WebSphere MQ for AIX

Quick Beginnings

Version 5.3

IBM

> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page 51.

Contents

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Welcome to WebSphere MQ for AIX

This book describes WebSphere MQ for AIX Version 5.3 and explains how to plan for the product, install it, and verify that the installation has worked.

See the:

- *WebSphere MQ Bibliography and Glossary* for an explanation of terms used in this book
- *WebSphere MQ System Administration Guide* for further information on using the control commands *crtmqm*, *strmqm*, and *endmqm*

Road map

Use Table 1 to find the information that you need to get started with WebSphere MQ for AIX.

Table 1. Getting started road map

If you want to...	Refer to...
Learn about system requirements for WebSphere MQ for AIX	Chapter 1, "Planning to install WebSphere MQ for AIX" on page 1 and Chapter 2, "Preparing to install WebSphere MQ for AIX" on page 7
Install WebSphere MQ for AIX	Chapter 3, "Installing the WebSphere MQ for AIX server" on page 13 and Chapter 4, "Verifying the server installation" on page 21
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Conventions

Knowing the conventions used in this book will help you to use it more efficiently.

- **Boldface type** indicates the name of an item that you need to select or the name of a command.
- *Italics type* indicates new terms, book titles, or variable information that must be replaced by an actual value.
- `Monospace type` indicates an example (such as a fictitious path or file name) or text that is displayed on the screen.

Conventions

What's new in WebSphere MQ for AIX, Version 5 Release 3

WebSphere MQ for AIX, Version 5 Release 3 provides the following new and changed functions:

- WebSphere MQ for AIX now supports WebSphere MQ channels protected using the industry standard Secure Sockets Layer (SSL). See *WebSphere MQ Security* for details. This support is based on IBM® Global Security Kit; a copy of this product is included with WebSphere MQ.

- Support for Java™ is integrated within the product. This replaces the support previously provided by MQSeries® SupportPac™ MA88.

- Product documentation is now supplied on separate CD-ROMs.

- Support for Web Administration and the Internet Gateway has been removed. If you have these features installed from a previous release of the product, you will lose them when you upgrade.

- A new form of license management is implemented for this release of the product.

- WebSphere MQ for AIX now supports the AIX Extended Shared memory model EXTSHM.

- It is now mandatory to export the entry point 'MQStart' in any exits that WebSphere MQ for AIX uses.

- WebSphere MQ now supports generic authority administration.

What's new

Chapter 1. Planning to install WebSphere MQ for AIX

This chapter describes the prerequisites for running WebSphere MQ for AIX, V5.3, including:
- "Hardware requirements"
- "Prerequisite software" on page 2
- "Optional software" on page 2

The software that is supplied with the WebSphere MQ for AIX product package is described in:
- "Delivery" on page 3
- "WebSphere MQ components" on page 4

The latest information about the product can be found in the README file (see "readme file" on page 6).

Hardware requirements

WebSphere MQ for AIX, V5.3 runs on any machine that supports the AIX V4.3.3 PowerPC® 32–bit, or AIX V5.1 Power 32 bit only operating system, whether from IBM or other vendors. For example:
- IBM RS/6000® POWERserver®
- IBM RS/6000 POWERstation
- IBM Scalable POWERparallel® systems
- Bull DPX/20 (RISC)
- Bull ESCALA (SMP)

Disk storage

The storage requirements for WebSphere MQ for AIX, V5.3 depend on which components you install (see "WebSphere MQ components" on page 4), 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.

Typical storage requirements are as follows:
- Server installation: 50 MB
- Client installation: 15 MB
- Data storage (server): 50 MB
- Data storage (client): 5 MB

Use the **df** command to determine the amount of free space on your system.

Disk storage is also required for:
- Prerequisite software
- Optional software
- Your application programs

See "Preparing for installation" on page 7 for information about creating the file systems you need to install and run WebSphere MQ for AIX.

Prerequisite software

Minimum supported software levels are shown. Later levels, if any, are supported unless otherwise stated. These prerequisites apply to both client and server installations of WebSphere MQ.

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.

Operating system

The operating systems supported by WebSphere MQ for AIX, V5.3 are:
- AIX V4.3.3, with PTF U472177, running in a 32 bit environment, on 32 or 64 bit hardware.
- AIX V5.1, with PTFs U476879, U477366, U477367 and U477368, and APAR fix IY29345 running 32 bit kernel running on 32 or 64 bit hardware.
- AIX V5.1, with PTF U476879, U477366, U477367 and U477368, and APAR fix IY29345 running 64 bit kernel running on 64 bit hardware.

The C and C++ runtime must be at level 5.0.2.0 or higher.

Use the **oslevel** command to determine the level of the operating system you are running.

Connectivity

The network protocols supported by WebSphere MQ for AIX, V5.3 are:
- TCP/IP
- SNA LU 6.2

TCP/IP is part of the base operating system. For SNA connectivity you need IBM eNetwork™ Communications Server for AIX V6.0.

SSL

If you want to use the SSL support, you need IBM Global Security Kit V6. This is supplied with WebSphere MQ.

Optional software

The following products can be used with WebSphere MQ for AIX, V5.3, but are not required. Unless otherwise stated, these products apply only to server installations of WebSphere MQ.

Compilers

The following compilers are supported for WebSphere MQ for AIX, V5.3 applications:
- IBM VisualAge® C++ Professional for AIX Version 5.0
- Micro Focus Server express V2.0.10
- IBM Developer Kit for AIX, Java Technology Edition, Version 1.3.1

Transaction monitors

The following transaction processing monitors (coordination through X/Open XA interface) are supported:
- BEA TUXEDO V6.4 and V6.5
- WebSphere Application Server V4.0

| • TXSeries™ for AIX V4.3

WebSphere MQ for AIX, V5.3 supports WebSphere Application Server as an XA coordinator. For more information about the WebSphere MQ application adaptor, and how to write Component Broker applications, see the *WASEE 3.5, MQSeries Application Adaptor Development Guide* , SC09–4444–01.

Databases

The following databases are supported:
| • DB2® Universal Database V7.1 or V7.2
| • Oracle 8iR3 (8.1.7) and Oracle 9i
• Sybase V12 or V12.5:
  – Adaptive Server Enterprise (A.S.E.), V11.5
  – Open Client (ctlib and dblib), V11.1
  – Embedded SQL/C, V11.0
  – XA Server, V11.1
  – Adaptive Server Enterprise (A.S.E.), V12 with

  - The DTM option

  - The latest patches installed (tested with EBF9091)

  - Environment variables SYBASE and SYBASE_OCS set to appropriate values in the shell from which you start a queue manager or application program

For information on how to set up XA coordination, see the *WebSphere MQ System Administration Guide*.

DCE

The following DCE products are supported for client and server installations of WebSphere MQ. If you want to run the DCE send, receive, or message exits supplied by WebSphere MQ, you must use a DCE product that supports DES data encryption.
• IBM DCE V3.1
| • IBM DCE V3.2

DCE names and security modules are provided with WebSphere MQ for AIX, V5.3.

Note: If you install the WebSphere MQ DCE extensions, you will not be able to use SSL channels.

Java

If you want to use the Java Messaging Support, you need the Java Runtime Environment Version 1.3 or later.

Delivery

WebSphere MQ for AIX, V5.3 is supplied on a number of CD-ROMs, as follows:
• WebSphere MQ for AIX Server
• WebSphere MQ Clients
| • WebSphere MQ Documentation

WebSphere MQ for AIX can be installed as a server or a client. See the *WebSphere MQ System Administration Guide* for an explanation of client and server installations of WebSphere MQ.

Delivery

The Clients CD-ROMs contain the WebSphere MQ clients for AIX, HP-UX, Linux, Solaris, and Windows. Refer to the relevant *Quick Beginnings* book for information on how to install the client on other platforms.

The documentation CD-ROMs contain the product documentation in HTML and PDF formats.

WebSphere MQ components

When you install WebSphere MQ for AIX, V5.3, you can choose which components to install.

Server

The components available on the Server CD-ROM are as follows:

Runtime
Mandatory component. Provides support for external applications.

Base Kit
Needed for application development.

Server Provides messaging and queuing services to applications, and support for WebSphere MQ client connections.

Client for AIX
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.

Sample programs
Sample application programs. Needed if you want to check your WebSphere MQ installation using the verification procedures described in this book.

DCE support
Provides support for DCE names and security on the server. Install this component only if you are using DCE.

DCE samples
Sample programs for DCE support.

Java messaging
The files needed for messaging using Java (includes Java Messaging Service).

Message catalogs
Message catalogs are available for the following national languages. The message catalog for the locale selected on your machine is installed by default.
- Brazilian Portuguese
- French
- German
- Italian
- Japanese
- Korean
- Spanish
- Simplified Chinese
- Traditional Chinese
- U.S. English

Man pages
UNIX® man pages, in U.S. English, for the following:
- Control commands
- Message Queue Interface (MQI) commands
- MQSC commands

IBM Global Security Kit V6
Needed for SSL.

IBM Key Management tool (iKeyman)
Needed for SSL.

Client

The following components of WebSphere MQ for AIX are available on the Clients CD-ROM. For a description of each component, see "Server" on page 4.

Runtime

Base Kit

Client for AIX

Sample programs

DCE samples

Message catalogs

Documentation

HTML and PDF versions of the WebSphere MQ for AIX books, are available on the Documentation CD-ROM package in some or all of the following national languages:
- Brazilian Portuguese
- French
- German
- Italian
- Japanese
- Korean
- Spanish
- Simplified Chinese
- Traditional Chinese
- U.S. English

See "Online information" on page 40 for details of the documentation CD-ROM package.

Note: HTML and PDF versions of the WebSphere MQ books can be viewed directly from the CD-ROM.

Filesets

The filesets that correspond to each of the components are listed in Table 2.

Table 2. Filesets and components

Fileset	Component
mqm.base.runtime	Runtime
mqm.base.samples	Sample programs
mqm.base.sdk	Base Kit
mqm.Client.Bnd	Client Bundle (for Easy Installation)

WebSphere MQ components

Table 2. Filesets and components (continued)

Fileset	Component
mqm.client.rte	Client for AIX
mqm.dce.samples	DCE samples
mqm.dce.server	DCE support
mqm.java.rte	Java and JMS support
mqm.keyman.rte	Support for SSL key management
mqm.man.en_US.data	Man pages (U.S. English)
mqm.msg.de_DE	Message catalog (German)
mqm.msg.De_DE	Message catalog (German)
mqm.msg.en_US	Message catalog (U.S. English)
mqm.msg.es_ES	Message catalog (Spanish)
mqm.msg.Es_ES	Message catalog (Spanish)
mqm.msg.fr_FR	Message catalog (French)
mqm.msg.Fr_FR	Message catalog (French)
mqm.msg.it_IT	Message catalog (Italian)
mqm.msg.It_IT	Message catalog (Italian)
mqm.msg.ja_JP	Message catalog (Japanese)
mqm.msg.Ja_JP	Message catalog (Japanese)
mqm.msg.ko_KR	Message catalog (Korean)
mqm.msg.pt_BR	Message catalog (Brazilian Portuguese)
mqm.msg.zh_CN	Message catalog (Simplified Chinese)
mqm.msg.Zh_CN	Message catalog (Simplified Chinese)
mqm.msg.zh_TW	Message catalog (Traditional Chinese)
mqm.msg.Zh_TW	Message catalog (Traditional Chinese)
mqm.server.rte	Server
mqm.Server.Bnd	Server Bundle (for Easy Installation)
gskak.rte	IBM Global Security Kit V6

Note: For some languages, two message catalogs are available in different code sets (for example mqm.msg.de_DE is code set ISO8859-1 and mqm.msg.De_DE is code set IBM-850). For more information, see Chapter 10, "Code sets supported by WebSphere MQ for AIX" on page 47.

readme file

Before starting to install WebSphere MQ for AIX, review the readme file for the latest information on the product. The readme files for all supported national languages are found in the READMES directory on each CD-ROM.

Chapter 2. Preparing to install WebSphere MQ for AIX

This chapter describes what to do to prepare your system for installing WebSphere MQ for AIX (see "Preparing for installation").

If you are migrating from an earlier version of MQSeries, read "Migrating from an earlier version" on page 9.

"National language considerations" on page 11 describes how to select the national language for your WebSphere MQ installation.

Preparing for installation

Before you install WebSphere MQ for AIX, you need to:
1. Create the file systems used to hold WebSphere MQ and its data.
2. Set up the user ID and group for WebSphere MQ.

Creating WebSphere MQ file systems

The installation directory for the WebSphere MQ product code is /usr/mqm. Working data is stored in /var/mqm. You cannot change these.

Creating a file system for the product code

Install WebSphere MQ for AIX in /usr/mqm. The space required depends on how many components you install. Typically you need 50 MB for a server installation, or 15 MB for a client installation without SSL.

If you cannot install the product code in this file system (for example, if it is too small to contain the product), you can do one of the following:
1. Create a new file system and mount it as /usr/mqm.
2. Create a new directory anywhere on your machine, and create a symbolic link from /usr/mqm to this new directory. For example:

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

3. Allow the install program to expand the file system.

Whichever of these options you choose, you must do it *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 root access, to run.

Creating a file system for the working data

Before you install WebSphere MQ for AIX, create and mount a journalized file system called/var/mqm. 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 (this is a new directory for this release)

Allow 50 MB as a minimum for a WebSphere MQ server. You need less space in /var/mqm for a WebSphere MQ client, typically 15 MB.

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 volume from the WebSphere MQ queues (/var/mqm). This ensures data integrity in the case of a hardware failure.

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.

> **Attention**
>
> 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, 20 MB of storage for /var/mqm/log, and 4 MB of storage for /var/mqm/errors.

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 size we recommend is 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

A user ID of the name mqm, with a primary group of mqm, is created automatically during installation. After installation, the mqm user ID owns the directories and files that contain the resources associated with the product.

You can create the user ID and group IDs yourself, as described in the next section. For example, you might want to do this if you are setting up all security groups before installing WebSphere MQ.

Creating the user ID and group

If you want to create the required user ID and group ID yourself, you must do it *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.

You can use the System Management Interface Tool (**smit**), for which you require root authority.

1. To create the mqm group, display the required window using this sequence:

```
Security & Users
  Groups
    Add a Group
```

Set the name field to mqm.

2. To create the new user, mqm, display the required window using this sequence:

```
Security & Users
  Users
    Add a User
```

Set the name field to mqm.

3. To add a password to the new user ID, display the required window using this sequence:

```
Security & Users
  Change a Users Password
    Passwords
```

Set the password as required.

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.

You can use **smit** to add an existing user ID to the mqm group. Display the required window using this sequence:

```
Security & Users
  Users
    Change / Show Characteristics of a User
```

Enter the name of the user in the **User Name** field. Add mqm to the **Group SET** field, which is a comma-separated list of the groups to which the user belongs. Users need not have their primary group set to mqm. Provided that mqm is in their set of groups, they can use the administration commands.

Migrating from an earlier version

This section describes differences between WebSphere MQ for AIX, V5.3 and earlier versions of the product, known previously as MQSeries.

Changes to the installation path

Changes in AIX packaging mean that MQSeries V5.1 and later versions install into directory /usr/mqm, whereas MQSeries V5.0 installs into directory /usr/lpp/mqm.

Installing WebSphere MQ for AIX, V5.3 fails if a file system mounted as /usr/lpp/mqm is detected. If you are migrating from an earlier version, and a file system exists for this directory, you need to do one of the following things before installing WebSphere MQ for AIX, V5.3. Either:

- Uninstall your existing MQSeries product, and delete the file system or move it to the new install path of /usr/mqm

  or

- Move the old file system of /usr/lpp/mqm to the new installation path of /usr/mqm and create a symbolic link from the old path to the new by issuing the following command:

      ln -s /usr/mqm /usr/lpp/mqm

If you uninstall your existing MQSeries product, and delete or move your existing file system, you can then install WebSphere MQ for AIX, V5.3 as described in "Installation procedure" on page 13.

However, if you move the old file system to the new installation path, perform the migration installation described in "Migrating from an earlier version" on page 16.

If you have already symbolically linked a file system to /usr/lpp/mqm, installing WebSphere MQ for AIX, V5.3 destroys the file system content and the link, and you are left with an empty file system. In this case, uninstall your existing MQSeries product and delete the file system, or relink it to the new install path of /usr/mqm, before installing WebSphere MQ for AIX, V5.3.

The installation process for WebSphere MQ for AIX, V5.3 creates a symbolic link from the old /usr/lpp/mqm path to the new /usr/mqm path. Therefore any existing scripts or makefiles that reference the old path are still valid.

POSIX standard threading library

MQSeries for AIX, V5.2 onwards, uses the POSIX standard threading library (which was not available on AIX V4.2) to match the implementation on other UNIX platforms. Existing MQSeries applications built on AIX 4.2 using the draft 7 level of POSIX threads are not affected by this new implementation and will continue to run unchanged. However, you need to recompile WebSphere MQ exits and installable services and relink them using the **xlc_r** compiler on AIX 4.3 to use the final level of the pthread standard definition (also known as the draft 10 level).

Write any new threaded applications on AIX 4.3 to use this level of the pthreads standard.

Creating the system default objects

When you use the **crtmqm** command to create a queue manager with WebSphere MQ for AIX, V5.3, the system default objects are automatically created. We no longer provide the sample MQSC definition file, **amqscoma.tst**.

If you used **amqscoma.tst** to customize your settings for MQSeries for AIX, V5.0, and you want to use the same settings with V5.3 of the product:

1. Save your copy of **amqscoma.tst**.
2. Install WebSphere MQ for AIX, V5.3.
3. Load your copy of **amqscoma.tst** and use the file to re-create your default objects.

Client applications

An MQSeries Version 5 client can connect to all queue managers that support client attach. Note, however, that you cannot use features and structures specific to WebSphere MQ for AIX, V5.3 in your client application if you connect to a non-Version 5.3 queue manager.

EXTSHM - Extended Shared Memory model

By default, AIX has a different System V Shared Memory model from the other UNIX platforms. No more than 10 shared memory segments can be attached simultaneously by an individual process.

With WebSphere MQ for AIX, V5.3, queue managers use the AIX extension EXTSHM, which allows more than 10 segments to be attached by a single process. This is enabled by exporting the environment variable EXTSHM=ON in the environment before a process is started (the variable must be in upper case).

To take full advantage of this facility, set the environment variable EXTSHM=ON in the environment of all WebSphere MQ applications before they are started. All WebSphere MQ queue manager processes will set this variable for the lifetime of their process, if it is not already set when the queue manager is started.

If a user's WebSphere MQ application chooses not to set this variable, it can still connect and communicate with WebSphere MQ correctly. However, if the application tries to use more shared memory than is available in the 10 slots provided for attaching shared memory segments, that request might fail.

The types of situations that can increase the number of segments that WebSphere MQ tries to attach are:

- Many threads all attach to WebSphere MQ
- Large messages transfer between the application and WebSphere MQ
- An application uses other application libraries, such as database connections, and these other libraries allocate shared memory from the 10 slots available.

Note: Not all applications support the use of the EXTSHM=ON environment variable. Do not set this value globally (for example, in /etc/environment). It is better to set this value locally in the profile of any user who wants to run WebSphere MQ applications.

National language considerations

This section includes information on displaying messages in your national language and national language support for manuals.

Displaying messages in your national language

Messages in the language specified by the locale selected on your machine are installed by default. If you require messages in a different language, ensure that:

1. You install the appropriate message catalog (see "WebSphere MQ components" on page 4 and "National language installation" on page 15).
2. Your NLSPATH environment variable includes the appropriate directory. For example, to select messages in German use the following:

```
export LANG=de_DE
export NLSPATH=/usr/lib/nls/msg/%L/%N
```

To find out which language is currently installed, use the **locale** command. If a message catalog is not available for this language, install a message catalog for a different language, or you will not see any messages.

National language support for manuals

The documentation for WebSphere MQ is supplied in HTML and PDF formats on a separate CD-ROM. The documentation is available in any of the languages that are supported by WebSphere MQ for AIX.

See "Online information" on page 40 for more information about hypertext linking between books in different national languages.

Chapter 3. Installing the WebSphere MQ for AIX server

This chapter tells you how to install the WebSphere MQ for AIX server.

It also tells you how to migrate from a version of MQSeries (see "Migrating from an earlier version" on page 16), and describes some other procedures that might be needed after you have installed WebSphere MQ.

Chapter 4, "Verifying the server installation" on page 21 describes how to verify that your installation of the WebSphere MQ server is working.

If you want to install the WebSphere MQ client, see Chapter 5, "Installing the WebSphere MQ for AIX client" on page 31.

Installation procedure

There are different ways of installing WebSphere MQ for AIX. You can use:
- Easy installation
- Custom installation
- National language installation
- Remote installation

The "Easy installation" procedure gives a minimal configuration on your machine, consisting of the following components:
- Runtime
- Base Kit
- Server
- Sample programs

If you want any of the other components, such as online documentation, use "Custom installation" on page 14.

If you want messages in a different national language from the locale selected on your machine, use "National language installation" on page 15.

To install WebSphere MQ for AIX on a remote machine, see "Remote installation" on page 16.

Before you start the installation procedure, make sure that you have prepared your system as described in "Preparing for installation" on page 7.

Note: We recommend that you install AIX PTF U472177 before installing WebSphere MQ for AIX, V5.3. This PTF updates the `bos.rte.install` fileset on AIX to Version 4.3.3.17.

Without this PTF, the WebSphere MQ product might appear to install correctly, even though some of the product files are missing.

Easy installation

This installation procedure uses the **xinstallm** program, which is available in the `X11.vsm.rte` optional fileset.

Installing the server

By default, the procedure installs the client components for WebSphere MQ SSL support. If you do not want to install the client components for WebSphere MQ SSL support, see the readme file supplied with WebSphere MQ for AIX.

1. Log in as root.
2. Insert the WebSphere MQ for AIX Server CD-ROM into the CD-ROM drive.
3. Type: `xinstallm -ez`

   The WebSphere MQ Welcome window is displayed, followed by a second window where you can make some selections.
4. Choose the **CD-ROM** software source.
5. For **Which bundle of software would you like to install?** choose **Media-defined**.
6. Click **Install/Update** to create the **mqm.Server** and **mqm.Client**.
7. Choose the **mqm.Server** bundle and click **Install/Update** again.

   This installs the filesets in this bundle, and a work in progress window gives information as the installation proceeds.

At the end of the installation, click the **View log** button and scroll to the bottom of the log to see the filesets that have been installed successfully.

Once you have installed WebSphere MQ for AIX, you need to run the **setmqcap** command, inputting the number of processors you have paid for. The relationship between processors and license units for UNIX servers is shown in the license agreement.

The first time you start a queue manager on this machine, if you have not already run the **setmqcap** command, you get a warning saying `Purchased license units not set (use setmqcap)`. If you have already run **setmqcap** but entered an incorrect value, you get the warning `Insufficient license units`. You need to run **setmqcap** to correct this before you can start a queue manager.

To change your installation, or back out a failed installation, use the System Management Interface Tool (**smit**) in the following text.

Custom installation

This installation procedure uses the System Management Interface Tool (**smit**), enabling you to select which components you want to install. The components and filesets are listed in "WebSphere MQ components" on page 4; you must install at least the Runtime, Base Kit, and Server components.

By default, the procedure installs the client components for WebSphere MQ SSL support. If you do not want to install the client components for WebSphere MQ SSL support, see the readme file supplied with WebSphere MQ for AIX.

1. Log in as root.
2. Insert the WebSphere MQ for AIX Server CD-ROM into the CD-ROM drive.
3. Select the required **smit** window using the following sequence:

   ```
   Software Installation and Maintenance
     Install and Update Software
       Install and Update from LATEST Available Software
   ```

   Alternatively you can use a fastpath command (`smitty install_latest`).
4. Click **List** to display the input device or directory for the software.
5. Select **/dev/cd0 (CD-ROM Drive)** and click **OK**.

6. Use the **SOFTWARE to install** field to obtain a list of available filesets, and select the filesets you want to install.

   Note: If you install the DCE extensions, you will not be able to run SSL channels.

7. Make sure that **Include corresponding LANGUAGE filesets?** is set to **Yes**.

8. On AIX V4.3.3:

   a. Click **OK** to install WebSphere MQ.

   On AIX V5.1:

   a. Change **Preview new LICENSE agreements?** to **yes** and click **OK** to view the license agreements.

      Note: Pay particular attention to the section that outlines the number of license units you need, because you will be asked later to confirm that you have purchased sufficient license units for the number of processors you have in your computer.

   b. Change **ACCEPT new license agreements?** to **yes** and click **OK** to accept the license agreements and install WebSphere MQ.

   Once you have installed WebSphere MQ for AIX, you need to run the **setmqcap** command, inputting the number of processors you have paid for. The relationship between processors and license units for UNIX servers is shown in the license agreement.

National language installation

The Easy and Custom installation procedures install messages in the language, specified by the locale selected on your machine, by default. If you require messages in a different language, use the following procedure.

The process is similar to "Custom installation" on page 14. You must install at least the Runtime, Base Kit, and Server components, in addition to the Message Catalog for your chosen language.

1. Log in as root.

2. Insert the WebSphere MQ for AIX Server CD-ROM into the CD-ROM drive.

3. Select the required **smit** window using the following sequence:

   ```
   Software Installation and Maintenance
     Install and Update Software
       Install and Update from ALL Available Software
   ```

4. Check **List** to display the input device or directory for the software.

5. Select **/dev/cd0 (CD-ROM Drive)** and click **OK**.

6. Use the **SOFTWARE to install** field to obtain a list of available filesets, and select the filesets you want to install (including the message catalog).

7. On AIX V4.3.3:

   a. Click **OK** to install WebSphere MQ.

   On AIX V5.1:

   a. Change **Preview new LICENSE agreements?** to **yes** and click **OK** to view the license agreements.

      Note: Pay particular attention to the section that outlines the number of license units you need, because you will be asked later to confirm

that you have purchased sufficient license units for the number of processors you have in your computer.

b. Change **ACCEPT new license agreements?** to **yes** and click **OK** to accept the license agreements and install WebSphere MQ.

Once you have installed WebSphere MQ for AIX, you need to run the **setmqcap** command, inputting the number of processors you have paid for. The relationship between processors and license units for UNIX servers is shown in the license agreement.

Remote installation

To install WebSphere MQ for AIX on a remote machine, you can use standard AIX techniques.

By default, the procedure installs the client components for WebSphere MQ SSL support. If you do not want to install the client components for WebSphere MQ SSL support, see the readme file supplied with WebSphere MQ for AIX.

To do this, log on to both systems as root. Put the WebSphere MQ for AIX Server CD-ROM in the CD-ROM drive of the machine from which you are going to take the copy. Follow this procedure for each target machine on which you want to install the product:

1. Create a CD-ROM file system on the local machine, and mount the CD-ROM file system on the local machine (mount /cdrom).
2. Using **smit**, export this file system using NFS to the target machine.
3. Log on to the remote machine and use NFS to mount the CD-ROM file system that you created (mount *local_machine*:/cdrom).
4. Use **smit** to install WebSphere MQ for AIX from the target directory that you specified.

Once you have installed WebSphere MQ for AIX, you need to run the **setmqcap** command, inputting the number of processors you have paid for. The relationship between processors and license units for UNIX servers is shown in the license agreement.

Reinstalling WebSphere MQ for AIX

If you reinstall WebSphere MQ for AIX, a check is made to see if the WebSphere MQ configuration file (mqs.ini) exists. If the file exists, it is kept and used with the newly installed system. If the file does not exist, an empty mqs.ini file is placed in the directory /var/mqm.

Migrating from an earlier version

Always backup the /var/mqm directory before starting to migrate from an earlier version of MQSeries for AIX.

If you have installed any of the following filesets, uninstall them before you perform the migration.
```
mqm.java.bindings
mqm.java.client
mqm.java.share
mqm.gateway.*
mqmjava.base
mqmjava.jms
```

| `mqm.html.*`

To migrate to WebSphere MQ for AIX, V5.3, first end all queue manager activity on the target machine and then use the System Management Interface Tool (**smit**) to update your currently installed components.

1. Log in as root.
2. Insert the WebSphere MQ for AIX, V5.3 Server CD-ROM into the CD-ROM drive.
3. Select the required **smit** window using the following sequence:

   ```
   Software Installation and Maintenance
     Install and Update Software
       Update Installed Software to Latest Level (Update All)
   ```

   Alternatively you can use a fastpath command (`smitty update_latest`).
4. Check **List** to display the **Single Select List** window, and select **/dev/cd0 (CD-ROM Drive)**.
5. Check **OK** to display the parameters for **Update All**.
6. For correct migration, update all previously installed WebSphere MQ (MQSeries) software. Select the **_update_all** option in the **Software to Update** field and press Enter.
7. Click **OK** on the confirmation window to update the software.

When all previously installed components have been updated to the latest level, you can install any additional components (including support for Java if you uninstalled it before the update) as described in "Custom installation" on page 14.

Differences between WebSphere MQ for AIX, V5.3 and versions of MQSeries are described in "Migrating from an earlier version" on page 9.

Migrating authorization data

If you are migrating from MQSeries V5.1 or V5.2, and you are using the compatibility OAM, all authorization data is migrated from the authorization files to the authorization queue the first time that you restart the queue manager after installing WebSphere MQ for AIX, V5.3. If the OAM detects a missing file and:

- The authorization applies to a single object, the OAM gives the mqm group access to the object and continues with the migration. Message AMQ5528 is written to the queue manager's error log. Refer to the *WebSphere MQ Messages* book for more information about message AMQ5528.
- The authorization applies to a class of objects, the OAM stops the migration. The queue manager does not start until the file has been replaced.

You can continue to store authorization data in files. However, if you do so, you cannot exploit any of the V5.3 improvements (such as generic profiles), and the performance of the OAM will be affected. The default OAM service module is amqzfu. WebSphere MQ for AIX, V5.3 also provides the previous service module as amqzfu0. There are two ways in which you can use the previous module to continue to store authorization data in files:

- Modify the Module attribute in the ServiceComponent stanza of the qm.ini file to use amqzfu0. Note that this option is possible only for queue managers created before you migrated to V5.3.
- Replace the amqzfu module found in `/opt/mqm/lib` by the previous version. For example, you can do this by:
  1. Removing the existing amqzfu module

2. Renaming amqzfu0 as amqzfu

Notes:

1. You can restore the new amqzfu module from the copy provided as amqzfu1.

2. Once you have created or restarted a queue manager with the new amqzfu module, you can no longer replace the amqzfu module with the previous version. The migration process, described above, is not reversible.

You can view authorization data with the **dspmqaut** and **dmpmqaut** commands. Refer to the *WebSphere MQ System Administration Guide* for a complete description of these commands.

Setting the queue manager CCSID

The coded character set identifier (CCSID) is fixed when you create a queue manager. The CCSID is determined by the locale that you use to run the **crtmqm** command. For more information on using command sets see the *WebSphere MQ System Administration Guide*

The following table gives some examples of using the `LANG` parameter in your NLSPATH environment variable to change the code set and CCSID.

Table 3. Examples of setting the CCSID

Example	Code set	CCSID
`export LANG=C` (this is the default locale)	ISO8859-1	819
`export LANG=en_US`	ISO8859-1	819
`export LANG=En_US`	IBM-850	850

To modify an existing queue manager CCSID, follow this procedure:

1. Start MQSC commands by typing: `runmqsc`
2. Display the existing queue manager CCSID, using the MQSC command:
   `display qmgr ccsid`
3. Change the CCSID to the new CCSID with the MQSC command:
   `alter qmgr ccsid (new.ccsid)`

   where `new.ccsid` is the number of the new CCSID.
4. Stop MQSC commands by typing: `end`
5. Stop the queue manager, and then restart it and any channels that it uses.

See Chapter 10, "Code sets supported by WebSphere MQ for AIX" on page 47 for further information about supported code sets. See "Migrating to euro support" on page 48 for information on migrating to a CCSID that supports the euro character.

User exits

Check that your user exits are linked with threaded libraries before using them on this version of the product.

- For further details on threaded libraries, and information about data-conversion exits, see the *WebSphere MQ Application Programming Guide*.
- For information about channel exits, see the *WebSphere MQ Intercommunication* book.

- For information about cluster-workload exits, see the *WebSphere MQ Queue Manager Clusters* book.

User exits

Chapter 4. Verifying the server installation

This chapter describes how to verify that the WebSphere MQ for AIX server has been correctly installed and configured. You can verify a WebSphere MQ server installation at different levels:

- A local (stand-alone) installation that has no communication links with other WebSphere MQ installations. This is described in "Verifying a local installation".
- A server-to-server installation that includes communication links to other WebSphere MQ installations. This is described in "Verifying a server-to-server installation" on page 22.

See Chapter 6, "Verifying the client installation" on page 35 if you have a client/server installation that includes communication links between a server machine and a WebSphere MQ client.

Verifying a local installation

To verify a local installation with a simple configuration of one queue manager and one queue, use sample programs to put a message onto the queue and to read the message from the queue.

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.

Setting up the installation

From a shell window, use these steps to install a queue manager and a queue:

1. 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.

2. To start the queue manager, type: `strmqm`

   A message tells you when the queue manager has started.

   The first time that you start a queue manager on a machine, you might get one of the following warnings: `Purchased license units not set (use setmqcap)` or `Insufficient license units`. See "Installation procedure" on page 13 for how to correct this.

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 `ORANGE.QUEUE` by entering the following command:

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

A message tells you when the queue has been created.

5. 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`

Testing the installation

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

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

   ```
   ./amqsput ORANGE.QUEUE
   ```

   The following messages are displayed:

   ```
   Sample amqsput0 start
   target queue is ORANGE.QUEUE
   ```

3. 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.
4. 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 the local installation.

Verifying a server-to-server installation

There are more steps involved in verifying a server-to-server installation, because 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 AIX supports both TCP and SNA. This example explains how to verify your installation if you are using TCP; if you are using SNA, refer to the *WebSphere MQ Intercommunication* manual.

To test the installation, set up two workstations, one as a sender and one as a receiver. You test communications between sender and receiver using sample programs, which you must install on both workstations. The verification procedure assumes that both workstations are UNIX machines; if this is not the case, some of the commands are different (for details, refer to the documentation for the workstation).

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 workstation

From a shell window, use these steps to set up the sender machine:

1. 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.

2. To start the queue manager, type: `strmqm`

   A message tells you when the queue manager has started.

   The first time that you start a queue manager on a machine, you might get one of the following warnings: `Purchased license units not set (use setmqcap)` or `Insufficient license units`. See "Installation procedure" on page 13 for how to correct this.

3. Start 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 `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.

5. 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).

6. 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 name, with 1414 as default.

7. Stop MQSC by typing: `end`

   Some messages are displayed, followed by the command 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`

Setting up the receiver workstation

Now follow these steps to set up the receiver:

1. 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.

2. To start the queue manager, type: `strmqm`

   A message tells you when the queue manager has started.

   The first time that you start a queue manager on a machine, you might get one of the following warnings: `Purchased license units not set (use setmqcap)` or `Insufficient license units`. See "Installation procedure" on page 13 for how to correct this.

3. Start a WebSphere MQ listener as a background task by entering the following command:

   ```
   runmqlsr -t tcp &
   ```

   You can use the `-p` parameter to specify the number of a port that the listener should listen on. If you do not specify it, the default of 1414 is used. The port number must be the same as the one that you specify when setting up the sender.

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 receiver channel with the following command:

   ```
   define channel (first.channel) chltype (rcvr) trptype (tcp)
   ```

   A message tells you when the channel has been created.

7. Stop MQSC by typing: `end`

   Some messages are displayed, followed by the command 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`

Testing communication between the workstations

Finally, use the **amqsput** sample program to put a message from the sender workstation to a queue at the receiver, and the **amqsget** sample program on the receiver workstation to get the message from the queue:

1. If the queue managers on the two workstations have stopped, restart them now by typing: `strmqm`

2. On the **sender** workstation, start the sender channel as a background task by entering the following command:

   ```
   runmqchl -c FIRST.CHANNEL -m saturn.queue.manager &
   ```

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

3. On the **sender** workstation, change into the `/usr/mqm/samp/bin` directory, which contains the sample programs.

4. 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
   ```

5. 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.

6. On the **receiver** workstation, change into the `/usr/mqm/samp/bin` directory, which contains the sample programs.

7. 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 JMS Postcard application

To use the **JMS Postcard**, you must install the optional Java Messaging feature of WebSphere MQ, and you must have a working JRE (Java Runtime Environment).

Note: If you want the **JMS Postcard** application to use font and color settings different from the Java Virtual Machine defaults, change the Postcard.ini file. For more information see *WebSphere MQ Using Java*.

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

You can use the **JMS Postcard** application to verify a *local* installation (which does not have any communication links with other WebSphere MQ installations). For further information, see "Using the JMS Postcard application to verify a local installation" on page 27.

You can also use the **JMS Postcard** application to verify communication between your machine and the machine of another named user, where that machine is running WebSphere MQ and using TCP/IP. Therefore, you can use the **JMS Postcard** application to verify that you can communicate with another server. To use the **JMS Postcard** application for this type of verification, either both machines must be in the same cluster (the simplest method), or you must configure channels to communicate between the two machines (see "Verifying a server-to-server installation" on page 22)

To ensure that both machines are part of the same cluster, you can do either of the following:

- Run the **JMS Postcard** application for the first time on each machine. The **JMS Postcard** application detects that there are no local queue managers defined for that machine, and displays the Default Configuration wizard so that you can create the default queue managers and link them to the default cluster.
- Create your own queue managers on both machines, create a cluster, and ensure that the queue managers that you create on each machine belong to the same cluster.

You can use the **JMS Postcard** application with existing queue managers, as long as both queue managers belong to the same cluster, or communication channels have been configured between the queue managers. Alternatively, you can exchange postcards between two queues that are using the same queue manager as their mailbox.

For further information, see "Using the Postcard application to verify a server-to-server installation" on page 29.

Setting up your system to run the JMS Postcard

Before you can run the **JMS Postcard** application, you must ensure that:
- You are a member of the WebSphere MQ administrators group (mqm). If you are not a member of mqm, ask someone who is a member to run the Default Configuration tool on your behalf, either directly, or by running the **JMS Postcard** application, which runs the Default Configuration tool indirectly.
- A supported Java Virtual Machine is installed on your system and suitably configured in the system path so that the java command can be executed.

- The required environment variables are defined.

Define the environment variables as follows:

1. Log on as user mqm.
2. Add the required environment variables to the .profile file using a text editor. These are shown in the following table:

CLASSPATH	/usr/mqm/java/lib/com.ibm.mq.jar: /usr/mqm/java/lib/com.ibm.mqjms.jar: /usr/mqm/java/lib/connector.jar: /usr/mqm/java/lib/jms.jar: /usr/mqm/java/lib/jndi.jar: /usr/mqm/java/lib/jta.jar: /usr/mqm/java
MQ_JAVA_INSTALL_PATH	/usr/mqm/java
MQ_JAVA_DATA_PATH	/var/mqm
LIBPATH	/usr/mqm/java/lib
PATH (for JRE settings)	$PATH:/opt/java1.3/bin

Using the JMS Postcard application to verify a local installation

Note: A queue manager that can be used as a mailbox must be already set up. This queue manager can be either the default queue manager, which is set up automatically when you run the Default Configuration wizard, or another queue manager that you have set up yourself.

To verify that the local installation is working, you can use the **JMS Postcard** application. This application allows you to create two postcards on the same machine and send messages between them, verifying that WebSphere MQ messaging is working correctly on the machine, and that WebSphere MQ Java Messaging support is successfully installed.

Note: If you want the **JMS Postcard** application to use font and color settings different from the Java Virtual Machine defaults, change the Postcard.ini file. For more information see *WebSphere MQ Using Java*.

1. Change directory to /opt/mqm/java/bin
2. Run the Postcard shell script.

   If there are no queue managers on your machine, the **Incomplete Default Configuration** window is displayed. From here you can either run the Default Configuration wizard to create a queue manager to use with the **JMS Postcard** application, or you can close the application.
3. The **JMS Postcard - Sign On** window is displayed.

   Type in a nickname to use to send messages within the postcard application (for example, user1).

   If the only queue manager on your machine is the default queue manager that you created by running the Default Configuration wizard, this queue manager is used as your mailbox for postcards. Click **OK** to display your first postcard, then go to step 5.
4. Select the queue manager to use as the mailbox:

- 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 machine, 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.

5. Run the Postcard shell script again. This opens a second postcard window.
6. The **JMS Postcard - Sign On** panel is displayed again. Type in a second nickname to use to send messages within the Postcard application (for example, user2).
7. Repeat the selection of the queue manager that you want to use as the mailbox (as described earlier). The queue manager you select for this second postcard must either be in the same cluster as the queue manager for the first postcard, or communication links must have been set up between them.
8. 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), type some message text in the **Message:** field and the nickname of the other postcard (for example, user2) in the **To:** field.

   Note: Because the sender and receiver are on the same machine, you do not need to type anything in the **On:** field.

   If the receiver is on a different machine, and is using the default queue manager as the mailbox, you need to type the recipient's machine in the **On:** field.

   If the receiver is on a different machine, and is not using the default queue manager as the mailbox, you need to type the recipient's queue manager in the **On:** field.

10. 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.

If you complete this procedure successfully, it verifies that WebSphere MQ is working correctly, and that the WebSphere MQ Java messaging support is successfully installed.

> **What next?**
>
> Depending on your situation, you might want to do the following:
>
> - Install WebSphere MQ on other machines. Follow the same installation procedure that you used for the first machine. Ensure that you use the Join Default Cluster window in the Default Configuration wizard to add the other machines to your first machine's cluster.
> - Install the WebSphere MQ client on other machines. See the Chapter 5, "Installing the WebSphere MQ for AIX 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

You can use the **JMS Postcard** application to verify communication between your machine and the machine of another named user, where that machine uses TCP/IP. Therefore, you can use the Postcard applications to verify that you can communicate with another server. Before you start:

- Make sure that TCP/IP and WebSphere MQ are installed on both machines.
- Check that either of the following apply:
  - Both machines are in the same cluster (this is the simplest method)
  - You have configured channels to communicate between the two machines (see "Verifying a server-to-server installation" on page 22).

To verify that the communication between two machines, the *sender* of the message and the *receiver*, are working correctly, and that the WebSphere MQ Java messaging support is successfully installed, you can use the **JMS Postcard** application.

On the sender machine:

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

   If there are no queue managers on your machine, the **Incomplete Default Configuration** window is displayed. From here you can either run the Default Configuration wizard to create a queue manager to use with the **JMS Postcard** application, or you can close the application.
3. The **JMS Postcard - Sign On** window is displayed.

   Type in a nickname to use to send messages within the Postcard application (for example, `user1`).

   If the only queue manager on your machine is the default queue manager that you created by running the Default Configuration wizard, this queue manager is used as your mailbox for postcards. Click **OK** to display your postcard, then go to step 5.
4. Select the queue manager to use as the mailbox:
   - 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.

Verification — server-to-server

- 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 machine, 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 postcard.

5. Type in the following:
   - Some message text in the **Message:** field.
   - The nickname of the recipient in the **To:** field.
   - If the receiver is using the default queue manager as the mailbox, the machine name of the recipient in the **On:** field. If the receiver is not using the default queue manager, type the queue manager name in the **On:** field.

6. Click **Send**.

On the receiver machine:

1. To receive the message, run the Postcard shell script.

   If there are no queue managers on your machine, the **Incomplete Default Configuration** window is displayed. From here you can either run the Default Configuration wizard to create a queue manager to use with the **JMS Postcard** application, or you can close the application.

2. Type in the nickname of the recipient, select the queue manager to use as the mailbox, then click **OK** to display the **JMS Postcard** window.

3. In the **Postcards 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 and the Java messaging support are correctly installed and that your communication link between the two machines 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*).

Chapter 5. Installing the WebSphere MQ for AIX client

There are two types of clients in WebSphere MQ for AIX, V5.3:

Standard client
> This is the standard WebSphere MQ client. Use this client if you do **not** require Secure Sockets Layer (SSL) support. You install this client from Client CD-ROM 1.

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.

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

This chapter tells you how to install each of the WebSphere MQ for AIX clients.

It also tells you how to migrate from a version of an MQSeries client (see "Migrating from an earlier version" on page 33). If you want to install the client on the same machine as a WebSphere MQ server, see "Installing the client on the same machine as a server" on page 34.

Chapter 6, "Verifying the client installation" on page 35 describes how to verify that your installation of the WebSphere MQ client is working.

If you want to install the WebSphere MQ server, see Chapter 3, "Installing the WebSphere MQ for AIX server" on page 13.

Installation procedure

There are different ways of installing WebSphere MQ for AIX, V5.3. You can use:
- Easy installation
- Custom installation
- National language installation

"Easy installation" on page 32 gives a minimal configuration on your machine, consisting of the following components:
- Runtime
- Base Kit
- Client
- Sample programs

If you want any of the other components, such as online documentation, use "Custom installation" on page 32.

If you want messages in a different national language from the locale selected on your machine, use "National language installation" on page 15.

Before you start the installation procedure, make sure that you have prepared your system as described in "Preparing for installation" on page 7.

Easy installation

This installation procedure uses the **xinstallm** program, which is available in the
X11.vsm.rte optional fileset.

1. Log on as root.
2. Insert the WebSphere MQ Client CD-ROM 1 into the CD-ROM drive.
3. Type cd /cdrom to change to the cdrom directory
4. Type: xinstallm -ez

   This displays the WebSphere MQ Welcome window, followed by a second
   window.
5. Choose the **CD-ROM** software source.
6. For **Which bundle of software would you like to install?** choose
   Media-defined.
7. Click **Install/Update** to create the **mqm.Client**.
8. Choose the **mqm.Client** bundle and click **Install/Update** again.

   This installs the filesets in this bundle; a work in progress window gives
   information as the installation proceeds.

At the end of the installation, click the **View log** button and scroll to the bottom of
the log to see the filesets that have been installed successfully.

To change your installation, or back out a failed installation, use the System
Management Interface Tool (**smit**) as described in the following text.

Custom installation

This installation procedure uses the System Management Interface Tool (**smit**),
enabling you to choose which components you want to install. The components
and filesets are listed in "WebSphere MQ components" on page 4; you must install
at least the Runtime, Base Kit, and Client components.

1. Log on as root.
2. Insert the WebSphere MQ Client CD-ROM 1 into the CD-ROM drive.
3. Select the required **smit** window using the following sequence:

   ```
   Software Installation and Maintenance
     Install and Update Software
       Install and Update from LATEST Available Software
   ```

   Alternatively you can use a fastpath command (smitty install_latest).
4. Click **List** to display the input device or directory for the software.
5. Select **/dev/cd0 (CD-ROM Drive)** and click **OK**.
6. Use the **SOFTWARE to install** field to obtain a list of available filesets, and
   select the filesets that you want to install.
7. If you have a previous version of the product on your machine, change the
   Automatically install requisite software to **No** and **Overwrite same or newer
   versions** to **Yes**.
8. On AIX V4.3.3:
   a. Click **OK** to install WebSphere MQ.

   On AIX V5.1:
   a. Change **Preview new LICENSE agreements?** to **yes** and click **OK** to view
      the license agreements.

b. Change **ACCEPT new license agreements?** to **yes** and click **OK** to accept the license agreements and install WebSphere MQ.

National language installation

Easy and Custom installation procedures install messages in the language specified by the locale selected on your machine by default. If you require messages in a different language, use the following procedure.

The process is similar to "Custom installation" on page 32. Install at least the Runtime, Base Kit, and Client components, in addition to the Message Catalog for your chosen language.

1. Log in as root.
2. Insert the WebSphere MQ Client CD-ROM into the CD-ROM drive.
3. Select the required **smit** window using the following sequence:

   ```
   Software Installation and Maintenance
     Install and Update Software
       Install and Update from ALL Available Software
   ```

4. Click **List** to display the input device or directory for the software.
5. Select **/dev/cd0 (CD-ROM Drive)** and click **OK**.
6. Use the **SOFTWARE to install** field to obtain a list of available filesets, and select the filesets that you want to install (including the message catalog).
7. On AIX V4.3.3:

   a. Click **OK** to install WebSphere MQ.

   On AIX V5.1:

   a. Change **Preview new LICENSE agreements?** to **yes** and click **OK** to view the license agreements.
   b. Change **ACCEPT new license agreements?** to **yes** and click **OK** to accept the license agreements and install WebSphere MQ.

Migrating to and from the WebSphere MQ SSL support

To upgrade a WebSphere MQ client without the SSL support to one with the SSL support, install the two additional file sets, gskak.rte and mqm.keyman.rte, from the directory on WebSphere MQ Client CD-ROM 1 that contains the set of client components with the WebSphere MQ SSL support. To downgrade a WebSphere MQ client with the SSL support to one without the SSL support, simply remove these two file sets.

Migrating from an earlier version

To migrate from a version of the MQSeries client to WebSphere MQ for AIX, V5.3, first end all queue manager activity on the target machine and then use the System Management Interface Tool (**smit**) to update your currently installed components.

1. Log in as root.
2. Insert the WebSphere MQ Client CD-ROM 1 into the CD-ROM drive.
3. Select the required **smit** window using the following sequence:

   ```
   Software Installation and Maintenance
     Install and Update Software
       Update Installed Software to Latest Level (Update All)
   ```

Alternatively you can use a fastpath command (smitty update_latest).

4. Click **List** to display the **Single Select List** window, and select **/dev/cd0 (CD-ROM Drive)**.

5. Click **OK** to display the parameters for **Update All**.

6. For correct migration, update all previously installed MQSeries or WebSphere MQ software. Select the **_update_all** option in the **Software to Update** field and press Enter.

7. Click **OK** in the confirmation window to update the software.

When you have updated all previously installed components to the latest level, you can install any additional components as described in "Custom installation" on page 32.

Differences between WebSphere MQ for AIX, V5.3 and versions of MQSeries are described in "Migrating from an earlier version" on page 9.

Installing the client on the same machine as a server

To install a WebSphere MQ for AIX 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 13. Do not use the WebSphere MQ Clients CD-ROM.

You might install components from the WebSphere MQ Clients CD-ROM onto a machine, and subsequently want to install the WebSphere MQ Server component on the same machine. If so, first remove from the machine any components that you installed from the WebSphere MQ Clients CD-ROM. Then use the WebSphere MQ Server CD-ROM to install the server, client, and any other components that you need.

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 Chapter 6, "Verifying the client installation" on page 35.

Chapter 6. Verifying the client installation

This chapter describes how to verify that you have correctly installed and configured the WebSphere MQ for AIX client. To do this you use a client/server installation that includes communication links between a WebSphere MQ server machine and the WebSphere MQ client.

Verifying the installation

To verify your WebSphere MQ client installation, you need a workstation set up as a WebSphere MQ server, in addition to your client workstation. You can then use sample programs (which must be installed on the client) to test communications between the client and server.

The verification procedure assumes that:
- TCP/IP is configured and initialized on both the server and the client machines.
- The WebSphere MQ server product is installed on a 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

From a shell window, use these steps to set up the server workstation:

1. Create a default queue manager called `saturn.queue.manager` by entering 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.

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) \
   trptype(tcp) mcauser('mqm')
   ```

A message tells you when the channel has been created.

6. Stop MQSC by typing: `end`

   Some messages are displayed, and the command prompt is displayed again.

7. Start a WebSphere MQ listener as a background task by entering the following command:

   ```
   runmqlsr -t tcp &
   ```

   You can use the **-p** parameter to specify the number of a port that the listener should listen on. If you do not specify it, the default of 1414 is used. The port number must be the same as the one that you specify when setting up the client.

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`

Setting up the client workstation

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.

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-address
```
or
```
ping n.n.n.n
```

where:

server-address
        Is the TCP/IP host name of the server

n.n.n.n   Is the network address of the server

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

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

```
export MQSERVER=CHANNEL1/TCP/'server-address(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 TCP/IP port number that the server is listening on. 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 and server listener program must use the same port number.

Testing communication between the workstations

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 /usr/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. This
   displays 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 at 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.

Chapter 7. WebSphere MQ documentation

This chapter describes the documentation for WebSphere MQ for AIX. It starts with a list of the publications, including their PDF filenames, and then discusses:
- "Hardcopy books"
- "Online information" on page 40
- "SupportPacs" on page 41
- "WebSphere MQ newsgroups" on page 41

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 4. WebSphere MQ family books

PDF file name	Order Number	Title
CSQZAE07	SC34-6059	*WebSphere MQ Intercommunication*
CSQZAH05	SC34-6061	*WebSphere MQ Queue Manager Clusters*
CSQZAF07	GC34-6058	*WebSphere MQ Clients*
AMQZAG03	SC34-6068	*WebSphere MQ System Administration Guide*
CSQZAJ07	SC34-6055	*WebSphere MQ Script (MQSC) Command Reference*
CSQZAX03	SC34-6069	*WebSphere MQ Event Monitoring*
CSQZAI01	SC34-6060	*WebSphere MQ Programmable Command Formats and Administration Interface*
AMQZAO04	GC34-6057	*WebSphere MQ Messages*
CSQZAL07	SC34-6064	*WebSphere MQ Application Programming Guide*
CSQZAK07	SC34-6062	*WebSphere MQ Application Programming Reference*
AMQZAN07	SC34-6067	*WebSphere MQ Using C++*
CSQZAW11	SC34-6066	*WebSphere MQ Using Java*
AMTYAK08	SC34-6065	*WebSphere MQ Application Messaging Interface*
CSQZAS01	SC34-6079	*WebSphere MQ Security*
CSQZAY01	SC34-6113	*WebSphere MQ Bibliography and Glossary*

Hardcopy books

This book, and all the books listed in Table 4 , are available for you to order or print.

You can order publications from the IBMLink™ Web site at:

```
http://www.ibm.com/ibmlink
```

In the United States, you can also order publications by dialing **1-800-879-2755**.

In Canada, you can order publications by dialing **1-800-IBM-4YOU (1-800-426-4968).**

Hardcopy books

For further information about ordering publications, contact your IBM authorized dealer or marketing representative.

For information about printing books, see "PDF".

Online information

This section describes:
- "Publications supplied with the product"
- "HTML and PDF books on the World Wide Web" on page 41
- "Online help" on page 41

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 in HTML, Microsoft® Compiled HTML Help (.CHM), and PDF formats on CD-ROM.

HTML
You can view the WebSphere MQ online documentation in HTML format directly from the documentation CD-ROM. All books are available in U.S. English and also in some or all of the following national languages:
- Brazilian Portuguese
- French
- German
- Italian
- Japanese
- Korean
- Spanish
- Simplified Chinese
- Traditional Chinese

When you read the books in HTML, you can follow hypertext links from one book to another. If you are reading translated books and link to a book that is not available in your national language, the U.S. English version of the book is opened instead.

PDF
A PDF (Portable Document Format), corresponding to each hardcopy book, is available on the documentation CD-ROM. You can read PDFs using Adobe Acrobat Reader. Also, you can download them to your own file system, or you can print them on a PostScript printer.

The PDFs are available in U.S. English in the *en_US* directory, and also in some or all of the following national languages. To find out which ones are available in your language, look for the appropriate directory on the CD-ROM. The PDFs are in a subdirectory called *ll_LL*, where *ll_LL* is one of the following:
- de_DE (German)
- es_ES (Spanish)
- fr_FR (French)
- it_IT (Italian)
- ja_JP (Japanese)
- ko_KR (Korean)

- pt_BR (Brazilian Portuguese)
- zh_CN (Simplified Chinese)
- zh_TW (Traditional Chinese)

Within these directories, you can find the complete set of PDFs that are available. Table 4 on page 39 shows the file names used for the PDF files.

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/mqseries
```

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/mqseries/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/mqseries/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/mqseries/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 products. This can be found at:

```
http://www.ibm.com/software/mqseries/support/summary
```

Online information

Chapter 8. Applying maintenance to WebSphere MQ for AIX

This chapter tells you how to apply maintenance to WebSphere MQ for AIX. A maintenance update in the form of a Program Temporary Fix (PTF), also known as a CSD (Corrective Service Diskette), is supplied on CD-ROM.

PTFs can also be downloaded from:

```
http://www.ibm.com/software/mqseries
```

You must stop all WebSphere MQ activity, before installation of maintenance on WebSphere MQ for AIX, by carrying out the following procedure:
1. Log in as root.
2. Use the **endmqm** command to stop all running queue managers.
3. Stop any listeners associated with the queue managers, using this command:

   ```
   endmqlsr -m QMgrName
   ```
4. 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.

Installing a PTF

Use the System Management Interface Tool (**smit**) to transfer PTFs from a CD-ROM to your file system. You can *apply* and *commit* them from either the CD-ROM or an install directory.

To install a PTF:
1. Log in as root.
2. Display the appropriate **smit** panel using this sequence:
   ```
   Software Installation and Maintenance
    Install and Update Software
      Install and Update From All Available Software
   ```

   Alternatively, use a fastpath command (`smitty install_update`).
3. Select a value for **INPUT device / directory for software**. Click the **List** button (or press the F4 key on **smitty**) to display a list of valid values.
4. Complete the **SOFTWARE to install** field.

   Enter **ALL** to install all applicable fileset updates to your installation.

   Note: Although there is an option to apply only selected fileset updates for WebSphere MQ for AIX, this still results in all applicable fileset updates for the PTF being applied.
5. This applies the PTF, and saves a backup copy of the current level of WebSphere MQ for AIX.

   If you think that at a later time you might want to reject the PTF updates and return to the backup level, you *must* ensure that:

- The **COMMIT software updates** value is set to **no**.
- The **SAVE replaced files** value is set to **yes**.

Press Enter to display a confirmation message before starting the update. While the command runs, it displays progress messages ending with an **Installp Summary** table, confirming which components of WebSphere MQ for AIX have been updated.

If the command does not complete successfully, a full error log is saved in the file smit.log in your home directory.

6. The same process applies to WebSphere MQ client installations. Refer to the *WebSphere MQ Clients* book for more information about client installation.

Restoring the previous service level

You can backout a PTF and restore your system to the previous service/install level, for any component of WebSphere MQ for AIX that is in the **APPLIED** state.

To back out a PTF:

1. Log in as root.

2. Display the appropriate **smit** panel using this sequence:

```
Software Installation and Maintenance
  Software Maintenance and Utilities
    Reject Applied Software Updates (Use Previous Version)
```

Alternatively, use a fastpath command (smitty install_reject).

3. Complete the **SOFTWARE name** field.

Enter **MQM** to restore all applicable fileset updates to your installation.

Note: Although there is an option to restore only selected fileset updates for WebSphere MQ for AIX, this still results in all applicable fileset updates for the PTF being restored.

4. Use the displayed default values for all other fields to reject the current PTF level and reinstate the previous service or install level.

Press Enter to display a confirmation message, before starting the reject process. While the command runs, it displays progress messages terminating with an **Installp Summary** table, confirming which components of WebSphere MQ for AIX have been rejected.

Chapter 9. Uninstalling WebSphere MQ for AIX

This chapter tells you how to remove WebSphere MQ for AIX from your system.

Before starting to uninstall, end all WebSphere MQ activity.

1. Log in as root.
2. Use the **dspmq** command to display the state of all the queue managers on the system.
3. Use the **endmqm** command to stop all running queue managers.
4. Stop any listeners associated with the queue managers, using the command:

   ```
   endmqlsr -m QMgrName
   ```
5. 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.

Uninstallation procedure

Use the System Management Interface Tool (**smit**) to uninstall WebSphere MQ.

1. Log in as root.
2. To display the appropriate **smit** panel, use the following sequence:
   ```
   Software Installation and Maintenance
     Software Maintenance and Utilities
       Remove Installed Software
   ```

   Alternatively, use a fastpath command (smitty install_remove).
3. Click the **List** button on the **SOFTWARE name** field.
4. Select the filesets to uninstall from the list (those beginning with mqm), and click **OK**.
5. Click **OK** on the **Remove Installed Software** panel.

If for any reason the product was not properly installed, you will have to delete the files and directories contained in /usr/mqm.

After uninstalling WebSphere MQ, delete the /var/mqm directory tree.

Removing the WebSphere MQ Internet Gateway

After removing the Web server configuration, as described in the *WebSphere MQ Internet Gateway User's Guide* (available on the WebSphere MQ Web site at http://www.ibm.com/software/mqseries/library/manualsa), carry out the following procedure:

1. Log in as root.
2. To display the appropriate **smit** panel, use the following sequence:
   ```
   Software Installation and Maintenance
     Software Maintenance and Utilities
       Remove Installed Software
   ```

Uninstalling WebSphere MQ

Alternatively, use a fastpath command (`smitty install_remove`).

3. Add the following to the **Remove Installed Software** screen:

```
SOFTWARE name        dmqgate.runtime
PREVIEW only         no
```

Leave the other entries with the default settings, and press Enter to remove the product.

Chapter 10. Code sets supported by WebSphere MQ for AIX

WebSphere MQ for AIX supports most of the code sets used by the AIX locales. It supports the subsets of the user's environment that define the convention for a specific locale – provided as part of the AIX operating system.

Select the locale by setting the **LANG** environment variable to the locale value. If you do not set the LANG environment variable, AIX selects the C locale.

To determine the CCSID (Coded Character Set Identifier), used in WebSphere MQ to identify the code set used for the message and message header data, read the code set name associated with the locale and use the CCSID number registered by IBM for that code set.

Table 5 lists most of the locales supported on AIX, and the CCSID that WebSphere MQ for AIX uses for that locale. New locales are constantly being added for AIX. For a definitive list, see the AIX documentation.

Notes:

1. Not all locales are supported by all versions of AIX.
2. Installing national language locales is optional and some can be large. If you want to install a large language locale, you might have to install an AIX fileset to hold it.

    Use the AIX command `locale -a` to see which locales are installed on your AIX system.

    Use the AIX command `locale` to see which locale you have selected.

Table 5. Locales and CCSIDs for AIX

Locale	code set	CCSID	Locale	code set	CCSID
ar_AA	IS08859-6	1089	Ar_AA	IBM-1046	1046
be_BY	IS08859-5	915	bg_BG	IS08859-5	915
C	IS08859-1	819	ca_ES.IBM-1252	IBM-1252	1252
ca_ES.ISO8859-1	ISO8859-1	819	Ca_ES	IBM-850	850
cs_CZ	IS08859-2	912	da_DK	ISO8859-1	819
Da_DK	IBM-850	850	de_CH	ISO8859-1	819
De_CH	IBM-850	850	de_DE	ISO8859-1	819
de_DE.IBM-1252	IBM-1252	1252	De_DE	IBM-850	850
el_GR	IS08859-7	813	en_GB	ISO8859-1	819
En_GB	IBM-850	850	en_US	ISO8859-1	819
En_US	IBM-850	850	es_ES	ISO8859-1	819
es_ES.IBM-1252	IBM-1252	1252	Es_ES	IBM-850	850
Et_EE	IBM-922	922	fi_FI	ISO8859-1	819
fi_FI.IBM-1252	IBM-1252	1252	Fi_FI	IBM-850	850
fr_BE	ISO8859-1	819	fr_BE.IBM-1252	IBM-1252	1252
Fr_BE	IBM-850	850	fr_CA	ISO8859-1	819
Fr_CA	IBM-850	850	fr_CH	ISO8859-1	819

Supported code sets

Table 5. Locales and CCSIDs for AIX (continued)

Locale	code set	CCSID	Locale	code set	CCSID
Fr_CH	IBM-850	850	fr_FR	ISO8859-1	819
fr_FR.IBM-1252	IBM-1252	1252	Fr_FR	IBM-850	850
hr_HR	IS08859-2	912	hu_HU	IS08859-2	912
is_IS	ISO8859-1	819	Is_IS	IBM-850	850
it_IT	ISO8859-1	819	it_IT.IBM-1252	IBM-1252	1252
It_IT	IBM-850	850	iw_IL	ISO8859-8	916
Iw_IL	IBM-856	856	ja_JP	IBM-eucJP	5050/33922
Ja_JP.IBM-932	IBM-932	932	Ja_JP.IBM-943	IBM-943	943
ko_KR	IBM-eucKR	970	Lt_LT	IBM-921	921
LT_LT	UTF-8	1208	Lv_LV	IBM-921	921
LV_LV	UTF-8	1208	mk_MK	IS08859-5	915
nl_BE	ISO8859-1	819	nl_BE.IBM-1252	IBM-1252	1252
Nl_BE	IBM-850	850	nl_NL	ISO8859-1	819
nl_NL.IBM-1252	IBM-1252	1252	Nl_NL	IBM-850	850
no_NO	ISO8859-1	819	No_NO	IBM-850	850
pl_PL	IS08859-2	912	POSIX	ISO8859-1	819
pt_BR	IS08859-1	819	pt_PT	ISO8859-1	819
pt_PT.IBM-1252	IBM-1252	1252	Pt_PT	IBM-850	850
ro_RO	IS08859-2	912	ru_RU	IS08859-5	915
sh_SP	IS08859-2	912	sk_SK	IS08859-2	912
sl_SI	ISO8859-2	912	sq_AL	IS08859-1	819
sr_SP	IS08859-5	915	sv_SE	ISO8859-1	819
Sv_SE	IBM-850	850	th_TH	TIS-620	874
tr_TR	ISO8859-9	920	Uk_UA	IBM-1124	1124
Vi_VN	IBM-1129	1129	zh_CN	IBM-eucCN	1383
Zh_CN.GBK	GBK	1386	ZH_CN	UTF-8	1208
zh_TW	IBM-eucTW	964	Zh_TW	big5	950

Migrating to euro support

To use the *euro* character with WebSphere MQ, first install any operating system updates necessary to display the euro character.

Now modify your WebSphere MQ system:
- Edit the existing CCSID.TBL file, in `/var/mqm/conv/table/`, to enable the new euro version of the coded character set identifier (CCSID). To do this, remove the first # symbol from the required line of the **CCSID Mapping** section of the CCSID.TBL file. When you have done this, all new queue managers you create will adopt the new euro CCSID.

  Note: If you want to create a new queue manager with a CCSID that supports the euro character, select a euro-supporting locale. For more information refer to the WebSphere MQ Web site at:

```
http://www.ibm.com/software/mqseries
```

- To modify any existing queue managers that do not support the euro character, follow this procedure:

  1. Enable MQSC commands by typing: `runmqsc`
  2. To record the existing queue manager CCSID, enter the following:

     ```
     display qmgr ccsid
     ```
  3. To change the CCSID to the euro support CCSID, enter the following:

     ```
     alter qmgr ccsid (no. of ccsid)
     ```
  4. Stop the MQSC commands by typing: `end`
  5. Stop the queue manager.
  6. Restart the queue manager and any channels that it uses by typing: `strmqm`

  Now any new message issued using the queue manager CCSID uses the new euro CCSID. All messages now received using MQGET with conversion, and requesting the queue manager CCSID to be used, are converted into the euro CCSID. CCSIDs and object text (for example descriptions, definitions, and exit names) from existing messages are not changed.

Now modify your applications to support the euro character. If these use hard coded CCSIDs, ensure that they now use the new euro CCSID.

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