Flat Files Adapter Outbound Lab

What this exercise is about

The objective of this lab is to provide you with an understanding of the IBM WebSphere Adapter for Flat Files and outbound processing. In this lab you will deploy the WebSphere Adapter for Flat Files, using WebSphere Integration Developer, and integrate it with an SCA application that processes outbound requests to the file system.

Lab requirements

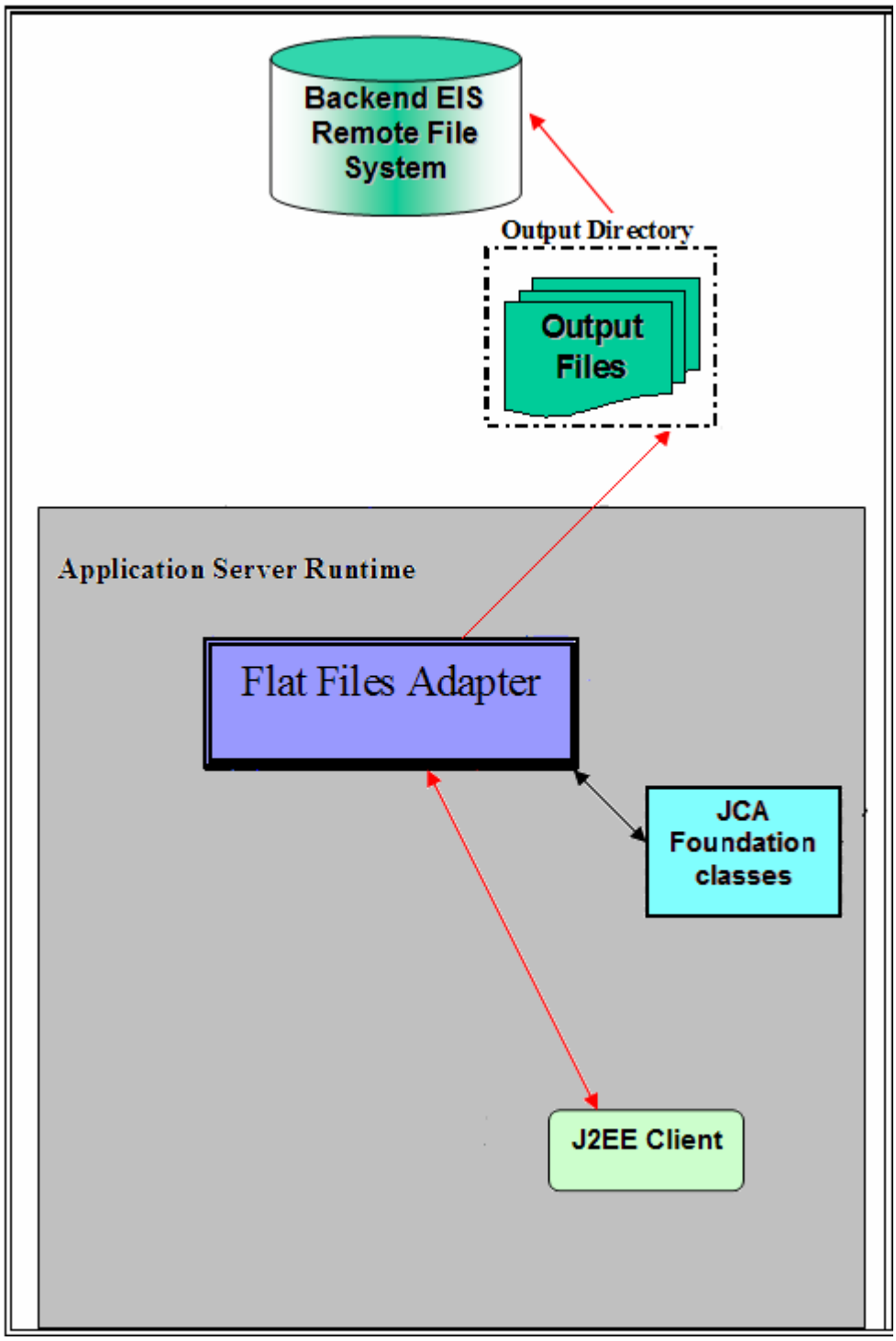
List of system and software required for the student to complete the lab

- WebSphere Integration Developer V6.0.2 installed
- WebSphere Process Server V6.0.2 test environment installed
- WebSphere Adapter for Flat Files V6.0.2 installed
- Unzip LabFiles602.zip to your C:\ (your root) drive

What you should be able to do

- Import Flat Files adapter RAR file into WebSphere Integration Developer
- Use Enterprise Service Discovery wizard to configure the Managed Connection Factory Properties and Resource Adapter Properties to generate Business Objects and other artifacts
- Deploy the adapter application onto the WebSphere Process Server test environment
- Test the above deployed application using WebSphere Process Server test environment
- Restore the server configuration

Introduction



The request to the FF RA (Flat File Resource Adapter) from an SCA client will be sent with the information required for creating the output file - the directory to create the output file, the name of the output file and the operation. The file name will be treated as the key for the Flat Files request/response BO entity.

FF RA uses the application server's connection pool to establish connections with an EIS. The adapter creates a new file connection for every outbound operation and closes it after the operation is completed based on the EIS connectivity requirement. The requests initiated from any SCA client would result in a response being sent back to the client after the request is processed.

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	
<WPS_HOME>	<WID_HOME>\runtimes\bi_v6	
<FFADAPTER_HOME>	C:\Program Files\IBM\ResourceAdapters\FlatFiles\adapter\flatfile	
<LAB_FILES>	C:\LabFiles602	/tmp/LabFiles602
<WORKSPACE>	<LAB_FILES>\FlatFileOutbound\workspace	
<OUT_DIR>	<LAB_FILES>\ FlatFileOutbound\OutputDir	
<TEMP>	C:\temp	/tmp

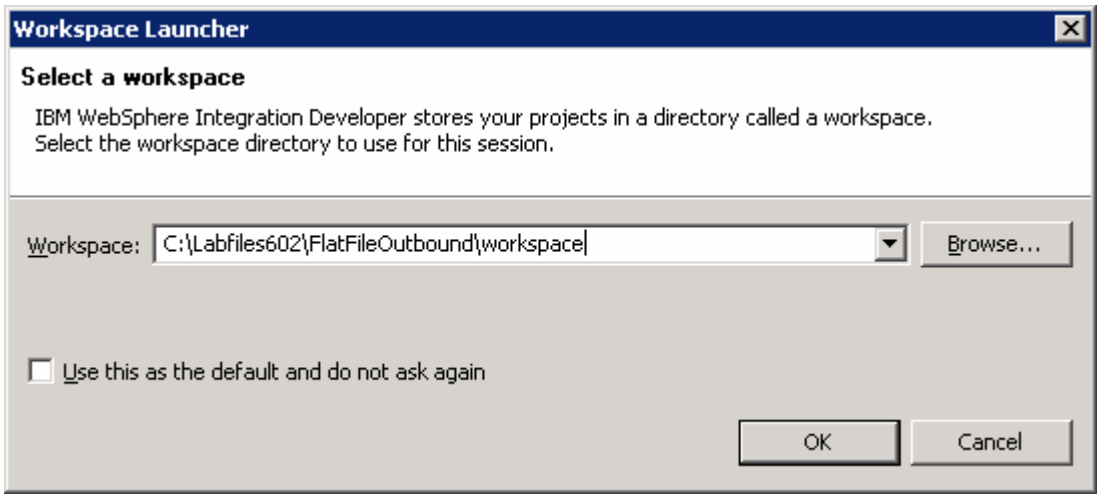
Windows users: When directory locations are passed as parameters to a Java program such as EJBdeploy or wsadmin, you must replace the backslashes with forward slashes to follow the Java convention. For example, C:\Labfiles602\ would be replaced by C:/Labfiles602/.

Part 1: Initialize workspace and import RAR into WebSphere Integration Developer

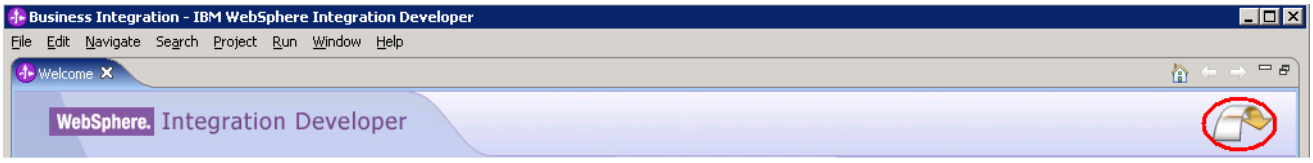
____ 1. Start the WebSphere Integration Developer V6.0.2 with a new workspace

Select **Start > Programs > IBM WebSphere > Integration Developer V6.0.2 > WebSphere Integration Developer V6.0.2**

From the Workspace Launcher window, enter **<WORKSPACE>** for the Workspace field

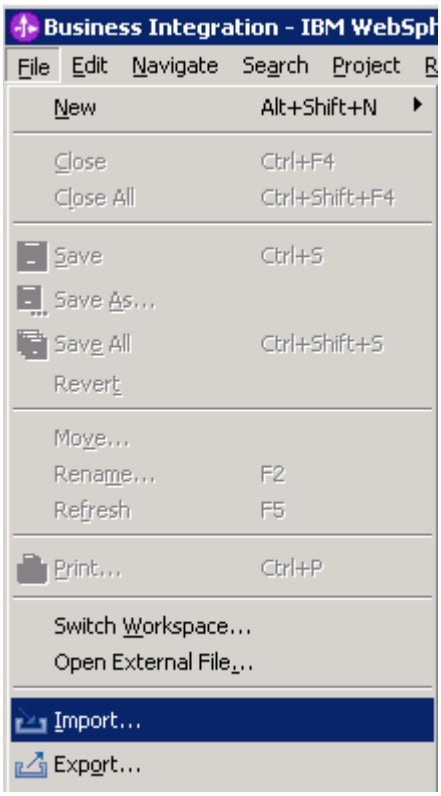


Click on the  button on the right hand corner to close the Welcome page and proceed with the workbench

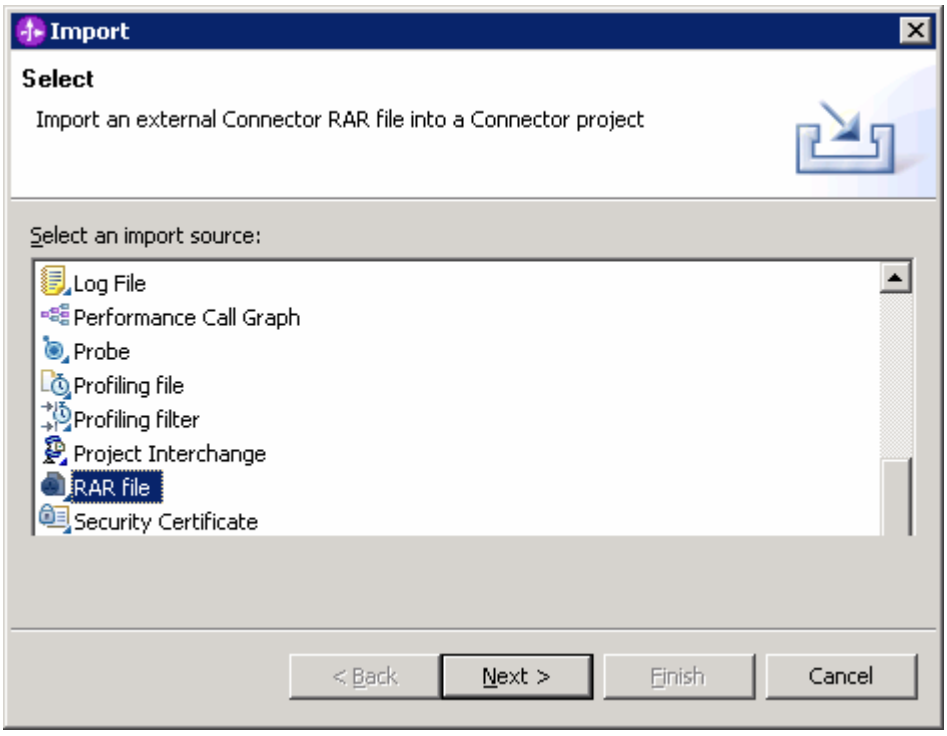


____ 2. Import Flat File Adapter RAR file

From main menu, select **File > Import…**

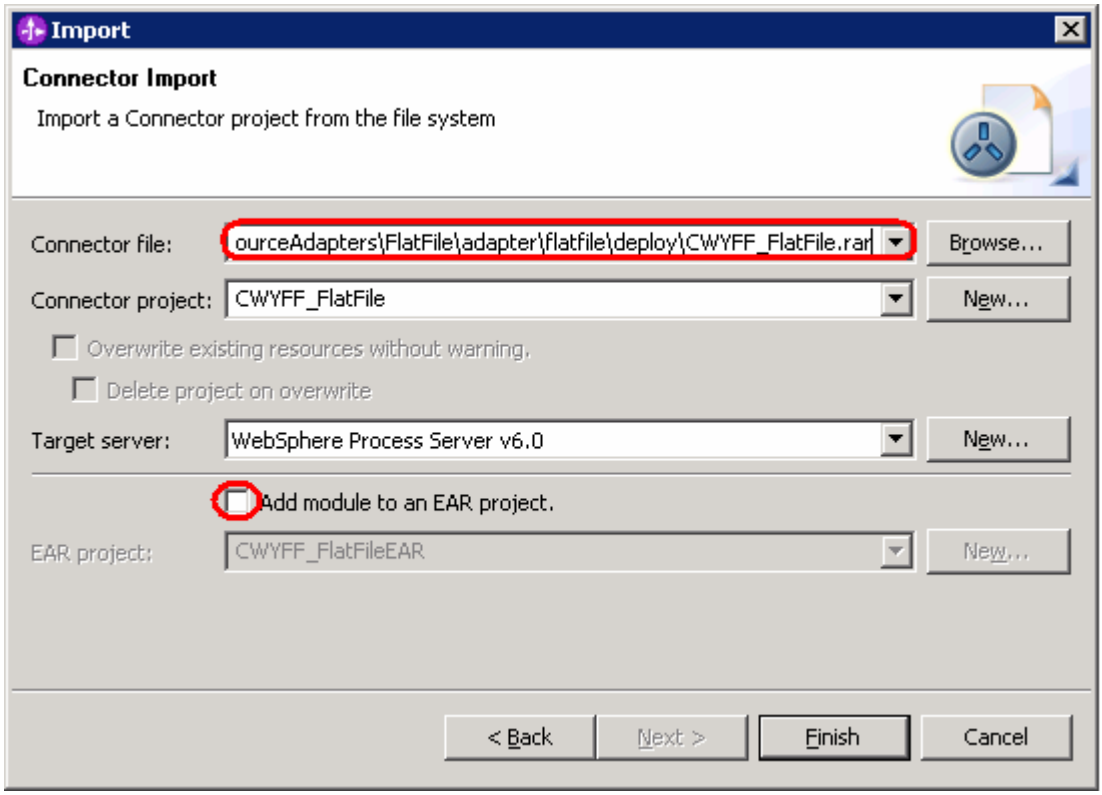


Select **RAR file** from the Import window and then click **Next**

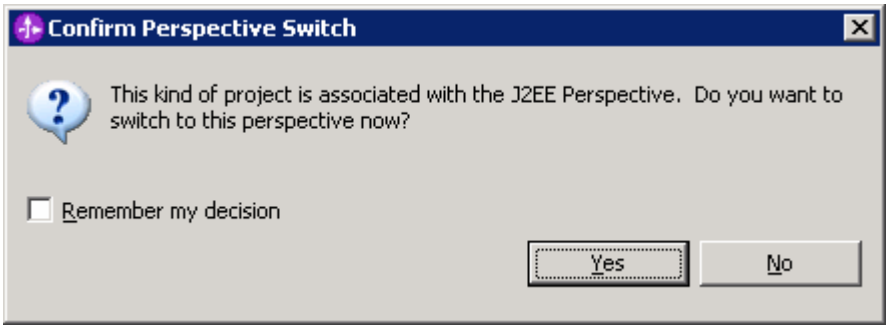


Click on the **Browse…** button next to the **Connector file** field to select **CWYFF_FlatFile.rar**

Uncheck the check box next to **Add module to and EAR project** and click **Finish**



Click on **No** from Confirm Perspective Switch window to continue in Business Integration perspective



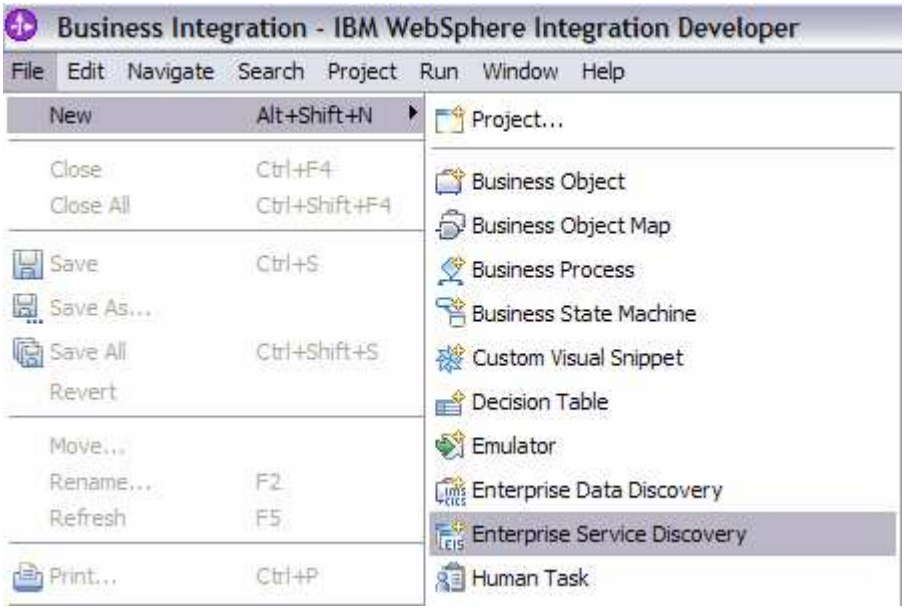
Part 2: Use ESD wizard to generate business objects and other artifacts

Enterprise Service Discovery (ESD) or Enterprise Metadata Discovery (EMD) is a component within the adapter that enables the generation of business object definitions and other artifacts required by SCA.

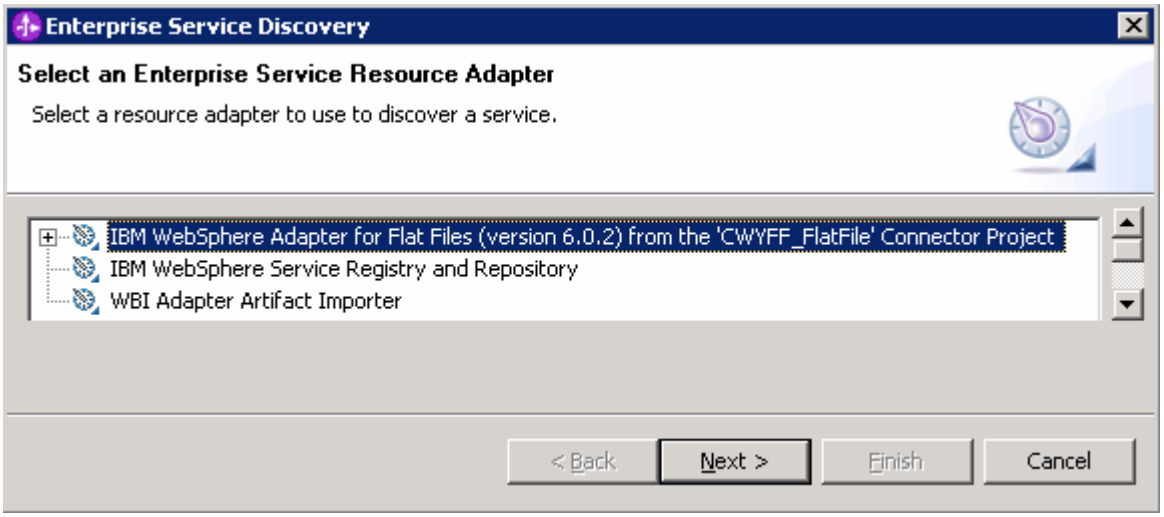
The instances of the Managed Connection Factory and Resource Adapter from EMD translate to the section on SCA import files. During runtime, the adapter component that exposes an adapter as SCA uses these import files to create instances of Managed Connection Factory and Resource Adapter and fills in values from the SCA files that were created with EMD.

____ 1. Start the Enterprise Service Discovery process and import the Flat Files Adapter Resource Archive (RAR) file.

__ a. From the top Menu bar, select **File > New > Enterprise Service Discovery**



____ 2. Select **IBM WebSphere Adapter for Flat Files (version 6.0.2) from the 'CWYFF_FlatFile' Connector Project** and click **Next**



____ 3. Configure settings for the Discovery agent

You will specify the properties to initialize the Resource Adapter and Enterprise Service Discovery agent.

__ a. Click the **Browse…** button next to the **Folder Name** field and select the folder **<FFADAPTER_HOME>\samples** that contains the XSD file for **Customer** Business Object

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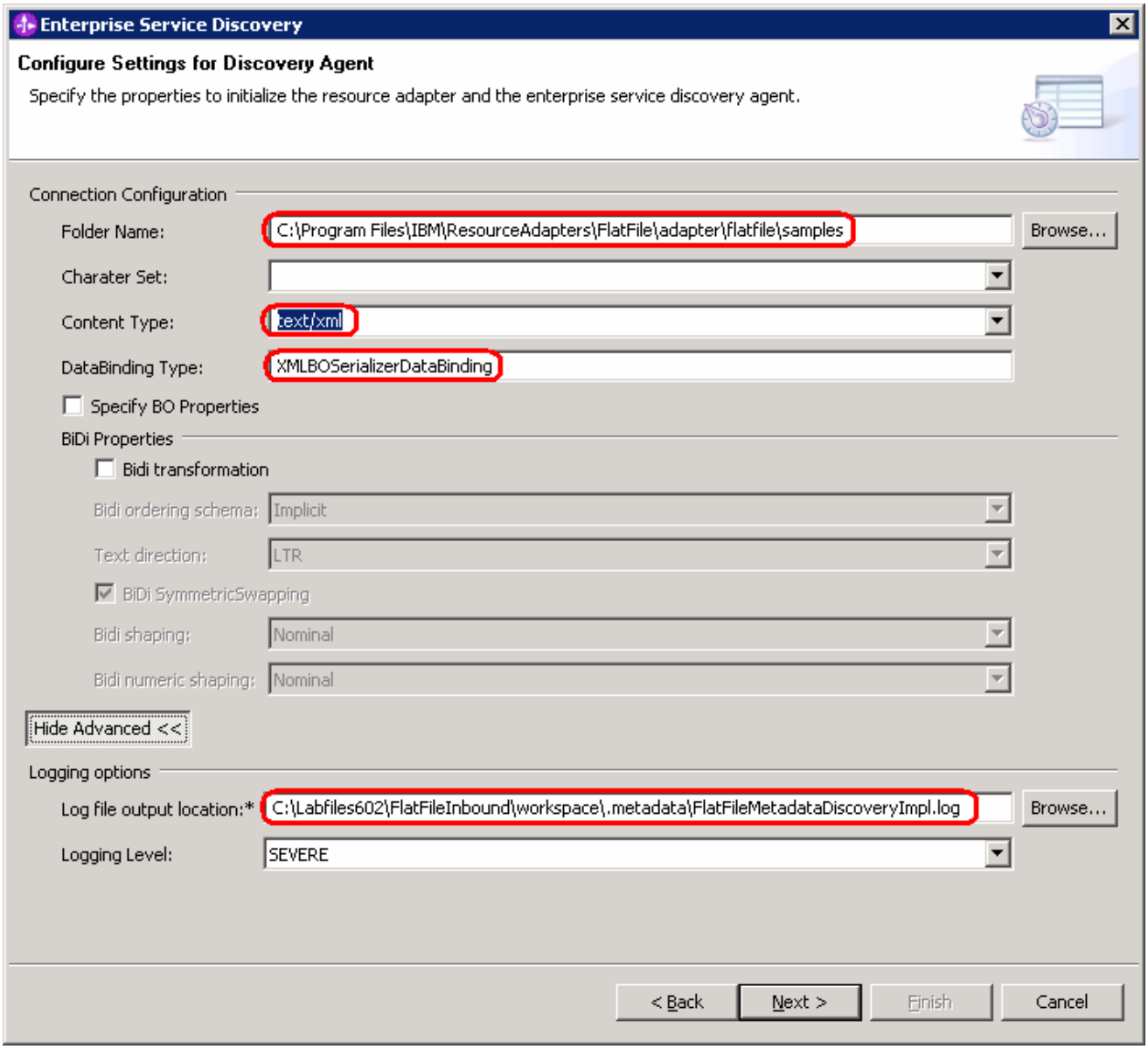
Note: For your convenience, the **Customer.xsd** is also placed under **<LAB_FILES>\FFFiles**.

__ b. Select **text/xml** for the **Content Type** field. When you select the content type, the **DataBinding Type** will be automatically set to **XMLBOSerializerDataBinding**

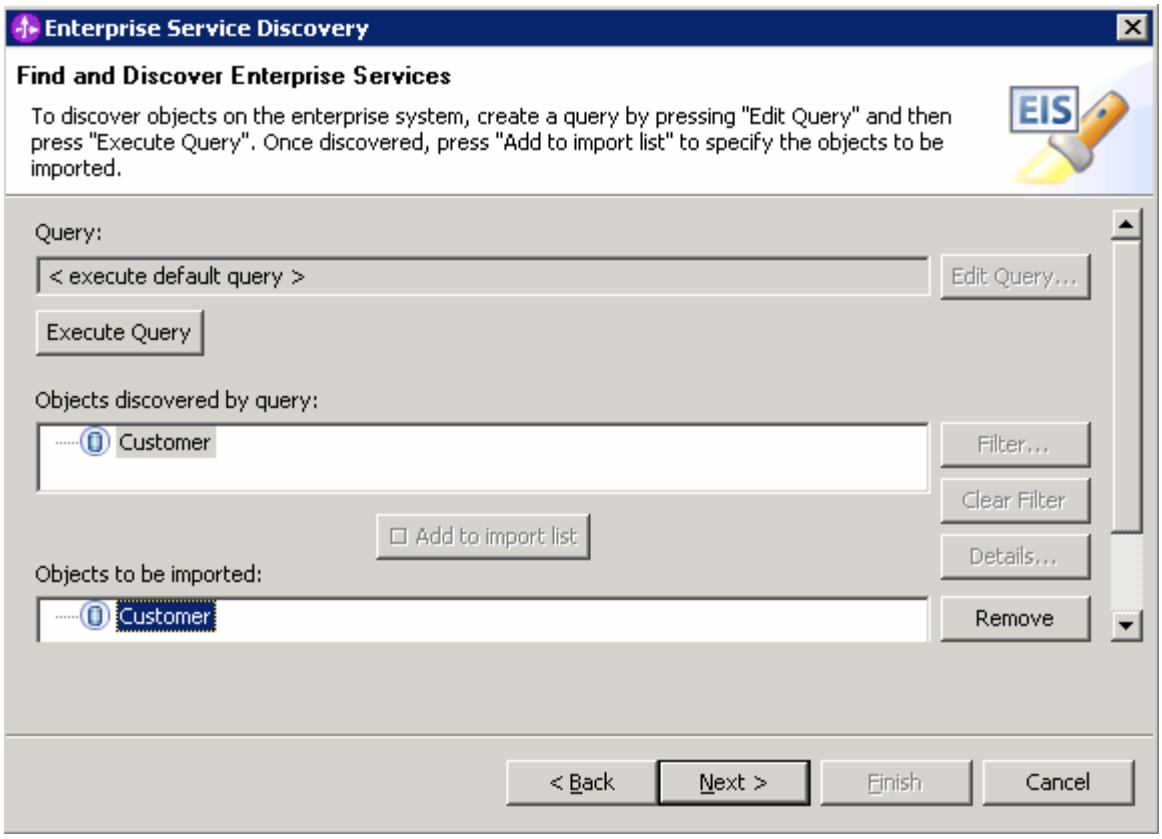
__ c. Click the **Show Advanced >>** button to see the Log file location and Logging level options for discovery log and click **Next** leaving the default log file location



____ 4. Find and discover the enterprise services. In this step you will select the business objects and services to be used with the adapter

__ a. From the Enterprise Service Discovery window, click on **Execute Query** button. You will see a **Custome**r business object under **Objects discovered by query**

__ b. Select **Customer** business object and click **Add to import list** button. The Customer business object will now be displayed under the **Objects to be imported**

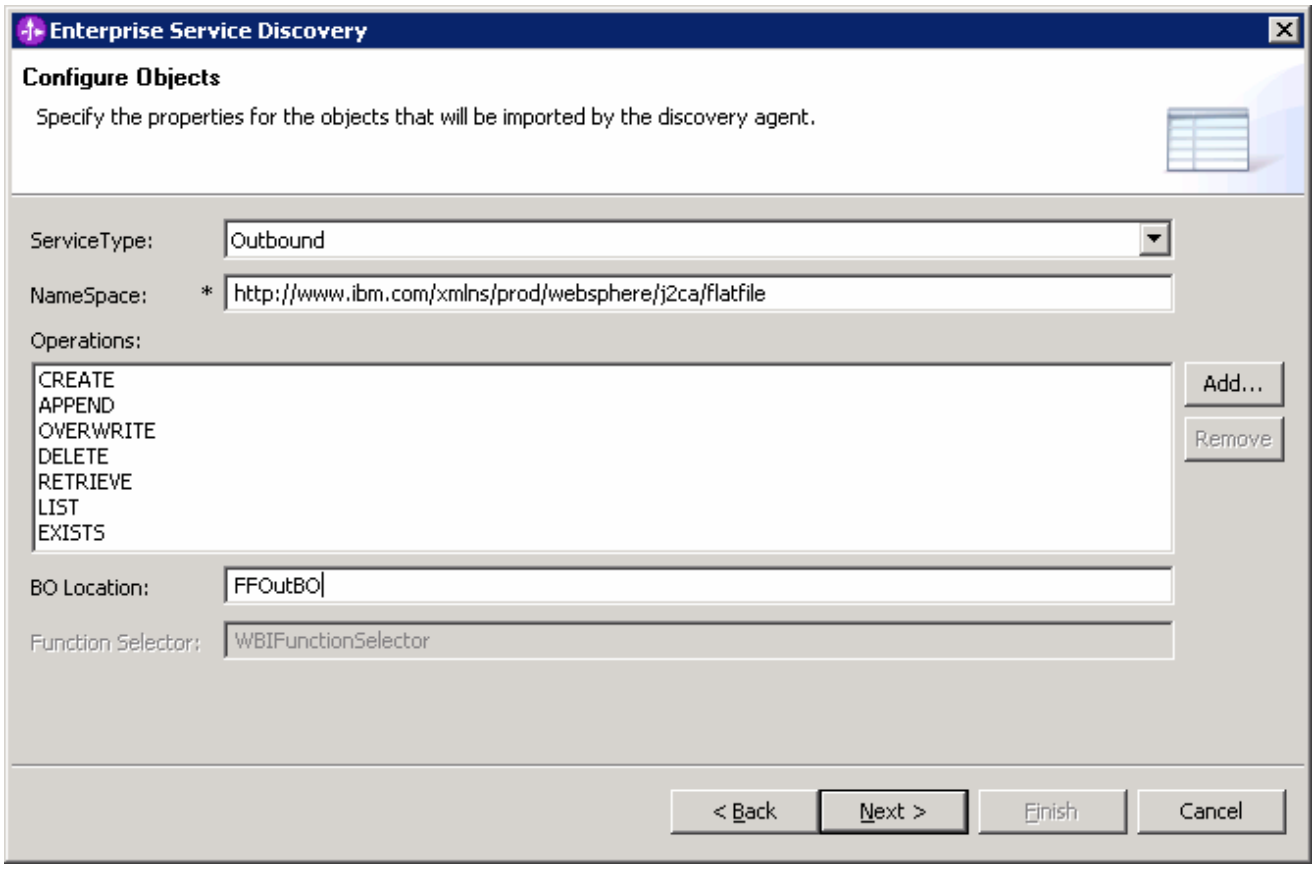


__ c. Click **Next**

____ 5. Configure the objects that will be imported by the discovery agent

__ a. From the Configure objects window, select **Outbound** from the dropdown menu for the **Service Type**. Note the operations available for the selected Service Type

__ b. Enter the **BO Location** as **FFOutBO** and click **Next**

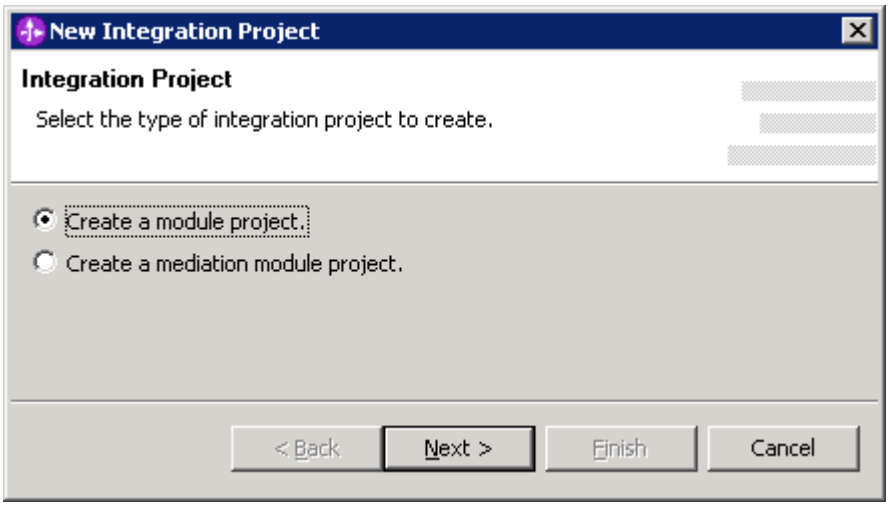


____ 6. Specify the properties for the artifacts that will be generated in your workspace

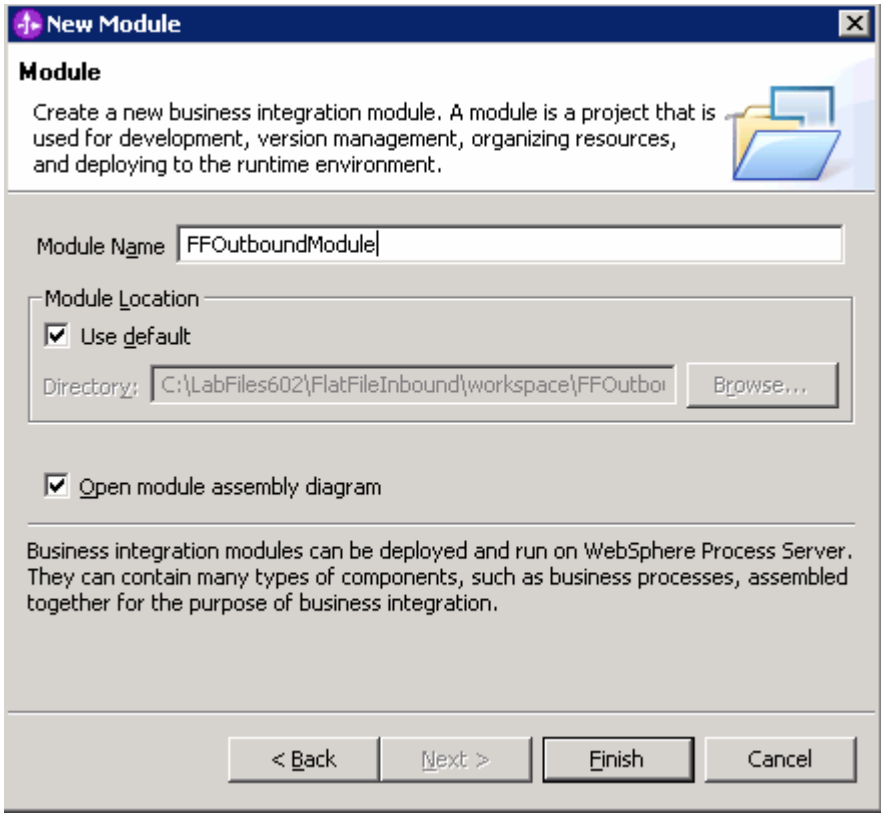
__ a. Create a new module

1) Click on the **New…** button next to the **Module** field

2) From the New Integration Project window, ensure that the radio button next to **Create a module project** is selected and click **Next**



3) Enter **FFOutboundModule** for the **Module Name** field and click **Finish**



__ b. The module which is created above will appear under the **Module** field of the Generate Artifacts window

__ c. From Generate Artifacts window, select the radio button next to **Use discovered connection properties**. This will make the Flat File MCF (Managed Connection Factory) and Resource Adapter Properties visible

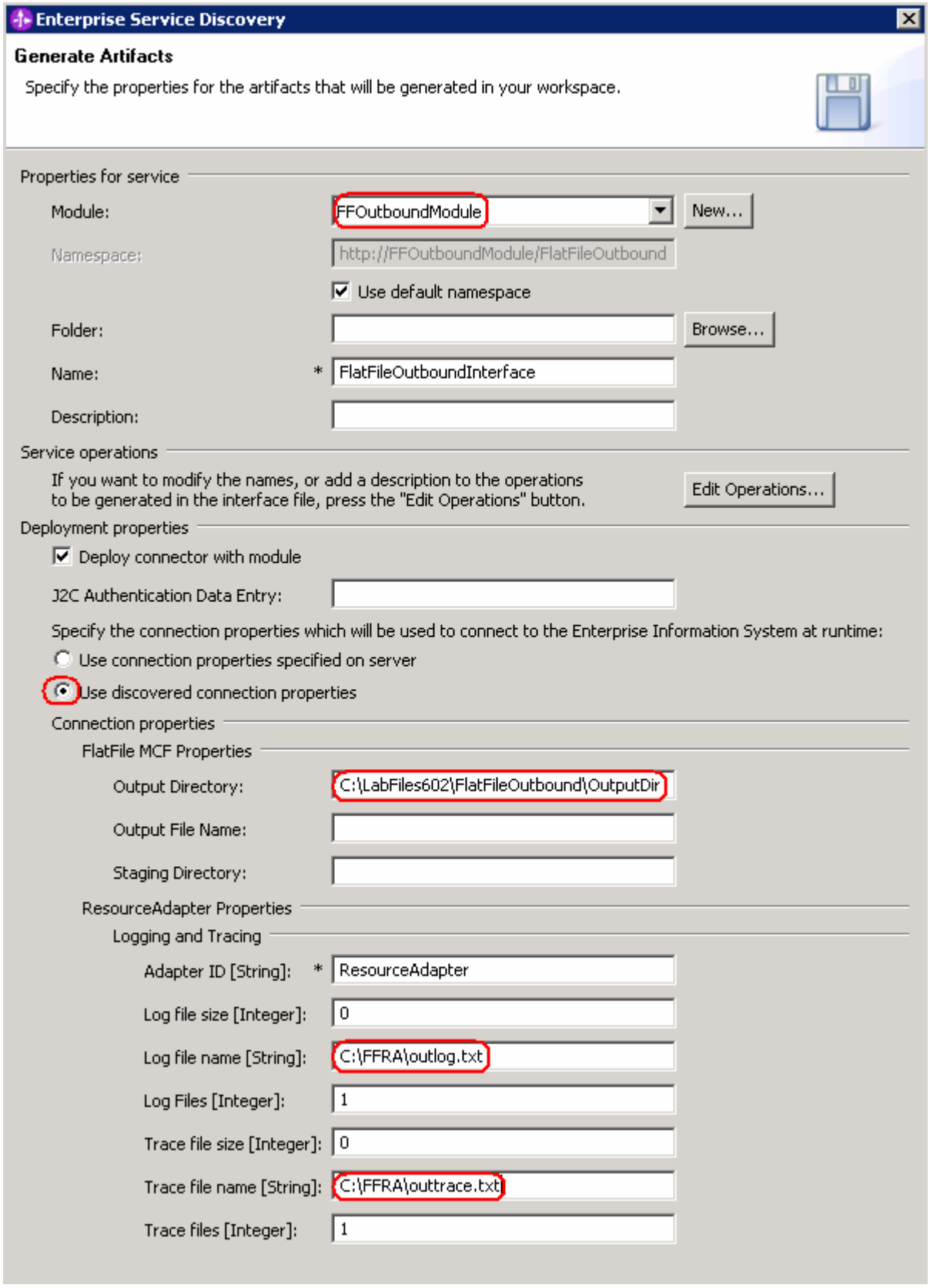
__ d. Enter the following fields:

1) OutputDirectory: **<OUT_DIR>**

2) LogFilename: **C:\FFRA\outlog.txt**

3) TraceFilename: **C:\FFRA\outtrace.txt**

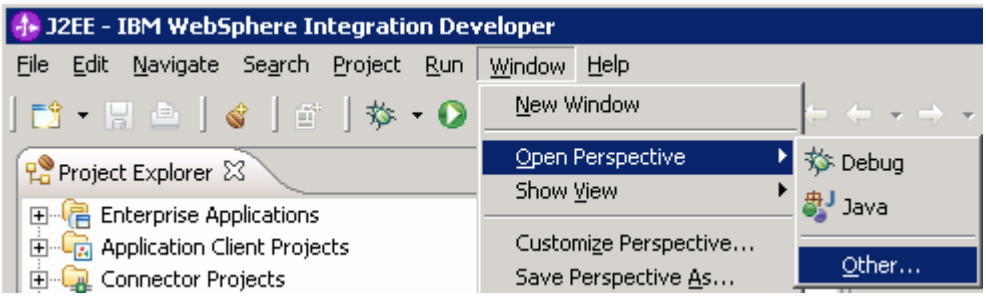
__ e. Click **Finish**



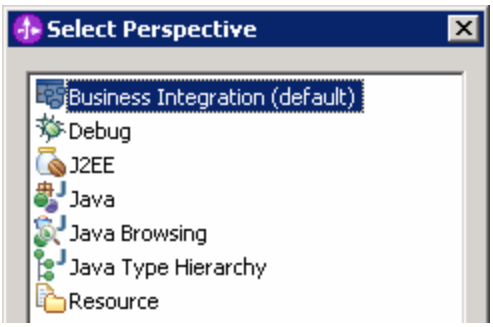
____ 7. You can also configure/change the adapter properties using the Assembly Editor

__ a. Change to the Business Integration perspective if not open

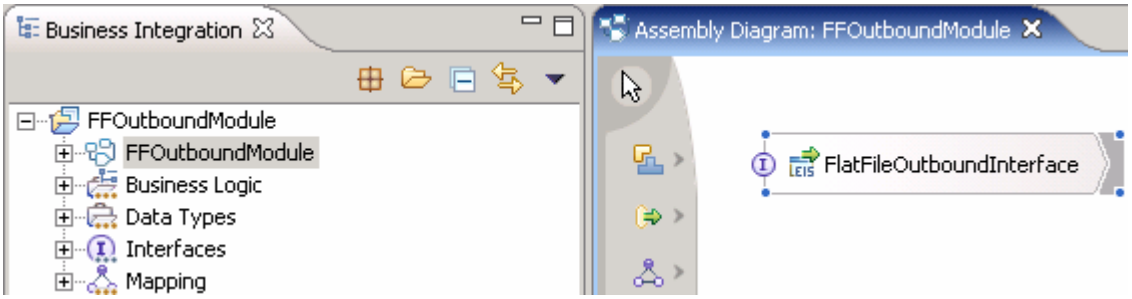
1) Select **Window > Open Perspective > Other…**.



2) From the Select Perspective window, select **Business Integration (default)** and click **OK**



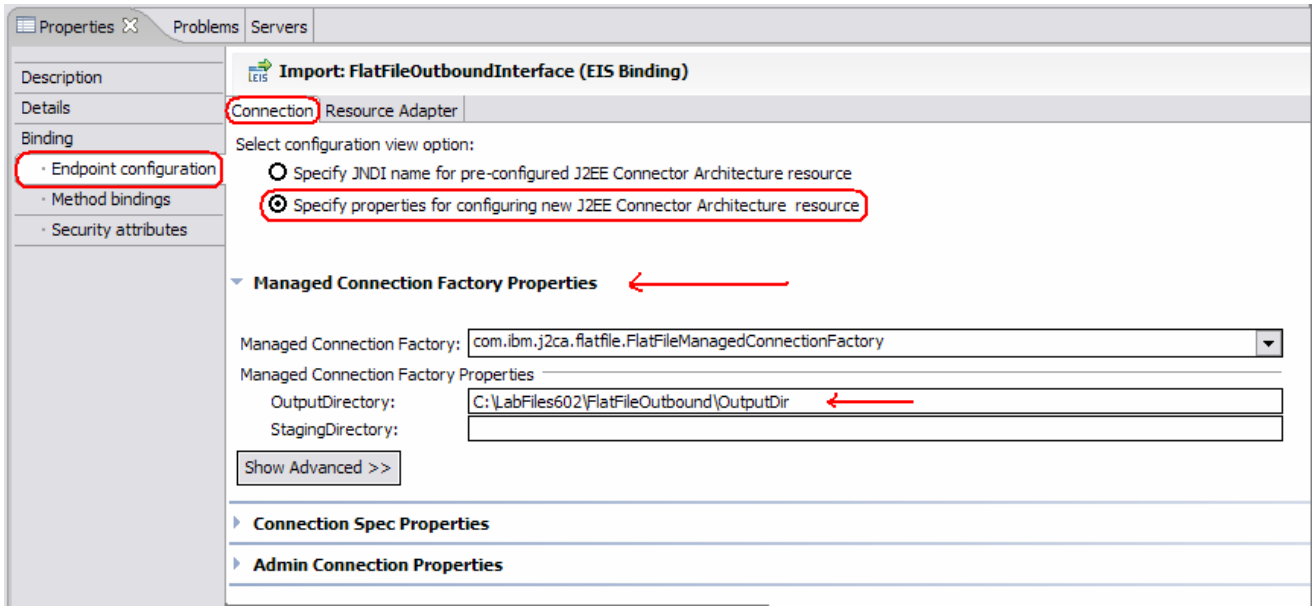
__ b. Expand **FFOutboundModule** and double-click **FFOutboundModule** to open it in the Assembly Editor



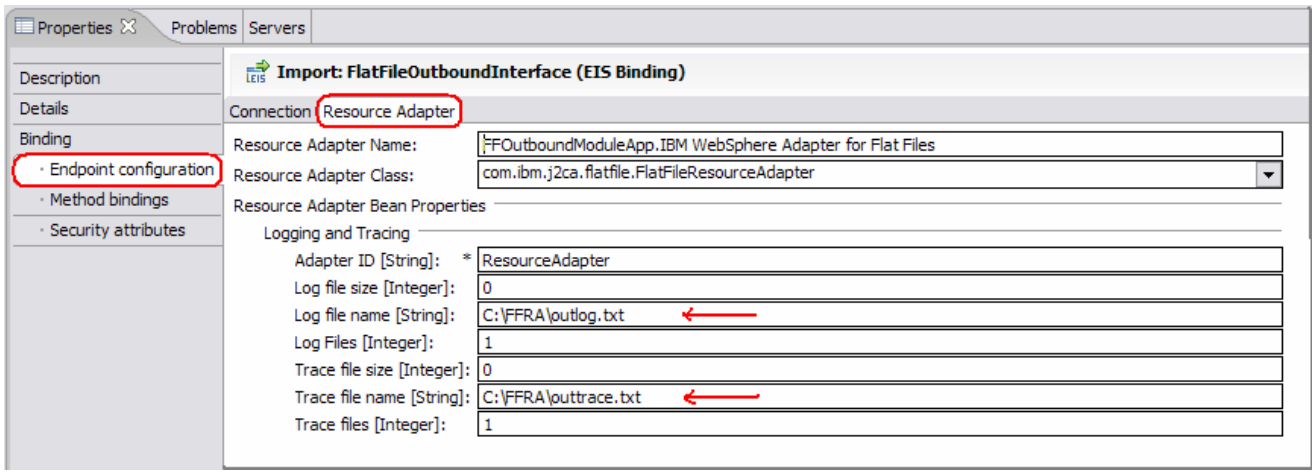
__ c. Click on **FlatFileOutboundInterface** from the Assembly Editor and select **Properties** tab from the bottom

__ d. Select **Binding** under Properties and select **Endpoint Configuration** under Binding itself and then select the **Connection** tab

1) Ensure the radio button next to **Specify properties for pre-configured new J2EE Connector Architecture recourse** is selected and then **c**lick on **Managed Connection Factory Properties** to expand them. You can change the properties that you entered using the ESD wizard in the previous steps and save those changes before you deploy the application onto the server



2) Click on **Resource Adapter** tab to view/change the Resource Adapter Properties



Part 3: Test the adapter application using the WebSphere Process Server test environment

In this part of the lab, you will use the WebSphere Process Server Test Environment to test the SCA application outbound processing.

Flat File Adapter supports the following outbound operations:

Create –creates the specified file name in the specified directory with the content sent across in the request. If the file to be created already exists, a FlatFileCreateException is thrown and no file will be created. In other words, create operation doesn't support the overwriting of the existing file.

Append –appends the content, specified in the request, at the end of the file. The file to be appended should exist, if not a FlstFileAppendException is thrown.

Delete –deletes the file from the directory specified in the request. If the file to be deleted doesn't exist, a FlatFileDeleteException is thrown to the calling component.

Retrieve – retrieves the file contents of the file name specified in the request and sends as response. If the file doesn't exist, a FlatFileRetrieveException is thrown to the calling component.

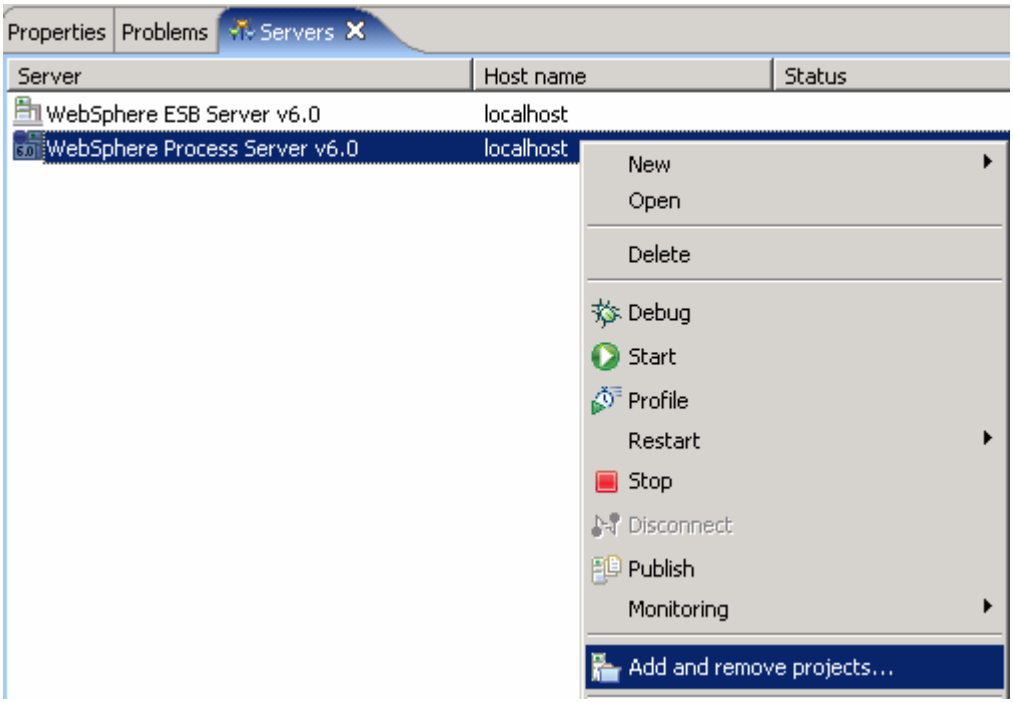
Overwrite – overwrites the file in the directory with the content specified in the request. It the file doesn't exist, a FlatFileOverwriteException is thrown to the calling component.

Exists – checks the existence of a file. Returns true if the file name in the request exists in the specified directory and returns false if either directory or file name does not exist.

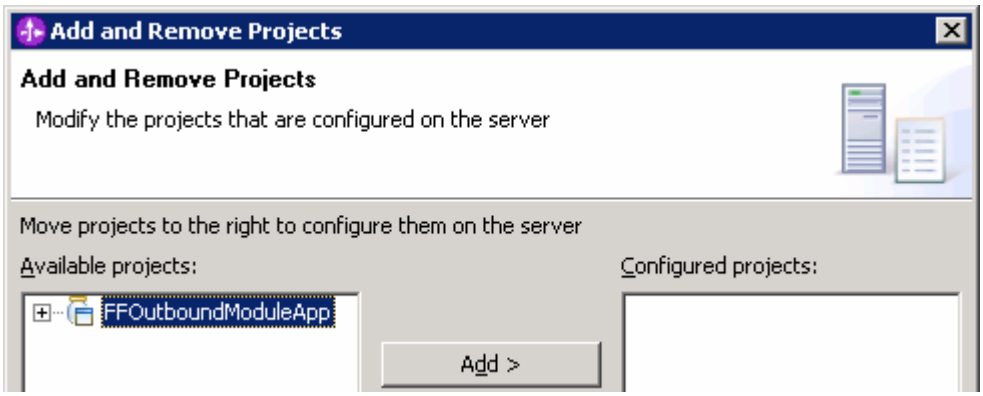
List – returns all the file names in the directory specified in the request. If the directory specified doesn't exist, a FlatFileListException is thrown to the calling component.

____ 1. Add the project to the WebSphere Process Server Test Environment

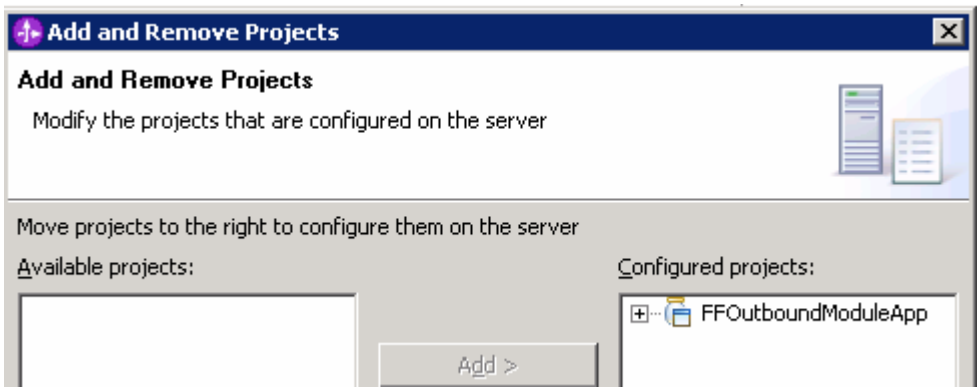
__ a. Right-click on **WebSphere Process Server v6.0** under the Servers view and select **Add and remove projects…** from the context menu



__ b. In the Add and Remove Projects dialog, select the **FFOutboundModuleApp** project from the Available projects panel



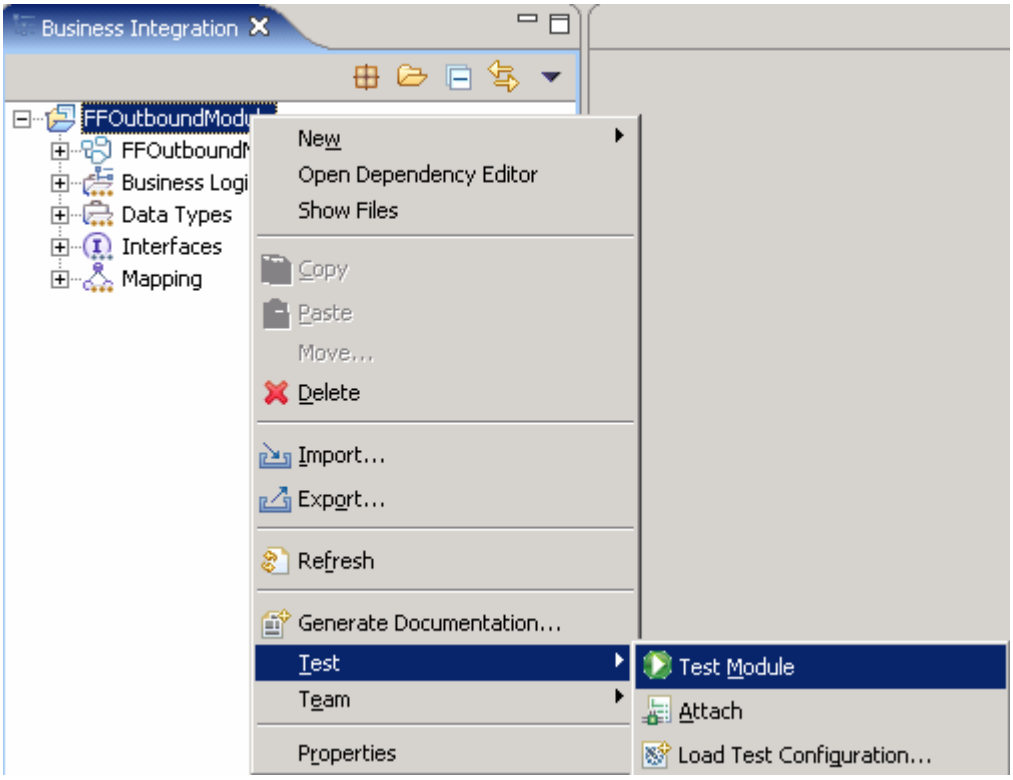
__ c. Click **Add >** to add it to the Configured projects panel. Click **Finish**



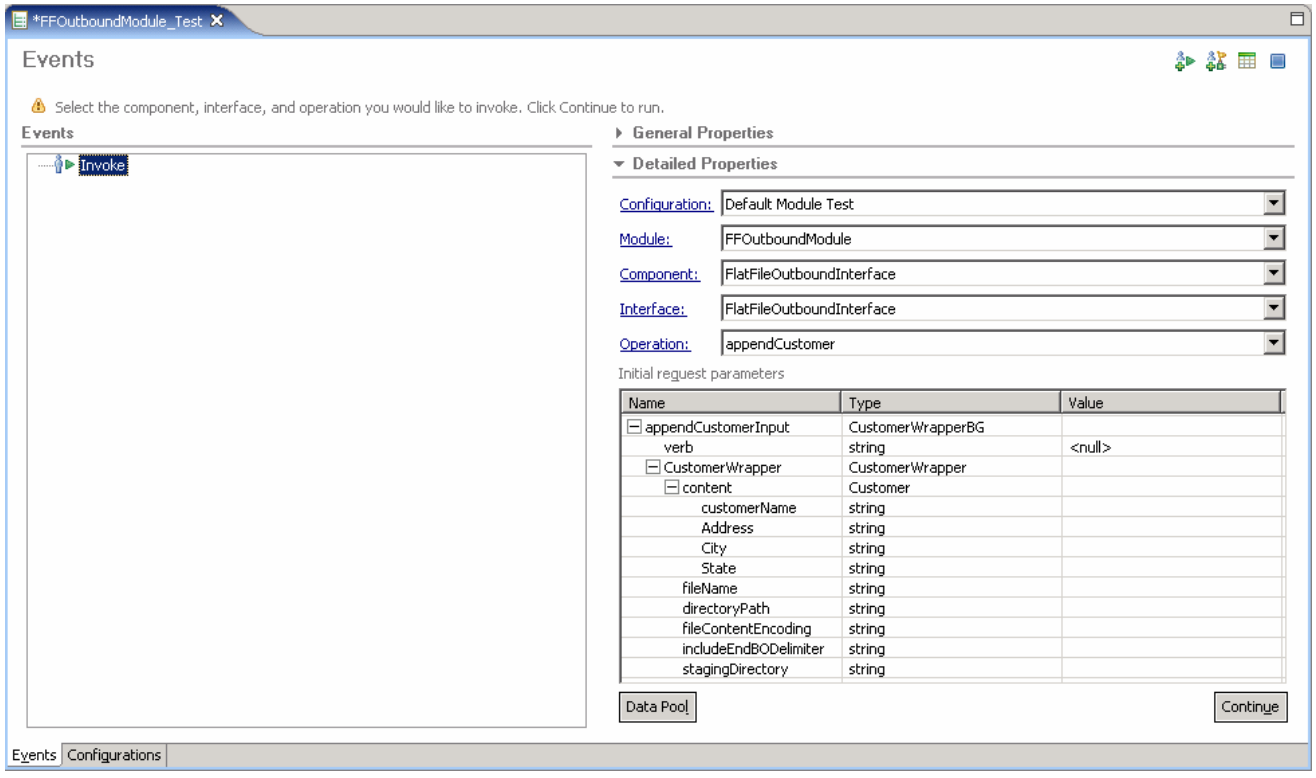
Wait for the project to be added to the server and the application to start. The server will be started in Debug mode if it is not already started before.

____ 2. Publish the module to the WebSphere Process Server test environment

From the Business Integration perspective, right-click on the **FFOutboundModule** and select **Test > Test Module**



The FFOutBoundModule_Test editor will be opened



____ 3. **Test Scenario**: outbound for **createCustomer** operation (Non-PassThrough)

Under **Detailed Properties**, for the **Operation** field, select **createCustomer** from the drop down menu

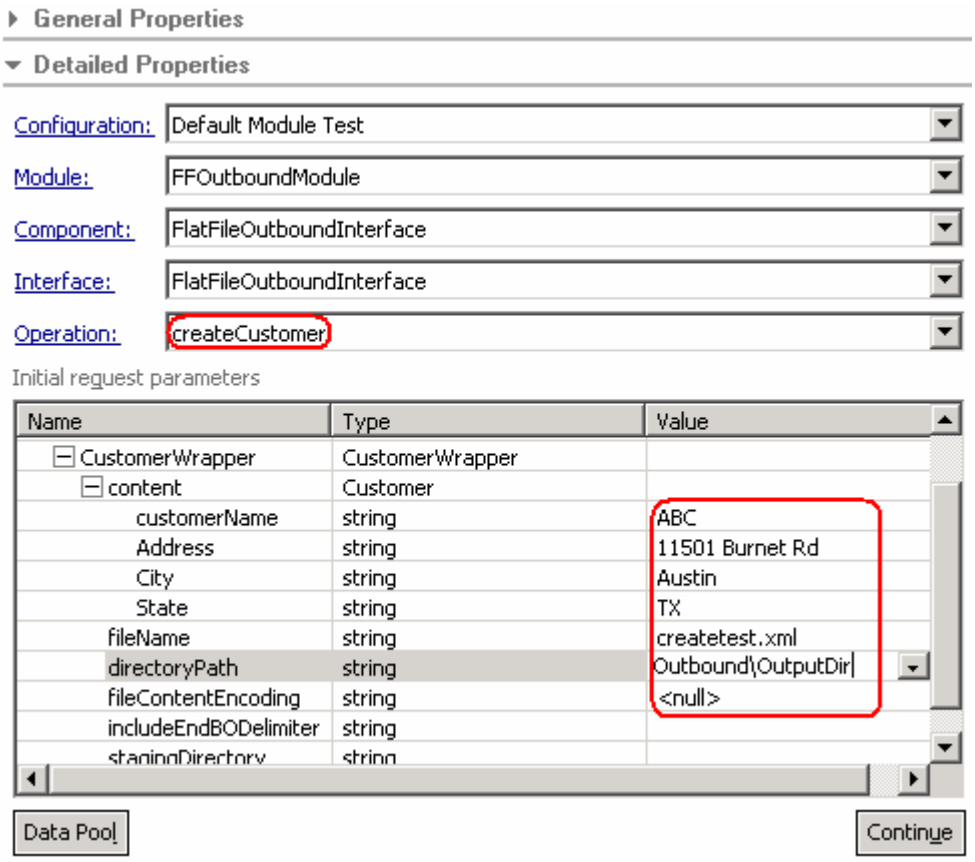
Fill out the fields for Initial request parameters:

For the fields – CustomerName, Address, City, State you can enter any string

fileName: **createtest.xml** (a file with this name will be created under the directoryPath you will specify in the following step)

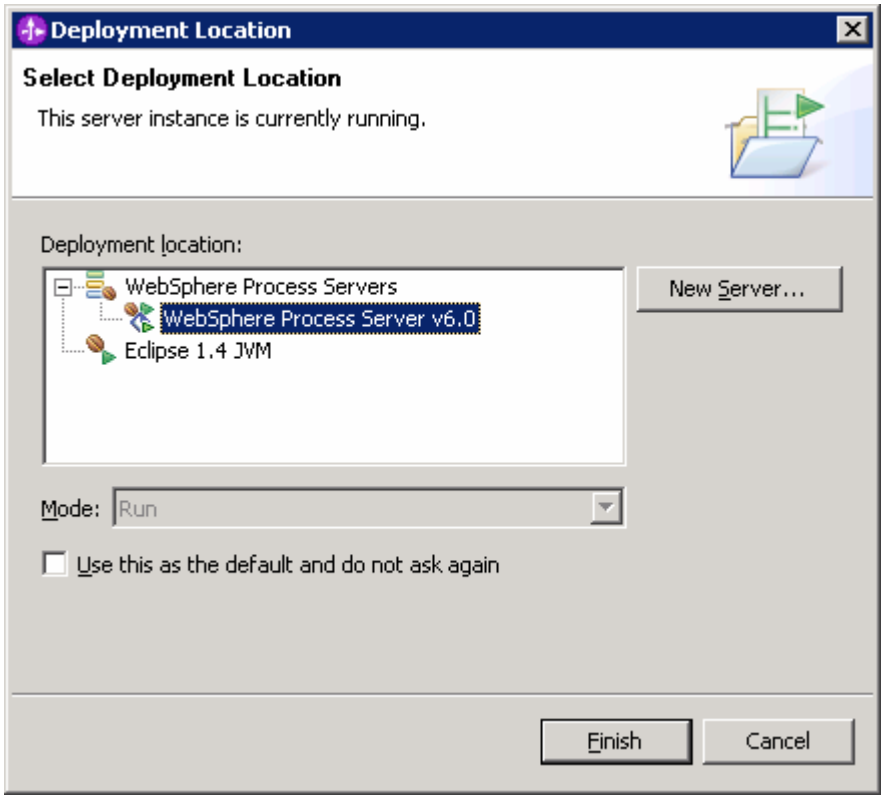
directoryPath: **<OUT_DIR>** (Refer to the table at the beginning of this document for this value. The specified subdirectory must already exist; otherwise you will receive a failure when trying to create the file. This subdirectory is created for you, if you unzipped the LabFiles602.zip or you can manually create the subdirectory now.)

For the remaining three fields – fileContentEndcoding, includeEndBODelimiter, stagingDirectory, you can set them to <**null>** from the drop down menu. You must set fileContentEncoding to <null> or <unset> for the newly created file to contain the content.

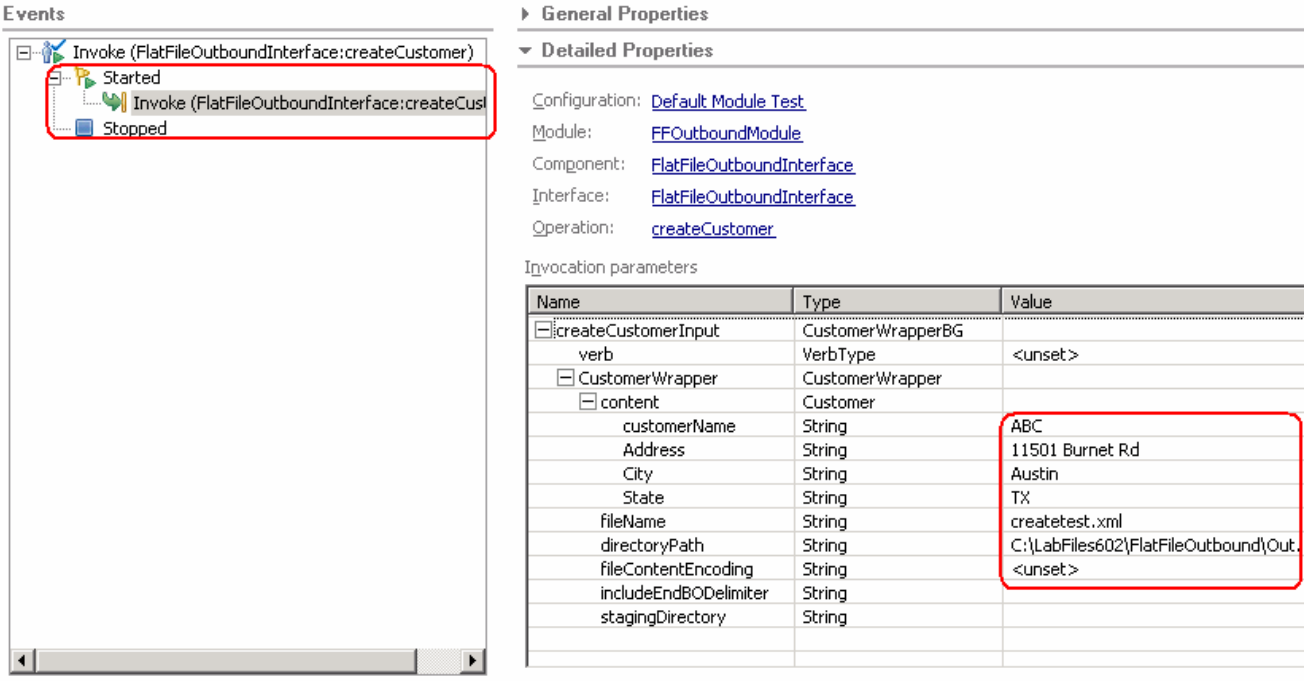


Click **Continue**

From Deployment Location window, select **WebSphere Process Servers > WebSphere Process Server v6.0** and click **Finish**



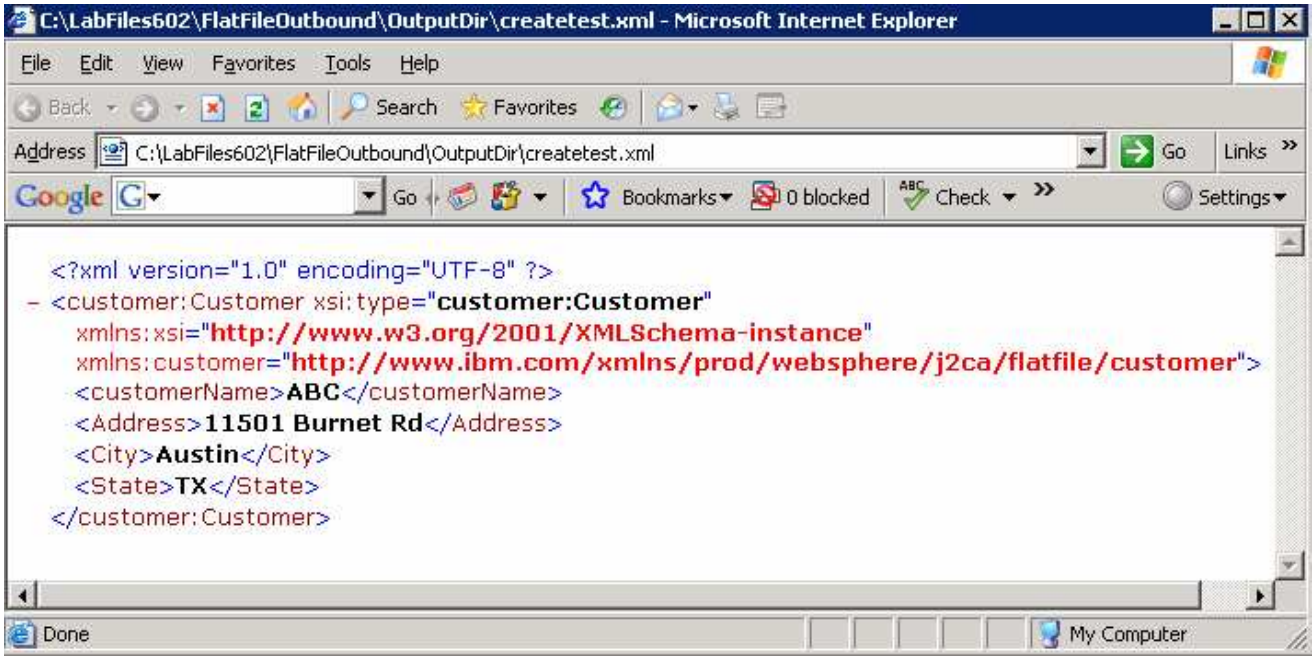
Click on the **Invoke (FlatFileOutboundInterface:createCustomer)** and you will see a window similar to the following, that contains the data you just entered in the previous steps:



Verify the created file contents

__ a. Check the subdirectory **<OUT_DIR>** for the file **createtest.xml**

__ b. Open the **createtest.xml** file and it will contain the following contents:



____ 4. **Test Scenario**: outbound for **createFlatFile** operation (Pass-Through)

Click on Invoke button  at the top from the FFOutboundModule_Test window

Under **Detailed Properties**, for the **Operation** field, select **createFlatFile** from the drop down menu

Fill out the fields for Initial request parameters:

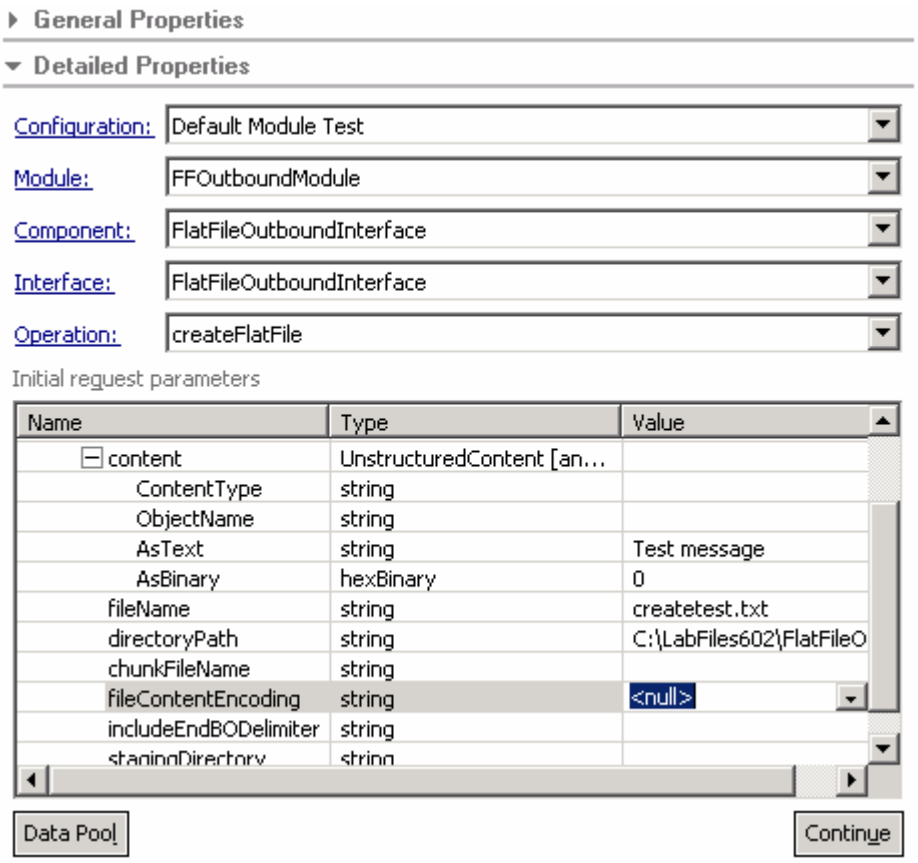
On the row that contains **content**, under Type and select browse button and then select **UnstructuredContent** from the Data Type Selection window

Enter some string data for **AsText** field

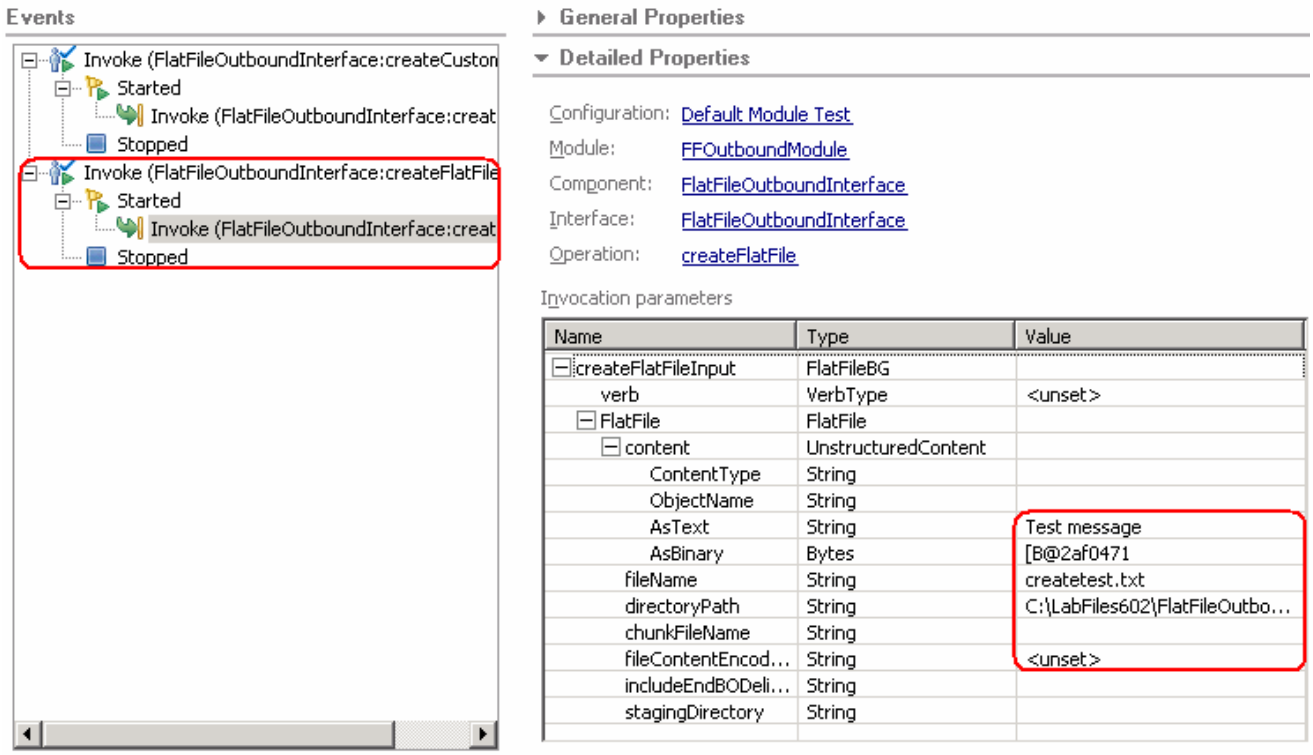
fileName: **createtest.txt** (a file with this name will be created under the directoryPath you will specify in the following step)

directoryPath: **<OUT_DIR>** (Refer to the table at the beginning of this document for this value. The specified subdirectory must already exist, otherwise you will receive a failure when trying to create the file. This subdirectory is created for you, if you unzipped the LabFiles602.zip or you can manually create the subdirectory now.)

For the remaining three fields – fileContentEndcoding, includeEndBODelimiter, stagingDirectory, you can set them to <**null>** from the drop down menu. You must set fileContentEncoding to <null> or <unset> for the newly created file to contain the content



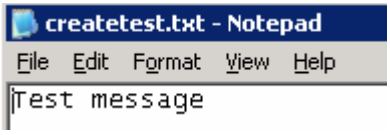
Click on the **Invoke (FlatFileOutboundInterface:createFlatFile)** and you will see a window similar to the following, that contains the data you just entered in the previous steps:



Verify the created file contents

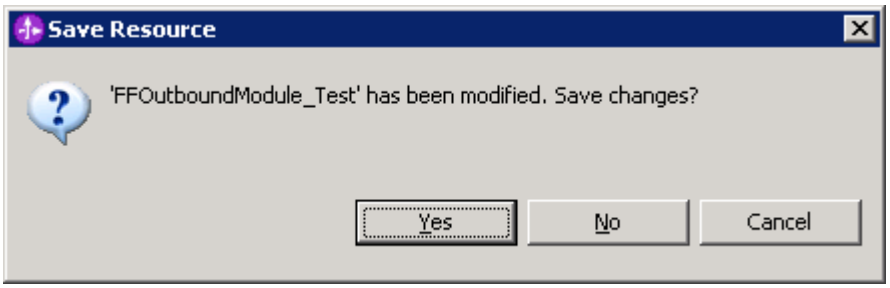
__ a. Check the subdirectory **<OUT_DIR>** for the file **createtest.txt**

__ b. Open the **createtest.txt** file and it will contain the following contents:

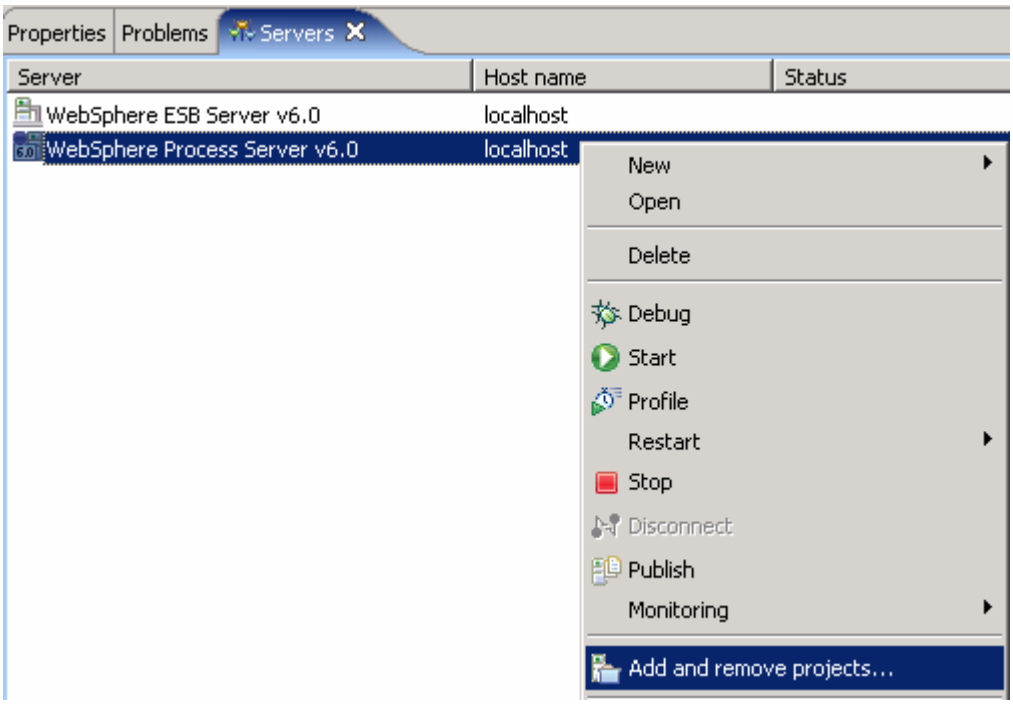


Part 4: Restore server configuration

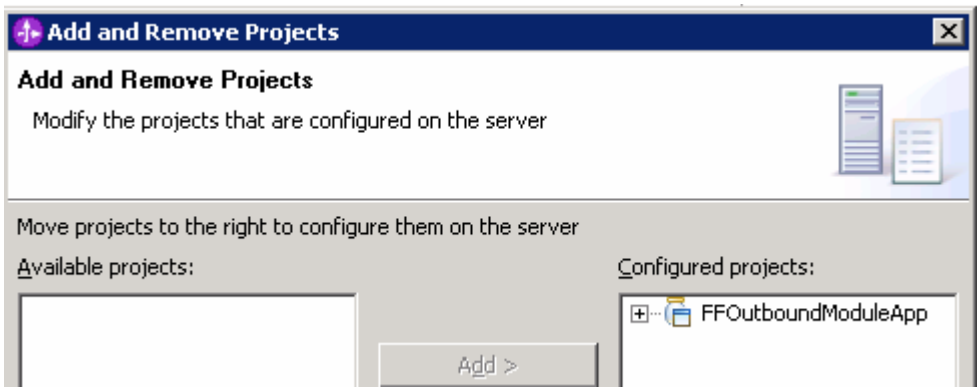
____ 1. Close the **FFOutBoundModule_Test** window and click **No** for the Save Resources window



____ 2. Right-click on **WebSphere Process Server v6.0** under the Servers view and select **Add and remove projects…** from the context menu

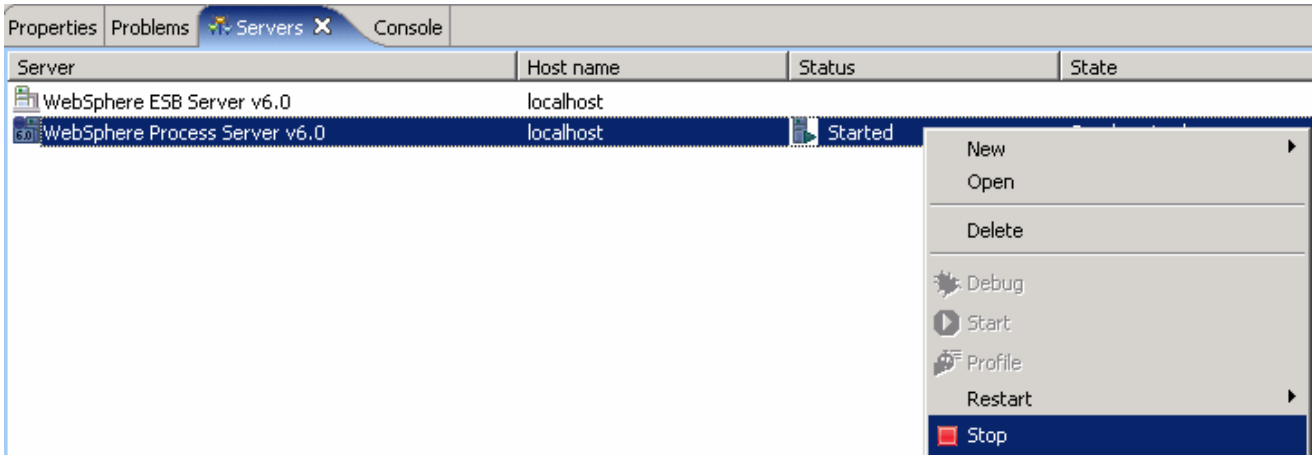


____ 3. Select **FFOutboundModuleApp** under Configured projects and click **< Remove**



____ 4. Click **Finish** after you see the application moved to Available projects. Wait until the application is unpublished

____ 5. Right-click on **WebSphere Process Server v6.0** from the Servers view and select **Stop** from the context menu



What you did in this exercise

In this lab, you imported the Flat File Adapter RAR file into your WebSphere Integration Developer workspace and integrated it into an SCA application that creates a file to the file system.

You made use of Enterprise Service Wizard available in WebSphere Integration Developer to specify Managed Connection Factory 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 the operations available.

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