

IBM MQ for DB Replication

MQ Server Installation

Software Information:

- MQ8: WS_MQ_V8.0_IFR1_LINUX_ON_X86_64_I.tar (???)
- MQ8: 8.0.0-WS-MQ-LinuxX64-FP0011.tar (???)
- MQ9: IBM_MQ_9.2.0.5_LINUX_X86-64.tar.gz
- OS: RHEL 6/7/8

System Configuration:

Edit `/etc/sysctl.d/ibmmq.conf`

```
# for MQ
kernel.shmni = 4096
kernel.shmall = 2097152
kernel.shmmax = 268435456
kernel.sem = 500 256000 250 1024
fs.file-max = 524288
net.ipv4.tcp_keepalive_time = 300
kernel.threads-max = 32768
```

Apply the changes

```
sysctl -p /etc/sysctl.d/ibmmq.conf
```

Edit `/etc/security/limits.conf`

```
# for MQ
mqm      hard    nofile  10240
mqm      soft    nofile  10240
```

MQ 8 Install

```
tar -xf WS_MQ_V8.0_IFR1_LINUX_ON_X86_64_I.tar
cd server
./mqlicense.sh -text_only
rpm -ivh MQSeriesRuntime-*.rpm MQSeriesServer-*.rpm
```

Install MQ8-FP0011

```
mkdir FP0011
tar -xzf 8.0.0-WS-MQ-LinuxX64-FP0011.tar.gz -C FP0011
cd FP0011
rpm -ivh MQSeriesRuntime-*.rpm MQSeriesServer-*.rpm
```

MQ 9 Install

```
tar xzf IBM_MQ_9.2.0.5_LINUX_X86-64.tar.gz
cd MQServer
./mqlicense.sh -text_only
rpm -ivh MQSeriesRuntime-*.rpm MQSeriesServer-*.rpm MQSeriesGSKit-*.rpm
```

⚠ IMPORTANT: READ CAREFULLY

Press Enter to continue viewing the license agreement, or enter "1" to accept the agreement, "2" to decline it, "3" to print it, "4" to read non-IBM terms, or "99" to go back to the previous screen.

1 <=== Press 1

Install MQ9-FP0031

```
mkdir FP0031
tar xzf 9.2.0-IBM-MQ-LinuxX64-FP0031.tar.gz -C FP0031
cd FP0031
rpm -ivh MQSeriesRuntime-*.rpm MQSeriesServer-*.rpm MQSeriesGSKit-*.rpm
```

Install Notes

- ?? MQ ?????/opt/mqm
- ??????????????????????

```
rpm --prefix /opt/customLocation -ivh MQSeriesRuntime-*.rpm
```

```
MQSeriesServer-*.rpm
```

- ???????????????? mqm
- ?? mqm ? Home: /var/mqm

Post-Installation

RHEL

```
su - mqm
vi ~/.bash_profile
```

.bash_profile:

```
# Get the aliases and functions
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi

# User specific environment and startup programs

PATH=$PATH:$HOME/bin

export PATH

# Set up environment variables for the user mqm
. /opt/mqm/bin/setmqenv -s
```

Show the MQ version

```
[mqm@dotnetdev ~]$ dspmqver
Name:          WebSphere MQ
Version:       8.0.0.11
Level:         p800-011-181212.1
BuildType:    IKAP - (Production)
Platform:     WebSphere MQ for Linux (x86-64 platform)
Mode:         64-bit
O/S:          Linux 4.18.0-553.40.1.el8_10.x86_64
InstName:     Installation1
InstDesc:
Primary:      No
InstPath:     /opt/mqm
```

```
DataPath: /var/mqm
MaxCmdLevel: 802
LicenseType: Production
```

?????? MQ ??

```
# List the packages installed
rpm -qa | grep MQ

# Detail Information for the packages installed
rpm -qa | grep MQ | xargs rpm -q --info
```

Shell Commands

```
# Create a queue manager called QMA
crtmqm QMA

# Start the queue manager
strmqm QMA

# Enter MQSC console
runmqsc QMA

> DEFINE QLOCAL (QUEUE1) # Define a local queue called QUEUE1
> end # Quit MQSC

# List all running queue managers
dspmq
dspmq -o installation

# Stop the queue manager QMA
endmqm QMA

# Delete a queue manager QMA
dltmqm QMA
```

MQSC Commands

Display listener status

```
> dis lsstatus(*)
```

Display channels status

```
> dis chstatus(*)
```

Display a specific channel

```
> dis chl(CHANNEL-NAME)
```

Display all queues

```
> dis q(*)
```

Start a channel

```
> start chl(CHANNEL-NAME)
```

Stop a channel

```
> stop chl(CHANNEL-NAME)
```

Reset a channel

```
> reset chl(CHANNEL-NAME)
```

Backup/Restore MQ Configuration

- Queue Manager: BQMREP

Backup MQ Configuration

```
su - mqm  
dmpmqcfg -m BQMREP -a > /tmp/BQMREP.mqsc
```

Backup Messages (RestartQ ???? Capture ??????? LSN ??, ????????? MQ)

```
dmpmqmsg -m BQMREP -i BWINQCAP.RESTARTQ -f /tmp/BWINQCAP.RESTARTQ.msg
```

Restore MQ Configuration to new server

```
crtmqm BQMREP  
strmqm BQMREP
```

```
runmqsc BQMREP < /tmp/BQMREP.mqsc | tee restore.log
```

Restore Messages to new server

```
dmpmqmsg -m BQMREP -o BWINQCAP.RESTARTQ -f /tmp/BWINQCAP.RESTARTQ.msg
```

DB2 Instance

?????? istq ??????????????

Create DB2 instance

- ???? Server Instance (? Client)???????? Instance????????????????????

```
[root@tycdbsmq01 ~]# /usr/local/bin/db2ls
```

Install Path	Level	Fix Pack	Special	Install Number	Install Date	Installer UID

/opt/ibm/db2/V11.1	11.1.4.7	7			Thu May 22	
14:06:25 2025 CST						0

```
[root@tycdbsmq01 ~]# cd /opt/ibm/db2/V11.1/instance/
```

```
[root@tycdbsmq01 instance]# ./db2icrt -s ese -u istq istq
```

Set Environment Variables for MQ

```
su - istq
cat <<EOF>> ~/.bash_profile
# For MQ
# Set up environment variables for MQ
. /opt/mqm/bin/setmqenv -p /opt/mqm -l
EOF
```

Q & A

2003 (MQRC_BACKED_OUT)

“ The program encountered a WebSphere MQ error "2003 (MQRC_BACKED_OUT)" while issuing the WebSphere MQ command "MQDELETE" on object ...

Solution: MQ ? LOG files ??????????????????

?? /var/mqm/qmgrs/{YOUR-MGR-NAME}/qm.ini

Log:

LogPrimaryFiles=5

LogSecondaryFiles=4

?? LogPrimaryFiles ? LogSecondaryFiles ??

?? LOG ?????????/var/mqm/log/{YOUR-MGR-NAME}/active

?? MQSC ?????????? LOG ?????????????????????? 100 ??????????????????????

- LOGINUSE: The percentage of the primary log space in use for restart recovery at this point in time. A value of 100 or greater indicates the queue manager might have allocated, and be using, secondary log files, probably due to long-lived transactions at this point in time.
- LOGUTIL: A percentage estimate of how well the queue manager workload is contained within the primary log space. If the value is consistently above 100 you might want to investigate whether there are long-lived transactions, or if the number of primary files is not sufficient for the workload.

```
runmqsc YOUR-MGR-NAME
```

```
> display qmstatus log
```

AMQ8705I: Display Queue Manager Status Details.

QMNAME(BQMREP)	STATUS(RUNNING)
ARCHLOG()	ARCHSZ(0)
CURRLOG()	LOGINUSE(56)
LOGPATH(/var/mqm/log/BQMREP/active/)	LOGUTIL(62)
MEDIALOG()	MEDIASZ(0)
RECLLOG()	RECSZ(27)
REUSESZ(0)	

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