IBM WebSphere<sup>®</sup> process integration V6.0.2 lab exercise

# Measuring SCA component performance

What this exercise is about	2
Lab requirements	2
What you should be able to do	2
Introduction	3
Lab prerequisite	4
Exercise instructions	4
Part 1: Initialize the workspace for this lab exercise	6
Part 2: Enable performance instrumentation of SCA components	8
Part 3: Viewing performance data of SCA components	13
What you did in this exercise	16
Solution instructions	17
Task: Adding remote server to WebSphere Integration Developer test environment	18

### 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<sup>®</sup> Performance Viewer.

### Lab requirements

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

- WebSphere Integration Developer V6.0.2 installed
- WebSphere Process Server V6 test environment installed
- Sample code in the directory C:\Labfiles602 (Windows®) or /tmp/LabFiles602 (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></wid_home>	C:\Program Files\IBM\WebSphere\ID\6.0	/opt/IBM/WebSphere/ID/6.0
<wps_home></wps_home>	<wid_home>\runtimes\bi_v6</wid_home>	<wid_home>/runtimes/bi_v6</wid_home>
<lab_files></lab_files>	C:\Labfiles602	/tmp/Labfiles602
<workspace></workspace>	C:\Labfiles602\eXchange\PerfMonitor\w orkspace	/tmp/Labfiles602/PerfMonitor/workspace
<temp></temp>	C:\temp	/tmp

**Windows users' note**: When directory locations are passed as parameters to a Java<sup>™</sup> program, such as wsadmin, you must replace the backslashes with forward slashes to follow the Java convention. For example, C:\LabFiles602\ would be replaced by C:/LabFiles602/.

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 <sup>®</sup> test server location	Input your values for the remote location of the test server
<server_name></server_name>	server1	cl1sr01	
<was_home></was_home>	C:\Program Files\IBM\WebSphere\AppServer	/etc/cl1cell/AppServerNode1	
<hostname></hostname>	localhost	mvsxxx.rtp.raleigh.ibm.com	
<bootstrap_port></bootstrap_port>	2809	2809	
<telnet_port></telnet_port>	N/A	1023	
<profile_name></profile_name>	AppSrv01	default	
<userid></userid>	N/A	cl1admin	
<password></password>	N/A	fr1day	

Instructions for using a remote testing environment, such as z/OS, AIX<sup>®</sup> or Solaris, can be found at the end of this document, in the section "<u>Task: Adding Remote Server to WebSphere Integration Developer</u> <u>Test Environment</u>".

### Part 1: Initialize the workspace for this lab exercise

In this section of the lab, you will be importing four modules, CleansePublishLibrary, AutoClean, CleansePublishBPEL and ManualClean part of the CEIMonitorStart\_PI.zip, project interchange file into your workspace.

- Start WebSphere Integration Developer V6.0.2 with a workspace location of <WORKSPACE> that is <LAB\_FILES>\eXchange\PerfMonitor\workspace
- \_\_\_\_\_2. From Windows Explorer, navigate to the <WID\_HOME> directory and double click on wid.exe
- \_\_\_\_\_3. When prompted for workspace name, enter the value provided by the **<WORKSPACE>** variable for this lab and click **OK**

🚯 Workspace Launcher	×
Select a workspace	
IBM WebSphere Integration Developer stores your projects in a directory called a workspace. Select the workspace directory to use for this session.	
Workspace: C:\Labfiles602\eXchange\PerfMonitor\workspace Br	owse
ок с	Iancel

\_\_\_4. When WebSphere Integration Developer V6.0.2 opens, click the curved arrow at top right to **go to Business Integration perspective** 

🚱 Welcome 🗙	(i) ← → <sup>¬¬</sup> €
WebSphere. Integration Developer	Go to the Business Integration perspective

- 5. Import Project Interchange file, **PerfMonitorStart\_PI.zip** located at <LAB\_FILES>\eXchange\PerfMonitor\import
- 6. Right-click inside **Business Integration View** (top left view in the Business Integration Perspective) and select **Import** from the context menu
- \_\_\_\_7. Select Project Interchange listed in the import dialog
- \_\_\_\_ 8. Click Next
- \_\_\_\_\_10. Click the **Select All** button and ensure all the projects are selected and click **Finish**

11. Verify you have all the four modules, CleansePublishLibrary, AutoClean, CleansePublishBPEL and ManualClean listed in the Business Integration view



\_\_\_\_ 12. Verify you have WebSphere Process Server V6.0 listed in your Servers view

Properties Problems 👫 Servers 🗙		\$ O \$	° 🍫 🔳 🙌 🔁 🗖
Server	Host name	Status	State
🐻 WebSphere Process Server v6.0	localhost	🖡 Started	Synchronized
<b>▲</b>			

### 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 <u>Task: Adding</u> <u>Remote Server to WebSphere Integration Developer Test Environment</u> (at the end of this document) to add a server to the WebSphere Integration Developer test environment and start it. This is especially true for z/OS<sup>®</sup>, AIX<sup>®</sup>, Solaris remote test environment, where the WebSphere Integration Developer will be remote to the test environment
    - 2) If using a local testing environment, right-click on **WebSphere Process Server V6.0** in the Server view and select **Start**
  - \_\_\_\_b. Right-click on WebSphere Process Server V6.0 in the Servers view and select Add and remove projects from the context menu
  - \_\_\_\_ c. Move the CleansePublishBPELApp, AutoCleanApp, and ManualCleanApp applications to the **Configured** projects in the dialog
  - \_\_\_\_ 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 WebSphere Process Server V6.0 in the Servers view and select Launch → Business Process Choreographer Explorer from the context menu. You can also reach the BPC Explorer by opening a Web browser and navigating to <u>http://<HOSTNAME>:9080/bpc</u>. The list of business process templates will be listed
  - \_\_\_\_ b. In the left navigation menu click on the My Process Templates link. This action lists any tasks that can worked on

Welcome: (English) Help	
Process Templates     My Process Templates	My Tasks
Process Instances     Started By Me     Administered By Me	Use this page to work on tasks that are assigned to you.
Critical Processes Terminated Processes Failed Compensations	Start Work on Release Transfer Refresh
🖃 Task Templates 📑	

\_\_\_\_ c. In the My Process Templates page, select the check box next to CleansePublishBPEL and click the Start Instance button

Welcome: (English) Help		-
Process Templates	My Process Templates	
My Process Templates		
Process Instances	Use this page to view process templates on which you can work $ar{1}$	
Started By Me Administered By Me Critical Processes Terminated Processes Failed Compensations	Available Actions           Start Instance         Instances         View Structure         Refresh	
	Process Template Name 🗘 Valid From 🗘 👘 Long Running 🗘 De	
🖃 Task Templates 👔	CleansePublishBPEL 3/24/07 1:39:15 PM yes no	_

- \_\_\_\_d. In the following page click the **Submit** button. You need not fill the Process Input Message form
- \_\_\_\_\_e. On clicking the submit button the business process is started and activates that are part of the business process participate in the business. In the left navigation menu, click the My Tasks link. This lists all the available actions that can be worked on

Started By Me Administered By Me	Available Actions	
Critical Processes Terminated Processes Failed Compensations	Start Work on Release Transfer Refresh	
	🔲 Task Name 众 State 🗘 Kind 🗘 👘 Owner 🗘	Originator 🗘
🖃 Task Templates 📑	ManualClean Ready Participating	UNAUTHENTICATED
My Task Templates	Items found: 1 Items selected: 1	<< Page 1 of 1
🖃 Task Instances 📑		
My Tasks All Tasks Initiated By Me Administered By Me My Escalations		-

- \_\_\_\_ f. Select the check box next to ManualClean and click the Work on button. The Task Input Message will be displayed. Beneath that you will find the output message. You need not fill the Process Output Message form
- \_\_\_\_g. Click the 'Complete' button to complete the task. With this action, the task will be marked as Finished
- 3. Enable the Performance Metrics on SCA Components dynamically
  - \_\_\_\_a. If using a local test environment, open the administrative console by right-clicking on WebSphere Process Server V6.0 in the Servers view and select **Run administrative console** from the context menu. If using a remote test environment, open the administrative console in a browser by going to the following address:

#### http://<HOSTNAME>:9080/ibm/console

\_\_\_\_b. Type an anonymous user name in the User ID filed and click the Log in button

\_\_\_\_ c. In the left navigation menu, expand **Monitoring and Tuning** and click on the **Performance Monitoring Infrastructure (PMI)** link



- \_\_\_\_d. Click on the **<SERVER\_NAME>** link listed on the right frame of the Administrative console
- \_\_\_\_e. In the following screen, select the Runtime tab
- \_\_\_\_\_f. Select the radio button next to **Custom** and click on the **Custom** link. 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 before enabling performance instrumentation

Runtime Configuration
General Properties
Use sequential counter updates
Persist my changes
Currently monitored statistic set
C None
No statistics are enabled
C Basic
Provides basic monitoring (J2EE + Top statistics)
C Extended
<ul> <li>Provides extended monitoring (Basic + WebSphere components)</li> </ul>
C All
Custom Provides fine-grained control to selectively enable statistics
Apply OK Reset Cancel

\_\_\_\_g. In the following screen, select the Runtime tab on the top and expand WBIStats.RootGroup

Runtime Configuration	
<u>server1</u> SCAStats RootGroup	Enable Disable
SIB Service     WBIStats.RootGroup	Select Counter 🗘 Type 🗘 Description 🗘 Status 🗘
	Total 0
bpe task	

- \_\_\_\_h. As shown above, 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
- \_\_\_\_i. Expand BR and select autoclean.CleanseRuleGroup

Runtime	Configuration						
⊟- <u>serve</u> ⊞ <u>s</u> i	<u>r1</u> CAStats.RootGrou	<u>م</u>	Enal	ble Disable			
⊞ <u>s</u> i ⊟-w	<u>B Service</u> BIStats RootGrou	ın	Select	Counter 🛟	Туре 🗘	Description 🔷	:
TË	BR	<u></u>		BadRequests	CountStatistic	myStats.numRequests.desc	I.
	🗄 autoclean.C	leanseRuleGro		GoodRequests	CountStatistic	myStats.numRequests.desc	L
-	⊡ <u>Operatic</u> BSM	<u>on</u>		ResponseTime	TimeStatistic	myStats.responseTime.desc	I
			Total	3			

- \_\_\_\_j. Select the check box next to ResponseTime and click the Enable button as shown above
- \_\_\_\_k. Now enable the performance metrics for the selector. Expand **SEL** and select **autoclean.SelectClean**

Runtime	Configuration						
			Ena	Enable Disable			
	Recovery		Select	Counter 🛟	Туре 🗘	Description 🗘	:
				BadRequests	CountStatistic	myStats.numRequests.desc	I.
	Et <mark>autoclear</mark>	n.SelectClean		GoodRequests	CountStatistic	myStats.numRequests.desc	I.
	bpe			ResponseTime	TimeStatistic	myStats.responseTime.desc	I
	└─ <u>task</u> Alarm Managor		Total	3			

\_\_\_I. Select the check box next to ResponseTime and click the Enable button as shown above

### Part 3: Viewing performance data of SCA components

- \_\_\_\_4. Start the Tivoli Performance Viewer
  - \_\_\_\_\_a. In the left navigation menu of the Administrative console, expand **Performance Viewer** in the Administrative console under the **Monitoring and Tuning** section, and click the **Current Activity** link



- \_\_\_\_b. Click on the <SERVER\_NAME> link listed on the right frame of the Administrative console
- \_\_\_\_ c. Expand Performance Modules → WBIStats.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
- \_\_\_\_\_d. 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

🕂 Performance Modules
🛨 SIB Service
🛱 🔲 WBIStats.RootGroup
🗄 🗐 autoclean.CleanseRule
🗐 🗌 Operation
E Recoverv

\_\_\_\_\_e. Select the check box at the **autoclean:CleanseRule** level, because here there is only one operation to report performance data for

🕀 🗔 WBIStats.RootGroup	
Ģ-⊡ BR	
autoclean.CleanseRu	ile
Deration	
🛨 Recovery	
🗄 🗌 SCA	

\_\_\_\_\_f. Scroll to the top and click the View Modules button

- \_\_\_\_ 5. 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
- \_\_\_\_6. 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



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.

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

- \_\_\_\_7. 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. The sample you will use is a  $z/OS^{$ <sup>®</sup> machine.

Create a new remote server.

- \_\_\_\_1. Right click on the background of the Servers view to access the pop-up menu.
- 2. Select New  $\rightarrow$  Server

Properties Problems 🛠 Servers 🗙 Console		🌣 🕥 🖉	🍫 🔳 🙌 🏥 🗖		
Server	Host name	Status	State		
HebSphere ESB Server v6.0	localhost	🖥 Stopped	Synchronized		
WebSphere Process Server v6.0	localhost	🖥 Stopped	Synchronized		
New  Server					

- \_\_\_\_ 3. Specify host name to the remote server, <HOSTNAME>.
- 4. Ensure that 'WebSphere Process V6.0 Server' is highlighted in the server type list.



\_\_ 5. Click Next.

6. 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:			<b>_</b>		
Server connection type and admin port © RMI (Better performance)					
ORB bootstrap port:	ORB bootstrap port: 9131				
C SOAP (More firewall co	npatible)				
SOAP connector port:	8880				
Run server with resource	s within the workspace				
Security is enabled on th	s server				
Current active authentic	ation settings:				
User ID;					
Password:					
Server name:	erver 1				
Server type					
BASE, Express or unma	naged Network Deploymen	t server			
V Network Deployment se	rver				
The corrupt parts is in the	rver name: j				
<pre>The server name is in the form of:</pre>					
Detect Click this button to detect the server type.					
	< Back Next	> Finish	Cancel		

- \_\_\_\_\_7. Click Finish.
- \_\_\_\_\_8. The new server should be seen in the Server view.

Properties Problems 👫 Servers 🗙 Console 🛛 🔅 🕑 🖓 🔳 🔤 🖓 🙂 🗖						
Server	Host name	Status	State			
🛅 WebSphere ESB Server v6.0	localhost	🖥 Stopped	Synchronized			
WebSphere Process Server v6.0	localhost	🖥 Stopped	Synchronized			
WebSphere Process v6.0 Server @ mvsxxx.rtp.ral	mvsxxx.rtp.raleigh.ibm.com	Started	Synchronized			
Image: A state of the state						

- 9. Start the remote server if it is not already started. WebSphere Integration Developer does not support starting remote servers from the Server View.
- \_\_\_\_10. From a command prompt, telnet to the remote system if needed:

#### 'telnet <HOSTNAME> <TELNET\_PORT>'

userid : <USERID>

#### pw: <PASSWORD>

\_\_\_\_\_11. Navigate to the bin directory for the profile being used:

#### cd <WAS\_HOME>/profiles/<PROFILE\_NAME>/bin

- 12. Run the command file to start the server: ./startServer.sh <SERVER\_NAME>
- \_\_\_\_\_13. Wait for status message indicating server has started:

ADMU3200I: Server launched. Waiting for initialization status

ADMU3000I: Server cllsr01 open for e-business; process id is 000001200000002