

Set Up High-Availability Open MQ with MySQL Cluster

Version 1.0

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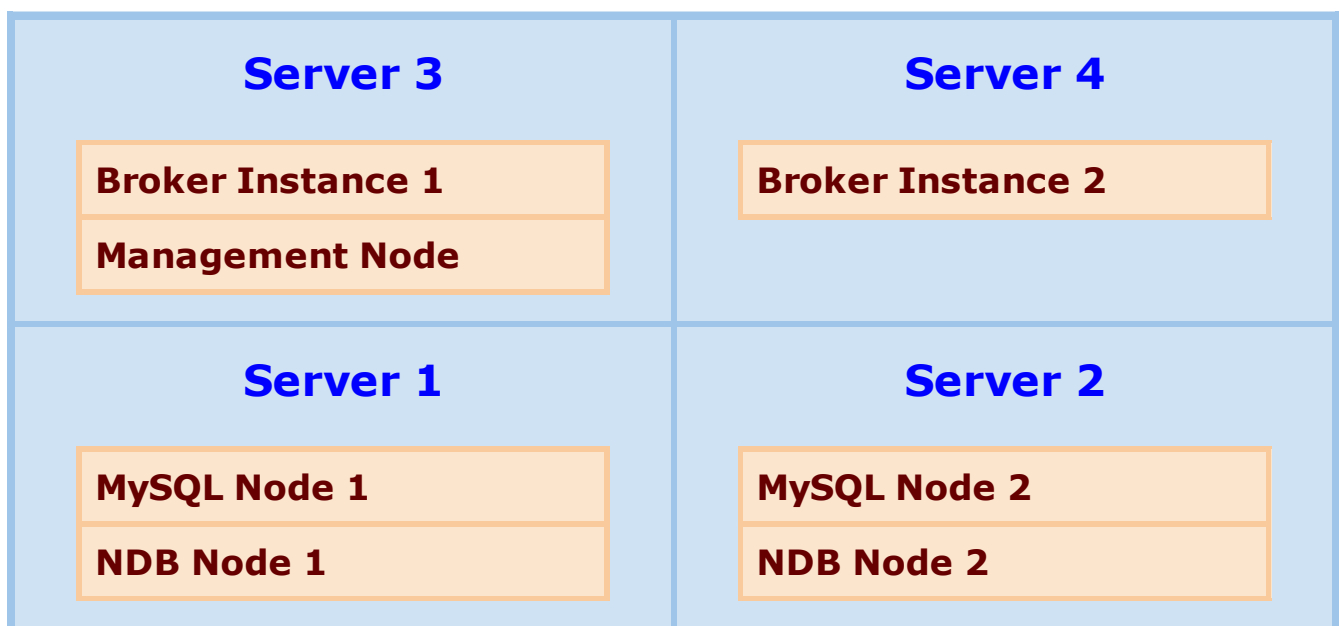
Introduction

This guide shows how to configure Open MQ with two brokers and MySQL Cluster with two storage nodes and one management node that provides high-availability for a minimal hardware configuration. This setup requires four servers.

Server Topology

MySQL Cluster requires a minimum of three servers to provide true redundancy: two MySQL/NDB servers and one management server. As the management server is a light-weight process and does not use many resources, we can also run MQ Broker instance 1 on the same machine. This means that a fourth server is needed for the 2nd Broker instance. This topology is known as the *Separate Tier Topology*; the Broker instances and the MySQL/NDB nodes are on different machines (hence the name separate tier).

Another variation known as the Co-located Topology, run the Broker instance and MySQL server on the same machine (hence the name co-located) so the NDB node can run by itself on a single server. For simplicity, we'll use the *Separate Tier Topology* in this setup.



Step 1: Download and install MySQL Cluster 6.2

Download the appropriate MySQL Cluster binary distribution for your platform.

[Download link](#)

Alex Davies has written an excellent writeup on [MySQL Cluster: Two webserver setup](#). Please follow the steps described in his guide to setup MySQL Cluster with two storage nodes. If all goes well, you should have MySQL/NDB nodes running on both Server 1 and Server 2 with the management node running on Server 3.

Step 2: Download Open MQ 4.2

Download the appropriate Open MQ binary distribution for your platform. [Download link](#)

Step 3: Install Open MQ Community Bundles (Compressed Archive)

Do the following to install MQ on both Server 3 and Server 4:

- Unzip the binary (.jar) bundle
- Edit the file `$TOP/mq/etc/imqenv.conf` to set `IMQ_DEFAULT_JAVAHOME` to JDK 1.5 or later version
- Generate the instance configuration file by starting the broker:

```
cd $TOP/mq/bin
./imqbrokerd -tty
```

- Type CTRL-C to shutdown the broker
- Edit the broker's instance configuration file:

```
$TOP/mq/var/instances/imqbroker/props/config.properties
```

- Set the following JDBC-related properties in the broker's instance configuration file:

```
imq.cluster.ha=true
imq.brokerid=broker1
imq.cluster.clusterid=mqcluster
imq.persist.store=jdbc
imq.persist.jdbc.mysql.user=<db_username>
imq.persist.jdbc.mysql.password=<db user password>
```

```
imq.persist.jdbc.dbVendor=mysql
imq.persist.jdbc.mysql.property.url=jdbc:mysql://<Server_1_hostname>:3306/mqdb
imq.persist.jdbc.mysql.tableoption=ENGINE=NDBCLUSTER
```

Note: We use **broker1** as the brokerID for the 1st instance and **mqcluster** as the clusterID. You'll also need to specify the username and password for the database, and the hostname of Server 1 and Server 2 for the JDBC's URL property of your setup.

- Place a copy of MySQL Connector/J JDBC driver in the following directory:
[Download link](#)

```
$TOP/mq/lib/ext
```

- Create the database schema needed for MQ persistence:

```
cd $TOP/mq/bin
./imqdbmgr create tbl
```

Note: You'll only need to do this step once on either MQ installation (Server 3 or Server 4)

For Server 4, change the brokerID to **broker2** in the broker's configuration file.

Step 4: Start the Broker Clusters

- Start the broker on both Server 3 and Server 4

```
cd $TOP/mq/bin
./imqbrokerd -tty
```

- Check the output on the console or the broker's log file for log message **B1179** & **B1071** to verify that Broker 1 is connected to Broker 2 in an HA cluster; below is a snippet from an actual log file:

```
...

[15/Jul/2008:15:14:04 PDT] [B1185]: Starting heartbeat
to broker2
[15/Jul/2008:15:14:04 PDT] [B1181]: Added heartbeat
endpoint /129.145.130.96:7676 [brokerID=broker2,
brokerSession=4896287081875276288] (seq#=0,
```

```
ts=1216160044852, interval=2, len=207)
[15/Jul/2008:15:14:04 PDT] [B1179]: Activated broker
    Address = mq://129.145.130.96:7676/?
instName=imqbroker&brokerID=broker2&brokerSessionUID=48962870
    StartTime = 1216160039901
    ProtocolVersion = 410
    HeartbeatHost = 129.145.130.96
    HeartbeatPort = 7676
[15/Jul/2008:15:14:04 PDT] [B1071]: Established
cluster connection to broker
mq://129.145.130.96:7676/?
instName=imqbroker&brokerID=broker2&brokerSessionUID=48962870
...

```