This article describes an integration scenario involving WebSphere Message Broker V7, WebSphere MQ V7, and IBM Integration Designer V7.5.1, using an SIBus engine and MQ Link to integrate different IBM products and different communication protocols.

Introduction

This article shows you how to communicate between IBM® WebSphere® Message Broker V7, IBM WebSphere MQ V7, IBM Integration Designer V7.5.1 using a Service Integration Bus (SIBus) engine. The scenario involves adding JMS TargetFunctionName to any incoming message and is designed for multi-operation interfaces that involve invoking BPEL from a message flow using an SIBus. Figure 1 below shows the interaction between the different components. The information goes from Message Broker asynchronously, reaching the SIBus through MQ Link. The business process (BP) is executed with a synchronous call, and the BP response starts the asynchronous response to Message Broker.

Figure 1. Scenario components
Figure 2 shows the most common integration scenario for Message Broker and SIBus:

**Figure 2. Integration scenario**

![Diagram showing integration scenario]

**Creating a message flow in WebSphere Message Broker**

1. Create a message flow to put an XML message into a WebSphere MQ queue:

   **Figure 3. Message Broker message flow**

   ![Message Broker message flow]

**Configuring the SIBus**

1. In the WebSphere Application Server Administrative Console, open the URL: `http://HOST_NAME:9060/ibm/console` and click on `SCA.APPLICATION.qCell.Bus:`
2. Under Additional Properties on the right, click on **New Destinations**:  

**Figure 5. Create a destination**

3. Select the queue:
4. Enter ExampleIn for the Name:

**Figure 7. Enter name**

5. Accept the queue assignment to a bus member and click **Next**.

**Figure 8. Accept queue assignment**

6. Click **Finish** to create the new queue.
7. Create the JMS Queue Connection Factory:

Figure 10. Create JMS Queue Connection Factory

8. Accept the default messaging provider:
Figure 11. Default messaging provider

9. Enter `ConnectionFactory` for the Name and `jms/ConnectionFactory` for the JNDI Name. From the drop-down list for Bus name, choose `SCA.APPLICATION.qCell.Bus`:

Figure 12. Enter Name and JNDI Name

10. Return to Resources => JMS Providers => Default messaging provider:
11. On the right under Queues, click **New**. Under Configuration parameters, enter **ExampleIn** for the Name, **.jms/ExampleIn** for the JNDI name, **SCA.APPLICATION.qCell.Bus** for the Bus name, and **ExampleIn** for the Queue name:
12. Under Activation Specifications, click **New**:  
**Figure 16. Activation specifications**

13. In the General Properties window, the Scope should already be set. Enter **Activation Specification** as the Name and **jms/Activation Specification** as the JNDI name. Set the Destination type to **Queue** and the Destination JNDI name to **jms/ExampleIn**. For the Bus name, select **SCA.APPLICATION.qCell.Bus**:  

![Figure 15. JMS providers](image)
Linking to WebSphere MQ

SIBus Communicates with WebSphere MQ through MQ Link. An MQ Queue Manager appears to be a foreign bus to the Bus, and SIBus appears to be another queue manager to the Queue Manager.

1. In the WebSphere Application Server Administrative Console, define a foreign bus for the bus:

   **Figure 18. Foreign bus**

2. For Bus connection type, select **Direct connection**:
3. For Foreign bus type, select **WebSphere MQ**:

**Figure 20. Foreign bus type**

4. Set a `SCA.APPLICATION.qCell.Bus` name, such as the virtual queue manager name, and use the default engine to host the connection:
5. Define the receiver channel:

**Figure 22. Receiver channel**

6. Define the sender channel:

**Figure 23. Sender Channel**
7. Click **Finish** to save the changes:

**Figure 24. Finish ExampleWPSQMGR**

8. Define the foreign queue:

**Figure 25. Foreign queue**

**Figure 26. Foreign queue**

9. Create a foreign queue with the same name:
Figure 27. ForeignOut

10. Modify the JMS Queue ExampleIn to point to ExampleIn in WPSQMGR3 Bus:

Figure 28. WPSQMGR3 Bus

11. Create a front-end destination named ExampleIn_receive to forward messages to the ExampleIn destination:
12. Click on the already created **ExampleIn_receive** and modify the default forward routing path at the bottom of the screen:

**Figure 30. Modify default forward routing path**

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**Configuring IBM Integration Designer**

1. In the Business Integration view, open the Assembly Editor of ExampleTransformer by double clicking on **ExampleTransformer**. Set the following properties for Export1 and Import1:
2. Check the box next to **Example_receive** and click **Mediate**: 
**Figure 33. Mediate**

![Mediate](image)

### Configuring WebSphere MQ

1. Set the following Queue properties in MQ Explorer:

**Figure 34. Queue properties in MQ Explorer**

![Queue properties](image)

### Testing the scenario

1. Rfhutil is part of Support Pac IH03. From the drop-down list, set the Queue Manager Name to `WPSQMGR3` and the Queue Name to `Example_receive`:
Figure 35. Testing the scenario

![Testing scenario image]

2. Click **Open File** and select any XML file:

Figure 36. Message sample

![Message sample image]

3. Before clicking on **Write Q**, switch to the **MQMD tab** and set the MQ message format to **MQSTR**. Then switch back to the **Main tab** and click on **Write Q**.
4. After successful processing of the message, retrieve the response message with Read Q from the local MQ queue named ForeignOut and inspect the result on the Data tab:

**Figure 38. Inspect the result on the Data tab**
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