16384
semume          256
max_thread_proc 66
maxfiles        10000
maxfiles_lim    10000
nfile           10000

```

Figure 7. Minimum recommended Tunable Kernel parameters values

**Note:** For HP-UX 11.23 (11i V2) and later operating systems, the Tunable Kernel parameters: shmseg, semaem, semmap, and maxusers, are obsolete. This applies to the Itanium and PA-RISC platforms.

You must restart the system once you have made any changes to the Tunable Kernel parameters.

### System resource limits

You can set global limits for the size of process data segments and the size of process stack segments for the whole system by altering the Tunable Kernel parameters.

The Tunable Kernel parameters are:

Parameter	What it controls	Recommended minimum value
maxdsiz	Maximum size of the data segment for 32-bit processes	1073741824
maxdsiz_64bit	Maximum size of the data segment for 64-bit processes	1073741824
maxssiz	Maximum size of the stack segment for 32-bit processes	8388608
maxssiz_64bit	Maximum size of the stack segment for 64-bit processes	8388608

If other software on the same machine recommends higher values, then the operation of WebSphere MQ will not be adversely affected if those higher values are used.

For the full documentation for these parameters see the HP-UX product documentation.

On a per-shell basis the available limits can be tuned down from the values stored for the parameters above. Use the ulimit shell command to tune the values of the parameters with a combination of the following switches:

Switch	Meaning
-H	The hard limit
-S	The soft limit
-d	The data segments size

Switch	Meaning
-s	The stack segment size

To apply the settings to an HP-UX 11i system which has the System Administration Manager (SAM) utility, you can use SAM to achieve the following steps:

- Select and alter the parameters
- Process the new kernel
- Apply the changes and restart the system

It is possible that other releases of HP-UX provide different facilities to set the Tunable Kernel parameters. If so, then please consult your HP-UX product documentation for the relevant information.

### Verifying that the kernel settings are applied

To verify that the resource limits have not been lowered by a ulimit command and that the queue manager will experience the correct limits, go to the shell from which the queue manager will be started and enter:

```
ulimit -Ha
ulimit -Sa
```

Amongst the console output you should see:

```
data(kbytes)  1048576
stack(kbytes) 8192
```

If lower numbers are returned, then a ulimit command has been issued in the current shell to lower the limits. You should consult with your system administrator to resolve the issue.

## Installation procedure

Before you start the installation procedure, make sure you have prepared your system as described in “Preparing for installation” on page 3.

This section describes the installation of the server.

This installation procedure uses the **swinstall** program, enabling you to choose which components you want to install. The components and filesets are listed in “WebSphere MQ Components” on page 18; you must install at least the Runtime and Server components.

**Note:** If you are using a screenreader, you are recommended to use the non-interactive installation option “Non-interactive installation” on page 17, so that you can accept the licence without viewing it.

If you are installing WebSphere MQ from a depot that contains service update packages, you must read “Applying service” on page 51 before installing the service update packages.

1. Log in as root.
2. Insert the Server CD-ROM, and make the mount point your current directory.
3. Accept the licence:

- a. Change directory to the location of the mounted CD-ROM or your install location.
- b. Run the `mqlicense` script (for example `./mqlicense.sh`).  
The license is displayed. If you accept the license, you can continue the installation.  
If you are performing a silent or remote install, you can type  
`./mqlicense.sh -accept` to accept the license without being displayed.
4. Type the following command to start the installation procedure, (altering it accordingly if you are installing from somewhere other than the CD-ROM):  
`swinstall -s src_dir`

where `src_dir` is the source directory for the installation files and the name of the file you are installing. If you do this, *all* components of the WebSphere MQ server are installed (including message catalogs for all available languages).

5. If you want to install all WebSphere MQ components, select **MQSERIES**, then select **Actions > Install**.
6. If you do not want to install all components, select **MQSERIES**:
  - a. Select **Actions > Open Item**.
  - b. Highlight the components you require and select **Mark for install** from the Actions menu. (The `gsk7bas` and `gsk7bas64` fileset for the IBM Global Security Kit is automatically selected).
  - c. Select **go up** and press *Enter* to return to the product list. **MQSERIES** is marked as **Partial** if you did not select all the components.
7. Select **Actions > Install**. The log file tells you if there are any problems that need fixing.
8. When you have fixed any problems, press **OK** to install. You are informed when the installation is complete.

### Non-interactive installation

Install WebSphere MQ in a non-interactive or unattended way using customized commands.

Before you install WebSphere MQ, you must run the `mqlicense.sh` script. To run the script and accept the licence without displaying it, issue the following command:

```
./mqlicense.sh -accept
```

There are two different ways to run a non-interactive or unattended installation of WebSphere MQ.

- Install WebSphere MQ with all the default options and components, and all message catalogs for all languages using the following command:  
`/usr/sbin/swinstall -v -x mount_all_filesystems=false -x source_directory=src_dir MQSERIES`

where `src_dir` is the source directory of the installation files. For more information on the `swinstall` command, refer to your HP-UX product documentation.

- Install WebSphere MQ with optional components using the following command:  
`/usr/sbin/swinstall -v -x mount_all_filesystems=false -x source_directory=src_dir MQSERIES.MQM-RUNTIME MQSERIES.MQM-BASE MQSERIES.MQM-SERVER MQSERIES.MQM-CL-HPUX MQSERIES.MQM-KEYMAN MQSERIES.MQM-JAVA`

where *src\_dir* is the source directory of the installation files and *MQSERIES.MQM\*\*\** are the component selection. For more information on the *swinstall* command and available options, refer to your HP-UX product documentation.

## WebSphere MQ Components

This lists all of the installable MQ components and other IBM products that comprise WebSphere MQ.

When you install WebSphere MQ for HP-UX, you can choose which components to install.

Table 5. WebSphere MQ packages

Component	Description	Fileset	Server	Client
<b>Runtime</b>	Mandatory component. Needed for application development and provides support for external applications.	MQSERIES.MQM-RUNTIME	X	X
<b>SDK</b>	Required for compiling applications.	MQSERIES.MQM-BASE	X	X
<b>Server</b>	The server feature allows you to run queue managers on your computer and connect to other computers over a network. Provides messaging and queuing services to applications, and support for WebSphere MQ client connections.	MQSERIES.MQM-SERVER	X	
<b>Client</b>	The WebSphere MQ client is a small subset of WebSphere MQ, without a queue manager. Provides remote access to WebSphere MQ. Must be connected to a server. To install a client on the same machine as a server, use the Server CD-ROM; otherwise use the Clients CD-ROM.	MQSERIES.MQM-CL-HPUX	X	X
<b>Sample programs</b>	Sample application programs. Needed if you want to check your WebSphere MQ installation using the verification procedures described in "Verifying the installation using the Postcard application" on page 25.	MQSERIES.MQM-SAMPLES	X	X
<b>Java messaging</b>	The files needed for messaging using Java (includes Java Messaging Service). Prerequisite for the server component.	MQSERIES.MQM-JAVA	X	X
<b>SSL support</b>	Support for SSL key management	MQSERIES.MQM-KEYMAN	X	X
<b>HP Java JRE (32-bit)</b>	HP JRE for J2SE™ HP-UX 11i platform, adapted by IBM for IBM Software, Version 5.0. Prerequisite for the server component.	MQSERIES.MQM-JAVAJRE	X	
<b>IBM Java SDK (32-bit)</b>	IBM 32-bit SDK for Solaris, Java 2 Technology Edition, Version 1.4.2. Required for compiling applications.	MQSERIES.MQM-JAVASDK	X	X
<b>Brazilian Portuguese Message catalogs</b>	Brazilian Portuguese message catalogs	MQSERIES.MQM-MC-PORT	X	X
<b>Czech Message catalogs</b>	Czech Message catalogs	MQSERIES.MQM-MC-CZECH	X	X
<b>French Message catalogs</b>	French message catalogs	MQSERIES.MQM-MC-FRENCH	X	X

Table 5. WebSphere MQ packages (continued)

<b>German Message catalogs</b>	German message catalogs	MQSERIES.MQM-MC-GERMAN	X	X
<b>Hungarian Message catalogs</b>	Hungarian Message catalogs	MQSERIES.MQM-MC-HUNGARIAN	X	X
<b>Italian Message catalogs</b>	Italian message catalogs	MQSERIES.MQM-MC-ITALIAN	X	X
<b>Japanese Message catalogs</b>	Japanese message catalogs	MQSERIES.MQM-MC-JAPAN	X	X
<b>Korean Message catalogs</b>	Korean message catalogs	MQSERIES.MQM-MC-KOREAN	X	X
<b>Polish Message catalogs</b>	Polish Message catalogs	MQSERIES.MQM-MC-POLISH	X	X
<b>Russian Message catalogs</b>	Russian Message catalogs	MQSERIES.MQM-MC-RUSSIAN	X	X
<b>Spanish Message catalogs</b>	Spanish message catalogs	MQSERIES.MQM-MC-SPANISH	X	X
<b>Simplified Chinese Message catalogs</b>	Simplified Chinese message catalogs	MQSERIES.MQM-MC-CHINES	X	X
<b>Traditional Chinese Message catalogs</b>	Traditional Chinese message catalogs	MQSERIES.MQM-MC-CHINET	X	X
<b>Man pages</b>	UNIX man pages, in U.S. English, for the following: <ul style="list-style-type: none"> <li>• Control commands</li> <li>• Message Queue Interface (MQI) commands</li> <li>• MQSC commands</li> </ul>	MQSERIES.MQM-MAN	X	X
<b>Extended Transactional Client</b>	WebSphere MQ component that allows a client application, within the same unit of work: <ul style="list-style-type: none"> <li>• To put messages to, and get messages from, queues that are owned by the queue manager to which it is connected.</li> <li>• To update the resources of a resource manager other than a WebSphere MQ queue manager.</li> </ul>	MQSERIES.MQM-TXCLIENT	X	

Table 6. Other products supplied with WebSphere MQ

Component	Description	Fileset	Server	Client
<b>IBM Global Security Kit V7</b>	Certificate and SSL Base Runtime - 32 bit	gsk7bas	X	X
<b>IBM Global Security Kit V7</b>	Certificate and SSL Base Runtime - 64 bit.	gsk7bas64	X	X

## Verifying the server installation

This is an overview of various methods for verifying a WebSphere MQ installation.

The following set of tasks describe how to verify that the WebSphere MQ for HP-UX server has been correctly installed and configured. You can verify a WebSphere MQ server installation at different levels:

- To verify a local (standalone) installation that has no communication links with other WebSphere MQ installations, do the following:
  - To verify the installation using a single queue manager with a single queue, see: *Verifying a local installation*.
  - To verify the installation using the Postcard application, see: *“Using the Postcard application to verify a local installation”* on page 25.
- To verify a server-to-server installation that includes communication links to other WebSphere MQ installations, do the following:
  - To verify the installation using two queue managers, two queues and both a sender channel and a receiver channel, see: *“Verifying a server-to-server installation”* on page 21.
  - To verify the installation using the Postcard application, see: *“Using the Postcard application to verify a server-to-server installation”* on page 27.

To verify a client/server installation that includes communication links between a server and a WebSphere MQ client, see *“Verifying the client installation”* on page 44.

## Verifying a local installation

To verify a local installation using a simple configuration of one queue manager and one queue, complete the following steps. Once you have completed the steps below, you must test the installation as described in: *“Testing the installation”* on page 21.

**Note:** WebSphere MQ object definitions are case-sensitive. Any text entered as an MQSC command in lowercase is converted automatically to uppercase unless you enclose it in single quotation marks. Make sure that you type the examples exactly as shown.

The procedures outlined in this section describe how to configure your default queue manager from the command line.

To verify your installation you must first perform this task. From a shell window, use these steps to create a queue manager and a queue:

1. Log in as a user in the mqm group
2. Create a default queue manager called `venus.queue.manager` by entering the following command:

```
crtmqm -q venus.queue.manager
```

You will see messages telling you that the queue manager has been created, and that the default WebSphere MQ objects have been created.

3. To start the queue manager, type:

```
strmqm
```

A message tells you when the queue manager has started.

4. Enable MQSC commands by typing:

```
runmqsc
```

A message tells you that an MQSC session has started. MQSC has no command prompt.

5. Define a local queue called `ORANGE.QUEUE` by entering the following command:

```
define qlocal (orange.queue)
```

A message tells you when the queue has been created.

6. Stop MQSC by typing:  
end

You will see some messages, followed by the command prompt.

You have now defined:

- A default queue manager called `venus.queue.manager`
- A queue called `ORANGE.QUEUE`

Now proceed to “Testing the installation” to verify your installation.

## Testing the installation

Before completing this task you must have created a queue manager called `venus.queue.manager` and a local queue called `ORANGE.QUEUE`. For instructions on how to do this see Setting up the installation.

To test the queue manager and queue, use the **amqspout** sample program to put a message on the queue, and the **amqsget** sample program to get the message back from the queue:

1. Log on as a user in group `mqm`, if you are not already.
2. Change into the `/opt/mqm/samp/bin` directory, which contains the sample programs.
3. Put a message on the queue using the following command:  

```
./amqspout ORANGE.QUEUE
```

The following messages are displayed:

```
Sample AMQSPUT0 start  
target queue is ORANGE.QUEUE
```

4. Type some message text, on one or more lines, followed by a blank line. The following message is displayed:  

```
Sample AMQSPUT0 end
```

Your message is now on the queue and the command prompt is displayed again.

5. To get the message from the queue, use the following command:  

```
./amqsget ORANGE.QUEUE
```

The sample program starts, and your message is displayed. After a pause, the sample ends and the command prompt is displayed again.

You have now successfully verified your local installation.

## Verifying a server-to-server installation

To verify a server-to-server installation using two servers, one as a sender and one as a receiver, complete the following tasks.

- “Setting up the sender server” on page 22
- “Setting up the receiver server” on page 23
- “Testing communication between the servers” on page 24

To verify a server-to-server installation you need to check the communications link between the two machines. Before you can do this, you must ensure that the

communications protocol has been installed and configured on both systems. WebSphere MQ for HP-UX supports both TCP and SNA. The tasks in this section explain how to verify your installation and use TCP in the examples; if you are using an alternative protocol, refer to the WebSphere MQ Intercommunication manual.

The verification procedure assumes that both systems are UNIX machines; if this is not the case, some of the commands are different (for details, refer to the documentation for that system).

**Note:** WebSphere MQ object definitions are case-sensitive. Any text entered as an MQSC command in lowercase is converted automatically to uppercase unless you enclose it in single quotation marks. Make sure that you type the examples exactly as shown.

### Setting up the sender server

In order to verify a server-to-server installation you must first set up a sender server. From a shell window, follow these steps to set up the sender server.

1. Log in as a user in the mqm group.
2. Create a default queue manager called saturn.queue.manager with the following command:

```
crtmqm -q saturn.queue.manager
```

Messages tell you that the queue manager has been created, and that the default WebSphere MQ objects have been created.

3. To start the queue manager, type:

```
strmqm
```

A message tells you when the queue manager has started.

4. Start MQSC commands by typing:

```
runmqsc
```

A message tells you that an MQSC session has started. MQSC had no command prompt.

5. Define a local queue called TRANSMIT1.QUEUE (to be used as a transmission queue) by entering the following command:

```
define qlocal (transmit1.queue) usage (xmitq)
```

A message tells you when the queue has been created.

6. Define a local definition of the remote queue with the following command:

```
define qremote (local.def.of.remote.queue) rname (orange.queue)  
rqmname ('venus.queue.manager') xmitq (transmit1.queue)
```

The name specified by the **rname** parameter must be the same as the name of the queue to which you are sending the message (ORANGE.QUEUE on the receiver workstation).

7. Define a sender channel with the following command:

```
define channel (first.channel) chltype (sdr)  
conname ('con-name(port)') xmitq (transmit1.queue) trptype (tcp)
```

The value *con-name* is the TCP address of the receiver workstation, and *port* is the port number, port 1414 is the default port number.

8. End MQSC by typing:



end

Some messages are displayed, followed by the shell prompt.

You have now defined the following objects:

- A default queue manager called `saturn.queue.manager`
- A transmission queue called `TRANSMIT1.QUEUE`
- A local definition of a remote queue called `LOCAL.DEF.OF.REMOTE.QUEUE`
- A sender channel called `FIRST.CHANNEL`

Now to set up the receiver server so that you can verify your server-to-server installation, see “Setting up the receiver server.”

## Setting up the receiver server

After you have completed the task, “Setting up the sender server” on page 22, follow these steps to set up the receiver server:

1. Log in as a user in the `mqm` group.
2. Create a default queue manager called `venus.queue.manager` by entering the following command:

```
crtmqm -q venus.queue.manager
```

Messages tell you that the queue manager has been created, and that the default WebSphere MQ objects have been created.

3. To start the queue manager, type:

```
strmqm
```

A message tells you when the queue manager has started.

4. Enable MQSC commands by typing:

```
runmqsc
```

A message tells you that an MQSC session has started. MQSC has no command prompt.

5. Define a local queue called `ORANGE.QUEUE` by entering the following command:

```
define qlocal (orange.queue)
```

A message tells you when the queue has been created.

6. Define a listener by entering the following command:

**Note:** If you do not specify the port that the listener should listen on, the default of 1414 is used. If you specified a port other than 1414 in step 7 of “Setting up the sender server” on page 22, you must include the port parameter in the command, as shown below.

```
define listener (listener1) trptype (tcp) control (qmgr) port (port_number)
```

Where

*port\_number*

is the name of the port the listener should run on. This must be the same as the number used when defining your sender channel.

7. Start the listener by entering the following command:

```
start listener (listener1)
```

**Note:** It is not recommended to start the listener in the background from any shell that automatically lowers the priority of background processes.

8. Define a receiver channel with the following command:  
`define channel (first.channel) chltype (rcvr) trptype (tcp)`

A message tells you when the channel has been created.

9. End MQSC by typing:  
`end`

Some messages are displayed, followed by the shell prompt.

You have now defined the following objects:

- A default queue manager called `venus.queue.manager`
- A queue called `ORANGE.QUEUE`
- A receiver channel called `FIRST.CHANNEL`

Now to test communications between your sender and receiver workstations, see “Testing communication between the servers.”

## Testing communication between the servers

After completing “Setting up the sender server” on page 22 and “Setting up the receiver server” on page 23, use this topic to test communications between sender and receiver workstations using sample programs. Use the `amqsput` sample program to put a message from the sender server to a queue at the receiver server, and the `amqsget` sample program on the receiver server to get the message from the queue:

1. Log in to both servers as a user in the `mqm` group.
2. If the queue managers on the two servers have stopped, restart them now by typing the following on both servers:

```
strmqm
```

3. Enable MQSC commands by typing:

```
runmqsc
```

A message tells you that an MQSC session has started. MQSC has no command prompt.

4. On the **sender** server, start the sender channel using the MQSC `START CHANNEL` command and specify the channel name:

```
START CHANNEL(FIRST.CHANNEL)
```

The receiver channel on the receiver server starts automatically when the sender channel starts.

5. End MQSC by typing:  
`end`

Some messages are displayed, followed by the shell prompt.

6. On the **sender** server, change into the `/opt/mqm/samp/bin` directory, which contains the sample programs.
7. To put a message on the local definition of the remote queue (which in turn specifies the name of the remote queue), use the following command:

```
./amqsput LOCAL.DEF.OF.REMOTE.QUEUE
```

You will see the following messages:

```
Sample amqsput0 start
target queue is LOCAL.DEF.OF.REMOTE.QUEUE
```

8. Type some message text on one or more lines, followed by a blank line. You will see the following message:

```
Sample amqsput0 end
```

Your message is now on the queue and the command prompt is displayed again.

9. On the **receiver** server, change into the `/opt/mqm/samp/bin` directory, which contains the sample programs.
10. To get the message from the queue at the receiver, enter the following command:

```
./amqsget ORANGE.QUEUE
```

The sample program starts, and your message is displayed. After a pause, the sample ends and the command prompt is displayed again.

You have now successfully verified the server-to-server installation.

## Verifying the installation using the Postcard application

You can set up and use the Postcard application to verify a local installation or a server-to-server installation.

Use the Postcard application to verify that WebSphere MQ is successfully installed, and that the associated communication links are working properly.

You can use the Postcard application to verify a local installation or a server-to-server installation, as follows:

- To use the Postcard application to verify a *local* installation (which does not have any communication links with other WebSphere MQ installations), see “Using the Postcard application to verify a local installation.”
- To use the Postcard application to verify communication between your server and the server of another named user, where that server is running WebSphere MQ and using TCP/IP, see “Using the Postcard application to verify a server-to-server installation” on page 27.

### Using the Postcard application to verify a local installation

Sending messages successfully between two Postcard applications verifies a local installation.

To verify that the local installation is working, you can run two instances of the Postcard application on the same server and send messages between the applications. Successful sending and receiving of messages verifies that WebSphere MQ is installed and working correctly on the server.

#### Note:

1. The Postcard application has a graphical interface. To view this interface, your system requires the ability to view a graphical display.
2. Before you can run the Postcard application, you must ensure that you are a member of the WebSphere MQ administrators group (mqm).
  1. Log on as a user in group mqm.

2. Change directory to `/opt/mqm/java/bin`
3. Run the Postcard shell script.  
`./postcard`

If there are no queue managers on your server, you are invited to run the Default Configuration wizard to create a queue manager to use with the Postcard application before signing on to the Postcard application.

If you already have a queue manager on your server, you will go straight to the Postcard Sign On window.

4. At the Postcard - Sign On window, type in a nickname to use to send messages within the Postcard application (for example, User1).
5. Select the queue manager to use as the mailbox:
  - If the only queue manager on your server is the default queue manager that you created by running the Default Configuration wizard, this queue manager is used automatically as your mailbox for Postcards.
  - If you have created one or more of your own queue managers, but you have not run the Default Configuration wizard, select the appropriate queue manager from the list displayed.
  - If you have run the Default Configuration wizard, and you want to use the default queue manager, but there is more than one queue manager on your server, select the **Advanced** checkbox, then select **Use Default Configuration as mailbox**.
  - If you have run the Default Configuration wizard and also created one or more of your own queue managers, and you do not want to use the default queue manager, select the **Advanced** checkbox, select **Choose queue manager as mailbox**, then select the appropriate queue manager from the list displayed.

When your selection is complete, click **OK** to display your first Postcard window.

6. Run the Postcard shell script again in a different shell window. This opens a second Postcard window.
7. The Postcard - Sign On panel is displayed again. Type in a second nickname to use to send messages within the Postcard application (for example, User2).
8. Repeat the selection of the queue manager that you want to use as the mailbox (as described in step 5). The queue manager you select for this second Postcard must either be the same queue manager, be in the same cluster as the queue manager for the first Postcard, or communication links must have been set up between them. You now have two Postcards, one with the nickname User1 and one with the nickname User2.
9. In one of the Postcards (for example, User1), enter the nickname for the other Postcard application in the **To:** field and the queue manager it is using in the **On:** field.
10. Type a message in the **Message:** field and click **Send**.
11. The **Postcards sent and received** area of the Postcard shows details of the message. In the sending Postcard, the message is displayed as *sent*. In the receiving Postcard, the message is displayed as *received*.
12. From the receiving Postcard, double-click the message in the **Postcards sent and received** area to view it. When this message arrives, this verifies that WebSphere MQ is correctly installed.

Depending on your situation, you might want to do the following:

- Install WebSphere MQ on other servers. Follow the same installation procedure that you used for the first server. Ensure that you use the Join Default Cluster window in the Default Configuration wizard to add the other servers to your first server's cluster.
- Install the WebSphere MQ client on other servers. See the Chapter 3, "Installing a WebSphere MQ client," on page 31.
- Continue with further administration tasks. See the WebSphere MQ System Administration Guide.

## Using the Postcard application to verify a server-to-server installation

Sending messages successfully between two Postcard applications verifies a server-to-server installation.

To verify that a server-to-server installation is working on two servers, the sender of the message and the receiver, you can use an instance of the Postcard application on the sender server, and an instance of the Postcard application on the receiver server, and send messages between the two Postcard applications. Successful sending and receiving of messages verifies that WebSphere MQ is successfully installed, and that communication between the two servers is working correctly. Both servers must use TCP/IP.

To use the **Postcard** application for this type of verification one of the following must be true:

- Both queue managers must be in the same cluster; this is the simplest method. To ensure that both queue managers are in the same cluster, you can run the **Postcard** application before creating any local queue managers on each server. The **Postcard** application detects that there are no local queue managers defined for that server, and displays the Default Configuration wizard so that you can create the default queue managers and link them to the default cluster. You can use the **Postcard** application with existing queue managers, as long as both queue managers belong to the same cluster. If you have already completed the Default Configuration wizard but did not put the two queue managers into the same cluster, you can create your own new queue managers on both servers, create a cluster, and ensure that the queue managers that you create on each server belong to the same cluster.
- Alternatively, if the queue managers are not in the same cluster, you can configure channels to communicate between the two servers. For instructions on how to set up the channels, see "Setting up the sender server" on page 22 and "Setting up the receiver server" on page 23. When you have set up communication, you can use the Postcard application, starting at step 5 on page 28.

### Note:

1. The Postcard application has a graphical interface. To view this interface, your systems require the ability to view a graphical display.
2. Before you can run the Postcard application on each server, you must ensure that you are a member of the WebSphere MQ administrators group (mqm) on each server.

### On the sender server:

1. Log on as a user in group mqm.
2. Change directory to `/opt/mqm/java/bin`

3. Run the postcard shell script.

```
./postcard
```

If there are no queue managers on your server, you are invited to run the Default Configuration wizard to create a queue manager to use with the Postcard application before signing on to the Postcard application.

If you already have a queue manager on your server you will go straight to the Postcard - Sign On window (step 5). You can use the **Postcard** application with existing queue managers, as long as both queue managers belong to the same cluster. If your existing queue manager does not belong to the appropriate cluster refer to the introduction of this topic for information on how to proceed.

4. Work through the Default Configuration wizard. When you get to the option to join the queue manager to the default cluster, tick the checkbox. On the next screen select **yes, make it the repository for the cluster**. Once you have completed the wizard you are taken back to the Postcard - Sign On window.
5. At the Postcard - Sign On window, type a nickname to use to send messages within the Postcard application (for example, User1).
6. Select the queue manager to use as the mailbox:
  - If the only queue manager on your server is the default queue manager that you created by running the Default Configuration wizard, this queue manager is used automatically as your mailbox for postcards.
  - If you have created one or more of your own queue managers, but you have not run the Default Configuration wizard, select the appropriate queue manager from the list displayed.
  - If you have run the Default Configuration wizard, and you want to use the default queue manager, but there is more than one queue manager on your server, select the **Advanced** checkbox, then select **Use Default Configuration as mailbox**.
  - If you have run the Default Configuration wizard, and also created one or more of your own queue managers, and you do not want to use the default queue manager, select the **Advanced** checkbox, select **Choose queue manager as mailbox**, then select the appropriate queue manager from the list displayed.

When your selection is complete, click **OK** to display your second Postcard window.

#### On the receiver server:

1. Log on as a user in group mqm.
2. Change directory to /opt/mqm/java/bin
3. Run the postcard shell script.

```
./postcard
```

If there are no queue managers on your server, you are invited to run the Default Configuration wizard to create a queue manager to use with the Postcard application before signing on to the Postcard application.

If you already have a queue manager on your server, go straight to the Postcard - Sign On window (step 5 on page 29). You can use the Postcard application with existing queue managers, as long as both queue managers belong to the same cluster. If your existing queue manager does not belong to the appropriate cluster refer to the introduction of this topic for information on how to proceed.

4. Work through the Default Configuration wizard:
  - a. When you get the option to join the queue manager to the default cluster, tick the checkbox.
  - b. In the next window, click **No another computer has already joined the cluster as a repository**. Click Next.
  - c. When requested, enter the location of the repository, by typing the server name of the sender server. Click Next.
  - d. Complete the Default Configuration wizard. When you have completed the wizard, you are taken back to the Postcard - Sign On window.
5. At the Postcard - Sign On window, type a nickname to use to send messages within the Postcard application (for example, User2).
6. Select the queue manager to use as the mailbox:
  - If the only queue manager on your server is the default queue manager that you created by running the Default Configuration wizard, this queue manager is used automatically as your mailbox for postcards.
  - If you have created one or more of your own queue managers, but you have not run the Default Configuration wizard, select the appropriate queue manager from the list displayed.
  - If you have run the Default Configuration wizard, and you want to use the default queue manager, but there is more than one queue manager on your server, select the **Advanced** checkbox, then select **Use Default Configuration as mailbox**.
  - If you have run the Default Configuration wizard, and also created one or more of your own queue managers, and you do not want to use the default queue manager, select the **Advanced** checkbox, select **Choose queue manager as mailbox**, then select the appropriate queue manager from the list displayed.

When your selection is complete, click **OK** to display your first Postcard window.

7. In one of the Postcards (for example, User1), enter the nickname for the other Postcard application the **To:** field, and enter the queue manager it is using in the **On:** field.
8. Type a message in the **Message:** field, and click **Send**.
9. The **Postcards sent and received** area of the postcard shows details of the message. In the sending Postcard, the message is displayed as *sent*. In the receiving Postcard, the message is displayed as *received*.
10. In the sent and received area of the Postcard, details of the new message are displayed. The message is displayed as *received*. When this message arrives, this verifies that WebSphere MQ is correctly installed and that your communication link between the two servers is working correctly.

When all installation and verification is complete, you are ready to start using WebSphere MQ (see the WebSphere MQ System Administration Guide).





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## Chapter 3. Installing a WebSphere MQ client

Follow these steps to install a WebSphere MQ client.

This chapter describes how to install a WebSphere MQ Version 7.0 client. The information covers topics such as preparing for installation and verifying your installation, as well as installation itself. If you already have an installation of WebSphere MQ, and are migrating to WebSphere MQ Version 7.0 see Chapter 1, “Migrating to WebSphere MQ for HP-UX Version 7.0,” on page 1 before installing WebSphere MQ Version 7.0.

WebSphere MQ for HP-UX can be installed as a server or a client.

A WebSphere MQ client is a component that allows an application running on one system to communicate with a queue manager running on another system. The output from the call is sent back to the client, which passes it back to the application.

A WebSphere MQ server is an installation of one or more queue managers that provide queueing services to one or more clients. All the WebSphere MQ objects, for example queues, exist only on the queue manager machine (the WebSphere MQ server machine), and not the client. A WebSphere MQ server can also support local WebSphere MQ applications. To install a WebSphere MQ server see, Chapter 2, “Installing a WebSphere MQ server,” on page 3.

It is possible to have both a server and a client installation on the same machine, for instructions on how to do this see, Chapter 4, “Installing a client on the same machine as a server,” on page 49.

See the WebSphere MQ System Administration Guide for an introduction to WebSphere MQ concepts and objects.

For information on the components that can be included in the server and client installations see, “WebSphere MQ Components” on page 18.

The following set of tasks take you through the process of installing a WebSphere MQ client, complete all of these tasks in sequence.

- “Checking hardware and software requirements” on page 32
- “Installing the WebSphere MQ client” on page 41
- “Verifying the client installation” on page 44

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### Preparing to install

Before you install WebSphere MQ, complete the following tasks.

- “Checking hardware and software requirements” on page 32
- “Creating WebSphere MQ file systems” on page 11
- “Setting up the user ID and group ID” on page 10

Additionally, if you require messages in a language other than U.S. English see, “Displaying messages in your national language” on page 12.

## Checking hardware and software requirements

This section details the operating system requirements, the prerequisite software and optional software required for using WebSphere MQ Version 7.0.

- “Checking the operating environment - PA-RISC platform”
- “Checking the operating environment - Itanium platform” on page 33
- “Checking optional software - PA-RISC platform” on page 34
- “Checking optional software - Itanium platform” on page 36

### Checking the operating environment - PA-RISC platform

Check through this topic to identify which hardware and software is supported for use with WebSphere MQ for HP-UX as a server on the PA-RISC platform.

Before you install WebSphere MQ Version 7.0, you must check that your system meets the hardware and operating system software requirements set for this product and the particular components you intend to install on it.

**Note:** WebSphere MQ does not support host names that contain spaces. If you install WebSphere MQ on a computer with a host name that contains spaces, you will be unable to create any queue managers.

### Hardware

WebSphere MQ for HP-UX, Version 7.0 runs on any Hewlett Packard PA-RISC 64-bit computer.

### Operating System (PA-RISC)

The operating systems supported by WebSphere MQ for HP-UX, Version 7.0, on the PA-RISC platform are:

- HP-UX 11i v2 (11.23)
- HP-UX 11i v3 (11.31)

### Connectivity Requirements

Check that the system has 64-bit compatible communications hardware that supports at least one of the following:

- TCP/IP
- HP SNAplus2 Version 7 (For SNA LU 6.2 connectivity)

TCP/IP is part of the base operating system.

IPv6 feature support is available with HP Transport Optional Upgrade Release (TOUR)

### Storage Requirements

The storage requirements for the WebSphere MQ for HP-UX, Version 7.0 depend on which components you install, and how much working space you need. This, in turn, depends on the number of queues that you use, the number and size of the messages on the queues, and whether the messages are persistent. You also require archiving capacity on disk, tape or other media.

Table 7. Storage requirements for a WebSphere MQ client

Storage Requirements	Storage Requirement in MB in /opt
WebSphere MQ Client installation	280
IBM Global Security Kit V7 (32-bit)	16
IBM Global Security Kit V7 (64-bit)	14

You can use the `df -k` command to determine the amount of free space on your system.

Disk storage is also required for

- Prerequisite software
- Optional software
- Your application programs

### Checking the operating environment - Itanium platform

Check through this topic to identify which hardware and software is supported for use with WebSphere MQ for HP-UX as a client on the Itanium platform.

Before you install WebSphere MQ Version 7.0, you must check that your system meets the hardware and operating system software requirements set for this product and the particular components you intend to install on it.

**Note:** WebSphere MQ does not support host names that contain spaces. If you install WebSphere MQ on a computer with a host name that contains spaces, you will be unable to create any queue managers.

### Hardware

WebSphere MQ for HP-UX, Version 7.0 runs on any Itanium system hardware that is explicitly compatible and fully capable of running the specified operating system, all the corresponding supporting software shown below, and any associated applications unmodified.

### Operating System (Itanium)

The operating systems supported by WebSphere MQ for HP-UX, Version 7.0, on the Itanium platform are:

- HP-UX 11i v2 (11.23) for IPF
- HP-UX 11i v3 (11.31) for IPF

### Connectivity Requirements

Check that the system has 64-bit compatible communications hardware that supports at least one of the following:

- TCP/IP
- HP SNAplus2 Version 7 (For SNA LU 6.2 connectivity)

TCP/IP is part of the base operating system.

IPv6 feature support is available with HP Transport Optional Upgrade Release (TOUR)

## Storage Requirements

The storage requirements for the WebSphere MQ for HP-UX, Version 7.0 depend on which components you install, and how much working space you need. This, in turn, depends on the number of queues that you use, the number and size of the messages on the queues, and whether the messages are persistent. You also require archiving capacity on disk, tape or other media.

*Table 8. Storage requirements for a WebSphere MQ client*

Storage Requirements	Storage Requirement in MB in /opt
WebSphere MQ Client installation	280
IBM Global Security Kit V7 (64-bit)	14

You can use the `df -k` command to determine the amount of free space on your system.

Disk storage is also required for

- Prerequisite software
- Optional software
- Your application programs

### Checking optional software - PA-RISC platform

Check through this topic to identify which additional software is supported for use with WebSphere MQ for HP-UX as a client on the PA-RISC platform.

### Compilers for HP-UX (PA-RISC platform) applications

The following compilers are supported for WebSphere MQ for HP-UX applications on the PA-RISC platform:

- HP C/ANSI C Developer Bundle for HP-UX 11i2
- HP aCC Version A.06.12

#### *Figure 8. C/C++*

- Micro Focus Server Express V4.0
- Micro Focus Server Express V5.0

#### *Figure 9. COBOL*

- 32 bit
  - HP-UX SDK for the Java platform and JDK V1.4
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V1.4.2
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V5.0 (SR1 or above)
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V6.0
- 64 bit:
  - HP-UX SDK for the Java platform and JDK V1.4
  - IBM 64-bit SDK for HP-UX Java 2 Technology Edition V1.4.2
  - IBM 64-bit SDK for HP-UX Java 2 Technology Edition V5.0 (SR1 or above)
  - IBM 64-bit SDK for HP-UX Java 2 Technology Edition V6.0 (SR1 or above)

The HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM software V5.0, HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium, and the IBM 64-bit SDK for HP-UX Java 2 Technology Edition V5.0 are supplied with WebSphere MQ, and can be installed during the installation process described in this document.

*Figure 10. Java*

### Transaction monitors

The following transaction processing monitors (coordination through X/Open XA interface) are supported:

- IBM TXSeries V6.0
- IBM TXSeries V6.1
- IBM TXSeries V6.2
- BEA Tuxedo V9.1

### Java Messaging and SOAP transport

If you want to use Java Messaging and SOAP (Simple Object Access Protocol) Support, you need a Java Runtime Environment Version 1.4.2 or later. An appropriate runtime environment is provided in the JDKs provided on the WebSphere MQ Server CD-ROM. These JDK packages can be selected for install during the installation procedure described in this book, see *WebSphere MQ for HP-UX Quick Beginnings* “WebSphere MQ Components” on page 18 for package information.

The JDKs available on the server CD-ROM are:

- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, Version 5.0
- IBM 64-bit SDK for HP-UX Java 2 Technology Edition V5.0

These JDKs provide support for SOAP and are FIPS 140-2 compliant.

For a list of alternative JDKs, see:

[www.ibm.com/software/integration/websphere/mqplatforms/supported.html](http://www.ibm.com/software/integration/websphere/mqplatforms/supported.html)

For further information about using Java with WebSphere MQ, see *WebSphere MQ Using Java*.

For further information about SOAP with WebSphere MQ, see *WebSphere MQ Using Web Services* .

If your JDK has not been supplied by IBM you should be aware that:

- The JDK might not be FIPS level 140-2 compliant and by using it with WebSphere MQ, WebSphere MQ Version 7.0 will not comply with the FIPS 140-2 standards.
- SOAP is not supported.

On HP-UX, the 32-bit and 64-bit JDKs are typically installed to the same directory `/opt/mqm/java/sdk/bin`. To run a 64-bit or 32-bit JVM use the `-d64` or `-d32` parameters on the command line when running a Java application to ensure the correct JVM is used.

## Secure Sockets Layer (SSL)

If you want to use the SSL support with WebSphere MQ for HP-UX, you need to install the IBM Global Security Kit (GSKit) V7 packages: `gsk7bas` and `gsk7bas64`. These are supplied with WebSphere MQ as components available for installation. If you are migrating from WebSphere MQ Version 5.3 and have no other requirement for the IBM Global Security Kit V6 you can uninstall it using the process described in the topic *Uninstalling WebSphere MQ* in *WebSphere MQ for HP-UX Quick Beginnings*, the package name is `gsk6bas`.

To use SSL, WebSphere MQ clients on HP-UX 11i v1 and HP-UX 11i v2 must be built:

- Using the C++ compiler (not the C compiler)
- Using POSIX threads
- With the compiler options: `-Wl,+b/opt/ibm/gsk7/lib:/opt/mqm/lib`

## Checking optional software - Itanium platform

Check through this topic to identify which additional software is supported for use with WebSphere MQ for HP-UX as a server on the Itanium platform.

## Compilers for HP-UX (Itanium platform) applications

The following compilers are supported for WebSphere MQ for HP-UX applications on the Itanium platform:

- HP C/ANSI C Developer's Bundle V6.02 or later maintenance
- HP aCC A.06.12

*Figure 11. C/C++*

- Micro Focus Server Express V4.0
- Micro Focus Server Express V5.0

*Figure 12. COBOL*

- 32-bit
  - HP-UX IPF Software Development Kit for the Java™ 2 platform
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM® for IBM Software, V1.4.2 for 32-bit Itanium
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 32-bit Itanium (SR1 or above)
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V6.0 for 32-bit Itanium
- 64-bit
  - HP-UX IPF Software Development Kit for the Java 2 platform
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V1.4.2 for 64-bit Itanium
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium (SR1 or above)
  - HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V6.0 for 64-bit Itanium

These products are supplied with WebSphere MQ, and can be installed during the installation process described in this document:

- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 32-bit Itanium
- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium

Figure 13. Java

### Transaction monitors

The following transaction processing monitors (coordination through X/Open XA interface) are supported:

- IBM TXSeries V6.1
- IBM TXSeries V6.2
- BEA Tuxedo V9.1

### Java Messaging and SOAP transport

If you want to use Java Messaging and SOAP (Simple Object Access Protocol) Support, you need an IBM Java 2 SDK and Runtime Environment Version 1.4.2 or later. An appropriate runtime environment is provided in the JDK provided on the WebSphere MQ Server CD-ROM. This JDK package can be selected for install during the installation procedure described in this book, see *WebSphere MQ for HP-UX Quick Beginnings* “WebSphere MQ Components” on page 18 for package information.

The JDKs available on the server CD-ROM is:

- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 32-bit Itanium
- HP SDK for J2SE HP-UX 11i platform, adapted by IBM for IBM Software, V5.0 for 64-bit Itanium

These JDKs provide support for SOAP and are FIPS 140-2 compliant.

For a list of alternative JDKs, see:

[www.ibm.com/software/integration/websphere/mqplatforms/supported.html](http://www.ibm.com/software/integration/websphere/mqplatforms/supported.html)

For further information about using Java with WebSphere MQ, see *WebSphere MQ Using Java*.

For further information about SOAP with WebSphere MQ, see *WebSphere MQ Using Web Services* .

If your JDK has not been supplied by IBM you should be aware that:

- The JDK might not be FIPS level 140-2 compliant and by using it with WebSphere MQ, WebSphere MQ Version 7.0 will not comply with the FIPS 140-2 standards.
- SOAP is not supported.

On HP-UX, the 32-bit and 64-bit JDKs are typically installed to the same directory `/opt/mqm/java/sdk/bin`. To run a 64-bit or 32-bit JVM use the `-d64` or `-d32` parameters on the command line when running a Java application to ensure the correct JVM is used.

## Secure Sockets Layer (SSL)

If you want to use the SSL support with WebSphere MQ for HP-UX, you need to install the IBM Global Security Kit (GSKit) V7 package: `gsk7bas64`. This is supplied with WebSphere MQ as one of the components available for installation.

**Note:** WebSphere MQ for HP-UX on Itanium does not support 32-bit SSL. The WebSphere MQ documentation generally describes the use of the 32-bit GSKit commands (`gsk7cmd`, `gsk7ikm`, and `gsk7capicmd`). On the HP-UX for Itanium platform, you must use the equivalent 64-bit variants `gsk7cmd_64`, `gsk7ikm_64`, and `gsk7capicmd_64`.

To use SSL, WebSphere MQ clients on HP-UX 11i v2 must be built:

- Using the C++ compiler (not the C compiler)
- Using POSIX threads
- With the compiler options: `-Wl,+b/opt/ibm/gsk7/lib:/opt/mqm/lib`

## Creating WebSphere MQ file systems

The installation directory for the WebSphere MQ product code is `/opt/mqm`. Working data is stored in `/var/mqm`. You cannot change these locations. The GSKit must also be installed into its default location.

The topics contained in this section describe how to prepare your file system for installing WebSphere MQ. Perform these tasks before installation.

### Creating a file system for the product code

This topic describes how to prepare the `/opt/mqm` file system into which the WebSphere MQ code will be installed and what to do should you not have enough storage space available in the file system.

The WebSphere MQ product code is installed in `/opt/mqm`. If you cannot install the product code in the `/opt/mqm` file system because the file system is too small to contain the product, you can do one of the following:

1. Create a new file system and mount it as `/opt/mqm`. If you choose this option, the new file system must be created and mounted before installing the product code.
2. Create a new directory anywhere on your machine, and create a symbolic link from `/opt/mqm` to this new directory. For example:

```
mkdir /bigdisk/mqm
ln -s /bigdisk/mqm /opt/mqm
```



If you choose this option, the new directory must be created, and the link created, before installing the product code.

The file system into which the code is installed can be a remote network device, for example, NFS. However, you must define the mount options defined on that device to allow **setuid** programs, including those which are **setuid** root, to run.

## Creating a file system for the working data

Before you install WebSphere MQ for HP-UX, create and mount a file system called `/var/mqm`. For a client installation, the file system can be mounted on a remote network device, for example NFS.

To determine the size of the `/var/mqm` file system for a client installation, consider:

- The size of the error log files written to the `/var/mqm/errors` directory
- The amount of trace that is written to the `/var/mqm/trace` directory

If you are performing both a client and a server installation, the requirements of the server installation take precedence over the requirements of the client installation. For details about the requirements of the server installation, see “Creating a file system for the working data” on page 11.

Allow 50 MB as a minimum for a WebSphere MQ server and 15 MB as a minimum for a WebSphere MQ client.

A new sample WebSphere MQ client configuration file is created in the `var/mqm` directory, by the C client package, during installation, but only if this file does not already exist.

This file contains example stanzas, with the `name=value` pairs commented out. This file should include the following lines, after the header:

```
TCP:  
# KeepAlive=Yes
```

An example WebSphere MQ client configuration file is shown in *System Administration Guide*.

Note, that if you are using a common configuration file for multiple clients, either in the WebSphere MQ installation directory or in another location using the `MQCLNTCF` environment variable, you should grant read access to all user identifiers under which the WebSphere MQ client applications run. If, for any reason, the file cannot be read, the failure is traced and the search logic continues as if the file had not existed.

## Creating separate file systems for working data

You can also create separate file systems for your log data (`/var/mqm/log`) and error files (`/var/mqm/errors`). If possible, store log files on a different physical disk from the WebSphere MQ queues (`/var/mqm`).

If you create separate file systems:

- The `/var/mqm` and `/var/mqm/log` directories *must* be on a local file system.
- The `/var/mqm/errors` directory can be NFS mounted. However, if you choose to NFS-mount `/var/mqm/errors`, the error logs might be lost if the network fails.

If you are creating separate file systems, allow a minimum of 30 MB of storage for /var/mqm for a server installation and 15 MB of storage for /var/mqm for a client installation. Also allow 20 MB of storage for /var/mqm/log, and 4 MB of storage for /var/mqm/errors for both client and sever installations.

If you want to use individual queues that will hold more than 2 GB of data, you must enable /var/mqm to use large files.

The size of the log file depends on the log settings that you use. The minimum sizes above are for circular logging using the default settings. For further information on log sizes see the WebSphere MQ System Administration Guide.

## Setting up the user ID and group ID

WebSphere MQ requires a user ID of the name `mqm`, with a primary group of `mqm`. The `mqm` user ID owns the directories and files that contain the resources associated with the product. Create the user ID and group IDs as described in the following sections.

- “Creating the user ID and group” on page 10
- “Adding existing user IDs to the group” on page 10

### Creating the user ID and group

Create the required user ID and group ID *before* you install WebSphere MQ. Both user ID and group ID must be set to `mqm`. For stand-alone machines, you can create the new user ID and group IDs locally; for machines administered in a network information services (NIS) domain, an administrator must create the IDs on the NIS master server machine.

It is also suggested that you set the `mqm` user’s home directory to `/var/mqm`.

You can use the System Administration Manager (SAM) to work with user IDs.

### Adding existing user IDs to the group

If you want to run administration commands, for example `crtmqm` (create queue manager) or `strmqm` (start queue manager), your user ID must be a member of the `mqm` group.

Users do not need `mqm` group authority to run applications that use the queue manager; it is needed only for the administration commands.

## Displaying messages in your national language

This describes how to display messages from a different national language message catalog.

Messages in U.S. English are automatically installed with WebSphere MQ.

If you require messages in a different language, perform the following steps:

1. Install the appropriate message catalog (see “WebSphere MQ Components” on page 18).
2. To select messages in a different language, use the following command with the identifier for the language you want to install:

```
export LANG=de_De.iso88591
```

The message identifiers for the message catalogs are as follows:

- cs\_CZ (Czech)
- de\_DE (German)
- es\_ES (Spanish)
- fr\_FR (French)
- hu\_HU (Hungarian)
- it\_IT (Italian)
- ja\_JP (Japanese)
- ko\_KR (Korean)
- pl\_PL (Polish)
- pt\_BR (Brazilian Portuguese)
- ru\_RU (Russian)
- zh\_CN (Simplified Chinese)
- zh\_TW (Traditional Chinese)

---

## Installing the WebSphere MQ client

This chapter tells you how to install the WebSphere MQ for HP-UX client. If you want to install the WebSphere MQ server see Chapter 2, “Installing a WebSphere MQ server,” on page 3.

Before you start the installation procedure, make sure you have prepared your system as described in “Preparing for installation” on page 3.

There are two types of WebSphere MQ clients:

### Client with SSL

This is the standard WebSphere MQ client with additional code to allow you to use SSL support. You can install the client with SSL from either the client or the server CD.

### Extended Transactional Client

This is additional code to allow a client application within the same unit of work to:

- To put messages to, and get messages from, queues that are owned by the queue manager to which it is connected.
- To update the resources of a resource manager other than a WebSphere MQ queue manager.

You can only install this from the server CD.

For more information about SSL, see the WebSphere MQ Security book.

To install a WebSphere MQ server, see “Installation procedure” on page 16.

If you want to install the client on the same machine as a WebSphere MQ server, see Chapter 4, “Installing a client on the same machine as a server,” on page 49.

## Installation procedure

Installing the client on HP-UX

Before you start the installation procedure, make sure that you have prepared your system as described in “Preparing for installation” on page 3

This installation procedure uses the **swinstall** program, enabling you to choose which components you want to install. The components (or filesets) are listed in “WebSphere MQ Components” on page 18; you must install at least the Runtime, Base, and Client components.

1. Log in as root.
2. Insert the Server CD-ROM, and make the mount point your current directory.
3. Accept the licence:
  - a. Change directory to the location of the mounted CD-ROM or your install location. If you want to install the client with SSL support, change directory to `MQClientwithSSL`, otherwise, change directory to `MQClient`.
  - b. Run the `mqlicense` script (for example `./mqlicense.sh`).  
The license is displayed. If you accept the license, you can continue the installation.  
If you are performing a silent or remote install, you can type `./mqlicense.sh -accept` to accept the license without being displayed.

4. Use the following command to start the installation procedure:

```
swinstall -s src_dir src_name
```

where *src\_dir* is the source directory for the installation files (similar to: `/cdrom/hpux11/mq...`) and *src\_name* is the name of the file you are installing (similar to: `MQSERIES.MQM...`). If you do this, *all* components of the WebSphere MQ client are installed (including message catalogs for all available languages).

If the files on your CD-ROM appear in uppercase with a “;1” suffix, use this name for the depot.

5. If you want to install all WebSphere MQ components, select **MQSERIES**, then select **Actions > Install**.
6. If you do not want to install all components, select **MQSERIES**:
  - a. Select **Actions > Open Item**.
  - b. Highlight the components you require and select **Mark for install** from the Actions menu. (The `gsk7bas` and `gsk7bas64` fileset for the IBM Global Security Kit is automatically selected).
  - c. Select **go up** and press *Enter* to return to the product list. **MQSERIES** is marked as **Partial** if you did not select all the components.
7. Select **Actions > Install**. The log file tells you if there are any problems that need fixing.
8. When you have fixed any problems, press **OK** to install. You are informed when the installation is complete.

## Non-interactive installation

If you do not want to select which components to install, you can install WebSphere MQ in a non-interactive way.

Before you run the installation, you must run the `mqlicense.sh` script. Use the following command to accept the license without displaying it:

```
./mqlicense.sh -accept
```

Then use the following command to start the installation:

```
swinstall -s src_dir MQSERIES
```

where *src\_dir* is the source directory for the installation files and the name of the file you are installing. If you do this, *all* components of the WebSphere MQ server are installed (including message catalogs for all available languages).

If you do this, all components of WebSphere MQ are installed (including message catalogs for all available languages).

## WebSphere MQ Components

This lists all of the installable MQ components and other IBM products that comprise Websphere MQ.

When you install WebSphere MQ for HP-UX, you can choose which components to install.

Table 9. WebSphere MQ packages

Component	Description	Fileset	Server	Client
<b>Runtime</b>	Mandatory component. Needed for application development and provides support for external applications.	MQSERIES.MQM-RUNTIME	X	X
<b>SDK</b>	Required for compiling applications.	MQSERIES.MQM-BASE	X	X
<b>Client</b>	The WebSphere MQ client is a small subset of WebSphere MQ, without a queue manager. Provides remote access to WebSphere MQ. Must be connected to a server. To install a client on the same machine as a server, use the Server CD-ROM; otherwise use the Clients CD-ROM.	MQSERIES.MQM-CL-HPUX	X	X
<b>Sample programs</b>	Sample application programs. Needed if you want to check your WebSphere MQ installation using the verification procedures described in "Verifying the installation using the Postcard application" on page 25.	MQSERIES.MQM-SAMPLES	X	X
<b>Java messaging</b>	The files needed for messaging using Java (includes Java Messaging Service).	MQSERIES.MQM-JAVA	X	X
<b>SSL support</b>	Support for SSL key management	MQSERIES.MQM-KEYMAN	X	X
<b>Brazilian Portuguese Message catalogs</b>	Brazilian Portuguese message catalogs	MQSERIES.MQM-MC-PORT	X	X
<b>Czech Message catalogs</b>	Czech Message catalogs	MQSERIES.MQM-MC-CZECH	X	X
<b>French Message catalogs</b>	French message catalogs	MQSERIES.MQM-MC-FRENCH	X	X
<b>German Message catalogs</b>	German message catalogs	MQSERIES.MQM-MC-GERMAN	X	X
<b>Hungarian Message catalogs</b>	Hungarian Message catalogs	MQSERIES.MQM-MC-HUNGARIAN	X	X
<b>Italian Message catalogs</b>	Italian message catalogs	MQSERIES.MQM-MC-ITALIAN	X	X
<b>Japanese Message catalogs</b>	Japanese message catalogs	MQSERIES.MQM-MC-JAPAN	X	X
<b>Korean Message catalogs</b>	Korean message catalogs	MQSERIES.MQM-MC-KOREAN	X	X

Table 9. WebSphere MQ packages (continued)

<b>Polish Message catalogs</b>	Polish Message catalogs	MQSERIES.MQM-MC-POLISH	X	X
<b>Russian Message catalogs</b>	Russian Message catalogs	MQSERIES.MQM-MC-RUSSIAN	X	X
<b>Spanish Message catalogs</b>	Spanish message catalogs	MQSERIES.MQM-MC-SPANISH	X	X
<b>Simplified Chinese Message catalogs</b>	Simplified Chinese message catalogs	MQSERIES.MQM-MC-CHINES	X	X
<b>Traditional Chinese Message catalogs</b>	Traditional Chinese message catalogs	MQSERIES.MQM-MC-CHINET	X	X
<b>Man pages</b>	UNIX man pages, in U.S. English, for the following: <ul style="list-style-type: none"> <li>• Control commands</li> <li>• Message Queue Interface (MQI) commands</li> <li>• MQSC commands</li> </ul>	MQSERIES.MQM-MAN	X	X
<b>Extended Transactional Client</b>	WebSphere MQ component that allows a client application, within the same unit of work: <ul style="list-style-type: none"> <li>• To put messages to, and get messages from, queues that are owned by the queue manager to which it is connected.</li> <li>• To update the resources of a resource manager other than a WebSphere MQ queue manager.</li> </ul>	MQSERIES.MQM-TXCLIENT	X	
<b>IBM Java SDK</b>	Required for compiling applications.	MQSERIES.MQM-JAVASDK	X	X

Table 10. Other products supplied with WebSphere MQ

Component	Description	Fileset	Server	Client
<b>IBM Global Security Kit V7</b>	Certificate and SSL Base Runtime - 32 bit	gsk7bas	X	X
<b>IBM Global Security Kit V7</b>	Certificate and SSL Base Runtime - 64 bit.	gsk7bas64	X	X
<b>IBM Java SDK (32-bit)</b>	IBM 32-bit SDK for Solaris, Java 2 Technology Edition, Version 1.4.2		X	X

## Verifying the client installation

The following set of tasks describes how to verify that the WebSphere MQ for HP-UX client has been correctly installed and configured.

To verify your WebSphere MQ client installation, you need a WebSphere MQ server with communication links with your client workstation. You can then complete the following tasks in order:

- “Setting up the server workstation” on page 45
- “Setting up the client workstation” on page 46
- “Testing communication between workstations” on page 47

The verification procedure assumes that:

- TCP/IP is configured and initialized on both the server and the client machines. If you are using SNA, refer to the WebSphere MQ Intercommunication manual.
- The WebSphere MQ server is installed on a Linux or UNIX machine; if this is not the case, some of the commands will be different (for details, refer to the WebSphere MQ Clients book).

**Note:** WebSphere MQ object definitions are case-sensitive. Any text entered as an MQSC command in lowercase is converted automatically to uppercase unless you enclose it in single quotation marks. Make sure that you type the examples exactly as shown.

## Setting up the server workstation

In order to verify your installation you must first perform this task. These instructions assume that the server workstation is a UNIX machine. From a shell window, use these steps to install a queue manager and a queue on the server:

1. Create a default queue manager called `saturn.queue.manager` by entering the following command:

```
crtmqm -q saturn.queue.manager
```

You will see messages telling you that the queue manager has been created, and that the default WebSphere MQ objects have been created.

2. To start the queue manager, type:

```
strmqm
```

A message tells you when the queue manager has started.

3. Enable MQSC commands by typing:

```
runmqsc
```

A message tells you that an MQSC session has started. MQSC has no command prompt.

4. Define a local queue called `QUEUE1` by entering the following command:

```
define qlocal (queue1)
```

A message tells you when the queue has been created.

5. Define a server-connection channel by entering the following command on one line:

```
define channel (channel1) chltype (svrconn) trdtype (tcp) mcauser ('mqm')
```

**Note:** Once you have set the `mcauser` attribute to `mqm`, you **MUST** set the attribute back to its default value after you have verified the installation to prevent any security vulnerabilities, as described in: “Testing communication between workstations” on page 47.

A message tells you when the channel has been created.

6. Define a listener by entering the following command:

**Note:** If you do not specify the port that the listener should listen on, by omitting the port parameter from the command below, the default of 1414 is used. If you want to specify a port other than 1414, you must include the port parameter in the command, as shown.

```
define listener (listener1) trdtype (tcp) control (qmgr) port (port_number)
```

Where

*port\_number*

is the name of the port the listener should run on. This must be the same as the number used when defining your client-connection channel in "Setting up the client workstation."

7. Start the listener by entering the following command:

```
start listener (listener1)
```

8. Stop MQSC by typing:

```
end
```

You will see some messages, followed by the command prompt.

You have now defined the following objects on the server:

- A default queue manager called `saturn.queue.manager`
- A local queue called `QUEUE1`
- A server-connection channel called `CHANNEL1`

To continue with the verification process, see "Setting up the client workstation."

## Setting up the client workstation

Before you complete this task you must have completed, "Setting up the server workstation" on page 45.

When a WebSphere MQ application is run on the WebSphere MQ client, the following information is required:

- The name of the MQI channel that connects the client to the server
- The communications protocol
- The address of the server

You provide this information by defining a client-connection channel with the name used for the server-connection channel defined on the server. This example uses the `MQSERVER` environment variable to define the client-connection channel.

1. Before starting, use the **ping** command to check that your TCP/IP software is correctly configured, and that your WebSphere MQ client and server TCP/IP sessions have been initialized. From the client, enter:

```
ping server-hostname
```

or

```
ping n.n.n.n
```

where

*server-hostname*

Is the host name of the server

**n.n.n.n**

Is the network address of the server

2. Press Ctrl-C to stop the **ping** command.

3. To create a client-connection channel, set the `MQSERVER` environment variable as follows:

```
export MQSERVER='CHANNEL1/TCP/server-hostname(port)'
```

where



**CHANNEL1**

Is the name of the server-connection channel already defined on the server

**TCP** Is the communications protocol.

*server-address*

Is the TCP/IP host name of the server.

*port* Is optional and is the port number that the server is listening on, you specified this in step 6 of “Setting up the server workstation” on page 45. If you do not give a port number, WebSphere MQ uses:

- The one specified in the `qm.ini` file.
- If no value is specified in the `qm.ini` file, WebSphere MQ uses the port number identified in the TCP/IP services file for the service name WebSphere MQ. If this entry in the services file does not exist, a default value of 1414 is used.

The client-connection channel and server listener program must use the same port number.

To continue with the verification process, see “Testing communication between workstations.”

## Testing communication between workstations

Before you complete this task you must have completed, “Setting up the client workstation” on page 46.

On the WebSphere MQ client workstation, use the **amqsputc** sample program to put a message on the queue at the server workstation, and the **amqsgetc** sample program to get the message from the queue back to the client:

1. Change into the `/opt/mqm/samp/bin` directory, which contains the sample programs.
2. Put a message on the queue at the server using the following command:  

```
./amqsputc QUEUE1 saturn.queue.manager
```

This displays the following messages:

```
Sample amqsput0 start
target queue is QUEUE1
```

3. Type some message text on one or more lines, followed by a blank line. You will see the following message:  

```
Sample amqsput0 end
```

Your message is now on the queue and the command prompt is displayed again.

4. To get the message from the queue located on the server, enter the following command:  

```
./amqsgetc QUEUE1 saturn.queue.manager
```

The sample program starts and your message is displayed. After a pause, the sample ends and the command prompt is displayed again.

You have now successfully verified the client installation.

**Note:** You must now set the **mcauser** attribute back to its default value:

1. Start MQSC commands by entering the following command:

```
runmqsc
```

A message tells you that an MQSC session has started. MQSC has no command prompt.

2. In the MQSC window, set the **mcauser** attribute to its default value by entering the following command:

```
alter channel(channel1) chltype (svrconn) mcauser(' ')
```

3. Stop MQSC by typing:

```
end
```

You will see some messages, followed by the command prompt.

You have now set the **mcauser** attribute back to its default value.

---

## Chapter 4. Installing a client on the same machine as a server

To install a WebSphere MQ for HP-UX client on a server machine, use the WebSphere MQ Server CD-ROM. Choose the Client component on the Server CD-ROM to install the client code on the server machine, and use the installation procedure described in “Installation procedure” on page 16.

If you install a WebSphere MQ client on the same machine as a WebSphere MQ server, the client is not connected to the server automatically. Configure the communication channel (an MQI channel) between the client and the server, as described in “Verifying the client installation” on page 44.



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## Chapter 5. Applying maintenance

How to maintain WebSphere MQ for HP-UX.

This section describes how to maintain WebSphere MQ for HP-UX .

- “Applying service” describes the process of how to install service updates.
- “Restoring the previous service level” on page 52 details how to restore the previous service level.

This information applies to both server and client installations of WebSphere MQ Version 7.0.

The latest information about service updates and downloads can be found on the Internet, at:

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

---

### Applying service

A service update requires hard disk space for installation. In addition, the installation process requires an identical amount of disk space to save the previous level. For example, a 16 MB update requires 32 MB of space. This allows a service level to be removed, and the previous level to be restored automatically.

To apply the service update:

1. Stop all MQ applications on the machine and the applications accessing remote machines.
2. End all WebSphere MQ activity:
  - a. Log in as administrator.
  - b. Use the `endmqm` command to stop all running queue managers.
  - c. Stop any listeners associated with the queue managers, using the command:  
`endmqlsr -m QMgrName`
  - d. To check that you have stopped all of them, enter the following:  
`ps -ef | grep mq`

Check that there are no processes listed that are running command lines beginning `amq` or `runmq`. Ignore any that start with `amqi`.

3. log in as root.
4. In the directory where the service update packages are located, use `swinstall` to install the maintenance packages:  
`swinstall -s $PWD/hp-Uxxxx.v11 MQSERIES`

Selecting to install the package at the product level (MQSERIES), will automatically install only the components which match the set of WebSphere MQ components that are already installed on the machine. Unmatched components will fail at the prerequisite check, a warning will be shown to inform you that the files will be analyzed before install.

If the base WebSphere MQ for HP-UX, Version 5.3 package is included in the depot with the service updates packages you are installing, then the following `swinstall` option is required when you install the maintenance packages:

```
autoselect_dependencies=false
```

If you want to install both the base package and the service update packages, you must install the base package separately first, followed by the service update packages.

If you are using the interactive installer, click **Options > Change Options** and then clear the “autoselect dependencies when marking software” check box before selecting the service update package for installation.

Note that if `autoselect_dependencies` is turned off, the GSKit package will not be automatically installed. If the service update package requires the updated version of the GSKit package, it will fail at the installation preview. To correct this, you must manually select the GSKit package for installation.

You must not uninstall any maintenance packages when `autoselect_dependencies` is turned off.

---

## Restoring the previous service level

To restore the previous service level:

1. Stop all MQ applications on the machine and the applications accessing remote machines.
2. Before installing maintenance you must end all WebSphere MQ activity:
  - a. Log in as MQ administrator.
  - b. Use the **endmqm** command to stop all running queue managers.
  - c. Stop any listeners associated with the queue managers, using the command:

```
endmqlsr -m QMgrName
```
  - d. To check that you have stopped all of them, enter the following:

```
ps -ef | grep mq
```

Check that there are no processes listed that are running command lines beginning `amq` or `runmq`. Ignore any that start with `amqi`.

3. Log in as root.
4. Use the **swremove** command to remove the maintenance package from the system. For example, to remove the 7.0.0.1 maintenance level, use the command:

```
swremove MQSERIES,r=7.0.0.1
```

Make sure that `autoselect_dependencies` is set to true before you remove any maintenance packages from the system.

Details of the **swremove** command can be found in the *HP-UX Administration Guide* or by using the **man swremove** command.

---

## Chapter 6. Uninstalling WebSphere MQ

To uninstall (server or client), use the HP-UX `swremove` program.

1. Stop all WebSphere MQ applications on the machine and the applications accessing remote machines.
2. Before starting to uninstall, end all WebSphere MQ activity.
  - a. Log in as MQ administrator.
  - b. Use the `dspsmq` command to display the state of all the queue managers on the system.
  - c. Use the `endmqm` command to stop all running queue managers.
  - d. Stop any listeners associated with the queue managers, using the command:  
`endmq1sr -m QMgrName`
  - e. To check that you have stopped all of them, enter the following:  
`ps -ef | grep mq`
  - f. Check that there are no processes listed that are running command lines beginning `amq` or `runmq`. Ignore any that start with `amqi`.
3. Log in as root.
4. Enter `swremove MQSERIES` to uninstall the MQSERIES package.
  - a. Log in as root.
  - b. Enter `swremove MQSERIES` to uninstall the MQSERIES package.
5. After uninstalling WebSphere MQ, you can delete the `/var/mqm` directory tree, (this will destroy all queue managers and their associated data).
6. If no other products require the Global Security Kit Version 7, you can uninstall packages `gsk7bas` and `gsk7bas64` by typing:  
`swremove gsk7bas`  
  
or  
`swremove gsk7bas64`





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## Chapter 7. WebSphere MQ Documentation

This chapter describes the documentation and sources of information about WebSphere MQ. It starts with a list of the publications, including their PDF filenames, and then discusses:

- Publications supplied with the product
- Hardcopy books
- Online information

If there is similar information in this book and any of the books in the following list, the information in this book should take precedence.

WebSphere MQ is described in the following books:

Table 11. WebSphere MQ family books

PDF file name	Order Number	Title
AMQTAC07	GC34-6920	<i>WebSphere MQ for Windows Quick Beginnings</i>
AMQDAC10	GC34-6921	<i>WebSphere MQ for Solaris Quick Beginnings</i>
AMQAAC10	GC34-6922	<i>WebSphere MQ for AIX Quick Beginnings</i>
AMQCAC09	GC34-6923	<i>WebSphere MQ for HP-UX Quick Beginnings</i>
AMQ1AC07	GC34-6924	<i>WebSphere MQ for Linux Quick Beginnings</i>
AMQWAC04	GC34-6925	<i>WebSphere MQ for i5/OS Quick Beginnings</i>
CSQZAE10	SC34-6931	<i>WebSphere MQ Intercommunications</i>
CSQZAH08	SC34-6933	<i>WebSphere MQ Queue Manager Clusters</i>
CSQZAF10	GC34-6934	<i>WebSphere MQ Clients</i>
AMQZAG10	SC34-6951	<i>WebSphere MQ System Administration Guide</i>
CSQZAJ11	SC34-6941	<i>WebSphere MQ Script (MQSC) Command Reference</i>
CSQZAX06	SC34-6937	<i>Monitoring WebSphere MQ</i>
CSQZAC06	SC34-6942	<i>WebSphere MQ Programmable Command Formats and Administration Interface</i>
AMQZA006	GC34-6945	<i>WebSphere MQ Messages</i>
CSQZAL12	SC34-6939	<i>WebSphere MQ Application Programming Guide</i>
CSQZAK11	SC34-6940	<i>WebSphere MQ Application Programming Reference</i>
AMQZAN10	SC34-6936	<i>WebSphere MQ Using C++</i>
CSQZAW16	SC34-6935	<i>WebSphere MQ Using Java</i>
CSQZAC06	SC34-6942	<i>WebSphere MQ Programmable Command Formats and Administration Interface</i>
CSQZAS04	SC34-6932	<i>WebSphere MQ Security</i>
CSQSAT04	GC34-6926	<i>WebSphere MQ for z/OS Concepts and Planning Guide</i>
CSQSAV05	SC34-6927	<i>WebSphere MQ for z/OS System Setup Guide</i>
CSQSAW04	SC34-6929	<i>WebSphere MQ for z/OS System Administration Guide</i>
AMQWAG04	SC34-6930	<i>WebSphere MQ for i5/OS System Administration Guide</i>
AMQTAN04	SC34-6938	<i>WebSphere MQ Using the Component Object Model Interface</i>
AMQWAK02	SC34-6943	<i>WebSphere MQ for i5/OS Application Programming Reference</i>

Table 11. WebSphere MQ family books (continued)

PDF file name	Order Number	Title
CSQSAQ04	GC34-6944	<i>WebSphere MQ for z/OS Problem Determination Guide</i>
CSQSA006	GC34-6946	<i>WebSphere MQ for z/OS Messages and Codes</i>
CSQZA001	GC34-6948	<i>WebSphere MQ Migration Information</i>
CSQZAV06	GC34-6949	<i>WebSphere MQ Using .NET</i>
CSQSAD05	GI10-2584	<i>Program Directory for WebSphere MQ for z/OS</i>
AMQNAR11	SC34-6950	<i>WebSphere MQ Publish/Subscribe User's Guide</i>
CSQZAQ01	SC34-6951	<i>WebSphere MQ Constants</i>
CSQZAY04	SC34-6947	<i>WebSphere MQ Glossary</i>

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## Publications supplied with the product

The WebSphere MQ documentation is supplied separately on a CD-ROM alongside the product. You can either view the documents directly from CD, or you can install them on your computer (either before or after installing the WebSphere MQ product).

The WebSphere MQ online documentation is delivered on the documentation CD-ROM as PDFs on all platforms and as an Information Center on Linux and Windows only.

### Information Center

For information on how to view and install the Information Center, see Information Center in *WebSphere MQ for Windows Quick Beginnings*.

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## Online information

This section describes the sources of information available online about WebSphere MQ Version 7.0.

### HTML and PDF books on the World Wide Web

The WebSphere MQ books are available on the World Wide Web as well as on the product CD-ROM. They are available in PDF and HTML format. The WebSphere MQ product family Web site is at:

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

By following links from this Web site you can:

- Obtain latest information about the WebSphere MQ product family.
- Access the WebSphere MQ books in HTML and PDF formats.

### Online help

Man pages are provided for all API calls, MQSC commands, and relevant control commands including **crtmqm**, **strmqm**, and **endmqm**.

### SupportPacs

SupportPacs contain material that complements the WebSphere MQ family products, for example, there are a number of SupportPacs to help you with

performance and capacity planning. Many SupportPacs are freely available for download, others can be purchased as a fee-based service. SupportPacs can be obtained from the following Web site:

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

### **WebSphere MQ newsgroups**

WebSphere MQ support provides a number of newsgroups where members share their knowledge and experience with others. A list of the newsgroups can be found at:

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

### **Whitepapers and migration documents**

IBM produces a number whitepapers that contain other useful information about WebSphere MQ. These can be found at:

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

### **Service support summary (PTF readmes)**

The service support summary gives a summary of the support information and end of service dates for in-service MQSeries<sup>®</sup> products. This can be found at:

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