MQ Series 9.0.0 for Solaris

1. You MUST get a license for Websphere MQ. MQ is licensed by number of CPUs. If this is for Wireline please place an order on VSHOP. Either way select that it is an upgrade and they will provide you with the download. Be sure to indicate the version you need.

   VSHOP
   https://vzsam.shi.com

   The person creating the task plan takes responsibility for assuring that the installation is legally licensed before the task plan is executed.
2. MQ Series packages use 3 group IDs and 1 user ID. The 3 GIDs are mqm (root **MUST** be a part of this group), mqadmin and mquser. The 1 UID required is mqm. The standard mqm UID and GID is 20880, per INS security.
   - mqm GID – only mqm and root should be a part of this group.
   - mqadmin GID – typically used for application support personnel to allow them to look at queue levels and perform status checks.
   - mquser GID – typically used for application users.

   Note –Authority must be granted to the above groups (mqadmin and mquser), when queues are created, to allow the proper access. During queue manager creation, the configuration script sets the proper authority for all default system queues. See step 4 below for SSI file creation details.
3. File systems should be allocated space as shown below.
   1.5GB - $Anchor/opt/mqm
   *****2GB - $Anchor/opt/var/mqm **PER QMGR**.
   *****Note - More space may be necessary if using persistent messaging and/or large messages. See the MQ Series Beginnings Guide for more information. Online documentation can be found at:
   http://www-306.ibm.com/software/integration/wmq/library/
4. Make sure your systems are up to the IBM recommended system requirements. See APPENDIX A for more information.
5. SSI files will need to be created and are supplied by the application team. If a binary only install is desired (no configuration created at installation) in one of 3 ways: (Binaries only installations should only be performed on development servers) SSI files provides a disaster recovery mechanism.
   1) Create a SSI file **(host.{hostname}.mqm)** and include the following 2 variables:
   QMGRS=NONE
   RUNMQLSR=NONE
   2) Add the variable **MODE=PASSIVE** to the above SSI file (typically used for passive systems in an active/passive setup which does not create qmgrs)
   If a configuration needs to be created during installation, then the instructions in APPENDIX B should be followed. If a configuration change is desired after the package has been installed, the **change_config.sh** script will need to be run once the SSI files have been updated with the desired changes. See APPENDIX C for

command syntax information.

6. The package can now be installed. For the latest package name, contact MQ Middleware Engineering.
7. The Verizon standard for monitoring MQ Series is BMC Patrol with the latest MQ knowledge module installed. Contact the monitoring team for further information.
8. For a list of fixes by release number, go to the IBM Website.
9. See APPENDIX D for important release notes.

Appendix A

System Requirements

Hardware and software requirements on UNIX

MQ Series supports Solaris 10 & 11

IBM MQ does not support host names that contain spaces. If you install IBM MQ on a system with a host name that contains spaces, you are unable to create any queue managers.

Java Message Service and SOAP transport

If you want to use Java™ Message Service and SOAP support, you need an IBM Java 7 SDK and Runtime Environment Version 7.0 or later.

For development, a JDK is required, and a JRE is required for running. The JRE does not need to be the JRE installed with IBM MQ, but has to be one from the supported list.

For a list of supported JDKs, see System requirements for IBM MQ.

On Solaris : The 32-bit and 64-bit JDKs are typically installed to the same directory. To run a 64-bit JVM use the -d64 or -d32 parameters on the command line when running a Java application to ensure the correct JVM is used.

You can check the version installed using the following command:

```
java –version
```

Secure Sockets Layer (SSL)

If you want to use the SSL support, you need the IBM Global Security Kit (GSKit) V8 package. This package is supplied with IBM MQ as one of the components available for installation.

Resource Limit Configuration:

If you are using Solaris 10:
You must change the default resource limits for each zone WebSphere MQ will be installed in. To set new default limits for all users in the *mqm* group, set up a project for the *mqm* group in each zone.

To find out if you already have a project for the *mqm* group, log in as root and enter the following command:

```
projects -l
```

If you do not already have a *group.mqm* project defined, enter the following command:

```
projadd -c "WebSphere MQ default settings"
        -K "process.max-file-descriptor=(basic,10000,deny)"
        -K "project.max-shm-memory=(priv,4GB,deny)"
        -K “project.max-shm-ids=(priv,1024,deny)”
        -K "project.max-sem-ids=(priv,1024,deny)" group.mqm
```

If a project called *group.mqm* is listed, review the attributes for that project. The attributes must include the following minimum values:

```
process.max-file-descriptor=(basic,10000,deny)
project.max-sem-ids=(priv,1024,deny)
project.max-shm-memory=(priv,4294967296,deny)
```

If you need to change any of these values, enter the following command:

```
projmod -s -K "process.max-file-descriptor=(basic,10000,deny)"
           -K "project.max-shm-memory=(priv,4GB,deny)"
           -K “project.max-shm-ids=(priv,1024,deny)”
           -K "project.max-sem-ids=(priv,1024,deny)" group.mqm
```

Note that you can omit any attributes from this command that are already correct. For further information on setting up the system, see Sun’s *System Administration Guide: Solaris Containers-Resource Management and Solaris Zones* for your release of Solaris.

APPENDIX B

MQ Series SSI File Creation

Below are the SSI file names with the available variables.
***NOTE: Do not include the ( ) or spaces in the SSI file (ex: *QMGRS=Q.MNGR1,Q.MNGR2…*). Only mandatory variables need to be included. If default values on non-mandatory variables are sufficient, those variables can be left out of the SSI file entirely.**

---

host.{HOSTNAME}.mqm (mandatory SSI file)

QMGRS=(***MANDATORY VARIABLE.** List all qmgrs here (Ex: **QM1,QM2)** If binary only install is desired, enter **NONE**)
RUNMQLSR=(***MANDATORY VARIABLE.** List qmgrs and ports you require. (Ex: **QM1:1414,QM2:1415**) If no listeners are required, set this to **NONE**)
DEFAULT_QMGR=(If a default qmgr is desired, it must be set here and has to be listed in QMGRS=. Delete this entry if no default qmgr is required)
RC_SCRIPTS=(Set to **NO** if /etc/rc scripts are not required, otherwise delete this entry)
MODE=PASSIVE (Set this variable on a backup (passive) system so change_config.sh cannot be run.
IPCCBASEADDRESS=(only available on AIX installations)
---

host.{HOSTNAME}.{QMGR} - required for each QMGR listed above in **QMGRS=** (unless a binary only installation is desired). For default values, do not include the variable in the file.

***QM_OPT:MAXCHANNELS=**(default = 100)
***QM_OPT:MAXACTIVECHANNELS=**(default = same as MAXCHANNELS)
***QM_OPT:MQIBINDTYPE=**(default = STANDARD. Optional value = FASTPATH)
***QM_OPT:LogPrimaryFiles=**(default = 3. Option values = 2-62, ***Case is important**)
***QM_OPT:LogSecondaryFiles=**(default = 2. Optional values = 1-6, ***Case is important**)
***Note: LogPrimaryFiles** and **LogSecondaryFiles** total cannot exceed 63.
***QM_OPT:LOGFILEPAGES=**(Can only be set at QMGR creation. Default = 1024. Optional values = 64-16384)
***QM_OPT:LOGTYPE=**(Can only be set at QMGR creation. Default value = CIRCULAR. Optional value = LINEAR)
***QM_OPT:MQSNOAUT=**(Set to **YES** if you want the QMGR created with security disabled. Can only be set at QMGR creation)
***QM_OPT:KEEPALIVE=**(YES or NO. The default is **YES**)
***QM_OPT:LISTENERBACKLOG=**(The default is **100**)

***APIEXITLOCAL:APIEXITLOCAL:** (This line MUST precede each APIEXITLOCAL entry grouping (grouping = the 4 lines below))
***APIEXITLOCAL:**Sequence=200 (Example)
***APIEXITLOCAL:**Function=EntryPoint (Example)
***APIEXITLOCAL:**Module=/opt/mqm/samp/bin/amqsaxe (Example)
***APIEXITLOCAL:**Name=SampleApiExit (Example)

***ENV_VAR:**(environment variable=setting)(more than1 can be used)

APPENDIX B (cont.)

***SSLSTANZA OCSPAuthentication=OPTIONAL** (used for SHA2 certs)
***AltGSKit=YES** (SSL stanza option)

Then any commands used to configure the qmgr and create the queues and channels (any that normally get executed via the **runmqsc** command.

Last, any setmqaut commands used to set authority. The setmqaut command must be preceded by an * (ex: ***setmqaut** …). There should be no space between the * and setmqaut. Authority to access system queues is automatically granted for anyone in mquser (+allmqi) and mqadmin (+allmqi +dsp) groups. You should add all IDs that will need to access any queues created in the **host.{hostname}.{qmgr}** file to the mquser group, support personnel to the mqadmin group, and grant authority for these queues in your **host.{hostname}.{qmgr}** using the following 2 lines:

*setmqaut -m ***{ QMGR_NAME }*** -t queue -n ***{ QUEUE_NAME }*** -g mquser +allmqi
*setmqaut -m ***{QMGR_NAME}*** -t queue -n ***{QUEUE_NAME}*** -g mqadmin +allmqi +dsp

Substitute ***{QMGR_NAME}*** and ***{QUEUE_NAME}*** with the appropriate information.

All comments should be started with a * followed by a space.

APPENDIX C

Command Syntax

All control and configuration scripts are under the **$Anchor/opt/mqm/adm** directory.

All commands should be run as either root or mqm in production. On development servers, any ID in the group *mqm* can also execute the commands.

Command syntax for change_config.sh, MQcntrl.sh, menu and MQmonitor scripts is as follows:

change_config.sh {qmgr} {nobounce} - If no {qmgr} is specified, then all qmgrs on the server will be updated. The script will shutdown and restart any {qmgr} that is being updated unless the *nobounce* option is used. *Note: The *nobounce* option will stop any changes from bring made to the qm.ini file (manual edits) but will allow runmqsc commands to process..

MQcntrl.sh [start/stop] {qmgr} - If no {qmgr} is specified, then all will be affected.
* **If no qmgr is specified in the shutdown (all qmgr shutdown), then shared memory and semaphores will be cleared of MQ entries.**

menu – Will give you access to the following MQ Utility Menu:

```
****************** MQSeries Utilities Menu ********************
**                                                           **
**  A) Start/Stop one or all qmgrs                           **
**  B) Update/create the configuration for one or all qmgrs  **
**  C) Quick status of one or all qmgrs                      **
**  D) Extensive status check of MQ (channels, queues, etc)  **
**  E) Run IBM Kernel Checkup Script                         **
**  F) Collect data for opening PMRs and IBM review          **
**  G) Clear mqm owned memory and semaphores (MQ must be down)**
**  H) Test MQ messaging using default Qs (Java based)       **
**  I) Test MQ messaging using default Qs (C based)          **
**  J) Check authority settings for a qmgr, queue, or channel **
**  K) Check the SSL configuration on a qmgr (Solaris, AIX)  **
**  L) Run SSL Configuration Wizard                          **
**  M) Save the current configuration for a qmgr             **
**  N) Check a qmgr SSI (config) file for syntax errors      **
**  O) Check queue depth                                     **
**  P) Check channel status
**  R) Run RUNMQSC COMMANDS                                  **
**  S) Save logs
**                                                           **
***************************************************************

        Enter your choice or Q to quit
```

Commands exclude Define, set and Alter which must be done through the SSI files.

MQmonitor {qmgr} – If no {qmgr} is specified, then all qmgrs will be checked. This script can be used by VSC (or any HA product) to check the health of a qmgr. If there is more than 1 qmgr

on a system, and all are checked, the script will report a problem if 1 or more qmgrs have a problem. That means ALL qmgrs would be failed over to a backup server.