Opensplice DDS User Manual:

Performance Benchmarking Suite

Contents

User Manual for Opensplice DDS MBSuite

Important –

1 Download the Opensplice community edition from http://www.prismtech.com/download-documents/1374

2 To install Opensplice extract the file OpenSpliceDDSV6.3.130716OSS-HDE-x86_64.linux-gcc4.1.2-glibc2.5.tar.gz for that go to terminal and run command

tar –zxvf OpenSpliceDDSV6.3.130716OSS-HDE-x86_64.linux-gcc4.1.2-glibc2.5.tar.gz

3 It then creates PrismTech directory under the path that you specified.

4 Go to Opensplice installation directory

e.g (If you installed Opensplice in /opt then go to /opt/PrismTech/OpenSpliceDDS/HDE/x86_64.linux2.6/)

and edit the file release.com then set `OSPL_HOME` to the path of your installation directory

e.g `OSPL_HOME="/opt/PrismTech/OpenSpliceDDS/HDE/x86_64.linux2.6"`

5 Before running the scripts, run the following commands in each shell (i.e for publisher & subscriber)

- Each time go to /opt/PrismTech/OpenSpliceDDS/HDE/x86_64.linux2.6/ and run source release.com
- OSPL_URI=file://$OSPL_HOME/etc/config/ospl.xml

6 Please note, whenever running the tests, ensure that the publisher is started first then subscriber.

7 When running multiple iterations of a test, please press enter at the end of each run on 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

14 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. Publisher and Subscriber installed on two different machines
2. Open a terminal and navigate to the mbsuite/config folder of the Publisher
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/ospl-mbsuite?user=root&password=root123
4. Repeat steps 2 and 3 for subscriber.

1 Work Load Model: WL1

1.1 Running the Publisher

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

For e.g

```
<attribute>
        <key> throttlingFactor</key>
        <value>100000</value>
</attribute>
```

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. maxPublisher=1
    c. msgSize=100 (or may be blank because this is varying message-size test)
    d. dumpDetails=false
    e. maxTopics=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 osplice osplconfig WL1

    Where

    WL1 – token name by which the test data will be stored in the database

    100 - Min message size in bytes

    500 - Increment in bytes

    8100- Max message size in bytes

    osplice - is the task in mbsuite/config/publisher-config.tmpl file

    osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file
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

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 =40
    b. maxSubscriber =1
    c. dumpDetails =false
    d. maxTopics =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 8100 osplice osplconfig WL1

    Where

    WL1 – token name by which the test data will be stored in the database

    100 - Min message size in bytes

    500 - Increment in bytes

    8100- Max message size in bytes

    osplice -is the task in mbsuite/config/subscriber-config.tmpl file

    osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file
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

Note-

- value of throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics

2 Work Load Model: WL4

2.1 Running the Publisher

Note: For this test go to mbsuite/config open publisher-config.tmpl and set value of `throttlingFactor` & numSubscribers set to the number of subscribers for test

(i.e for iteration 1 numSubscribers 1 , for iteration 3 numSubscribers 3 & so on)

For e.g

```
<attribute>
      <key> throttlingFactor</key>
      <value>1000</value>
 </attribute>

<attribute>
          <key>numSubscribers</key>
          <value>1</value>
 </attribute>
```

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. maxPublisher=1
   c. msgSize=60
   d. dumpDetails=false
   e. maxTopics=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 osplice osplconfig WL4

   Where WL4 – token name by which the test data will be stored in the database

   1 - Min subscribers

   2 - Increment

   20- Max subscribers

   osplice - is the task in mbsuite/config/publisher-config.tmpl file

   osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file
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

2.2 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=40
    b. maxSubscriber=1(or may be blank because this is varying subscriber test)
    c. dumpDetails=false
    d. maxTopics=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 osplice osplconfig WL4

    Where WL4 – token name by which the test data will be stored in the database

    1 - Min subscribers

    2 - Increment

    20- Max subscribers

    osplice -is the task in mbsuite/config/subscriber-config.tmpl file

    osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file

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

Note-

- value of throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics

3 Work Load Model: WL4.1

3.1 Running the Publisher

Note: For this test go to mbsuite/config open publisher-config.tmpl and set value of `throttlingFactor` & numSubscribers set to the number of subscribers for test

(i.e for iteration 1 numSubscribers 1 , for iteration 3 numSubscribers 3 & so on)

For e.g

```
<attribute>
      <key> throttlingFactor</key>
      <value>1000</value>
  </attribute>

 <attribute>
           <key>numSubscribers</key>
           <value>1</value>
  </attribute>
```

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. maxPublisher=1
   c. msgSize=1024
   d. dumpDetails=false
   e. maxTopics=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 osplice osplconfig WL4.1

   Where WL4.1 – token name by which the test data will be stored in the database

   1 - Min subscribers

   2 - Increment

   20- Max subscribers

   osplice - is the task in mbsuite/config/publisher-config.tmpl file

   osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file
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

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=40
   b. maxSubscriber=1(or may be blank because this is varying subscriber test)
   c. dumpDetails=false
   d. maxTopics=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 osplice osplconfig WL4.1

   Where WL4.1 – token name by which the test data will be stored in the database

   1 - Min subscribers

   2 - Increment

   20- Max subscribers

   osplice -is the task in mbsuite/config/subscriber-config.tmpl file

   osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file
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

Note-

- value for throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics

4 Work Load Model : WL7

4.1 Running the Publisher

Note: For this test go to mbsuite/config open publisher-config.tmpl and set value of `throttlingFactor` & `throttle-gap`

For e.g

```
<attribute>
    <key> throttlingFactor</key>
    <value>1000</value>
</attribute>

<attribute>
      <key>throttle-gap</key>
      <value>2</value>
</attribute>
```

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. maxPublisher=1
    c. msgSize=100 (This message should vary from 100 to 8100 in increment of 500)
    d. dumpDetails=false
    e. maxTopics=1 (or may be blank because this is varying topics test)
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the publisher

./run-publisher-vary-topics.sh 1 5 101 osplice osplconfig WL7

Where WL7 – token name by which the test data will be stored in the database

1 - Min subscribers,publishers,topics

5 - Increment

101- Max subscribers,publishers,topics

osplice - is the task in mbsuite/config/publisher-config.tmpl file

osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file

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 message 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)

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=40
   b. maxSubscriber=1
   c. dumpDetails=false
   d. maxTopics=1(or may be blank because this is varying topics test)
   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 osplice osplconfig WL7

   where WL7 – token name by which the test data will be stored in the database

   1 - Min subscribers,publishers,topics

   5 - Increment

   101- Max subscribers,publishers,topics

   osplice -is the task in mbsuite/config/subscriber-config.tmpl file

   osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file
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-topics.log

Note-

- value for throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics
- If there is message loss due increasing topics or message size the just vary the throttle-gap value for no message-loss

5 Work Load Model : WL8

5.3 Running the Publisher

Note: For this test go to mbsuite/config open publisher-config.tmpl and set value of `throttlingFactor` & `throttle-gap`

For e.g

```
<attribute>
    <key> throttlingFactor</key>
    <value>1000</value>
</attribute>

<attribute>
      <key>throttle-gap</key>
      <value>2</value>
</attribute>
```

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. maxPublisher=1
   c. msgSize=256
   d. dumpDetails=false
   e. maxTopics=1 (or may be blank because this is varying topics test)
   f. iteration=1
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the publisher

   ./run-publisher-vary-topics.sh 50 50 600 osplice osplconfig WL8

   Where WL8 – token name by which the test data will be stored in the database

   50 - Min subscribers,publishers,topics

   50 - Increment

   600- Max subscribers,publishers,topics

   osplice - is the task in mbsuite/config/publisher-config.tmpl file

   osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file
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

\

5.2 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=40
    b. maxSubscriber=1
    c. dumpDetails=false
    d. maxTopics=1(or may be blank because this is varying topics test)
    e. iteration=1
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the subscriber

    ./run-subscriber-vary-topics.sh 50 50 600 osplice osplconfig WL8

    Where WL8 – token name by which the test data will be stored in the database

    50 - Min subscribers,publishers,topics

    50 - Increment

    600- Max subscribers,publishers,topics

    osplice -is the task in mbsuite/config/subscriber-config.tmpl file

    osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file
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-topics.log

Note-

- value for throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics
- If there is message loss due increasing topics or message size the just vary the throttle-gap value for no message-loss

6 Work Load Model : WL8 (message size 1024)

6.1 Running the Publisher

Note: For this test go to mbsuite/config open publisher-config.tmpl and set value of `throttlingFactor` & `throttle-gap`

For e.g

```
<attribute>
     <key> throttlingFactor</key>
     <value>1000</value>
</attribute>

<attribute>
       <key>throttle-gap</key>
       <value>2</value>
</attribute>
```

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. maxPublisher=1
   c. msgSize=1024
   d. dumpDetails=false
   e. maxTopics=1 (or may be blank because this is varying topics test)
   f. iteration=1
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the publisher

   ./run-publisher-vary-topics.sh 50 50 600 osplice osplconfig WL8

   Where WL8 – token name by which the test data will be stored in the database

   50 - Min subscribers,publishers,topics

   50 - Increment

   600- Max subscribers,publishers,topics

   osplice - is the task in mbsuite/config/publisher-config.tmpl file

   osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file

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

6.2 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=40
    b. maxSubscriber=1
    c. dumpDetails=false
    d. maxTopics=1(or may be blank because this is varying topics test)
    e. iteration=1
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the subscriber

    ./run-subscriber-vary-topics.sh 50 50 600 osplice osplconfig WL8

    Where WL8 – token name by which the test data will be stored in the database

    50 - Min subscribers,publishers,topics

    50 - Increment

    600- Max subscribers,publishers,topics

    osplice -is the task in mbsuite/config/subscriber-config.tmpl file

    osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file

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-topics.log

Note-

- value for throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics
- If there is message loss due increasing topics or message size the just vary the throttle-gap value for no message-loss

7 Latency test : latency as a varying message size

7.1 Running the Publisher

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

For e.g

```
<attribute>
     <key> throttlingFactor</key>
     <value>100000</value>
 </attribute>
 <attribute>
       <key>latencyCaptureWindow</key>
       <value>10</value>
  </attribute>
```

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. maxPublisher=1
   c. msgSize=100(or may be blank because this is varying message size test)
   d. dumpDetails=true
   e. maxTopics=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 osplice-latency osplconfig LAT-VARY-SIZE

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

   100 - Min message size bytes

   500 - Increment in bytes

   3100- Max message size in bytes

   osplice-latency - is the task in mbsuite/config/publisher-config.tmpl file

   osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file
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

7.2 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=40
    b. maxSubscriber=1
    c. dumpDetails=true
    d. maxTopics=1(or may be blank because this is varying topics test)
    e. iteration=1
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the subscriber

    ./run-broker-statistics.sh 100 500 3100 osplice-latency osplconfig LAT-VARY-SIZE

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

    100 - Min message size bytes

    500 - Increment in bytes

    3100- Max message size in bytes

    osplice -latency -is the task in mbsuite/config/subscriber-config.tmpl file

    osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file
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-topics.log

Note-

- value for throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics
- latencyCaptureWindow indicates the after how many records the latency is captured if number of messages recvd is higher then increase the latencyCaptureWindow

8 Latency test : latency as a varying throughput

8.1 Running the Publisher

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

For e.g

```
<attribute>
     <key> throttlingFactor</key>
     <value>100000</value>
 </attribute>
 <attribute>
       <key>latencyCaptureWindow</key>
       <value>10</value>
  </attribute>
```

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. maxPublisher=1
   c. msgSize=100
   d. dumpDetails=true
   e. maxTopics=1 (or may be blank because this is varying topics test)
   f. iteration=1
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the publisher

   ./run-publisher-vary-topics.sh 2 2 20 osplice-latency osplconfig LAT-VARY-THPUT

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

   2 - Min subscribers,publishers,topics

   2 - Increment

   20- Max subscribers,publishers,topics

   osplice-latency - is the task in mbsuite/config/publisher-config.tmpl file

   osplconfig - is the group-name in mbsuite/config/ publisher -config.tmpl file
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

8.2 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=40
    b. maxSubscriber=1
    c. dumpDetails=true
    d. maxTopics=1 (or may be blank because this is varying topics test)
    e. iteration=1
3. Navigate to mbsuite/bin/ext folder
4. Run the following command for starting the subscriber

    ./run-broker-statistics.sh 2 2 20 osplice-latency osplconfig LAT-VARY-THPUT

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

    100 - Min message size bytes

    500 - Increment in bytes

    3100- Max message size in bytes

    osplice-latency -is the task in mbsuite/config/subscriber-config.tmpl file

    osplconfig -is the group-name in mbsuite/config/subscriber-config.tmpl file
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-topics.log

Note-

- Value for throttlingFactor is needed for this test because there might be message-loss due to increasing message size or topics
- latencyCaptureWindow indicates the after how many records the latency is captured if number of messages recvd is higher then increase the latencyCaptureWindow