

Upgrading in AIX from MQ 9.0.0.1 to MQ 9.1.0.0 LTS (to 9.2 and 9.3)

<https://www.ibm.com/support/pages/node/6415777>

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+++ Objective

This tutorial shows all the steps to upgrade in AIX, from MQ 9.0.0.1 Long Term Support (LTS) to MQ 9.1.0.0 LTS.

This is a straight upgrade and does not exploit the 'multi-version' feature in which several versions of MQ can co-exist ("side-by-side").

The upgrade instructions apply also for MQ 9.2 and 9.3

Notes about older releases:

- You can upgrade from MQ 8.0 to MQ 9.1 without first going through MQ 9.0.
- You can upgrade from MQ 8.0 to MQ 9.2 without first going through MQ 9.0 or MQ 9.1.
- You cannot migrate directly from MQ 7.x to MQ 9.1 or MQ 9.2:
 - If you are using MQ 7.0, then you will need to upgrade to MQ 8.0, then to MQ 9.1 or MQ 9.2
 - If you are using MQ 7.1 or MQ 7.5, then you will need to upgrade to MQ 8.0 or MQ 9.0, then to MQ 9.1 or MQ 9.2.

Prior to the upgrade, you need to take a full backup of your MQ 9.0 queue managers. Why? Because the upgrade of MQ, such as from MQ 9.0 to MQ 9.1 is NOT reversible. If you need to back out and revert back to MQ 9.0, you will need to delete the upgraded MQ 9.1 queue managers and restore the MQ 9.0 queue managers from backup.

The chapters are:

- Chapter 1: How to get the installation images
- Chapter 2: Take a backup of the queue manager data and recovery logs
- Chapter 3: Uninstalling MQ 9.0
- Chapter 4: Installing MQ 9.1.0.0 LTS
- Chapter 5: Running setmqenv to use MQ 9.1 commands
- Chapter 6: Creating a queue manager under 9.1
- Chapter 7: Upgrading an existing queue manager to MQ 9.1

++ Overall tasks

The straight upgrade from MQ 9.0 to MQ 9.1 means that only one version of MQ will be available under /usr/mqm.

It is necessary to:

- uninstall MQ 9.0
- and then install MQ 9.1

These tasks do NOT alter the contents of /var/mqm (which contains the data for the queue managers). That is, when you uninstall the product from /usr/mqm, the queue managers are NOT deleted.

++ Related tutorials

<https://www.ibm.com/support/pages/node/6407842>

Summary of AIX commands to administrate MQ

<https://www.ibm.com/support/pages/node/6407850>

Installing in AIX - MQ 9.0.0.1 LTS, applying Fix Pack 9.0.0.11, Uninstalling MQ

++ Multi-Instance

The following article has the recommended sequence of steps for upgrading a multi-instance queue manager.

It applies to all versions, including from MQ 9.1 to MQ 9.3

<https://www.ibm.com/support/pages/node/1284952>

Multi-Stage migration of IBM MQ multi-instance queue managers
(from one version.release, such as 9.2 to 9.3)

The following article is relevant to fix packs within the same version.release, such as from MQ 9.3.0.0 LTS to MQ 9.3.0.4 LTS.

<https://www.ibm.com/support/pages/node/6220974>

Staged application of fix packs of IBM MQ multi-instance queue managers
(within the SAME version.release)

++ For more information on what new attributes, queues and system objects were introduced in MQ 9.1 and MQ 9.2, see the following technotes:

<https://www.ibm.com/support/pages/node/213019>

New SYSTEM queues added in MQ 7.1, 7.5, 8.0, 9.0, 9.0.1, 9.1 and 9.2

<https://www.ibm.com/support/pages/node/198031>

New MQ 7.1, 7.5, 8.0, 9.0, 9.1 and 9.2 attributes in DISPLAY QMGR for new or migrated queue managers

<https://www.ibm.com/support/pages/node/487355>

New objects and new attributes for objects in MQ 7.1, 7.5, 8.0, 9.0, 9.0.1, 9.1 and 9.2

++ For more information on what is new and what has changed after MQ 8.0, see:

https://www.ibm.com/support/knowledgecenter/SSFKSJ_9.2.0/com.ibm.mq.sec.doc/q014265_.html

IBM MQ 9.2.x / IBM MQ / Securing / Confidentiality of messages /
Enabling CipherSpecs /
Deprecated CipherSpecs

https://www.ibm.com/support/knowledgecenter/SSFKSJ_9.2.0/com.ibm.mq.pro.doc/q113110_.html

IBM MQ 9.2.x / IBM MQ / About IBM MQ /
What's new and changed in IBM MQ 9.2.0

https://www.ibm.com/support/knowledgecenter/SSFKSJ_9.1.0/com.ibm.mq.pro.doc/q113110_.htm#q113110

IBM MQ 9.1.x / IBM MQ / About IBM MQ /
What's new and changed in IBM MQ Version 9.1.0

++ Note about the licensing

1) The following web page from the online manual for MQ has some information on MQ Licenses:

https://www.ibm.com/support/knowledgecenter/SSFKSJ_9.1.0/com.ibm.mq.pro.doc/q126140_.htm

IBM MQ 9.1.x / IBM MQ / About IBM MQ /
IBM MQ license information

2) You need to have an active subscription to upgrade to newer versions of MQ. If you have questions about licenses and entitlement please consult with your IBM Sales representative.

++ Information about the version of AIX used for this tutorial

```
+ROOT+ aglet: /downloads/mq9001
# uname -a
AIX aglet 2 7 00F944604C00
```

```
+ROOT+ aglet: /downloads/mq9001
# oslevel
7.2.0.0
```

```
+ROOT+ aglet: /downloads/mq9001
# oslevel -s
7200-05-01-2038
```

++ Current setup of MQ 9.0

MQ 9.0 already installed in the default location:
/usr/mqm

The data for the queue managers is stored in:
/var/mqm

The Queue Managers are:

QM90 => Already created with MQ 9.0. To be migrated to MQ 9.1.
QM91 => To be created with MQ 9.1.

+++++
+++ Chapter 1: How to get the installation images
+++++

++ Summary of Part Numbers for MQ on AIX 9.x from IBM Passport Advantage

https://www.ibm.com/software/passportadvantage/pao_customer.html

IBM Passport Advantage for the MQ server images:

Part Number: CNRD6ML

Description: IBM MQ V9.1.0.0 for AIX elmage

Part Number: CC5TPML

Description: IBM MQ V9.2.0.0 Long Term Support Release for AIX elmage

++ MQ 9.1.0.0 (full install) - from IBM Passport Advantage

<https://www.ibm.com/support/pages/downloading-ibm-mq-910-older-fix-packs>

Downloading IBM MQ 9.1.0: Older Fix Packs

Scroll down to the link:

Downloading IBM MQ 9.1.0

It is recommended that you search for Part Number, which will provide a more focused list.

Part Number: CNRD6ML

Description: IBM MQ 9.1 for AIX elmage

Downloaded image name MQ 9.1.0.0:

IBM_MQ_9.1_AIX.tar.gz

Local Directory:

/downloads/mq9100

+++++
+++ Chapter 2: Take a backup of the queue manager data and recovery logs
+++++

Take a backup of /var/mqm and any other file system that is used (such as mounted, or via symbolic links) for the storage of the MQ recovery logs and the MQ data for the queue managers.

If the queue manager is created in a non-default directory (such as Multi-Instance), ensure that all queue manager data and logs are included in the backup based on the configuration in mqs.ini and qm.ini files.

When an MQ 9.0 queue manager is upgraded to MQ 9.1, it goes through some migration steps that are NOT reversible.

If for some reason you want to back out later on your upgrade MQ queue manager (at 9.1) back to 9.0, you will NOT be able to use the current data in /var/mqm and you will need to restore from the backup taken when the MQ queue manager was at 9.0.

Disclaimer:

The MQ Support teams do not recommend or support the action to revert to an earlier version of the product.

If any problem were to occur after upgrading to MQ 9.1, the best way to address the situation is to contact MQ Support and get that fixed, rather than by reverting to version MQ 9.0.

Given the above disclaimer, please review the following technotes which explain more details on the topic.

<https://www.ibm.com/support/pages/node/88035>

After upgrading from MQ 5.3 to V6/V7, or from MQ V6 to V7, you want to revert back to previous level

++ Reference tutorial for backup in Linux (applicable to AIX)

<https://www.ibm.com/support/pages/node/6114082>

Backup of an MQ queue manager to move files from one Linux host to another Linux host

The quick description of the procedure is to take a backup of the files from host-1 and restore them in host-2.

++++
+++ Chapter 3: Uninstalling MQ 9.0
++++

++ Stop all MQ activity

As an MQ Administrator stop the queue managers and clients.
For details see the Steps 1 and 2:

https://www.ibm.com/support/knowledgecenter/SSFKSJ_9.0.0/com.ibm.mq.ins.doc/q009420_.htm

IBM MQ 9.0.x / IBM MQ / Installing and uninstalling / Installing and uninstalling IBM MQ on AIX /
Uninstalling or modifying IBM MQ on AIX

++ Uninstall the filesets

As user root proceed with the rest of the steps from the web page mentioned above.

Step 3: Log in as root.

Step 4: Uninstall or modify IBM MQ using either installp or smit. If IBM MQ was installed in a non-default location, you must use installp.

To uninstall or modify IBM MQ by using installp, enter one of the following commands:

- To uninstall an installation in the default location /usr/mqm:
installp -u mqm

- To uninstall an installation in a non-default location:
installp -R usil -u mqm

where usil is the path of the User Specified Installation Location (USIL) specified when the product was installed.

The full listing of the uninstall is not included in this current tutorial.

But if you want to see the equivalent full listing for the uninstallation of MQ 9.0.0.1 see the companion tutorial:

<https://www.ibm.com/support/pages/node/6407850>

Installing in AIX - MQ 9.0.0.1 LTS, applying Fix Pack 9.0.0.11, Uninstalling MQ
Chapter 9: Appendices showing full output from installp for the scenarios
Section 4: Uninstallation of base 9.0.0.1 (Chapter 8)

Next step:

Ensure that there are no more MQ filesets shown as installed:

```
# lspp -la "mqm*"
```

```
lspp: 0504-132 Fileset mqm* not installed.
```

```
# ls /usr/mqm
```

```
ls: 0653-341 The file /usr/mqm does not exist.
```

Notice that the mqinst.ini file was updated (the 2 lines about being Primary installation were removed).

```
# cat /etc/opt/mqm/mqinst.ini
```

```
Installation:
```

```
  Name=Installation1
```

```
  Description=
```

```
  Identifier=1
```

```
  FilePath=/usr/mqm
```

Now that there are no MQ installations, it is recommended to delete the mqinst.ini file.

It will be recreated when MQ 9.1 is installed.

```
# rm /etc/opt/mqm/mqinst.ini
```

```
# ls /etc/opt/mqm/mqinst.ini
```

```
ls: 0653-341 The file /etc/opt/mqm/mqinst.ini does not exist.
```



```

+++++
+++ Chapter 4: Installing MQ 9.1.0.0 LTS
+++++

```

++ Downloading the MQ 9.1.0.0 LTS code

See Chapter 1: How to get the installation images

Part Number: CNRD6ML

Description: IBM MQ 9.1 for AIX elmage

Downloaded image name MQ 9.1.0.0:

IBM_MQ_9.1_AIX.tar.gz

Local Directory:

/downloads/mq9100

++ Installing MQ 9.1 into /usr/mqm

You need to login as root.

Go to the local directory where the file with the MQ 9.0.0.1 code is located (see Chapter 1)

```
# cd /downloads/mq9100
```

Unpack the file:

```
# gunzip IBM_MQ_9.1_AIX.tar.gz
```

```
# tar -xvf IBM_MQ_9.1_AIX.tar
```

Notice that the extracted files are located into a new directory: MQServer

```
# ls -1F
```

```
IBM_MQ_9.1_AIX.tar
```

```
MQServer/
```

Change to the MQServer directory:

```
# cd MQServer
```

Install the code:

```
# installp -acgXYd . all
```

```
-----+
```

```
Pre-installation Verification...
```

```

+-----+
Verifying selections...done
Verifying requisites...done
Results...
...
+-----+
Summaries:
+-----+

Installation Summary
-----
Name                    Level      Part      Event      Result
-----
mqm.base.runtime        9.1.0.0   USR       APPLY      SUCCESS
mqm.base.runtime        9.1.0.0   ROOT      APPLY      SUCCESS
mqm.server.rte          9.1.0.0   USR       APPLY      SUCCESS
...

```

The full listing of the uninstall is not included in this current tutorial. But if you want to see the equivalent full listing for the uninstallation of MQ 9.0.0.1 see the companion tutorial:

<https://www.ibm.com/support/pages/node/6407850>

Installing in AIX - MQ 9.0.0.1 LTS, applying Fix Pack 9.0.0.11, Uninstalling MQ Chapter 9: Appendices showing full output from install for the scenarios Section 1: Installation of base 9.0.0.1 (See Chapter 3)

The AIX installation database will indicate that MQ is installed:

```
# lspp -la "mqm*"
```

```

Fileset                  Level  State      Description
-----
Path: /usr/lib/objrepos
mqm.amqp.rte              9.1.0.0  COMMITTED  IBM MQ AMQP Service
mqm.ams.rte               9.1.0.0  COMMITTED  IBM MQ Advanced - Advanced
                        Message Security
mqm.base.runtime          9.1.0.0  COMMITTED  IBM MQ Runtime for Client and
                        Server
mqm.base.samples          9.1.0.0  COMMITTED  IBM MQ Samples
mqm.base.sdk              9.1.0.0  COMMITTED  IBM MQ Base Kit for Client and
...
mqm.server.rte            9.1.0.0  COMMITTED  IBM MQ Server
mqm.web.rte               9.1.0.0  COMMITTED  IBM MQ REST API and Console
mqm.xr.service            9.1.0.0  COMMITTED  IBM MQ Advanced - Telemetry
                        Service

Path: /etc/objrepos
mqm.base.runtime          9.1.0.0  COMMITTED  IBM MQ Runtime for Client and
                        Server

Path: /usr/share/lib/objrepos
mqm.man.en_US.data        9.1.0.0  COMMITTED  IBM MQ Man Pages - U.S.
                        English

```

Notice that the mqinst.ini is recreated:

```
# cat /etc/opt/mqm/mqinst.ini
```

```
Installation:
```

```
  Name=Installation1
```

```
  Description=
```

```
  Identifier=1
```

```
  FilePath=/usr/mqm
```

```
# /usr/mqm/bin/dspmqinst
```

```
InstName:  Installation1
```

```
InstDesc:
```

```
Identifier:  1
```

```
InstPath:   /opt/mqm
```

```
Version:    9.1.0.0
```

```
Primary:    No
```

```
State:      Available
```

```

+++++
+++ Chapter 5: Running setmqenv to use MQ 9.1 commands
+++++

```

Now that we finished with the root activities, we can login as an MQ administrator.

You can use the following new MQ command to display the information on the installation.

```
mqm@aglet: /home/mqm
```

```
$ dspmqinst
```

```

InstName:  Installation1
InstDesc:
Identifier:  1
InstPath:  /usr/mqm
Version:    9.1.0.0
Primary:    No
State:      Available
mqm@aglet: /home/mqm

```

```
$ dspmqver
```

```

Name:      IBM MQ
Version:   9.1.0.0
Level:     p910-L180705
BuildType: IKAP - (Production)
Platform:  IBM MQ for AIX
Mode:      64-bit
O/S:       AIX 7.2
InstName:  Installation1
InstDesc:
Primary:   No
InstPath:  /usr/mqm
DataPath:  /var/mqm
MaxCmdLevel: 910
LicenseType: Production

```

You need to run the following MQ command to setup the MQ environment variables:
setmqenv

Before running "setmqenv", the following command did not return any entries for environment variables that have "MQ" or "mq" in the names:

```

$ set | grep -i mq
(no items returned)

```

It is a bit tricky to invoke the setmqenv command.

You need to "source" (run "inline") the utility setmqenv by specifying a leading . (dot) and a blank:

```
$ . /usr/mqm/bin/setmqenv -n Installation1
| |
| +--- blank
+--- dot
```

These are the changes made in the environment by this utility:

+ Hint:

You can create a script that will run the setmqenv command with the specified syntax.

Its usage is an overkill when having only 1 installation in the system, but it becomes very useful if you decide to exploit the multi-version features later on.

For example, the script \$HOME/bin/set-mq-91 can be created with the contents:

```
$ mkdir $HOME/bin
$ cd $HOME/bin
$ vi set-mq-91
```

```
===== begin script
# Name: set-mq-91
# Purpose: to setup the environment to run MQ 9.1
. /usr/mqm/bin/setmqenv -n Installation1
# Additional MQ directories for the PATH
export
PATH=$PATH:$MQ_INSTALLATION_PATH/java/bin:$MQ_INSTALLATION_PATH/
samp/bin:$MQ_INSTALLATION_PATH/samp/jms/samples:
# Add local directory for running Java/JMS programs
export CLASSPATH=$CLASSPATH:.
# Display the full fix pack level
dspmqver -f 2
# end
===== end of script
```

Notice that additional directories are included in the PATH. This is going to be explained later. The setmqenv will setup the proper directory for MQ_INSTALLATION_PATH.

You will need to specify the script as executable:

```
$ chmod 755 $HOME/bin/set-mq-91
```

You will need to add \$HOME/bin in the PATH in your .bashrc or .profile:
export PATH=\$PATH:\$HOME/bin:.

You will need to invoke the script with the leading dot!

```
$ . set-mq-91
| |
| +--- blank
+--- dot
```

+++ Hint for your bashrc or profile

You can add into your bashrc or profile file the following:

```
. set-mq-91
```

```
+++++
+++ Chapter 6: Creating a queue manager under 9.1
+++++
```

Let's create a new queue manager. Notice the new line shown in bold font that indicates that Installation1 is used:

```
$ crtmqm -u SYSTEM.DEAD.LETTER.QUEUE QM91
IBM MQ queue manager created.
Directory '/var/mqm/qmgrs/QM91' created.
The queue manager is associated with installation 'Installation1'.
Creating or replacing default objects for queue manager 'QM91'.
Default objects statistics : 84 created. 0 replaced. 0 failed.
Completing setup.
Setup completed.
```

Start the queue manager. Notice the lines that indicate the installation and the version under which the queue manager is running:

```
$ strmqm QM91
IBM MQ queue manager 'QM91' starting.
The queue manager is associated with installation 'Installation1'.
5 log records accessed on queue manager 'QM91' during the log replay phase.
Log replay for queue manager 'QM91' complete.
Transaction manager state recovered for queue manager 'QM91'.
IBM MQ queue manager 'QM91' started using V9.1.0.0.
```

Let's display the status

```
$ dspmq -m QM91
QMNAME(QM91) STATUS(Running)
```

Let's do a more advanced display of status.

```
$ dspmq -o installation -s -m QM91
QMNAME(QM91) STATUS(Running)
INSTNAME(Installation1) INSTPATH(/usr/mqm) INSTVER(9.1.0.0)
```

```

+++++
+++ Chapter 7: Upgrading an existing queue manager from MQ 9.0 to MQ 9.1
+++++

```

Let's display the status of the queue managers.

```

$ dspmq
QMNAME(QM90)                STATUS(Ended immediately)
QMNAME(QM91)                STATUS(Running)

```

Notice that the QM90 queue manager was created with MQ 9.0 and its data is still for MQ 9.0.

To migrate QM90 from MQ 9.0 to MQ 9.1, you need to start the queue manager with the MQ 9.1 code.

The strmqm command will detect that the data needs to be upgraded and it will proceed to upgrade the data.

NOTE: The upgrade of the data is NOT reversible!

```

$ strmqm QM90

```

IBM MQ queue manager 'QM90' starting.

The queue manager is associated with installation 'Installation1'.

5 log records accessed on queue manager 'QM90' during the log replay phase.

Log replay for queue manager 'QM90' complete.

Transaction manager state recovered for queue manager 'QM90'.

Migrating objects for queue manager 'QM90'.

Default objects statistics : 1 created. 0 replaced. 0 failed.

IBM MQ queue manager 'QM90' started using V9.1.0.0.

Let's display the status:

```

$ dspmq
QMNAME(QM90)                STATUS(Running)
QMNAME(QM91)                STATUS(Running)

```

- Now display some relevant attributes for the queue manager using runmqsc. Notice the CMDLEVEL and the new VERSION fields:

```

$ runmqsc QM90
 1 : DISPLAY QMGR CMDLEVEL VERSION
AMQ8408I: Display Queue Manager details.
  QMNAME(QM90)                CMDLEVEL(910)
  VERSION(09010007)

```

```

+++ end +++

```