# 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/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=SAR>

\*\*\*\*\* 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/0bfrk/0/Xa.2/Xb.jusyLTSp44S03o2r0ALI9rdnHzZDQ4Pdhenqod7cCfzE79MnOWh\_uumEiKA/Xc.CM/WS/0bfrk/0/9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14.tgz/Xd./Xf.LPR.D1VK/Xg.12320491/Xi.habanero/XY.habanero/XZ.toSiALXjCZMNaORuZis7fBS2qXvKsM\_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**
* **pvdisplay**
* **cfdisk**
* **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/sbd**
* **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 FOLLLOWING LINE BELOW THIS COMMENT >>**

"## Allows people in group wheel to run all commands"

#%mqm ALL=(ALL) ALL

**<< ADD THE FOLLLOWING 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*](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*