How To Use the iFlow Eclipse Tool with the Integration Directory

Applies to:
SAP NetWeaver Process Orchestration 7.31 SP2
SAP NetWeaver Process Integration PI 7.31 SP2

Summary
With PI 7.31 SP2, an Eclipse tool was introduced to allow us to develop an end-to-end integration scenario. The Eclipse tool can be used instead of the classical Swing tool. Both tools will continue to exist, and can be used interchangeably.

This article describes the iFlow Eclipse tool for the creation of objects in the Integration Directory, which is second of the 2 articles for the development of an integration scenario. The first article consists of the tasks involved in the creation of interfaces and mapping using the ESR Eclipse tool, which is described separately.

This article can be used independently by itself to get an overview of the iFlow Eclipse tool, or can be used in conjunction with the ESR Eclipse tool to build a complete end-to-end integration.

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Created on: April 2012

Author Bio
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Abstract

This article goes through the step-by-step creation of objects in the Integration Directory using the Eclipse tool, iFlow.

This is the second of two articles outlining the end-to-end development of an integration scenario. The first article consists of the design portion of the integration scenario using the Eclipse ESR tool.

With the two articles, a complete end-to-end integration can be developed using Eclipse.

For the exercise, the scenario is as follow:

```
cust_no, name, address, city, state, zip, phone
```
(comma-delimited data)

```
PI 7.31 AEX
```

Structured data from file is to be inserted into an SQL table. If state = NY, then data will also be sent to JMS queue as XML.

Article 1: How To Use the ESR Eclipse Tool with the Enterprise Service Repository
Article 2: How To Use the iFlow Eclipse Tool with the Integration Directory

Step-by-Step Instructions

The tasks involved in the creation of integration objects are:

- Create iFlow template.
- Create business components in the Integration Directory using iFlow.
- Assign interfaces to the business components.
- Assign mappings during integration.
- Create communication channels in iFlow.

The NetWeaver Developer Studio 7.31 use in this guide can be downloaded from the SAP NetWeaver Developer Studio Update Site:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Screenshot</th>
</tr>
</thead>
</table>
| 1    | After launching NWDS, open the ESR perspective:  
*Windows → Open Perspective → Other…* | ![Screenshot](image1.png) |
| 2    | Select *SAP Process Integration Designer* and click “OK” | ![Screenshot](image2.png) |
### How To Use the iFlow Eclipse Tool with the Integration Directory

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 3    | Enter location of the PI server:  
Menu: Process Integration → Change Preferences  
Enter PI server URL.  
Click “Test Connection” to verify correct URL.  
Click “OK”. |
| 4    | Connect to the Integration Directory. |
| 5    | Enter logon info |

**Enter PI Server Information:**

- **System Explorer**:
  - **System**: AX1  
  - **User Name**: isawindows  
  - **Password**:  
  - **OK** button

![SAP Process Integration Designer - SAP NetWeaver Developer Studio](image)
# Create Business Components in iFlow (Integration Flow)

## 6 Create a new iFlow object:
- **Menu:** *File → New → Integration Flow*

## 7 Enter “Demo1” for the name.
- Since there will be 2 receivers, select “Recipient List.” (Optionally, “Point-to-Point Channel” can also be selected. Additional receivers can be added during configuration.)
- Click “Finish”.
  - **Note:** Optionally, we can also click “Next”, which will allow selection of existing sender and receiver components and interfaces.

## 8 A graphical view of the end-to-end integration will be displayed.
- The graphical view is based on BPMN. It allows us to see the complete message flow during the integration process.
9. Enter the sender component.
   Right-click “Sender 1”, and select “New Business Component”. (An existing
   Business System or Business Component can also be assigned.)

10. Enter “BC_Sender” for the sender business component name.
    Click “Finish”.

11. After the “BC_Sender” is displayed, on the right side of the window, in “Sender Interfaces”, click “Add” to add the sender interface from the ESR.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12</strong></td>
<td><strong>Select “SI_Request_Async_Out”. Click “OK”.</strong></td>
</tr>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td></td>
</tr>
<tr>
<td><strong>13</strong></td>
<td><strong>Save “BC_Sender”.</strong></td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td></td>
</tr>
</tbody>
</table>
| **14** | **Create 1st receiver.**
*Go back to the iFlow “Demo1” tab.*
*On the right side of the window, right-click on “Receiver 1” and select “New Business Component”.*** |
15. Enter name: **BC_Receiver1**
   Click “Finish”.

16. Add receiver interface to the business component.
   On the newly create **BC_Receiver1**, scroll to the right side of the window, under “Receiver Interfaces”, click “Add”.

17. Select **SI_InsertCustInfo_Async_In**.
   Click “OK”.

18. Save “BC_Receiver1”.
Repeat steps 14-18 for “Sender_2” in iFlow to create “BC_Receiver2” and add interface “SI_Request_Async_In”.

All sender (BC_Sender) and receiver components (BC_Receiver1, BC_Receiver2) are now created.

Assign Interfaces to be used during integration

20 Assign sender interface.
Within “BC_Sender”, right-click on interface and select “Assign Interface (F4)”.

21 Select “SI_Request_Async_Out”.
Click “OK”.

22 Assign receiver interface for “BC_Receiver1”.
Within “BC_Receiver1”, right-click on interface and select “Assign Interface (F4)”.
23. Select `SI_InsertCustInfo_Async_In`. Click "OK".

24. Assign receiver interface for "BC_Receiver". Within "BC_Receiver", right-click on interface and select "Assign Interface (F4)".

25. Select "SI_Request_Async_In". Click "OK".

26. All the sender and receiver interfaces are assigned.
Information:
Additional receivers can be added by right-click on "Recipient List" and select "Add Receiver".

Information:
A receiver can be deleted by right-click on the "Condition" line and select "Remove Receiver".

Assign Mapping
27 Add mapping program between BC_Sender and BC_Receiver1.
Right-click on the condition line to BC_Receiver1, and select "Add Mapping".
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<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Right-click on the newly created &quot;Mapping&quot; object. Select &quot;Assign Mapping (F4)&quot;.</td>
</tr>
<tr>
<td></td>
<td><img src="image1.png" alt="Diagram of iFlow with mapping selection" /></td>
</tr>
<tr>
<td>29</td>
<td>Select &quot;Request__InsertCustInfo&quot;, which has already been created in the ESR. Click &quot;OK&quot;.</td>
</tr>
<tr>
<td></td>
<td><img src="image2.png" alt="Diagram of Choose Mapping window" /></td>
</tr>
<tr>
<td>30</td>
<td>The result iFlow is displayed. <strong>Note</strong>: No mapping will be used for BC_Receiver2.</td>
</tr>
<tr>
<td></td>
<td><img src="image3.png" alt="Diagram of completed iFlow" /></td>
</tr>
</tbody>
</table>
Create Communication Channels

31. Create a File sender communication channel. The file will be comma-delimited, requiring structured conversion.

In iFlow, right-click on the "Channel" line and select "Configure Channel".

32. Enter “S_File” for the channel name.

Click on "Browse" to display and select the Adapter Type.

33. Select "File" and click "OK".
### 34. Select “File Content Conversion” for Message Protocol.

![Image of the Eclipse tool configuration]

- **Adapter Type:** File  
  - **Transport Protocol:** File System (NFS)  
  - **Message Protocol:** File

### 35. In the “Channels” tab, and under “Adapter-Specific” tab, in the “Source” tab, enter values:

- **Source Directory:** `data/demo1/Custinfo`
- **File Name:** `custInfo.txt`

![Image of the Eclipse tool configuration with selected values]
In the "Processing" tab:

- **Poll Interval**: 3
- **Select Processing Mode**: Delete

In the "Content Conversion" tab, enter the following values:

- **Document Name**: MT_Request
- **Document Namespace**: http://demo1.com/demo2
- **Recordset Name**: record
- **Recordset Structure**: record,*
- **Recordsets per Message**: *
Also, scroll toward the bottom, enter the following key-values into the table (use the "Add" button to add rows to the table):

- record.fieldNames = cust_no, name, address, city, state, zip, phone
- record.fieldSeparator = ,
- ignoreRecordsetName = true

Click on the "Model Configurator" tab to go back to iFlow.

"File" is now displayed for the Channel.

Create a JDBC receiver communication channel for BC_Receiver1 to insert rows into a SQL table.

Right-click on the "Channel" line to BC_Receiver1.

Select "Configure Channel".

Enter "R_JDBC_MSS" for the Channel Name.

Click "Browse" to select the Adapter Type.
Select "JDBC".
Click "OK".

In the "Adapter Specific" tab, enter the appropriate values for MSSQL configuration.

JDBC Driver: `com.microsoft.sqlserver.jdbc.SQLServerDriver`
Connection: `jdbc:sqlserver://isawindows:1433;database=Demo;integratedSecurity=false`
User Name: your dbuser
Password: your password

Click on the "Model Configurator" tab, the Channel should display "JDBC".
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 45   | Create a JMS receiver communication channel for BC_Receiver2 to send a message to a JMS queue.  
Right-click on the “Channel” line to BC_Receiver2.  
Select “Configure Channel”. |
| 46   | Enter “R_JMS_MQ” for the Channel Name.  
Click “Browse” to select the Adapter Type. |
| 47   | Select “JMS”.  
Click “OK”. |
For the Transport Protocol, select “WebSphereMQ…”.

In the “Adapter-Specific” tab, and “Target” tab, enter the appropriate values for the IBM MQ configuration.

Server Name: isawindows
Queue Manager Name: isawindows
Channel Name: S_isawindows
JMS Queue: demo1

In the “Processing” tab, enter the User and Password values as required.
<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>Click the &quot;Model Configurator&quot; tab to display the iFlow. The Channel should display &quot;JMS&quot;.</td>
</tr>
<tr>
<td>52</td>
<td>Save the iFlow. If there are missing configurations, it will be flagged in iFlow.</td>
</tr>
<tr>
<td>53</td>
<td>Activate the change list. Right-click the change list name &quot;Demo1&quot;, and select &quot;Activate&quot;. Note: This will save the iFlow object in the Integration Directory. It is not the same as activating the object in the Integration Directory.</td>
</tr>
<tr>
<td>54</td>
<td>Click &quot;Yes&quot; to save the changes. Click &quot;OK&quot; to complete.</td>
</tr>
</tbody>
</table>
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Deploy the iFlow Demo1.
Right-click Demo1 and select “Deploy”.
The Deploy is the same as “activate” in the Integration Directory.

During deployment the status will be displayed.

Running the Scenario

File Sender:
Data file sent

XML message after structure conversion by the file adapter

```xml
<?xml version="1.0" encoding="utf-8"?>
<ns:MT_Request xmlns:ns="http://demo1.com/demo2">
  <record>
    <cust_no>002</cust_no>
    <name>Jane Smith</name>
    <address>123 Main St.</address>
    <city>New York</city>
    <state>NY</state>
    <zip>10012</zip>
    <phone>202-555-1212</phone>
  </record>
</ns:MT_Request>
```
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JDBC Receiver (SQL Server):
Content of SQL table

<table>
<thead>
<tr>
<th>CustNo</th>
<th>CustName</th>
<th>CustAddress</th>
<th>CustCity</th>
<th>CustState</th>
<th>CustZip</th>
<th>CustPhone</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Jane Smith</td>
<td>123 Main St.</td>
<td>St. Louis</td>
<td>MO</td>
<td>63101</td>
<td>314-555-1212</td>
</tr>
<tr>
<td>002</td>
<td>Ralph Samson</td>
<td>123 Madison Ave.</td>
<td>New York</td>
<td>NY</td>
<td>10012</td>
<td>202-555-1212</td>
</tr>
</tbody>
</table>

JMS Receiver (IBM MQ):
Content of MQ queue

<?xml version="1.0" encoding="utf-8"?>
<ns:MT_Request xmlns:ns="http://-demo1.com/demo2">
  <record>
    <cust_no>001</cust_no>
    <name>Jane Smith</name>
    <address>123 Main St.</address>
    <city>St. Louis</city>
    <state>MO</state>
    <zip>63101</zip>
    <phone>314-555-1212</phone>
  </record>
  <record>
    <cust_no>002</cust_no>
    <name>Ralph Samson</name>
    <address>123 Madison Ave.</address>
    <city>New York</city>
    <state>NY</state>
    <zip>10012</zip>
    <phone>202-555-1212</phone>
  </record>
</ns:MT_Request>

Additional Information
There are still some gaps between the Swing tool and the Eclipse tool in the initial release of PI 7.31 SP2:
- Dynamic Recipient List
- Value Mapping
- Configurable Parameters
• Party
• Virtual Receiver
• Header Mapping
• Access Control List
• Extended Receiver Determination
• CTS+ Support
• Re-use of Channels

Except for the Re-use of Channels, the other gaps will be closed in the next update, PI 7.31 SP4.
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