#### IBM WEBSPHERE 6.0 - LAB EXERCISE

# Monitoring Processes Modeled with WebSphere Integration Developer

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#### What this exercise is about

The objective of this lab is to import an existing BPEL process into WebSphere Integration Developer, add CEI events and use Monitor export, which is the plug in capability that WebSphere Integration Developer picks up from Modeler, to export a default business measures model and monitor it with WB Monitor.

# **Lab Requirements**

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

- WebSphere Business Modeler v6
- WebSphere Integration Developer v6.0
- WebSphere Process Server v6.0.0 for Monitor Server
- WebSphere Process Server v6.0.1 for Runtime Server
- WebSphere Business Monitor v6 Dashboard Server and Monitor Server

## What you should be able to do

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

- Use WebSphere Integration Developer to import a project, enable CEI events and export the EAR file from WebSphere Integration Developer
- Export the EAR file from WebSphere Integration Developer.
- Use WebSphere Business Modeler to create the default business measures model based on the EAR exported from WebSphere Integration Developer.
- Use the WebSphere Process Server admin console to install the EAR
- Use the WebSphere Process Server admin console to run Monitor schema generation
- Run Monitor scripts to create the Monitor Server tables, replication manager artifacts, and start replication manager daemons
- Use the WebSphere Process Server admin console to import the business measures model
- Use the WebSphere Business Process Choreography Explorer to run process instances
- Use Cube Views OLAP Center on the Dashboard Server to import the cubes
- Use Alphablox on the Dashboard Server to define the cubes
- Use Portal to define a Dashboard and to view process data

#### Introduction

In this lab you will learn how to deploy an existing BPEL process. This is a complex process, but note that you will be performing many different roles during this lab – user analyst, process architect, process developer, database administrator, dashboard architect. This lab shows you how to enable the CEI events to an existing process imported into WebSphere Integration Developer. Then it will show you how to use the plug in capability, Monitor Export, which WebSphere Integration Developer picks up from the Modeler and generates default business measures model. Then it will guide you to install the EAR file into Process Server. Then it will show you how to import the business measures model into Monitor Process Server and finally will show you how to monitor and view results in different views using WB Monitor.

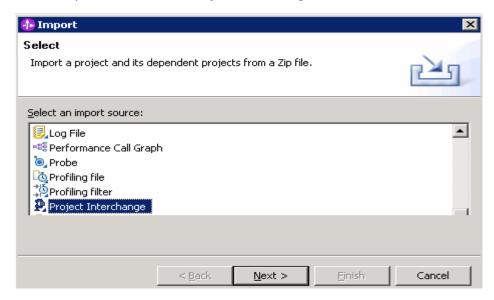
#### **Exercise Instructions**

Some instructions in this lab may be Windows operating-system specific. If you plan on running the lab on an operating-system other than Windows, you will need to execute the appropriate commands, and use appropriate files ( .sh vs. .bat) for your operating system. The directory locations are specified in the lab instructions using symbolic references, as follows:

Reference Variable	Windows Location	AIX/UNIX Location
<lab_files></lab_files>	C:\Labfiles60	/tmp/Labfiles60

## **Part 1: Enable Event Monitoring**

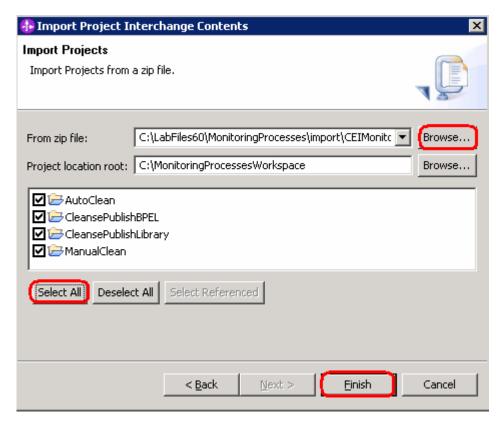
- \_\_\_\_\_1. Import the Model into WebSphere Integration Developer.
  - \_\_ a. Select **File > Import** from the IBM WebSphere Integration Developer.
  - \_\_ b. From the Import window select **Project Interchange** and click **Next**.



Import Project Interchange Contents window will be opened.

\_\_ c. Click **Browse...** and select **C:\<LabFiles60>\MonitoringProcesses\import\CEIMonitorStart\_Pl.zip** as source zip file.

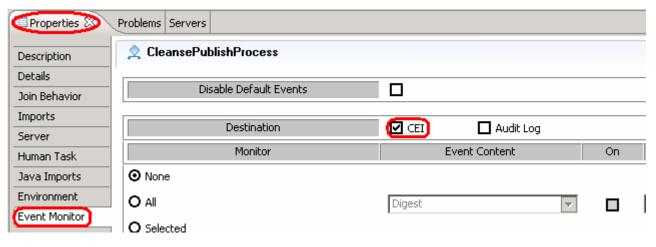
\_\_ d. Click Select All and click Finish.



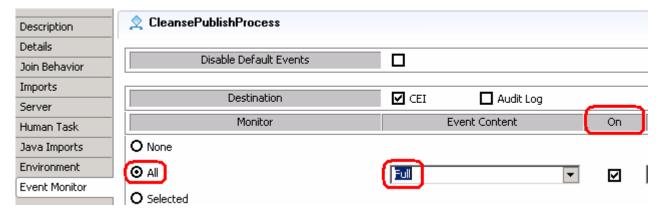
- 2. Set CEI/CBE event generation for the CleansePublishBPEL process.
  - \_\_ a. In the Business Integration view, select CleansePublishBPEL > Business Logic > Processes. Double-click to open CleansePublishProcess.
  - \_\_ b. Click on any open area in the Assembly editor and select Properties.
  - \_\_ c. Select **Event Monitor** tab.

There are two destinations for events for business processes. CEI is an event framework which is a core component of WebSphere Process Server and available to capture CBE events generated throughout the different components running on the server. The Audit Log is a specific framework which also accepts events and audit information generated by business process components and human tasks only

\_\_ d. Insure that CEI checkbox is checked.



- \_\_ e. Select **All** radio button and change Event Content to **Full**.
- \_\_ f. Check the box for **On**.



- \_\_ g. From the editor, select **Receive** activity.
- \_\_ h. Select Event Monitor tab again from Properties and insure that CEI checkbox is enabled.
- i. Click the **Selected** radio button
- j. Check the box for **Entry** and change Event Content to **Full**.

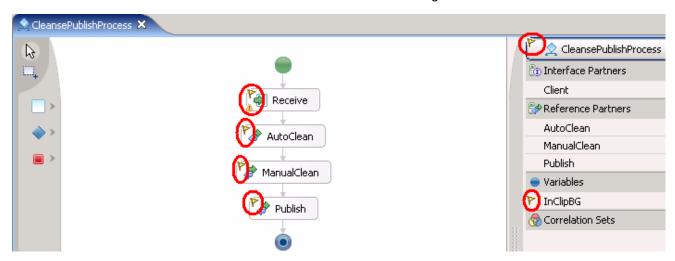
\_\_ k. Check the **On** box.



- \_\_ I. Now, set all the events to be generated for the **AutoClean**, **ManualClean** and **Publish** invoke activities. Set the **Event Content** to **Full** and Check the **On** box.
- \_\_ m. Select **inClipBG** variable.
- \_\_ n. Click the **Selected** radio button and check the box for **Changed**.
- \_\_ o. Select **Full** for the **Event Content** and check the **On** box.
- \_\_ p. Save the process (Ctrl+S).

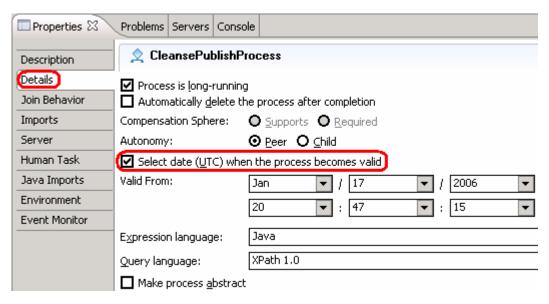
Note: You might see some warnings but, you should not see any errors at this time.

Notice the icon markers added to the activities to indicate monitoring is enabled.



- 3. Enable the date when process becomes valid.
  - \_\_ a. Click on the empty space of the CleansePublishProcess and select **Properties**.

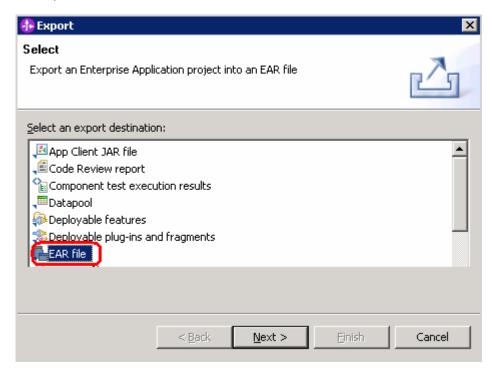
\_\_ b. Select **Details** tab and check **Select date** ( <u>U</u>TC) when the process becomes valid and ensure that the Valid From date is past date.



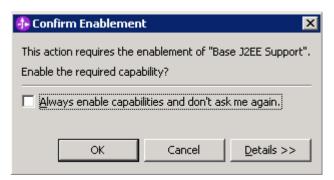
- \_\_ c. Save the process (Ctrl+S).
- \_\_ d. Close the process editor.

## Part 2: Export from WID/Modeler

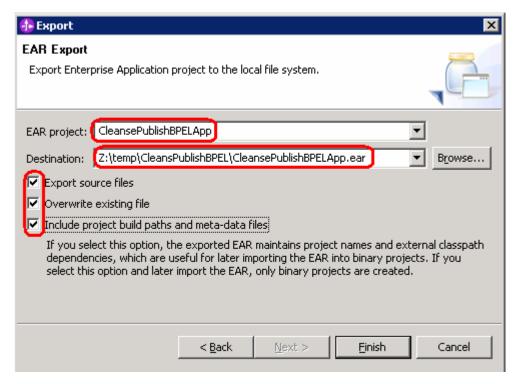
- \_\_\_\_ 1. Export EAR file.
  - \_\_ a. Right click in the Business Integration view, and then select **Export.**
  - \_\_ b. From Export window select **EAR file** and Click **Next**.



\_\_ c. On the 'Confirm Enablement' window, click **OK**.

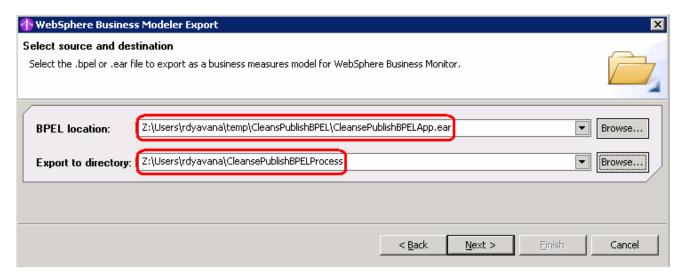


\_\_ d. On the following window, specify the EAR project as CleansePublishBPEL, set the destination to Z:\temp\ProjectScenario\CleansePublishBPELApp.ear, and check all three options – Export source files, Overwrite existing file, and include project build paths and meta-data files.

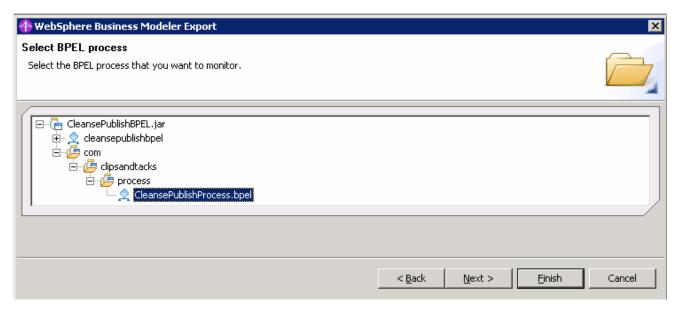


- e. Click Finish.
- \_\_ f. Close WebSphere Integration Developer.
- Use WebSphere Business Modeler to generate default business measures model for the EAR exported from WebSphere Integration Developer in the previous step.
  - \_\_ a. From modeler, select **File > Export**.
  - \_\_ b. Select WebSphere Business Modeler Export from Export window and click Next.
  - \_\_ c. Select **WebSphere Business monitor (from BPEL process)** from WebSphere Business Modeler Export window and click **Next**.
  - \_\_ d. Specify the location of the EAR file which we exported from WebSphere Integration Developer as the BPEL location.

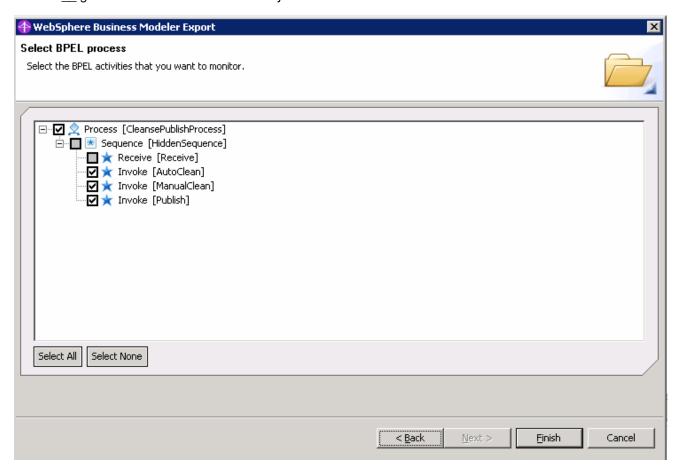
\_\_ e. Specify the location for Monitor.zip which will be exported from Modeler as Export to directory and click **Next**.



\_ f. Select CleansePublishBPEL.jar > com > dipsandtacks > process > CleansePublishProcess.bpel.



\_\_ g. Select the BPEL activities that you want to monitor and click Next.



- \_\_ h. Click Finish.
- \_\_ i. Click **OK**.



A Monitor.zip file will be created in the specified Export to directory –  $Z:\users\rdyavana\CleansePublishBPELProcess$ .

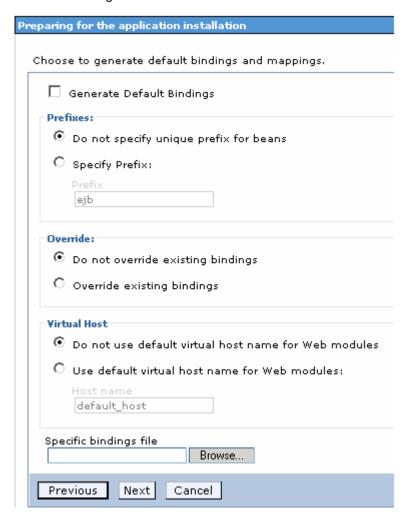
\_\_ j. Close WebSphere Business Modeler.

# Part 3: Install the BPEL Process on WebSphere Process Server 6.0.1

1. Deploy the EAR.
a. Copy the EAR to the <b>Runtime Server</b> .
b. If necessary, start Process Server using Start > All Programs > IBM WebSphere > Process Server 6.0 > profiles > ProcSrv01 > Start the server.
Note: Your profile may have a different name than 'ProcSrv01'. Choose the correct one for you.
c. Start the admin console by selecting Start > All Programs > IBM WebSphere > Process Server 6.0 > profiles > ProcSrv01 > Administrative console.
d. Click <b>log in</b> .
e. Then, select <b>Applications &gt; Install New Application</b> . Browse to the EAR file:

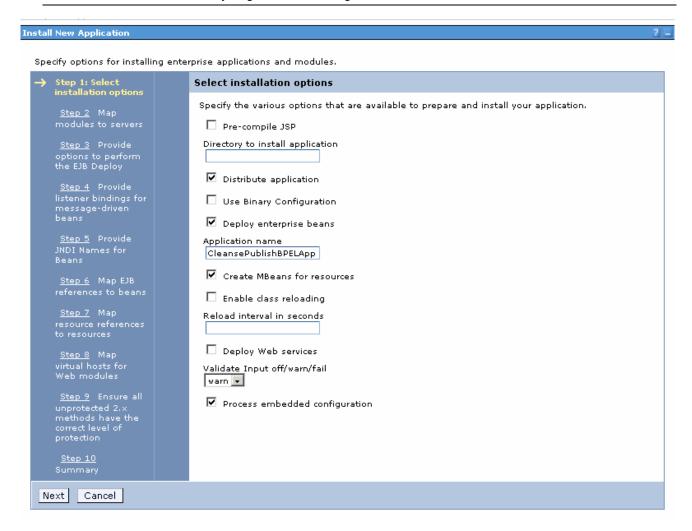


\_\_ f. Click **Next** on the following window.

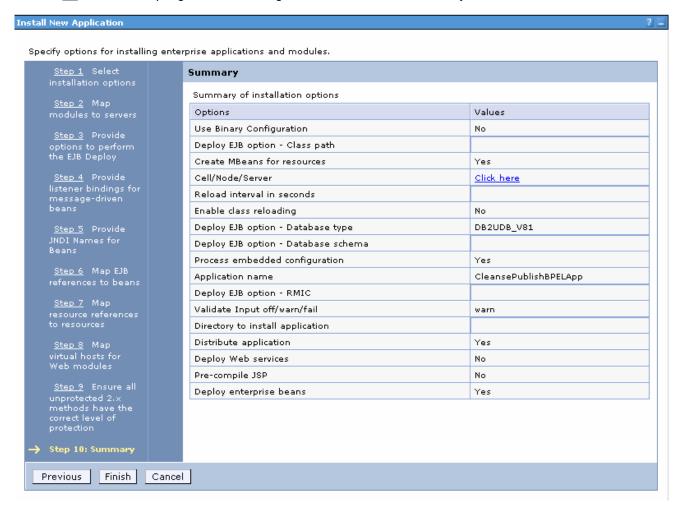


g. Click **Next** to continue installing the application, accepting all the default step settings.

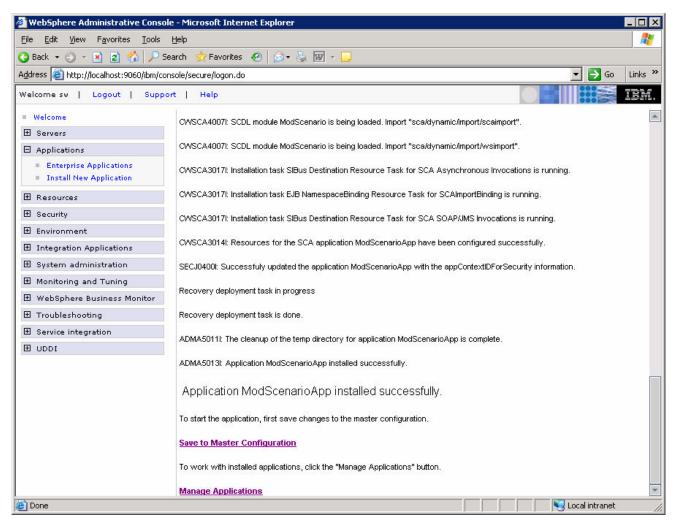
Note: Click on continue when you get some warnings.



\_\_ h. After accepting 9 default settings, click **Finish** for the summary.



\_\_ i. This window shows a successful install.

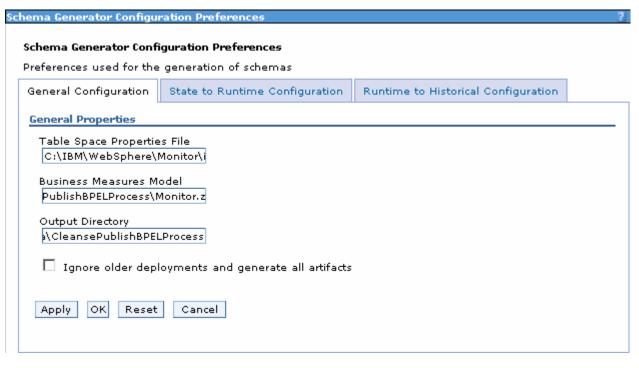


- \_\_ j. Save the configuration by clicking **Save to Master Configuration** and then clicking **Save** on the following window.
- k. Select Applications > Enterprise Applications.
- \_\_ I. Select the application **CleanseProcessBPELApp** and click **Start** to start the application and observer the arrow that indicated that the application is started.

### Part 4: Run Schema Generator in WebSphere Monitor Server

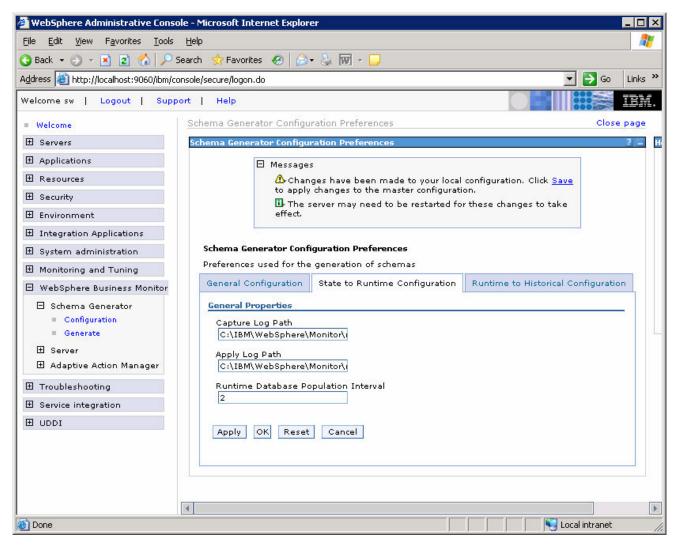
- \_\_\_\_ 1. Run the schema generator.
  - \_\_ a. From WebSphere Monitor Server, Select Start > All Programs > IBM WebSphere > Process Server 6.0 > Profiles > monitor > Start the server to start the server.
  - \_\_ b. From WebSphere Monitor Server, Select Start > All Programs > IBM WebSphere > Process Server 6.0 > Profiles > monitor > Administrative console to open admin console.
  - \_\_ c. In the Monitor Process Server admin console, select **WebSphere Business Monitor > Schema Generator > Configuration**.
  - \_\_\_ d. For the Business Measures Model, enter the directory path where monitor.zip file was exported from modeler Z:\users\rdyavana\CleansPublishBPELProcess\Monitor.zip. For the output directory, enter Z:\users\rdyavana\CleansPublishBPELProcess.

When you run schema generator, it will create a folder called 'schemagen' in this output directory, and it will place the generated artifacts there.



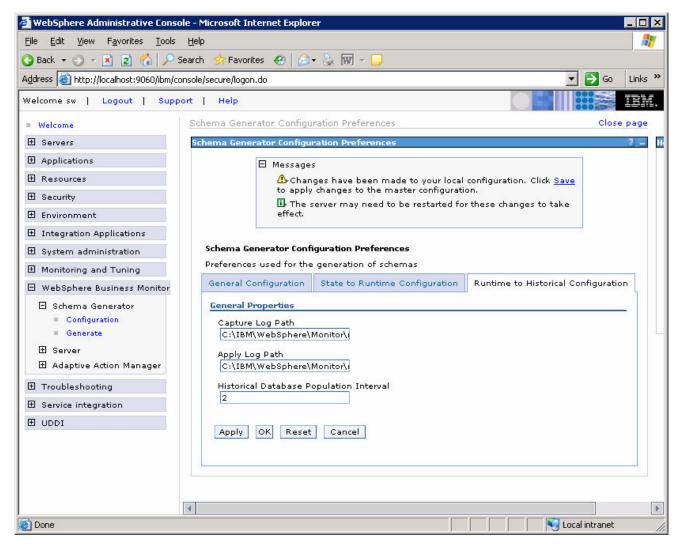
e. Click Apply.

\_\_ f. Click tab 'State to Runtime Configuration', and set your 'Runtime database population interval' to 2. This sets the replication interval to 2 minutes.



\_\_ g. Click Apply.

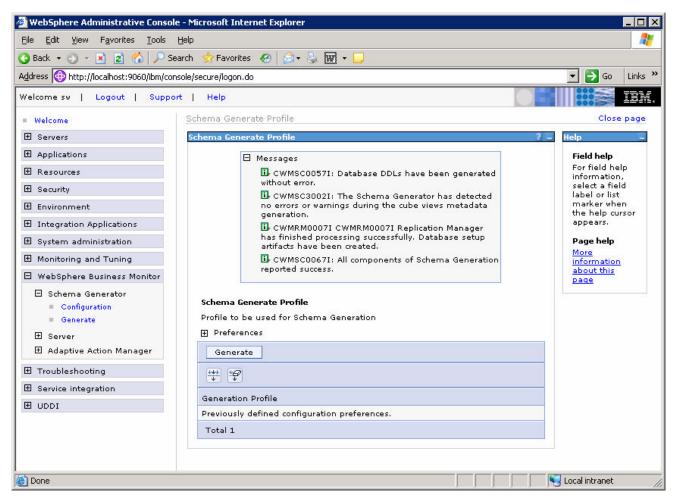
\_\_ h. Click tab 'Runtime to Historical Configuration', and set your 'Historical database population interval' to 2. This sets the replication interval to 2 minutes.



i. Click Apply.

\_\_ j. Save the configuration by clicking on **Save** near the top of the admin console, and then click the **Save** button when it appears.

\_\_ k. Select **WebSphere Business Monitor > Schema Generator > Generate**. Click the **Generate** button. Messages in the window indicate the result:



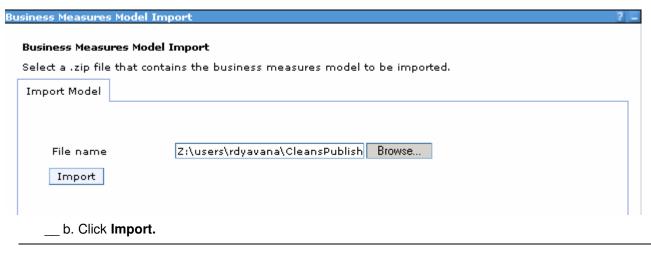
- 2. Run the batch files and execute the generated scripts.
  - \_\_ a. Refer to **WBMonitorV6\_EndToEndScenario** lab for the instructions and complete the steps 2 through 10 of part 3: Run Schema Generator and execute the generated scripts.

Note: Replace C:\ProjectScenario with Z:\users\rdyavana\CleansPublishBPELProcess (schemagen folder location) while going through the steps from the WBMonitorV6\_EndToEndScenario lab.

## Part 5: Import the Business Measures Model and Run Process Instances

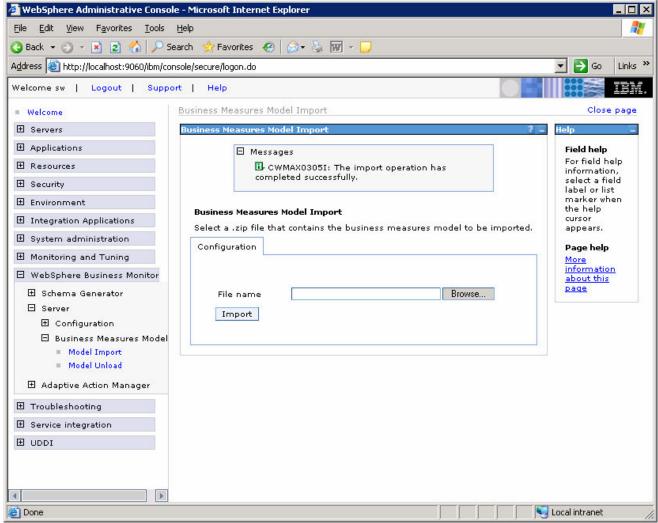
- \_\_ 1. Import the business measures model.
  - \_\_ a. In the Monitor Server admin console, navigate to **WebSphere Business Monitor** > **Server** > **Business Measures Model** > **Model Import**. Navigate to Z:\users\rdyavana\CleansPublishBPELProcess \schemagen\Monitor.zip

Note: You must specify the path to the Monitor.zip file in the **schemagen** folder, not the one in the parent folder (C:\ProjectScenario) that you specified earlier.

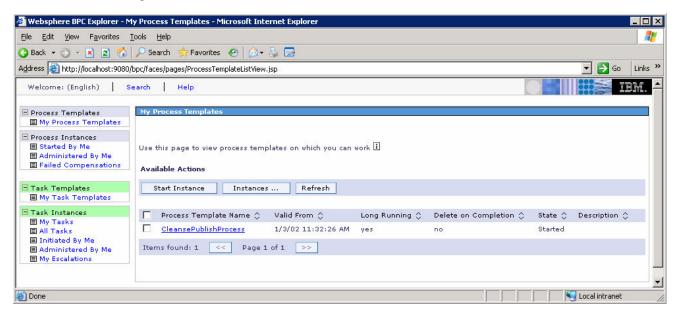


Note: This may take some time.

\_\_ c. You should see a successful message when it completes:

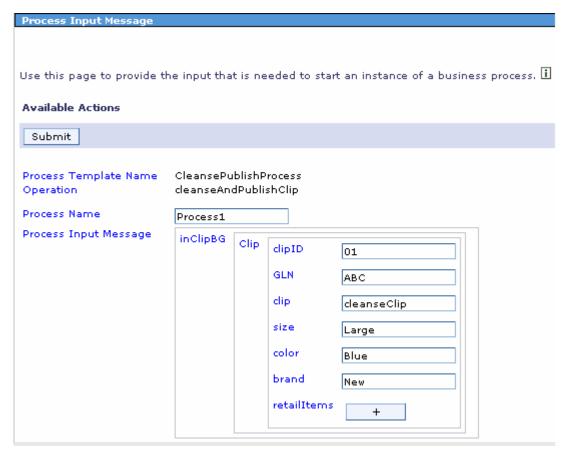


- \_\_\_\_ 2. Run some process instances.
  - \_\_ a. Start the BPC Explorer on the Runtime Server (by default this is accessible at <a href="http://localhost:9080/bpc">http://localhost:9080/bpc</a>), and run several instances of the ProcessScenario template. The process template window will be opened. Click on the **My Process Templates** to see the following window:



b. Click on **Start Instance** and enter the values for all the fields.

Note that the process instances are deleted when they are complete, so you will not see them listed in the Process Instances list after completion. This shows the window for entering data for a process instance:

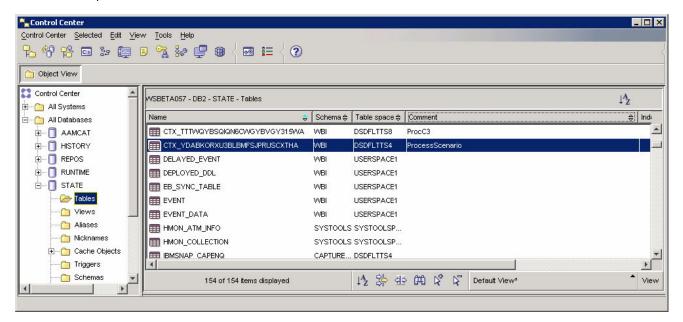


c. Click Submit.

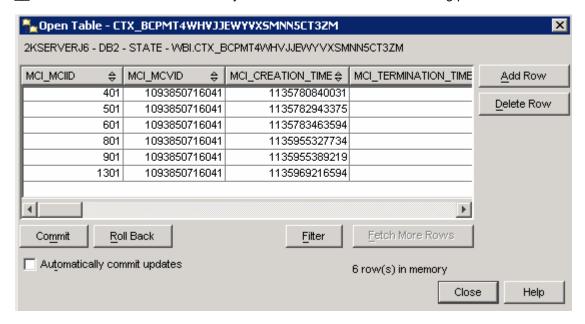
You should run several processes like this.

2. Verify that the process instance data is being stored in the Monitor State database and the Monitor Runtime database. Note that the process instance data is deleted from the State database after it has been moved to the Runtime database. So, if you delay in checking this, then the tables may show empty in the State database, but then there should be data in the Runtime database.

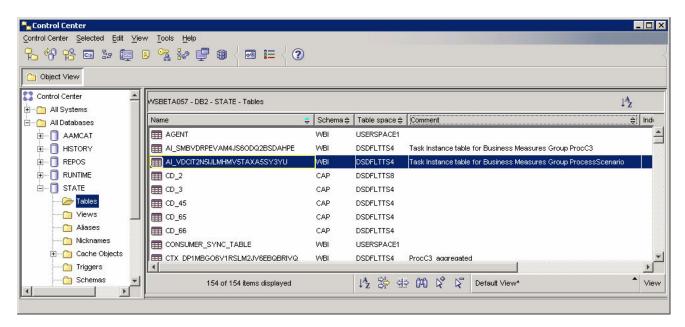
\_ a. Start the DB2 Control Center on the Monitor Server. Select Start > Programs > IBM DB2 > General Administration Tools > Control Center. In the State database look for a table name like CTX\_\*, and the comment ProcessScenario. This is the process instance data for our process.



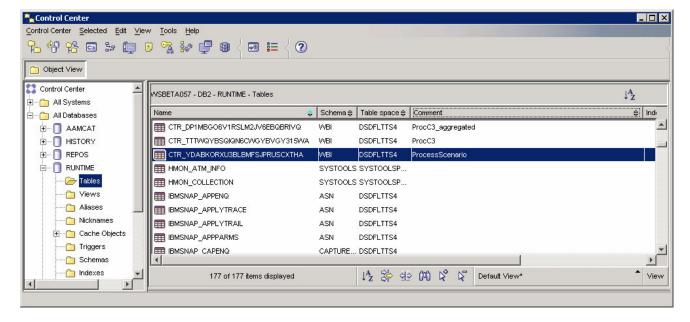
b. Double click on this table and you should see several rows showing process instance data:



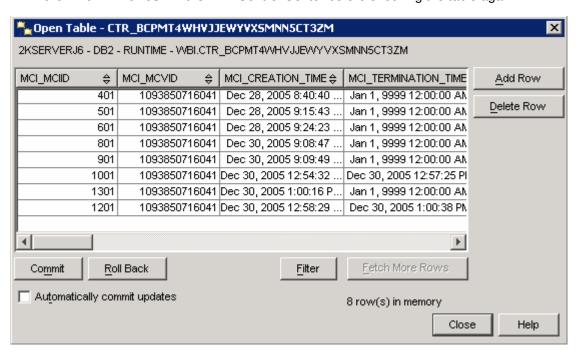
\_\_ c. In the **State** database look for a table name like **Al\_\***, and the comment '**Task instance table for business measure group ProcessScenario**'. This is the task instance data for our process.



\_\_ d. In the **Runtime** database look for a table name like **CTR**\_\*, and the comment **ProcessScenario**. This is the process instance data for completed instances.



\_ e. You should see some rows in this table. But note that we set the replication frequency to 2 minutes, so this information will not show up in this table until the time period has elapsed following the completion of the process instance. You may need to wait a few minutes, and then click View > Refresh in the DB2 Control Center before checking the table again.



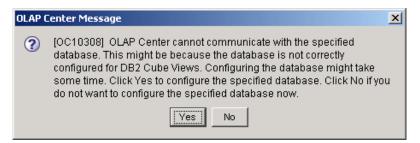
- \_\_ f. If you do not see data in the State database nor the Runtime database, then something is wrong.
  - 1) Ensure that CEI logging is turned on in the Runtime Server -- Admin Console > Servers > Application servers > server1 > Business process container settings > Business process container > Enable Common Event Infrastructure logging.
  - 2) Turn on the Monitor trace in the Monitor Server, run a few more process instances and check for errors in the trace log. To get trace details, Monitor Server Admin Console > Troubleshooting > Logs and Trace > server1 > Change Log Detail Levels. Specify log level for sub-components of com.ibm.wbimonitor. Then the trace is stored with the Process Server logs as trace.log.

### Part 6: Import Cubes in the Dashboard Server

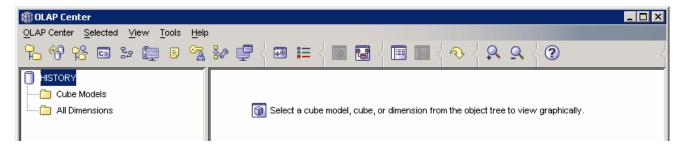
- \_\_\_\_\_1. Import the cube models into DB2 Cube Views. Note that the remainder of the lab will happen on the Dashboard Server.
  - \_\_ a. Copy the file Z:\users\rdyavana\CleansPublishBPELProcess \schemagen\model\_cv.xml from the Monitor Server to the Dashboard server.
  - \_\_ b. On the Dashboard Server, select **Start > Programs > IBM DB2 > Business Intelligence Tools > OLAP Center.**
  - \_\_ c. When prompted, use userid: **db2admin**, password: **monPa55w0rd**.



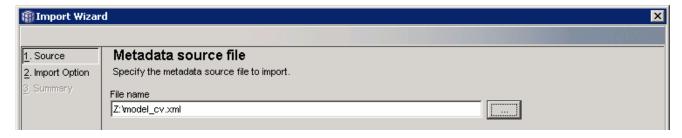
\_\_ d. The first time you connect to the database, you will get this message.



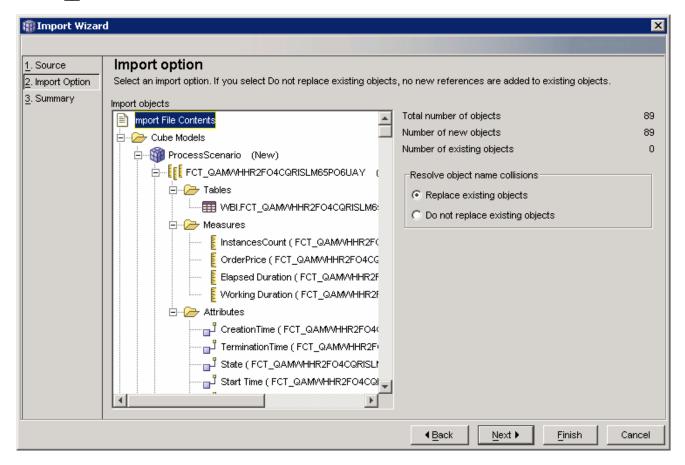
- \_\_ e. Click Yes.
- \_\_ f. The window should look like this.



\_\_ g. Select OLAP Center > Import. For file name, browse (the ... button) to the file model\_cv.xml.

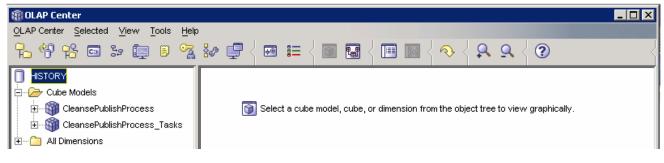


- \_\_ h. Click Next.
- i. You should see a window like this.



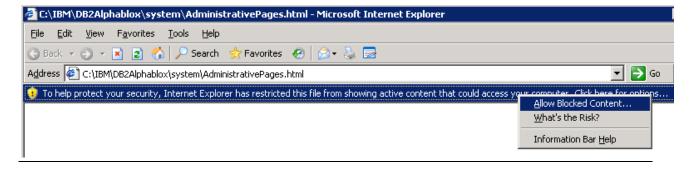
\_\_ j. Click Finish.

\_\_ k. Now you will see three models listed in the OLAP Center as follows.



- \_\_ I. Close the OLAP Center.
- \_\_\_\_\_ 2. Define the cubes to Alphablox.
  - \_\_ a. If the WebSphere Portal server is not running, start it using **Start > IBM WebSphere > WebSphere Portal v5.1 > Start the Server.**
  - \_\_ b. Start Alphablox in a browser Start > All Programs > IBM DB2 Alphablox 8.3 > Alphablox Analytics > DB2 Alphablox Administrative Pages.

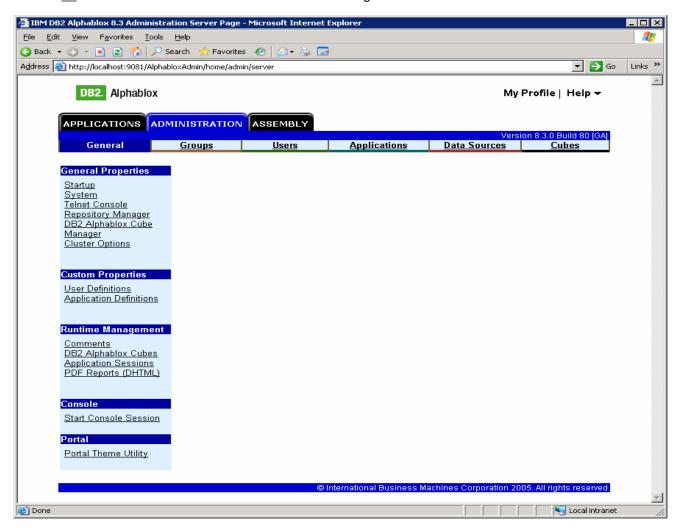
Note: You may find that Windows will block your attempt to access the page and you should see this in the Internet Explorer window in a yellow information bar at the top. Click on this bar and select Allow Blocked Content... to continue:



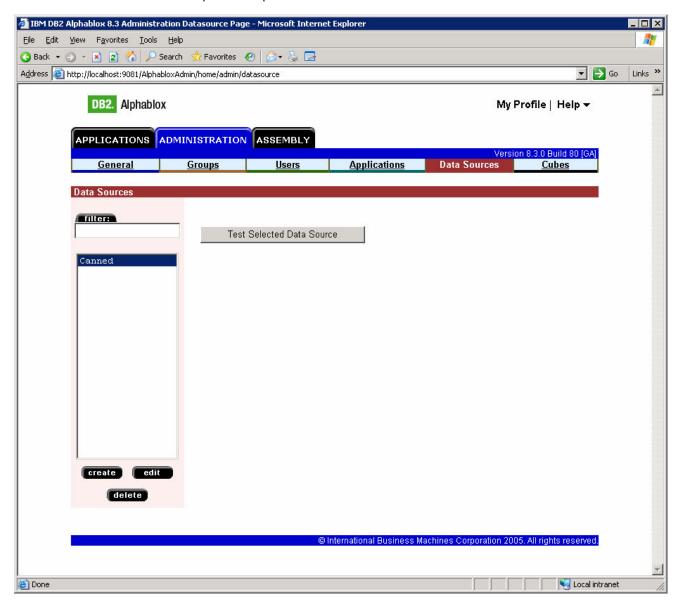
\_\_ c. When it prompts for it, enter userid: admin, password: password. You should see a window like this:



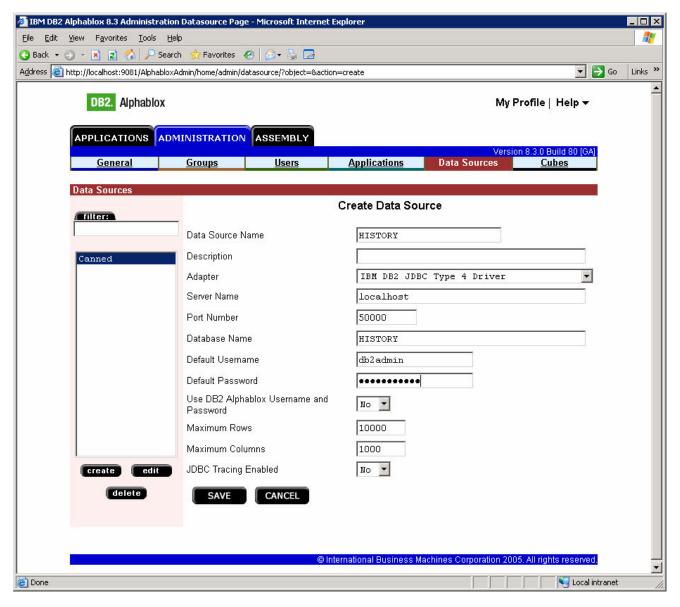
\_\_ d. Click on Administration tab to see the following window:



\_\_ e. The first time you use Alphablox, you will need to setup data sources. So, click on the tab '**Data Sources**' at the top of the Alphablox window.

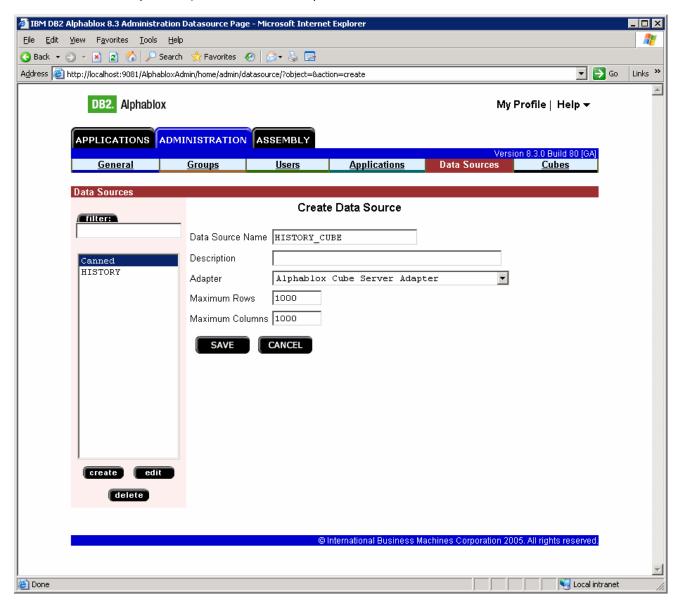


\_\_ f. Click **Create** to create a data source called **HISTORY** using values (remember to change the adapter field) as in this screen capture:



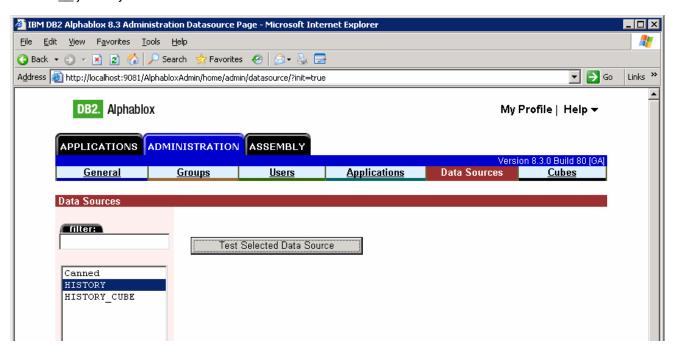
\_\_ g. Click Save.

\_\_ h. Click **Create** to create a data source called **HISTORY\_CUBE** using values (remember to change the adapter field) as in this screen capture.

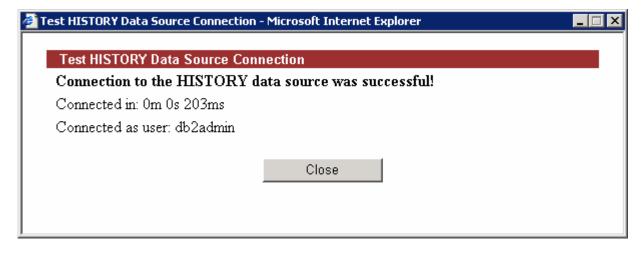


\_\_ i. Click Save.

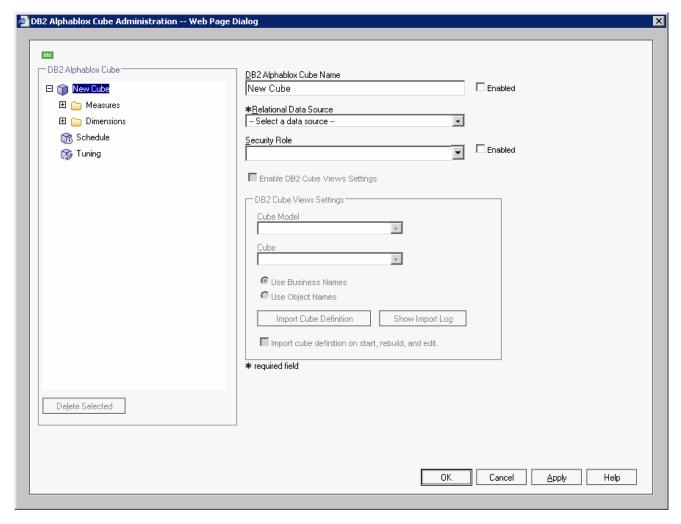
\_\_ j. Now you should see both data sources defined as follows:



\_ k. Use button '**Test selected data source**' to test each of the two data sources. Here is an example of a successful test:

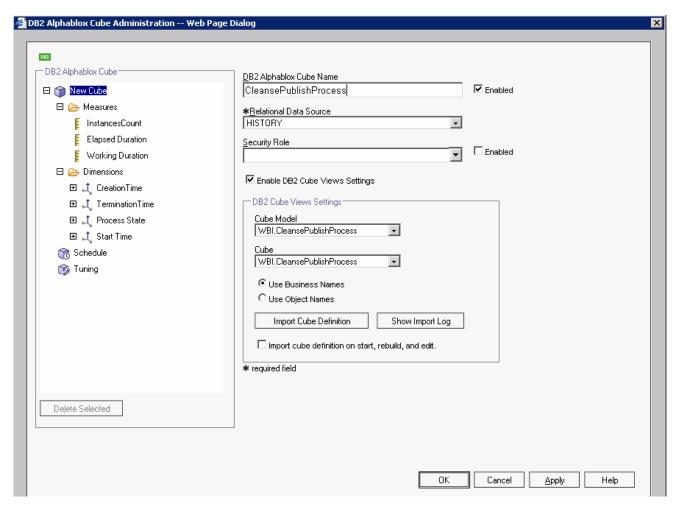


\_\_ I. Click on tab 'Cubes' at the top of the Alphablox window. Click Create. You should see a window like this:



- \_\_ m. Click the checkbox **Enabled** next to the **DB2 Alphablox Cube Name**.
- \_\_ n. Select **HISTORY** for the Relational Data Source.
- \_\_ o. Click the checkbox **Enable DB2 Cube Views Settings**.
- \_\_ p. Select **WBI.CleansePublishProcess** for the Cube Model, then click button **Import Cube Definition**.

\_\_ q. Type **CleansePublishProcess** for the **DB2 Alphablox Cube Name** (do not include the WBI). You should have a screen like this:



APPLICATIONS ADMINISTRA

General Groups

DB2 Alphablox Cubes

filter:

CleansePublishProcess

create edit

delete

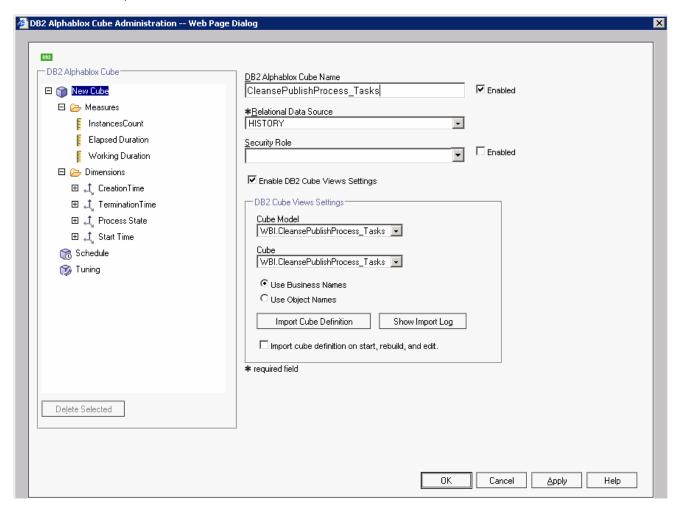
\_\_ r. Click **OK** to save the definition. Then you will see it added to the list as follows:

You will repeat this for each cube in the model. In this case there are tow cubes, and they are listed in the pull down for Cube Model.

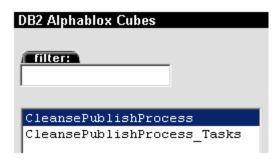
We have defined ProcessScenario and ProcessScenario aggregates, now we will define **ProcessScenario\_Tasks.** 

- \_\_ s. Click on **create** to create the cube definition.
- \_\_ t. Click the checkbox **Enabled** next to the **DB2 Alphablox Cube Name**.
- \_\_ u. Select **HISTORY** for the Relational Data Source and click the checkbox **Enable DB2 Cube Views Settings**.
- \_\_\_ v. Select WBI.CleansePublishProcess\_Tasks for the Cube Model, then click button Import Cube Definition.

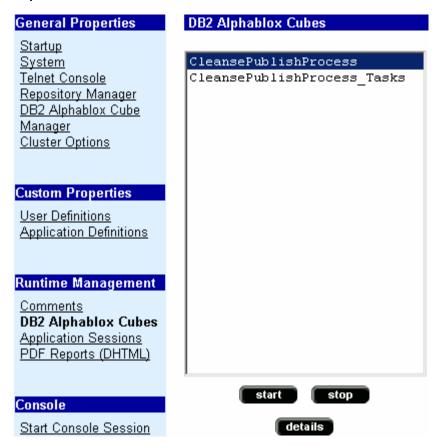
\_\_ w. Type CleansePublishProcess\_Tasks for the DB2 Alphablox Cube Name (do not include the WBI.) You should have a screen like this:



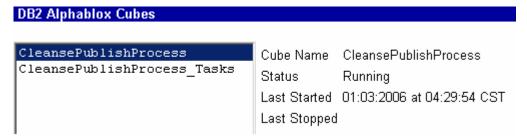
\_\_ x. Click **OK**. Then you will see a window showing the two cubes in the list.



\_\_ y. Click on the **General** tab at the top of the Alphablox window. Then click **Runtime Management** > **DB2 Alphablox Cubes**.

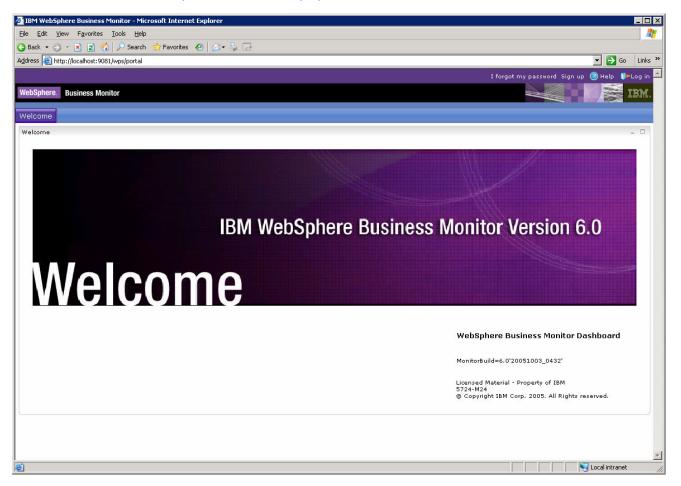


\_\_ z. For each of the cubes listed, click the **Start** button. The status should show as 'Running' for each cube. Here is an example:



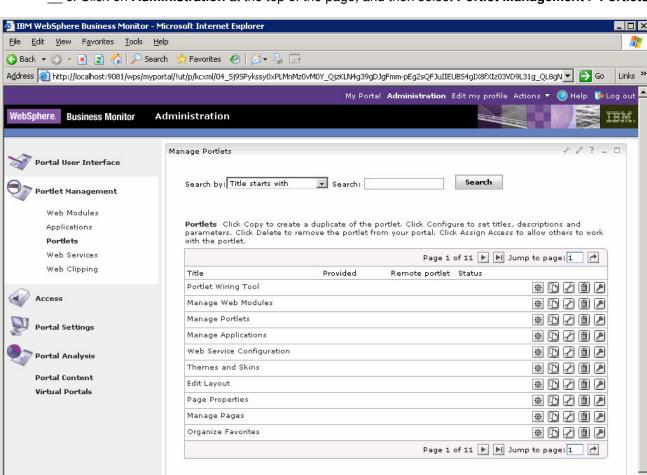
## **Part 7: Configure Dashboards**

- 1. Make copies of the portlets that we want to use: Active Instances and Reports. You should not configure the original portlets, since the configuration cannot be removed once it is applied. So we will make copies of the portlets, then we will configure the copies.
  - \_\_ a. Start Portal: http://localhost:9081/wps/portal.



\_\_ b. Click 'Log in' in the upper right-hand corner. When prompted, enter userid: wpsadmin password: wpsadmin.



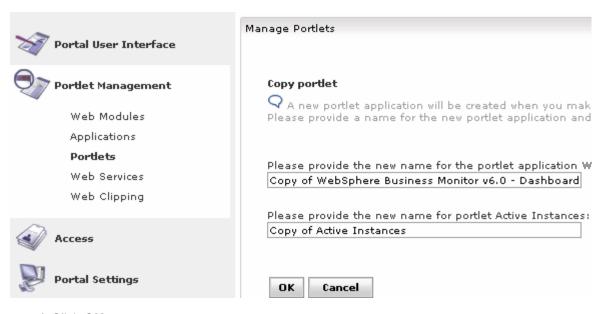


\_\_ c. Click on **Administration** at the top of the page, and then select **Portlet Management > Portlets**.

\_\_ d. **Browse to page 11** by clicking on the arrow icons. This page should show the portlets for Active Instances and Reports.

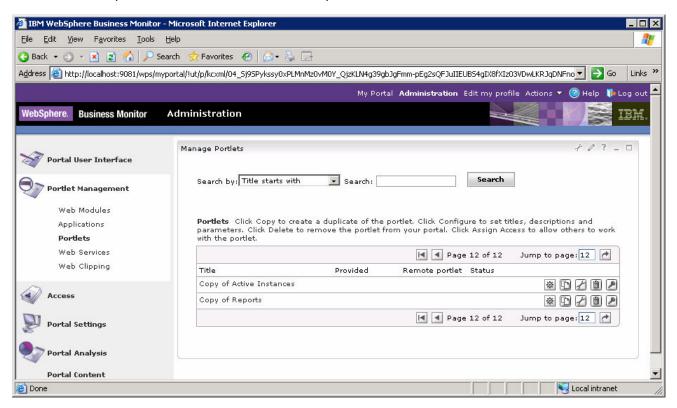
Local intranet

\_\_ e. On the row containing **Active Instances**, click the icon for **Copy portlet** ( You should see this window:

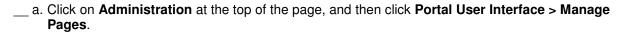


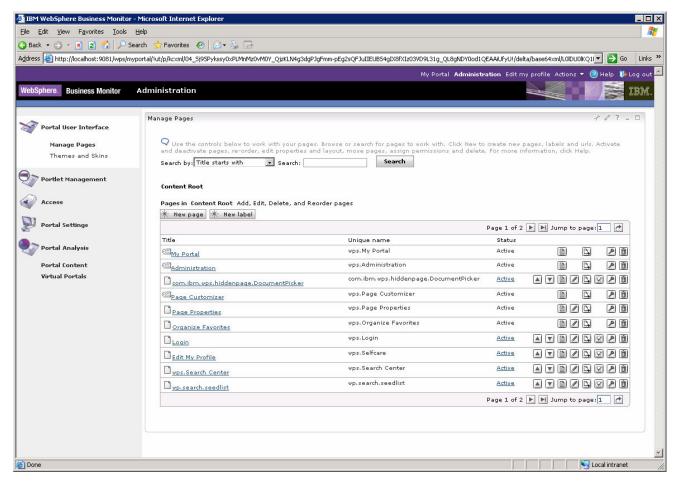
- \_\_ f. Click **OK**.
- \_\_ g. On the row containing **Reports**, click the icon for **Copy portlet** ( On the next window, click **OK**.

\_\_ h. Now **Browse to page 12** by clicking on the arrow icons. This page should show the copies of the portlets for Active Instances and Reports.



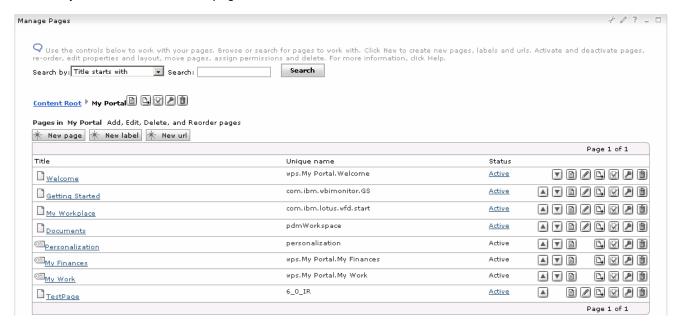
\_\_\_\_\_ 2. Create a page containing two views: Active Instances and Reports.





- \_\_ b. Click My Portal, then click tab New Page. Enter a page title TestPage, click OK.
- c. On the next window you will get successful page creation message, click **OK**.

Now you should see the new page in the list as follows:

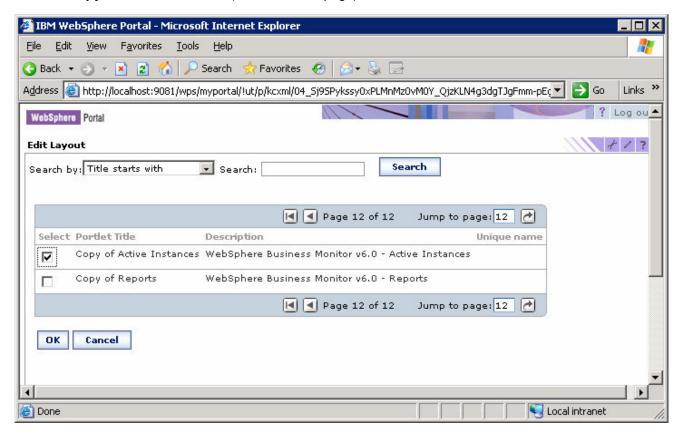


\_\_ d. Click on the **Edit Page Layout** icon for TestPage. You will find it to the right side of the row for TestPage: \_\_\_\_ . This will open the editor for this page.



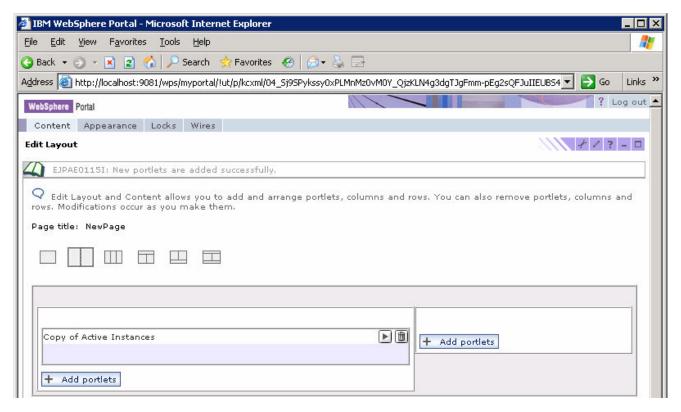
\_\_ e. Click button **Add portlets** on the left side of the screen. You will see a list of portlets. There are multiple pages of these and you can use the navigation at the bottom of the list to look at them.

Find Copy of Active Instances (it is on the last page), check it.



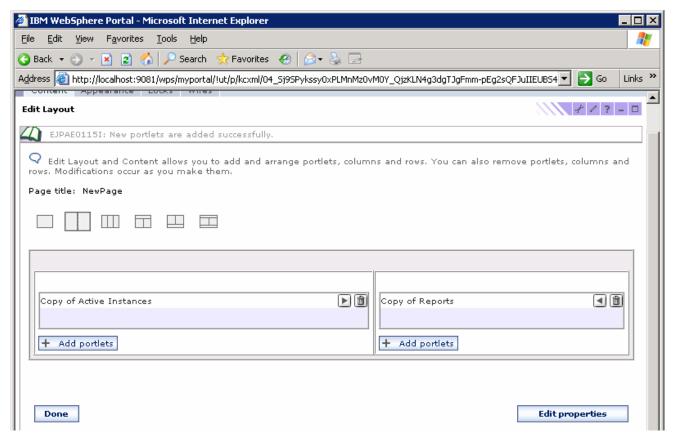
\_\_ f. Click OK.

\_\_ g. This shows that the **Copy of Active Instances** view has been added to the page:



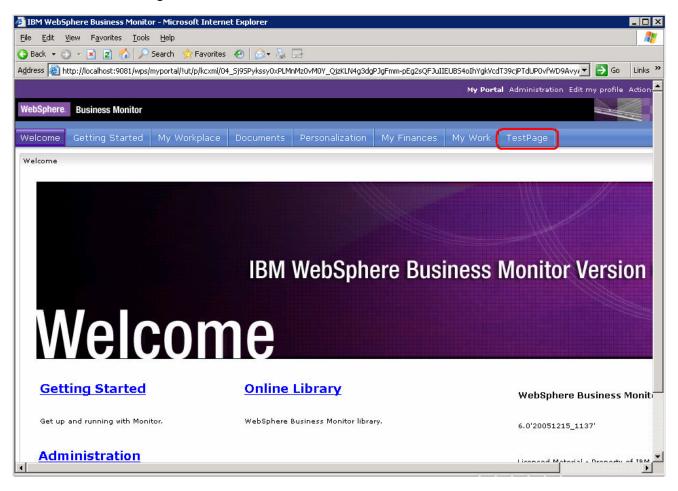
- h. Click button 'Add portlets' on the right side of the screen. Find 'Copy of Reports' on the last page, check it.
- \_\_ i. Click **OK**.

\_\_ j. This shows that both views have been configured on the page:

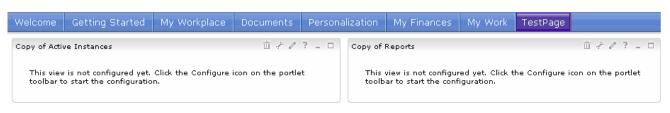


\_\_ k. Click **Done**.

\_ I. Click My Portal at the top of the page. This window opens and you see that there is now a tab for TestPage.



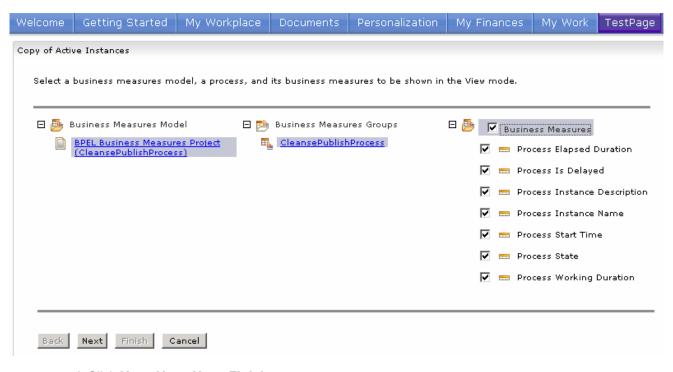
- \_\_\_\_ 3. Configure the two views on our new page.
  - \_\_ a. Click on the tab for **TestPage**. This window shows the two views, but they need to be configured:



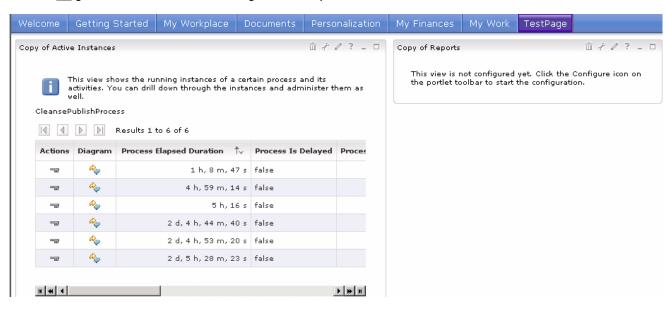
b. Click on the **Configure** icon for the **Copy of Active Instances** view.



- \_ c. Click on Business Measures Model > BPEL Business Measures Project (CleansePublishProcess).
- \_\_ d. Click on Business Measures Groups > CleansePublishProcess.
- \_\_ e. Click the checkbox next to **Business Measures** to select all of the measures.

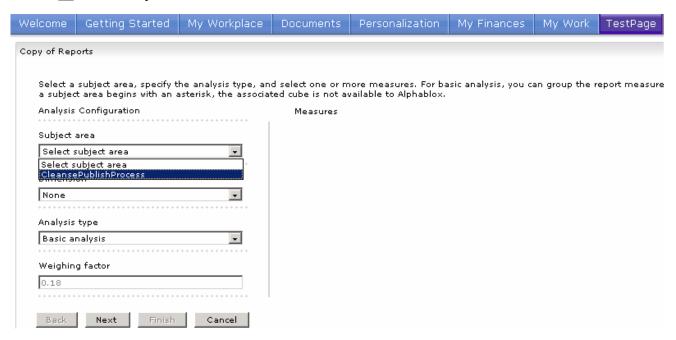


- f. Click Next, Next, Next, Finish.
- g. Here is the window showing the active process instances in the view:

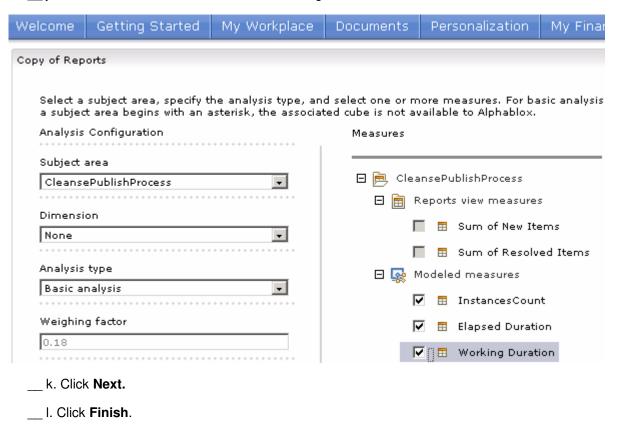


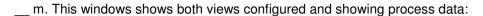


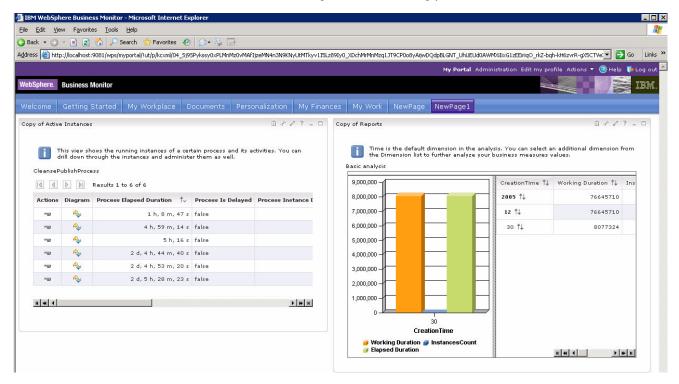
- \_\_ h. Click the Configure icon on the Copy of Reports view.
- \_\_ i. Click **Subject area** and select **ProcessScenario** on the left side of the window.



\_\_ j. Click all of the **Modeled measures** on the right side of the window.







## What you did in this exercise

In the lab, you imported a project into WebSphere Integration Developer, enabled CEI events and exported the EAR from WebSphere Integration Developer. Then used Monitor export feature of WebSphere Business Modeler to generate default business measures and export BPEL process.

Then you deployed the process (EAR file) to WebSphere Process Server.

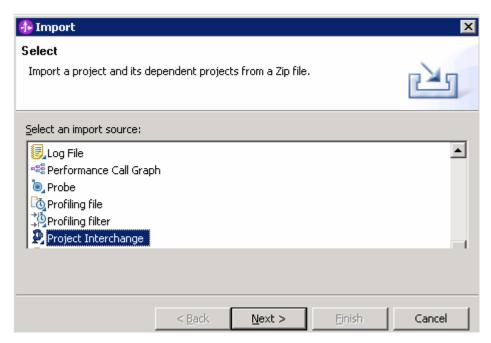
You ran schema generation, created Monitor database and replication manager artifacts. You started the replication manager daemons.

You imported the cubes to Cube Views and Alphablox.

You configured Dashboards and viewed process data in two different types of views.

## **Solution Instructions**

- \_\_\_\_ 1. Import the Model to WebSphere Integration Developer.
  - \_\_ a. Select **File > Import** from the IBM WebSphere Integration Developer.
  - \_\_ b. From the **Import** window select **Project Interchange** and click **Next**.



Import Project Interchange Contents window will be opened.

- \_\_ c. Click Browse and select **<LabFiles60>\MonotoringProcess\Solution\WIDExport.zip** as source zip file.
- \_\_ d. Click Select All and click Finish.

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