

## IBM WEBSPHERE ADAPTER 7.0 – LAB EXERCISE

## Flat File adapter multiple endpoints lab

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### What this exercise is about

The objective of this lab is to provide you with an understanding of how to configure WebSphere Adapters for Flat File V7.0 to send events to multiple endpoints using only one module.

### Lab requirements

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

- WebSphere Integration Developer V7.0 installed and updated with latest fixes
- WebSphere Process Server V7.0 Test Environment installed and updated latest fixes
- Extract Labfiles70.zip to your C:\ (your root) drive
- You should do at least one of the scenarios of the **Flat File adapter inbound lab** so that you can see the difference of having single (Flat File adapter inbound lab) and multiple (current lab) endpoints in your Module

### What you should be able to do

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

- Import Flat File adapter RAR file into WebSphere Integration Developer
- Use External Service wizard to configure Activation Spec Properties, Resource Adapter Properties to generate Business Objects and other artifacts

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- Deploy the adapter application onto WebSphere Process Server
- Test the deployed application and restore the server configuration

## Introduction

This lab will guide you to use the multiple endpoints feature of the FlatFile Adapters. You will use the same module but run External Service wizard twice, giving similar Activation Specification properties except for the folder name to generate artifacts and send the events to two different endpoints.

## Exercise instructions

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

Reference variable	Windows location	AIX® or UNIX® location
<WID_HOME>	C:\Program Files\IBM\WID7Beta	
<WPS_HOME>	C:\<WID_HOME>\runtimes\bi_v70	
<FFADAPTER_HOME>	<WID_HOME>\ResourceAdapters\FlatFile_7.0.0.0\deploy	
<LAB_FILES>	C:\Labfiles70	/tmp/Labfiles70
<WORKSPACE>	<LAB_FILES>\FlatFileME\workspace	
<EVENT_DIR>	<LAB_FILES>\ FlatFileME \eventdir	
<ARCHIVE_DIR>	<LAB_FILES>\ FlatFileME\archivedir	
<TEMP>	C:\temp	/tmp

**Windows users note:** When directory locations are passed as parameters to a Java™ program such as EJBdeploy or wsadmin, it is necessary to replace the backslashes with forward slashes to follow the Java convention. For example, replace C:\Labfiles70\ with C:/Labfiles70/

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**Instructions if using a remote server for testing**

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 the 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>	server1	sssr011	
<WAS_HOME>	C:\Program Files\IBM\WebSphere\AppServer	/etc/sscell/AppServer	
<HOSTNAME>	localhost	mvsxxx.rtp.raleigh.ibm.com	
<SOAP_PORT>	8880	8880	
<TELNET_PORT>	N/A	1023	
<PROFILE_NAME>	AppSrv01	default	
<USERID>	N/A	ssadmin	
<PASSWORD>	N/A	fr1day	

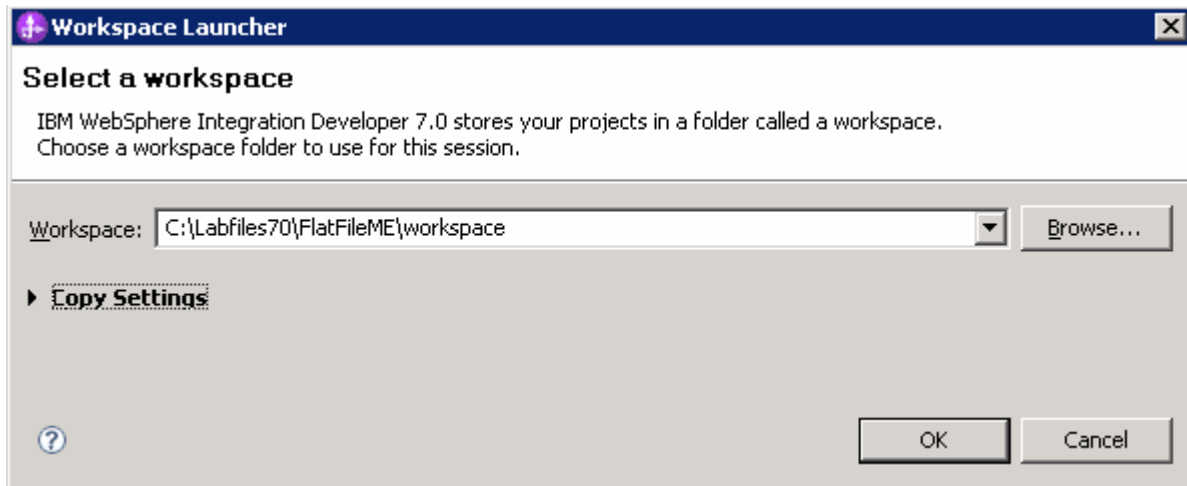
Instructions for using a remote testing environment, such as z/OS, AIX or Solaris, can be found at the end of this document, in the section [“Task: Adding remote server to WebSphere Integration Developer test environment”](#).


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## Part 1: Initialize the workspace and prepare for the lab

This part of the lab, you will start the WebSphere Integration Developer V7.0 with a new workspace and create required data source and database using the administrative console of WebSphere Process Server V7.0

- \_\_\_ 1. Extract the provided Labfiles70.zip to your C:\ (root) drive, if you have not already done so. This will create the necessary subdirectory structure to complete the lab, and provides you with sample text files
- \_\_\_ 2. Start the WebSphere Integration Developer V7.0 with a new workspace
  - \_\_\_ a. Select **Start > All Programs > IBM WebSphere Integration Developer > IBM WebSphere Integration Developer V7.0 > WebSphere Integration Developer V7.0**
  - \_\_\_ b. From the Workspace Launcher window, enter **<WORKSPACE>** for the Workspace field



- \_\_\_ 3. Click the  button on the right corner to close the Welcome page and proceed with the workbench

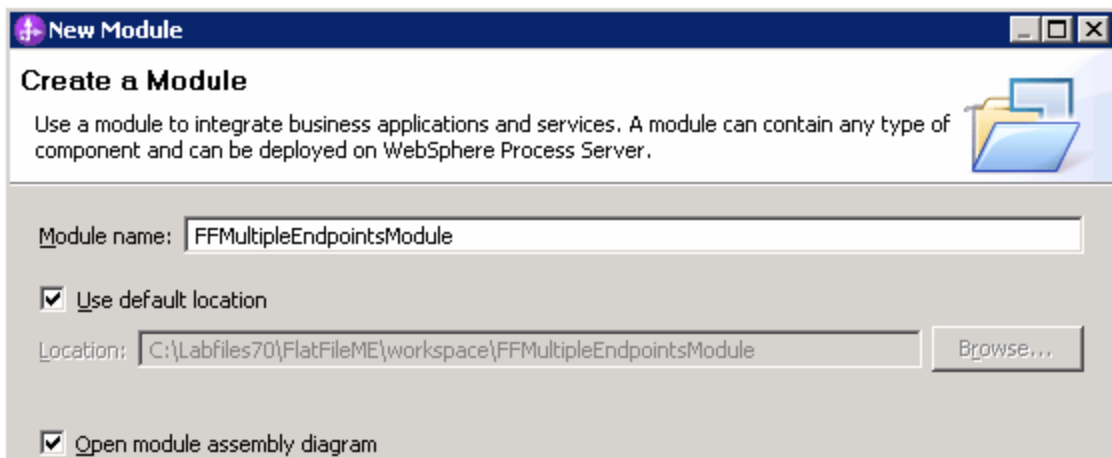
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## Part 2: Configure two endpoints using External Service wizard

In this part of the lab, you will use the new External Service wizard, to configure adapter for the two endpoints inside the same module. You will use predefined Function Selector, and Data binding to keep it simple

- \_\_\_ 1. Create the module: FFMultipleEndpointsModule
  - \_\_\_ a. From the Business Integration window, right-click and select **New > Module**
  - \_\_\_ b. From the New Module window, enter **FFMultipleEndpointsModule** for the Module Name



- \_\_\_ c. Ensure that the box next to **Open module assembly diagram** is checked and then click **Finish**

You will now see a new module, **FFMultipleEndpointsModule**, created from your Business Integration window

- **Configure adapter for the first endpoint:**

- \_\_\_ 2. Start External Service from the main menu:
  - \_\_\_ a. From the main menu, select **File > New > External Service**. This opens an External Service wizard that helps you obtain a service which establishes connectivity with other systems

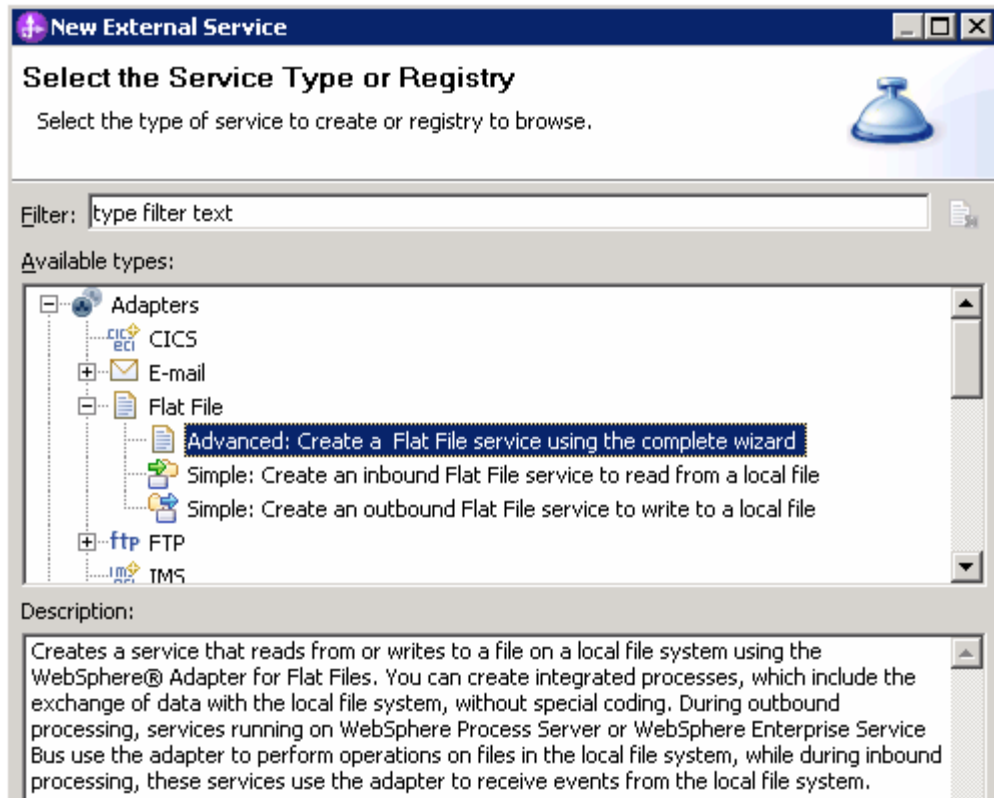
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**Note:** You must start External Service wizard from File menu for this exercise to get the folder option at the last screen of your External Service wizard.

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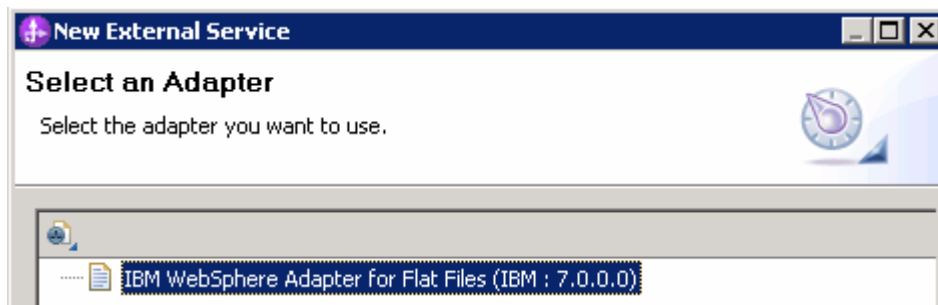
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- \_\_\_ 3. Select **Adapters > Flat File > Advanced: Create a Flat File service using the complete wizard** under Available Types:



- \_\_\_ a. Click **Next**

- \_\_\_ 4. On the Select an Adapter screen, select **IBM WebSphere Adapter for Flat Files (IBM : 7.0.0.0)**



- \_\_\_ a. Click **Next**

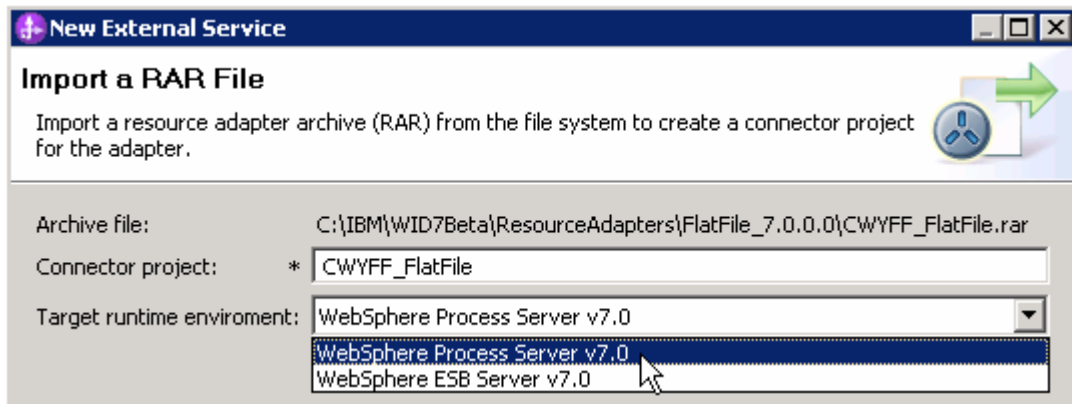
- \_\_\_ 5. Adapter Import screen:

In this step, you will import a connector resource adapter archive from the file system into your WebSphere Integration Developer workspace. The adapter RAR file already exists under <FFADAPTER\_HOME>.

- \_\_\_ a. The default Connector file is selected which is shipped along with WebSphere Integration Developer
- \_\_\_ b. Accept the default name for Connector project, **CWYFF\_FlatFile**. You can change it to any other name, but for this lab, you can leave the default name.

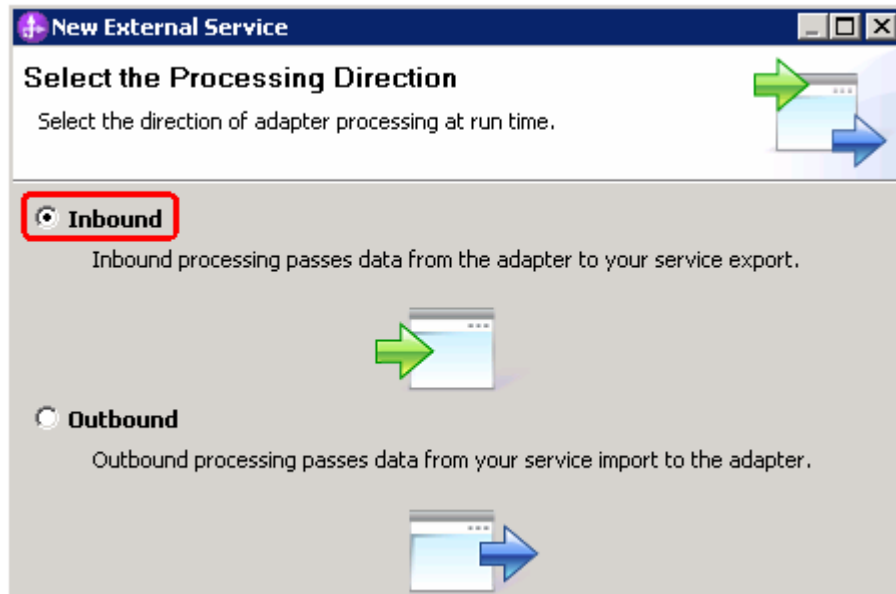
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- \_\_\_ c. For Target server, ensure that **WebSphere Process Server v7.0** is selected



- \_\_\_ d. Click **Next**

- \_\_\_ 6. From the 'Processing Direction' screen, select the radio button next to **Inbound**



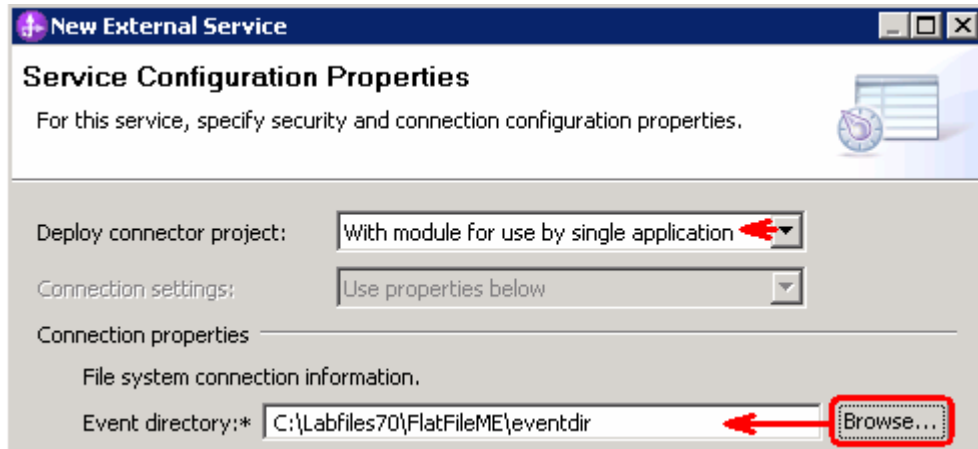
- \_\_\_ a. Click **Next**

- \_\_\_ 7. Service Configuration Properties screen:

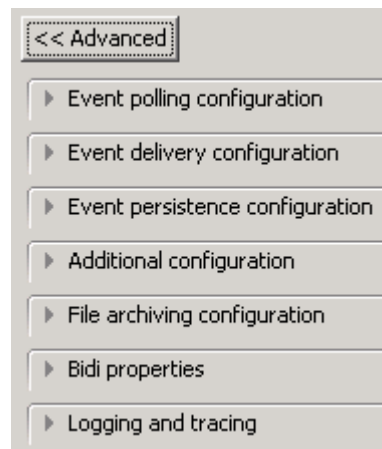
- \_\_\_ a. Deploy connector project: ensure that the default option With module for use by single application is selected
- \_\_\_ b. Under Connection Configuration, click **Browse...** next to Event directory and select **<EVENT\_DIR>** from the pop-up window:

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**Note:** Alternatively, you can also replace the absolute directory path with WebSphere variables for the Event directory, Archive directory. Refer to 'Flat File adapter – Processing COBOL copy book files lab' for more details on this new feature introduced in V6.2.



\_\_ c. Click **Advanced >>** to see the hidden advanced properties that can be configured:



You can click each of the configurations and review the options available under it. This lab guides you through some of the important and required configurations.

\_\_ d. Event persistence configuration: In this part of the lab, you will not use any JNDI instead use adapter's in-memory representation of event table to store all the necessary information

**Note:** The Event recovery data source (JNDI) name is **not mandatory** from V6.1. Now, the adapter can use **in-memory representation** of event table to store all the necessary information. Adapter uses this feature when event database information is not configured during inbound event polling. This feature will not support the capability of handling "Ensure once-only event delivery".



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\_\_ e. Advanced Properties:

- 1) **Poll subdirectories in event directory:** this is a new feature introduced in V6.2

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**Note:** ‘**Poll subdirectories in event directory**’ is the new Boolean property added in V6.2. This property is used for recursive polling. Flat File adapter polls the given 'Event directory' and all the sub-directories present in the 'Event directory'. Refer to ‘**Log and confidential trace**’ lab for more details on this new feature

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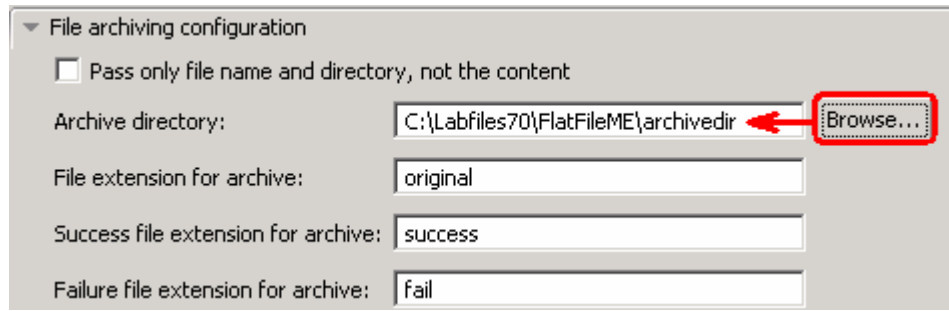
\_\_ f. File archiving configuration:

- 1) Archive directory: click **Browse...** and select **<ARCHIVE\_DIR>**

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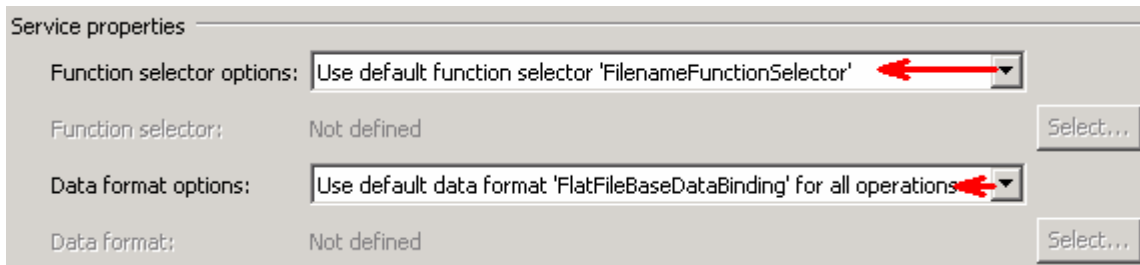
**Note:** Alternatively, you can also replace the absolute directory path with WebSphere variables for the Event directory, Archive directory. Refer to ‘**Flat File adapter – Processing COBOL copy book files lab**’ for more details on this new feature introduced in V6.2.

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\_\_ g. **Logging and tracing:** Refer to ‘**Log and confidential trace lab**’ for more details on this new feature

- \_\_\_ 8. Under Service properties, for **Function selector options**, select **Use default function selector ‘FilenameFunctionSelector’** from the drop down list
- \_\_\_ 9. For **Data format options**, select **Use default data binding ‘FlatFileBaseDataBinding’ for all operations** from the drop down list

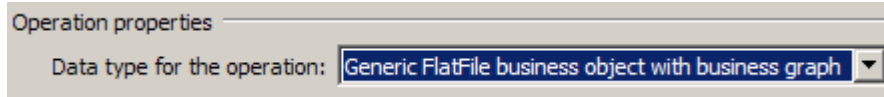


- \_\_\_ 10. Check the box next to **Change logging properties for wizard** to view the output location of the log file and the logging level and click **Next**

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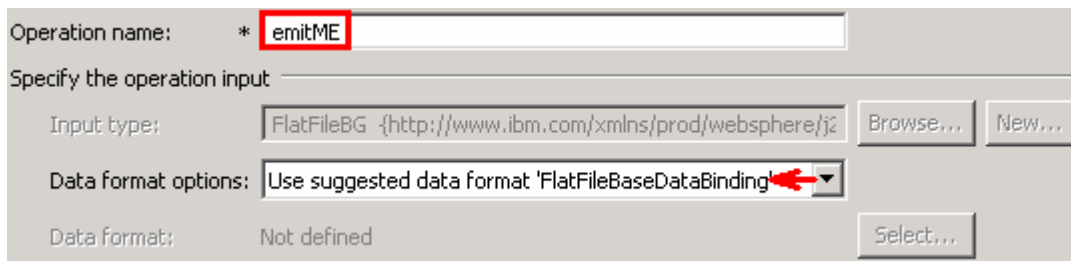
**Define emitME operation:**

- \_\_\_ 11. From the Operations screen, click **Add...**
  - \_\_\_ a. Add Operation window is opened. Select **Generic FlatFile business object with business graph** for the Data type and click **Next**

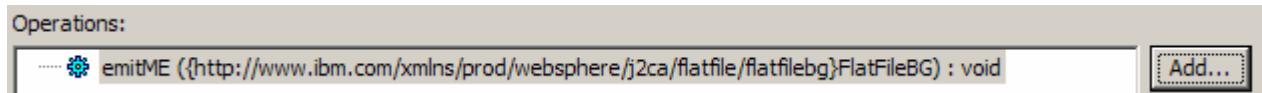


You are back to Operation window and because you have chosen the data type with business graph, the Input type is populated as **FlatFileBG**.

- \_\_\_ 12. For **Operation name**, enter any name, for Ex: **emitME**
- \_\_\_ 13. Accept the default selection, **Use suggested data format 'FlatFileBaseDataBinding'**, for **Data format options**



- \_\_\_ a. Click **Finish**. The defined operation, **emitME**, is populated under Operations list



- \_\_\_ b. Click **Next** from Operations screen
- \_\_\_ 14. From Generate Service screen, enter these:
  - \_\_\_ a. For **Folder**, enter **Folder1**

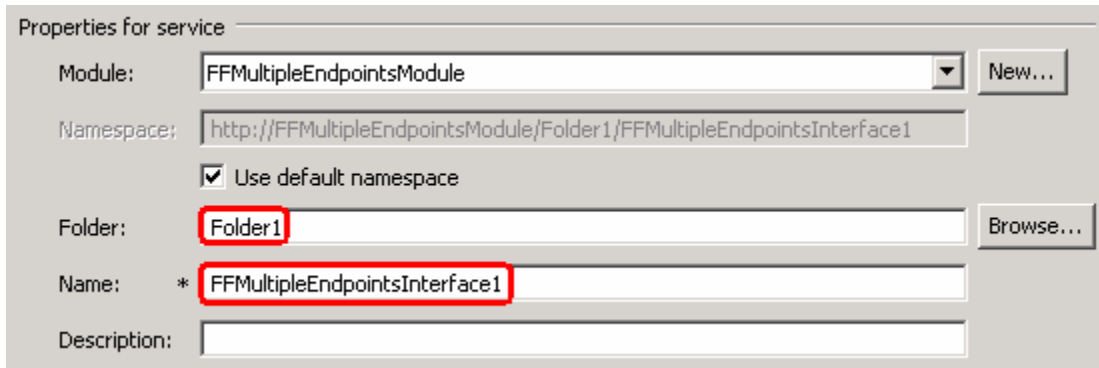
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**Note:** Folder name should be different for the two endpoints that you are configuring for this scenario. So, make a note of the name that you are providing here so as not to give the same for the other endpoint that you will configure next.

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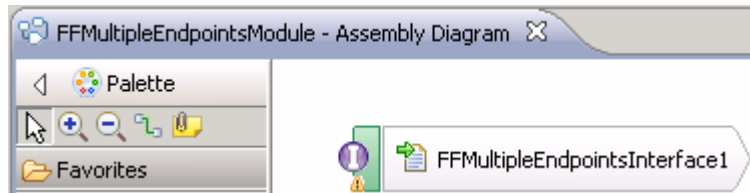
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\_\_ b. For **Name**, enter **FFMultipleEndpointsInterface1**



\_\_ c. Click **Finish**

\_\_\_\_ 15. The Assembly diagram for FFMultipleEndpointsModule is opened with an Export component, **FFMultipleEndpointsInterface1**:

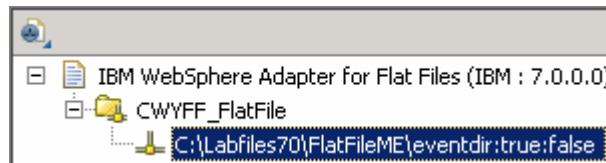


\_\_ a. Save (**Ctrl + S**) changes to your assembly diagram

- **Configure adapter for the second end point:**

\_\_\_\_ 16. Repeat the steps under **Configure adapter for the 'first' endpoint**, with these changes:

\_\_ a. From the 'Select an Adapter' (first screen of External Service wizard) screen, select **IBM WebSphere Adapter for Flat Files (IBM: 7.0.0.0) > CWYFF\_FlatFile > <LAB\_FILES>\FlatFileME\eventdir:trur:false**. This uses already generated artifacts for the first endpoint.




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**Note:** Folder name should be different in the configurations of two endpoints. **All of the ActivationSpec properties should be similar for the two endpoints.**

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\_\_ b. From 'Generate Service' screen (the last screen of the External service wizard), enter these:

- 1) For Folder, enter **Folder2**
- 2) For Name, enter **FFMultipleEndpointsInterface2**

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**Note:** You can give the same Name for both the export interfaces. To show you that they are two different exports in your assembly diagram, the lab uses two different names here for the export interfaces.

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Properties for service

Module:  New...

Namespace:

Use default namespace

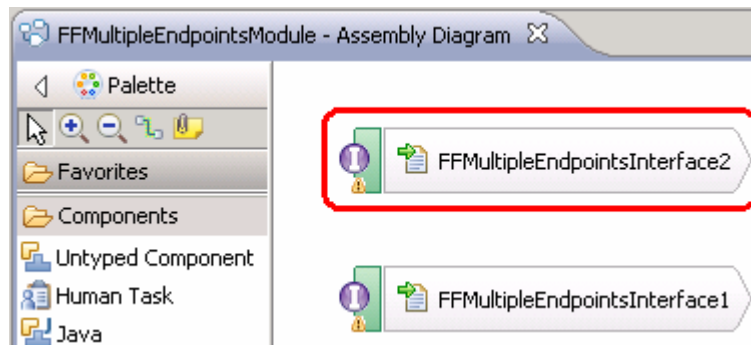
Folder:  Browse...

Name: \*

Description:

\_\_ c. Click **Finish**

\_\_\_ 17. You will now see the second export component, **FFMultipleEndpointsInterface2**, in your assembly diagram:



\_\_ a. Save (**Ctrl + S**) changes to your assembly diagram


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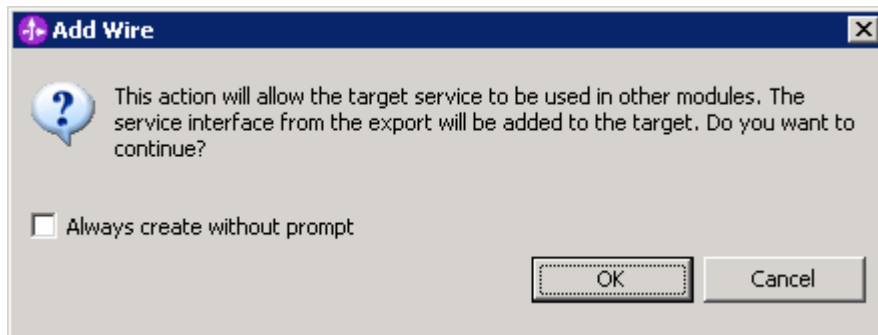
## Part 3: Add Java components

In this part of the lab, you will add two Java components and then wire the components to the existing Export interfaces. The Java components are your endpoints.

- \_\_\_ 1. Open the assembly diagram for FFMultipleEndpointsModule (if it is already not open)
  - \_\_\_ a. From the business integration view, expand **FFMultipleEndpointsModule** and double click **Assembly diagram**
- \_\_\_ 2. Drop a Java component to onto the assembly diagram
  - \_\_\_ a. From the **Palette**, click **Components** to expand it



- \_\_\_ b. Click **Java** and then click the empty space of FFMultipleEndpointsModule assembly diagram. This will place a new component, **Component1** on the assembly diagram.
- \_\_\_ 3. Wire the FFMultipleEndpointsInterface1 to the Component1
  - \_\_\_ a. Select the **wire** (  ) icon from the Palette
  - \_\_\_ b. Click **FFMultipleEndpointsInterface1** and then click **Component1** to wire them together
  - \_\_\_ c. Select **OK** for the Add Wire pop-up window:

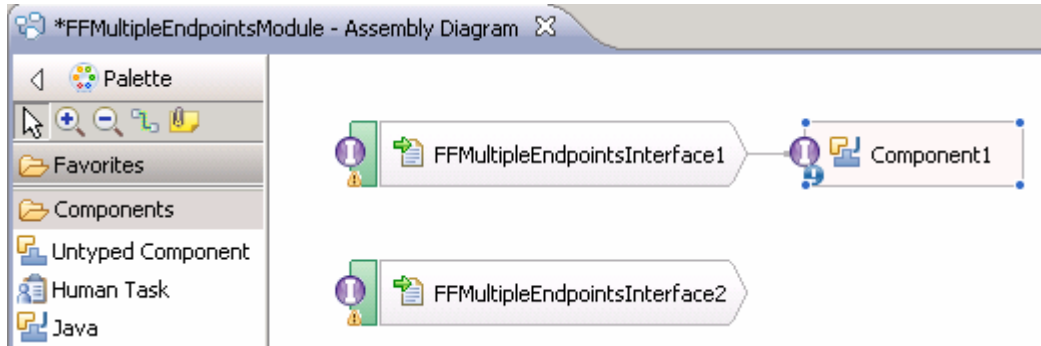


- \_\_\_ d. From the top of the Palette, click the **Selection Tool** icon (  ) to get back to the normal cursor mode

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- \_\_\_ e. Right-click the empty space of the Assembly diagram and select **Arrange Contents Automatically** from the pop-up menu

Your assembly diagram for FFMultipleEndpointsModule will look like this:



- \_\_\_ 4. Follow instructions in steps 2 and 3 to wire **FFMultipleEndpointsInterface2** export to **Component2**:



- \_\_\_ a. Save (**Ctrl + S**) and close Assembly diagram: FFMultipleEndpointsModule

- \_\_\_ 5. Add Java implementation to Component1

- \_\_\_ a. Right-click **Component1** and select **Generate Implementation** from the pop-up menu
- \_\_\_ b. On the **Generate Implementation** panel, select **default package**, and click **OK**
- \_\_\_ c. **Component1Impl.java** is opened in Assembly editor. Scroll down to the method **emitME** that needs to be implemented and add this code under that method:

```
System.out.println("*****REACHED ENDPOINT 1*****");
```

- \_\_\_ d. Save (**Ctrl + S**) and close Component1Impl.java

- \_\_\_ 6. Similarly add this Java statement to **Component2**'s emitME method:


```
System.out.println("*****REACHED ENDPOINT 2*****");
```

- \_\_\_ a. Save (**Ctrl + S**) and close Component2Impl.java

- \_\_\_ 7. Save (**Ctrl + S**) and close Assembly diagram: FFMultipleEndpointsModule

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**Part 4: Test the application**

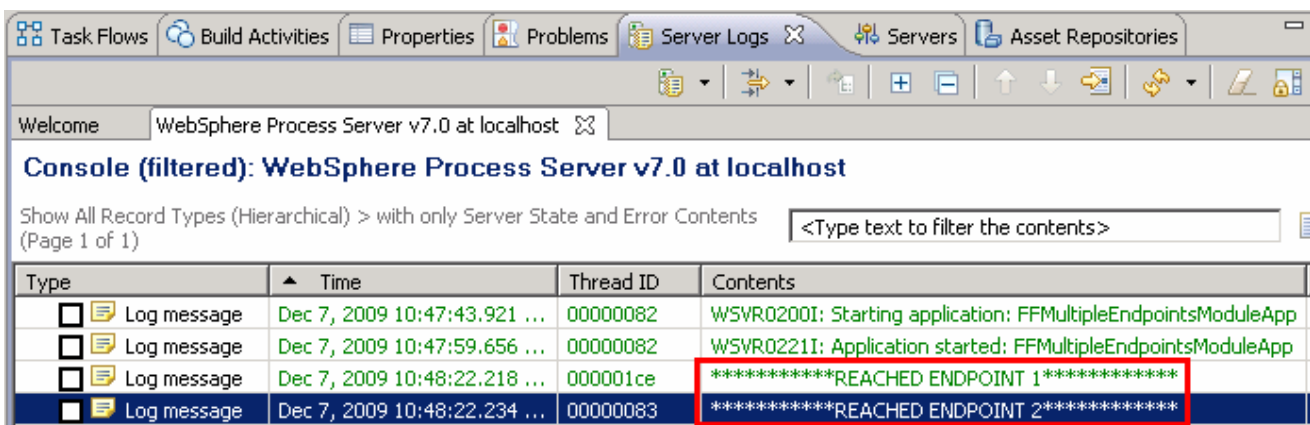
- \_\_\_ 1. Start the WebSphere Process Server:
  - \_\_\_ a. From the **Servers** view of WebSphere Integration Developer, select **WebSphere Process Server v7.0** and hit '**Start the server**' icon (  ) from the context menu
  - \_\_\_ b. Wait until the server Status shows as **Started**
- \_\_\_ 2. Add the project to the server
  - \_\_\_ a. Right-click **WebSphere Process Server v7.0** under the Servers view and select **Add and remove projects...** from the context menu
  - \_\_\_ b. From the Add and Remove Projects window, select **FFMultipleEndpointsModuleApp** under Available projects panel and click **Add >**
  - \_\_\_ c. You will now see the **FFMultipleEndpointsModuleApp** added to the **Configured projects**
  - \_\_\_ d. Click **Finish** and wait until the project is being published onto the server. The server is started in Debug mode if it is not already started before
  - \_\_\_ e. Click **OK** from Adding/Removing Projects pop-up. Optionally, you can select 'Do not show again' so that you are not required to do this next time when you start the test client
- \_\_\_ 3. Test the adapter application
  - \_\_\_ a. Copy a test file to the **<EVENT\_DIR>**. As the file is copied to the event directory, the same is picked up and processed by the adapter and then moved to the **<ARCHIVE\_DIR>**

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**Note:** For your convenience, a test file named **METest.txt** file can be found in **<LAB\_FILES>\FlatFileME**.

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- \_\_\_ 4. Verify your test results
  - \_\_\_ a. Check your **Server Logs** view (or SystemOut.log file) for these successful messages:



Type	Time	Thread ID	Contents
<input type="checkbox"/> Log message	Dec 7, 2009 10:47:43.921 ...	00000082	WSVR0200I: Starting application: FFMultipleEndpointsModuleApp
<input type="checkbox"/> Log message	Dec 7, 2009 10:47:59.656 ...	00000082	WSVR0221I: Application started: FFMultipleEndpointsModuleApp
<input type="checkbox"/> Log message	Dec 7, 2009 10:48:22.218 ...	000001ce	*****REACHED ENDPOINT 1*****
<input type="checkbox"/> Log message	Dec 7, 2009 10:48:22.234 ...	00000083	*****REACHED ENDPOINT 2*****

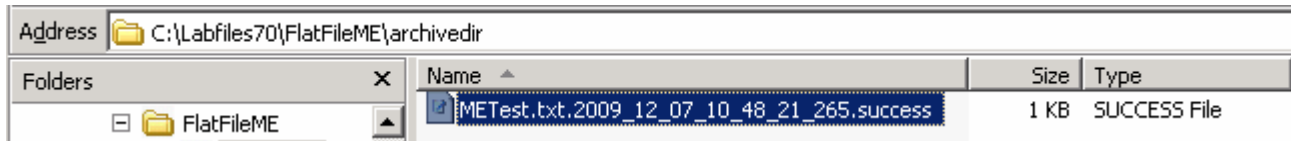
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**Note:** You should see these two messages in any order. The file has been sent to the two endpoints (components) that you configured previously.

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- \_\_\_ 5. Now, check the **<ARCHIVE\_DIR>** subdirectory which should contain an archive of the event file, with the same file name appended with year, month, date, system time, and success



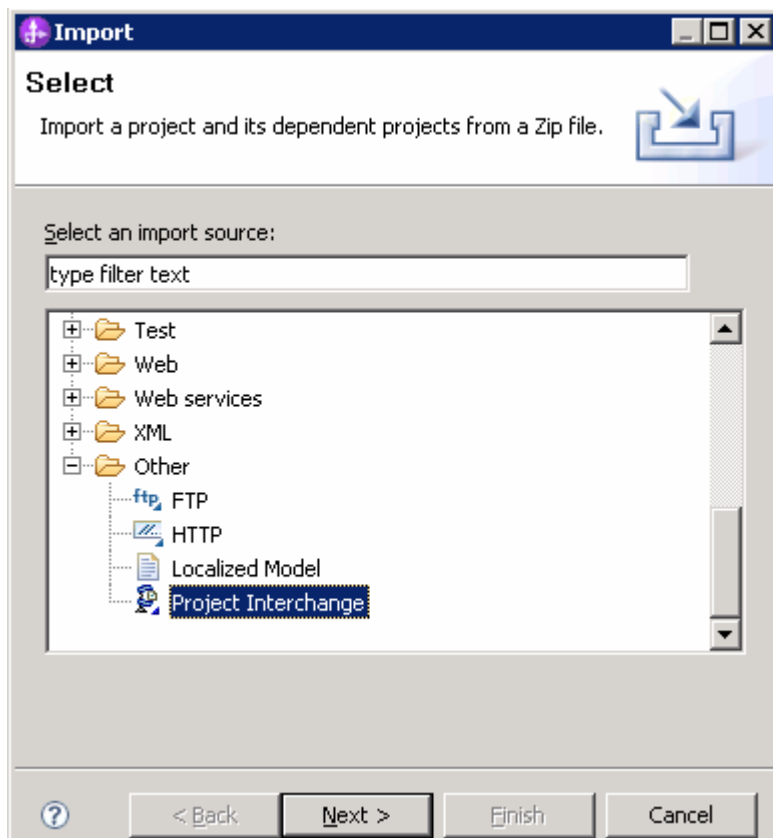
- \_\_\_ 6. Restore the Sever Configuration
- \_\_\_ a. Right-click **WebSphere Process Server v7.0** under the Servers view and select **Add and remove projects...** from the context menu
  - \_\_\_ b. Select **FFMultipleEndpointsModuleApp** under Configured projects and click **< Remove**
  - \_\_\_ c. Click **Finish** after you see the application moved to Available projects. Wait until the application is being unpublished from the server



## IBM WEBSPHERE ADAPTER 7.0 – LAB EXERCISE

### Solution instructions

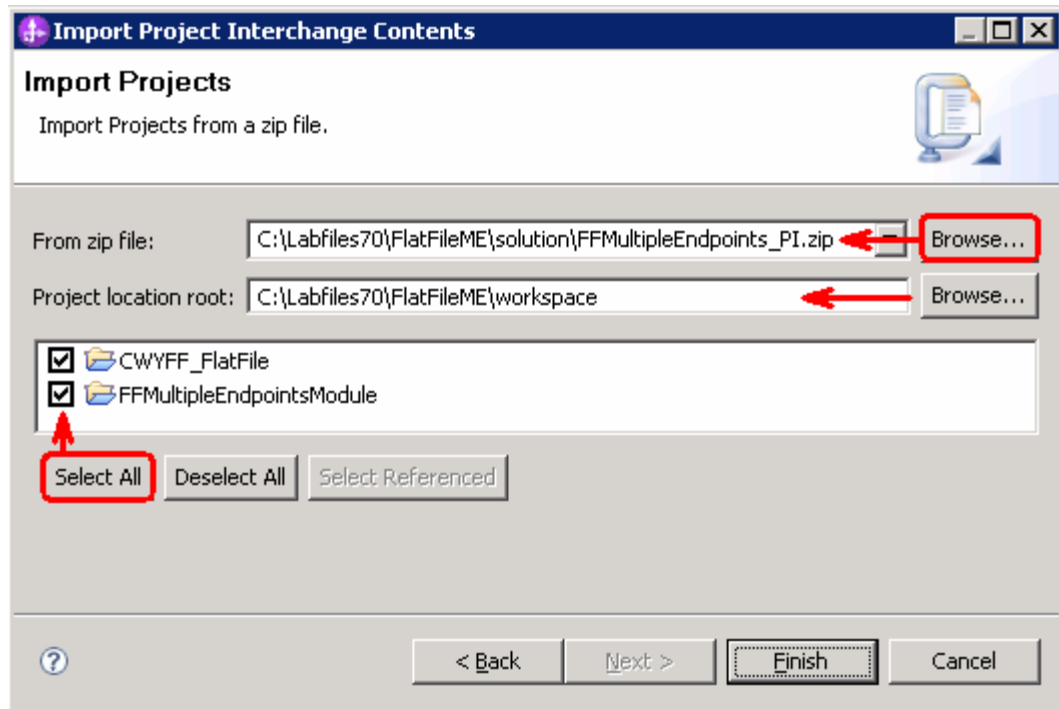
- \_\_\_ 1. Start WebSphere Integration Developer V7.0 with a new workspace
  - \_\_\_ a. Follow the instructions outlined in **Part 1** of this exercise
- \_\_\_ 2. Import the solution Project Interchange
  - \_\_\_ a. Import the project interchange file **FFMultipleEndpoints\_Pi.zip** from **<LAB\_FILES>\FlatFileME\solution** directory
  - \_\_\_ b. Select **File → Import** from the menu
  - \_\_\_ c. Select **Other → Project Interchange** in the **Import** dialog and click **Next**



- \_\_\_ d. For the **From zip file**, click on the **Browse** button and select the **FFMultipleEndpoints\_Pi.zip** in the **<LAB\_FILES>\FlatFileME\solution** directory
- \_\_\_ e. Enter **<LAB\_FILES>\FlatFileME\workspace** for the **Project location root**

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- \_\_\_ f. Click the **Select All** button. This will select all modules: **CWYFF\_FlatFile**, and **FFMultipleEndpointsModule**



- \_\_\_ g. Click **Finish**

- \_\_\_ 3. Test the scenario: Continue with **Part 4** of this lab

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### **What you did in this exercise**

In this lab, you started with importing the Flat File Adapter RAR file into your WebSphere Integration Developer new workspace. Then, used your WebSphere Process Server administrative console and configured it to create the Data source and data base required to complete this lab.

You made use of the External Service wizard available in WebSphere Integration Developer to specify Activation Spec Properties and Resource Adapter Properties which, after deploying onto the server, will generate Business Objects and other artifacts.

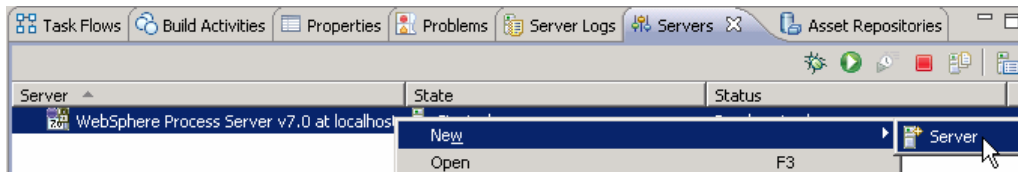
In the end you deployed and then tested the adapter application for pass-through test scenarios and two content specific (non pass through) test scenarios.

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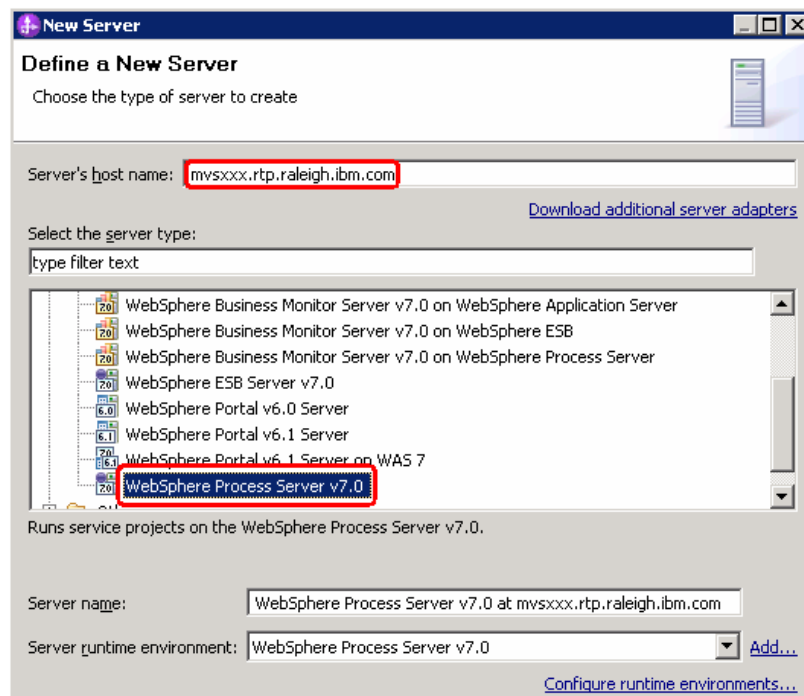
## Task: Adding remote server to WebSphere Integration Developer test environment

This task describes how to add a remote server to the WebSphere Integration Developer test environment. This example uses a z/OS machine.

- \_\_\_ 1. Define a new remote server to WebSphere Integration Developer.
  - \_\_\_ a. Right click the background of the Servers view to access the pop-up menu.
  - \_\_\_ b. Select **New → Server**.



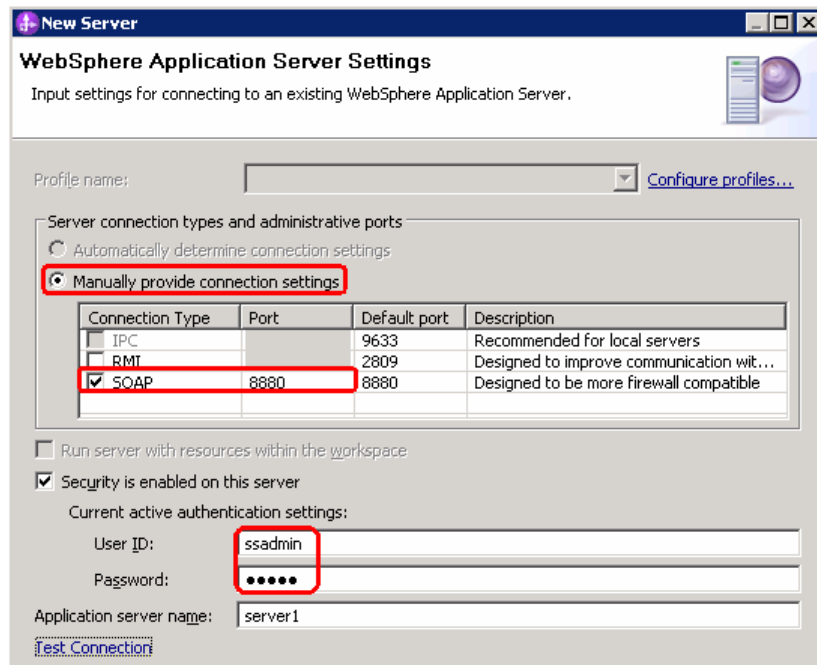
- \_\_\_ c. In the New Server dialog, specify the remote server's host name, **<HOSTNAME>**.
- \_\_\_ d. Ensure that the appropriate server type, **'WebSphere Process Server v7.0'** or **'WebSphere ESB Server v7.0'**, is highlighted in the server type list



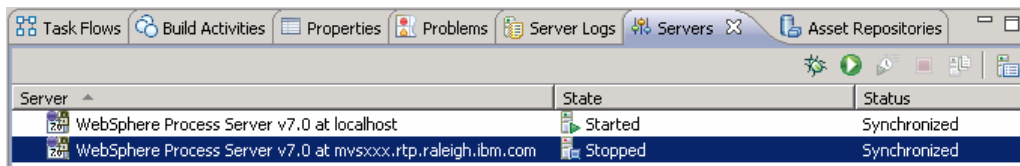
- \_\_\_ e. Click **Next**

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- \_\_\_ f. On the WebSphere Server Settings page, leave the radio button for **Manually provide connection settings** selected, and select the box for SOAP
- \_\_\_ g. Enter the correct setting (<SOAP\_PORT>) for **Port** column
- \_\_\_ h. If security is enabled on your server, select the box for ‘**Security is enabled on this server**’ and enter <USERID> for the user ID and <PASSWORD> for the password.



- \_\_\_ i. Click **Finish**.
- \_\_\_ j. The new server should be seen in the Server view.



- \_\_\_ 2. Start the remote server if it is not already started. WebSphere Integration Developer does not support starting remote servers from the Server view.
- \_\_\_ a. From a command prompt, telnet to the remote system if needed:

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

User ID : <USERID>

Password : <PASSWORD>

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

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

\_\_ c. Run the command file to start the server: **./startServer.sh <SERVER\_NAME>**

\_\_ d. Wait for status message indicating server has started:

```
ADMU3200I: Server launched. Waiting for initialization status
```

```
ADMU3000I: Server sssr01 open for e-business; process id is 0000012000000002
```