WebSphere MQ for HP OpenVMS

Quick Beginnings

Version 6.0

GC34-6611-02

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Note

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

This edition applies to WebSphere MQ for HP OpenVMS, Version 6.0 and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Planning to install a WebSphere MQ for HP OpenVMS, Version 6.0 server

This chapter summarizes the system requirements to run WebSphere® MQ, and the decisions you must make before installing WebSphere MQ.

The following information applies to the server environment only. For information about installing a client, see Chapter 5, "Installing WebSphere MQ for HP OpenVMS, Version 6.0 clients," on page 23.

Reading the release notes

Before installing WebSphere MQ read the release notes and the readme file for the product. The release notes are included with the distribution kit and can be extracted before installation using the following command:

```
$ product extract release_notes webspheremq/version=6.00/file=[mydir]myreleasenotes.txt
```

This command assumes your current directory is the same as the location for the Installation Kit. After the kit has been installed, you can find the release notes in: `sys$help:webspheremq0600.release_notes`.

The readme file is in the sub-directory of `sys$help` called `[mqs_info]`. There are a number of directories contained within `[mqs_info]` identified by language. These are:

de_de German
en_us English
es_es Spanish
fr_fr French
it_it Italian
ja_jp Japanese
ko_kr Korean
pt_br Portuguese
zh_cn Simplified Chinese
zh_tw Traditional Chinese

Each of these language directories contains a `readme` file.

The release notes and the readme file contain any additional information about WebSphere MQ for HP OpenVMS, Version 6.0, including limitations, known problems and workarounds, and supersedes any corresponding information within this book.

Hardware requirements

WebSphere MQ servers can be any HP Alpha server or HP Integrity system supported by the appropriate release of the OpenVMS operating environment, as shown in "Operating system requirements" on page 2.

Disk storage

A minimum of 50 MB (100,000 blocks) of disk space must be available for the product code and data on the server.

Note: Use the **show device** command to determine the amount of free space on your disk.

This is an approximate storage requirement for the installation. The actual installation requirements depend on which components you install and how much working space you need.

The usage space 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 or not. You may also require archiving capacity on disk, tape, or other media.

Working data for WebSphere MQ for HP OpenVMS is stored by default in MQS_ROOT:[MQM].

Note: For added confidence in the integrity of your data, you are strongly advised to put your logs onto a *different* physical drive from the one that you use for the queues. This ensures that the size of the logs does not affect the space on the system disk or have an effect on performance.

Software requirements

For up-to-date information on supported software environments, refer to the WebSphere MQ URL:

`http://www.ibm.com/software/integration/wmq/requirements`

The system requires the following:

Operating system requirements

For up-to-date information on the required operating system and patches required for Websphere MQ for OpenVMS, Version 6.0, refer to the URL:

`http://www.ibm.com/software/integration/wmq/requirements`

Memory requirements

Run WebSphere MQ for HP OpenVMS, Version 6.0 on a system with a minimum of 128 MB of memory. Heavily loaded systems benefit from additional memory.

Disk quotas

With the System Management utility (SYSMAN) supplied with OpenVMS, it is possible to enforce disk quotas for specific UICs on named disk volumes. If the MQS_ROOT:[MQM] directory is held on a volume that enables quota enforcement, you **must** also add the username MQM as an entry to the disk quota file.

First Failure Support Technology™ (FFST™) files contain important information used for WebSphere MQ problem determination. When generated, these files are owned by MQM. It is therefore important to ensure that you allocate sufficient

blocks to MQM if this feature is enabled on the volume. An insufficient disk quota entry may lead to loss of FFST information and prevent timely resolution of WebSphere MQ problems.

Connectivity

WebSphere MQ for HP OpenVMS, Version 6.0 requires any communication hardware supporting DECnet or TCP/IP, or communication DECnet/SNA Gateway (for OpenVMS Alpha only) for Synchronous Transport.

For up-to-date information on the connectivity requirements for Websphere MQ for OpenVMS, Version 6.0, refer to the URL:

`http://www-306.ibm.com/software/integration/wmq/requirements/index.html`

WebSphere MQ for HP OpenVMS, Version 6.0 supports the following network protocols and hardware:

SSL

If you want to use SSL support, you need HP SSL version 1.3 for OpenVMS. This can be downloaded from the HP site:

`http://h71000.www7.hp.com/openvms/products/ssl/ssl.html`

Supported compilers

For up-to-date information on the compiler requirements for Websphere MQ for OpenVMS, Version 6.0, refer to the URL:

`http://www-306.ibm.com/software/integration/wmq/requirements/index.html`

Options

You may use the following options with WebSphere MQ for HP OpenVMS, Version 6.0.

Databases

For up-to-date information on the supported databases for Websphere MQ for OpenVMS, Version 6.0, refer to the URL:

`http://www-306.ibm.com/software/integration/wmq/requirements/index.html`

Java

If you want to use the Java™ Messaging Support, you need the Java Runtime Environment Version 1.4.2 or later.

WebSphere MQ for HP OpenVMS components

During the installation of WebSphere MQ for HP OpenVMS, Version 6.0, you are prompted to select which components you want to install.

The OpenVMS Server kit is called: `IBM-AXPVMS-WEBSPHEREMQ-V0600--1.PCSI`. The components available in this kit are:

WebSphere MQ Server:
WebSphere MQ for HP OpenVMS, Version 6.0 server.

This comprises three interdependent components: WebSphere MQ Server, WebSphere MQ Base Kit for Client and Server, and WebSphere MQ Runtime for Client and Server.

WebSphere MQ Examples:
Sample WebSphere MQ source code, including header files, link libraries and source files for sample applications. Samples are provided in C, C++ and COBOL.

WebSphere MQ Java Client
Support for the Java client.

WebSphere MQ Message Catalogs:
The US English message catalog is installed automatically and is always available. In addition to this, you may also choose to install support for WebSphere MQ messages in any of the following languages:

- French
- German
- Italian
- Japanese
- Portuguese
- Spanish
- Korean
- Simplified Chinese
- Traditional Chinese

The OpenVMS Client kit is called `IBM-AXPVMS-WMQCLIENT-V0600--1.PCSI`. The components available in this kit are:

WebSphere MQ Client for OpenVMS:
WebSphere MQ for HP OpenVMS, Version 6.0 client.

Note:

1. Typically, a particular OpenVMS machine is designated as either an WebSphere MQ client or a server, so you should install the corresponding WebSphere MQ client or server component. However, the server component also contains the full client content, so you can develop and use client-only applications on a machine that has the WebSphere MQ server component installed without needing to install the client component separately.
2. These clients can be found on the second distribution CD-ROM.

Things you need to know before installing

Before installing WebSphere MQ for HP OpenVMS, you must:

- Extract and read the release notes as described in “Reading the release notes” on page 1.
- Versions of the product before Version 5.1 used the **VMSINSTAL** utility for installation. The current version has now been modified to use the Polycenter Software Installation Utility (PCSI), which is invoked using the operating system keyword **PRODUCT**. For further information on PCSI, see the online Help facility, specifying the keyword **PRODUCT**.

- Carry out the installation from the SYSTEM account, or with an user account that has the following priviledges:
  - SYSLCK
  - SYSPRV
  - CMKRNL
  - TMPMBX
  - NETMBX
  - OPER
  - SYSNAM
  - SYSGBL
  - PRMGBL
  - CMEXEC
  - SHMEM
  - BUGCHK
- Know the location of the software product kit. If the qualifier **/SOURCE** is not used, PCSI searches in the location defined by the logical PCSI$SOURCE for the installation kit. If this logical is not defined, the current directory is searched.
- The product files are installed in the default top-level directory for product files, which is: SYS$SYSDEVICE:[VMS$COMMON].
- The installation creates an MQM account to be used by the server process. The default UIC value for this account is [400,400]. However, if the installation procedure detects that this UIC is already in use by another account on the system, you are prompted to specify the next available UIC after [400,400], for example [400,401]. In addition, the installation also creates an MQS_SERVER account.
- To ensure proper security of the network and WebSphere MQ, the MQM account **must** have a unique UIC. The password for this account is generated automatically and since this account is restricted, it is not necessary to know the account password. If this violates the security policies of your enterprise, you can modify the MQM account password using the OpenVMS **AUTHORIZE** utility after the installation has finished.

  Note: For the correct operation of WebSphere MQ for HP OpenVMS, neither the MQM nor MQS_SERVER accounts should be removed.

What to do next

When you have finished checking that your system meets the hardware, software and disk storage requirements, and you have completed the tasks listed in "Things you need to know before installing" on page 4, then:

- If you are installing WebSphere MQ for HP OpenVMS, Version 6.0 on a new system, see Chapter 2, "Installing a WebSphere MQ for HP OpenVMS, Version 6.0 server," on page 7 for the next step.
- If you already have MQSeries® for HP OpenVMS, Version 5.3 installed on your system and you want to upgrade it by installing the latest release, see Chapter 3, "Migrating to WebSphere MQ for HP OpenVMS, Version 6.0," on page 17 for the next step.
- For future reference, if you need to apply an update or PTF, refer to the release notes that accompany the CSD.

Chapter 2. Installing a WebSphere MQ for HP OpenVMS, Version 6.0 server

This chapter explains how to install WebSphere MQ for HP OpenVMS, Version 6.0 for the first time.

Note: If you already have MQSeries for HP OpenVMS, Version 5.3 installed on the system, then follow the instructions in Chapter 3, "Migrating to WebSphere MQ for HP OpenVMS, Version 6.0," on page 17.

Before you begin

Before installing WebSphere MQ for HP OpenVMS, Version 6.0, make sure your system meets all hardware, software and disk storage requirements. See Chapter 1, "Planning to install a WebSphere MQ for HP OpenVMS, Version 6.0 server," on page 1.

Use the HP OpenVMS **PCSI** utility. For further details see the *HP OpenVMS System Management Utilities Manual: M-Z*.

Installation procedure

The installation kit is supplied as a PCSI product installation kit named: `IBM-AXPVMS-WEBSPHEREMQ-V0600--1.PCSI`.

From the HP OpenVMS command prompt, type:

```
$ PRODUCT INSTALL WEBSPHEREMQ /VERSION=6.0/SOURCE=<cdrom>
```

where:

- *<cdrom>* is the device and directory location of the installation kit.

Note:

1. During the installation, you are prompted to select which components you want to install.
2. Default responses are given in square parentheses [] at the end of each prompt. Press the `Return` key to accept the default, or type a new response to change the selection.
3. When you are requested to enter the destination for the WebSphere MQ data files, give the location in the form of a device name or a device and directory. This location is the value assigned to the `MQS_ROOT` logical. The device name may be a logical name. The default destination is `SYS$COMMON`.
4. Ensure that you have sufficient space on this device for your WebSphere MQ data files. This depends on the number and size of your queue and log files.

The following text shows an example of the output seen during an installation:

```
$ product install WEBSPHEREMQ /version=6.00/source=DKA400

The following product has been selected:
```

```
    IBM AXPVMS WEBSPHEREMQ V6.00      Layered Product

Do you want to continue? [YES]

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

IBM VMS WebSphere MQ for HP OpenVMS V6.00

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%WEBSPHEREMQ-I-PRECONFIGURE, pre-configuration processing

        Please choose which of the following components to install:

         - all the WebSphere MQ components
         - WebSphere MQ Server (12796 blocks)
         - WebSphere MQ Base Kit for Client and Server (1420 blocks)
         - WebSphere MQ Runtime for Client and Server (31180 blocks)
         - WebSphere MQ Examples (3772 blocks)
         - WebSphere Java Client (2300 blocks)
         - WebSphere Message Catalogs - French (776 blocks)
         - WebSphere Message Catalogs - German (792 blocks)
         - WebSphere Message Catalogs - Italian (776 blocks)
         - WebSphere Message Catalogs - Japanese (684 blocks)
         - WebSphere Message Catalogs - Korean (612 blocks)
         - WebSphere Message Catalogs - Portuguese (720 blocks)
         - WebSphere Message Catalogs - Spanish (776 blocks)
         - WebSphere Message Catalogs - Simplified Chinese (452 blocks)
         - WebSphere Message Catalogs - Traditional Chinese (488 blocks)

Do you want to install all the WebSphere components [N]?:
Do you want to install WebSphere Server (12796 blocks) [N]?: y
WebSphere Base Kit for Client and Server (1420 blocks) (required)
WebSphere Runtime for Client and Server (31180 blocks) (required)
Do you want to install WebSphere Examples (3772 blocks) [N]?: y
Do you want to install WebSphere Java Client (2300 blocks) [N]?:
Do you want to install WebSphere Message Catalogs - French (776 blocks) [N]?:
Do you want to install WebSphere Message Catalogs - German (792 blocks) [N]?:
Do you want to install WebSphere Message Catalogs - Italian (776 blocks) [N]?:
Do you want to install WebSphere Message Catalogs - Japanese (684 blocks) [N]?:
Do you want to install WebSphere Message Catalogs - Korean (612 blocks) [N]?:
Do you want to install WebSphere Message Catalogs
                                          - Portuguese (720 blocks) [N]?:
Do you want to install WebSphere Message Catalogs
                                          - Spanish (776 blocks) [N]?:y
Do you want to install WebSphere Message Catalogs
                                          - Simplified Chinese (452 blocks) [N]?:
Do you want to install WebSphere Message Catalogs
                                          - Traditional Chinese (488 blocks) [N]?:

        The selections you have made are:

          - WebSphere Server (12796 blocks)
          - WebSphere Base Kit for Client and Server (1420 blocks) (required)
          - WebSphere Runtime for Client and Server (31180 blocks) (required)
          - WebSphere Examples (3772 blocks)
          - WebSphere Message Catalogs - Spanish (776 blocks)

Would you like to reselect your options [Y/N]:

Do you want to run the IVP after the installation [Y]?:

        ************************************************************
        Enter the destination device or directory for the WebSphere
```

```
        data files.  This value will be assigned to the MQS_ROOT
        logical.
        ************************************************************

Enter the destination for the WebSphere data files [SYS$COMMON]:
%UAF-I-RDBADDMSG, identifier MQM value %X8001001D added to rights database
%UAF-I-NOMODS, no modifications made to system authorization file
%UAF-I-RDBDONEMSG, rights database modified

        ************************************************************
        The installation procedure will create an account called MQM
        to run the WebSphere server processes.  The account will be
        created with the MQM resource identifier granted and the
        following privileges:
        TMPMBX,NETMBX,PRMGBL,SYSGBL

        You must specify a unique group UIC for this account in
        order to ensure proper security of the network.  The
        password for this account will be generated.  You do not
        need to know the password, since the account is disabled.
        If this scenario violates your security policies, you may
        change it after the installation has finished via the
        OpenVMS AUTHORIZE utility.
        ************************************************************

Enter the UIC of the new MQM account[400,400]?:
%UAF-I-RDBADDMSGU, identifier MQS_SERVER value [000400,000400]
added to rights database
%UAF-I-ADDMSG, user record successfully added
%UAF-I-ADDMSG, user record successfully added
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-RDBDONEMSG, rights database modified
%UAF-I-GRANTMSG, identifier MQM granted to MQS_SERVER
%UAF-I-GRANTMSG, identifier MQM granted to SYSTEM
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-RDBNOMODS, no modifications made to rights database

%WEBSPHEREMQ-I-PRECONFIGURE, pre-configuration terminated

* This product does not have any configuration options.

    You must install SNA LU6.2 Services to communicate over LU6.2

    Do you want to continue? [YES]

Execution phase starting ...

The following product will be installed to destination:
    IBM AXPVMS WEBSPHEREMQ V6.00      DISK$ALPHASYS:[SYS0.SYSCOMMON.]

Portion done: 0%...10%...20%...30%...40%...50%...60%...70%...80%...90%

%WEBSPHEREMQ-I-POSTINSTALL, post-installation processing

        The following system parameter(s) are low.  Please increase these
        to the required value(s) before executing the WebSphere startup
        command procedure.
        SYSGEN Parameter        Current Value           Required Value
        ----------------        -------------           --------------
        CHANNELCNT                        256                     1024

%WEBSPHEREMQ-I-POSTINSTALL, post-installation terminated

....100%

The following product has been installed:
```

```
    IBM VMS WEBSPHEREMQ V6.00      Layered Product

%PCSI-I-IVPEXECUTE, executing test procedure for IBM AXPVMS WEBSPHEREMQ V6.00 ...
***Creating the IVP queue manager
WebSphere queue manager created.
Creating or replacing default objects for ivp.
Default objects statistics : 29 created. 0 replaced. 0 failed.
Completing setup.
Setup completed.
***Starting the IVP queue manager
WebSphere queue manager 'ivp' started.
***Creating the IVP Test queue
0790997, 5724-A38 (C) Copyright IBM Corp. 1996, 2004  ALL RIGHTS RESERVED.
Starting WebSphere Commands.

AMQ8006: WebSphere queue created.
One MQSC command read.
No commands have a syntax error.
All valid MQSC commands were processed.
***Writing to the IVP Test queue
Sample AMQSPUT0 start
target queue is testq
Sample AMQSPUT0 end
***Reading from the IVP Test queue
Sample AMQSGET0 start
message <This is an IVP test message being read from the test queue.>
no more messages
Sample AMQSGET0 end
***Ending the IVP queue manager
WebSphere queue manager ending.
WebSphere queue manager ending.
WebSphere queue manager ended.
***Deleting the IVP queue manager
WebSphere queue manager deleted.
***IVP Completed Successfully
%PCSI-I-IVPSUCCESS, test procedure completed successfully

IBM AXPVMS WEBSPHEREMQ V6.00: WebSphere MQ for HP OpenVMS V6.00

    Release notes are available in SYS$HELP:WEBSPHEREMQ0600.RELEASE_NOTES

    Insert the following line in SYS$MANAGER:SYSTARTUP_VMS.COM:
        @sys$startup:mqs_startup.com
    Insert the following line in SYS$MANAGER:SYSHUTDWN.COM:
        @sys$manager:mqs_shutdown.com
```

Post-installation tasks

When you finished installing WebSphere MQ for HP OpenVMS, Version 6.0, you can:

- Review the release notes for the product. These are placed in SYS$HELP by the installation procedure.
- Modify the system startup procedure to ensure that the WebSphere MQ system logicals are defined and that all WebSphere MQ shared libraries are installed during system startup. See “Setting up WebSphere MQ system logicals and install WebSphere MQ shared libraries” on page 11.
- Set up one or more separate WebSphere MQ Administrator accounts. See “Setting up a separate WebSphere MQ Administrator account” on page 11.
- Create additional identifiers for groups that use WebSphere MQ. See “Creating identifiers for groups that use WebSphere MQ” on page 12.

- Make modifications to system resource parameters using the system-supplied tool: AUTOGEN. See "Setting system parameters" on page 13.
- Set up a system-wide command file or the login files for all the users so that WebSphere MQ commands can be invoked as if they were native DCL commands. See "Allowing users to invoke WebSphere MQ commands from DCL" on page 15.
- Change the language WebSphere MQ uses, if necessary. See "Setting the language for WebSphere MQ for HP OpenVMS" on page 15.

Setting up WebSphere MQ system logicals and install WebSphere MQ shared libraries

The WebSphere MQ environment is set up using the command procedure:

```
SYS$STARTUP:MQS_STARTUP.COM
```

This should be invoked when the machine is restarted to define the WebSphere MQ system logicals and load all WebSphere MQ shared libraries as known images.

The following command line should be added to the system startup command file SYS$MANAGER:SYSTARTUP_VMS.COM:

```
$ @SYS$STARTUP:MQS_STARTUP.COM
```

The following command line should be added to the system shutdown command file SYS$MANAGER:SYSHUTDWN.COM:

```
$  @SYS$MANAGER:MQS_SHUTDOWN.COM
```

Setting up a separate WebSphere MQ Administrator account

WebSphere MQ administration can be performed through the SYSTEM account on HP OpenVMS. The WebSphere MQ installation procedure provides all required quotas and grants all required privileges to the SYSTEM account for this purpose.

However, rather than the VMS System Manager, you can have another person, or just a separate account, to administer WebSphere MQ functions in your enterprise.

You must perform the following steps to set up the WebSphere MQ Administrator account:

1. Use the HP OpenVMS **Authorize** utility (taking care to spell **Authorize** as it is shown here) to set up an interactive account as your WebSphere MQ Administrator, with the identical privileges and quotas as the MQM account created by the installation procedure.

   Note: The account that you intend to use to administer WebSphere MQ, and which you create to do this, does not require any special privileges other than those described in this section.

   In this example the name of the account is MQADMIN.

2. Grant the MQM identifier to your WebSphere MQ Administrator account, MQADMIN, as follows:
   a. $ RUN AUTHORIZE
   b. UAF> GRANT/IDENTIFIER/ATTRIBUTE=RESOURCE MQM MQADMIN
   c. Exit authorize using <Ctrl Z>

Note: You can verify that you have set up the account correctly, using the command:

```
$  @SYS$MANAGER:MQS_CHECKADMIN
```

Creating identifiers for groups that use WebSphere MQ

The MQM identifier is created during installation and essentially grants access to WebSphere MQ administrative functions. If WebSphere MQ security is being used, you need to create additional identifiers to represent the groups of OpenVMS accounts that can be granted access to WebSphere MQ objects. These identifiers are granted to application groups using the OpenVMS Authorize utility.

See the *WebSphere MQ for HP OpenVMS, System Administration Guide* for further information about using WebSphere MQ security features.

For example, users whose OpenVMS accounts are in different UIC groups may want to share WebSphere MQ resources such as queues. The users of these common queues may be granted the identifier called PAYROLL. To do this, you:

1. Add the PAYROLL identifier as a resource as follows:
   a. $ RUN AUTHORIZE
   b. UAF> ADD/IDENTIFIER/ATTRIBUTE=RESOURCE PAYROLL
   c. Exit authorize using <Ctrl Z>.
2. Grant the PAYROLL identifier to the desired user accounts (in this case, DOMESTIC and OVERSEAS) as follows:
   a. $ RUN AUTHORIZE
   b. UAF> GRANT/IDENTIFIER PAYROLL DOMESTIC
   c. UAF> GRANT/IDENTIFIER PAYROLL OVERSEAS
   d. Exit authorize using <Ctrl Z>.
3. Grant appropriate WebSphere MQ authorizations for the grouped user accounts, using the **setmqaut** command, according to the capabilities required:

```
setmqaut -m qm0 -t qmgr -g payroll +connect
setmqaut -m qm0 -t queue -n 401k.q -g payroll +inq +put +get
```

   Use +connect to allow the user group to connect to a desired queue manager.

   Use +inq, +put, +get to allow the user group to inquire upon, put messages to, and get messages from a desired queue.

Note: For WebSphere MQ to recognize any authorization changes made to accounts, you must logout all instances of the account that has been changed and restart the queue manager to reload the Object Authority Manager (OAM).

Setting system parameters

WebSphere MQ for HP OpenVMS, Version 6.0 uses various system resources which are controlled by SYSGEN parameters. Insufficient quotas may result in unexpected errors.

In particular, you must have sufficient free global pagelets and global sections available. To install WebSphere MQ, the recommended minimum amounts of these resources are:

- `GBLSECTIONS 2500`
- `GBLPAGES 1000000`

This should be sufficient to initialize the WebSphere MQ environment and start a single queue manager with default settings during the installation verification stage.

Your runtime requirements, however, depend on your WebSphere MQ configuration and workload. Use the AUTOGEN command procedure described in "Changing system parameter values with AUTOGEN" on page 14 regularly to check that your system parameter settings are appropriate for the workload. Table 1 and Table 2 give some recommended values for an averagely-loaded system running only WebSphere MQ.

Table 1. System parameters

SYSGEN parameter name	Recommended value
GBLSECTIONS	2500
GBLPAGES	1000000
GBLPAGFIL	1000000
CHANNELCNT	2500

Table 2. Process quotas

Process Quota name	Recommended value
ENQLM	6000
PGFLQUO	3000000
FILLM	4096
TQELM	1000
DIOLM	4096
ASTLM	4120

Note:

1. SYSGEN parameters are system wide and apply to all processes that are running.
2. Process quotas are account specific and apply only to those processes running under that account.
3. On a heavily loaded system these values need to be reviewed.

Changing system parameter values with AUTOGEN

The AUTOGEN command procedure (SYS$UPDATE:AUTOGEN.COM) supplied with OpenVMS, is the best method to adjust system parameters according to the workload of your system.

AUTOGEN runs a number of ordered phases, each of which has a specific task. The parameters you specify when you invoke AUTOGEN determine which phases are run. There are also two modes of processing. If you specify FEEDBACK mode, AUTOGEN is able to size values based on actual workload figures collected and saved by OpenVMS. If you specify NOFEEDBACK this information is not used.

The file SYS$SYSTEM:MODPARAMS.DAT should be modified to control the size and limits of those system parameters which AUTOGEN adjusts. For example, the following two lines:

```
MIN_GBLSECTIONS = 900
ADD_GBLPAGES = 150
```

are used to set a minimum value for the system parameter GBLSECTIONS of 900; and to increment the current value of the system parameter GBLPAGES by 150 respectively. For further detailed information on the phases and processing modes of AUTOGEN, refer to the *HP OpenVMS System Management Utilities Reference Manual: A-L.*

Run AUTOGEN after making the appropriate changes to system parameter values within SYS$SYSTEM:MODPARAMS.DAT.

AUTOGEN can be invoked as follows:

```
@SYS$SYSTEM:AUTOGEN <start-phase> <end-phase> <execution-mode>
```

The newly calculated parameter values come into effect after the next system reboot.

One suggested method for using AUTOGEN is to execute the required phases in two parts. For example:

```
$ @SYS$SYSTEM:AUTOGEN savparams genparams feedback
 $ @SYS$SYSTEM:AUTOGEN setparams reboot feedback
```

In this example, the first processing of AUTOGEN processes dynamic workload figures and uses these when calculating new system parameter values. The feedback information and newly calculated values are written to a text file (SYS$SYSTEM:AGEN$FEEDBACK.DAT) which should be reviewed for warnings before proceeding with the subsequent AUTOGEN processing.

When AUTOGEN is invoked on the second occasion, the newly calculated system parameters are written to the system parameter file (SYS$SYSTEM:ALPHAVMSSYS.PAR). The system is then automatically shutdown and rebooted with the new parameter values.

For further information regarding the performance tuning of WebSphere MQ, refer to the relevant chapter of the *WebSphere MQ for HP OpenVMS, Version 6.0 System Administration Guide*.

Run AUTOGEN initially on a weekly basis, to adjust system parameters, because the additional increase in system workload attributed to WebSphere MQ increases the use of system resources.

If any required resource becomes exhausted, an FFST is written detailing all relevant system and process quotas.

Setting the language for WebSphere MQ for HP OpenVMS

Messages in US English are always available. If you require another of the languages that is supported by WebSphere MQ for HP OpenVMS, you ***must*** ensure that your SYS$NLSPATH logical name includes the appropriate directory, and that you have installed the relevant WebSphere MQ language component. This is normally done automatically by the WebSphere MQ startup procedure. Furthermore, the SYS$LC_ALL logical name must specify the correct locale for the language, country and codeset.

For example, to select messages in German:

```
$ DEFINE/SYSTEM  SYS$LC_ALL  DE_DE_ISO8859-1.LOCALE
```

Allowing users to invoke WebSphere MQ commands from DCL

WebSphere MQ commands are implemented as DCL "foreign" commands. You should note that the DCL commands are not case sensitive.

To invoke WebSphere MQ commands, which reside in the SYS$SYSTEM directory, as if they were native DCL commands, you **must** do the following.

Invoke the command file SYS$MANAGER:MQS_SYMBOLS.COM in the system-wide login file SYS$MANAGER:SYLOGIN.COM, or in the login files for all users who need to issue WebSphere MQ commands.

Chapter 3. Migrating to WebSphere MQ for HP OpenVMS, Version 6.0

This chapter shows you how to migrate (upgrade) from WebSphere MQ for HP OpenVMS, Version 5.3 to WebSphere MQ for HP OpenVMS, Version 6.0. To migrate to the latest version:

- Perform the tasks described in "Before you begin." This includes stopping all queue managers, making sure the latest maintenance fix is installed on the system, and backing up the system.
- Remove from your system the existing version of MQSeries, install the latest version of WebSphere MQ and then re-link applications. This is described in "Migration procedure" on page 18.

When you are finished, you can check that the installation has worked properly by running the verification procedure.

Note:

1. The migration process described in this chapter is not reversible.
2. If you are installing WebSphere MQ for HP OpenVMS, Version 6.0 on a system that does not have any of the previous versions of WebSphere MQ installed, then use the procedure described in Chapter 2, "Installing a WebSphere MQ for HP OpenVMS, Version 6.0 server," on page 7.

Before you begin

Before you migrate from MQSeries for WebSphere MQ for HP OpenVMS, Version 5.3 to WebSphere MQ for HP OpenVMS, Version 6.0:

- Stop all queue managers. Use the **endmqm** command. See the *WebSphere MQ for HP OpenVMS, System Administration Guide* for more information about the **endmqm** command.
- Check that your system meets all the requirements described in Chapter 1, "Planning to install a WebSphere MQ for HP OpenVMS, Version 6.0 server," on page 1, and that you have considered all the points outlined in "Things you need to know before installing" on page 4.
- Make sure that you are currently running WebSphere MQ for HP OpenVMS, Version 5.3, that all your applications are working at this level and that you have installed the latest maintenance fix. If you are not sure what is running on your system, see "Querying the service level" on page 18 for guidance on how to find out.

  The latest WebSphere MQ maintenance fixes are available at: `http://www.ibm.com/software/integration/wmq/support/`.

  Follow the instructions on how to install the maintenance fix then migrate all applications to the new level.
- You must take a backup copy of your system disk, and specifically a backup of the MQS_ROOT:[MQM] directory and its contents.

  Note: The MQS_ROOT:[MQM] directory on the disk represents that of the Version 5.3 product.

Migration procedure

To migrate to WebSphere MQ for HP OpenVMS, version 6.0:

1. Ensure all queue manager activity has been stopped, as described in the section "Before you begin" on page 17
2. Remove the existing release of MQSeries from your system as described in Chapter 6, "Removing WebSphere MQ," on page 29. Do not delete the MQS_ROOT:[MQM] directory tree if you want to retain existing MQSeries information, for example your queue manager data.
3. Install WebSphere MQ for HP OpenVMS, Version 6.0 using the PCSI installation method. For further details, refer to Chapter 2, "Installing a WebSphere MQ for HP OpenVMS, Version 6.0 server," on page 7.

   The directories and corresponding data belonging to existing Version 5.1 queue managers remain preserved in the MQS_ROOT:[MQM] directory structure, and are not affected by the actual installation of the Version 6.0 product. Migration of this data to the Version 6.0 formats occurs automatically when these queue managers are first started using the Version 6.0 executables now installed.

Client applications

A WebSphere MQ Version 6 client connects to all queue managers that support client attach. However, you cannot use features and structures specific to WebSphere MQ for HP OpenVMS, Version 6.0 in your client application if you connect to some lower level queue managers.

Querying the service level

On WebSphere MQ for HP OpenVMS, Version 6.0, you use the following PCSI command to display the product information:

```
$ product show product WEBSPHEREMQ
```

The output generated is as follows:

```
------------------------------------------------------------------------------
    PRODUCT                                KIT TYPE              STATE
------------------------------------------------------------------------------
    IBM AXPVMS WEBSPHEREMQ V6.0            Full   LP           Installed
------------------------------------------------------------------------------
```

The preceding table shows that the current version of WebSphere MQ installed on the system is V6.0. When the command is used with the /FULL qualifier, an additional column is generated in the output table corresponding to the level of the update kit added to the base product.

Restoring the previous backup version

If you experience difficulties with the new WebSphere MQ V6.0 environment and your existing applications, revert to the previous version by restoring your previous backup. In addition, if the MQS_ROOT directory structure is on a device other than the system device this must also be restored from backup to its original location.

For further information on the BACKUP command and its qualifiers, refer to the *System Management Utilities Reference Manual:A-L*.

If you do not have a satisfactory backup of your previous WebSphere MQ working environment you should call your Customer Service Representative for further assistance.

Chapter 4. Verifying the installation for WebSphere MQ for HP OpenVMS, Version 6.0

During the installation, you can choose to have WebSphere MQ for HP OpenVMS, Version 6.0 automatically run an Installation Verification Program (IVP). If you have opted not to run the IVP during the installation process, or you have installed only one or two images as a result of a minor upgrade, you can use the following procedure to verify that the installation was successful. You should test all the updated images to ensure that your new system runs as you expect.

Verifying the installation

Note: The installation procedure creates the MQM account and associated MQM resource identifier. If you are performing an upgrade the installation procedure detects that the account and identifier already exist and uses the existing values.

Follow these steps to verify your installation

You can invoke the IVP by running the following command procedure:

```
$  @sys$test:mqs_ivp.com
```

If problems occur, you may wish to run the IVP steps individually to isolate the cause. For a detailed description of the all the commands used in this procedure, see the *WebSphere MQ for HP OpenVMS, System Administration Guide, Version 6.0* book.

To run the IVP steps individually:

1. Create a queue manager called `IVP`, by typing:

```
crtmqm IVP
```

   Note:

   a. The queue manager name is not, in general, case sensitive. For more details on case sensitivity within OpenVMS, refer to the *WebSphere MQ for HP OpenVMS, System Administration Guide, Version 6.0*

   b. For the following steps, this example uses a queue manager called `IVP`.

2. Start the queue manager by typing:

```
strmqm IVP
```

   The **strmqm** command returns control when the queue manager has started and is ready to accept connect requests.

3. Create the `IVP` test queue called `testq` using the MQSC command **runmqsc**.
4. Write to the test queue using the supplied sample program in mqs_examples — AMQSPUT.

5. Write from the test queue using the sample program in mqs_examples — AMQSGET.
6. Stop the queue manager by typing:

```
endmqm IVP
```

7. Delete the queue manager by typing:

```
dltmqm IVP
```

This command deletes the queue manager and its associated objects including the system default objects that you created in step 3.

Chapter 5. Installing WebSphere MQ for HP OpenVMS, Version 6.0 clients

The WebSphere MQ client kit contains release notes which describe further information that may supersede the information documented in this book. Read through the release notes before installing the WebSphere MQ Client for OpenVMS. The release notes can be obtained using the following command:

```
$ PRODUCT extract release_notes WMQCLIENT/file=clientnotes.txt
```

In this example, the release notes for the WMQCLIENT product are extracted and placed in a file called `clientnotes.txt` held in the current directory.

System requirements for WebSphere MQ for HP OpenVMS clients

This section outlines the system requirements for a WebSphere MQ for HP OpenVMS client.

Hardware

A Version 6.0 WebSphere MQ client can run on any Alpha server running OpenVMS for Alpha Version 7.3–2, and any HP Integrity system running OpenVMS for IPF Version 8.2. There must be enough random access memory (RAM) and disk storage for the programming prerequisites (below), the client code, the access methods and the application programs.

Disk storage

A WebSphere MQ client requires 935 KB.

Software

The following are required for WebSphere MQ applications to run on a WebSphere MQ for HP OpenVMS client.

Description	OpenVMS Alpha	OpenVMS IPF
Operating System	OpenVMS 7.3–2	OpenVMS 8.2
Patches The latest critical patches can be downloaded from `http://itrc.hp.com`	Mandatory patches: 1. VMS732_PCSI-V0100 2. VMS732_UPDATE-V0200 3. VMS732_SYS-V0500 4. VMS732_SYSLOA-V0100 5. VMS732_DCL-V0200 6. VMS732_F11X-V0200 7. VMS732_PTHREAD-V0100 8. DEC-AMPVMS-TCPIP_ECO-V0504-151-4	The latest critical patches available for OpenVMS IPF.

Connectivity

WebSphere MQ for HP OpenVMS, Version 5.3 requires any communication hardware supporting DECnet or TCP/IP, or DIGITAL DECnet/SNA Gateway for Synchronous Transport.

Description	OpenVMS Alpha	OpenVMS IPF
Network Protocols	• TCP/IP V5.4 • DECNET_PHASE_IV V7.3-2 • TCPWare 5.6 • Process Software Multinet 5.0 (over TCP/IP)	• TCP/IP V5.5 • DECNET_PHASE_IV V8.2

For SNA connectivity (for OpenVMS Alpha only):

- DECnet SNA Gateway ST V1.3 in conjunction with
- DECnet SNA LU6.2 API V2.4

Compilers for WebSphere MQ applications on HP OpenVMS clients

WebSphere MQ for HP OpenVMS, Version 5.3 supports the following compilers:

Description	OpenVMS Alpha	OpenVMS IPF
Compilers	• HP C S6.5-002 • HP C++ V6.5-033 • Java V1.4.2 • Cobol V2.8	• C Version 7.1 • C++ V7.1 • Java V1.4.2 • Cobol 2.8

Components

WebSphere MQ client
The WebSphere MQ client code for your HP OpenVMS platform.

Samples
Sample application programs.

Support for DCE in Samples
This should be installed if you are going to use DCE.

Installing clients for WebSphere MQ for HP OpenVMS V6.0

Before you install

Before you install a WebSphere MQ for HP OpenVMS client, make sure your client machine meets all hardware, software and disk storage requirements for a client. See “System requirements for WebSphere MQ for HP OpenVMS clients” on page 23.

Installation procedure

The installation kit is supplied as a PCSI installation kit named IBM-AXPVMS-WMQCLIENT-V0600-1.PCSI.

From the HP OpenVMS command prompt, type:

```
$ PRODUCT INSTALL WMQCLIENT/SOURCE=<cdrom>
```

where

- *<cdrom>* is the device and directory location of the installation kit.

The following text is an example client installation script:

```
$ PRODUCT INSTALL WMQCLIENT

The following product has been selected:
    IBM AXPVMS WMQCLIENT V6.0              Layered Product

Do you want to continue? [YES]

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

Configuring IBM AXPVMS WMQCLIENT V6.0: WebsphereMQ for HP OpenVMS Alpha V6.00

    5724-A38 (c) IBM Corporation. 1996,2005  All Rights Reserved.

%WMQCLIENT-I-PRECONFIGURE, pre-configuration processing

%WMQCLIENT-I-CLEANUP, cleanup processed

        Please choose which of the following components to install:

         - all the WebsphereMQ Client components
         - WebsphereMQ Client for OpenVMS (13040 blocks)
         - WebsphereMQ Base Kit for Client and Server (3120 blocks)
         - WebsphereMQ Runtime for Client and Server (57520 blocks)
         - WebsphereMQ Examples (7696 blocks)
         - WebsphereMQ Java Client (15104 blocks)
         - WebsphereMQ Message Catalogs - French (1248 blocks)
         - WebsphereMQ Message Catalogs - German (1296 blocks)
         - WebsphereMQ Message Catalogs - Italian (1216 blocks)
         - WebsphereMQ Message Catalogs - Japanese (1088 blocks)
         - WebsphereMQ Message Catalogs - Korean (960 blocks)
         - WebsphereMQ Message Catalogs - Portuguese (1184 blocks)
         - WebsphereMQ Message Catalogs - Spanish (1248 blocks)
         - WebsphereMQ Message Catalogs - Simplified Chinese (688 blocks)
         - WebsphereMQ Message Catalogs - Traditional Chinese (736 blocks)

Do you want to install all the WebsphereMQ Client components [N]?: y
Are you sure you want to install all the options [Y]?: N
Do you want to install WebsphereMQ Client for OpenVMS (13040 blocks) [N]?: Y
WebsphereMQ Base Kit for Client and Server (3120 blocks) (required)
WebsphereMQ Runtime for Client and Server (57520 blocks) (required)
WebsphereMQ Examples (7696 blocks) (required)
WebsphereMQ Java Client (15104 blocks) (required)
Do you want to install WebsphereMQ Message Catalogs - French (1248 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - German (1296 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - Italian (1216 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - Japanese (1088 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - Korean (960 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - Portuguese (1184 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - Spanish (1248 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - Simplified Chinese (688 blocks) [N]?: Y
Do you want to install WebsphereMQ Message Catalogs - Traditional Chinese (736 blocks) [N]?: Y

        The selections you have made are:

          - WebsphereMQ Client for OpenVMS (13040 blocks)
          - WebsphereMQ Base Kit for Client and Server (3120 blocks) (required)
          - WebsphereMQ Runtime for Client and Server (57520 blocks) (required)
          - WebsphereMQ Examples (7696 blocks) (required)
          - WebsphereMQ Java Client (15104 blocks) (required)
          - WebsphereMQ Message Catalogs - French (1248 blocks)
          - WebsphereMQ Message Catalogs - German (1296 blocks)
          - WebsphereMQ Message Catalogs - Italian (1216 blocks)
          - WebsphereMQ Message Catalogs - Japanese (1088 blocks)
```

```
          - WebsphereMQ Message Catalogs - Korean (960 blocks)
          - WebsphereMQ Message Catalogs - Portuguese (1184 blocks)
          - WebsphereMQ Message Catalogs - Spanish (1248 blocks)
          - WebsphereMQ Message Catalogs - Simplified Chinese (688 blocks)
          - WebsphereMQ Message Catalogs - Traditional Chinese (736 blocks)

Would you like to reselect your options [N]?: N

        ************************************************************
        The installation procedure has detected an existing root
        device for the WebsphereMQ datafiles defined as:
        DKB600:
        ************************************************************

Do you want to use this definition [Y]?: Y

%WMQCLIENT-I-PRECONFIGURE, pre-configuration completed

* This product does not have any configuration options.

    You must install SNA LU6.2 Services to communicate over LU6.2

    Do you want to continue? [YES]

Execution phase starting ...

The following product will be installed to destination:
    IBM AXPVMS WMQCLIENT V6.0             DISK$V830S:[VMS$COMMON.]

Portion done: 0%...10%...20%...30%...40%...50%...60%...70%...80%...90%

%WMQCLIENT-I-POSTINSTALL, post-installation processing

%WMQCLIENT-I-CLEANUP, cleanup processed

%WMQCLIENT-I-POSTINSTALL, post-installation completed
...100%

The following product has been installed:
    IBM AXPVMS WMQCLIENT V6.0             Layered Product

IBM AXPVMS WMQCLIENT V6.0: WebsphereMQ for HP OpenVMS Alpha V6.00
```

Note: Messages in U.S. English are always available. If you require messages to be displayed in one of the other supported language options, then the appropriate message catalog should be installed and the SYS$NLSPATH logical defined to include those messages from the appropriate directory.

Approximately 800 blocks are required to support each message catalog. The preceding example WebSphere MQ client installation shows that *all* message catalogs have been selected. When the WebSphere MQ client has been installed, the following record is added to the VMSINSTAL.HISTORY file:

```
------------------------------------------------------------
PRODUCT                              KIT TYPE STATE
------------------------------------------------------------
IBM AXPVMS WMQCLIENT V6.00             Full LP Installed
------------------------------------------------------------
```

Migrating from an earlier version of a HP OpenVMS client

Use this section to migrate (or upgrade) an existing HP OpenVMS client to a Version 5.3 client.

Before you begin

Before you begin upgrading a client to Version 6.0:

- Make sure your client specification meets all hardware, software and disk storage requirements for a client. See “System requirements for WebSphere MQ for HP OpenVMS clients” on page 23.
- Relink applications when you are finished upgrading the client.

Migration procedure

To install the latest version of an WebSphere MQ for OpenVMS client:

1. Log from the SYSTEM account, or any user account having the following privileges:
   - SYSLCK
   - SYSPRV
   - CMKRNL
   - TMPMBX
   - NETMBX
   - OPER
   - SYSNAM
   - SYSGBL
   - PRMGBL
   - CMEXEC
   - SHMEM
   - BUGCHK
2. To check whether the Version 5.3 client is installed, use the following command:

   ```
   $ product show history wmqclient
   ```

   For Version 5.3 the following is displayed:

   ```
   ------------------------------ ----------- ----------------------------------
   PRODUCT                        KIT TYPE         OPERATION   DATE AND TIME
   ---------------- ----------- ------------------------------------------------
   IBM AXPVMS MQSERIES V5.3      Full LP          Install     09-FEB-2000 15:46:09
   --------------------------- ----------- ----------------------------------
   ```

3. To remove the client, use the following command:

   ```
   $ product remove  wmqclient
   ```

4. Install the Version 6.0 WMQCLIENT as described in “Installation procedure” on page 25.

   Note: The WebSphere MQ Client Version 6.0 product name is WMQCLIENT . The WebSphere MQ Server Version 6.0 product name is WEBSPHEREMQ .
5. If you used a client channel table file with the client before upgrading, then you must recreate the file using a WebSphere MQ for HP OpenVMS, Version 6.0 queue manager (or a queue manager on any other platform).
6. Relink applications.

Chapter 6. Removing WebSphere MQ

Before you remove WebSphere MQ:

1. Ensure that you have stopped all WebSphere MQ applications.
2. Ensure that you have stopped all the channels and listeners, and that you have ended all the queue managers using the commands **stop channel**, **endmqlsr**, and **endmqm**.
3. Issue the following command to clean up shared memory resources:

```
$ monmq delete
```

4. Shutdown the WebSphere MQ working environment by invoking the following, using the SYSTEM command:

```
$ @sys$manager:mqs_shutdown.com
```

5. If you are sure that you want to remove the WebSphere MQ for HP OpenVMS, Version 6.0 product from your system, invoke the PCSI utility with the `PRODUCT REMOVE` command as follows:

```
$ PRODUCT REMOVE WEBSPHEREMQ
```

Note: PCSI does **not** remove the MQS_ROOT:[MQM] directory structure.

In addition, the MQM and MQS_SERVER accounts and their corresponding identifiers also remain in the system authorization and rightslist files respectively. This action ensures that user applications and programs are operational when subsequent updates are applied, as the security profiles of these accounts, and associated application access control lists remain intact.

The following command shows how to remove WebSphere MQ from the system disk:

```
$ PRODUCT REMOVE WEBSPHEREMQ
The following product has been selected:
       IBM AXPVMS WEBSPHEREMQ V6.00  Layered Product
Do you want to continue? [YES]
The following product will be removed from destination:
      IBM AXPVMS WEBSPHEREMQ V6.00      DISK$SYSDSK0721:[SYS0.SYSCOMMON.]
Portion done:  0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
The following product has been removed:
      IBM AXPVMS WEBSPHEREMQ V6.00  Layered Product
$
```

Chapter 7. WebSphere MQ Documentation

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

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

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

WebSphere MQ is described in the following books:

Table 3. WebSphere MQ family books

PDF file name	Order Number	Title
AMQTAC05	GC34-6476	*WebSphere MQ for Windows Quick Beginnings*
AMQDAC08	GC34-6477	*WebSphere MQ for Solaris Quick Beginnings*
AMQAAC07	GC34-6478	*WebSphere MQ for AIX® Quick Beginnings*
AMQQAG02	GC34-6610	*WebSphere MQ for HP OpenVMS System Administration Guide*
AMQQAC02	GC34-6611	*WebSphere MQ for HP OpenVMS Quick Beginnings*
AMQCAC07	GC34-6479	*WebSphere MQ for HP-UX Quick Beginnings*
AMQ1AC05	GC34-6480	*WebSphere MQ For Linux Quick Beginnings*
AMQWAC03	GC34-6481	*WebSphere MQ For iSeries Quick Beginnings*
CSQZAE10	SC34-6587	*WebSphere MQ Intercommunications*
CSQZAH07	SC34-6589	*WebSphere MQ Queue Manager Clusters*
CSQZAF08	GC34-6590	*WebSphere MQ Clients*
AMQZAG06	SC34-6584	*WebSphere MQ System Administration Guide*
CSQZAJ10	SC34-6597	*WebSphere MQ Script (MQSC) Command Reference*
CSQZAX05	SC34-6593	*Monitoring WebSphere MQ*
CSQZAC04	SC34-6598	*WebSphere MQ Programmable Command Formats and Administration Interface*
AMQZAO05	GC34-6601	*WebSphere MQ Messages*
CSQZAL10	SC34-6595	*WebSphere MQ Application Programming Guide*
CSQZAK10	SC34-6596	*WebSphere MQ Application Programming Reference*
AMQZAN09	SC34-6592	*WebSphere MQ Using C++*
CSQZAW13	SC34-6591	*WebSphere MQ Using Java*
AMTYAK08	SC34-6065	*WebSphere MQ Application Messaging Interface*
CSQZAS03	SC34-6588	*WebSphere MQ Security*
CSQSAT03	GC34-6582	*WebSphere MQ for z/OS® Concepts and Planning Guide*
CSQSAV04	SC34-6583	*WebSphere MQ for z/OS System Setup Guide*
CSQSAW03	SC34-6585	*WebSphere MQ for z/OS System Administration Guide*
AMQWAG02	SC34-6586	*WebSphere MQ for iSeries® System Administration Guide*

Table 3. WebSphere MQ family books (continued)

PDF file name	Order Number	Title
AMQTAN03	SC34-6594	*WebSphere MQ Using the Common Object Model Interface*
AMQWAK02	SC34-6599	*WebSphere MQ for iSeries Application Programming Reference*
CSQSAQ03	GC34-6600	*WebSphere MQ for z/OS Problem Determination Guide*
CSQSAO04	GC34-6602	*WebSphere MQ for z/OS Messages and Codes*
CSQZAO01	GC34-6604	*WebSphere MQ Migration Information*
CSQZAV00	GC34-6605	*WebSphere MQ Using .NET*
CSQSAD03	GI10-2584	*WebSphere MQ for z/OS Program Directory*
AMQNAR10	SC34-6606	*WebSphere MQ Publish/Subscribe User's Guide*
CSQZAQ00	SC34-6607	*WebSphere MQ Constants*
CSQZAY03	SC34-6603	*WebSphere MQ Bibliography and Glossary*

Publications supplied with the product

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

The WebSphere MQ online documentation is delivered on the documentation CD-ROM as PDF files on all platforms and as an Information Center on Linux® (x86 platform) and Windows® only.

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. Additionally, you can download them to your own file system, or print them.

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. "Hardcopy books" on page 33 shows the file names used for the PDF files.

Hardcopy books

This book, and all the books listed in Table 3 on page 31, 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).**

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

For information about printing books, see "Publications supplied with the product" on page 32.

Online information

This section describes the sources of information available online about WebSphere MQ:

HTML and PDF books on the World Wide Web

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

```
http://www.ibm.com/software/integration/mqfamily
```

By following links from this Web site you can:

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

Online help

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

Use the command:

```
$ HELP WEBSPHEREMQ
```

SupportPacs

SupportPacs contain material that complements the WebSphere MQ family products, for example, there are a number of SupportPacs to help you with performance and capacity planning. Many SupportPacs are freely available for download, others can be purchased as a fee-based service. SupportPacs can be obtained from the following Web site:

```
http://www.ibm.com/software/integration/websphere/support
```

Whitepapers and migration documents

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

```
http://www.ibm.com/software/integration/websphere/library
```

Service support summary (PTF readme)

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/integration/mqfamily/support/summary
```

Appendix. Setting up communication in HP OpenVMS systems

Distributed queue management (DQM) is a remote queuing facility for WebSphere MQ. It provides channel control programs for the queue manager that form the interface to communication links, controllable by the system operator. The channel definitions held by distributed-queuing management use these connections.

When a distributed-queuing management channel is started, it tries to use the connection specified in the channel definition. For this to succeed, it is necessary for the connection to be defined and available. This appendix explains how to do this.

Deciding on a connection

There are three forms of communication for WebSphere MQ for HP OpenVMS systems:

- TCP
- LU 6.2 (for OpenVMS Alpha only)
- DECnet Phase IV

Each channel definition must specify one only as the transmission protocol (Transport Type) attribute. One or more protocols may be used by a queue manager.

For WebSphere MQ clients, it may be useful to have alternative channels using different transmission protocols. See the *WebSphere MQ Clients* book.

Defining a TCP connection

The channel definition at the sending end specifies the address of the target. The TCP service is configured for the connection at the receiving end.

Sending end

Specify the host name, or the TCP address of the target machine, in the Connection Name field of the channel definition. Port number 1414 is assigned by the Internet Assigned Numbers Authority to WebSphere MQ.

To use a port number other than the default, change the connection name field to the following:

```
Connection Name REMHOST(1822)
```

where *REMHOST* is the hostname of the remote machine and 1822 is the port number required. (This must be the port that the listener at the receiving end is listening on.)

Alternatively you can change the default sending port number by specifying it in the queue manager configuration file (qm.ini):

```
TCP:
   Port=1822
```

For more information about the values you set using qm.ini, see the *WebSphere MQ for HP OpenVMS, Version 6.0 System Administration Guide*.

Using the TCP/IP SO_KEEPALIVE option

If you want to use the SO_KEEPALIVE option (as discussed in the *WebSphere MQ Intercommunication* book) you must add the following entry to your queue manager configuration file (qm.ini):

```
TCP:
    KeepAlive=yes
```

Receiving end

There are two stages to defining the receiving end of a channel for WebSphere MQ for HP OpenVMS. These are:

1. Defining a service using the TCP/IP stack installed on the system.
2. Starting the listener or receiver process once a message has been received by the TCP/IP service.

Defining a service using HP TCP/IP Services for OpenVMS

To use HP TCP/IP Services for OpenVMS, you must configure a TCP/IP service as follows:

1. Create a TCP/IP service to start the receiving channel program automatically:

```
$ TCPIP
      TCPIP> set service <p1>/port=<p2>/protocol=TCP -
      TCPIP> /user_name=MQM/process=<p3>/file=<p4>/limit=<p5>
```

where:

p1 Is the service name, for example WEBSPHERE01. A unique name is required for each queue manager defined.

p2 Is the TCP/IP port number in the range 1 to 65 535. The default value for WebSphere MQ is 1414.

p3 Is the process name. This consists of a string up to 15 characters long.

p4 Is the name of the startup command file used to start the receiver, if one is used; for example, `SYS$MANAGER:MQRECV.COM`. This is not required if the listener is started using **runmqlsr**.

p5 Is the process limit. This is the maximum number of connections allowed using the port number. If this limit is reached, subsequent requests are rejected.

Note: Each channel represents a single connection to the queue manager.

2. To enable the service upon every system IPL (reboot), type the command:

```
$ TCPIP SET CONFIGURATION ENABLE SERVICE <p1>
```

3. To enable the service immediately (that is, without a system reboot), issue the command sequence:

```
$ TCPIP
 TCPIP> enable service <p1>
```

Defining a service using Process Software MultiNet for OpenVMS

To use Process Software MultiNet for OpenVMS, you must configure a MultiNet service as follows:

1. Create a MultiNet service to start the receiving channel program automatically:

```
$ multinet configure/server
MultiNet Server Configuration Utility V3.5 (101)
[Reading in configuration from MULTINET:SERVICES.MASTER_SERVER]
 SERVER-CONFIG> add <p1>
[Adding new configuration entry for service "WEBSPHEREMQ"]
Protocol: [TCP]
TCP Port number: <p2>
Program to run: <p3>
[Added service WEBSPHEREMQ to configuration]
[Selected service is now WEBSPHEREMQ]
SERVER-CONFIG> set flags UCX_SERVER
[WEBSPHEREMQ flags set to <UCX_SERVER>]
SERVER-CONFIG> set username MQM
[Username for service WEBSPHEREMQ set to MQM]
SERVER-CONFIG> exit
[Writing configuration to MULTINET_COMMON_ROOT:SERVICES.MASTER_SERVER]
$
```

where:

p1 Is the service name, for example WEBSPHERE01. A unique name is required for each queue manager defined.

p2 Is the TCP/IP port number in the range 1 to 65 535. The default value for WebSphere MQ is 1414.

p3 Is the name of the startup command file used to start the receiver, if one is used; for example, `SYS$MANAGER:MQRECV.COM`. This is not required if the listener is started using **runmqlsr**.

2. The service is enabled automatically after the next system IPL (reboot). To enable the service immediately, issue the command sequence:

```
$ multinet configure/server
 MultiNet Server Configuration Utility V3.5 (101)
 [Reading in configuration from MULTINET:SERVICES.MASTER_SERVER]
 SERVER-CONFIG>restart
 %RUN-S-PROC_ID, identification of created process is 0000021A
 SERVER-CONFIG>exit
 [Configuration not modified, so no update needed]
 $
```

Defining a service using Process Software TCPWare

To use Process Software TCPWare, you must configure a TCPWare service as follows:

1. Edit the TCPWARE:SERVICES. file and add an entry for the service you want to use:

```
<p1> <p2>/tcp # WebsphereMQ port
```

where:

p1 Is the service name, for example WEBSPHERE01. A unique name is required for each queue manager defined.

p2 Is the TCP/IP port number in the range 1 to 65 535. The default value for WebSphere MQ is 1414. For example, an entry for a service WEBSPHERE01 on port 1414 would read:

```
WEBSPHERE01 1414/tcp # WebsphereMQ port
```

2. Edit the TCPWARE:SERVERS.COM file and add an entry for the service defined in the previous step:

```
$! SERVERS.COM
 $!
 $ RUN TCPWARE:NETCU
 NETCU> ADD SERVICE <p1> BG_TCP -
   /INPUT=<p2> -
   /LIMIT=<p3> -
   /OPTION=KEEPALIVE -
   /USERNAME=MQM
 NETCU> EXIT
```

where:

p1 Is the service name, for example WEBSPHERE01. A unique name is required for each queue manager defined.

p2 Is the name of the startup command file used to start the receiver, if one is used; for example, SYS$MANAGER:MQRECV.COM. This is not required if the listener is started using **runmqlsr**.

p3 Is the process limit. This is the maximum number of connections allowed using the port number. If this limit is reached, subsequent requests are rejected.

Note: Each channel represents a single connection to the queue manager.

3. The service is enabled automatically after the next system IPL. To enable the service immediately:

```
@TCPWARE:SERVERS.COM
```

Starting the listener or receiver process

There are two ways to start the receiver process with WebSphere MQ for HP OpenVMS. These are:

1. Starting the receiver process using a command file to start the `amqcrsta` program.
2. Starting the listener process using the **runmqlsr** command.

It is only possible to use one method to start a specific port, but it is possible to start different ports on the same system using different methods. The TCP/IP service definitions described above may vary for each method, but it is possible to start the receiver using either method without changing the service definition.

Starting a receiver process using a command file

This causes a receiver process to be started when a message is first received on the port. There is one receiver process for each receiver channel that is connected via this port.

1. Create a file consisting of one line and containing the DCL command to start the TCP receiver program amqcrsta.exe:

```
$ mcr amqcrsta [-m QMgrName]
```

   Place this file in the SYS$MANAGER directory. The name of the file must be the same as the startup command file defined in the service definition - in the examples above MQRECV.COM.

2. Ensure that the protection on the file and its parent directory allow it to be executable, that is, the protection is /PROT=W:RE.

Starting a listener process using the runmqlsr command

The **runmqlsr** command starts a listener process, regardless of whether a message has been received on the specified port. This process listens on the specified port for incoming messages and handles them as they arrive. Each server and receiver channel requires its own listener process. The format of the command is:

```
$ runmqlsr -t tcp [-p Port] [-m QMgrName]
```

If this method of starting a listener is chosen, there is no need to have a startup command file in the service definition. However, the presence of a startup command file does not cause any problems to the listener process.

Defining a DECnet Phase IV connection

Set up the WebSphere MQ configuration for channel objects:

1. Start the NCL configuration interface by typing the following command:

```
$ MC NCL
NCL>
```

2. Create a session control application entity by issuing the following commands:

```
NCL> create session control application WEBSPHEREMQ
NCL> set sess con app WEBSPHEREMQ address {name=WEBSPHEREMQ}
NCL> set sess con app WEBSPHEREMQ image name -
_ SYS$MANAGER:MQRECVDECNET.COM
NCL> set sess con app WEBSPHEREMQ user name "MQM"
NCL> set sess con app WEBSPHEREMQ node synonym true
NCL> show sess con app WEBSPHEREMQ all [characteristics]
```

   Note: User-defined values are in upper case.

3. Create a file consisting of one line and containing the DCL command to start the DECnet receiver program, `amqcrsta.exe`:

```
$ mcr amqcrsta [-m Queue_Man_Name] -t DECnet
```

   Place this file in the SYS$MANAGER directory. In this example the file is named `MQRECVDECNET.COM`.

   Note:

   a. If you have multiple queue managers you **must** make a new file and DECnet object for each queue manager.
   b. If a receiving channel does not start when the sending end starts, it is probably due to the permissions on this file being incorrect.
   c. The log file for the object is `net$server.log` in the `sys$login` directory for the application-specified user name.
   d. To enable the session control application upon every system IPL (reboot), add the preceding NCL commands to the file `SYS$MANAGER:NET$APPLICATION_LOCAL.NCL`.

Defining an LU6.2 connection (Alpha only)

See the release notes shipped with WebSphere MQ for HP OpenVMS for information about configuring SNA LU.2 connections. For instructions on how to obtain a copy of the release notes, see “Reading the release notes” on page 1.

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