User Manual:

Redhat MRG

Performance Benchmarking Suite

Contents

User Manual for MBSuite

Important –

1. Redhat MRG is a broker based product. So before running any tests ensure that Redhat MRG is completely installed in your machine and you are able to run the qpid broker.
2. Download and install Redhat MRG by following the instructions on site – http://linux.web.cern.ch/linux/mrg/
3. To run the broker type-
   /usr/sbin/qpidd --auth no --default-queue-limit 1048576000 --max-connections 2000 --queue-purge-interval 35
4. Run the broker in separate terminal and check if broker is successfully started & alive.
5. To stop the broker simple press Ctrl+C on the terminal from which broker is running
6. Please note, whenever running the tests, ensure that the broker-statistics is started first then the subscriber and then publisher
7. When running multiple iterations of a test, please press enter at the end of each run on the publisher and subscriber console to start the next iteration.
8. For corresponding subscriber and publisher runs, please give the same tokens for correlating the results.
9. For detailed description of each workload model, please refer the document – **Performance Benchmarking Plan.pdf**
10. All the tests are with Reliability enabled
11. The database and all the allied tables have to be created manually before running the Publishers/Subscribers. This is a one-time activity.

Pre-requisites for each Work Load Model
1. Broker, Publisher and Subscriber installed on three different machines
2. Open a terminal and navigate to the `mbsuite/config` folder of the broker-statistics
3. Open the `common-settings.properties` and set the values for the following –
   db-url=jdbc:mysql://<host-name/IP address>/<database-name>?user=<database username>&password=<database password>
   For e.g.
   ```
   db-url=jdbc:mysql://10.88.203.39/mrg-
   mbsuite?user=root&password=root123
   ```
4. Repeat steps 2 and 3 for publisher and subscriber
5. Additionally in the `publisher-config.tmpl` and `subscriber-config.tmpl`, give the IP address of the machine on which broker running.
   Eg.   <attribute>
                   <key>brokerhost</key>
                       <value>10.88.203.40</value>
                   </attribute>

1 Work Load Model: WL1

1.1 Running the Broker

1. Before running this model ensure that broker is running in another separate terminal
2. Open a terminal and navigate to the mbsuite/bin/ext/config folder of the broker
3. Open the broker-config.properties file and give the following values
   a.   shutdownDelay=35
   b.   broker=qpid
4. Navigate to mbsuite/bin/ext folder
5. Run the following command for starting the broker statistics

   ```
   ./run-broker-statistics.sh 100 500 8100 mrg  mrgconfig  mrgWL1
   ```
   Where

   mrgWL1 – token name by which the test data will be stored in the database

   mrg – task name

   mrgconfig – group name in the subscriber-config.tmpl

   100 - Min message size in bytes

   500 - Increment in bytes

   8000- Max message size in bytes

1.2 Running the Subscriber

1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the subscriber
2. Open the `subscriber-config.properties` file and give the following values
   a. shutdowndelay=35
   b. max_subscriber=1
   c. dump_details=false
   d. max_topics=1
   e. iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the subscriber

   ```
   ./run-subscriber-vary-size.sh 100 500 8000 mrg mrgconfig mrgWL1
   ```
   where

   mrgWL1 – token name by which the test data will be stored in the database

   mrg – task name

   mrgconfig – group name in the subscriber-config.tmpl

   100 - Min message size in bytes

   500 - Increment in bytes

   8100- Max message size in bytes

5. To check if the subscriber is running properly and receiving messages, in another terminal, navigate to the `mbsuite/bin/ext/logs` folder and give the following command
   ```
   tail -f  run-subscriber-vary-size.log
   ```

1.3 Running the Publisher

1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the publisher
2. Open the `publisher-config.properties` file and give the following values
   a. runsec=10
   b. max_publisher=1
   c. msg_size=60
   d. dump_details=false
   e. max_topics=1
   f. iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the publisher
   ```
   ./run-publisher-vary-size.sh 100 500 8100 mrg mrgconfig mrgWL1
   ```
   Where mrgWL1 – token name by which the test data will be stored in the database

   mrg – task name

   mrgconfig – group name in the subscriber-config.tmpl

   100 - Min message size in bytes

   500 - Increment in bytes

   8100- Max message size in bytes

5. To check if the publisher is running properly, in another terminal, navigate to the
   `mbsuite/bin/ext/logs` folder and give the following command
   ```
   tail -f  run-publisher-vary-size.log
   ```

2   Work Load Model: WL4

2.1 Running the Broker

6. Before running this model ensure that broker is running in another separate terminal
7. Open a terminal and navigate to the mbsuite/bin/ext/config folder of the broker
8. Open the broker-config.properties file and give the following values
   a.   shutdownDelay=35
   b.   broker=qpid
9. Navigate to mbsuite/bin/ext folder
10. Run the following command for starting the broker statistics
    ```
    ./run-broker-statistics.sh 1 2 20 mrg  mrgconfig  mrgWL4
    ```
    Where

    mrgWL4 – token name by which the test data will be stored in the database

mrg – task name

mrgconfig – group name in the subscriber-config.tmpl

    1 - Min subscriber

     2 - Increment

    20- Max subscribers

2.2 Running the Subscriber

6. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the subscriber
7. Open the `subscriber-config.properties` file and give the following values
    a. shutdowndelay=35
    b. max_subscriber=1
    c. dump_details=false
    d. max_topics=1
    e. iteration=1
8. Navigate to `mbsuite/bin/ext` folder
9. Run the following command for starting the subscriber

    `./run-subscriber-vary-sub.sh 1 2 20 mrg mrgconfig mrgWL4`

    where

     mrgWL4 – token name by which the test data will be stored in the database

    mrg – task name

    mrgconfig – group name in the subscriber-config.tmpl

        1 - Min subscriber

         2 - Increment

        20- Max subscribers
10. To check if the subscriber is running properly and receiving messages, in another terminal,
    navigate to the `mbsuite/bin/ext/logs` folder and give the following command

    `tail -f  run-subscriber-vary-sub.log`

2.3 Running the Publisher

6. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the publisher
7. Open the `publisher-config.properties` file and give the following values
    a. runsec=10
    b. max_publisher=1
    c. **msg_size=60**
    d. dump_details=false
    e. max_topics=1
    f. iteration=1
8. Navigate to `mbsuite/bin/ext` folder

9. Run the following command for starting the publisher

    `./run-publisher-vary-sub.sh 1 2 20 mrg mrgconfig mrgWL4`

    Where mrgWL4 – token name by which the test data will be stored in the database

    mrg – task name

    mrgconfig – group name in the subscriber-config.tmpl

    > 1 - Min subscriber
    >
    > 2 - Increment
    >
    > 20- Max subscribers

10. To check if the publisher is running properly, in another terminal, navigate to the `mbsuite/bin/ext/logs` folder and give the following command

    `tail –f  run-publisher-vary-sub.log`

3   Work Load Model: WL4.1

3.1 Running the Broker

1. Before running this model ensure that broker is running in another separate terminal
2. Open a terminal and navigate to the mbsuite/bin/ext/config folder of the broker
3. Open the broker-config.properties file and give the following values
   - a.   shutdownDelay=35
   - b.   broker=qpid
4. Navigate to mbsuite/bin/ext folder
5. Run the following command for starting the broker statistics

   `./run-broker-statistics.sh 1 2 20 mrg  mrgconfig  mrgWL4.1`

   Where

   mrgWL4.1 – token name by which the test data will be stored in the database

   mrg – task name

   mrgconfig – group name in the subscriber-config.tmpl

   > 1 - Min subscriber
   >
   > 2 - Increment
   >
   > 20- Max subscribers

3.2 Running the Subscriber

1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the subscriber
2. Open the `subscriber-config.properties` file and give the following values
   a. shutdowndelay=35
   b. max_subscriber=1
   c. dump_details=false
   d. max_topics=1
   e. iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the subscriber
   `./run-subscriber-vary-sub.sh 1 2 20 mrg mrgconfig mrgWL4.1`
   where
   mrgWL4.1 – token name by which the test data will be stored in the database
   mrg – task name
   mrgconfig – group name in the subscriber-config.tmpl
   > 1 - Min subscriber
   > 2 - Increment
   > 20- Max subscribers
5. To check if the subscriber is running properly and receiving messages, in another terminal, navigate to the `mbsuite/bin/ext/logs` folder and give the following command
   `tail –f  run-subscriber-vary-sub.log`

3.3 Running the Publisher

1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the publisher
2. Open the `publisher-config.properties` file and give the following values
   a. runsec=10
   b. max_publisher=1
   c. **msg_size=1024**
   d. dump_details=false
   e. max_topics=1
   f. iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the publisher
   `./run-publisher-vary-sub.sh 1 2 20 mrg mrgconfig mrgWL4.1`
   Where mrgWL4.1 – token name by which the test data will be stored in the database
   mrg – task name
   mrgconfig – group name in the subscriber-config.tmpl
   > 1 - Min subscriber
   > 2 - Increment
   > 20- Max subscribers

5. To check if the publisher is running properly, in another terminal, navigate to the `mbsuite/bin/ext/logs` folder and give the following command
`tail -f  run-publisher-vary-sub.log`

4   Work Load Model : WL7

4.1   Running the Broker
1. Before running this model ensure that broker is running in another separate terminal
2. Open a terminal and navigate to the mbsuite/bin/ext/config folder of the broker
3. Open the broker-config.properties file and give the following values
   a.   shutdownDelay=35
   b.   broker=qpid
4. Navigate to mbsuite/bin/ext folder
5. Run the following command for starting the broker statistics
   `./run-broker-statistics.sh 1 5 101 mrg  mrgconfig  mrgWL7`
   Where
   mrgWL7 – token name by which the test data will be stored in the database
        mrg – task name
   mrgconfig – group name in the subscriber-config.tmpl
             1 - Min publisher, subscriber and topic
             5 - Increment
             101- Max publisher, subscriber and topic

4.2   Running the Subscriber
1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the subscriber
2. Open the `subscriber-config.properties` file and give the following values
   a. shutdowndelay=35
   b. max_subscriber=1
   c. dump_details=false
   d. max_topics=1
   e. iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the subscriber
   `./run-subscriber-vary-topics.sh 1 5 101 mrg mrgconfig mrgWL7`
   where
   mrgWL7 – token name by which the test data will be stored in the database

mrg – task name

mrgconfig – group name in the subscriber-config.tmpl

     1 - Min publisher, subscriber and topic

     5 - Increment

     101- Max publisher, subscriber and topic

To check if the subscriber is running properly and receiving messages, in another terminal, navigate to the `mbsuite/bin/ext/logs` folder and give the following command

`tail –f  run-subscriber-vary-topics.log`

4.3 Running the Publisher

1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the publisher
2. Open the `publisher-config.properties` file and give the following values
    a. runsec=10
    b. max_publisher=1
    c. **msg_size=100 (This message should vary from 100 to 8100 in increment of 500)**
    d. dump_details=false
    e. max_topics=1
    f. iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the publisher
   `./run-publisher-vary-topics.sh 1 5 101 mrg mrgconfig mrgWL4`
   Where mrgWL4 – token name by which the test data will be stored in the database
   mrg – task name
   mrgconfig – group name in the subscriber-config.tmpl

     1 - Min publisher, subscriber and topic

     5 - Increment

     101- Max publisher, subscriber and topic

5. To check if the publisher is running properly, in another terminal, navigate to the
   `mbsuite/bin/ext/logs` folder and give the following command
   `tail –f  run-publisher-vary-topics.log`

   NOTE: After completion of 1 iteration go to `mbsuite/bin/ext/config` and change the **msg_size** in `publisher-config,properties` to 600 (for next run it will be increment of 500 i.e 1100 and continue up to 8100 increment of 500)

5   Work Load Model: WL8

5.1   Running the Broker

1. Before running this model ensure that broker is running in another separate terminal
2. Open a terminal and navigate to the mbsuite/bin/ext/config folder of the broker
3. Open the broker-config.properties file and give the following values
   a.   **shutdownDelay=45**
   b.   broker=qpid
4. Navigate to mbsuite/bin/ext folder
5. Run the following command for starting the broker statistics
   ```
   ./run-broker-statistics.sh 50 50 600 mrg  mrgconfig  mrgWL8
   ```
   Where
   mrgWL8 – token name by which the test data will be stored in the database
       mrg – task name
   mrgconfig – group name in the subscriber-config.tmpl
       50 - Min publisher, subscriber and topic
       50 - Increment
       600- Max publisher, subscriber and topic

5.2   Running the Subscriber

5. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the subscriber
6. Open the `subscriber-config.properties` file and give the following values
   a.   shutdowndelay=35
   b.   max_subscriber=1
   c.   dump_details=false
   d.   max_topics=1
   e.   iteration=1
7. Navigate to `mbsuite/bin/ext` folder
8. Run the following command for starting the subscriber
   ```
   ./run-subscriber-vary-topics.sh 50 50 600 mrg mrgconfig mrgWL8
   ```
   where
   mrgWL8 – token name by which the test data will be stored in the database
   mrg – task name
   mrgconfig – group name in the subscriber-config.tmpl
       50 - Min publisher, subscriber and topic
       50 - Increment
       600- Max publisher, subscriber and topic
   To check if the subscriber is running properly and receiving messages, in another terminal,
   navigate to the `mbsuite/bin/ext/logs` folder and give the following command
   ```
   tail -f  run-subscriber-vary-topics.log
   ```

5.3 Running the Publisher

1. Note: For this test go to mbsuite/config open publisher-config.tmpl and set value of throttlingFactor to 100

   For e.g   `<attribute>`

   `<key>throttlingFactor</key>`

   `<value>100</value>`

   `</attribute>`

2. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the publisher
3. Open the `publisher-config.properties` file and give the following values
   a. runsec=10
   b. max_publisher=1
   c. **msg_size=256**
   d. dump_details=false
   e. max_topics=1
   f. iteration=1
4. Navigate to `mbsuite/bin/ext` folder
5. Run the following command for starting the publisher

   `./run-publisher-vary-topics.sh 50 50 600 mrg mrgconfig mrgWL8`

   Where mrgWL4 – token name by which the test data will be stored in the database

   mrg – task name

   mrgconfig – group name in the subscriber-config.tmpl

   50 - Min publisher, subscriber and topic

   50 - Increment

   600- Max publisher, subscriber and topic

6. To check if the publisher is running properly, in another terminal, navigate to the `mbsuite/bin/ext/logs` folder and give the following command

   `tail -f  run-publisher-vary-topics.log`

   Note: After the test finish go to mbsuite/config open publisher-config.tmpl and reset value of throttlingFactor to 0

6   Latency Test: Latency as varying message size

6.1 Running the Broker

1. Before running this model ensure that broker is running in another separate terminal
2. Open a terminal and navigate to the mbsuite/bin/ext/config folder of the broker
3. Open the broker-config.properties file and give the following values

        a.   shutdownDelay=45

        b.   broker=qpid

4. Navigate to mbsuite/bin/ext folder
5. Run the following command for starting the broker statistics

```
./run-broker-statistics.sh 100 500 3100 mrg  mrgconfig  lat-
vary-size
```

Where

lat-vary-size – token name by which the test data will be stored in the database

mrg – task name

mrgconfig – group name in the subscriber-config.tmpl

100 - Min message size in bytes

 500 - Increment in bytes

 3100- Max message size in bytes

6.2   Running the Publisher

1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the publisher
2. Open the `publisher-config.properties` file and give the following values
    a.   runsec=10
    b.   max_publisher=1
    c.   msg_size=60
    d.   dump_details=true
    e.   max_topics=1
    f.   iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the publisher

```
./run-publisher-vary-size.sh 100 500 3100 mrg  mrgconfig  lat-
vary-size
```

Where lat-vary-size – token name by which the test data will be stored in the database

mrg – task name

mrgconfig – group name in the subscriber-config.tmpl

100 - Min message size in bytes

 500 - Increment in bytes

 3100- Max message size in bytes

5. To check if the publisher is running properly, in another terminal, navigate to the
   `mbsuite/bin/ext/logs` folder and give the following command

```
tail -f  run-publisher-vary-size.log
```

NOTE: There is no need of subscriber for latency test only broker-statistics & publishers are sufficient

7 Latency Test : Latency as varying throughput

7.1 Running the Broker

1. Before running this model ensure that broker is running in another separate terminal
2. Open a terminal and navigate to the mbsuite/bin/ext/config folder of the broker
3. Open the broker-config.properties file and give the following values
    a.   shutdownDelay=45
    b.   broker=qpid
4. Navigate to mbsuite/bin/ext folder
5. Run the following command for starting the broker statistics
```
./run-broker-statistics.sh 2  2  20   mrglat  mrgconfig  LAT-
VARY-THPUT
```
Where

LAT-VARY-THPUT – token name by which the test data will be stored in the database

mrg – task name

mrgconfig – group name in the subscriber-config.tmpl
    2 - Min subscribers,publishers,topics
     2 - Increment
     20- Max subscribers,publishers,topics

7.2 Running the Publisher

1. Open a terminal and navigate to the `mbsuite/bin/ext/config` folder of the publisher
2. Open the `publisher-config.properties` file and give the following values
    a. runsec=10
    b. max_publisher=1
    c. **msg_size=100**
    d. **dump_details=true**
    e. max_topics=1
    f. iteration=1
3. Navigate to `mbsuite/bin/ext` folder
4. Run the following command for starting the publisher

```
./run-publisher-vary-size.sh 2  2  20   mrglat  mrgconfig  LAT-
VARY-THPUT
```
Where

LAT-VARY-THPUT – token name by which the test data will be stored in the database

mrg – task name

mrgconfig – group name in the subscriber-config.tmpl

     2 - Min subscribers,publishers,topics

     2 - Increment

     20- Max subscribers,publishers,topics

5. To check if the publisher is running properly, in another terminal, navigate to the
   `mbsuite/bin/ext/logs` folder and give the following command
   ```
   tail –f  run-publisher-vary-size.log
   ```

   NOTE: There is no need of subscriber for latency test only broker-statistics & publishers are
   sufficient