

## IBM WEBSPHERE ADAPTER 6.0.2 – LAB EXERCISE

## Multiple End Points Support 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 V6.0.2 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 V6.0.2 installed
- WebSphere Process Server V6.0 Test Environment installed
- WebSphere Adapter for Flat File V6.0.2 installed
- Unzip LabFiles602.zip to your C:\ (your root) drive

### 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 Enterprise Service Discovery (ESD) wizard to configure Activation Spec Properties and Resource Adapter Properties to generate Business Objects and other artifacts for two different endpoints

- Deploy the adapter application onto WebSphere Process Server
- Test the deployed application using WebSphere Process Server test environment for multiple endpoint scenario
- Restore the server configuration

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## Introduction

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

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## 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 run 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 |
|--------------------|--|-------------------|
| <WID_HOME>         | C:\Program Files\IBM\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>\ME\workspace   |                   |
| <EVENT_DIR>        | <LAB_FILES>\ME\EventDir  |                   |
| <ARCHIVE_DIR>      | <LAB_FILES>\ME\ArchiveDir  |                   |
| <TEMP>             | C:\temp  | /tmp              |

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**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, C:\LabFiles60\ would be replaced by C:/LabFiles60/

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## Part 1: Prepare database and subdirectory structure

This part of the lab, describes the steps for creating the **MEDATABASE** database in Cloudscape which will contain the Event Persistence Table, **METABLE**. The **METABLE** will be created automatically for you during the install and deployment of the application containing the Flat File adapter to the WebSphere Process Server.

- \_\_\_ 1. Start the Cloudscape Cview Graphical User Interface (GUI) by executing the **cvview.bat** file
  - \_\_\_ a. Open a command prompt window, change to the following subdirectory  
<WPS\_HOME>\cloudscape\bin\embedded

```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\Documents and Settings\Administrator>cd C:\WID601\runtimes\bi_v6\cloudscape\bin\embedded
  
```

- \_\_\_ b. Type **cvview.bat**

```

C:\WINDOWS\system32\cmd.exe - cvview.bat
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

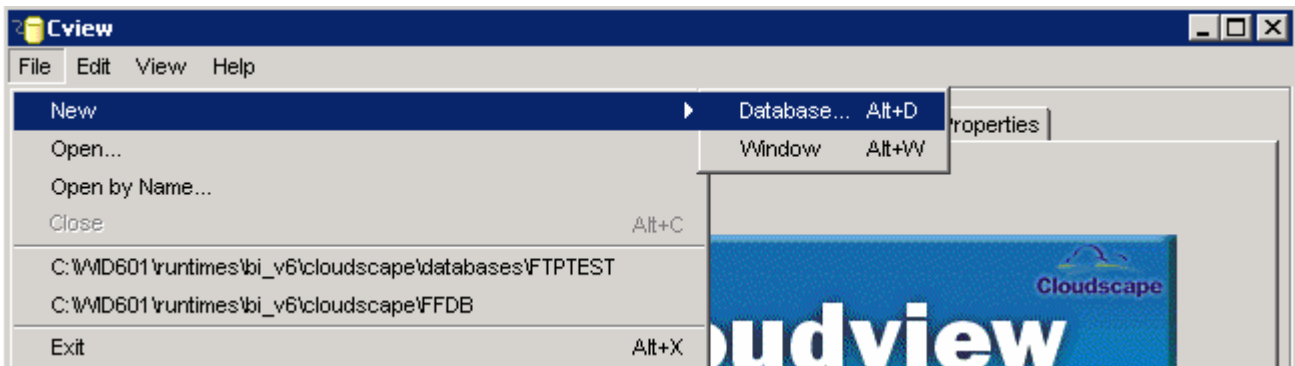
C:\Documents and Settings\Administrator>cd C:\WID601\runtimes\bi_v6\cloudscape\bin\embedded

C:\WID601\runtimes\bi_v6\cloudscape\bin\embedded>cvview.bat

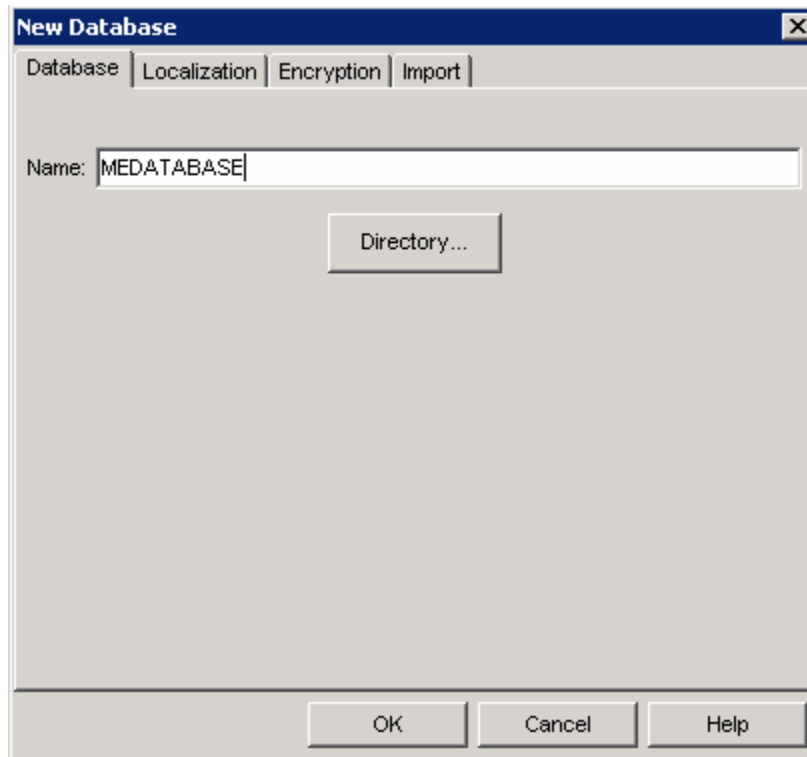
C:\WID601\runtimes\bi_v6\cloudscape\bin\embedded>echo off

-
  
```

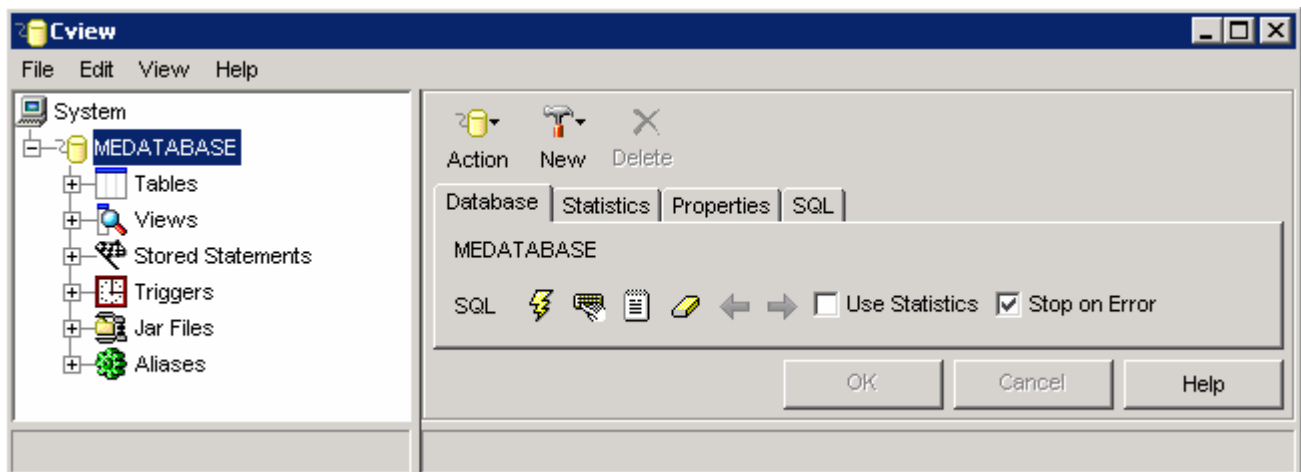
- \_\_\_ c. The Cview window will be opened. From that window, select **File > New > Database...**



\_\_\_ d. Enter **MEDATABASE** in the Name field and click **OK**



You will see the **MEDATABASE** created in the left pane of the Cview window:



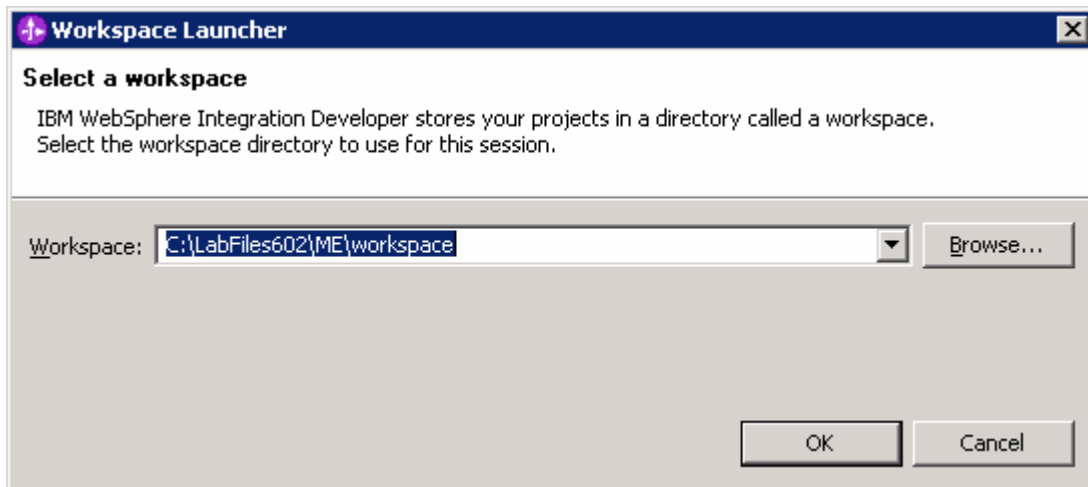
\_\_\_ e. Select **File > Exit** to close the Cview GUI


\_\_\_ 2. Unzip the provided LabFiles602.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 will provide you with sample text files.

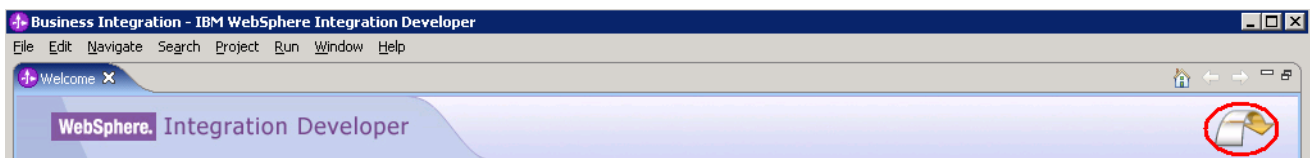
## Part 2: Initialize workspace and import RAR into WebSphere Integration Developer

This part of the lab will guide you through the steps for starting WebSphere Integration Developer with a new workspace, and then import the connector file **CWYFF\_FlatFile.rar** into your new workspace.

- \_\_\_ 1. Start the WebSphere Integration Developer V6.0.2 with a new workspace if not already started.
  - \_\_\_ a. Select **Start > Programs > IBM WebSphere > Integration Developer V6.0.2 > WebSphere Integration Developer V6.0.2**
  - \_\_\_ b. From the Workspace Launcher window, enter **<WORKSPACE>** for the Workspace field

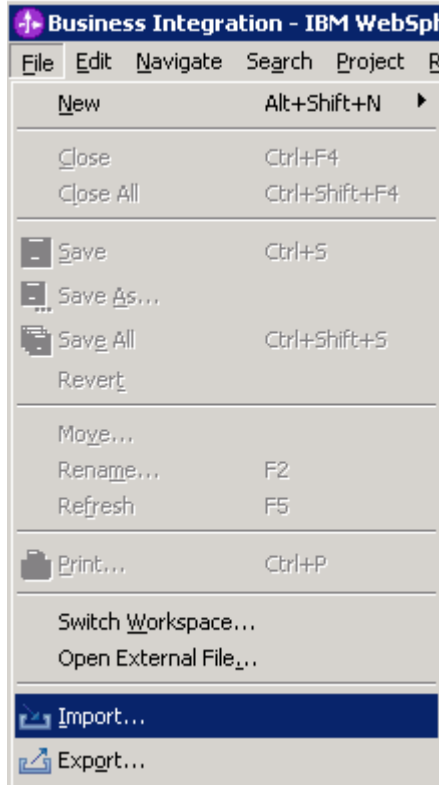


- \_\_\_ c. Click on the  button on the right hand corner to close the Welcome page and proceed with the workbench

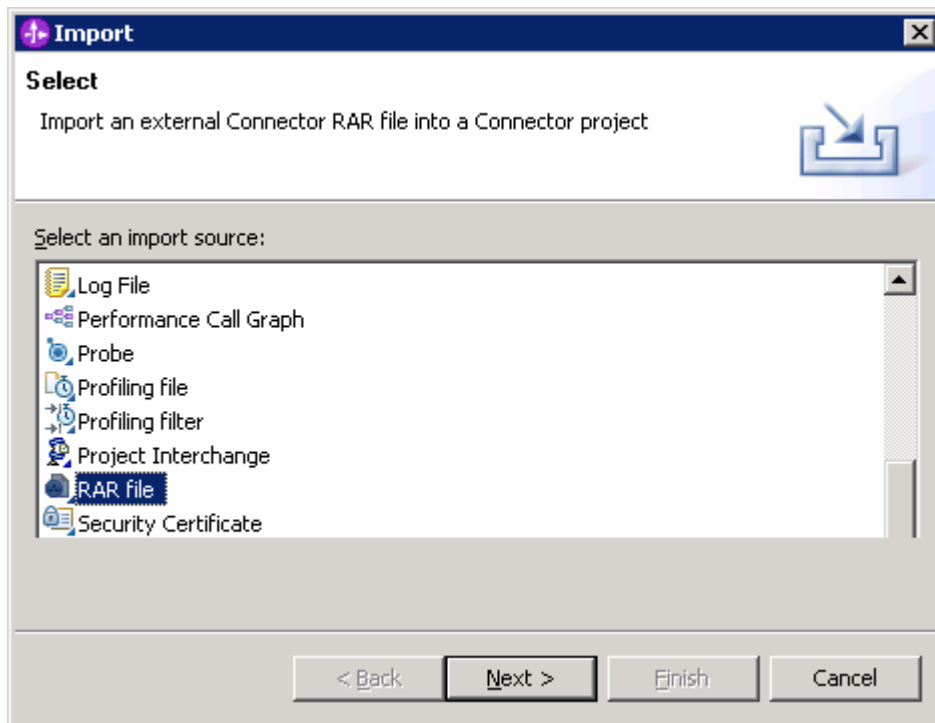


\_\_\_ 2. Import Flat File Adapter RAR file

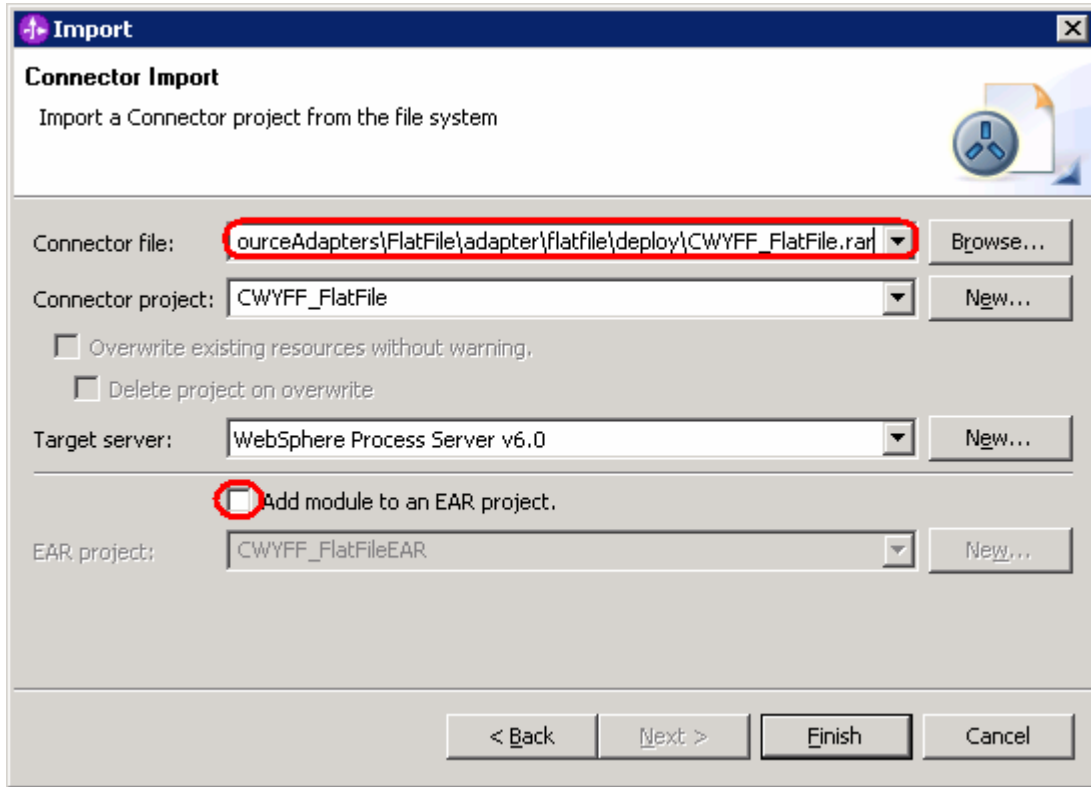
\_\_\_ a. From main menu, select **File > Import...**



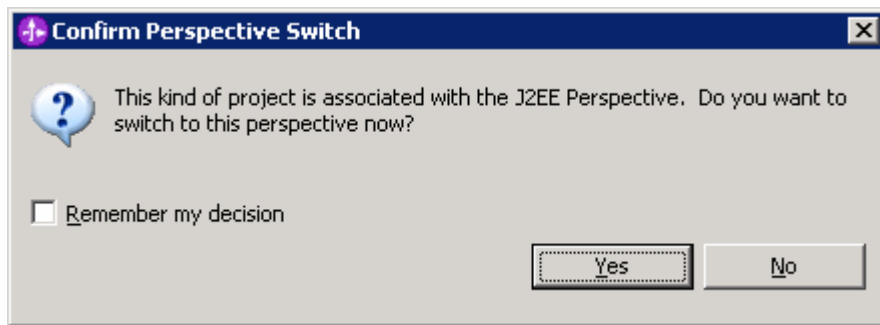
\_\_\_ b. Select **RAR file** from the Import window and then click **Next**



- \_\_\_ c. On the Connector file field, click on the **Browse...** button next to select **CWYFF\_FlatFile.rar**
- \_\_\_ d. Uncheck the check box next to **Add module to and EAR project** and click **Finish**



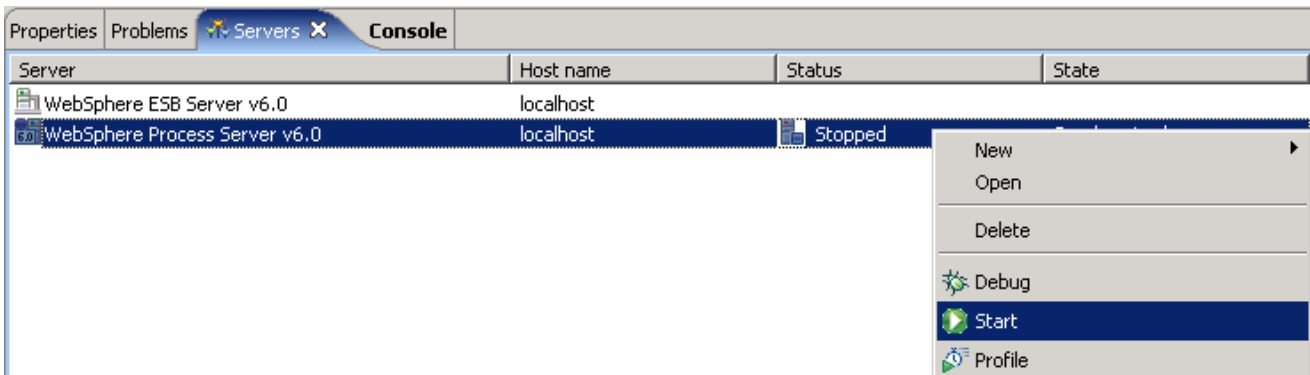
- \_\_\_ e. Click on **No** from Confirm Perspective Switch window to continue with the Business Integration perspective



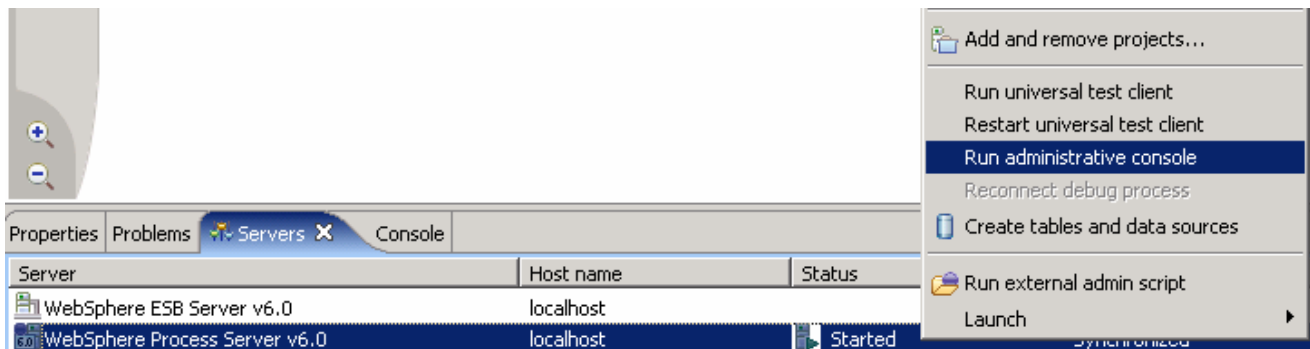
## Part 3: Use WebSphere Process Server Administrative Console to configure data sources

In this part of the lab, you will make use of WebSphere Process Server Administrative Console to create the required JDBC Provider and the Data source that will be used by the Adapter to configure itself to the end point.

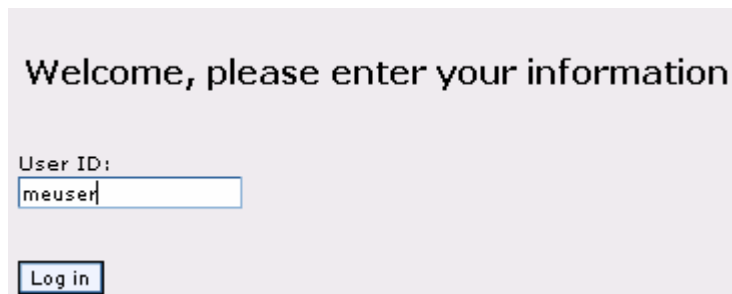
- \_\_\_ 3. Start the WebSphere Process Server
  - \_\_\_ a. Select the **Servers** view
  - \_\_\_ b. Right-click on the row that contains **WebSphere Process Server V6.0** and select **Start** from the context menu



- \_\_\_ c. Wait until the server status shows as **Started**
- \_\_\_ 4. Right-click on the row that contains WebSphere Process Server V6.0 and select **Run administrative console** from the context menu

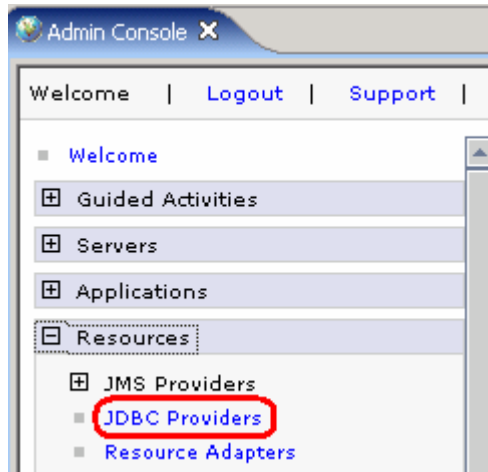


- \_\_\_ 5. From the Administrative Console, enter any **User ID** and click on **Log In**





\_\_\_ 6. Expand **Resources** on the left pane and select **JDBC Providers**



\_\_\_ 7. Accept the default scope and click on **New**

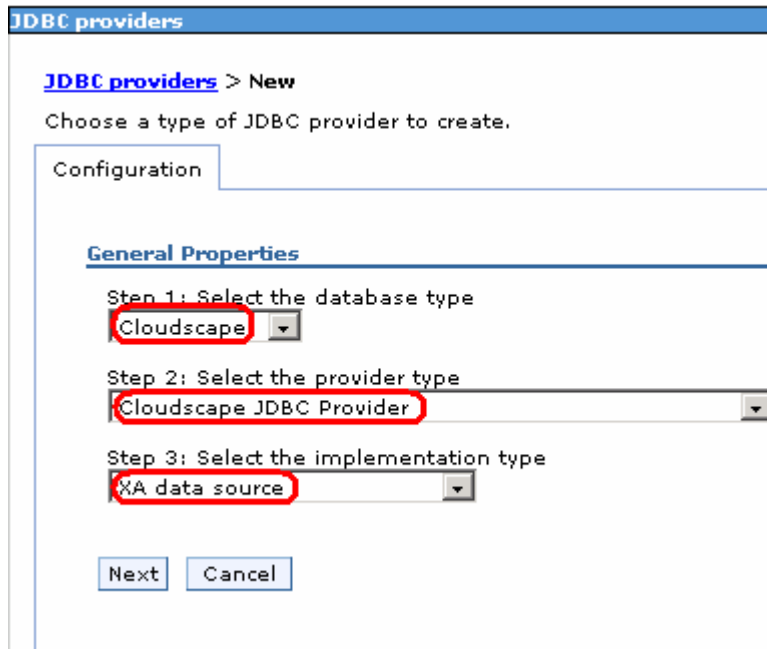
\_\_\_ 8. In the following screen, for General Properties, select the following from the dropdown list:

\_\_\_ a. Step 1: **Cloudscape**

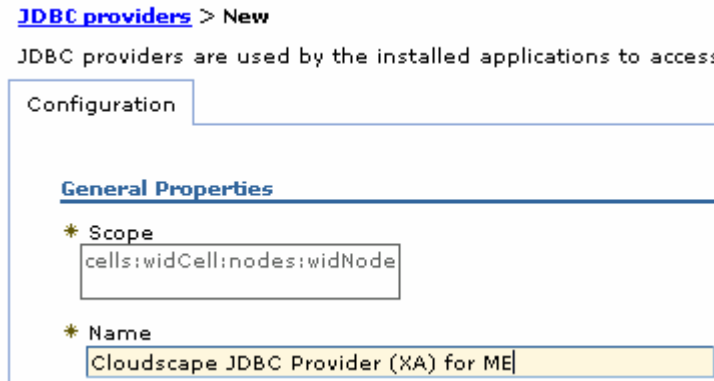
\_\_\_ b. Step 2: **Cloudscape JDBC Provider**

\_\_\_ c. Step 3: **XA data source**

\_\_\_ 9. Click **Next**



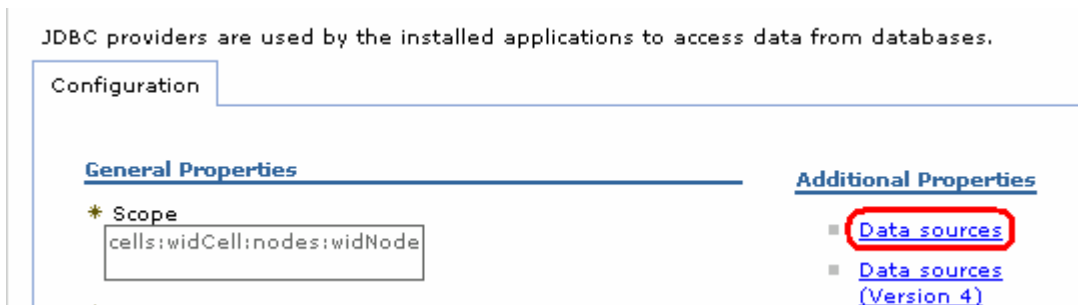
\_\_\_ 10. Enter **Cloudscape JDBC Provider (XA) for ME** in the **Name** field and then click **OK**



\_\_\_ 11. Click **Save** on the top of the window, and then click on **Save** from the following screen

\_\_\_ 12. Click **Cloudscape JDBC Provider (XA) for ME** from the following screen to create a new DataSource

\_\_\_ 13. Select **Data Sources** under **Additional Properties** on the right hand side



\_\_\_ 14. Create the required JNDI Data source

\_\_\_ a. Click **New**

\_\_\_ b. Enter these values:

a) Name: **Cloudscape JDBC Driver XA DataSource for ME**

b) JNDI Name: **jdbc/ME**

c) Database name: **MEDATABASE**

\_\_ c. Click **OK**

**\* Name**  
Cloudscape JDBC Driver XA DataSource for ME

**JNDI name**  
jdbc/ME

Use this Data Source in container managed persistence (CMP)

**Description**  
New JDBC Datasource

**Category**

**Data store helper class name**

Select a data store helper class  
Data store helper classes provided by WebSphere Application Server

Cloudscape data store helper  
(com.ibm.websphere.rsadapter.CloudscapeDataStoreHelper)

Specify a user-defined data store helper  
Enter a package-qualified data store helper class name

**Component-managed authentication alias**  
Component-managed authentication alias  
(none)

**Authentication alias for XA recovery**

Use component-managed authentication alias

Specify:  
(none)

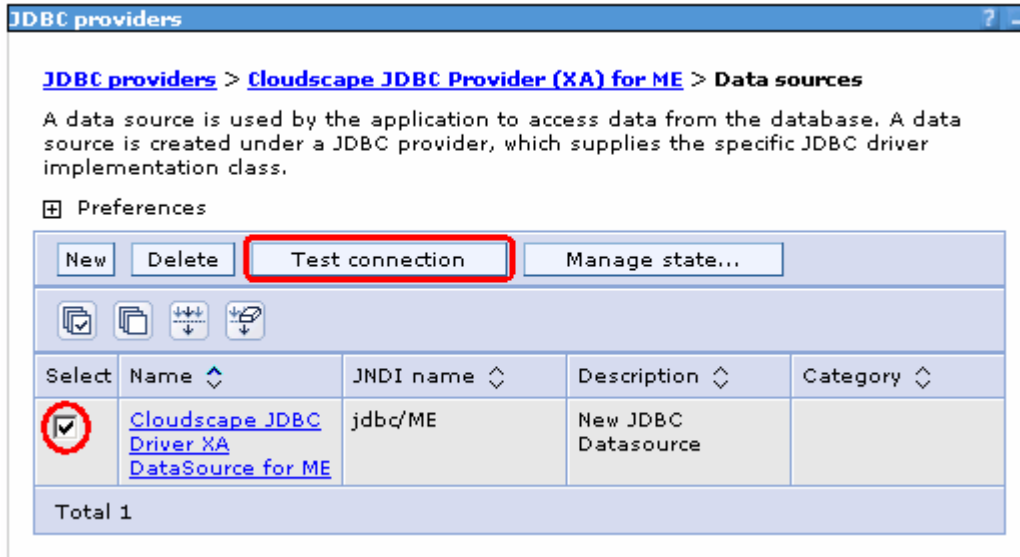
**Container-managed authentication**  
Container-managed authentication alias (deprecated in V6.0, use resource reference authentication settings instead)  
(none)

Mapping-configuration alias (deprecated in V6.0, use resource reference authentication settings instead)  
(none)

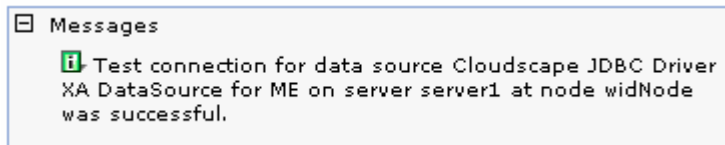
**Cloudscape data source properties**

**\* Database name**  
MEDATABASE

- \_\_\_ 15. Click on **Save** and then **Save** from the following screens
- \_\_\_ 16. Test the Data Source connection
  - \_\_\_ a. Check the box next to **Cloudscape JDBC Driver XA DataSource for FF** and click on **Test connection** from the top of the screen



- \_\_\_ b. You should see the following success message on the top of the screen:



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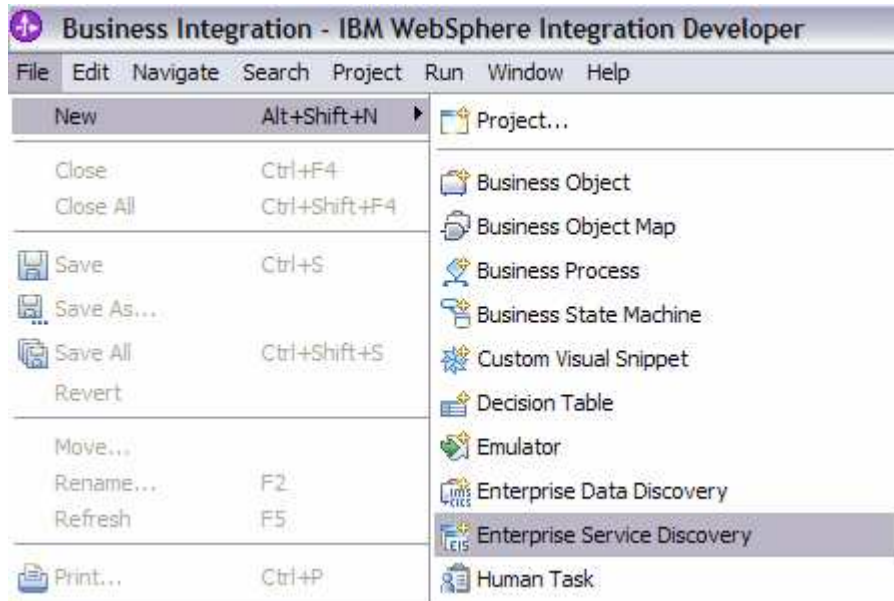
## **Part 4: Use Enterprise Service Discovery Wizard to generate business objects and other artifacts**

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

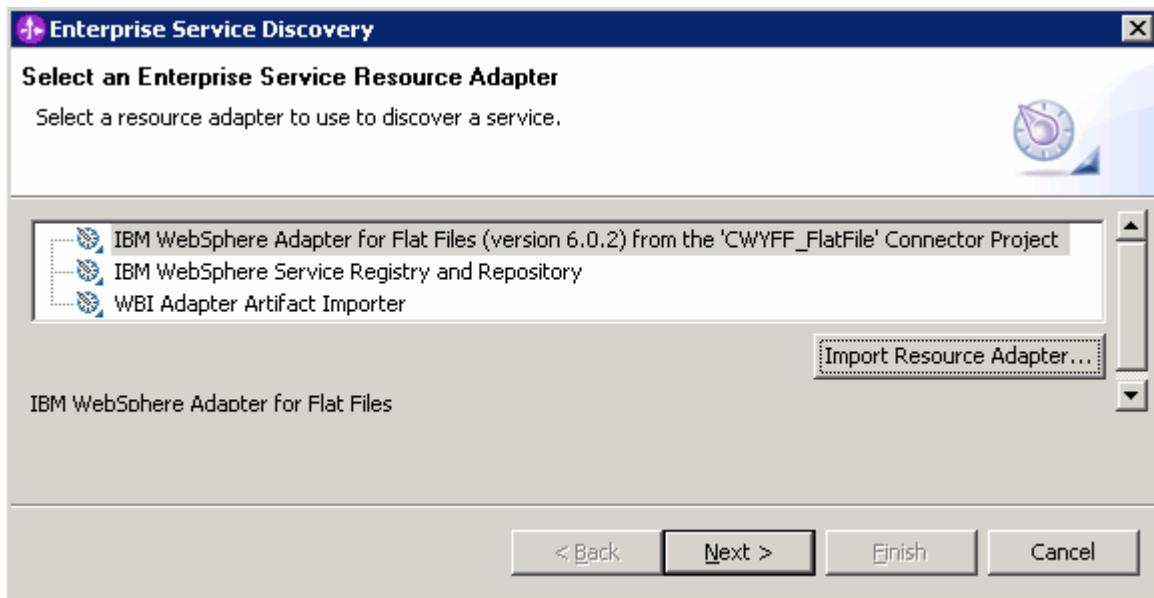
The instances of Activation Spec and the Resource Adapter from EMD translate to the section on SCA export files. During runtime, the adapter component that exposes the adapter as SCA uses these export files to create instances of Activation Spec and Resource Adapter and fills in values from the SCA files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

## 4.1. Use Enterprise Service Discovery wizard to generate business objects and other artifacts

- \_\_\_ 1. Launch the Enterprise Service Discovery wizard
  - \_\_\_ a. From the top Menu bar, select **File > New > Enterprise Service Discovery**

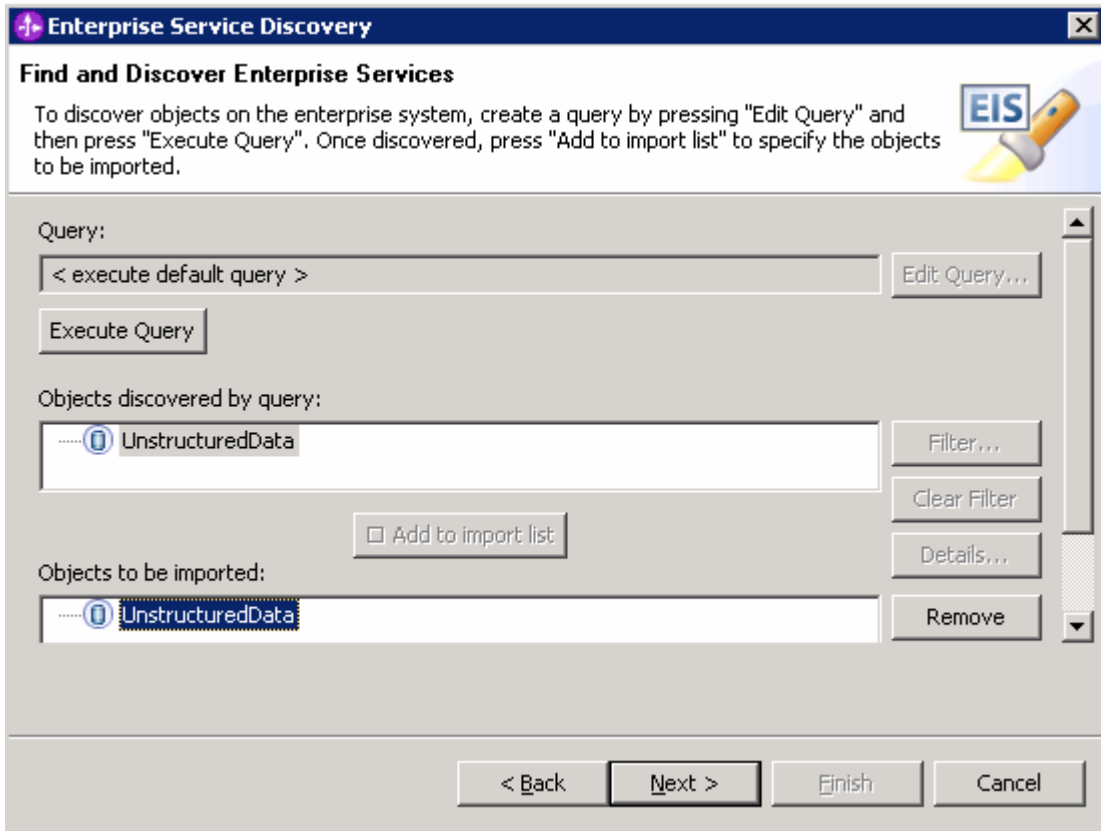


- \_\_\_ 2. Select **IBM WebSphere Adapter for Flat Files (version 6.0.2)** from the 'CWYFF\_FlatFile' Connector Project and click **Next**



- \_\_\_ 3. Click **Next** from Configure settings for the Discovery agent window. Adapter will generate the Unstructured data type which you will use in the following screen.

- \_\_\_ 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 **Customer** business object under **Objects discovered by query**
  - \_\_\_ b. Select **UnstructuredData** from and click **Add to import list** button. The **UnstructuredData** 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 **Inbound** from the drop down menu for the Service Type

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**Note: Do not specify any value for BO Location**

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Service Type:

Name Space: \*

Operations\*:

- CREATE
- APPEND
- OVERWRITE
- DELETE
- RETRIEVE
- LIST
- EXISTS

BO Location:

Function Selector:\*

< Back   Next >   Finish   Cancel

\_\_ b. Click **Next**

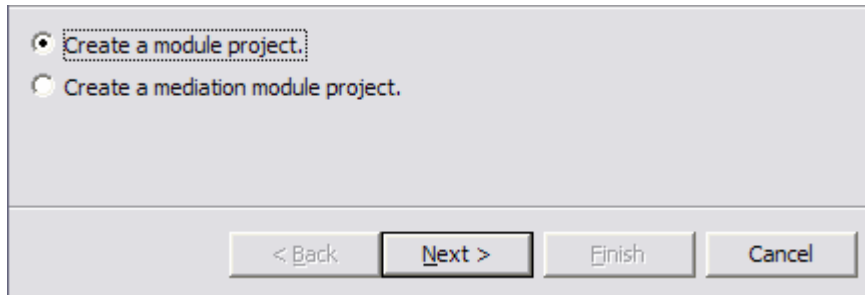
\_\_\_ 6. Specify the properties for the artifacts that will be generated in your workspace

\_\_ a. Create a new module

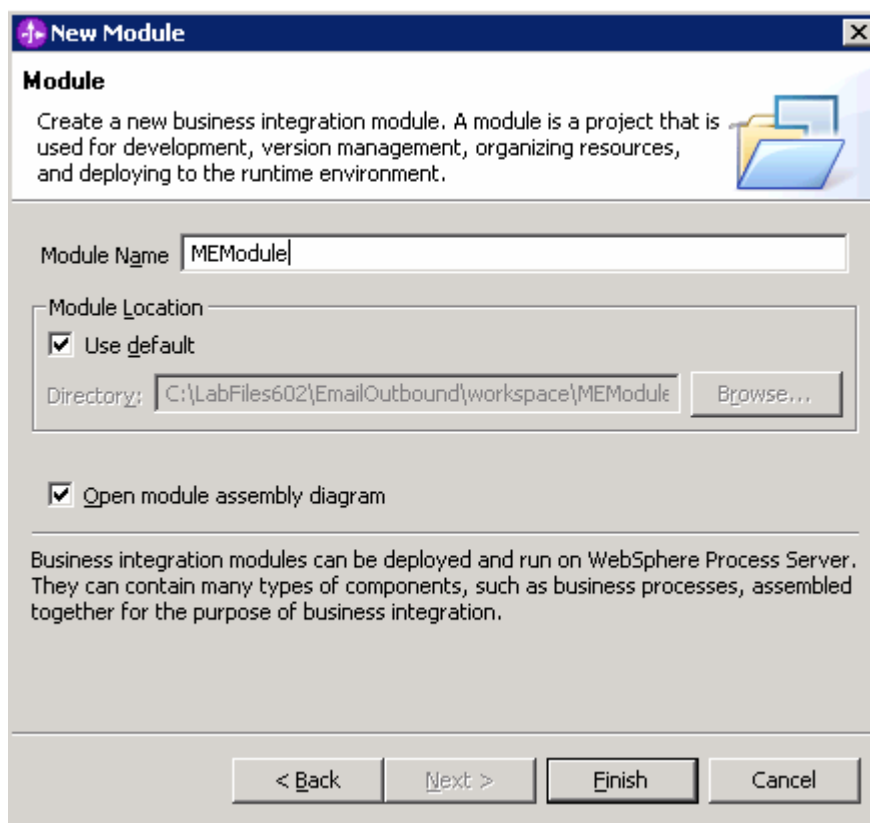
1) Click on the **New...** button next to **Module** field



- 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 **MEModule** for the **Module Name** field and click **Finish**



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

- \_\_ b. From the Properties for Interface, enter **Folder1** for Folder field

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Properties for Interface

Module: MEModule New...

Namespace: http://MEModule/Folder 1/FlatFileInboundInterface

Use Default Namespace

Folder: Folder1 Browse...

Name: \* FlatFileInboundInterface

Description:

Edit operation names...

\_\_\_ c. From Generate Artifacts window, make sure that you have selected the radio button next to **Use discovered connection properties**.

Deploy connector with module

Specify the connection properties which will be used to connect to the Enterprise Information System at runtime:

Use connection properties specified on server

Use discovered connection properties

J2C Authentication Data Entry:

This will make the Properties for Activation Spec and Resource Adapter Properties visible

\_\_\_ d. Enter the following for **FlatFile Properties** of Activation Spec Properties:

- 1) Event Directory: **<EVENT\_DIR>**
- 2) Archive Directory: **<ARCHIVE\_DIR>**
- 3) DataSource JNDI Name: **jdbc/ME**
- 4) Event Table Name: **METABLE**

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FlatFile Properties

|   |   |                              |
|---|---|------------------------------|
| Event Directory:  | * | C:\Labfiles602\ME\EventDir   |
| <input checked="" type="checkbox"/> Archiving Processed |   |                              |
| Archive Directory:                                      | * | C:\Labfiles602\ME\ArchiveDir |
| Failed Archive Extension:                               |   | fail                         |
| Original Archive Extension:                             |   | original                     |
| Success Archive Extension:                              |   | success                      |
| Event File Mask:  | * | *,*                          |
| <input type="checkbox"/> File Pass By Reference         |   |                              |
| <input type="checkbox"/> Include End BO Delimiter       |   |                              |
| <input checked="" type="checkbox"/> Create Table        |   |                              |
| DataSource JNDI Name:                                   | * | jdbc/ME                      |
| Event Table Name:                                       | * | METABLE                      |

\_\_\_ e. Enter the following for the **Logging and Tracing** of Resource Adapter Properties:

- 1) LogFilename: **C:\FFRA\Inlog.txt**
- 2) TraceFilename : **C:\FFRA\Intrace.txt**

ResourceAdapterProperties

Logging and Tracing

|                   |   |                     |
|-------------------|---|---------------------|
| AdapterID:        | * | ResourceAdapter     |
| LogFileSize:      |   | 0                   |
| LogFilename:      |   | C:\FFRA\Inlog.txt   |
| LogNumberOfFiles: |   | 1                   |
| TraceFileSize:    |   | 0                   |
| TraceFilename:    |   | C:\FFRA\Intrace.txt |

\_\_\_ f. Click **Finish**

\_\_\_ 7. Configure ESD wizard for second end point

- \_\_\_ a. Repeat steps 1 to 5
- \_\_\_ b. From the Generate Artifacts window enter the following
  - 1) Module: **MEModule**
  - 2) Folder: **Folder2**

---

**Note:** Folder name is the only property that should be different in the two ESD Configurations for two endpoints

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Properties for Interface

Module: MEModule

Namespace: http://MEModule/Folder2/FlatFileInboundInterface

Use Default Namespace

Folder: Folder2

\_\_\_ c. Make sure that you have selected the radio button next to **Use discovered connection properties**

\_\_\_ d. Enter the following for **FlatFile Properties** of Activation Spec Properties:

- 1) Event Directory: <EVENT\_DIR>
- 2) Archive Directory: <ARCHIVE\_DIR>
- 3) DataSource JNDI Name: jdbc/ME
- 4) Event Table Name: **METABLE**

---

**Note:** Activation Spec Properties should be identical to what you set in the previous steps for the first End Point

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FlatFile Properties

Event Directory: \* C:\Labfiles602\FlatFileInbound\eventdir

Archiving Processed

Archive Directory: \* C:\Labfiles602\FlatFileInbound\archivedir

Failed Archive Extension: fail

Original Archive Extension: original

Success Archive Extension: success

Event File Mask: \* \*. \*

File Pass By Reference

Include End BO Delimiter

Create Table

DataSource JNDI Name: \* jdbc/Cloudscape JDBC Driver XA DataSource for FF

Event Table Name: \* METABLE

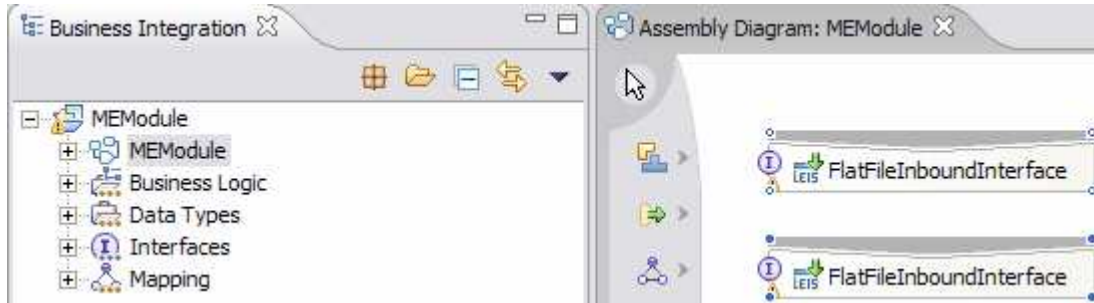
\_\_\_ e. Enter the following for the **Logging and Tracing** of Resource Adapter Properties:

- 1) LogFilename: **C:\FFRA\Inlog.txt**
- 2) TraceFilename: **C:\FFRA\Intrace.txt**

\_\_\_ f. Click **Finish**

## 4.2. Create, wire components and generate implementation

- \_\_\_ 1. From the Business Integration perspective, expand the **MEModule** folder
- \_\_\_ 2. Double-click the **MEModule** module to open it in Assembly editor



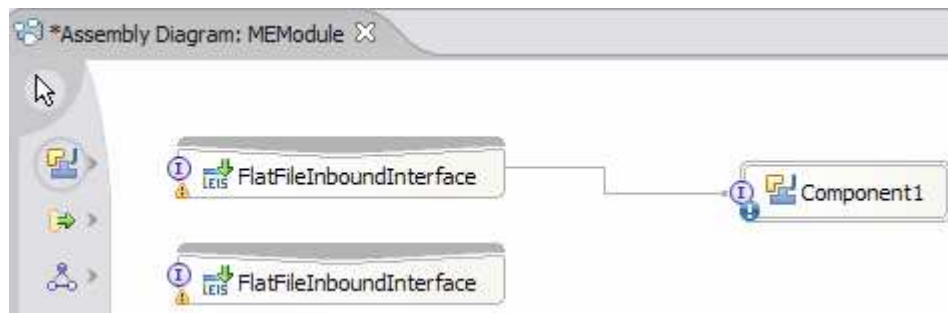
- \_\_\_ 3. From the palette, click the **Component (with no implementation type)** icon, and select **Java** component from the context menu icon and then click in the Assembly Diagram's empty space to drop it there



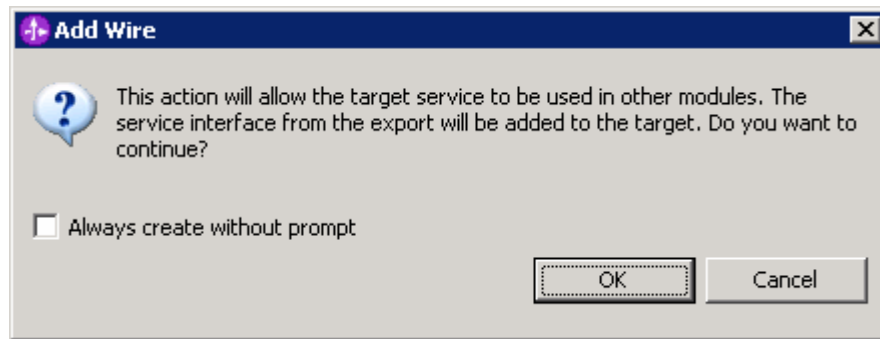
- \_\_\_ 4. Wire the FlatFileInboundInterface to the Component1
  - \_\_\_ a. Select the **wire** icon from the palette



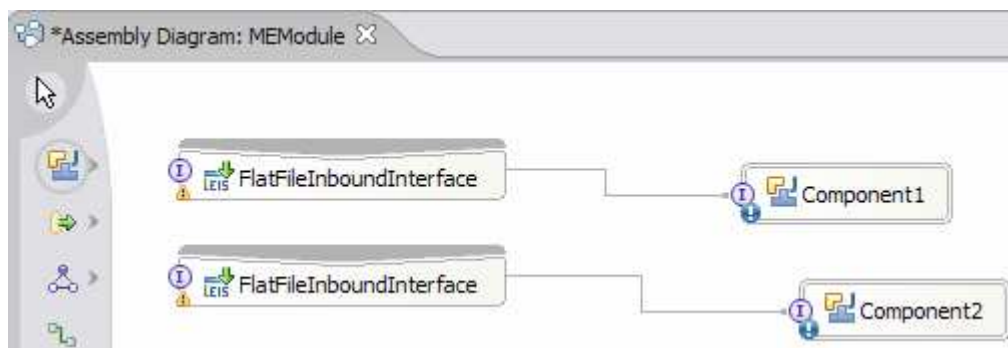
- \_\_\_ b. Click on **FlatFileInboundInterface** and then click on **Component1** to wire them together



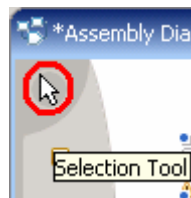
\_\_\_ c. Select **OK** for the Add Wire popup window



\_\_\_ 5. Repeat steps 3 and 4 to wire the other FlatFileInboundInterface to Component2. you should see the two interfaces wired to two components as shown below:



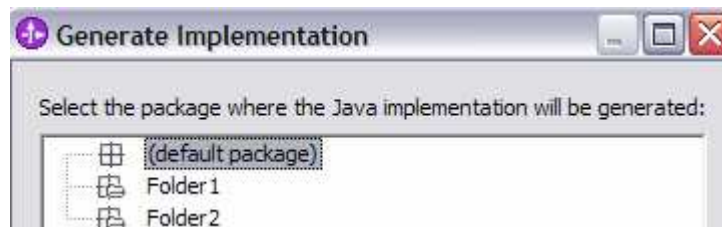
\_\_\_ a. Click on the **Selection Tool** to get back to the normal cursor mode



\_\_\_ 6. Generate Implementation for Component1

\_\_\_ a. Right-click on **Component1** and select **Generate Implementation** from the context menu

\_\_\_ b. On the **Generate Implementation** panel, select the **default** package, and click **OK**



\_\_\_ c. Component1Impl.java will be opened in Assembly editor. Scroll down to the method **emitFlatFile(DataObject emitFlatFileInput)** that needs to be implemented and add the code as shown below:

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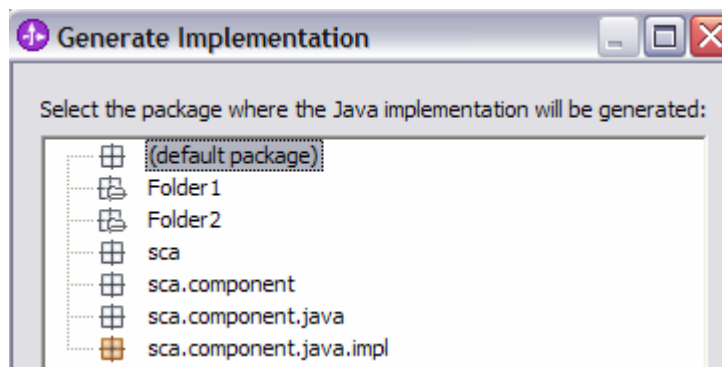
```
public void emitFlatFile(DataObject emitFlatFileInput) {
    //TODO Needs to be implemented.
    System.out.println("*****REACHED FIRST ENDPOINT*****");
}
```

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

\_\_\_ 7. Generate Implementation for Component2

\_\_ a. Right-click on **Component2** and select **Generate Implementation** from the context menu

\_\_ b. On the **Generate Implementation** panel, ensure that the **default package** is selected, and click **OK**



\_\_ c. Component2Impl.java will be opened in Assembly editor. Scroll down to the method **emitFlatFile(DataObject emitFlatFileInput)** that needs to be implemented and add the code as shown below:

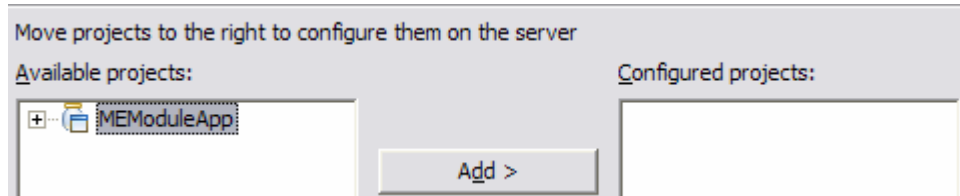
```
public void emitFlatFile(DataObject emitFlatFileInput) {
    //TODO Needs to be implemented.
    System.out.println("*****REACHED SECOND ENDPOINT*****");
}
```

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

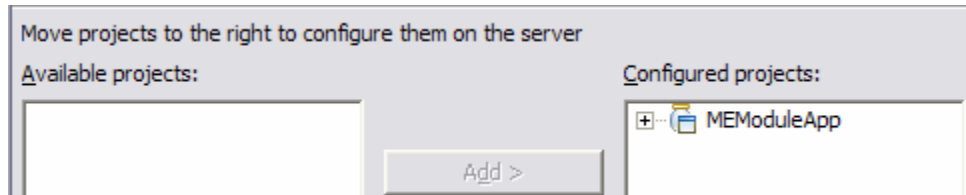
\_\_\_ 8. Save (**Ctrl + S**) and close Assembly diagram: MEModule

## Part 5: Test the application

- \_\_\_ 1. Add the project to the WebSphere Test Environment server
  - \_\_\_ a. Right-click on **WebSphere Process Server V6.0** under the Servers view and select **Add and remove projects...** from the context menu
  - \_\_\_ b. From the Add and Remove Projects window, select **MEModuleApp** under Available projects panel and click **Add >**



- \_\_\_ c. You will now see the **MEModuleApp** added to the **Configured projects**



- \_\_\_ d. Click **Finish** and wait until the project is being published onto the server. The server will be started in Debug mode if it is not already started before
- \_\_\_ 2. Test the adapter application
    - \_\_\_ a. Copy a test file to the **<EVENT\_DIR>**. As the file is copied to the event directory, the same will be picked up and processed by the adapter and will be moved to the **<ARCHIVE\_DIR>**

---

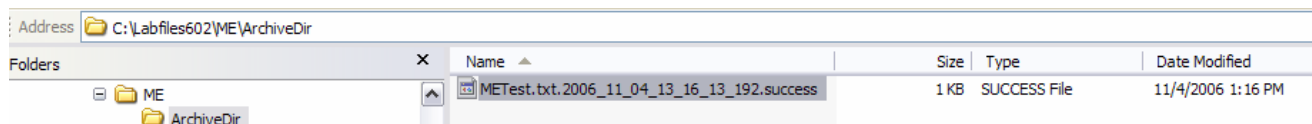
**Note:** For your convenience, a test file named **METest.txt** file can be found in **<LAB\_FILES>ME**.

---

- \_\_\_ 3. Verify your test results
  - \_\_\_ a. Check your test environment console (or SystemOut.log file) for the following successful message:

```
ResourceAdapt I com.ibm.j2ca.extension.eventmanagement.internal.EventSender sendEvent() CWYBS0505I: The event has been delivered.
ResourceAdapt I com.ibm.j2ca.extension.eventmanagement.internal.EventSender sendEvent() CWYBS0505I: The event has been delivered.
SystemOut    O *****REACHED SECOND ENDPOINT*****
SystemOut    O *****REACHED FIRST ENDPOINT*****
```

- \_\_\_ 4. 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



- \_\_\_ 5. Restore the Sever Configuration



*IBM WebSphere Adapter 6.0.2 – Lab Exercise*

- \_\_\_ a. Right-click on **WebSphere Process Server V6.0** under the Servers view and select **Add and remove projects...** from the context menu
- \_\_\_ b. Select **MEModuleApp** 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

## What you did in this exercise

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

You made use of the Enterprise Service Wizard available in WebSphere Integration Developer to specify Activation Spec Properties and Resource Adapter Properties for two endpoints.

In the end you deployed and then tested the adapter application for two endpoints configured.