

IBM WebSphere® Process Integration V6.0 Lab Exercise

Measuring SCA Component Performance

What this Exercise is about.....	1
Lab Requirements.....	1
What you should be able to do	1
Introduction	2
Lab Prerequisite.....	2
Exercise Instructions	2
Part 1: Initialize the Workspace for this Lab Exercise.....	4
Part 2: Enable Performance Instrumentation of SCA Components.....	7
Part 3: Viewing Performance Data of SCA Components.....	11
What you did in this exercise	14
Solution Instructions.....	15
Task: Adding Remote Server to WebSphere Integration Developer Test Environment.....	16

What this Exercise is about

One of the features of the Service Component Architecture (SCA) is the built in performance metrics generation. In this exercise, you will enable performance data to be generated and then view the performance using the Tivoli® Performance Viewer.

Lab Requirements

List of system and software required for the student to complete the lab.

- WebSphere Integration Developer V6 installed
- WebSphere Process Server V6 test environment installed
- Sample code in the directory C:\Labfiles60 (Windows®) or /tmp/LabFiles60 (Linux®)

What you should be able to do

At the end of this lab you should be able to:

- Enable performance metrics generation on SCA components
- View SCA performance through the Administrative Console

Introduction

SCA includes the ability to generate performance metrics for invoked SCA components. The metrics include the number of good requests, bad requests, and response time. These metrics are generated and available for viewing using the Performance Monitoring Infrastructure (PMI), which is included with WebSphere Process Server as a part of WebSphere Application Server. Tivoli Performance Viewer is available to view the PMI data. With this feature, the current performance of SCA components can be viewed. Other monitoring software is available for longer monitoring solutions, which can show more historical performance results.

Lab Prerequisite

This lab requires that you first complete the Raising and Monitoring Business Events lab exercise.

Exercise Instructions

Some instructions in this lab might be specific for Windows platforms. If you run the lab on a platform other than Windows, you will need to run the appropriate commands, and use appropriate files (for example .sh in place of .bat) for your operating system. The directory locations are specified in the lab instructions using symbolic references as follows:

Reference Variable	Windows Location	Linux Location
<WID_HOME>	C:\Program Files\IBM\WebSphere\ID\6.0	/opt/IBM/WebSphere/ID/6.0
<WPS_HOME>	<WID_HOME>\runtimes\bi_v6	<WID_HOME>/runtimes/bi_v6
<LAB_FILES>	C:\Labfiles60	/tmp/Labfiles60
<WORKSPACE>	C:\Labfiles60\eXchange\PerfMonitor\workspace	/tmp/Labfiles60/PerfMonitor/workspace
<TEMP>	C:\temp	/tmp

Windows users note: When directory locations are passed as parameters to a Java™ program, such as wsadmin, you must replace the backslashes with forward slashes to follow the Java convention. For example, C:\LabFiles60\ would be replaced by C:/LabFiles60/.

Note that the previous table is relative to where you are running WebSphere Integration Developer. The following table is related to where you are running remote test environment:

Reference Variable	Example: Remote Windows test server location	Example: Remote z/OS® test server location	Input your values for the remote location of the test server
<SERVER_NAME>	server1	cl1sr01	
<WAS_HOME>	C:\Program Files\IBM\WebSphere\AppServer	/etc/cl1cell/AppServerNode1	
<HOSTNAME>	localhost	mvsxxx.rtp.raleigh.ibm.com	
<BOOTSTRAP_PORT>	2809	2809	
<TELNET_PORT>	N/A	1023	
<PROFILE_NAME>	AppSrv01	default	
<USERID>	N/A	cl1admin	
<PASSWORD>	N/A	fr1day	

Instructions for using a remote testing environment, such as z/OS, AIX® or Solaris, can be found at the end of this document, in the section [“Task: Adding Remote Server to WebSphere Integration Developer Test Environment”](#).

Part 1: Initialize the Workspace for this Lab Exercise

___ 1. Follow the directions below to initialize the Workspace using the following values:

<WORKSPACE>

C:\Labfiles60\exchange\PerfMonitor\workspace

<PROJECT_INTERCHANGE>

C:\Labfiles60\exchange\PerfMonitor\import\PerfMonitorStart_P1.zip

<MODULE>

n/a

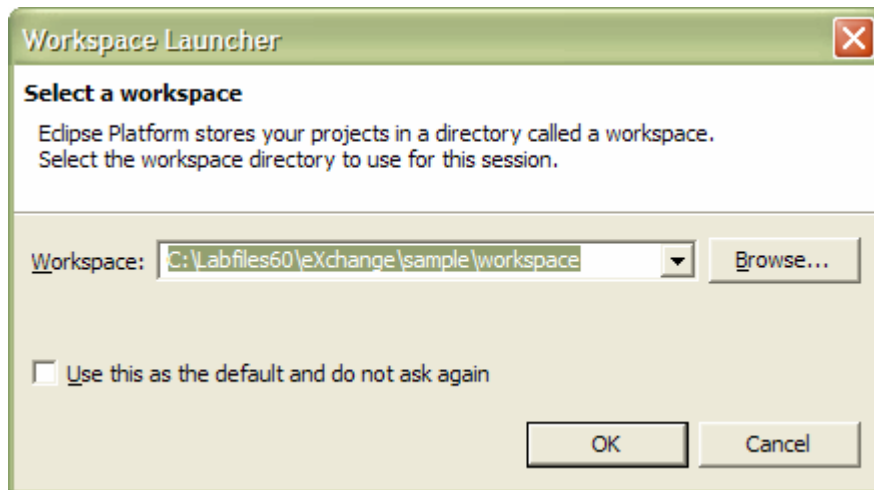
<DEPENDENT_LIBRARIES>

n/a

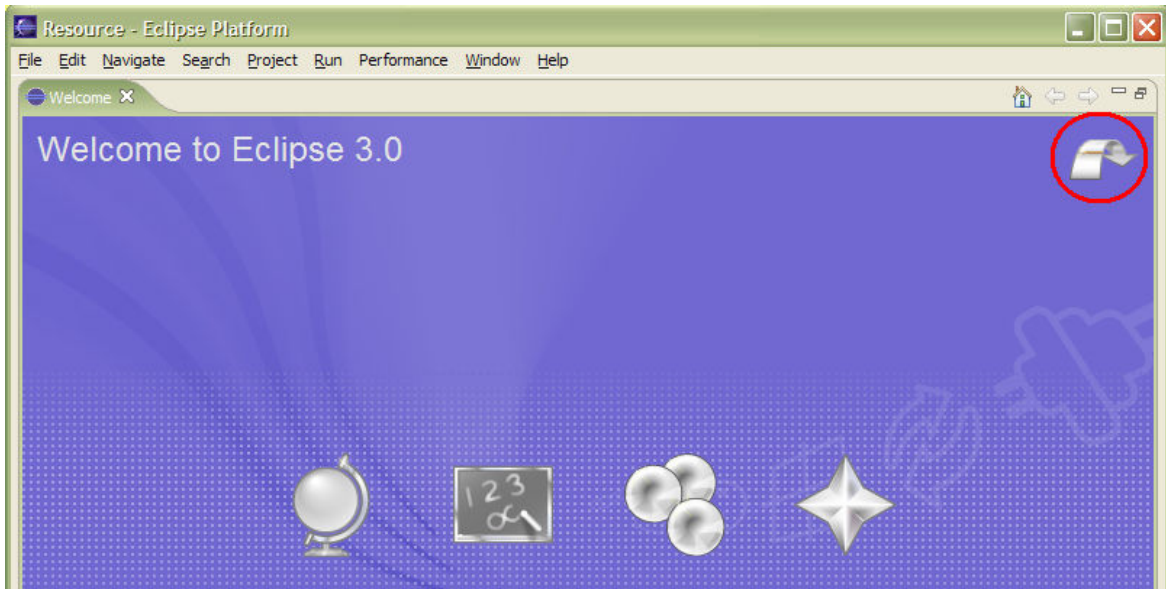
___ 2. Start WebSphere Integration Developer V6 with a new workspace located at **<WORKSPACE>**.

___ a. From Windows Explorer, navigate to the **<WID_HOME>** directory and double click on wid.exe.

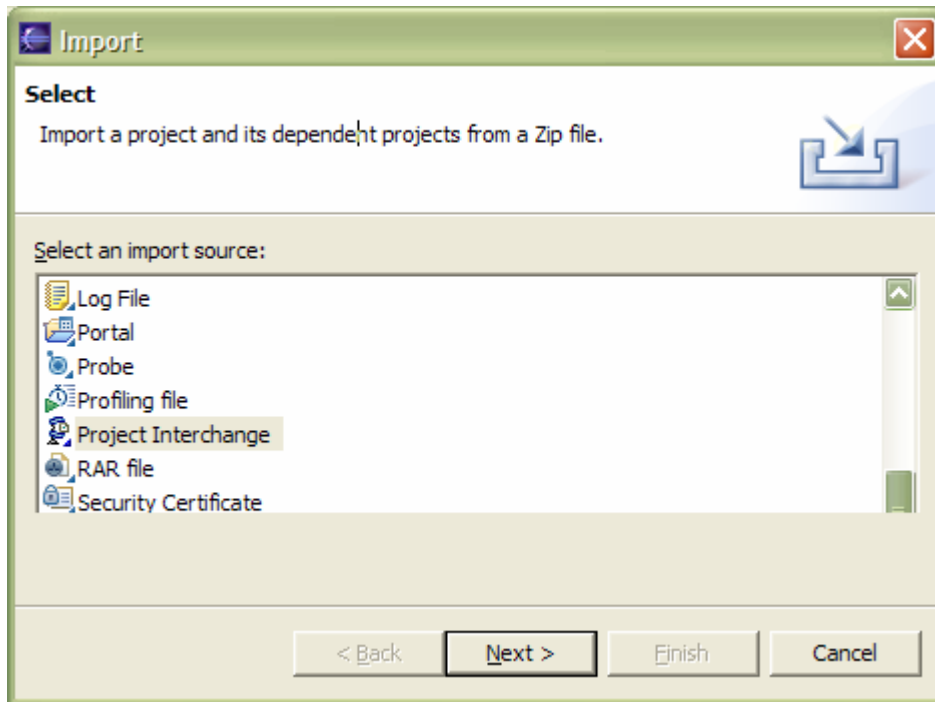
___ b. When prompted for workspace name, enter the value provided by the **<WORKSPACE>** variable for this lab and click **OK**.



- ___ c. When WebSphere Integration Developer V6.0 opens, close the **Welcome page** by clicking on the Go to the workbench icon (bent over arrow at top-right).

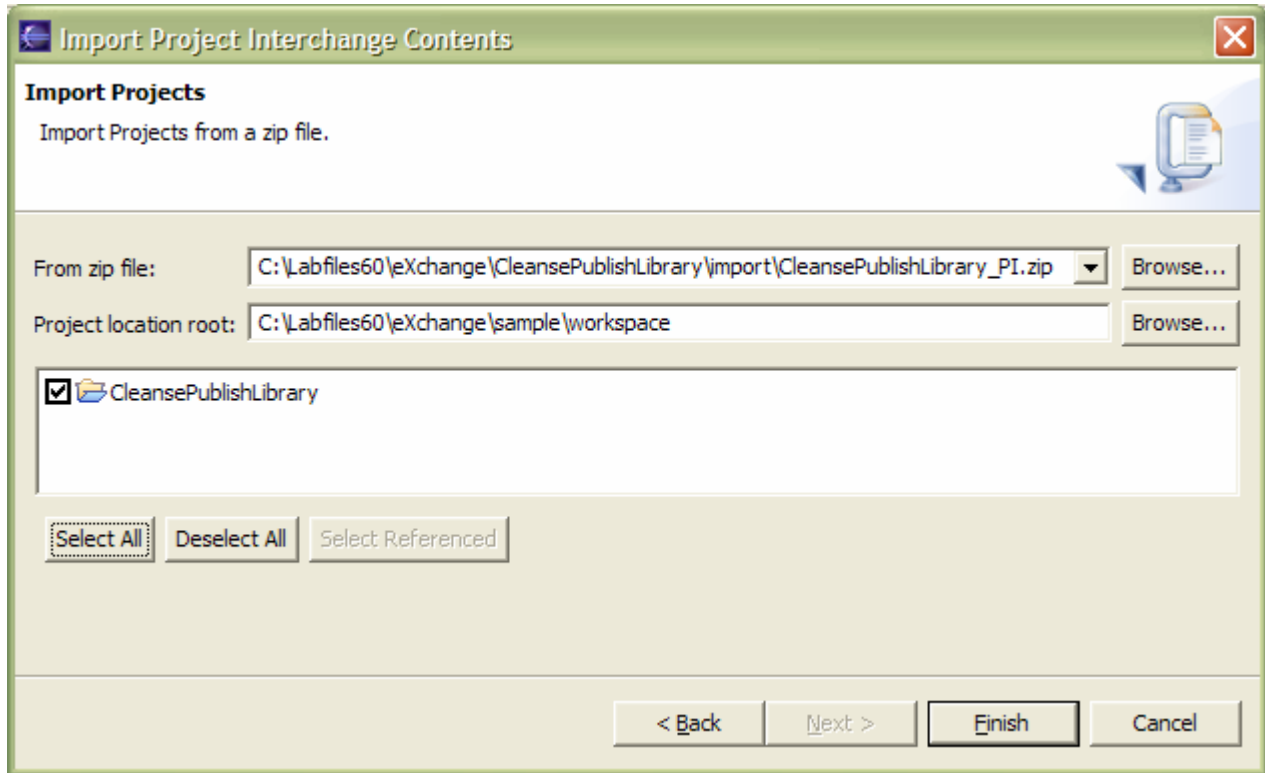


- ___ d. Ensure you are in the **Business Integration** perspective.
- ___ 3. If this lab requires you to import a project interchange file, setup the required libraries and modules for this lab by importing the project interchange file **<PROJECT_INTERCHANGE>**.
 - ___ a. From the menu bar, select **File -> Import...**
 - ___ b. In the Import dialog, scroll down and select **Project Interchange**.



- ___ c. Click **Next**.

- ___ d. In the Import Projects dialog, initialize the **From zip file:** field to **<PROJECT_INTERCHANGE>**.
- ___ e. Click the **Select All** button.



- ___ f. Click **Finish**.

Part 2: Enable Performance Instrumentation of SCA Components

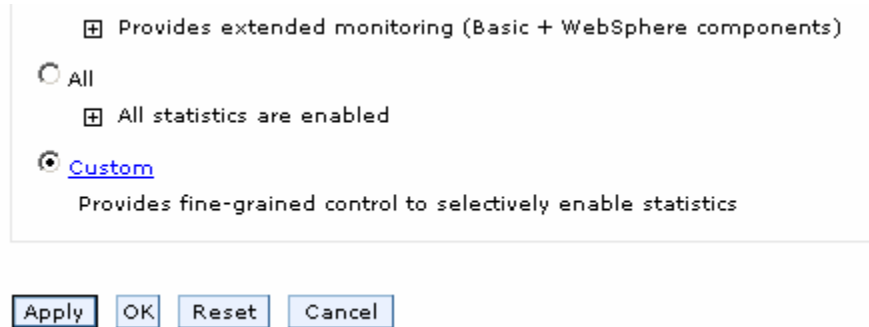
In this part you will use the Tivoli Performance Viewer to view the performance of SCA Components.

- ___ 1. Start the server and install the applications.
 - ___ a. In WebSphere Integration Developer, start the server.

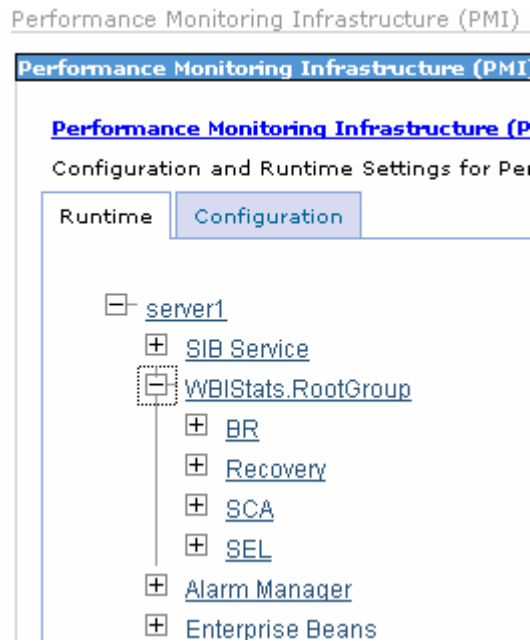
If using a remote testing environment, follow the directions provided in [Task: Adding Remote Server to WebSphere Integration Developer Test Environment](#) (at the end of this document) to add a server to the WID test environment and start it. This is especially true for z/OS, AIX, Solaris remote test environment, where the WebSphere Integration Developer will be remote to the test environment.

If using a local testing environment, right-click on **WPS Server v6.0** in the Server view and select **Start**.
 - ___ b. Right-click on WPS Server v6.0 in the Servers view and select **Add and remove projects**.
 - ___ c. Move the CleansePublishBPELApp, AutoCleanApp, and ManualCleanApp applications to the **Configured** projects in the dialog window.
 - ___ d. Click **Finish**.
- ___ 2. In order for the PMI data to be collected and viewed, the SCA components must be run one time. This loads the components and initializes the performance data collectors.
 - ___ a. Right click on WPS Server v6.0 after the server starts and select Launch > **BPC Explorer**.
 - ___ b. Click the **My Process Templates** link.
 - ___ c. Check the box for **CleansePublishBPEL** and click **Start Instance**.
 - ___ d. Click **Submit** to start the business process. No data needs to be specified in the fields.
 - ___ e. Click the **My Tasks** link. A task should be created with a state of Ready.
 - ___ f. Check the box for **ManualClean** and click **Work on**. The Task Input Message will be displayed.
 - ___ g. Click **Complete** to complete the task. No data needs to be specified in the fields.
 - ___ h. The task will be marked as **Finished**.
- ___ 3. Enable Performance Metrics on SCA Components.
 - ___ a. Right click on WPS Server v6.0 in the Servers view and select **Launch Administrative Console**.
 - ___ b. Log into the console.
 - ___ c. Expand **Monitoring and Tuning**.
 - ___ d. Click **Performance Monitoring Infrastructure (PMI)**.

- ___ e. Click on the <SERVER_NMAE> link.
- ___ f. Select the **Runtime** tab.
- ___ g. Click on the **Custom** radio button.



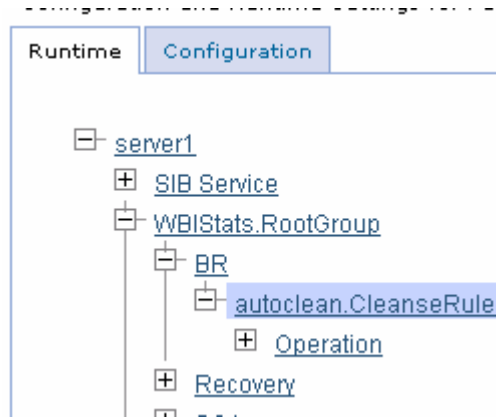
- ___ h. The loaded components which can have PMI enabled will be listed. The PMI metrics for SCA components are not part of the initial list and are only available to be set at runtime AFTER they have been initialized and loaded during an execution at least once prior to enabling performance instrumentation. Expand **WBISStats.RootGroup**.



The various SCA components (BR=business rules, SEL=selector) which have been loaded and available for performance monitoring will be listed. SCA is also listed as performance can be monitored at the SCA invocation level regardless of the component.

Note: Currently there is a limitation with enabling PMI performance metrics on BPEL business processes and human tasks. These items will not be displayed in the list.

- ___ i. Expand **BR** and select **autoclean.CleanseRuleGroup**.

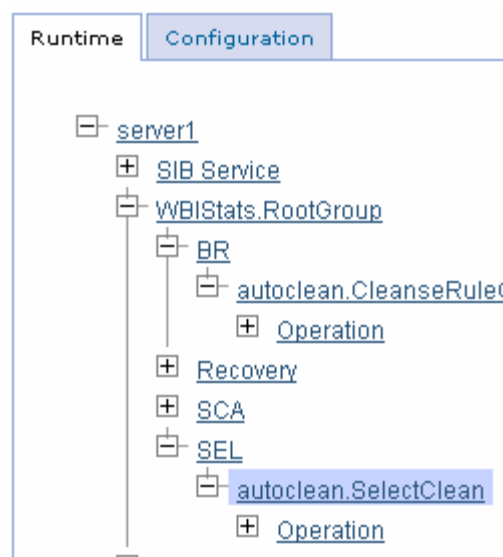


__ j. Check the box for **ResponseTime**.

<input type="button" value="Enable"/> <input type="button" value="Disable"/>				
Select	Counter	Type	Description	Status
<input type="checkbox"/>	BadRequests	CountStatistic	myStats.numRequests.desc	Disabled
<input type="checkbox"/>	GoodRequests	CountStatistic	myStats.numRequests.desc	Disabled
<input checked="" type="checkbox"/>	ResponseTime	TimeStatistic	myStats.responseTime.desc	Disabled
Total 3				

__ k. Click the **Enable** button.

__ l. Enable the performance metrics for the selector. Expand **SEL** and select **autoclean.SelectClean**.




__ m. Check the box for **ResponseTime** and click the **Enable** button.





Part 3: Viewing Performance Data of SCA Components

- ___ 1. Start the Tivoli Performance Viewer.
 - ___ a. Expand **Performance Viewer** in the Administrative console under the Monitoring and Tuning section, and click the link for **Current Activity**.
 - ___ b. Check the box for server1 and click **Start Monitoring**.

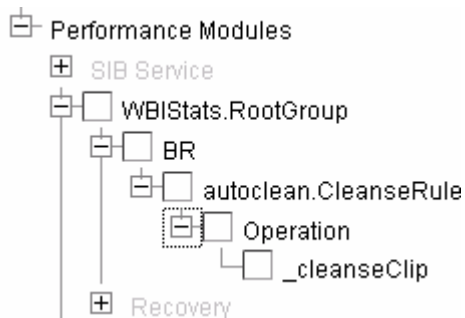
Tivoli Performance Viewer

Server selection for Tivoli Performance Viewer.

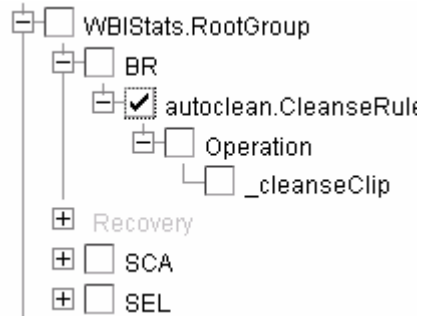
 Preferences

<input type="button" value="Start Monitoring"/>		<input type="button" value="Stop Monitoring"/>			
   					
Select	Server ▾	Node ▾	Type ▾	Version ▾	Collection Status ▾
<input type="checkbox"/>	server1	widNode	servers	6.0.1.0	Active
Total 1					

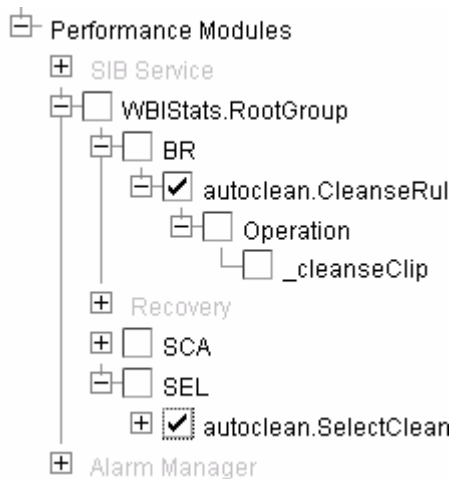
- ___ c. Click the `<SERVER_NMAE>` link to display the Tivoli Performance Viewer.
- ___ d. Expand **Performance Modules > WBISStats.RootGroup** to select which metrics to view. Even though performance metrics have been enabled for different components, you can specify which metrics you want displayed in the Tivoli Performance Viewer.
- ___ e. Continue to expand **BR > autoclean.CleanseRuleGroup Operation > _cleanseClip** to see the fine level of granularity. Even though PMI information can be generated for many different components, the particular PMI data to be viewed can be limited. You can specify PMI data for specific operations in business rules, selectors or other components to be displayed.



- ___ f. Check the box at the autoclean:CleanseRule level, because here there is only one operation to report performance data for.

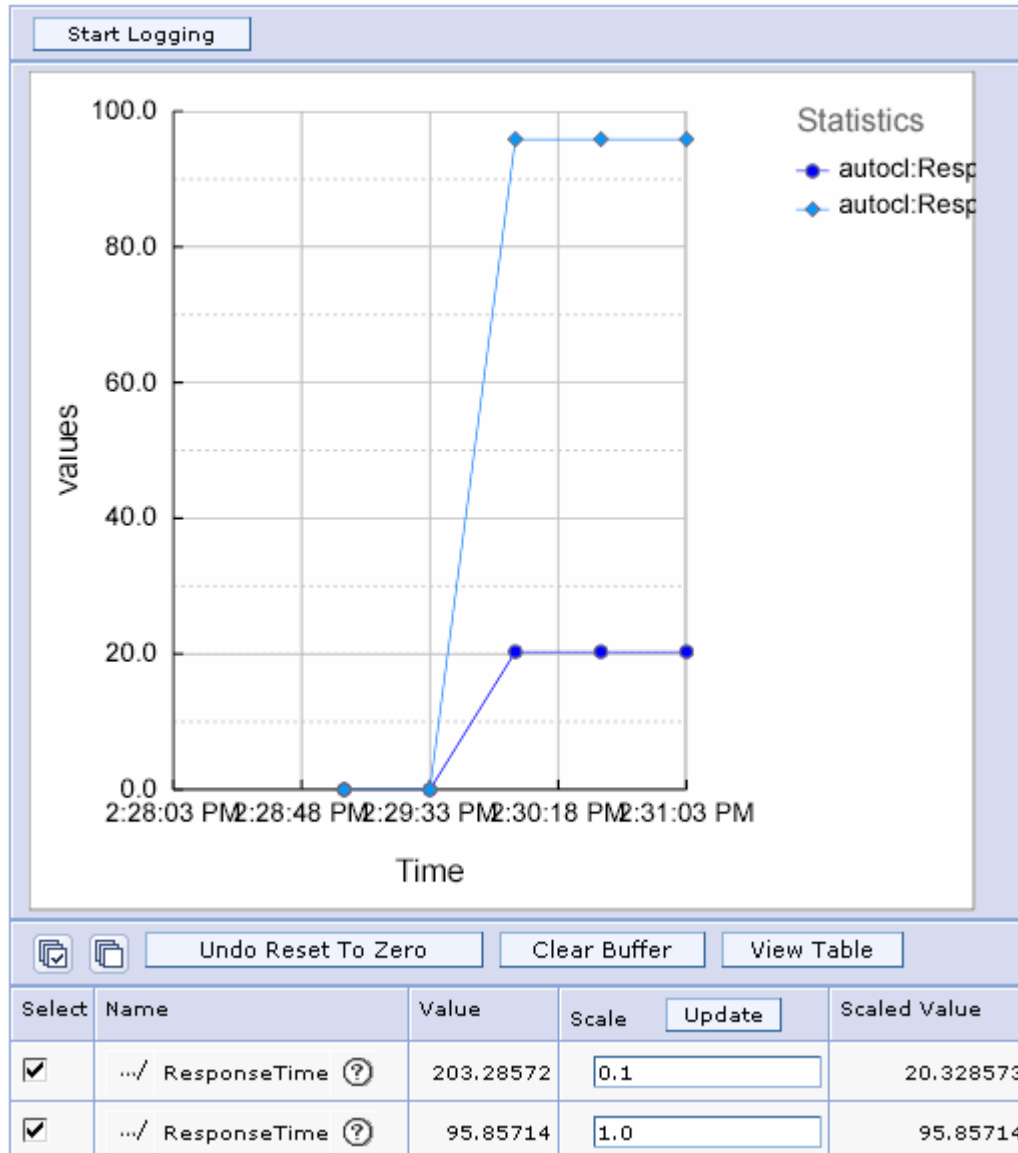


- ___ g. If the graph is not displayed, scroll to the top and click the **View Modules** button.
- ___ h. Add the performance metrics for the Selector by checking the autoclean.SelectClean box.



- ___ 2. Create performance data to view.
 - ___ a. In a different Web browser, use the BPC Explorer to start multiple (6-8) businesses processes. You can start the processes without specifying any data for the input message. You can also skip the step of completing the human task, because you are only looking at the performance on business rule and selector in the auto clean module.
- ___ 3. View performance information.
 - ___ a. Return to the Administrative Console.

- ___ b. Notice that viewer has been updated with the performance data. Because the selector calls the business rule and the selector response time includes the response time of the business rule, one set of data points is considerably higher than the other.



- ___ c. You can change the scale of the different items shown on the graph to get a better idea of the performance of the two Invokes which the Java components. You can also uncheck the box of the Selector which is causing the graph to scale.
 - ___ d. You can also view the raw data by clicking the **View Table** button. The column headers can be used to match the data in the graph with the actual metric values.
- ___ 4. Stop the server.
- ___ a. Right click on WebSphere Process Server v6.0 server from the Servers view and select **Stop** from the context menu.

What you did in this exercise

In this chapter you enabled performance data generation for SCA components and used PMI to capture it. You then viewed the performance data using the Tivoli performance viewer included with the Administrative Console.

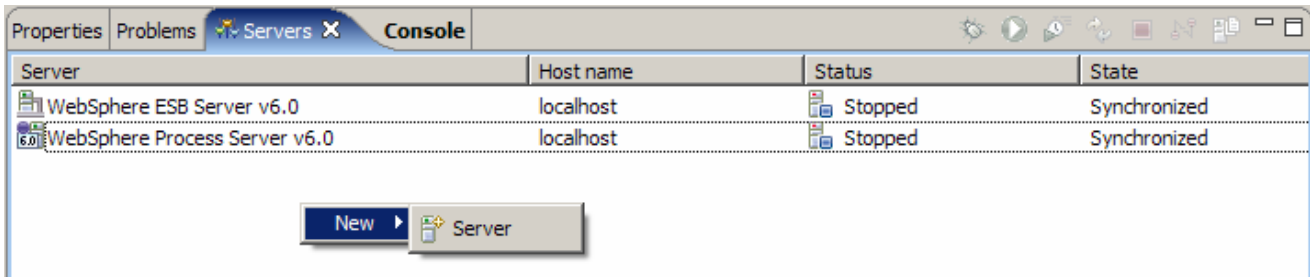
Solution Instructions

There are no solution instructions for this lab exercise.

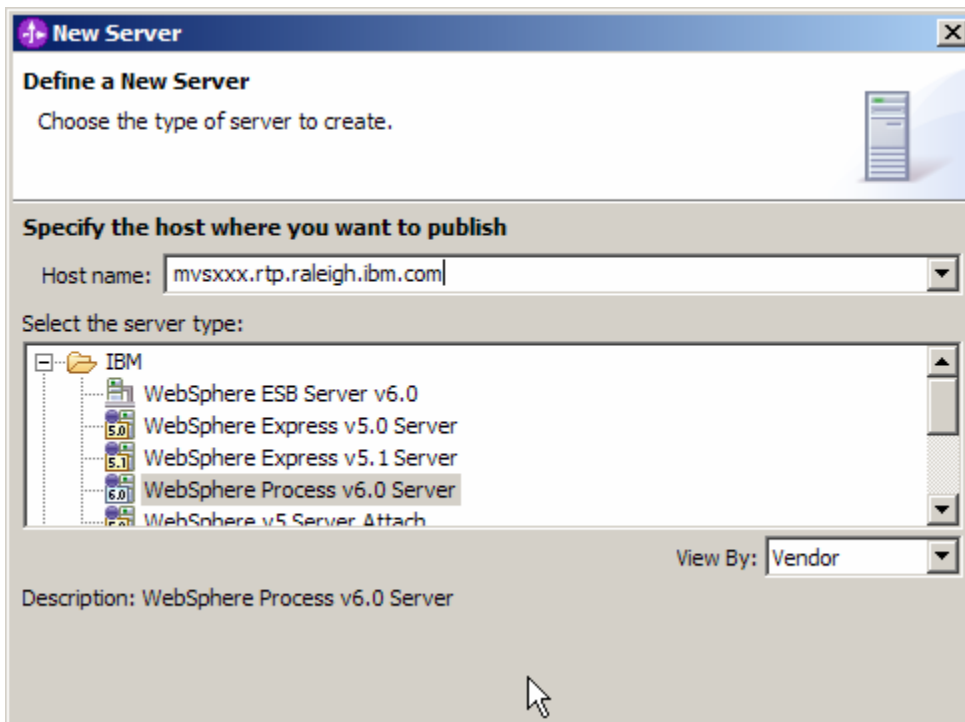
Task: Adding Remote Server to WebSphere Integration Developer Test Environment

This task describes how to add a remote server to the WebSphere Integration Developer Test environment. This sample will use a z/OS machine.

- ___ 1. Create a new remote server.
- ___ 2. Right click on the background of the Servers view to access the pop-up menu.
- ___ 3. Select **New > Server**.



- ___ 4. Specify hostname to the remote server, **<HOSTNAME>**.
- ___ 5. Ensure that **'WebSphere Process v6.0 Server'** is highlighted in the server type list.



- ___ 6. Click **Next**.
- ___ 7. On the WebSphere Server Settings page, select the radio button for **RMI** and change the ORB bootstrap port to the correct setting (**<BOOTSTRAP_PORT>**).

New Server

WebSphere Server Settings

Input settings for the new WebSphere server

WebSphere profile name: []

Server connection type and admin port

RMI (Better performance)

ORB bootstrap port: [9131]

SOAP (More firewall compatible)

SOAP connector port: [8880]

Run server with resources within the workspace

Security is enabled on this server

Current active authentication settings:

User ID: []

Password: []

Server name: [server 1]

Server type

BASE, Express or unmanaged Network Deployment server

Network Deployment server

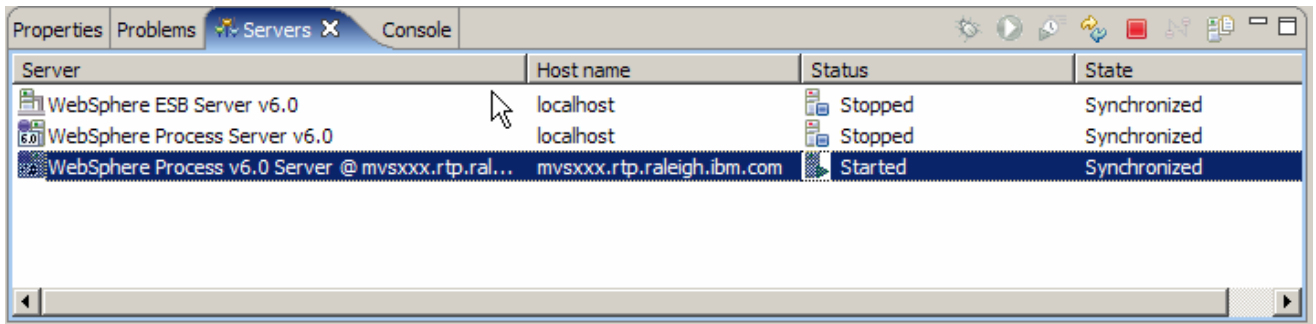
Network Deployment server name: []

The server name is in the form of:
<cell name>/<node name>/<server name>
For example, localhost/localhost/server1.

Click this button to detect the server type.

< Back Next > Finish Cancel

- ___ 8. Click **Finish**.
- ___ 9. The new server should be seen in the Server view.



___ 10. Start the remote server if it is not already started. WebSphere Integration Developer does not support starting remote servers from the Server View.

___ 11. From a command prompt, telnet to the remote system if needed:

'telnet <HOSTNAME> <TELNET_PORT>'

userid : <USERID>

pw : <PASSWORD>

___ 12. Navigate to the bin directory for the profile being used:

cd <WAS_HOME>/profiles/<PROFILE_NAME>/bin

___ 13. Run the command file to start the server: **./startServer.sh <SERVER_NAME>**

___ 14. Wait for status message indicating server has started:

```
ADMU3200I: Server launched. Waiting for initialization status.  
ADMU3000I: Server c11sr01 open for e-business; process id is 0000012000000002
```