Oracle OpenWorld 2008

Hands on Lab

Service Enable Oracle E-Business Suite with Oracle SOA Suite BPEL Process Manager

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1   Lab Overview

In this lab you will create a Web service to pass a Purchase Order to E-Business Suite using Oracle E-Business Suite Adapter and Oracle XML Gateway. There are a number of different mechanisms to integrate with Oracle E-Business Suite including Oracle XML Gateway, Concurrent Programs, PL/SQL APIs, and Interface tables. This lab focuses on using Oracle XML Gateway.

For more hands-on tutorials, check out the Oracle By Example Tutorials on the E-Business Suite and Fusion Middleware Best Practice Center on Oracle Technology Network [http://www.oracle.com/technology/tech/fmw4apps/ebs].

In this Lab:
- You will invoke an XML Gateway Inbound transaction to create a purchase order in Oracle E-Business Suite
- You will create a BPEL Process using JDeveloper. This BPEL process internally uses Oracle E-Business Suite Adapter design-time wizards to create the Web services artifacts necessary to connect to various interfaces from Oracle E-Business Suite such as XML Gateway Transactions, EDI Transactions, PL/SQL APIs, Concurrent Programs, Business Events, and Open Interface Tables.

For the lab to work successfully, on the E-Business Suite side, you need to start Agent listeners before we can insert an XML Gateway Inbound transaction. For this lab session, these steps have already been completed for you. You can find more details on these in the Appendix section.

Software Used:
- Oracle E-Business Suite 11.5.10
- Oracle SOA Suite version 10.1.3.1 [available for download from OTN]
- Oracle JDeveloper version 10.1.3.4 [available for download from OTN]

The E-Business Suite server is connected to the local lab environment.

2   Creating the BPEL Process

2.1 Startup

Start **Oracle SOA Suite** using StartBPEL shortcut in FMW4Apps → Shortcuts Folder on your desktop.

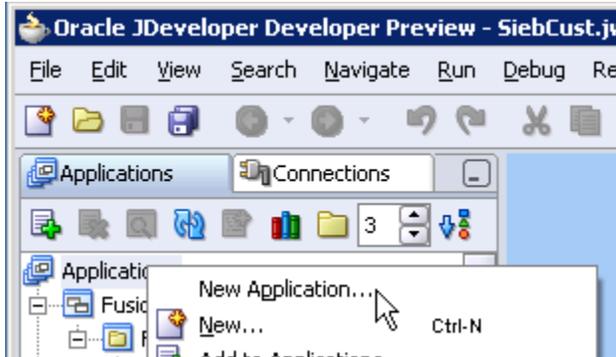When it completes you will see a check mark like this:

Then start **Oracle Jdeveloper** by clicking on the icon as below in the same folder.

2.2 Creating the BPEL Workspace and Project

In the **Applications – Navigator** window, right-click on **Applications** and select **New Application…**


Name your application. In this example, we'll use **XMLGatewayInbound**. Click OK to create the application. Note that your Directory name may be different. Accept defaults for that.
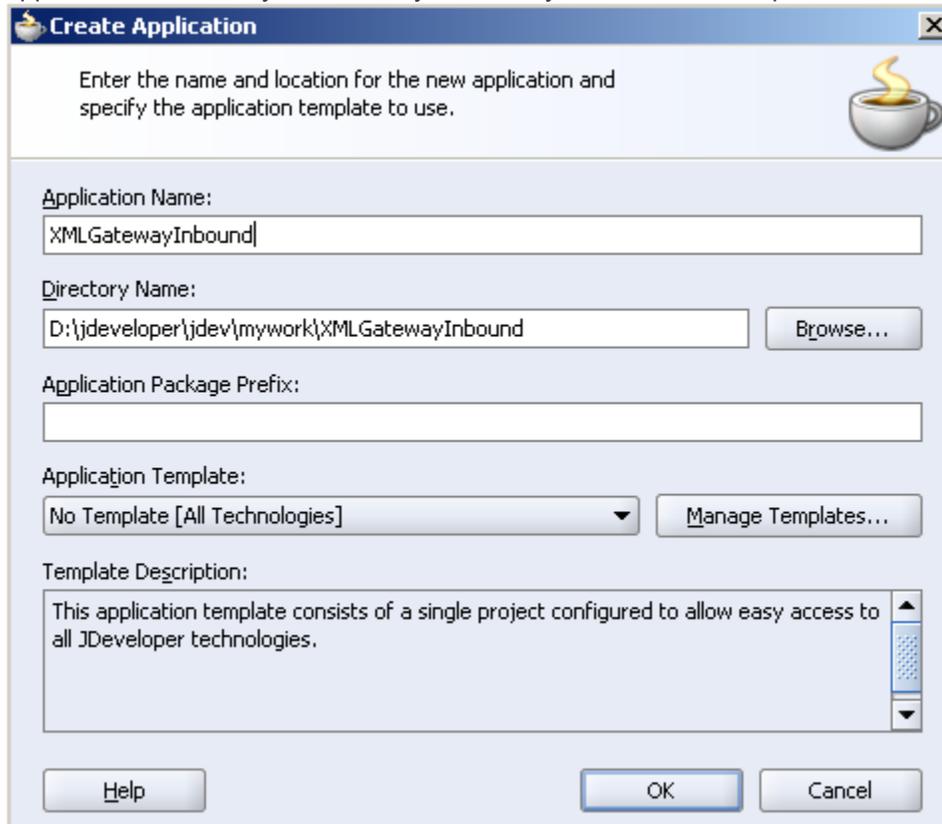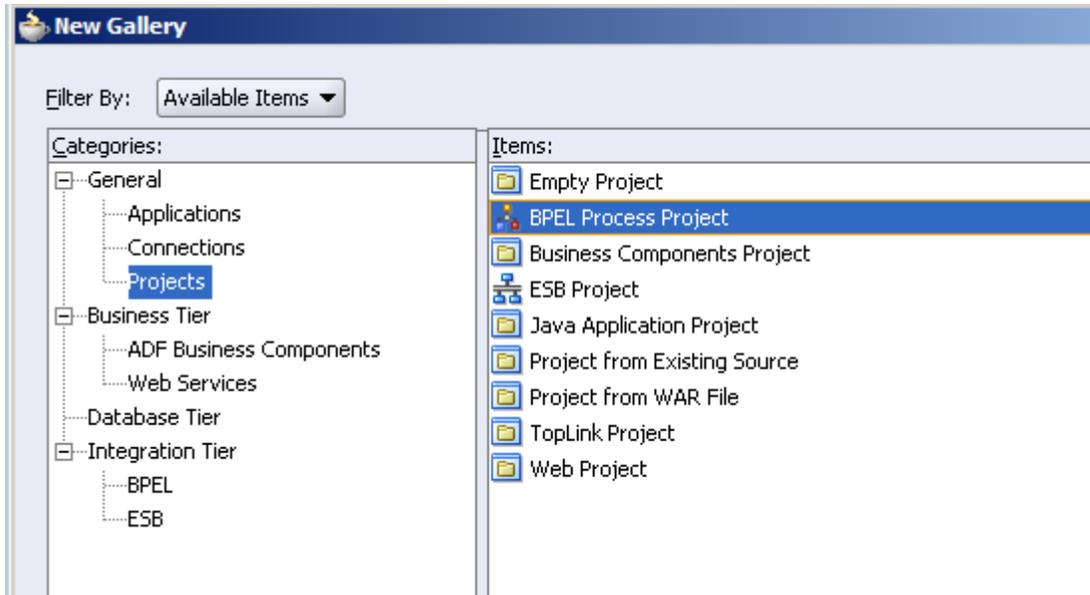

A Create Project window will appear. Click Cancel. (Yes Click Cancel).
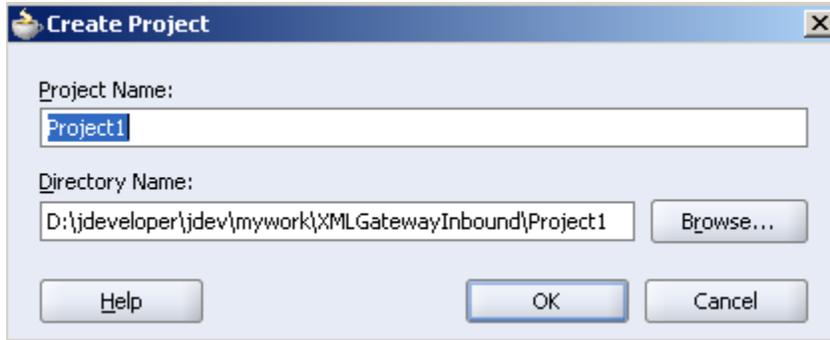
You will now be back at the main JDeveloper window, and you will see your **XMLGatewayInbound** in the applications window. Right click on the application, and select New Project…
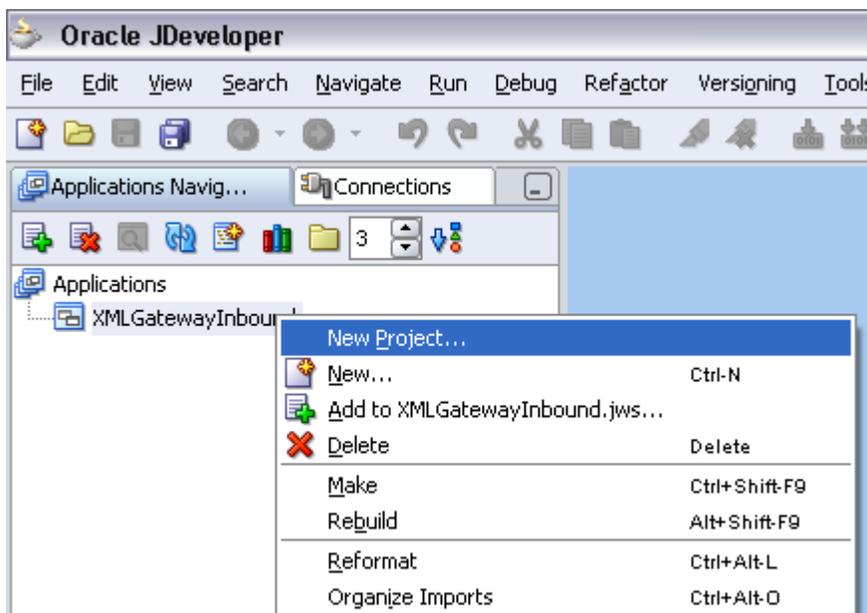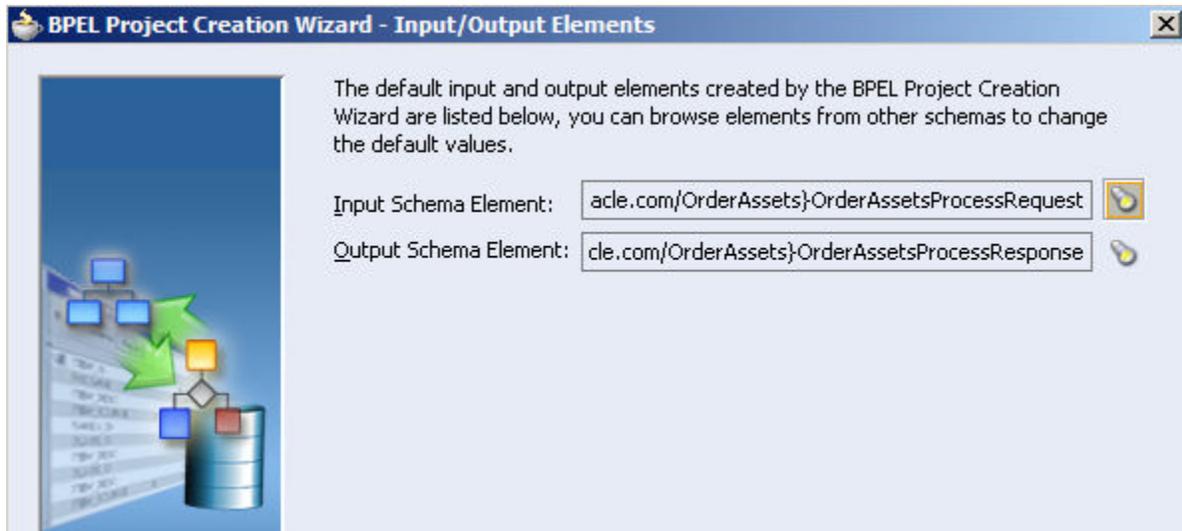

In the New Gallery window, select BPEL Process Project and click OK.

Name the process **OrderAssets** in the Name field and make sure Type: is **Template** and in the window below you have chosen **Asynchronous BPEL Process**. Click Next.
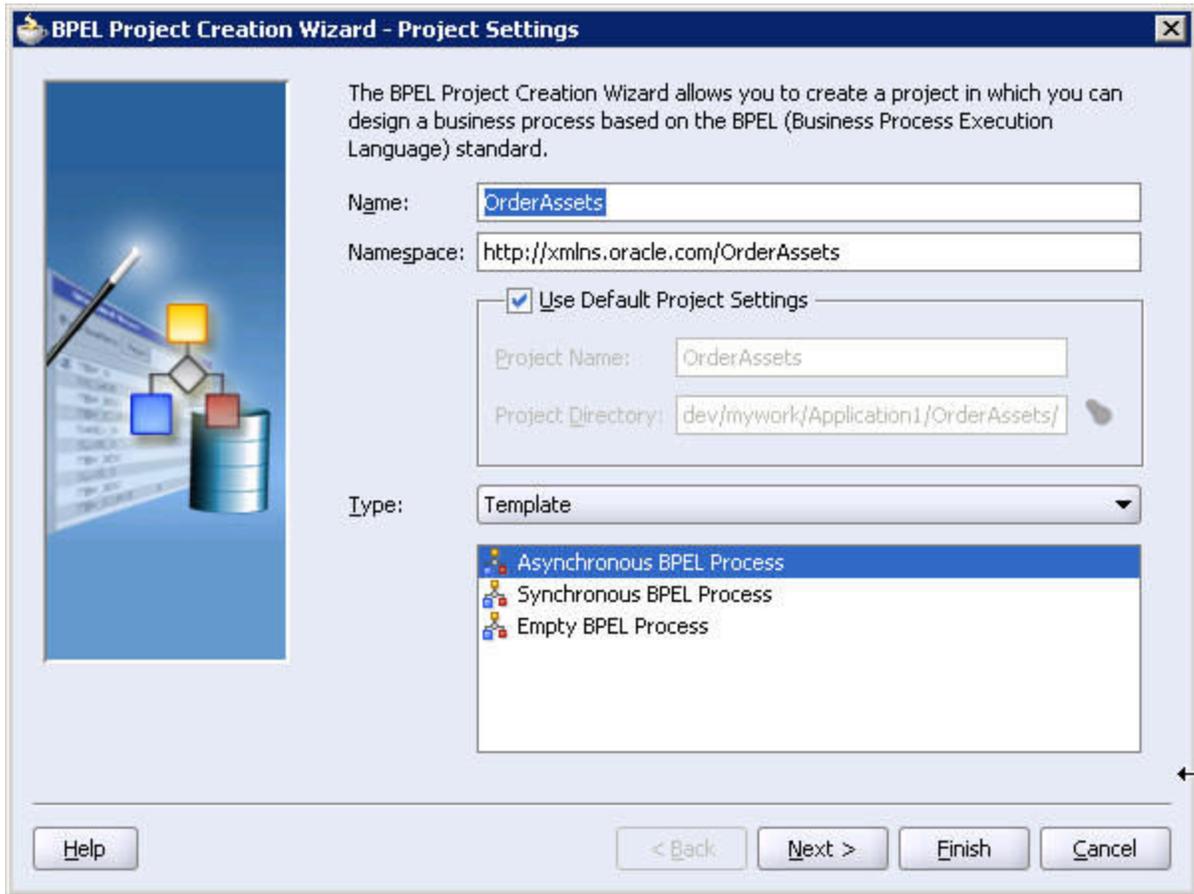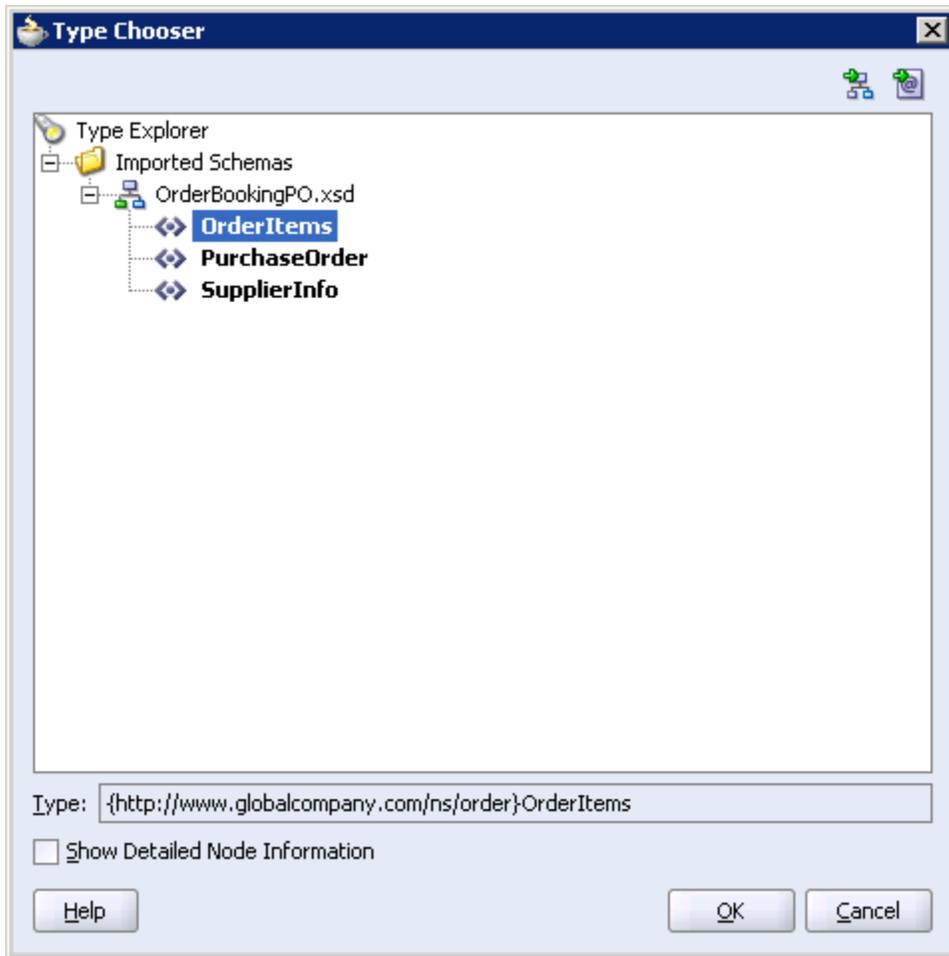

The Input/Output elements dialog appears.

Click on the flashlight icon next to **Input Schema Element** to select the input type. Locate the
`OrderBookingPO.xsd` file at in your desktop folder FMW4Apps → LabFiles → EBS select it and click
on the **Open** button.
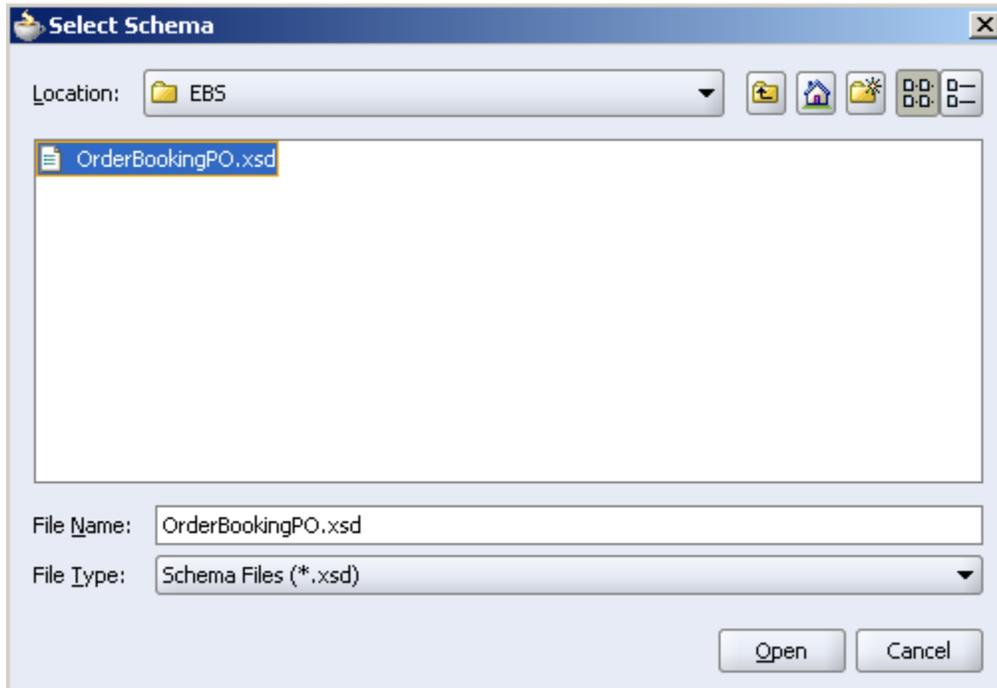
In the Type Chooser, select **Imported Schemas → OrderBookingPO.xsd → OrderItems** and click on
the **OK** button.

Click **Finish** to create the BPEL process.
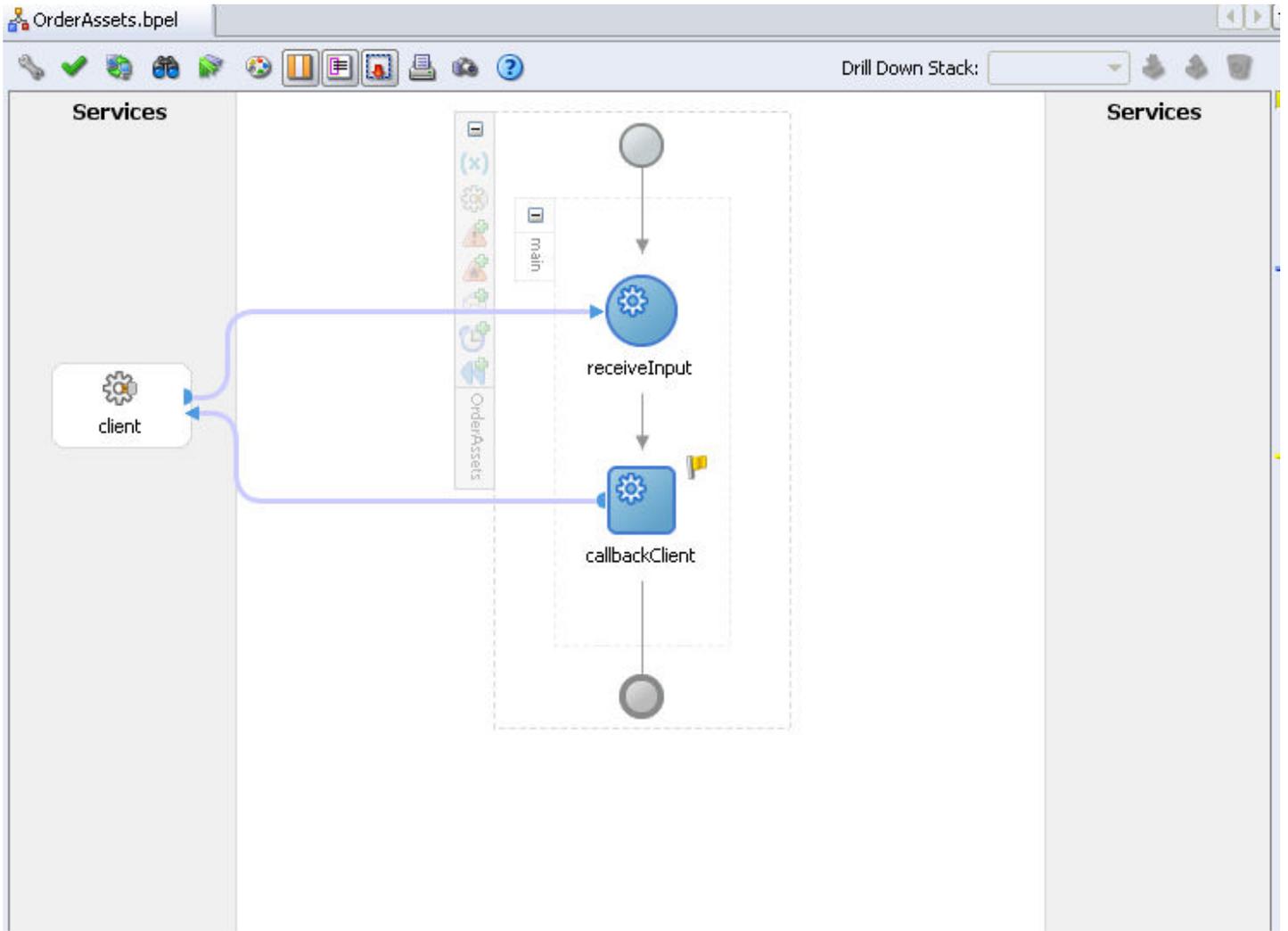
2.3 Creating Oracle Applications Partner Link

1. Select **Services** from the drop-down list of the **Component Palette** section in the upper right section of the JDeveloper Designer.

2. Drag and drop a **Oracle Applications** activity onto the **right** side of the designer window anywhere beneath the Services header. Note that both sides of the designer window have sections in which partner links can be placed.
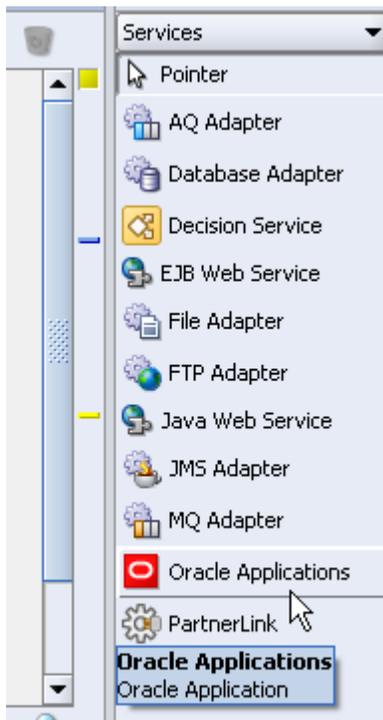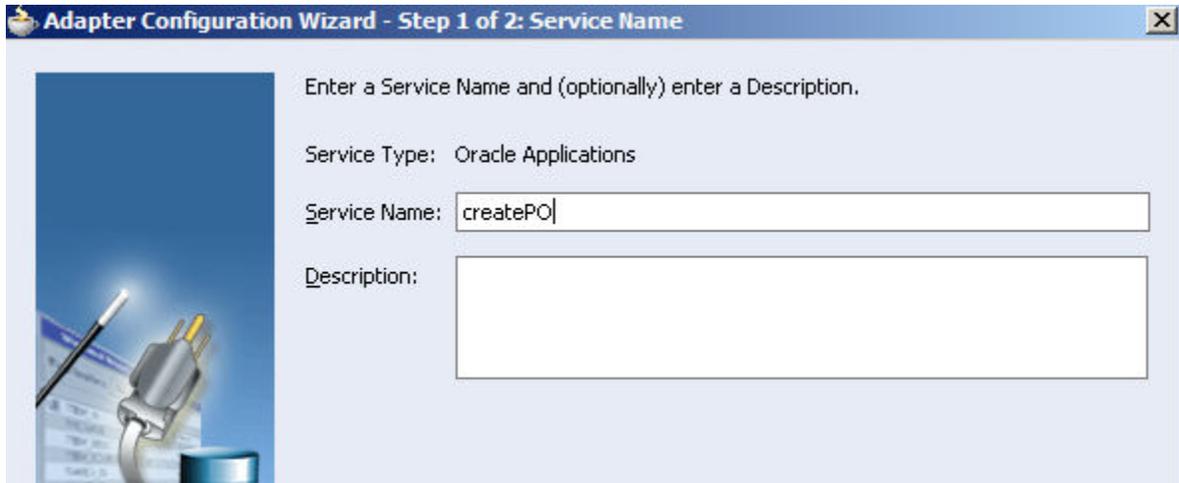
The Adapter Configuration Wizard is displayed. Click **Next**

The Service Name dialog box is displayed. Enter the following information:

    a.   In the **Service Name** field, enter **CreatePO**.

    b.   In the **Description** field, enter a description for the service. This is an optional field. Click **Next**.

The **Service Connection** dialog box is displayed. Select **ptcapps** in the **Connections** drop down. Your Oracle Application Server has already been configured to connect to the local Ebusiness Suite instance and the connection information we set is displayed in the box. Click **Next.**
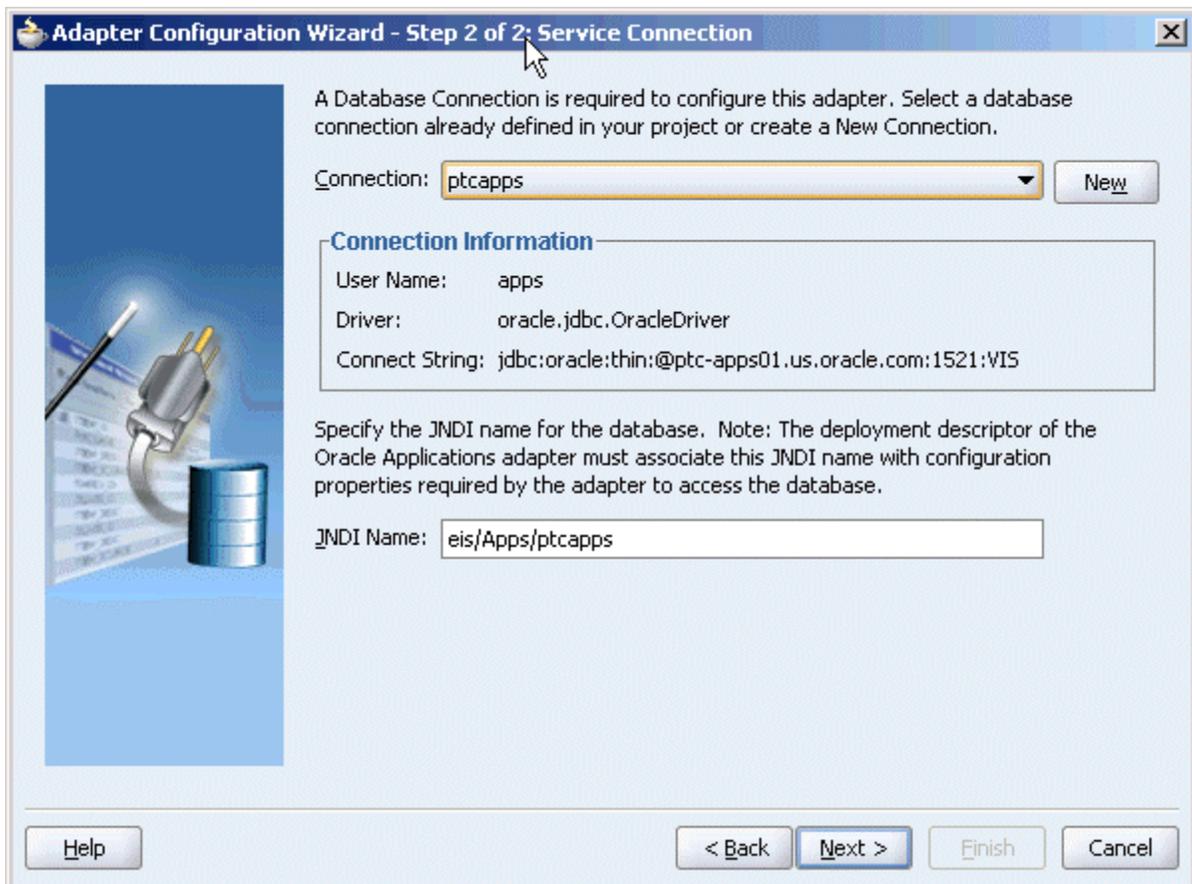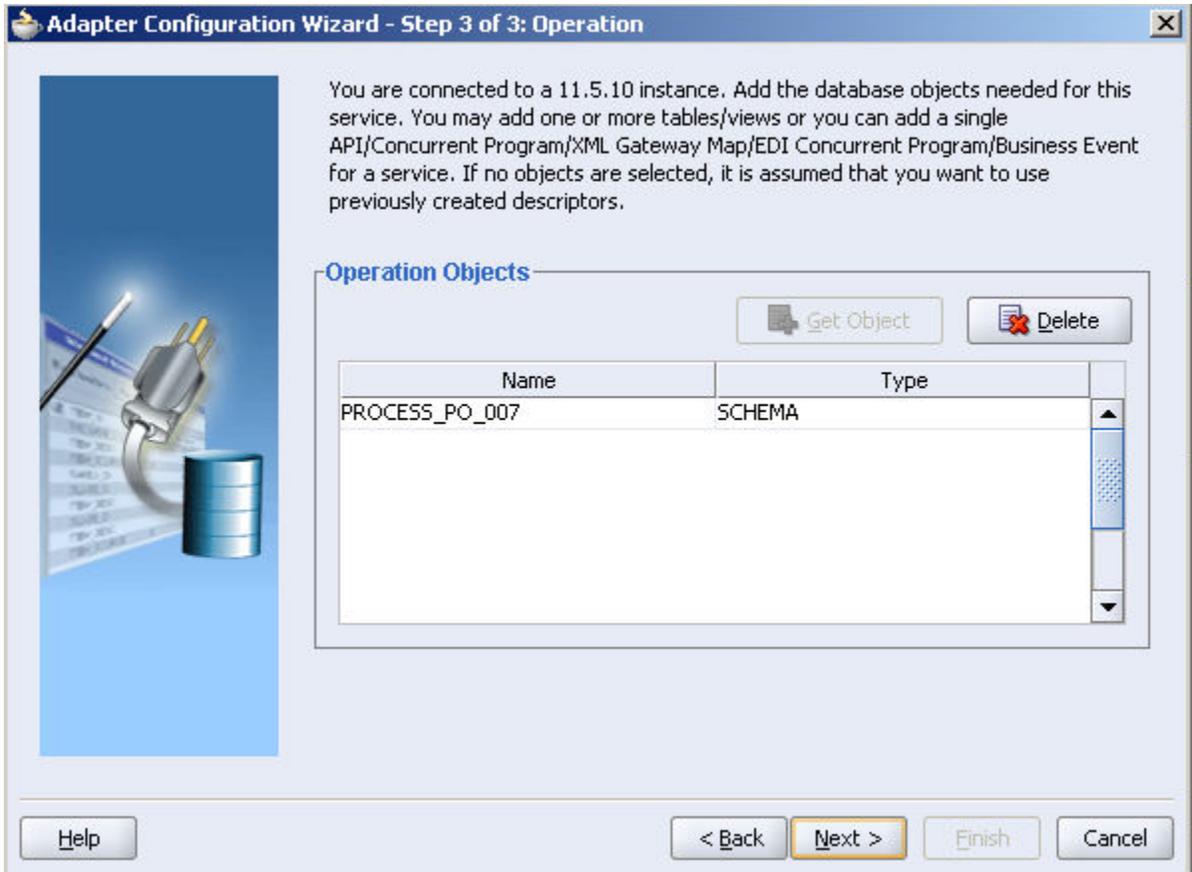
The Oracle Applications Module Browser is displayed. This comes from Integration Repository.
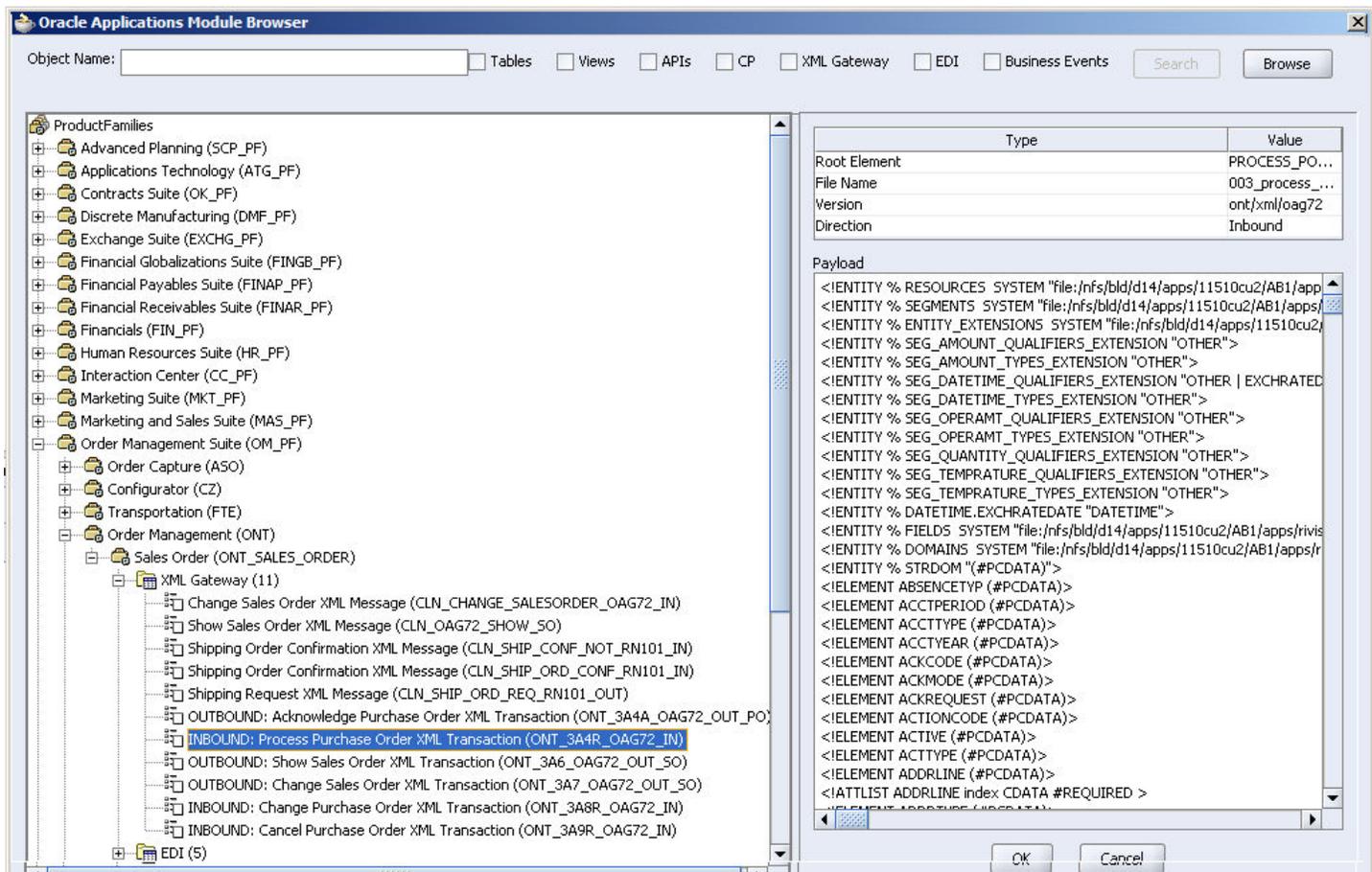
Expand **Order Management Suite** → **Order Management** → **Sales Order** → **XML Gateway** and select **INBOUND: Process Purchase Order XML Transaction.**
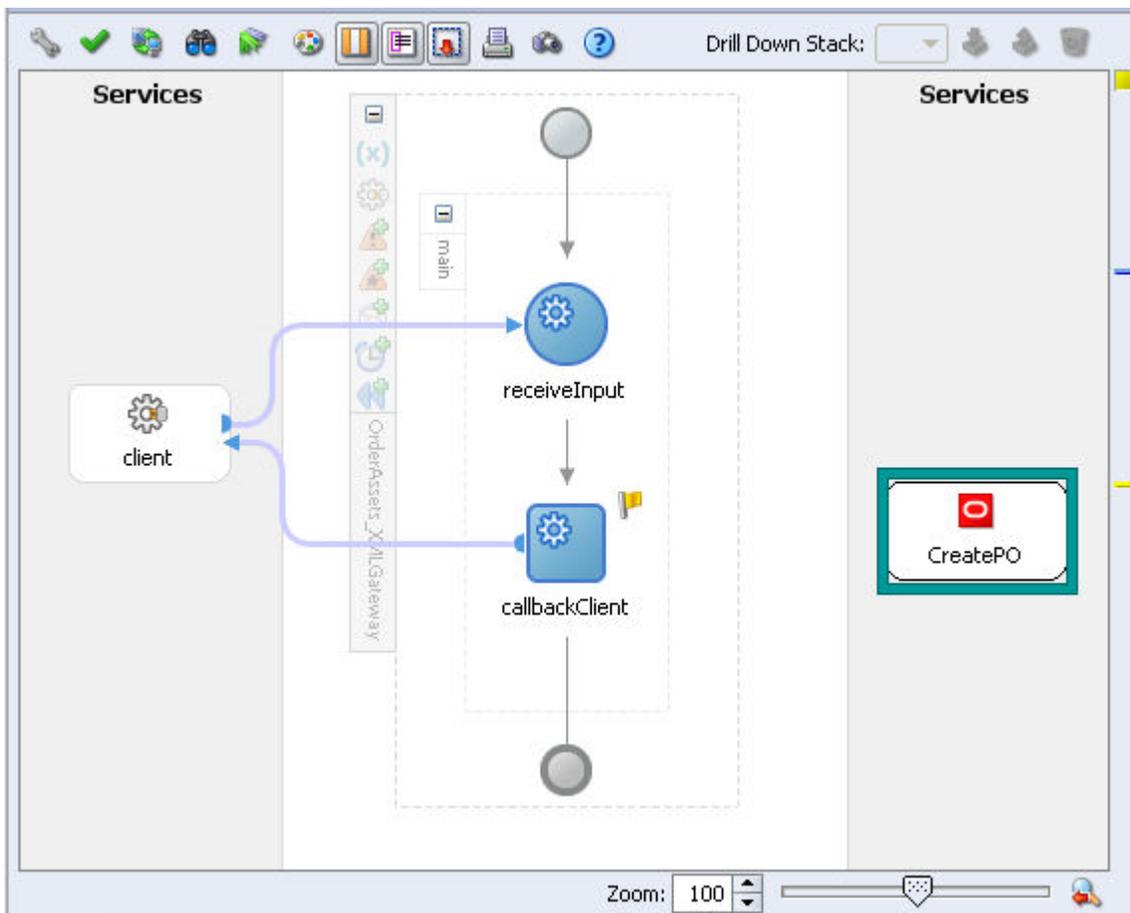
2. Click OK. Note that the **PROCESS_PO_007** schema is added to the list of **Operation Objects**. Click **Next**.

3. Click **Finish**, The **WSDL** for the Adapter Service is created. . This WSDL file is now available for the partner link.
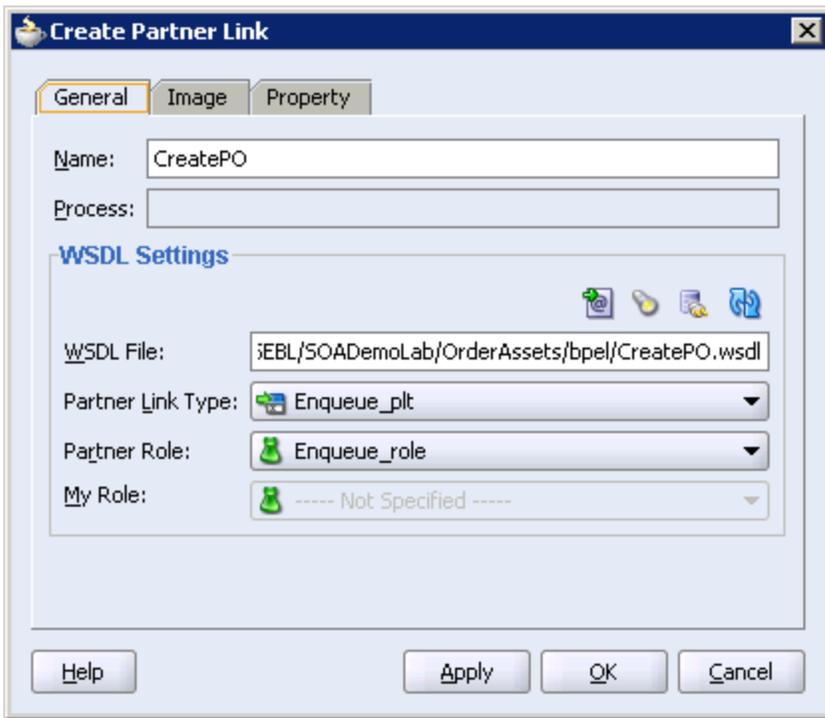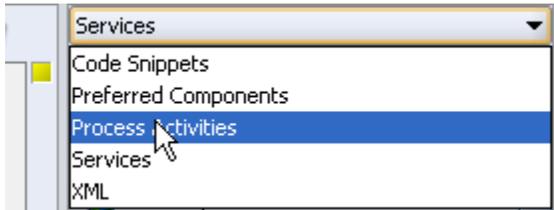
Click **OK**. The partner link is created with the required WSDL settings
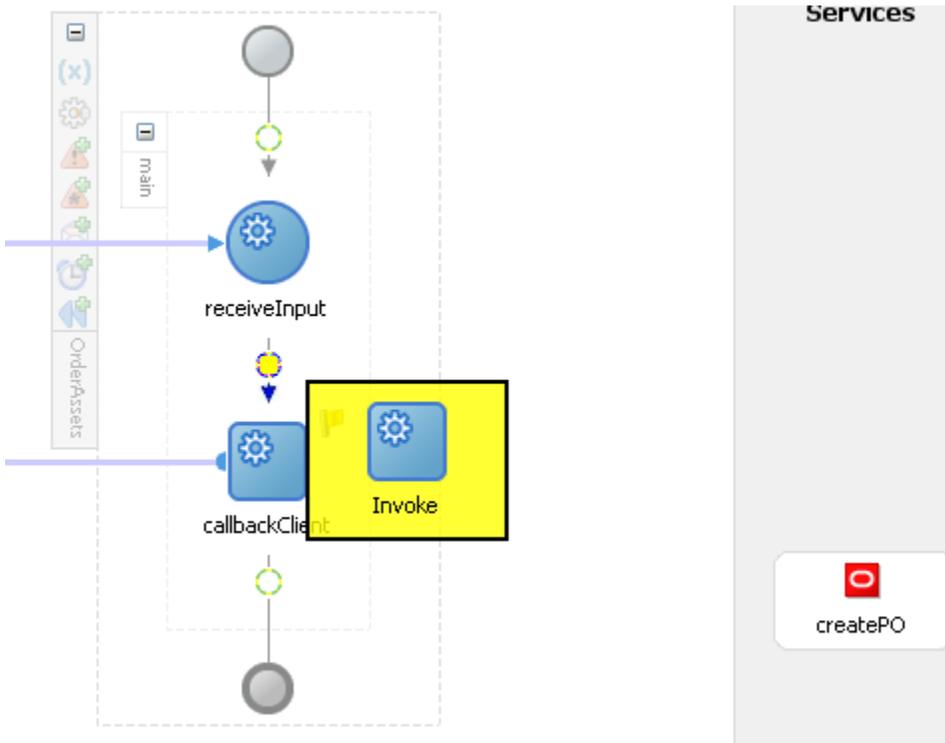
2.4 Creating Invoke Activity

1. Select **Process Activities** from the drop-down list of the **Component Palette** section in the upper right section of the JDeveloper Designer.
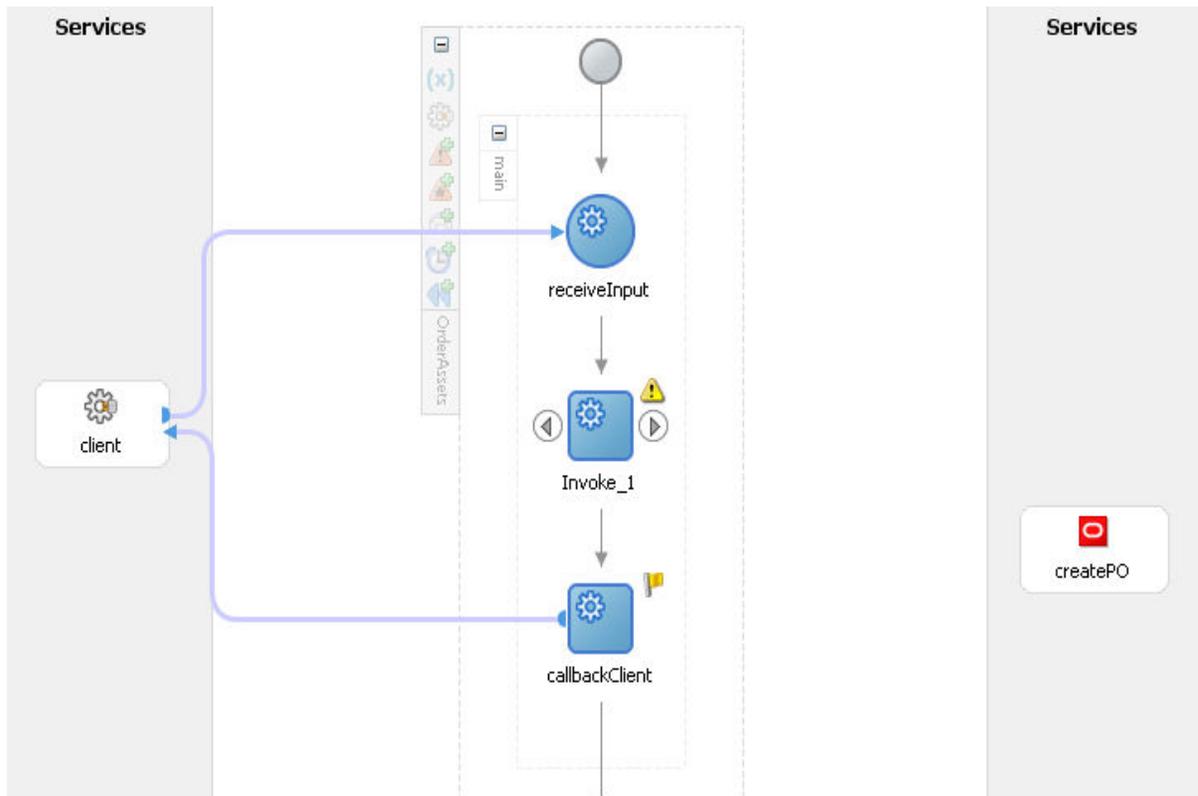

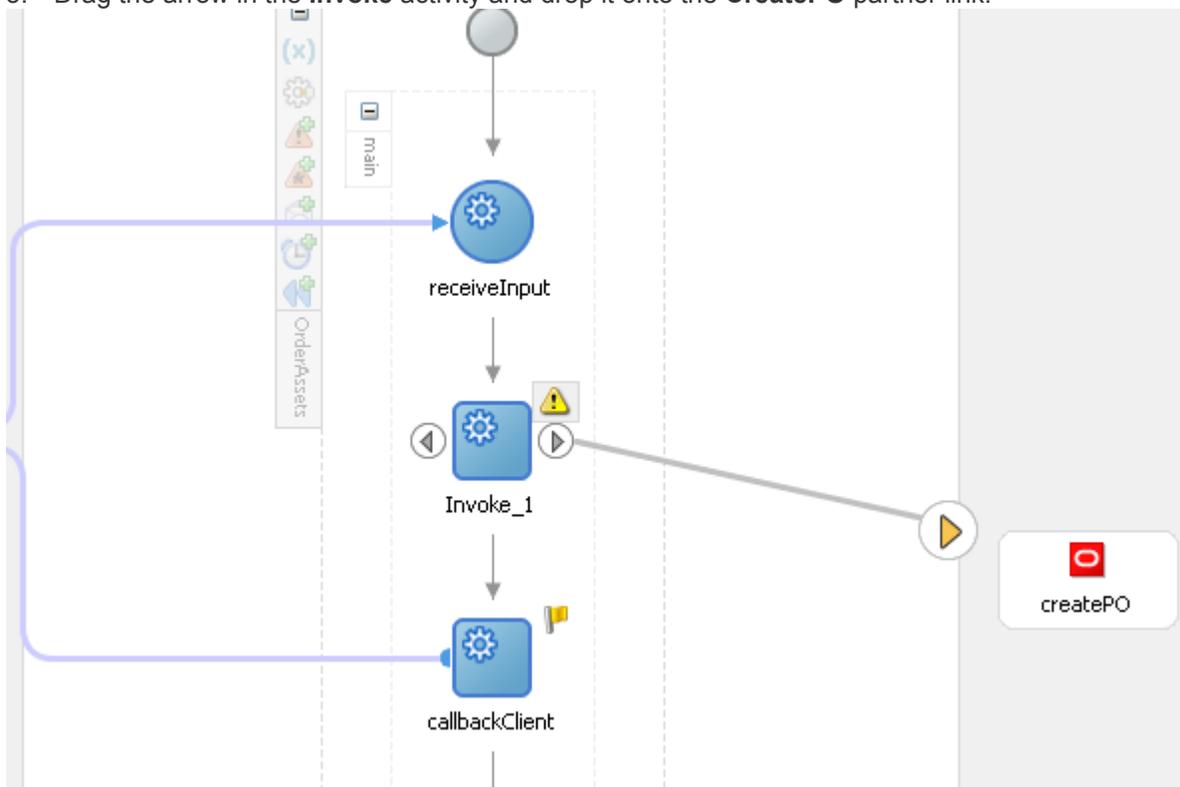2. Drag and drop an **Invoke** from the Component Palette section.

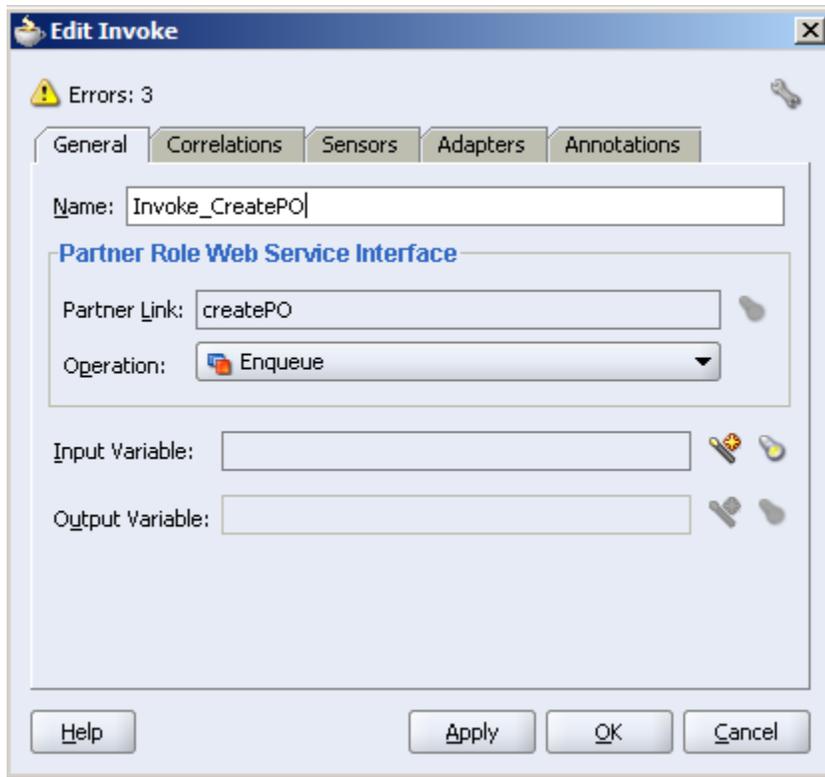And drop onto the canvas immediately after the **receiveInput** activity

3. Drag the arrow in the **Invoke** activity and drop it onto the **CreatePO** partner link.
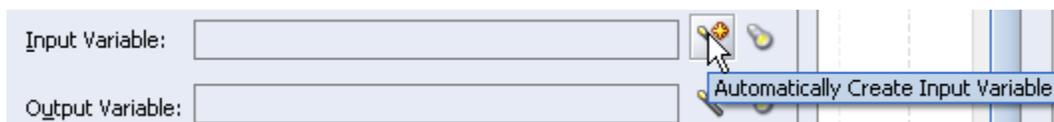
4. Enter the following values.
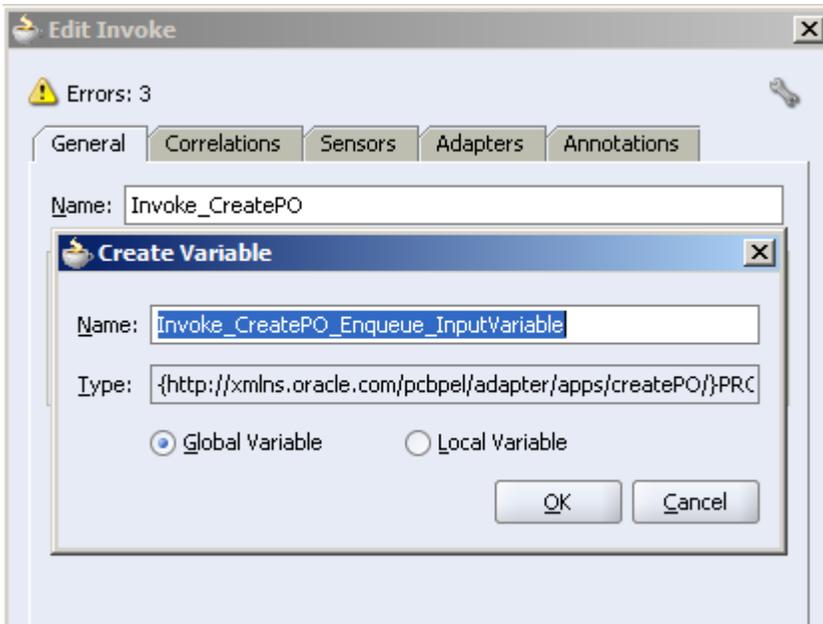
    a. Set Invoke Name to **Invoke_CreatePO**

The operation **Enqueue** is automatically filled in

    b. Click on the '**Auto-create variable**' magic wand icon next to the **Input Variable** text field to create a variable for this activity.

A variable named **Invoke_CreatePO_Enqueue_InputVariable** is automatically created in the **InputVariable** field. Click **OK** on the **Create Variable** window that appears.

5. Click the **Adapters** tab in the Invoke dialog box. You need to specify the **Input Header Variable** here. Click the **Browse** icon next to the **Input Header Variable** field.
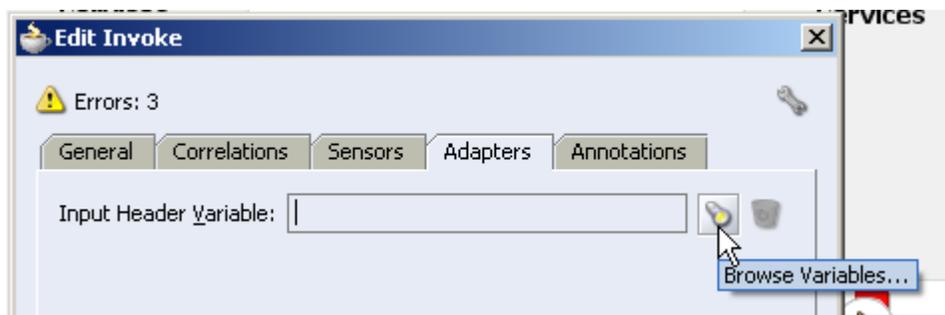
6. In the Variable Chooser dialog box that appears, select the Variables node and right-click **Create Variable**. (You need to highlight the "Variable" element - ensure it is highlighted blue by clicking on it, and then right click to see the Create Variable option)
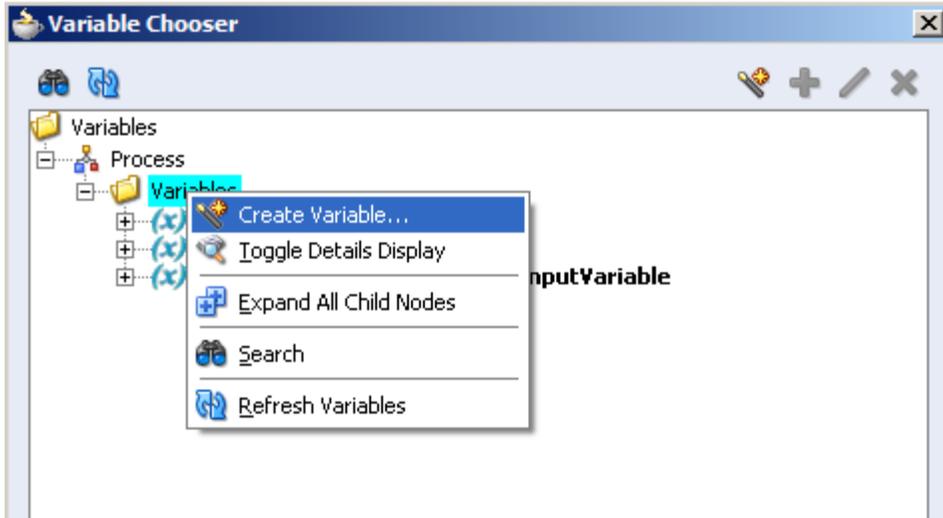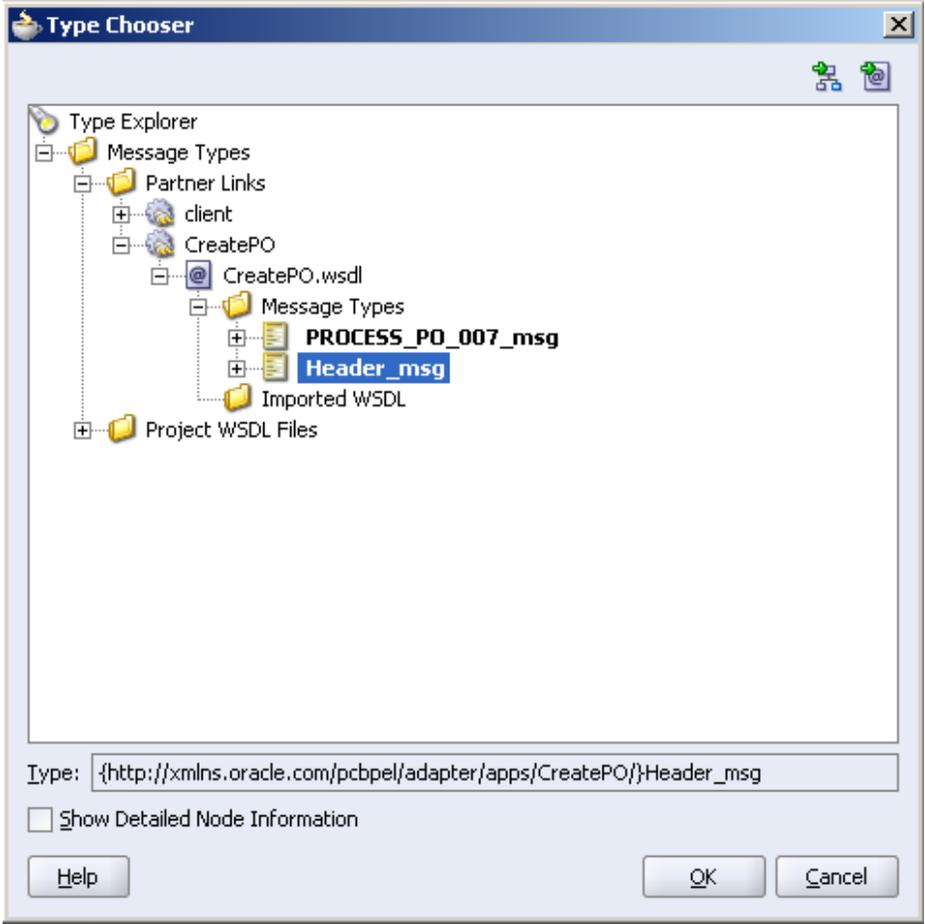
7. The **Create Variable** dialog box is displayed. Type **Header** in the **Name** field. Select the **Message Type** option and click the **Browse** icon next to it.
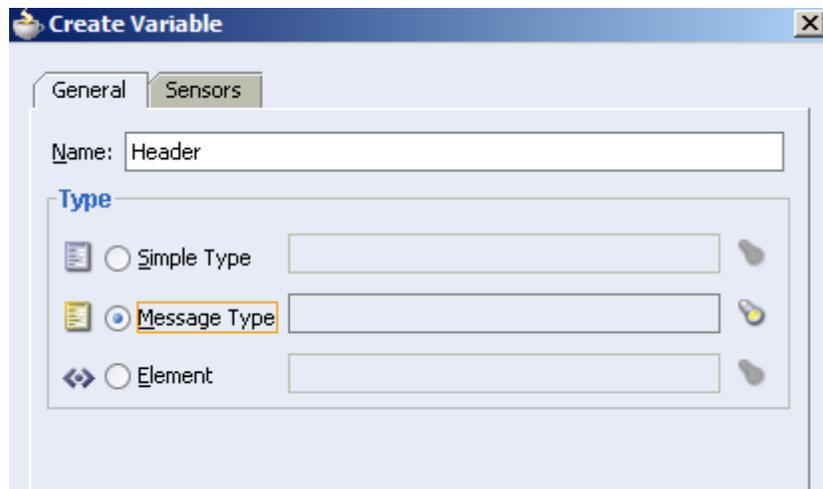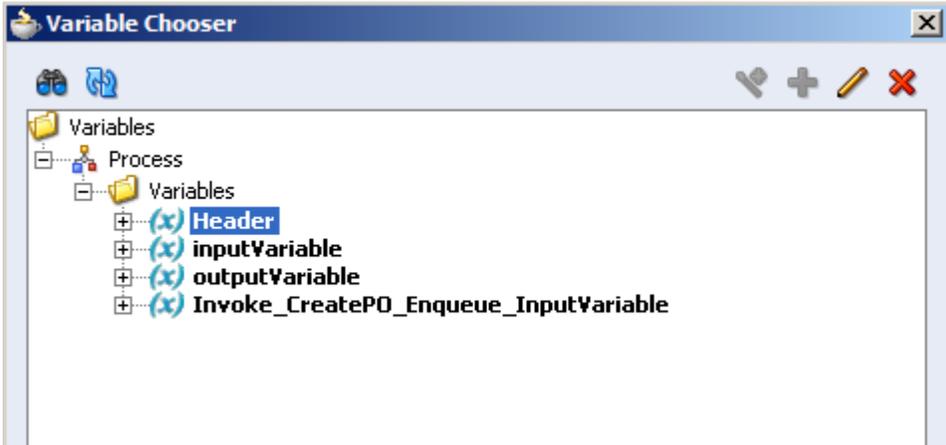

8. In the Type Chooser dialog box that appears, expand **Message Types → Partner Links → CreatePO → CreatePO.wsdl → Message Types** and select the **Header_msg** message type.
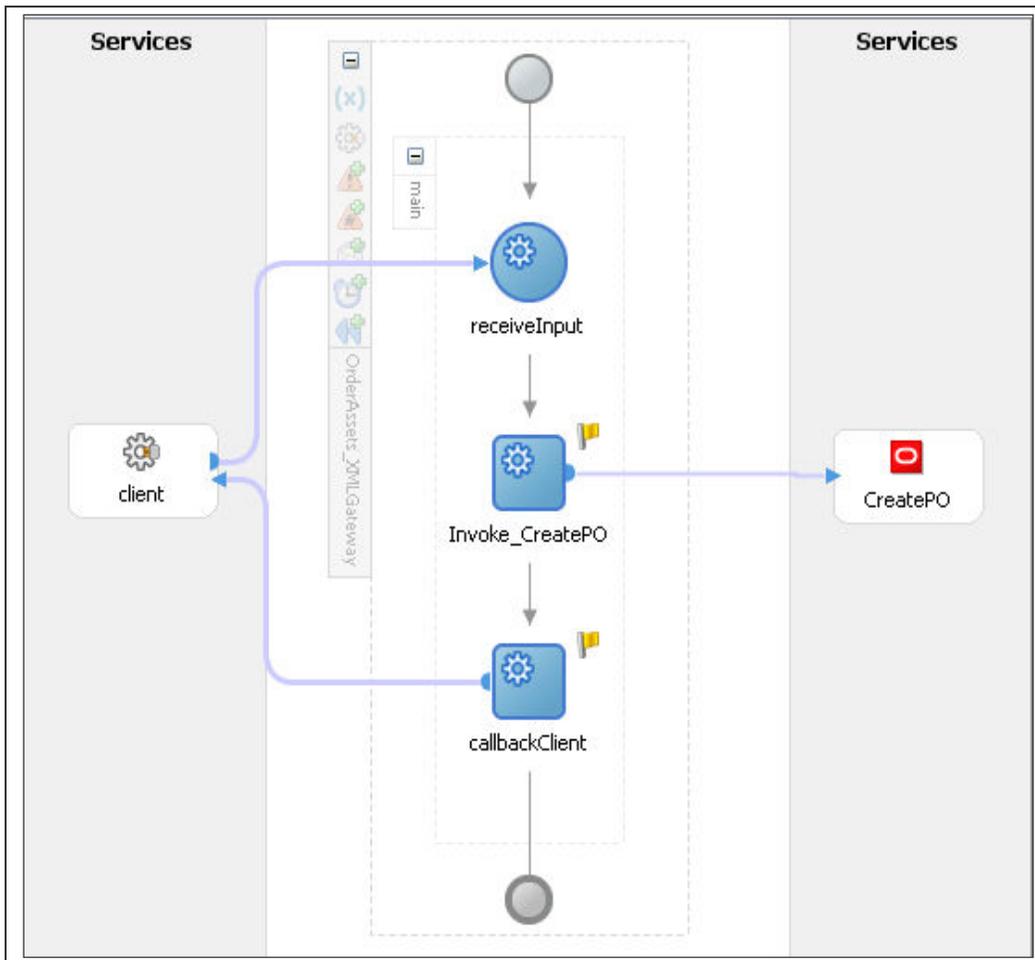
    Click **OK**

9. In the Create Variable dialog box above, click **OK**. In the Variable Chooser dialog box below, click **OK**.
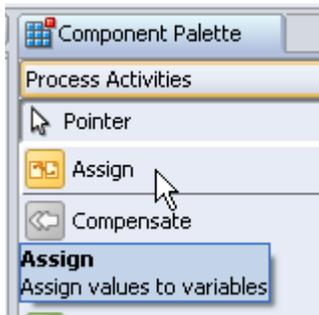

10. In the Invoke dialog box, click **Apply**. Click **OK**.

Your process should look like the image below:

2.5 Configure the Assign activity

1. Verify **Process Activities** is still selected from the drop-down list of the **Component Palette** section in the upper right section of the JDeveloper Designer.
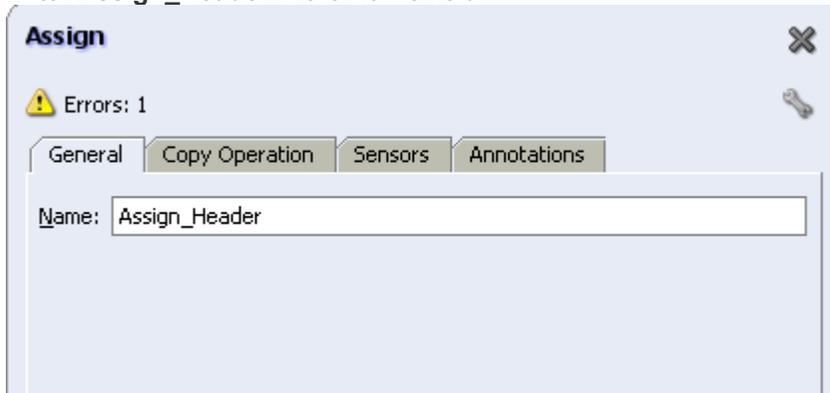

2. Drag and drop the **Assign** activity to the process map. The Assign activity needs to be dropped in between the **ReceiveInput** and **Invoke_CreatePO** activities.
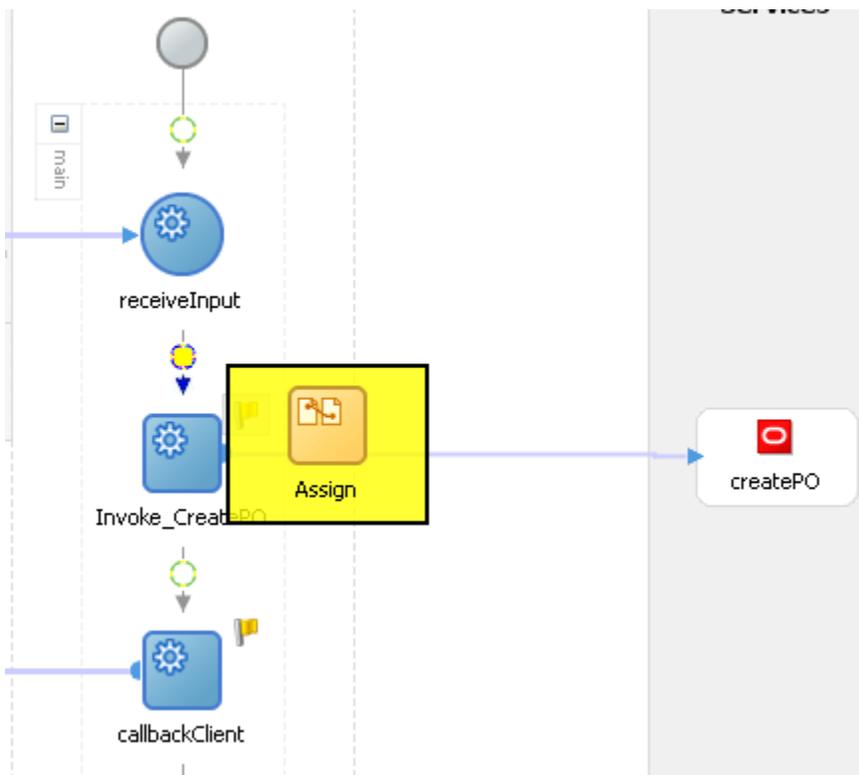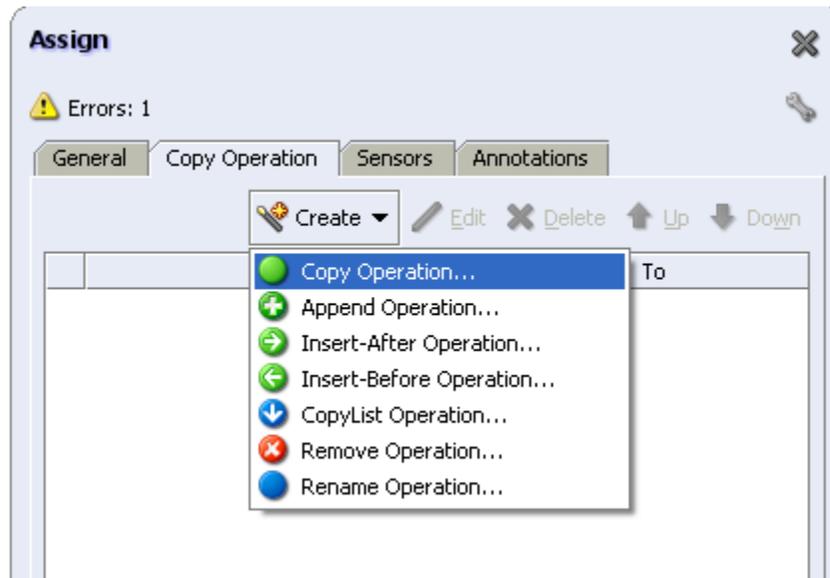

3. Double-click the **Assign** icon that you just dropped to display the Assign window.
4. Click the **General** tab

5. Enter **Assign_Header** in the **Name** field

6. Click the **Copy Operation** tab
7. Click **Create** to display the Create options window, and then select Copy Operation…

8. The Create Copy Rule dialog box is displayed. In the **FROM** group, choose the EXPRESSION type
    from the drop-down menu. In the **To** group, expand the Variables node by clicking the plus sign next
    to it. Expand the variable **Header → Header → ns1:Header → ns1:PayloadHeader**.
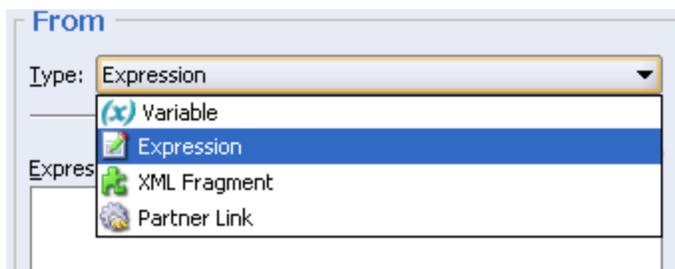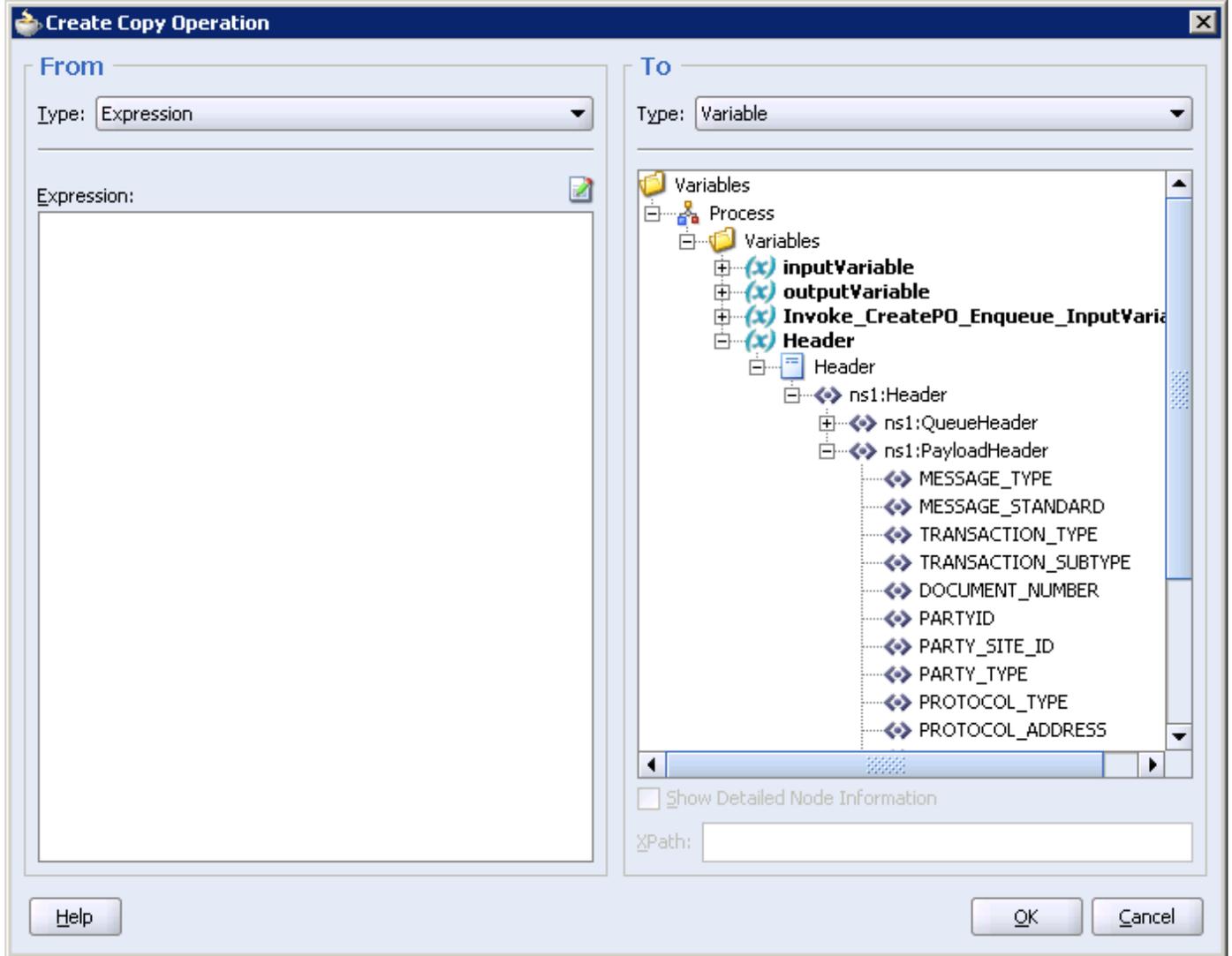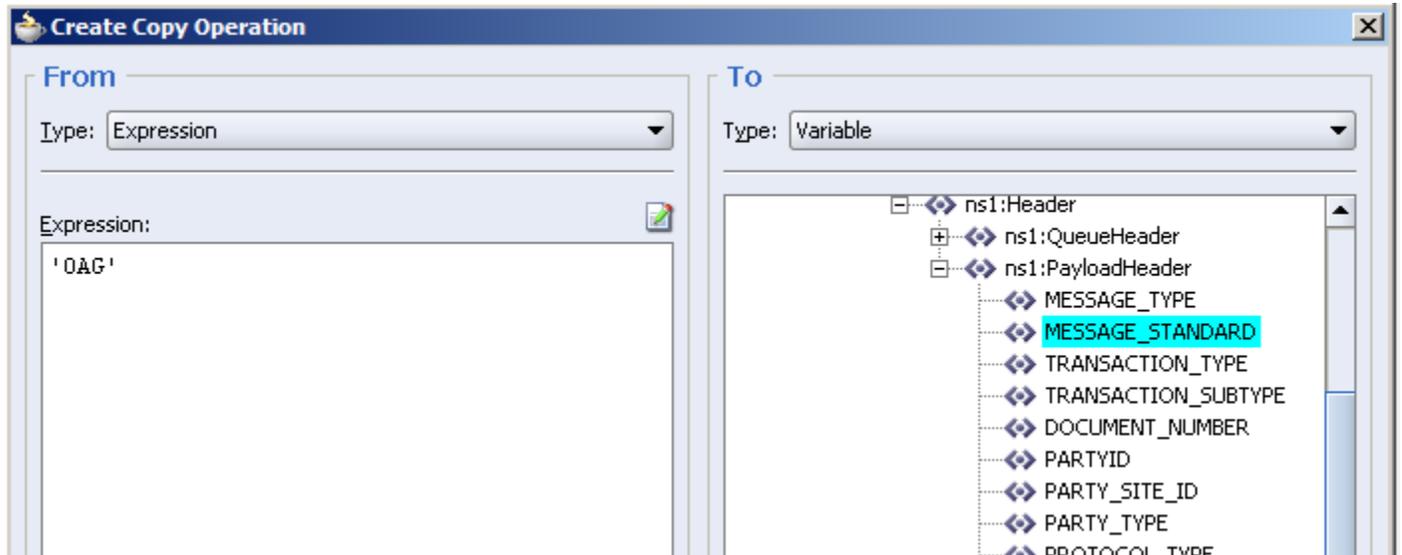
9. Select the `MESSAGE_TYPE` variable. In the From group, select Expression as the **Type**. Enter '**XML'** in the **Expression** field. Click **OK**.
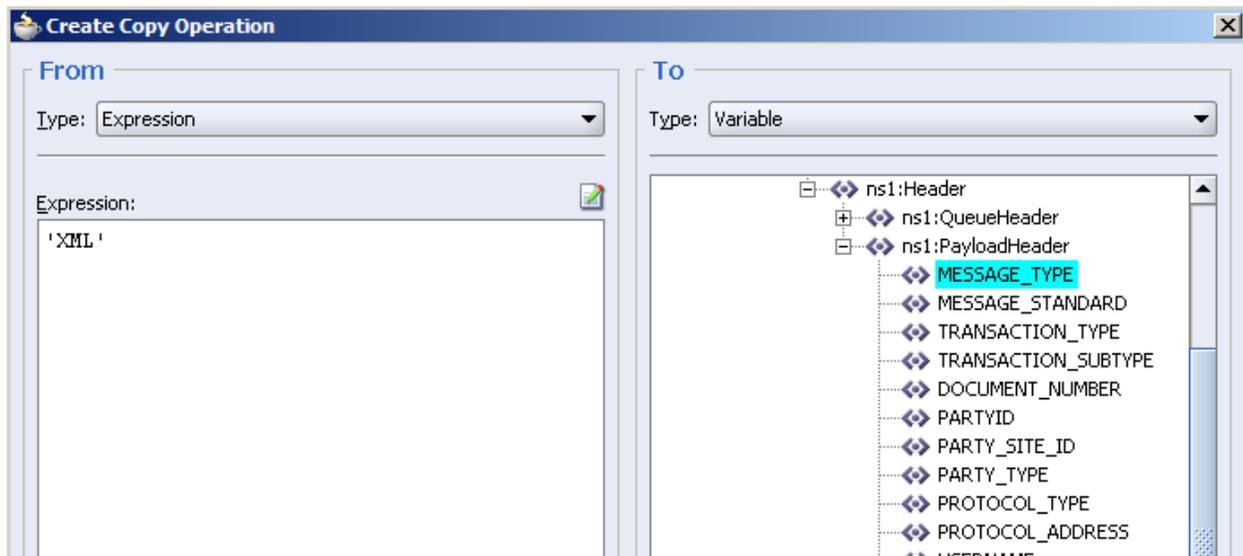
10. Repeat steps 7 and 8. Select the MESSAGE_STANDARD variable. MESSAGE_STANDARD is the XML message standard that you are using. Enter **'OAG'**. Click **OK**.


11. Repeat steps 7 and 8. Select the TRANSACTION_TYPE variable. This variable defines the type of transaction that you are performing, say a purchase order operation. Enter **'PO'**. Click **OK**.
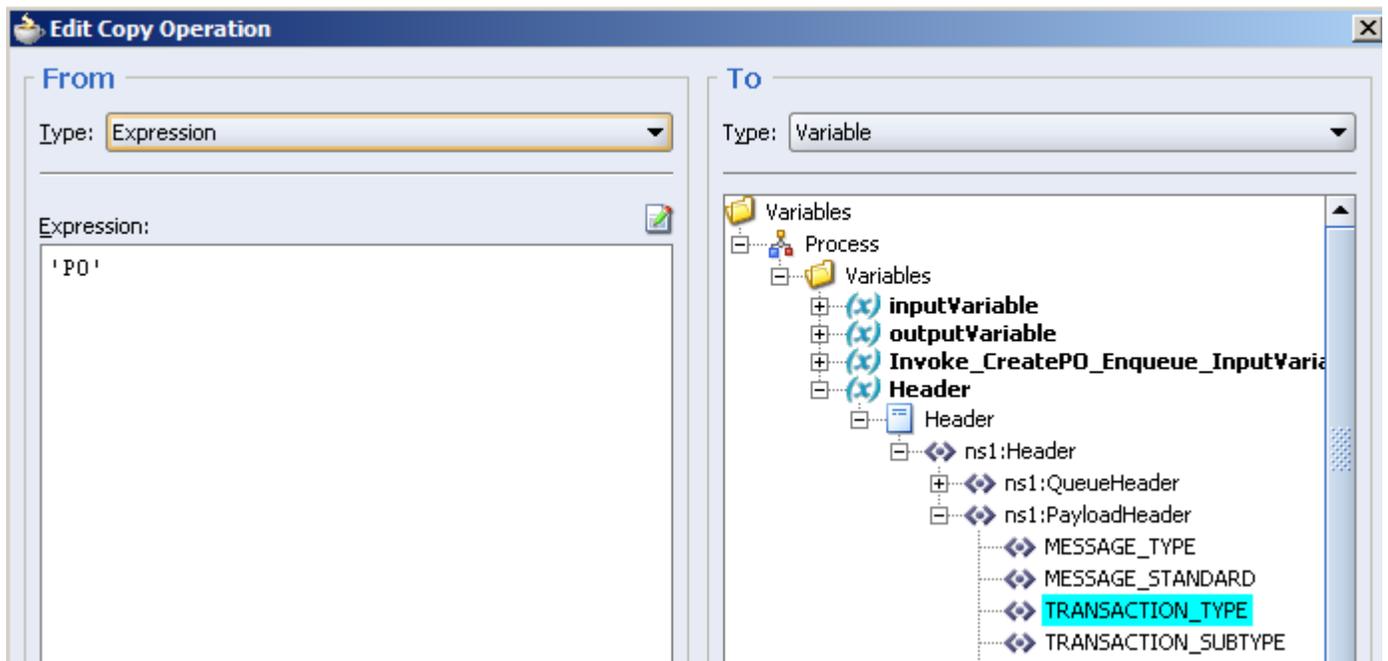
12. Repeat steps 7 and 8. Select the `TRANSACTION_SUBTYPE` variable. This variable defines the subtype for the transaction that you are performing. Enter **'PROCESS'**. This means that you are processing a Purchase Order `TRANSACTION_TYPE`. Click **OK**.
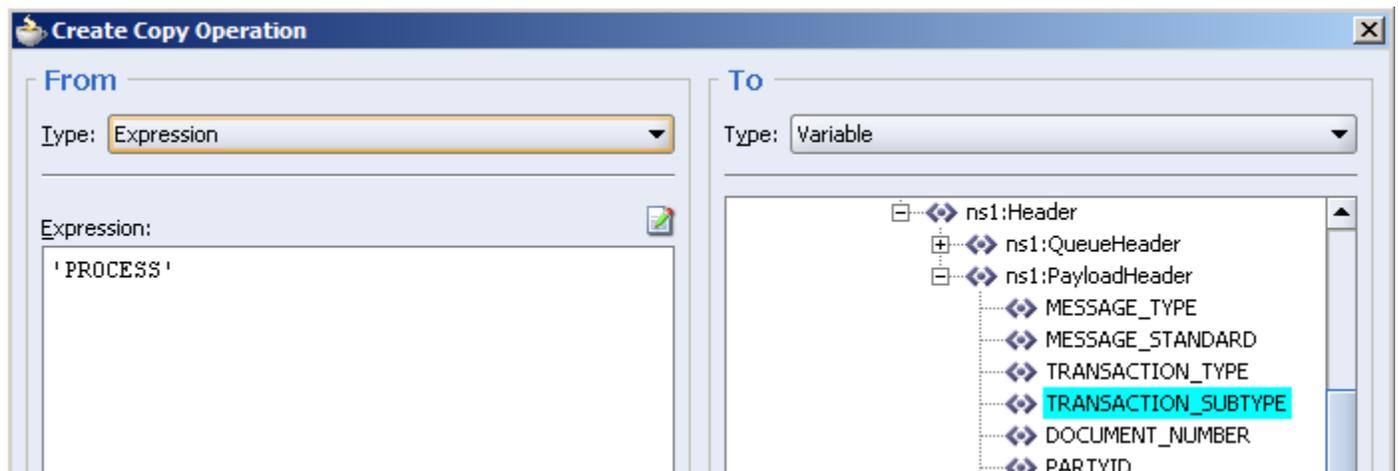
13. Repeat steps 7 and 8. Select the `PARTY_SITE_ID` variable. The `PARTY_SITE_ID` identifies the trading partner. Enter **'BWSANJOSE'**, a trading partner that was configured previously for you (BWSANJOSE). Click **OK**.
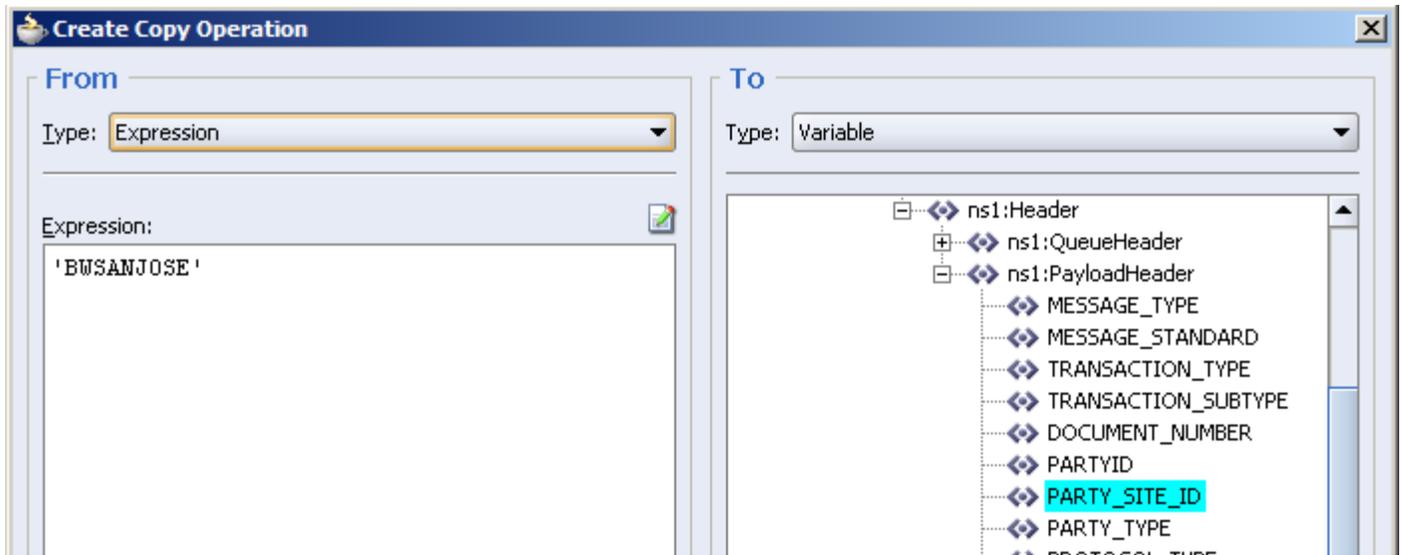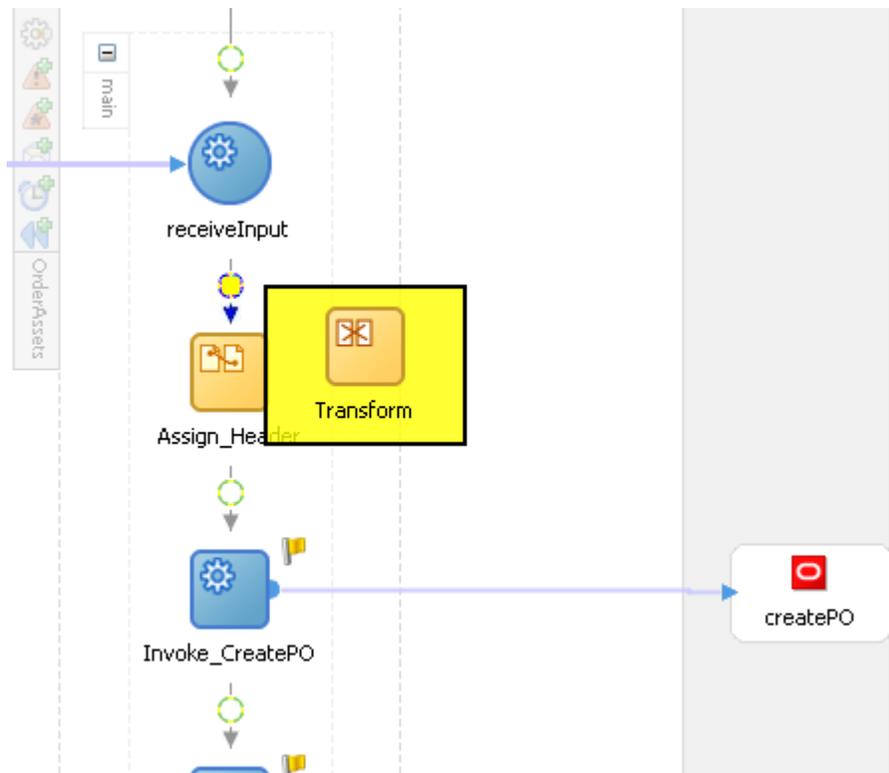
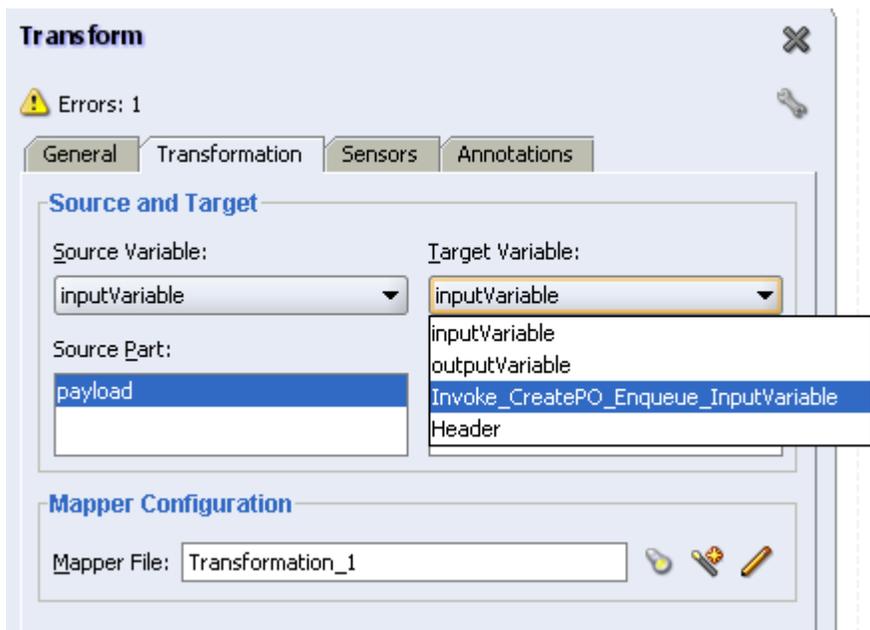**Click** Ok.
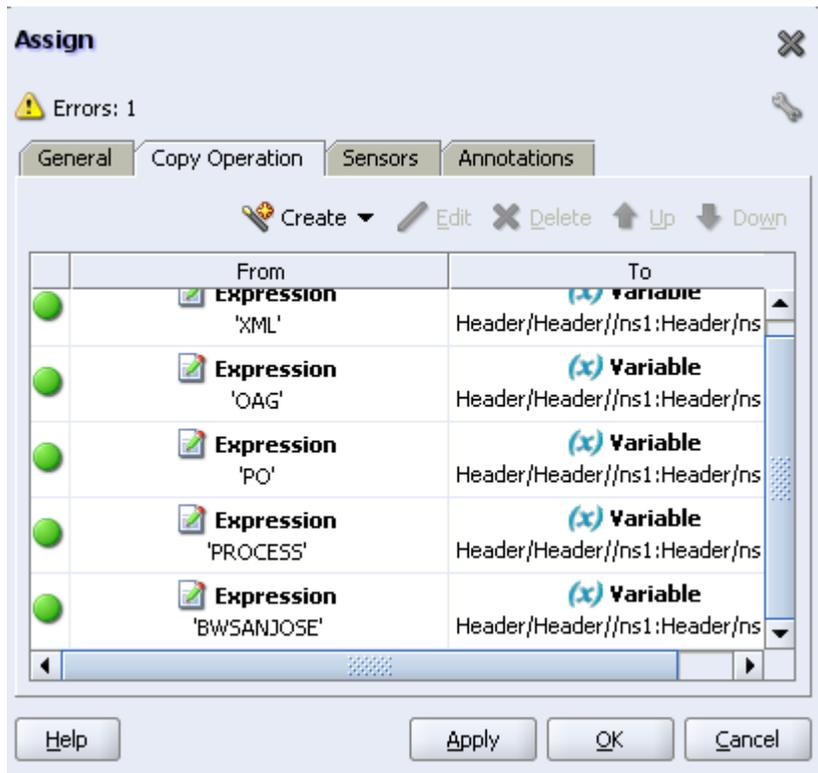
2.6 Creating a Transformation

Before sending a message to the CreatePO partner link, it's necessary to transform the process input, which is type Assets, into the format used by the CreatePO Adapter service (PO). You will use a Transformation activity to do his.
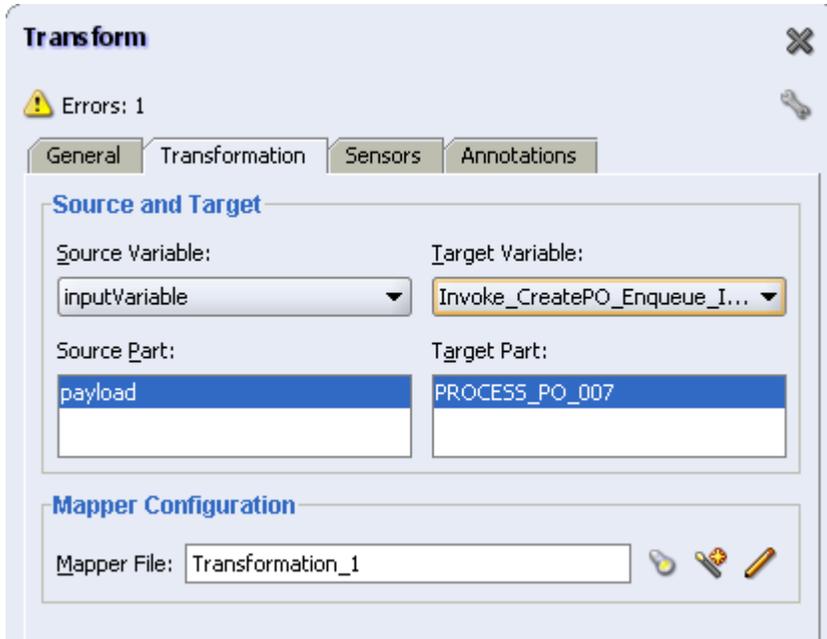
1. Drag a **Transform** activity from the **Component Palette** onto the diagram, between the **ReceiveInput** and **AssignHeader** activities.

2. Double click the **Transform** activity. The dialog box below will be displayed.

3. Select **inputVariable** as the source variable for the transformation. Select **Invoke_createPO_Enqueue_InputVariable** as the target.

4. Click OK. The XSLT mapper will be displayed.

5. Click on the Source Tab. We will replace the default map with xslt source from a local file. In the source window delete all the code (Ctrl-A highlights everything, and Ctrl-X deletes everything in the source window).
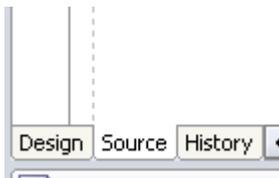
Open the file `Assets_To_PO.xsl` file from your desktop folder FMW4Apps → LabFiles → EBS using **Notepad** and copy the contents using Ctrl-A and paste into the Source window using Ctrl-V. *Do not open using IE. You must open it using Notepad only.*

Go back to Design tab, and you should see map lines drawn, when you open the parent elements by clicking on the + icons.
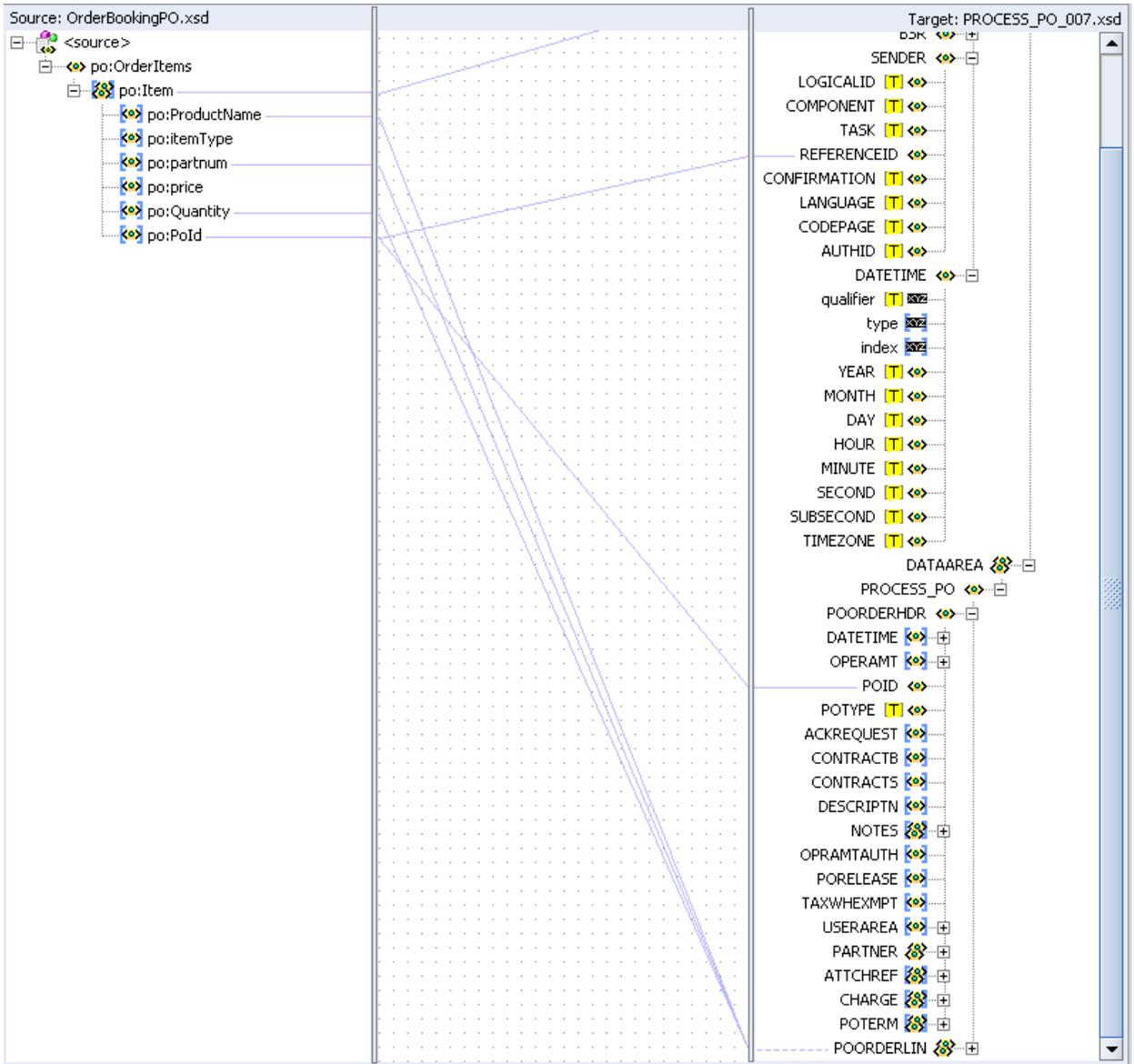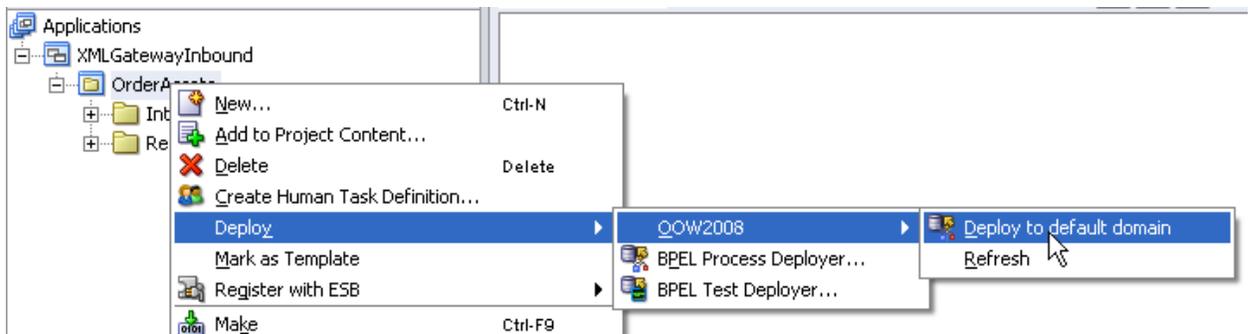
Save the project.

2.7 Validating, Compiling and Deploying the BPEL Process

Note: For this section you need to ensure you have BPEL manager started and a link to the default domain from Jdeveloper.

1. Go to the **Applications Navigator** section
2. Right-click the **OrderAssets** BPEL Project
3. Select **Deploy → OOW2008 →Deploy to default domain**

This compiles and deploys the BPEL process. Review the bottom window for any errors. If there are no errors, deployment was successful.

4. If you have errors, make appropriate corrections and deploy again. Ignore any warnings.
5. Once you deploy with no errors, your workflow project is now ready for testing.

2.8 Example of BPEL Process
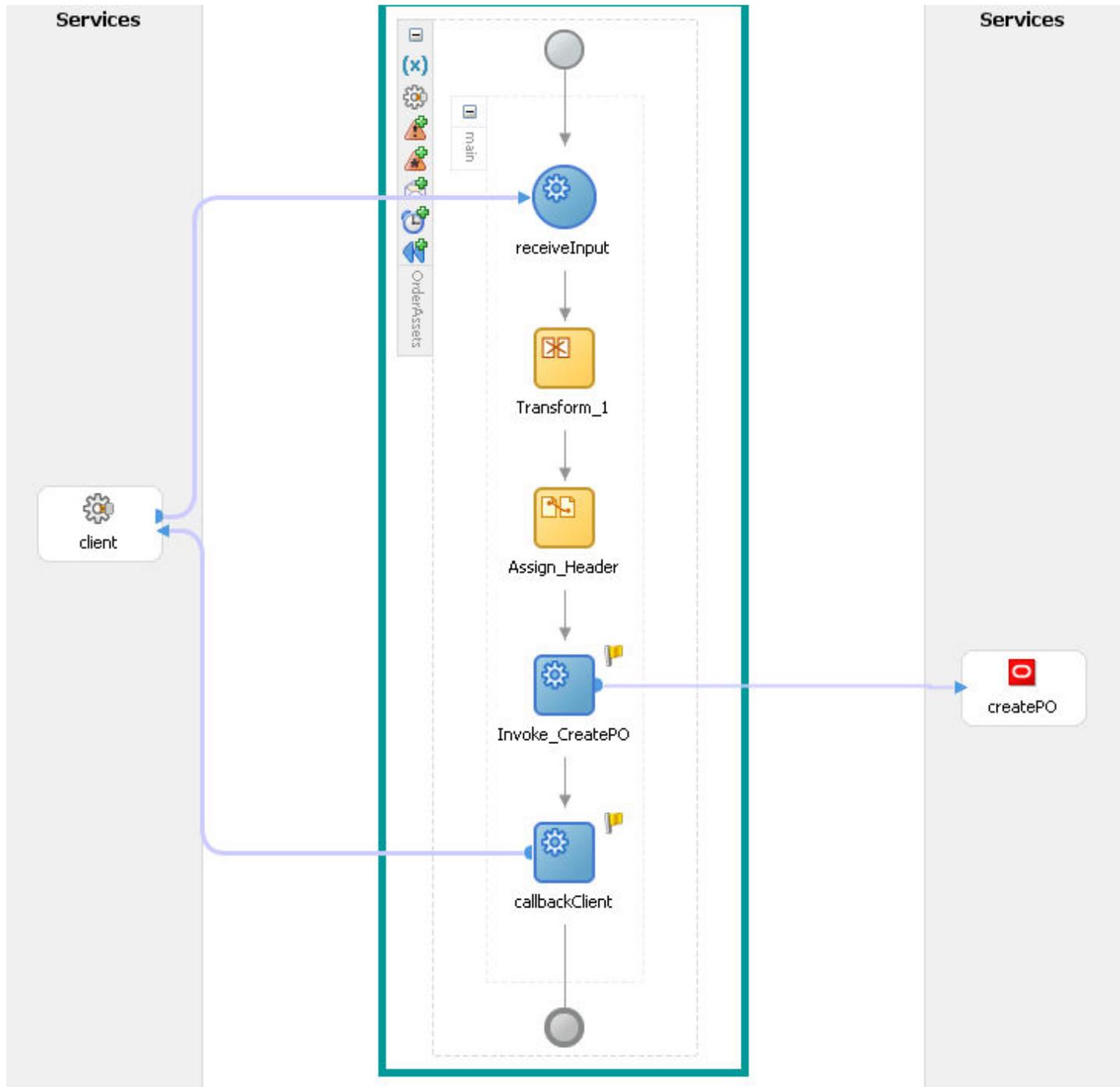
3 Test The Integration

3.1 Testing the BPEL Process from the BPEL Console

You can test that your BPEL project works by initiating an Insert from the BPEL Console.

Log into the Oracle BPEL Console using Internet Explorer by clicking on the URL icon in your FMW4Apps → Shortcuts folder.

The default Username is **oc4jadmin** and the default password is **welcome1**.

1. Click on **OrderAssets** in the Deployed BPEL Processes list.

Enter the input fields as shown below. For PoID, use OOW08_SEPXX_NN, where NN is your Laptop#, DD is date (22, 23, 24, 25). If you are attending the session on 22nd and your laptop # is 01, a sample input will be OOW08_SEP22_01. Do not send multiple orders to avoid loading up our server.

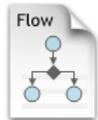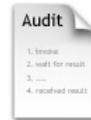1. Click **Post XML Message** button to initiate the process.

2. The BPEL process is now initiated. You can check the process flow by clicking the **Visual Flow** icon.

Instance '**ccd9bc0dbe1c4ba6:-420f8934:118ad05da1f:-74d1**' is being processed asynchronously. For more information:

Visual Flow   Audit Instance   Debug Instance

of the history of this BPEL business flow

Your Order will have been posted succesfully to E-Business Suite. Click on Invoke_CreatePO and other process steps to see runtime process execution information.

Wait for instructor to show your order posted to E-Business Suite. To avoid server load, we are suggesting that attendees not connect to E-Business Suite. The steps for checking the inserted Order are in the Appendix section next.

4 Appendix - Verifying Records in Oracle Applications

Based on server load, instead of each student checking his or her individual orders in E-Business Suite, this section may be projected on the screen. Check with your instructors to see if it is ok to login to E-Business Suite.

4.1 Using Transaction Monitor

1. Go to E-Business Suite by clicking on the desktop shortcut FMW4Apps → Shortcuts → E-Business Suite Login.

2. **Log on as SYSADMIN with password SYSADMIN**

3. Go to **Workflow Administrator Web Applications→ Transaction Monitor.**

Transaction Monitor:Search

Search Criteria

Select search criteria and press the Go button to view the report.

⊙ Inbound Messages
Processing Status [All ▼]

○ Outbound Messages
Generation Status [All ▼]
Delivery Status [All ▼]
Retry Status [All ▼]

Transaction Type	[ ]	Transaction Subtype	[ ]
Source TP Location Code	[ ]	Trading Partner Name	[ ]
Document ID	[ ]	Site Name	[ ]
Party Type	[▼]		
From Date	[26-Mar-2008 00:00:00]		
To Date	[26-Mar-2008 23:59:59]		

In the **Transaction Monitor** page, change **Party Type** to blank and click on the **Go** button. The XML Gateway transactions will be shown as below. It will be difficult to find your specific transaction here.

Transaction Monitor

Inbound Search Results

				⊗ Previous 10	11-14 of 14 ▾
Document ID	**Trading Partner Name**	**External Transaction Type**	**External Transaction Subtype**	**Processing Timestamp**	**Processi**
35766	N/A	PO	PROCESS	26-Mar-2008 11:42:49	Success
35768	N/A	PO	PROCESS	26-Mar-2008 11:58:36	Success
35770	N/A	PO	PROCESS	26-Mar-2008 12:06:28	Success
35772	N/A	PO	PROCESS	26-Mar-2008 15:47:19	Success

Click on Document ID of any SUCCESS transaction for more details. It should say "**Message Processed Successfully**". Click on **View XML** to see the details of XML posted. Here you can see PO ID and other order details.

4.2 View actual Order in the Order Management

1. Log out of Ebusiness Suite (if you were logged in as SYSADMIN in the previous section).
2. Log in to Ebusiness Suite as operations/welcome
3. Choose Responsibility **Order Management Super User, Vision Operations (USA)**→**Order Returns**→ **Sales Orders.** This can take a while.

3.Press F11 **to search for Order**.

4. Enter <ORDER_ID> in the Customer PO field to match your Order and press Ctrl+F11 keys.
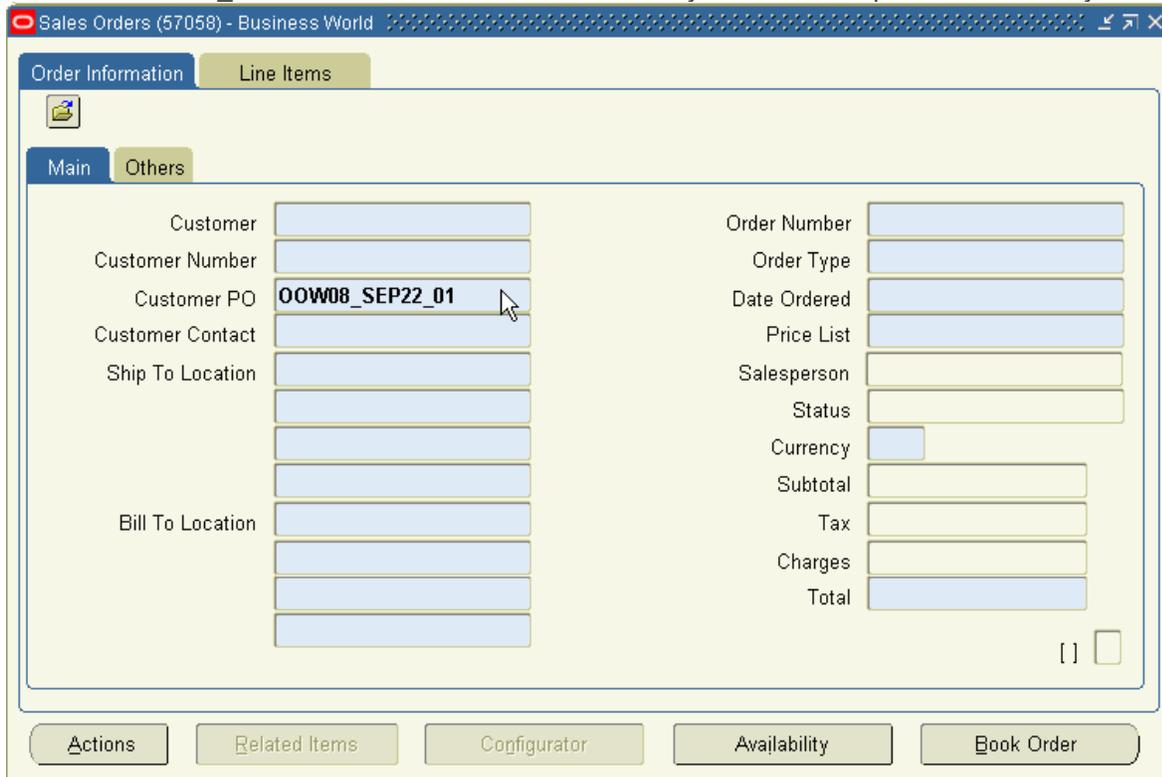
5.Details of newly created order with Order id = '<ORDER_ID>' could be seen.

Success!!!. That completes your lab.