

WebSphere MQ for iSeries



# Quick Beginnings

*Version 5.3*

**Note!**

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 25.

**First edition (October 2002)**

This edition applies to WebSphere® MQ for iSeries™, V5.3, and to all subsequent releases and modifications until otherwise indicated in new editions.

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# Welcome to WebSphere MQ for iSeries

This book describes IBM® WebSphere MQ for iSeries, Version 5.3. It explains how to plan for and install the product. For latest information about WebSphere MQ for iSeries, V5.3, refer also to the readme file on the Documentation CD-ROM, and to the WebSphere MQ family Web site at:

<http://www.ibm.com/software/mqseries>

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## Road map

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

*Table 1. Getting started road map*

If you want to...	Refer to...
Learn about system requirements for WebSphere MQ for iSeries	Chapter 1, "Planning to install the WebSphere MQ for iSeries server" on page 1
Install WebSphere MQ for iSeries	Chapter 2, "Installing and migrating to WebSphere MQ for iSeries" on page 5
Install WebSphere MQ Java for iSeries	Chapter 3, "Installing WebSphere MQ Java for iSeries" on page 13
Apply maintenance to WebSphere MQ for iSeries	Chapter 4, "Applying maintenance to WebSphere MQ for iSeries" on page 17
Delete WebSphere MQ for iSeries	Chapter 5, "Deleting WebSphere MQ for iSeries, V5.3" on page 19
View or print online documentation	Chapter 6, "WebSphere MQ documentation" on page 21
Contact IBM	<i>Sending your comments to IBM</i> (at the end of this book)

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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.
- *Italic type* indicates new terms, book titles, or variable information that you must replace with actual values.
- Monospace type indicates an example (such as a fictitious path or file name) or text that is displayed on the screen.

## Conventions



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

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

- WebSphere MQ for iSeries 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; supplied with the OS/400 operating system.
- Support for Java™ is supplied with the product. This replaces the support previously provided by MQSeries® SupportPac™ MA88.
- Product documentation is now supplied on separate CD-ROMs.
- A new form of license management is implemented for this release of the product.
- WebSphere MQ for iSeries now supports a JMS client.
- Management of log files for recovery and restart has been improved, and you can use RCDMQMIMG to force a checkpoint.
- WebSphere MQ CL commands have been reclassified into two groups:
  - group for administrators
  - group 2 for users

Commands in group 2 do not require the user to be a member of the QMQMADM group.

- The listener is now threaded by default, and supports channel pooling (TCP/IP only). You can enable the non-threaded listener by putting an entry in the configuration file qm.ini.
- WebSphere MQ now supports generic authority administration.

## What's new

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## Chapter 1. Planning to install the WebSphere MQ for iSeries server

This chapter provides a summary of the requirements for running WebSphere MQ for iSeries. It discusses the network protocols and compilers supported, the delivery media, and the various components of the product.

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### Hardware requirements

WebSphere MQ for iSeries, V5.3 runs on any machine that is capable of running OS/400® V5R1. The machine must have sufficient storage to meet the combined requirements of the programming prerequisites, WebSphere MQ for iSeries, V5.3, the access methods, and the application programs, whether from IBM or other vendors.

The installation requirements depend on the components that you install and how much working space you need. This, in turn, depends on the number of queues that you use, the number and size of the messages on the queues, and whether the messages are persistent. You also require archiving capacity on disk, tape, or other media.

### Disk space required

For the WebSphere MQ for iSeries, V5.3 base code and samples, allow approximately 70 MB of storage.

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### Software requirements

The minimum supported software level is OS/400 Version 5 Release 1. Later levels, if any, will be supported.

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### Connectivity

The network protocols supported by WebSphere MQ for iSeries are:

- TCP
- SNA LU 6.2

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### Compilers supported for WebSphere MQ for iSeries, V5.3 applications

WebSphere MQ for iSeries, V5.3 supports the following compilers, which are all part of the WebSphere Development Toolset, part number 5722WDS:

- Tools - Application Development; Product option 21
- ILE RPG IV - Product option 31
- RPG/400 - Product option 34
- ILE COBOL - Product option 41
- OPM COBOL - Product option 44
- ILE C - Product option 51
- ILE C++ - Product option 52
- IBM VisualAge for C++
- IBM iSeries Developer Kit for Java, Version 1.3

## Transaction processors

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### Transaction processors

The WebSphere MQ for iSeries, V5.3 server supports the following external transaction processing managers:

- IBM CICS/400
- WebSphere Application Server V4, or later

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### Databases

The WebSphere MQ for iSeries, V5.3 server supports the DB2 Universal Database as a resource manager under WebSphere MQ coordination.

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### Clients

WebSphere MQ for iSeries, V5.3 supports connection from any MQSeries V5.1 or later client. However, only the WebSphere MQ Java or JMS client will run on iSeries.

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### Secure Sockets Layer (SSL)

To use the Secure Sockets Layer (SSL) on WebSphere MQ for iSeries, V5.3, you need:

- OS/400 option 34: Digital Certificate Manager (DCM)
- Cryptographic Access Provider AC2 or AC3. You can install only one of these.
- The IBM HTTP server.

If you want to install the 4758 PCI Cryptographic Coprocessor for iSeries to speed up the SSL handshake processing, you must also install the OS/400 V5R1M0 option 35 Cryptographic Service Provider.

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## iSeries install libraries and directories

WebSphere MQ for iSeries installs into the OS/400 library structure and also uses directories in the IFS root file system.

### WebSphere MQ for iSeries library structure

Installation of WebSphere MQ for iSeries creates the following libraries.

#### **QMQM**

The WebSphere MQ base product library.

#### **QMQMSAMP**

The WebSphere MQ samples library (if you choose to install the samples).

#### **QMxxxx library**

Each time that you create a queue manager, WebSphere MQ automatically creates an associated library. This library contains objects specific to the queue manager, including journals and associated receivers. The name of this library is derived from the name of the queue manager prefixed with the characters QM. For example, for a queue manager called TEST, the library would be called QMTEST.

You can use the WRKLIB command to list all the libraries that WebSphere MQ for iSeries has created. Against the queue manager libraries, you will see the text QMGR: *QMGRNAME*. The format of the command is:

```
WRKLIB LIB(QM*)
```

These queue manager-associated libraries are retained when the product is deleted.

### IFS root file system

The integrated file system (IFS) is a part of OS/400 that supports stream input/output and storage management similar to personal computer and UNIX<sup>®</sup> operating systems, while providing an integrating structure over all information stored in the server. When you install WebSphere MQ for iSeries, the following directories are created in the IFS *root* file system:

#### /QIBM/ProdData/mqm

Subdirectories below this contain all the product data, for example, C++ classes and trace format files. Data in this directory is deleted and replaced each time the product is installed.

#### /QIBM/UserData/mqm

Subdirectories below this contain all user data relating to queue managers. The following subdirectories are also created when the product is installed:

- /QIBM/UserData/mqm/errors
- /QIBM/UserData/mqm/qmgrs
- /QIBM/UserData/mqm/trace
- /QIBM/UserData/mqm/qmgrs/&system

When you install the product, an mqs.ini file is created in directory /QIBM/UserData/mqm/ (unless it is already there from a previous installation). When you create a queue manager, a qm.ini file is created in the directory /QIBM/UserData/mqm/qmgrs/QMGRNAME/ (where QMGRNAME is the name of the queue manager). The qm.ini file is the equivalent of the QMINI file in Version 4 releases of MQSeries for AS/400.

Data in the above directories is retained when the product is deleted.

Use of the IFS file structure is described in the *WebSphere MQ for iSeries V5.3 System Administration Guide*.

### User profiles

When you install WebSphere MQ for iSeries, V5.3, two user profiles are created: QMQM and QMQMADM. These two objects are central to the correct running of WebSphere MQ for iSeries. Do **not** alter or delete them. If you do, IBM cannot guarantee correct behavior of your product.

These profiles are retained when the product is deleted.

### Platform consideration

Note that, in WebSphere MQ for iSeries, directory names that begin with an @ character on other WebSphere MQ platforms are changed to begin with an & character. For example @SYSTEM is changed to &SYSTEM.

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## Delivery

WebSphere MQ for iSeries, V5.3 is supplied on a number of CD-ROMs, as follows:

- WebSphere MQ for iSeries, V5.3 base product and sample programs.
- Client products that you can use with WebSphere MQ for iSeries.
- WebSphere MQ documentation.

## Delivery

**Note:** Support for Java is now included in the base product. For further information about Java support, refer to the *WebSphere MQ Using Java* book.

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## WebSphere MQ for iSeries components

The components are as follows:

**Base** Support to enable you to create and support your own applications. This includes the run-time component that provides support for external applications. It also includes support for client connections from other WebSphere MQ for iSeries products.

**Samples (Option 1)**

Sample application programs. The source is supplied in the QMQMSAMP library and executables are supplied in the QMQM library.

**Documentation**

HTML and PDF versions of the books are supplied on the WebSphere MQ documentation CD-ROM package. They are not installable. You can read them directly from the CD-ROM or you can copy them to your system. For example, you can copy them to your PC hard drive, or store them in the AS/400 IFS and then access them using a network drive.

Each book is supplied 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

**readme file**

Latest information about the product, which became available after publication of this book. You can find the readme file on the publications CD-ROM; review it before starting to install WebSphere MQ for iSeries.

## Creating the system-default objects

System-default objects are created automatically when you issue the CRTMQM command to create a queue manager. For example:

```
CRTMQM MQMNAME(QMGRNAME) DFTQMGR(*YES)
```

You can refresh them using the STRMQM command. For example:

```
STRMQM MQMNAME(QMGRNAME) RDEFSYS(*YES)
```

Refer to the online help for information about using this command.

---

## Chapter 2. Installing and migrating to WebSphere MQ for iSeries

This chapter describes installation of and migration to WebSphere MQ for iSeries, V5.3. It covers the following topics:

- “Before installation”
- “Installation procedure” on page 6
- “Verifying the installation” on page 8
- “Migrating to WebSphere MQ for iSeries, V5.3 from MQSeries for AS/400 V5.1 or V5.2” on page 9
- “Verifying the migration” on page 11

In addition to reading the information in this chapter, refer to the readme file on the documentation CD-ROM, and also to the latest information available on the WebSphere MQ Web site at:

<http://www.ibm.com/software/mqseries>

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### Before installation

This section describes how to install WebSphere MQ for iSeries, V5.3. Use the following procedure only if you have never installed WebSphere MQ or MQSeries on your system before.

If you are migrating to V5.3 from V5.2 or V5.1, refer instead to “Migrating to WebSphere MQ for iSeries, V5.3 from MQSeries for AS/400 V5.1 or V5.2” on page 9. .

To run WebSphere MQ for iSeries, V5.3, you must have the OS/400 V5R1 operating system installed on your machine. If you have OS/400 V4R2 or V4R3 operating system installed, you can use only MQSeries for AS/400® V4R2M1.

### Setting system values

Before installing WebSphere MQ for iSeries, use the DSPSYSVAL command to check that the following system values are set to the requirements of your enterprise:

- QCCSID
- QUTCFFSET
- QSYSLIBL
- QALWOBJRST
- QSHRMEMCTL

You can change these values, if necessary, using the CHGSYSVAL command.

#### QCCSID

Every message has a coded-character set identifier (CCSID) in its header. The CCSID tag identifies the code page and character set of the source. For CCSIDs that are supported on the iSeries machine, see the *iSeries National Language Support* book.

A queue manager obtains its CCSID from the job that created it. If the job CCSID is not a valid value in the range 1–65534, the queue manager uses the default

## Before installation

CCSID value instead. You can change the CCSID used by the WebSphere MQ queue manager by using the CL command CHGMQM.

**Note:** The CCSID must be either single-byte character set (SBCS), or mixed, that is SBCS and DBCS. It must not be DBCS only.

### QUTCFFSET

Check that the coordinated universal time offset (QUTCFFSET) system value has been set, to indicate the relationship between the system time and Greenwich Mean Time (GMT). You do this using the CHGSYSVAL command.

If QUTCFFSET is not set, it takes the default value of zero. WebSphere MQ for iSeries then assumes that the local system time is universal time coordinated (UTC), that is, GMT, and time stamps the WebSphere MQ for iSeries messages accordingly.

### QSYSLIBL

Ensure that QSYS2 is included in the list of libraries that make up the system part of the library list. WebSphere MQ for iSeries uses programs in this library for data conversion and SNA LU 6.2 communication.

### QALWOBJRST

Ensure that the QALWOBJRST system value is set to \*ALL or \*ALWPGMADP before you install WebSphere MQ for iSeries. If it is set to \*NONE, the installation will fail.

After installation, reset QALWOBJRST to its original value to maintain system security.

---

## Installation procedure

1. Sign on to the system with a user profile that has \*ALLOBJ special authority, for example QSECOFR.

2. To install the WebSphere MQ for iSeries, V5.3 base product, issue the command:

```
RSTLICPGM LICPGM(5724B41) DEV(install device) OPTION(*BASE) OUTPUT(*PRINT)
```

where:

- 5724B41 is the product identifier for WebSphere MQ for iSeries, V5.3
- *install device* is the device from which the product is to be loaded, typically a CD-ROM, for example, 0PT01.

3. To install the sample applications issue the command:

```
RSTLICPGM LICPGM(5724B41) DEV(install device) OPTION(1) OUTPUT(*PRINT)
```

4. Before you can start creating queue managers on WebSphere MQ for iSeries, V5.3, you need to confirm that you have purchased sufficient license units for your machine. The procedure for this is as follows:

- a. Use the DSPMQMCAP to determine what processor model and processor feature you have.
- b. Look at the conversion table in the license itself to find out how many license units you need. The license is stored in the /licenses directory.
- c. Use the CHGMQMCAP command to confirm whether you have sufficient units for your machine.

**Note:** You can install only one instance of WebSphere MQ for iSeries in each partition of your server.



If installation of WebSphere MQ fails, remove any partly-installed objects before attempting to reinstall. You can do this by deleting the QMQM library (and the QMQMSAMP library if necessary) and the IFS directory /QIBM/ProdData/mqm and its subdirectories. To delete the IFS directories, use the EDTF command, for example:

```
EDTF STMF('/QIBM/ProdData')
```

and select option 9 for the mqm directory.

## Installation of translated versions

The following language versions are available for WebSphere MQ for iSeries:

*Table 2. National-language versions of WebSphere MQ for iSeries*

Language ID	Language
2909	Belgian English
2966	Belgian French MNCS (Multi-National Character Set)
2981	Canadian French MNCS
2950	English Uppercase
2924	English Uppercase and Lowercase
2928	French
2940	French MNCS
2932	Italian
2942	Italian MNCS
2931	Spanish
2962	Japanese
2986	Korean
2989	Simplified Chinese

WebSphere MQ for iSeries is usually installed in the language that is the primary language on your system.

You can install additional versions of the product in any of the languages shown in Table 2. To do so, make sure you are signed on to the system with a user profile that has \*ALLOBJ special authority, then issue the following command specifying the appropriate language ID:

```
RSTLICPGM LICPGM(5724B41) DEV(install device) RSTOBJ(*LNG) LNG(language ID) +  
OUTPUT(*PRINT)
```

This will install the commands, message file, and panel groups into the relevant QSYS library for the language. For example, library QSYS2928 is used for French.

### Notes:

1. To run the Japanese language version of WebSphere MQ for iSeries, the CCSID of the job must be 939 (5035) rather than 930 (5026) because WebSphere MQ uses lowercase English alphabets.
2. If you are installing WebSphere MQ for iSeries onto a machine on which the primary language is not one of those listed, you will be asked to load a different CD-ROM and you will not be able to proceed. Rather than trying to install the product in a language that is not supplied, specify LNG(\*SAVVOL) on the RSTLICPGM command. Alternatively, install the product in one of the supplied languages and then copy the installed files to your own QSYS directory.

### Verifying the installation

To ensure that the product has loaded correctly, issue the Display Software Resources (DSPSFWRSC) command and check that the licensed program 5724B41 is listed. If you have installed the base and the optional samples, you should see:

Resource ID	Option	Feature	Description
5724B41	*BASE	5050	WebSphere MQ for iSeries
5724B41	*BASE	2924	WebSphere MQ for iSeries
5724B41	1	5050	WebSphere MQ for iSeries - Samples

If you press F11 while viewing the Display Software Resources screen, you will see the library and version number of the products installed:

Resource ID	Option	Feature	Feature Type	Library	Release
5724B41	*BASE	5050	*CODE	QMQM	V5R3M0
5724B41	*BASE	2924	*LNG	QMQM	V5R3M0
5724B41	1	5050	*CODE	QMMSAMP	V5R3M0

If you have installed additional language versions, you will also see entries for these. For example, if you have installed the French version, for which the language ID is 2928, you will see:

Resource ID	Option	Feature	Description
5724B41	*BASE	2928	WebSphere MQ for iSeries

and when you press F11:

Resource ID	Option	Feature	Feature Type	Library	Release
5724B41	*BASE	2928	*LNG	QSYS2928	V5R3M0

### Post-installation tasks

When you have correctly installed WebSphere MQ for iSeries on your system:

1. Refer to the WebSphere MQ family Web site at:

<http://www.ibm.com/software/mqseries>

for latest product information, and to install and apply all PTFs that are recommended.

2. Start the WebSphere MQ subsystem, by issuing the command:  
STRSBS SBS(DQM/QMQM)
3. Make the user profile for creating and administering queue managers a member of the group profile QMQMADM.
4. Some WebSphere MQ commands, for example CRTMQM (create queue manager) and DLTMQM (delete queue manager), rely on using iSeries system commands for creating and managing objects, files, and libraries. The commands listed below must either have \*PUBLIC \*USE authority, or explicit \*USE authority to the WebSphere MQ user profiles QMQM and QMQMADM:
  - ADDLIB
  - CALL
  - CHGCURLIB

- SBMJOB

You are now ready to start using WebSphere MQ for iSeries.

## Migrating to WebSphere MQ for iSeries, V5.3 from MQSeries for AS/400 V5.1 or V5.2

There are two major types of upgrade:

- The upgrade takes place on the same machine, optionally accompanied by a hardware upgrade. This is sometimes referred to as a *slip install*.
- The upgrade takes place on a different machine. This is sometimes referred to as a *side-by-side install*.

### Preparing for a slip install or side-by-side install

Before performing a slip install or side-by-side install, carry out the following procedure:

1. Sign on to the system with a user profile that has \*ALLOBJ special authority, for example QSECOFR.
2. Stop all applications that are using the existing version of MQSeries for AS/400.
3. End all MQSeries channels for all queue managers on the system. To do this, use the WRKMQMCHL command and select option 15.
4. On each queue manager, end the MQSeries command server. To do this, enter the command:

```
ENDMQMCSVR MQMNAME(QMGRNAME) OPTION(*IMMED)
```

where *QMGRNAME* is the name of the queue manager.

5. Remove any unwanted messages from your MQSeries queues.
6. Resolve any in-doubt messages that are held by sender or server channels. To do this, use the WRKMQMCHST command and select option 17.
7. On each queue manager, save the latest media recovery checkpoint. To do this enter the following command:  

```
RCDQMIMG OBJ(*ALL) OBJTYPE(*ALL) MQMNAME(QMGRNAME) DSPJRNDTA(*YES)
```
8. Quiesce the product. To do this, refer to “Quiescing MQSeries for AS/400” on page 10.
9. Copy your MQSeries CL and MQSC files to a suitable save library such as QGPL.
10. End the QMQM subsystem by entering the command:  

```
ENDSBS SBS(QMQM)
```
11. Save your MQSeries data:

- Create a save file for every queue manager library on your system. To do this, issue the command:

```
CRTSAVF FILE(QGPL/queue-manager-library)
```

where the *queue-manager-library* name consists of the name of the queue manager preceded by QM.

- Save your queue manager libraries into the save files. To do this, issue the commands:

```
SAVLIB LIB(queue-manager-library) DEV(*SAVF)
SAVF(QGPL/queue-manager-library)
```

## Migrating from V5.1 or V5.2

- Create a save file for MQSeries IFS data. To do this, issue the command:  
`CRTSAVF FILE(QGPL/QMUSERDATA)`
  - Save your MQSeries IFS data, using the command:  
`SAV DEV('/QSYS.LIB/QGPL.LIB/QMUSERDATA.FILE') OBJ('/QIBM/UserData/mqm')`
12. If you are moving from running MQSeries on any machine to WebSphere MQ on a new machine, transfer the save files to the new machine.

## Performing a slip install

To perform a slip install, carry out the following procedure:

1. Install WebSphere MQ for iSeries, V5.3. See “Installation procedure” on page 6 for details.
2. Verify the installation. See “Verifying the installation” on page 8 for details.
3. Perform the tasks described in “Post-installation tasks” on page 8.

The default TCP channel listener in WebSphere MQ for iSeries, V5.3 is a threaded listener, which starts threaded channels.

4. If you want to run non-threaded TCP channel listeners in WebSphere MQ for iSeries, V5.3, you must add an attribute to the CHANNELS stanza of each queue manager’s qm.ini file. The attribute is ThreadedListener=No. Information about qm.ini files is in the *WebSphere MQ for iSeries V5.3 System Administration Guide*.

## Performing a side-by-side install

To perform a side-by-side install, carry out the following procedure.

1. Install WebSphere MQ for iSeries, V5.3. See “Installation procedure” on page 6 for details.
2. Verify the installation. See “Verifying the installation” on page 8 for details.
3. Perform the tasks described in “Post-installation tasks” on page 8.

4. Restore the queue-manager libraries for every queue manager, using the command:

```
RSTLIB SAVLIB(queue-manager-library) DEV(*SAVF)
SAVF(QGPL/queue-manager-library)
```

where the *queue-manager-library* name consists of the name of the queue manager preceded by QM.

5. Restore the WebSphere MQ IFS data, using the command:  
`RST DEV('/QSYS.LIB/QGPL.LIB/QMUSERDATA.FILE') OBJ('/QIBM/UserData/mqm')`
6. Issue the WRKJRN command on the AMQAJRN journal in each queue manager library, by pressing *PF4* and selecting option 9, to associate the journal receivers.
7. If you want to set up your work management environment, job descriptions, and pools, see the *WebSphere MQ for iSeries V5.3 System Administration Guide* for guidance. Otherwise, use the default setup.

## Quiescing MQSeries for AS/400

The orderly shutdown of MQSeries for AS/400 (and WebSphere MQ for iSeries) is called *quiescing*. You need to quiesce MQSeries to upgrade to WebSphere MQ for iSeries.

To quiesce one or more queue managers:

1. Sign on to a new interactive iSeries session, ensuring that you are not accessing any MQSeries objects.
2. Ensure that you have:
  - \*ALLOBJ authority, or object management authority for the QMQM library.
  - Sufficient authority to use the ENDSBS command.
  - For Version 5.1 only, you should also have \*USE authority for the following programs:
    - QMQM/AMQIQEM4
    - QMQM/AMQSTOP4
    - QMQM/AMQSPECA

Also ensure that you have the necessary authority to run the ENDSBS command.

3. Warn all users that you are going to stop MQSeries for AS/400.
4. Quiesce all queue managers.

On Version 5.1, run program AMQSTOP4:

```
CALL QMQM/AMQSTOP4 PARM(*ALL *CNTRLD 15)
```

If this fails, you can force queue managers to stop by issuing:

```
CALL QMQM/AMQSTOP4 PARM(*ALL *FORCE 15)
```

On Versions 5.2 or later, use the ENDMQM command:

```
ENDMQM MQMNAME(*ALL) OPTION(*CNTRLD) ENDCCTJOB(*YES) TIMEOUT(15)
```

If the ENDMQM command has not completed within a reasonable period (at least 10 minutes), use the WRKMQM command to identify the queue managers that are still ending, and force them to stop by issuing:

```
ENDMQM(QMGRNAME) OPTION(*CNTRLD) ENDCCTJOB(*YES) TIMEOUT(15)
```

If this command does not complete, issue:

```
ENDMQM(*ALL) OPTION(*IMMED) ENDCCTJOB(*NO)
```

If this command does not complete, end the subsystem immediately by issuing:

```
ENDSBS SBS(QMQM) OPTION(*IMMED)
```

If this also fails, use the operating system command ENDJOB to end all jobs in the subsystem QMQM.

**Note:** Do not use ENDJOBABN unless you intend to IPL the machine before starting MQSeries. Ending MQSeries jobs using ENDJOBABN can lead to damaged semaphores, which in turn can down your queue manager.

## Verifying the migration

Use the following procedure to check that you have migrated to WebSphere MQ for iSeries, V5.3 successfully:

1. Make QMQMADM either the primary or a secondary group profile for your user profile. To do this, issue one of the following commands:
 

```
CHGUSRPRF USRPRF(YOUR PROFILE) GRPPRF(QMQMADM)
CHGUSRPRF USRPRF(YOUR PROFILE) SUPGRPPRF(QMQMADM)
```
2. Ensure that the WebSphere MQ subsystem, QMQM, is active. To do this, issue the command:

## Migration verification

DSPSBSD SBSD(QMQM/QMQM)

If it is inactive, issue the command:

STRSBS SBSD(QMQM/QMQM)

3. Check that your queue managers are accessible by issuing the command:

WRKMQM

Use option 5 against each queue manager to check its attributes.

4. Start your queue managers using option 14.

You can use the other options to check your queue manager objects, for example check your queues using option 18, check your channels using option 20, and so on.

Refer to the online help for more information about these commands and how to use them.

## Post-migration tasks

When you are satisfied that the migration has completed successfully, you can delete the saved data in the save files in QGPL.

---

## Migrating from AS/400 V4.2.1

There is no direct migration path from MQSeries for AS/400 V4R2M1 to WebSphere MQ for iSeries, V5.3 because the two releases do not share a common release of OS/400. Two options are available:

- First migrate from MQSeries for AS/400 V4R2M1 to MQSeries for AS/400 V5.2, then migrate to WebSphere MQ for iSeries, V5.3.
- Use the SupportPac "MS03: MQSeries save Queue Manager object definitions using PCFs", which you can download for free from the SupportPacs website at [www.ibm.com/software/mqseries/support](http://www.ibm.com/software/mqseries/support). This SupportPac saves all your existing queue manager definitions, which you can then restore to WebSphere MQ for iSeries, V5.3, once you have upgraded your system.

---

## Chapter 3. Installing WebSphere MQ Java for iSeries

This chapter describes how the WebSphere MQ classes for Java and WebSphere MQ classes for Java Message Service (JMS) are installed on iSeries. The WebSphere MQ classes for Java and WebSphere MQ Java Message Service are together known as *WebSphere MQ Java*. This section covers the following topics:

- “Disk space required”
- “Install library and directories”
- “WebSphere MQ Java on iSeries library structure”
- “IFS root file system”
- “Installation” on page 14
- “Migrating to WebSphere MQ Java from SupportPac MA88” on page 14
- “Verifying the installation” on page 14
- “Uninstalling WebSphere MQ Java” on page 15

In addition to reading the information in this chapter, refer to the readme file on the documentation CD-ROM, and also to the latest information available on the WebSphere MQ Web site at:

<http://www.ibm.com/software/mqseries>

Further information about WebSphere MQ Java can be found in the *WebSphere MQ Using Java* book.

---

### Disk space required

For the WebSphere MQ Java base code and samples, allow approximately 10 MB of storage.

---

### Install library and directories

You can install WebSphere MQ Java on iSeries in 3 ways:

- On top of an installed WebSphere MQ for iSeries, V5.3 server
- On top of an MQSeries for AS400, V5.1 or V5.2 server
- Stand-alone

In each case, the installation procedure is the same.

### WebSphere MQ Java on iSeries library structure

Installation of WebSphere MQ Java V5.3 creates the WebSphere MQ Java product library QMQMJAVA.

### IFS root file system

For general IFS information see “IFS root file system” on page 3.

When you install WebSphere MQ Java on iSeries, the following directories are created in the IFS root file system:

### **/QIBM/ProdData/mqm/java**

Subdirectories below this contain all the product data, including Java classes. Data in this directory is deleted and replaced each time the product is replaced.

### **/QIBM/ProdData/mqm/java/samples**

Subdirectories below this contain all the sample Java classes and data.

---

## **Installation**

You can install WebSphere MQ Java for iSeries from either the Client CD or the Server CD.

1. Sign on to the system with a user profile that has \*ALLOBJ special authority, for example QSECOFR.

2. To install WebSphere MQ Java on iSeries, issue the command:

```
RSTLIPGM LICPGM(5639C34) DEV(install device) OPTION(*BASE) OUTPUT(*PRINT)
```

where:

- 5639C34 is the product identifier for WebSphere MQ Java for iSeries.
- *install device* is the device from which the product is to be loaded, typically a CD-ROM, for example, OPT01.

3. To install the sample applications, issue the command:

```
RSTLIPGM LICPGM(5639C34) DEV(install device) OPTION(1) OUTPUT(*PRINT)
```

**Note:** You can only install one instance of WebSphere MQ Java for iSeries in each partition of your server.

If installation of WebSphere MQ Java fails, remove the partly-installed objects before attempting reinstallation. To do this, delete the QMQMJAVA library, then delete the IFS directory /QIBM/ProdData/mqm/java and its subdirectories using the EDTF command, for example:

```
EDTF STMF('/QIBM/ProdData/mqm')
```

and select option 9 against the java directory.

---

## **Migrating to WebSphere MQ Java from SupportPac MA88**

If you have been using the Java SupportPac MA88, and want to install the WebSphere MQ Java V5.3 product on iSeries, you need to first uninstall MA88. If you do not uninstall MA88 and try to install WebSphere MQ Java V5.3, a warning is issued requesting you to uninstall the MA88 service pack, and the installation fails. To uninstall SupportPac MA88, delete the QMQMJAVA library, then delete the IFS directory /QIBM/ProdData/mqm/java and its subdirectories using the EDTF command, for example:

```
EDTF STMF('/QIBM/ProdData/mqm')
```

and select option 9 against the java directory.

---

## **Verifying the installation**

Refer to the *WebSphere MQ Using Java* book for full details of verification of both the WebSphere MQ classes for Java and the WebSphere MQ classes for Java Message Service.



---

## Uninstalling WebSphere MQ Java

To completely uninstall the WebSphere MQ Java, V5.3 product, make sure you are signed on to the system with a user profile that has \*ALLOBJ special authority, then issue the command:

```
DLTLICPGM LICPGM(5639C34) OPTIONS(*ALL) RLS(*ALL) LNG(*ALL)
```

You can uninstall a specific installed language by specifying a language ID in the LNG parameter (see "Installation of translated versions" on page 7).



---

## Chapter 4. Applying maintenance to WebSphere MQ for iSeries

This chapter tells you how to apply maintenance to WebSphere MQ for iSeries.

Service updates for WebSphere MQ for iSeries are supplied as PTFs (Program Temporary Fixes). They might be supplied on a CD-ROM, or you can obtain them electronically as save files, which are normally stored in the QGPL library. For details of how to load and apply PTFs and read their cover letters, see the *iSeries Basic System Operation, Administration, and Problem Handling manual*, SC41-5206.

Before loading and applying a PTF:

- Read the cover letter carefully to see if you need to take any special actions.
- Quiesce all queue managers, as described in “Quiescing MQSeries for AS/400” on page 10.

---

### Reinstalling WebSphere MQ for iSeries

You can reinstall WebSphere MQ for iSeries, V5.3 without losing any of your data.

When you reinstall WebSphere MQ for iSeries, the system checks whether the WebSphere MQ configuration file (mq5.ini) exists. If the file exists, it is kept and used with the newly installed system. If the file does not exist, an empty mq5.ini file is placed in the directory /QIBM/UserData/mqm.

All data that you have in the UserData directory is referenced by the newly installed system. In addition, all the queue manager-associated libraries containing journal and receiver information are referenced by the new system.



---

## Chapter 5. Deleting WebSphere MQ for iSeries, V5.3

There are two ways of deleting WebSphere MQ for iSeries, V5.3:

- A *standard* deletion removes WebSphere MQ product code but preserves user data.
- An *entire* deletion removes both WebSphere MQ product code and user data.

Both types of deletion require you to be signed on to the system with a user profile that has \*ALLOBJ special authority, for example QSECOFR.

---

### Standard deletion

Perform a standard deletion of the WebSphere MQ for iSeries product if you want to retain your user data, for example, because you intend to reinstall the product at a later date.

To perform this deletion:

1. Quiesce WebSphere MQ for iSeries. (See “Quiescing MQSeries for AS/400” on page 10.)
2. End the WebSphere MQ subsystem, by issuing the command:  
`ENDSBS SBS(QMQM)`
3. Ensure that no locks are held on the library QMQM.
4. Use the Delete Licensed Program (DLTLICPGM) command to delete the base product (and also the samples if you chose to install them). To delete the base product and the samples, issue the command:  
`DLTLICPGM LICPGM(5724B41) OPTION(*ALL)`

To delete only the samples, issue the command:

`DLTLICPGM LICPGM(5724B41) OPTION(1)`

Deleting WebSphere MQ for iSeries in this way deletes only the objects that belong to WebSphere MQ. That is, the QMQM library and the /QIBM/ProdData/mqm directory and its subdirectories. None of the queue manager journal libraries or IFS directories are removed.

---

### Entire deletion

You can delete WebSphere MQ entirely, including all user data. If you do this, save your user data first. It will not be recoverable.

To perform this deletion:

1. Using the WRKMQM command, select option 4 to delete all queue managers on the system.
2. Quiesce WebSphere MQ for iSeries. (See “Quiescing MQSeries for AS/400” on page 10.)
3. End the WebSphere MQ subsystem, by issuing the command:  
`ENDSBS SBS(QMQM)`
4. Delete the directory /QIBM/UserData/mqm and its subdirectories. Do this using the EDTF command and then use option 9 for the mqm directory.

## Deleting WebSphere MQ

**Note:** If you do this, you will no longer have any information regarding your installation. Use this command with extreme caution. The format of the command is:

```
EDTF STMF('/QIBM/UserData')
```

Alternatively, you can delete the /QIBM/UserData/mqm directory and its subdirectories by repeated use of the RMVLNK and RMVDIR commands.

5. Ensure that no locks are held on the library QMQM.
6. Use the Delete Licensed Program (DLTLICPGM) command to delete the base product (and also the samples if you chose to install them). To delete the base product and the samples issue the command:

```
DLTLICPGM LICPGM(5724B41) OPTION(*ALL)
```

7. Identify all the users who belong to the QMQMADM group. Use the DSPUSRPRF command to display a list of them. You need to remove the QMQMADM group profile from their user profiles before you can delete the QMQMADM user profile. The format of the command is:
8. For each of the user profiles QMQM and QMQMADM, use the WRKOBJOWN command to list all the objects owned by the profile. The format of the command is:

```
DSPUSRPRF USRPRF(QMQMADM) TYPE(*GRPMBR)
```

```
WRKOBJOWN USRPRF(PROFILE)
```

You need to alter the ownership or delete the objects. Then you must delete the two user profiles.

---

## Chapter 6. WebSphere MQ documentation

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

- “Hardcopy books”
- “Online information” on page 22
- “SupportPacs” on page 23
- “WebSphere MQ newsgroups” on page 23

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 3. WebSphere MQ family books*

PDF file name	Order Number	Title
CSQZAE07	SC34-6059	<i>WebSphere MQ Intercommunication</i>
CSQZAH05	SC34-6061	<i>WebSphere MQ Queue Manager Clusters</i>
CSQZAF07	GC34-6058	<i>WebSphere MQ Clients</i>
CSQZAJ07	SC34-6055	<i>WebSphere MQ Script (MQSC) Command Reference</i>
CSQZAX03	SC34-6069	<i>WebSphere MQ Event Monitoring</i>
CSQZAI01	SC34-6060	<i>WebSphere MQ Programmable Command Formats and Administration Interface</i>
AMQZA004	GC34-6057	<i>WebSphere MQ Messages</i>
CSQZAL07	SC34-6064	<i>WebSphere MQ Application Programming Guide</i>
CSQZAK07	SC34-6062	<i>WebSphere MQ Application Programming Reference</i>
AMQZAN07	SC34-6067	<i>WebSphere MQ Using C++</i>
CSQZAW11	SC34-6066	<i>WebSphere MQ Using Java</i>
AMTYAK08	SC34-6065	<i>WebSphere MQ Application Messaging Interface</i>
CSQZAS01	SC34-6079	<i>WebSphere MQ Security</i>
CSQZAY01	SC34-6113	<i>WebSphere MQ Bibliography and Glossary</i>

*Table 4. Additional WebSphere MQ books for iSeries*

PDF file name	Order Number	Title
AMQWAG01	SC34-6070	<i>WebSphere MQ for iSeries V5.3 System Administration Guide</i>
AMQWAK01	SC34-6071	<i>WebSphere MQ for iSeries V5.3 Application Programming Reference (ILE RPG)</i>

---

### Hardcopy books

This book, and all the books listed in Table 3 and 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>

## Hardcopy books

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)**.

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 23
- "Online help" on page 23

### 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 3 on page 21 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

WebSphere MQ for iSeries provides context-sensitive help. If you place your cursor on a command or panel field and press PF1, you are presented with relevant help information.

## 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:

## Online information

|  
| <http://www.ibm.com/software/mqseries/support/summary>  
|

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