



Best practices

Testing IBM Platform Symphony with Symping

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Introduction to Symping

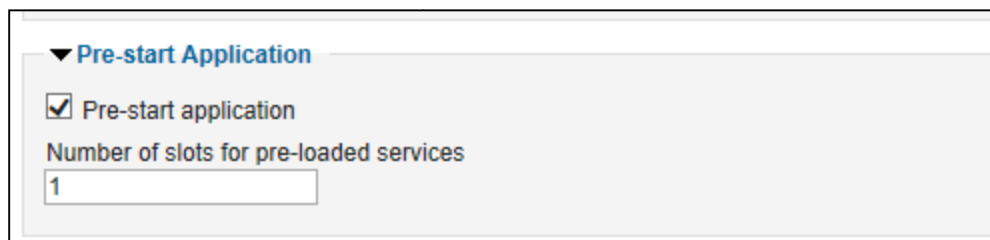
Symping is the test application that is shipped with Platform Symphony. In addition to testing whether your cluster is functioning, it can also be used to simulate your application's data-flow and processing load on the cluster.

Although symping can produce some useful data, you should be aware that symping cannot replicate the variability in real workload task data submission frequency, size and execution time.

Configuration

If you want to eliminate service process start-up time from the results, modify the symping application profile to pre-start the SIMs and SIs on the compute host. The number of pre-loaded services should be equal to the number of compute host CPU's.

To set the number of pre-loaded services, start the Platform Management Console in your Web browser. Select **Workload->Symphony->Application Profiles**. Click the **symping***version*. application name link to launch the Application Profile Editor (for example, **symping6.1.1**). Select the Advanced Configuration option in the editor. Enable the pre-start application checkbox and set the number of pre-loaded services to the desired number.



▼ Pre-start Application

Pre-start application

Number of slots for pre-loaded services

1

Once this change is saved, Symphony will pre-start the specified number of SI's on your compute hosts.

Testing

Symping has both a command line interface and a GUI page. The command line is for advanced users and is not discussed here.

1. To start the GUI page, select **Workload->Symphony->Applications** and click **Run Symping**. The following page opens.

Symping: Symphony Configuration Testing Tool User: Admin (Cluster Administrator) Help
Cluster Name: cluster1 2013-11-22 13:45:09

Use this utility to test and verify that components are working and responsive
Vary the workload to try out different Symphony workload conditions

Open an additional Symping window Test summary for: **Complete Workload Cycle**

Run!
Status: Ready...

▼ Hide Advanced Settings and Output

Task Details:

Task ID	Compute Host	SI Process ID	Processing Time	Task Roundtrip
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Host Summary:

Compute Host	SI Process ID	Number of Tasks	Avg Processing Time
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► Show authorization details:
Optional Settings:
Test for: Complete Workload Cycle ▼
Reset to default settings
Session Tag:
Task Tag:
 Application Name: symping6.1.1 ▼
Session Type: RecoverableAllHistoricalData ▼
Common data size: 0 bytes ▼
Input message size: 64 bytes ▼
Output message size: 128 bytes ▼
Task processing time: 50 milliseconds ▼
Number of tasks per test run: 20
Consume CPU cycles:
Log option:
Compress data:
Save custom test settings

The Advanced Settings and Output option is enabled on this page.

2. Click **Run!** to make sure that your cluster is set up correctly. If the test runs, continue. If the test does not run, check the logs for errors.
3. View the Optional Settings on the right-hand side of the page. Set the session type to UnrecoverableNoHistoricalData. This will minimize the Symphony system overhead. You can create several test runs to determine how efficiently workload can be run on your cluster. For example:

1. Set the input message size to 100 bytes
2. Set the output message size to 100 bytes
3. Set the task processing time to 100 milliseconds
4. Set the number of tasks per test run to 4000
5. Run the test

You can leave Log Option unchecked, but enable Consume CPU Cycles. Symping will use sleep by default, which won't give accurate results. We want the SI to compete with the middleware for CPU cycles.

4. Look for the Session Roundtrip value in the Test Summary area. This value is the length of time your workload took to complete.

Test summary for: Complete Workload Cycle			
Shortest Task Roundtrip	Longest Task Roundtrip	Avg Task Roundtrip	Avg Processing Time
8.673s	125.294s	66.913s	108.648ms
Session roundtrip for 4000 tasks is: 127.135s			

5. You can now modify your test to see whether a longer task that processes more data will run more quickly. In the following example, the task sizes are increased by 100 and the number of tasks are reduced by a factor of 100:
 1. Set the input message size to 10000 bytes
 2. Set the output message size to 10000 bytes
 3. Set the task processing time to 10 seconds (change units from milliseconds to seconds)
 4. Set the number of tasks per test run to 40
 5. Run the test

The number of CPU's in your cluster should divide evenly into 40, otherwise you will need to adjust the number of test runs. You want to avoid having some CPUs idle during execution of the last task.

Analyzing Results

Symping can estimate how fast your application can run on this cluster. No application will have tasks that take a constant time to run, so your actual results will vary. As well, your application will have dependencies that cannot be simulated using symping.

Symping can tell you how much common and task data can be efficiently moved through Symphony. It can also give you the approximate minimum time each task should take to execute to efficiently utilize your cluster.

The example tests above had the following results:

1. 127 seconds to complete
2. 106 seconds to complete

By increasing the amount of processing in a task from 100ms to 10s, the overall processing time for the workload was reduced by 21 seconds.

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