

## Deploying MQ RDQM with Floating IP Address on VSphere

This is the instructions for deploying RDQM and configuring a HA Queue Manager with floating ip address.

### Requirements:

Platform: VSphere 6.7

- 3 Virtual Machines

VM OS: RHEL 9.2

- Need a second disk 100 GB on all 3 VM's
- 2 CPU x 16GB of Mem
- Public IP Address

Software: IBM MQ 9.3.0.2

- Download the software from IBM's Internal DSW Downloads Site (Software XL) <https://w3-03.ibm.com/software/xl/download/ticket.wss>

### Sites of Interest:

- <https://www.ibm.com/docs/en/ibm-mq/9.3?topic=configurations-rdqm-high-availability>
- <https://www.royalcyber.com/blog/middleware/high-availability-of-replicated-data-queue-manager/>

### Preparing for RDQM

- <https://www.ibm.com/docs/en/ibm-mq/9.3?topic=configurations-rdqm-high-availability>
- <https://community.ibm.com/community/user/integration/blogs/prema-laxmanachar1/2022/08/10/detailed-procedure-of-migrating-regular-ibm-mq-que>
- <https://www.ibm.com/docs/en/ibm-mq/9.3?topic=availability-requirements-rdqm-ha-solution>
- <https://www.redhat.com/sysadmin/create-physical-volume>

General Commands that were of use during my attempts to install

```
yum upgrade
yum update
yum update kernel
```

hostnamectl <-- Verify Kernel version matches on all 3 machines.

## Installing RDQM

- <https://www.ibm.com/docs/en/ibm-mq/9.3?topic=multiplatforms-installing-rdqm-replicated-data-queue-managers>

### 1.) Provision 3 (2CPU x 16GB mem) machines in VSphere

### 2.) Install packages (on all 3 boxes)

```
sudo yum -y install libxslt net-snmp-libs nfs-utils nfs-utils-coreos perl-TimeDate python3-lxml  
python-unversioned-command
```

### 3.) SCP the install file (to all three servers)

```
scp <file>@<ipaddress of target>:<location on target to place file>
```

EXAMPLE:

```
scp ./IBM_MQ_9.3.0.2_LINUX_X86-64.tar.gz bastion@10.67.42.177:/home/bastion/
```

### 4.) Untar the file (on all 3 servers)

```
tar -xvf IBM_MQ_9.3.0.2_LINUX_X86-64.tar.gz
```

### 5.) install kernal

NOTE: I ran into issues when trying to use the drbd kernel that is provided with the IBM MQ 9.3.0.2 download. I had to download a NEWER one because the RHEL OS was at a higher version than what was expected.

\*\*\*\*\* Ran into Kernel Issues \*\*\*\*\*

\*\*\*\*\* Upgraded to this one below \*\*\*\*\*

\*\*\* Look on this page for a download for RHEL 9.2

\*\*\*\* Interim kernel module releases

- [https://www.ibm.com/support/pages/ibm-mq-replicated-data-queue-manager-kernel-modules#LTS9\\_2](https://www.ibm.com/support/pages/ibm-mq-replicated-data-queue-manager-kernel-modules#LTS9_2)
- <https://www.ibm.com/support/fixcentral/swg/downloadFixes?parent=ibm%2FWebSphere&product=ibm/WebSphere/WebSphere+MQ&release=All&platform=All&function=fixId&fixids=9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14&includeRequisites=1&includeSupersedes=0&downloadMethod=http&source=SA>  
[R](#)

\*\*\*\*\* THIS IS THE FILE → interim fix: 9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14

Steps to install (On all 3 machines)

```
wget https://ak-delivery04-mul.dhe.ibm.com/sdfdl/v2/sar/CM/WS/Obfrk/0/Xa.2/Xb.jusyLTSp44S03o2r0ALI9rdnHzZDQ4Pdh  
enqod7cCfzE79MnOWh_uumEiKA/Xc.CM/WS/Obfrk/0/9-IBM-MQ-LAIT43724-kmod-drbd-  
9.1.14.tgz/Xd./Xf.LPR.D1VK/Xg.12320491/Xi.habanero/XY.habanero/XZ.toSiALXjCZMNaORuZis7f  
BS2qXvKsM_3/9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14.tgz
```

```
tar -xvf 9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14.tgz
```

```
cd 9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14
```

```
yum install ./yum install ./kmod-drbd-9.1.14+ptf.2_5.14.0_284.11.1-1.x86_64.rpm
```

## 6.) Install DRBD Utils

```
yum install /home/bastion/MQServer/Advanced/RDQM/PreReqs/el9/drbd-utils-9/*
```

## 7.) Install Pacemaker

```
yum install /home/bastion/MQServer/Advanced/RDQM/PreReqs/el9/pacemaker-2/*
```

## 8.) Accept the license

```
/home/bastion/MQServer/mqlicense.sh
```

## 9.) Install MQ

```
cd /home/bastion/MQServer  
yum install MQSeriesGSKit* MQSeriesServer* MQSeriesRuntime*
```

## 10.) Install RDQM

```
cd /home/bastion/MQServer  
yum install Advanced/RDQM/MQSeriesRDQM*
```

## Preparing VM's for setup of RDQM

Useful Commands:

- **pvscan**

- **pvs**
- **pvcreate**
- **pvdisk**
- **dfdisk**
- **lvmdiskscan**

Setup the disk volume group for DRBD

Do this on all 3 VM's

- **ls /dev/sd\*** <-- Find the disk device.. In my case it was /dev/sdb
- **pvcreate /dev/sdb** <-- Create the PV
- **vgcreate drbdpool /dev/sdb** <-- Create the Volume Group

Setup Passwordless SSH Login on all 3 VM's

<https://www.ibm.com/docs/en/ibm-mq/9.2?topic=solution-setting-up-passwordless-ssh>

```
usermod -d /home/mqm mqm
```

```
mkhomedir_helper mqm
```

```
passwd mqm
```

```
(password: ibmpassword123)
```

```
su mqm
```

```
ssh-keygen -t rsa -f /home/mqm/.ssh/id_rsa -N ''
```

**Copy Keys to all machines**

```
ssh-copy-id -i /home/mqm/.ssh/id_rsa.pub <ip address VM1>
```

```
ssh-copy-id -i /home/mqm/.ssh/id_rsa.pub <ip address VM2>
```

```
ssh-copy-id -i /home/mqm/.ssh/id_rsa.pub <ip address VM3>
```

**verify.. On each machine**

```
ssh <ip address VM1>uname -n
```

```
ssh <ip address VM2>uname -n
```

```
ssh <ip address VM3>uname -n
```

**NOTE: You may be prompted for fingerprint the first time, so you NEED to TEST.**

Do on all machines

```
exit    <-- Exit out of mqm user
su      <-- Switch to root
passwd -d mqm
passwd -l mqm
```

### Add mqm user to sudo file

*visudo* ← Run this command on all three servers and make the following edits.

```
<< ADD THE FOLLOWING LINE BELOW THIS COMMENT >>
    "## Allows people in group wheel to run all commands"

#%mqm  ALL=(ALL)    ALL
```

```
<< ADD THE FOLLOWING LINE BELOW THIS COMMENT >>
    "## Same thing without a password"

%mqm    ALL=(ALL)    NOPASSWD: ALL
```

### Configure SELINUX Security

NOTE: Run these commands on all machines as ROOT

```
semanage permissive -a drbd_t

/opt/mqm/samp/rdqm/firewalld/configure.sh
```

### Setup local dns

NOTE: Run these commands on all machines as ROOT

```
vi /etc/hosts

<<ADD THIS>>

    <ip address VM1> qm1
    <ip address VM2> qm2
    <ip address VM3> qm3
```

### Configure RDMQ INI File

NOTE: Run these commands on all machines as ROOT

```
vi /var/mqm/rdqm.ini

<< EDIT FILE LIKE THIS>>
```

Node:

Name=qm1

HA\_Replication=10.67.42.177

HA\_Primary=10.67.42.177

# HA\_Alternate=

# DR\_Replication=10.67.42.177

Node:

Name=qm2

HA\_Replication=10.67.42.155

HA\_Primary=10.67.42.155

# HA\_Alternate=

# DR\_Replication=10.67.42.155

Node:

Name=qm3

HA\_Replication=10.67.42.153

HA\_Primary=10.67.42.153

# HA\_Alternate=

# DR\_Replication=10.67.42.153

### Configure Pacemaker group

```
/opt/mqm/bin/rdqmadm -c
```

### Configure NEW RDQM QueueManager

```
/opt/mqm/bin/crtmqm -sx qmgrdk1
```

```
/opt/mqm/bin/crtmqm -sxs -fs 3072M qmgrdk1
```

### Disable Secure boot

<https://access.redhat.com/solutions/6955734>

```
/usr/bin/mokutil --disable-validation
```

Note: take note of the password you set

```
shutdown -h now
```

### Modify the settings on the VM in VSphere

Note: Uncheck the secure boot check box in the boot options.

Validate that is't not on.

```
/usr/bin/mokutil --sb-state
```

Configure Floating IP Address

<https://www.ibm.com/docs/en/ibm-mq/9.3?topic=availability-creating-deleting-floating-ip-address>

```
/opt/mqm/bin/rdqmint -m qmgrdk3 -a -f 10.67.42.249 -l ens192
```