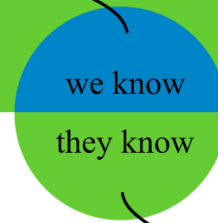


TOP TO BOTTOM



END TO END

# Interoperability of SAP Exchange Infrastructure 2.0 and WebSphere Business Integration 4.2

Quickguide

<b>1</b>	<b>Preface .....</b>	<b>3</b>
<b>2</b>	<b>Positioning SAP Exchange Infrastructure and WebSphere Business Integration.....</b>	<b>5</b>
<b>3</b>	<b>Prerequisites .....</b>	<b>6</b>
3.1	Prerequisites for SAP XI 2.0 .....	6
3.2	Prerequisites for IBM WBI 4.2 .....	6
<b>4</b>	<b>Interoperability Set Up .....</b>	<b>7</b>
4.1	SAP XI Adapter Engine and JMS adapter .....	7
4.2	IBM WebSphere Adapter for the SAP Exchange Infrastructure .....	7
4.3	Configuring Interoperability between SAP XI and IBM WBI using JMS .....	7
4.3.1	Setting up the SAP Exchange Infrastructure .....	7
4.3.2	Configuring the IBM WBI Adapter for SAP XI .....	11
<b>5</b>	<b>Testing the Interoperability - Test Procedure.....</b>	<b>15</b>
5.1	Asynchronous Communication from SAP XI to IBM WBI .....	15
5.2	Asynchronous Communication from IBM WBI to SAP XI .....	20
<b>6</b>	<b>Summary .....</b>	<b>22</b>

# 1 Preface

## 1.1 Constraints

The texts, references and graphics contained in this manual have been compiled with utmost care; nevertheless, it is impossible to guarantee that they are fully without error. IBM and SAP cannot assume any responsibility for the correctness or completeness of the following documentation; the user alone is responsible for verifying the information contained therein.

IBM and SAP will only assume liability for damage arising from the use of this documentation – irrespective of the pertinent legal basis – in the case of intentional or active negligence, under no other circumstances will a warranty be made.

## 1.2 Definition

The purpose of this Quick Guide is to describe the configuration steps required to set up interoperability between SAP Exchange Infrastructure 2.0 and IBM WebSphere Business Integration System (IBM WBI) 4.2.x using the WebSphere Business Integration Adapter for SAP Exchange Infrastructure V 1.0 (aka WBI Adapter for SAP XI) and the InterChange Server as an Integration Broker.

The Quick Guide covers all parameter settings to set up a SAP XI – IBM WBI interoperability via JMS for an asynchronous scenario showcased on a Windows 2000 platform.

If more information is needed please refer to the appropriate guides of the products.

## 1.3 Intended Audience

This guide is intended to be used by administrators or technical consultants who have to build interoperability scenarios between SAP Exchange Infrastructure and IBM WebSphere Business Integration System based on WebSphere MQ.

The users should be familiar with the above mentioned products. They should know how to use and configure the products.

## 1.4 Additional Documentation

### List of related documentation for SAP XI

Title	Purpose	Where to find
<i>Installation Overview – SAP Exchange Infrastructure 2.0:</i>	Overview of the overall installation process.	SAP Service Marketplace at: <a href="http://service.sap.com/instguides">http://service.sap.com/instguides</a> (SAP Exchange Infrastructure → Release 2.0 SR1)
<i>Installation Guide – SAP Web AS 6.20</i>	Installing SAP Web Application Server (Web AS) 6.20	SAP Service Marketplace at: <a href="http://service.sap.com/instguides">http://service.sap.com/instguides</a> (SAP Exchange Infrastructure → Release 2.0 SR1)
<i>Installation Guide – SAP Exchange Infrastructure 2.0</i>	Installing required SAP Exchange Infrastructure components	SAP Service Marketplace at: <a href="http://service.sap.com/instguides">http://service.sap.com/instguides</a> (SAP Exchange Infrastructure → Release 2.0 SR1)

**Quickguide –  
Interoperability of SAP Exchange Infrastructure 2.0 and WebSphere Business Integration 4.2**

<i>Configuration Guide – SAP System Landscape Directory: Configuration for SAP Exchange Infrastructure 2.0</i>	Detailed configuration of the System Landscape Directory	SAP Service Marketplace at: <a href="http://service.sap.com/instguides">http://service.sap.com/instguides</a> (SAP Exchange Infrastructure → Release 2.0 SR1)
<i>Configuration Guide – SAP Exchange Infrastructure 2.0</i>	Detailed configuration of SAP Exchange Infrastructure 2.0	SAP Service Marketplace at: <a href="http://service.sap.com/instguides">http://service.sap.com/instguides</a> (SAP Exchange Infrastructure → Release 2.0 SR1)
<i>Documentation (SAP Library) Exchange Infrastructure</i>	The SAP Library is the basis for understanding this Configuration Guide. It provides detailed information on each function.	SAP Integration Builder → Documentation SAP Help Portal <a href="http://help.sap.com/">http://help.sap.com/</a>
<i>SAP Security Guide</i>		<a href="http://service.sap.com/securityguide">http://service.sap.com/securityguide</a>
<i>Sizing SAP Exchange Infrastructure Version 2.0</i>	Information about sizing.	<a href="http://service.sap.com/sizing">http://service.sap.com/sizing</a> (Media Center → Literature)

**List of related documentation for IBM WBI**

<i>Documentation IBM WebSphere Business Integration</i>	Library containing the documentation of all IBM WebSphere Business Integration components	<a href="http://www.ibm.com/software/integration/library">http://www.ibm.com/software/integration /library</a>
<i>IBM WebSphere InterChange Server - System Installation Guide for Windows</i>	Document describes how to install, start up, and set up IBM WBI using the InterChange Server as an Integration Broker	<a href="http://www.ibm.com/software/integration/wbiserver/ics/library/infocenter">http://www.ibm.com/software/integration /wbiserver/ics/library/infocenter</a>
<i>Technical Introduction to WebSphere InterChange Server</i>	Introduces the infrastructure and other major elements of a system that implements InterChange Server	<a href="http://www.ibm.com/software/integration/wbiserver/ics/library/infocenter">http://www.ibm.com/software/integration /wbiserver/ics/library/infocenter</a>
<i>Installation Guide for WebSphere Business Integration Adapters</i>	Document describes how to install the Business Adapters on different platforms	<a href="http://www.ibm.com/software/integration/wbiserver/ics/library/infocenter">http://www.ibm.com/software/integration /wbiserver/ics/library/infocenter</a>
<i>Installation Guide for the WebSphere Adapter for the SAP Exchange Infrastructure</i>	Document describes how to install and configure WBI Adapter for XI	<a href="http://www.ibm.com/software/integration/wbiserver/ics/library/infocenter">http://www.ibm.com/software/integration /wbiserver/ics/library/infocenter</a>

## 2 Positioning SAP Exchange Infrastructure and WebSphere Business Integration

IBM and SAP are trusted partners that deliver software solutions to help their customer's IT organizations reduce their total cost of ownership and enable a flexible integration and application infrastructure. Both companies have already collaborated to deliver integration for SAP applications via a comprehensive Application Adapter as a component of the WebSphere Business Integration product set.

To provide interoperability and collaboration of IBM WebSphere and SAP NetWeaver is key for both companies, in particular on enhancing the interoperability between IBM WebSphere Business Integration and SAP Exchange Infrastructure using open standards to support a diverse range of customer environments. This interoperability and co-existence strategy enables our customers to innovate and deploy flexible application solutions and integration infrastructure while minimizing their TCO.

SAP Exchange Infrastructure delivers much of its openness through technical adapters that facilitate interoperability with other enterprise application integration infrastructures. The JMS adapter is best suitable for IBM WebSphere Business Integration, providing off-the-shelf technical interoperability with the run time environment of two integration solutions at the message level.

The IBM WebSphere Business Integration Adapter for SAP XI V1.0 enables business applications to send and receive business data and events as XML messages asynchronously. A broker or server can exchange business objects with the SAP Exchange Infrastructure 2.0 server through the SAP XI JMS Adapter. The adapter supports request processing and event notifications.

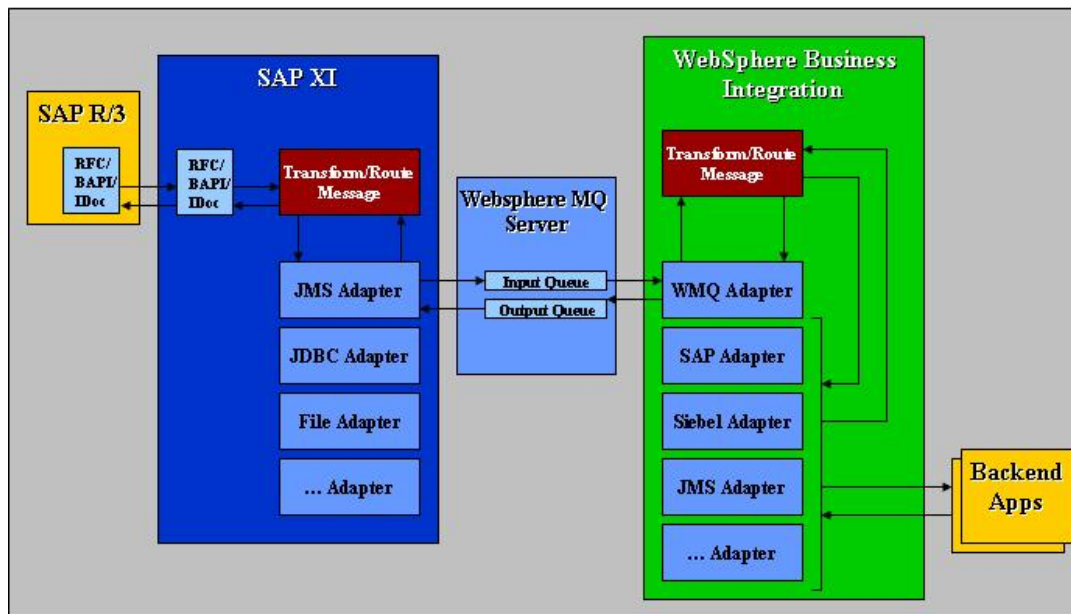


Figure 1: Interoperability Overview SAP Exchange Infrastructure and WebSphere Business Integration via JMS

## 3 Prerequisites

### 3.1 Prerequisites for SAP XI 2.0

#### List of required steps

Step	Documentation
1. You have installed the SAP Exchange Infrastructure and the SAP Web Application Server 6.20.	SAP Exchange Infrastructure 2.0: Master Guide Installation Guide – SAP Web AS 6.20 on <Operating System> Installation Guide – SAP Exchange Infrastructure 2.0
2. You have installed the XI-Add-On on each involved business system that is based on SAP Web AS 6.20.	Installation Guide – SAP Exchange Infrastructure 2.0
3. You have configured the System Landscape Directory (SLD).	Configuration Guide – SAP System Landscape Directory: Configuration for SAP Exchange Infrastructure 2.0  For information about configuring the SLD, see also the SAP Exchange Infrastructure online documentation under:  SAP Exchange Infrastructure → System Landscape Directory
4. You have saved all the defined interfaces in the Integration Repository.	SAP Exchange Infrastructure → Design and Configuration Time → Design → Interface Design
5. You have configured your business scenario in the Integration Directory	SAP Exchange Infrastructure → Design and Configuration Time → Directory

### 3.2 Prerequisites for IBM WBI 4.2

Step	Documentation
1. You have installed the IBM WebSphere InterChange Server, version 4.2.x . and its prerequisites.	IBM WebSphere InterChange Server - System Installation Guide  Further prerequisites are described here
2. You have installed IBM WebSphere Adapter for the SAP Exchange Infrastructure V1.0	Installation Guide for the WebSphere Adapter for the SAP Exchange Infrastructure

## 4 Interoperability Set Up

In this chapter, we first give an overview of the two integration components SAP XI Adapter Engine and IBM WBI Adapter for SAP XI. Then we describe the configuration of the adapters for setting up interoperability between SAP XI and IBM WBI using JMS in more detail.

### 4.1 SAP XI Adapter Engine and JMS adapter

For information about configuring the adapters, as well as an explanation of the parameters, refer to the documentation <http://help.sap.com> -> SAP NetWeaver -> SAP Exchange Infrastructure -> Adapters -> Adapter Engine -> Configuration. After you have installed the adapters, this part of the documentation is also available as a PDF document in the file system of the adapters.

The Adapter Engine configuration options can be accessed via the Runtime Workbench (RWB) from the XI start page or via <http://<hostname>:8200>, where <hostname> is the Integration Server in an all-in-one installation or the hostname of the dedicated server where a standalone adapter engine resides.

You need to differentiate here between adapters that are located before inbound processing in the Integration Engine and those that are located after outbound processing in the Integration Engine.

Each inbound or outbound adapter has a special module that is started when the adapter is connected. You must install and configure this module correspondingly.

You can also run multiple modules of this kind in parallel. This enables you to use different adapters or different configurations of the same adapter simultaneously. It may be necessary for you to change the installation parameters to enhance the installation.

### 4.2 IBM WebSphere Adapter for the SAP Exchange Infrastructure

The IBM WBI Adapter for SAP XI allows asynchronous integration of IBM WBI and SAP XI via WebSphere MQ. The adapter receives messages from SAP XI using WebSphere MQ, calls data handlers to convert messages to a format native to the IBM InterChange Server (ICS). In the other direction, the adapter receives data from the integration broker, converts them into WebSphere MQ messages using the data handler, and then delivers the messages to SAP XI.

The WBI Adapter for SAP XI is meta-data driven and uses event polling for message routing and format conversion. It uses Java Message Service (JMS) to access WebSphere MQ.

### 4.3 Configuring Interoperability between SAP XI and IBM WBI using JMS

In this part we provide a step-by-step description of how to configure the respective adapters:

#### 4.3.1 Setting up the SAP Exchange Infrastructure

In this chapter we will focus on two different scenarios:

1. In scenario 1 the SAP XI will be the sending system and IBM InterChange Server (ICS) will be the receiver.
2. In scenario 2 the SAP XI will be the receiving system and IBM ICS will be the sender.

##### 4.3.1.1 Configuring The Outbound JMS Adapter

You need to configure the outbound JMS adapter to convert SAP XI messages from the Integration Engine into JMS messages.

We will only refer to the parameter settings specific to WebSphereMQ or which do not provide a default value.

## Prerequisites

You have:

1. Installed the corresponding adapter.

Please make sure that the additional steps for the JMS adapter have been performed:

The optional package *jms.jar* has to be located in the adapter home (tech\_adapter) or it has to be defined in the CLASSPATH. The Classpath-variable has to be added into the run\_adapter-file of the Adapter Engine.

If needed it can be located, for example, on the SAP Web Application Server or directly on the Internet at [java.sun.com/products/jms/index.html](http://java.sun.com/products/jms/index.html) (download from **jms.jar**).

The WebSphere MQ JMS driver (**com.ibm.mq.jar, com.ibm.mqjms.jar**) is installed:

The Java libraries must be located in the Java CLASSPATH following installation so that the JMS adapter can access the required Java classes at runtime.

2. Started the Adapter Engine

If you have problems starting the Adapter Engine please refer to the Adapter Engine Configuration Guide. See chapter 4.1 General.

3. Logged on to the Adapter Engine

You can call the Adapter Engine using a browser. The corresponding default address is **http://<hostname>:8200**; the default user is **sap** and the default password **init**.

4. Selected the adapter on the configuration screen.

If you want to create a new adapter and need help, please refer to the Adapter Engine Configuration Guide. See chapter 4.1

5. Chosen *Configure* to call the configuration of the adapter module.

6. Chosen *Edit/View* to change to edit mode.

## Parameter Settings

**XMB.httpPort**=<port\_no>

**<port\_no>** specifies the HTTP server port that receives the messages from the Integration Engine. I.e.

XMB.httpPort=8230

The default setting is **8230** and can be changed to your needs, i.e. if the port is already used by another service.

**XMB.httpService**=<service>

**<service>** describes the service part of the address where the Integration Engine must send its messages. I.e.

XMB.httpService=/JMS

These specifications are mandatory.



For example, if you have specified **XMB.httpPort=1234** and **XMB.httpService=/JMS**, the end point address which is used to address this JMS-Adapter within the Integration Directory is:

http://<hostname>:1234/JMS

Where <hostname> is the host name or IP address the JMS Adapter is installed and running on.

If you do not change the default parameters the JMS adapter can be addressed as follows:

http://<hostname>:8230/JMS



The next section of parameters is used to define the JMS administrated objects for WebSphere MQ.

**JMS.QueueConnectionFactoryImpl.classname**=com.ibm.mq.jms.MQQueueConnectionFactory

**JMS.QueueConnectionFactoryImpl.method.setHostName**=java.lang.String <hostname>

Where <hostname> is the host name or IP address the JMS is installed and running.

**JMS.QueueConnectionFactoryImpl.method.setChannel**=java.lang.String <channel>

Where <channel> is the name of the channel in IBM WebSphere MQ.

**JMS.QueueConnectionFactoryImpl.method.setPort**=java.lang.Integer <port>

Where <port> is the port number in IBM WebSphere MQ.

**JMS.QueueConnectionFactoryImpl.method.setTransportType**=java.lang.Integer

{com.ibm.mq.jms.JMSC.MQJMS\_TP\_CLIENT\_MQ\_TCPIP}

**JMS.QueueConnectionFactoryImpl.method.setQueueManager**=java.lang.String <queue\_manager>

Where <queue\_manager> is the name of the queue manager, which has been defined in WebSphere MQ, see chapter 4.2.2.1

**JMS.QueueImpl.classname**=com.ibm.mq.jms.MQQueue

**JMS.QueueImpl.constructor**=java.lang.String <XI-WBI-Queue-Name >

Where <XI-WBI-Queue-Name> is the name of the queue for polling messages from SAP XI, which has been defined in WebSphere MQ, see chapter 4.2.2.1

**JMS.QueueImpl.method.setTargetClient**=java.lang.Integer

{com.ibm.mq.jms.JMSC.MQJMS\_CLIENT\_NONJMS\_MQ}



This parameters are already defined in the sample JMS properties file and have just to be uncommented. Only the setHostName and setQueueManager settings have to be adjusted to your needs

### 4.3.1.2 Configuring the Inbound JMS Adapter

You need to configure the inbound JMS adapter to send JMS messages to the Integration Engine of SAP XI.

#### Prerequisites

You have:

1. Installed the corresponding adapter.

Please make sure that the additional steps for the JMS adapter have been performed:

The optional package jms.jar has to be located in the adapter home (tech\_adapter) or it has to be defined in the CLASSPATH.

If needed it can be located, for example, on the SAP Web Application Server or directly on the Internet at [java.sun.com/products/jms/index.html](http://java.sun.com/products/jms/index.html) (download from **jms.jar**).

The WebSphere MQ JMS driver (**com.ibm.mq.jar**, **com.ibm.mqjms.jar**) is installed:

The Java libraries must be located in the Java CLASSPATH following installation so that the JMS adapter can access the required Java classes at runtime.

2. Started the Adapter Engine
3. If you have problems starting the Adapter Engine please refer to the Adapter Engine Configuration Guide. See chapter 4.1 General.
4. Logged on to the Adapter Engine

You can call the Adapter Engine using a browser. The corresponding default address is <http://<hostname>:8200>; the default user is **sap** and the default password is **init**.

5. Selected the adapter on the configuration screen.  
If you want to create a new adapter and need help, please refer to the Adapter Engine Configuration Guide. See chapter 4.1
6. Chosen *Configure* to call the configuration of the adapter module.
7. Chosen *Edit/View* to change to edit mode.

### Parameter Settings

**XMB.SenderBusinessSystem**=<business\_system>

Where <business\_system> is the name of the sending system defined in the System Landscape Directory.

**XMB.SenderInterfaceNamespace**=<namespace>

Where <namespace> is the namespace defined for this sender interface.

**XMB.SenderInterfaceName**=<interface\_name>

Where <interface\_name> is the name of the interface.

**XMB.TargetURL**=http://<IS-host>:<port>/sap/xi/engine?type=entry

Where:

<IS-host> is the host name or IP address of the Integration Server.

<port> is the port the Integration Server is expecting http connections.

This specification is mandatory.

If an authentication was specified for the specified URL (HTTP service), the following specifications are mandatory:

**XMB.User**=<user-name>

**XMB.Password**=<password>



The specifications must match those that you made in transaction SICF in the Integration Engine. If you do not specify a user and password combination, or the combination is invalid, the system will terminate each attempt to access the Integration Engine with the message *Transport Exception: http-Error 401 – Unauthorized*.

The user must have the authorizations of group SAP\_XI\_APPL\_SERV\_USER on the Integration Server.

If you use a different client or language to the default setting in the Integration Engine when logging on, you can also set the following parameters:

- **XMB.Client**=<client-no>
- **XMB.Language**=<language-id>

The next section of parameters is used to define the JMS administrated objects for WebSphere MQ.

**JMS.QueueConnectionFactoryImpl.classname**=com.ibm.mq.jms.MQQueueConnectionFactory

**JMS.QueueConnectionFactoryImpl.method.setHostName**=java.lang.String <hostname>

Where <hostname> is the host name or IP address the JMS is installed and running.

**JMS.QueueConnectionFactoryImpl.method.setChannel**=java.lang.String <channel>

Where <channel> is the channel name in WebSphere MQ.

**JMS.QueueConnectionFactoryImpl.method.setPort**=java.lang.Integer <port>

Where <port> is the port number in WebSphere MQ (default 1414).

**JMS.QueueConnectionFactoryImpl.method.setTransportType**=java.lang.Integer  
{com.ibm.mq.jms.JMSC.MQJMS\_TP\_CLIENT\_MQ\_TCPIP}

**JMS.QueueConnectionFactoryImpl.method.setQueueManager**=java.lang.String <queue\_manager>

Where <queue\_manager> is the name of the queue manager, which has been defined in WebSphere MQ, see chapter 4.2.2.1

**JMS.QueueImpl.classname**=com.ibm.mq.jms.MQQueue

**JMS.QueueImpl.constructor**=java.lang.String <WBI-XI-Queue-Name>

Where <WBI-XI-Queue-Name> is the name of the queue for writing messages for SAP XI, which has been defined in WebSphere MQ, see chapter 4.2.2.1

**JMS.QueueImpl.method.setTargetClient**=java.lang.Integer  
{com.ibm.mq.jms.JMSC.MQJMS\_CLIENT\_NONJMS\_MQ}



This parameters are already defined in the sample JMS properties file and have just to be uncommented. Only the setHostName and setQueueManager settings have to be adjusted to your needs.

### 4.3.2 Configuring the IBM WBI Adapter for SAP XI

Configuring IBM WBI Adapter for SAP XI involves the following steps:

1. Creating WebSphere MQ Queues
2. Configuring Adapter Properties
3. Configuring Meta-Objects
4. Generating Business Object Definitions

Figure 2 shows how the entities to be configured are involved in processing a message from SAP XI by the Adapter.

SAP XI sends XML messages using the Outbound JMS Adapter to the <XI-WBI-Queue>. The adapter polls the queue, retrieves a message and stages it in the IN-Progress queue.

When a message is retrieved, the adapter converts it into an WBI internal business object before it is forwarded to the WBI InterChange Server. The type of business object used in processing a message is based on the XML root element name contained in the message body. For each message, you construct a meta-object to store the business object name to associate with the SAP XI message root element<sup>1</sup>.

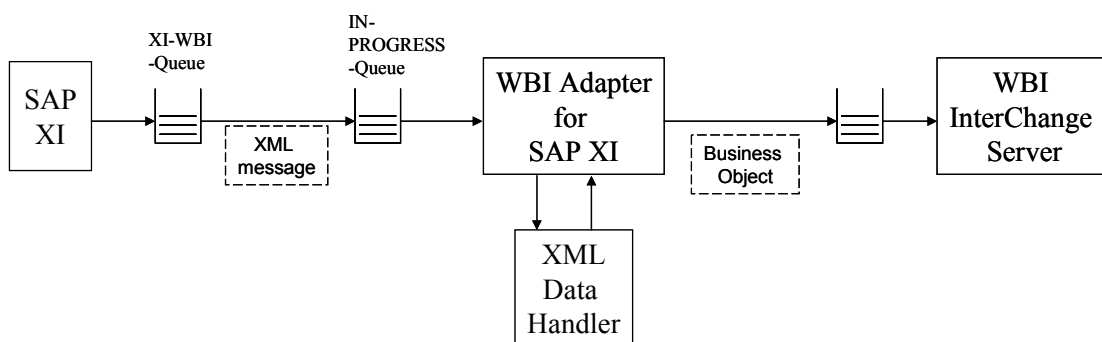


Figure 2: Processing SAP XI messages

---

<sup>1</sup> Processing a request from IBM WBI to SAP XI is similar except that a WBI internal business object gets converted into an XML message.

### 4.3.2.1 Creating WebSphere MQ Queues

WBI Adapter for SAP XI and SAP XI's JMS adapters will share the following MQ queues to send and receive messages:

- One queue for Outbound JMS adapter which is used by WBI Adapter for SAP XI to read messages
- One queue per message per Inbound JMS adapter which is used by WBI Adapter for SAP XI to write messages

Additionally, WBI Adapter for SAP XI requires a few administrative queues, which are summarized in the table below. The queues are created either using WebSphere MQ explorer or issuing RUNMQSC at the command line.

Thereby specify all queues as Uniform Resource Identifiers (URIs). The syntax is:

queue://<queue manager name>/<actual queue name>

Required Queues by the WBI Adapter for XI	Use by the WBI Adapter for SAP XI
<XI-WBI-Queue-Name>	for polling for messages from SAP XI
<WBI-XI-Queue-Name>	for writing messages for SAP XI
<ARCHIVE-Queue-Name>	for archiving messages that have been processed by the WBI adapter for SAP XI
<IN-PROGRESS-Queue-Name>	for in progress messages
<ERROR-Queue-Name>	for writing error messages
<UNSUBSCRIBED-Queue-Name>	for writing unsubscribed message

**Table 1 Connector specific queues**

### 4.3.2.2 Configuring Adapter Properties

This Quick Guide assumes that InterChange Server will be used as the integration broker on the WBI side. To configure the adapter for InterChange Server, set the following essential Connector specific properties using the Connector Configurator.

Property	Description	Example Value
ArchiveQueue	Name of the queue to archive messages that have been processed by the adapter.	queue://WBIServer.queue.manager/MQCONN.ARCHIVE
Channel	MQ queue manager channel	CHANNEL1
ConfigurationMetaObject	Name of static meta-object containing configuration information for the connector	MO_XIConnector
DataHandlerConfigMO	Meta-object passed to data handler to provide configuration	MO_DataHandler_Default
DataHandlerMimeType	Allows to request a data handler based on a particular MIME type	text/xml
ErrorQueue	Name of the queue to be used by the adapter to log errors	queue://WBIServer.queue.manager/MQCONN.ERROR
HostName	IP address or name of the machine hosting the queue manager	WBIServer
InProgressQueue	Name of the queue to be used by the adapter for in progress events	queue://WBIServer.queue.manager/MQCONN.IN_PROGRESS

InputQueue	Name of the queue to be polled by the adapter for messages from SAP XI	queue://WBIServer.queue.manager/MQCONN.XI_WBI_Q
Port	Port established for the MQ queue manager listener	1414
UnsubscribedQueue	Name of the queue to be used by the adapter to log unsubscribed messages	queue://WBIServer.queue.manager/MQCONN.UNSUBSCRIBE

**Table 2 Connector specific properties**

### 4.3.2.3 Configuring Meta-Objects

The conversion between messages from SAP XI and WBI internal business objects is driven by configuration meta-objects and data handler meta-objects.

A configuration meta-object contains application specific-information that you specify about business objects and how the adapter processes them. A (static) meta-object provides the adapter with all the configuration information it needs to process a business object when the connector is started<sup>2</sup>. Table 3 shows a pattern of a configuration meta-object for the WBI Adapter for XI. The meta-object contains an entry for a business object with verb “create”, which indicates to the connector that any message of format new should be converted with that verb. The meaning of the meta-objects properties is explained in Table 4.

Name	Values
<business_object>_Create	InputFormat=MQSTR;OutputQueue=queue://<queue manager name>/<WBI-XI-Queue>;DataEncoding=Text

**Table 3 Configuration meta-object**

Property Name	Description
InputFormat	Used to match incoming messages to business objects. When a message is retrieved and is in this format, it is converted to the given <business_object>
DataEncoding	Specifies the encoding to be used to read and write messages
OutputQueue	Is the output queue to which messages derived from the given business object are delivered (i.e. the <WBI-XI-Queue-Name> in Table 1)

**Table 4 Meta-objects properties**

Data handler meta-objects allow a connector to select a data handler based on a MIME type of an incoming message or the MIME type specified in a business object request. These meta-objects are specified in a hierarchical manner.

A top level data handler meta-object associates a MIME type with a child data handler meta object. The child meta-object provides configuration information, which always include the name of the data handler class to instantiate. Table 5 and Table 6 lists patterns of this kind of meta-objects.

Name	Value	Usage
text_xml	MO_DataHandler_DefaultXMLConfig	Reference to the child data handler meta-object

<sup>2</sup> If the connector is required to process a business object differently depending on the scenario, use a dynamic meta object. However, we will not describe this in more detail here.

**Table 5 Top level data handler meta-object**

<b>Name</b>	<b>Values</b>	<b>Usage</b>
ClassName	com.crossworlds.DataHandlers.text.xml	Name of the class to use to determine the name of a business object from the content of an XML message.
NameHandlerClassName	com.crossworlds.DataHandlers.text.xml.TopElementNameHandler	Name of the data handler class to load for use with the specified MIME type.

**Table 6 Child data handler meta-object (MO\_DataHandler\_DefaultXMLConfig)**

#### **4.3.2.4 Generating Business Object Definitions**

Business object definitions include the structure of a business object, the settings of its attributes properties and the content of its application specific information. Business object definitions can be either generated from imported IDOC structures or from XML schema definitions in the SAP interface repository (IFR). For the latter perform the following steps:

1. Download the XML schema definition of the XML message that has to be transferred between SAP XI and IBM WBI, from the Web site <http://ifr.sap.com>. Ensure that the downloaded schema has the ending “.xsd”.
2. Launch the XML object discovery agent (ODA).
3. Start the WBI development tool “Business Object Designer” and generate a new business object using the ODA. Thereby choose the name of the downloaded schema as the value for the property “FileName” Accept the IDOC name that is offered as XML Top Level Element.
4. Check ROOT as the primary key or else the Business Object Designer will not let you save the business object definition.
5. The set of business objects and meta-objects, that the adapter supports, are configured using the connector configurator.

## 5 Testing the Interoperability - Test Procedure

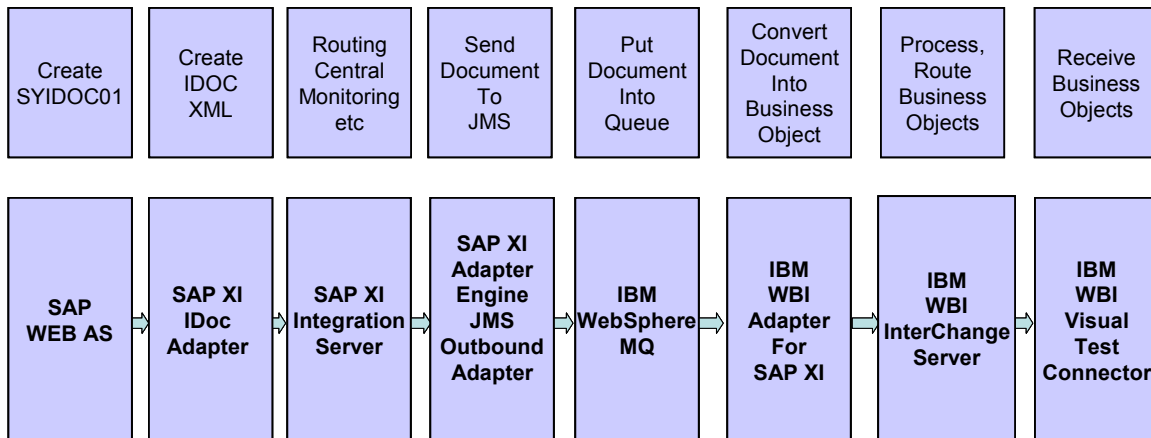
This chapter describes how you can run a short technical test to verify and demonstrate the interoperability using the open JMS standard for asynchronous communication. We present both an outbound scenario (from SAP XI to IBM WBI) and an inbound scenario (from IBM WBI to SAP XI). The data to be exchanged are derived from IDoc type "IDocs" of basic type SYIDOC01.

### 5.1 Asynchronous Communication from SAP XI to IBM WBI

We use standard functionality of SAP Web Application Server to create out of the documentation a certain IDoc type "IDocs" of basic type SYIDOC01. The IDocs are transferred to the IDoc Adapter running on the Integration Server of SAP XI. An IDoc-XML-document is created and will be routed to IBM WBI. Therefore technically the SAP XI JMS-adapter is used which comes as an integral part of the adapter engine. The JMS-Outbound adapter receives the SOAP-document from the SAP XI integration server and based on the specific configuration (pls. see chapter Configuring the Outbound JMS Adapter) the adapter sends JMS messages to WebSphere MQ, also ensuring that the message is sent exactly once (Quality of Service).

The WBI adapter reads the XML document, converts into a business object, forwards it to the InterChange Server that relays it to the Visual Test Connector (VTC), which simulates an application that displays a received business object.

The whole workflow is displayed in Figure 3.



**Figure 3: Asynchronous communication from SAP XI to IBM WBI**

We assume that the configuration for transferring the IDocs out of the SAP Web AS (i.e. port definition, partner profile, distribution model) is already carried out. Please refer to the related documentation for any details, e.g. at <http://help.sap.com>. We also assume that all the scenario settings are made in the Integration directory of SAP XI and the System Landscape Directory and the IDoc-Adapter is configured as well. Please refer to the SAP XI Configuration guide for details.

As far as WBI is concerned, the following prerequisites must be fulfilled:

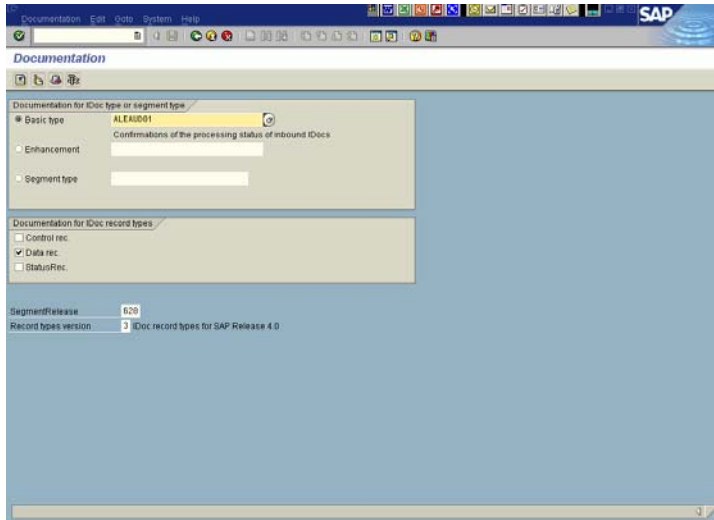
- The WBI Adapter for XI is configured as described in chapter 4.3.2, using business object definition for IDoc SYIDOC01.
- The WBI InterChange Server is configured with a simple PassThru template that forwards the business objects from the WBI adapter for XI to an outbound port at which end the VTC resides.
- The VTC simulates a default PortConnector

## Quickguide – Interoperability of SAP Exchange Infrastructure 2.0 and WebSphere Business Integration 4.2

---

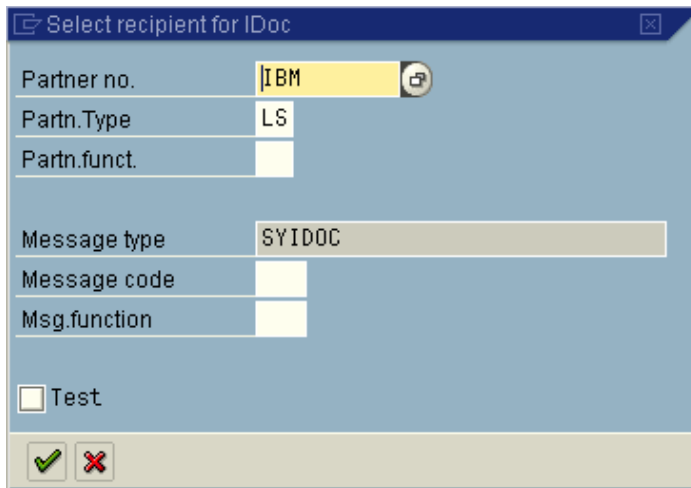
The following will guide you through the demo and test procedure, starting at the SAP site.

1. To create IDocs of basic type SYIDOC01 you can run transaction 'WE60' on the SAP Web AS. Fill in a basic IDoc type that you wish to transfer its metadata to IBM WBI, e.g. ALEAUD01. Select a segment release and record type version, e.g. segment release 6.20 and record type version 3. Select a "documentation for IDoc record types", e.g. Data record.



Press "Transport IDoc" (F5). A popup appears. Select Partner Type LS and the related partner number (in this case it is called IBM).

Press Continue (Enter).

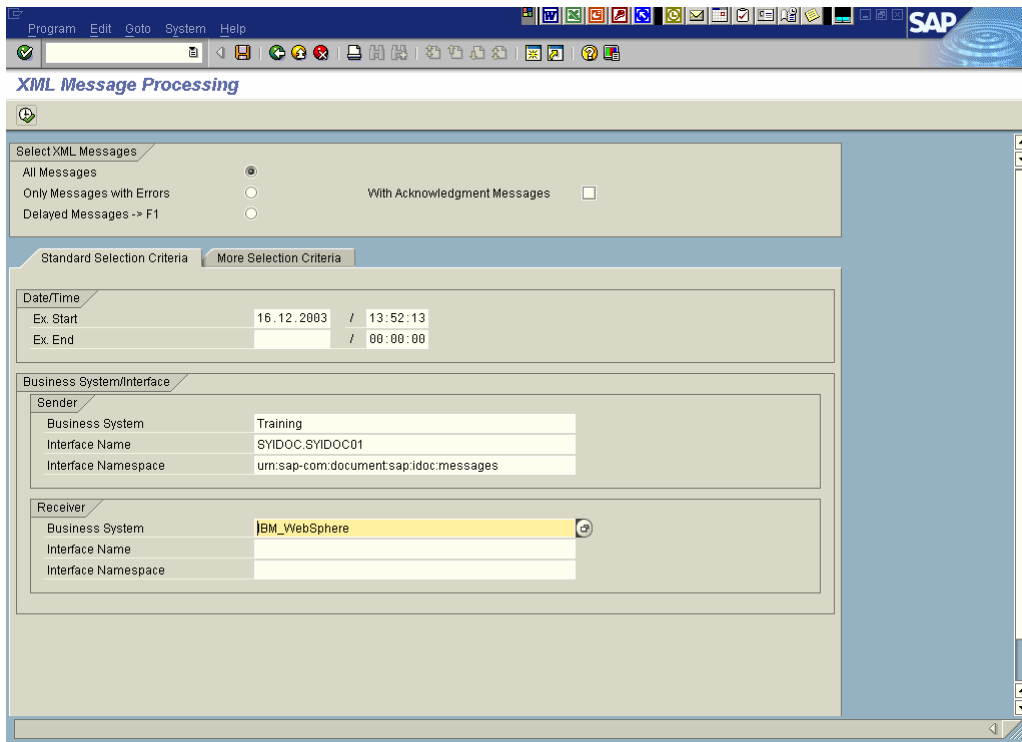


2. Verify that the IDoc is created and received by the SAP XI IDoc Adapter. This can be done on the sending side using transaction "we02". Enter e.g. the date, time, direction (1 – for outbound) and the IDoc type (SYIDOC01) for selection. Press enter. You should find information about the created IDoc with the status '03'(Data passed to port OK). Now you can check if the IDoc was really transferred to the IDoc Adapter in transaction sm58. If there is no entry in the transactional RFC monitor the IDoc is received on the SAP XI Integration Server. You can monitor the created message with the technical monitor of SAP XI (transaction SXMB\_MONI => Monitor for processed XML messages).

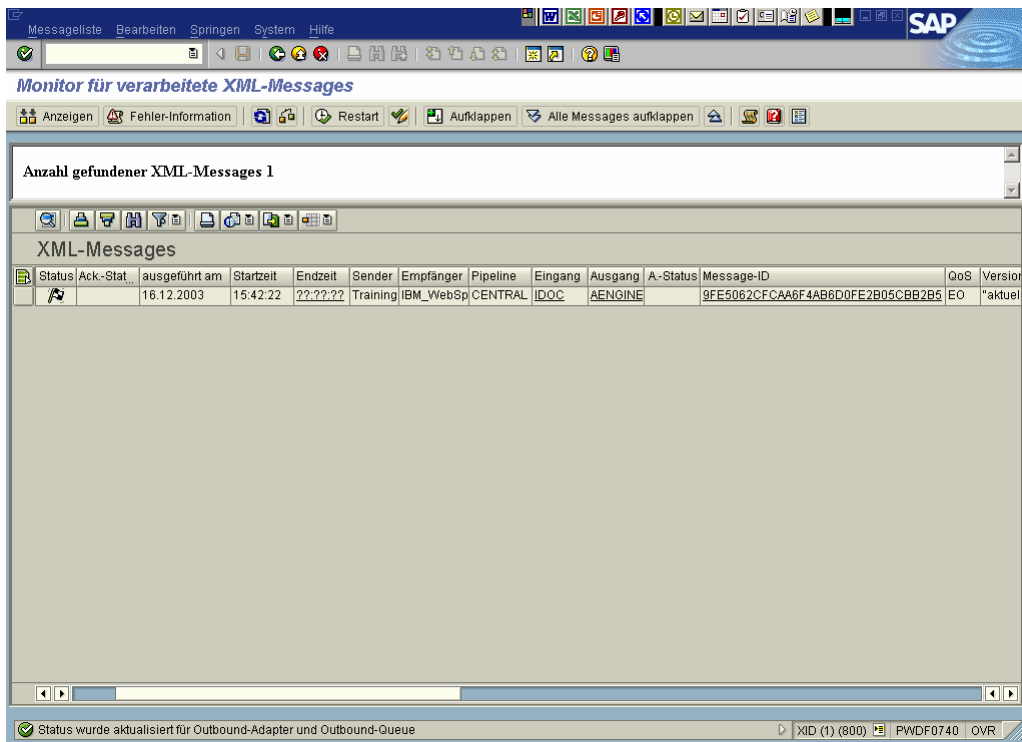


## Quickguide – Interoperability of SAP Exchange Infrastructure 2.0 and WebSphere Business Integration 4.2

Select the sending and receiving business system and the sender interface (SYIDOC.SYIDOC01 and namespace urn:sap-com:document:sap:idoc:messages)



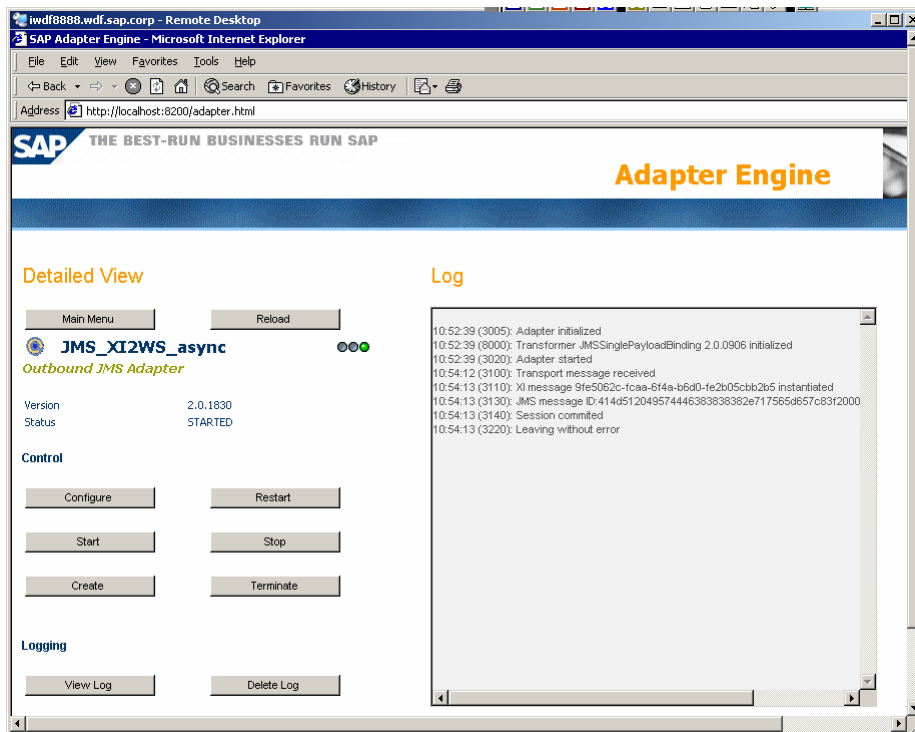
As a result you can see your message in the technical monitor of the SAP XI Integration Engine.



Check if the message has the status "message processed".

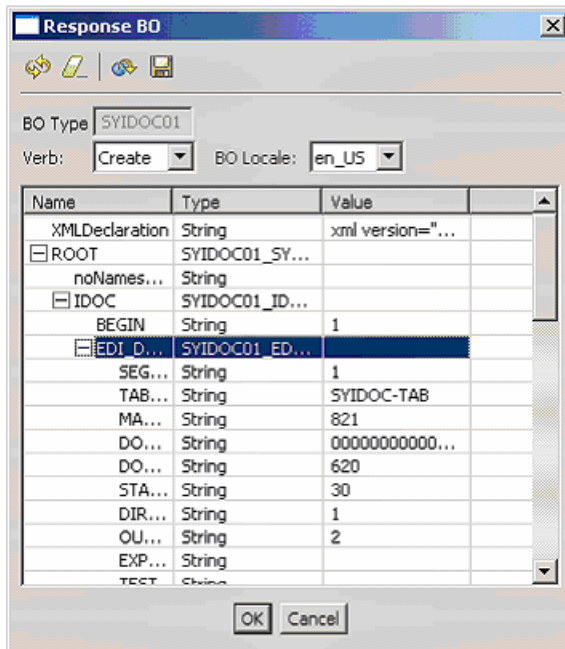
**Quickguide – Interoperability of SAP Exchange Infrastructure 2.0 and WebSphere Business Integration 4.2**

3. Check the status of the message within the adapter of the adapter engine. Therefore please select your adapter and press “View log”.



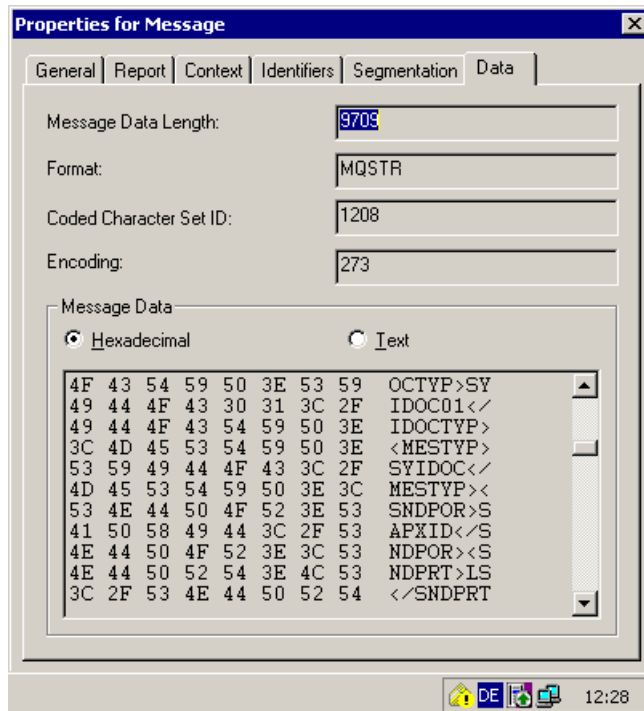
You can see the JMS Message ID and the ID of the SAP XI message.

4. Check if the message is received at the WBI site. Start the Visual Test Connector, select an object of type SYIDOC01.create from the BO Request List, if it is received.



You can see the attributes of the BO received.

5. Alternatively you can have a look at the messages which the WBI adapter for XI has processed by browsing the respective archive queue (see Table 1) using the WebSphere MQ explorer.



## 5.2 Asynchronous Communication from IBM WBI to SAP XI

In this scenario, a business object representing an SYIDOC document is created within the IBM WBI Visual Test Connector and sent asynchronously from IBM WBI to SAP XI using JMS (see Figure 4). The assumptions of this scenario are the same as for the one before.

The scenario comprises the following steps:

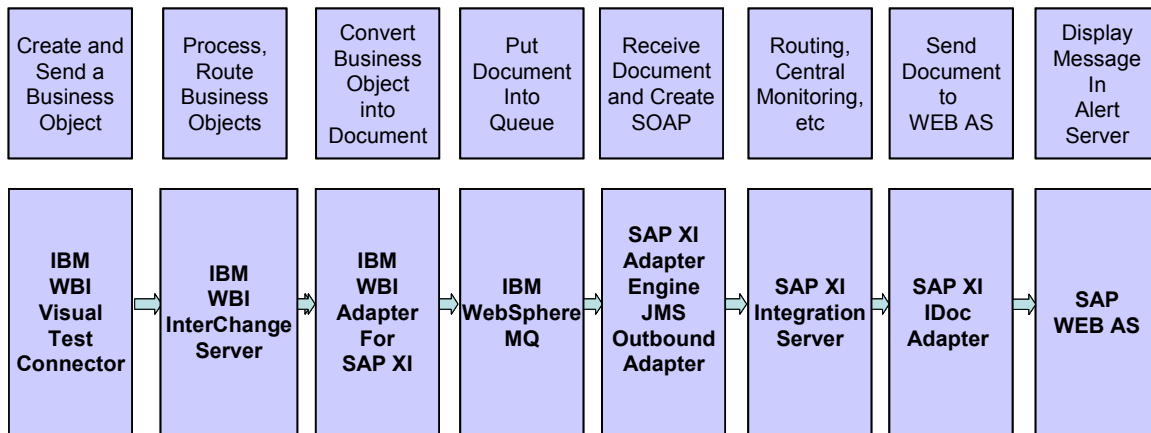
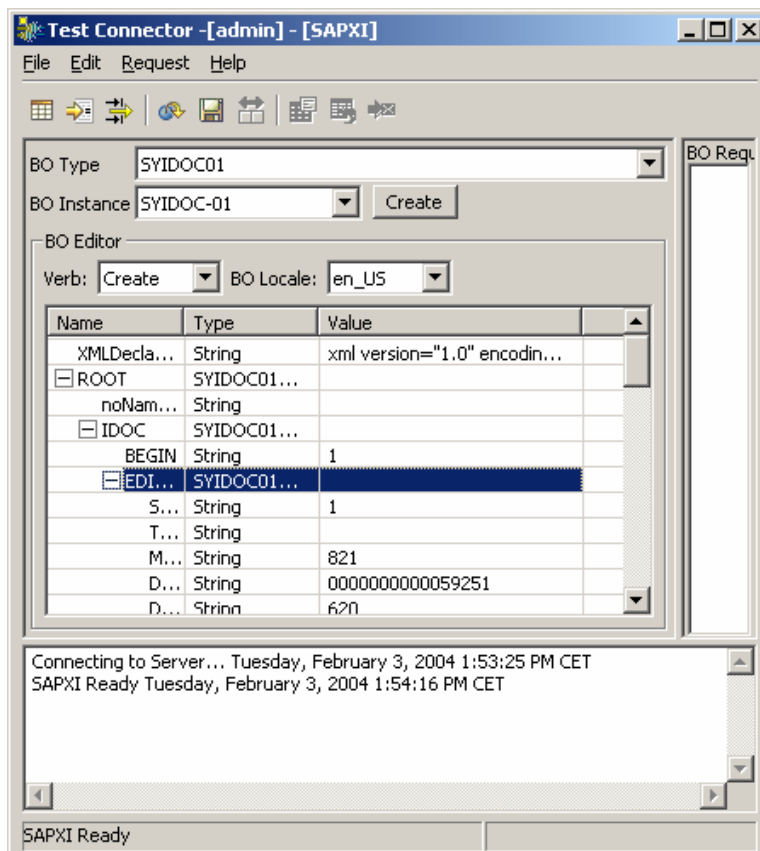


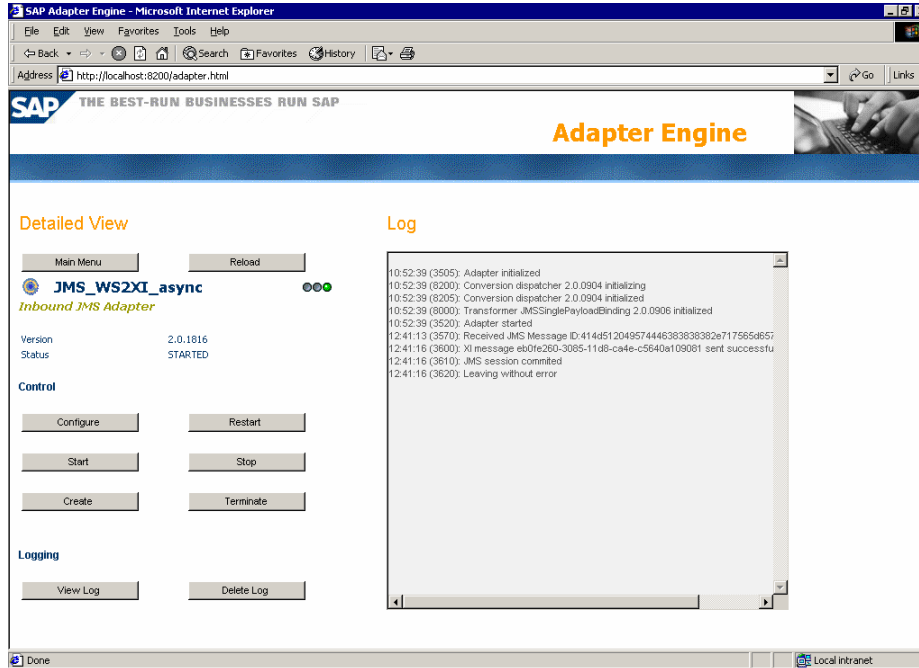
Figure 4: Asynchronous communication from IBM WBI to SAP XI

1. Using the IBM WBI tool “Visual Test Connector” create a business object of BO Type “SYIDOC01”, fill all required attributes and send it.

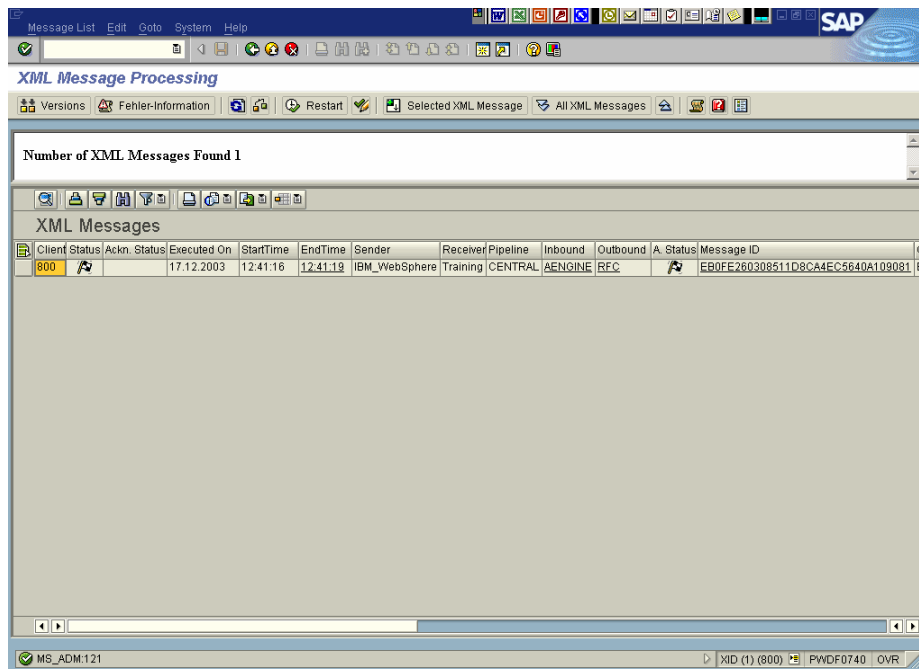


**Quickguide –  
Interoperability of SAP Exchange Infrastructure 2.0 and WebSphere Business Integration 4.2**

2. Using the WebSphere MQ Explorer you can check whether the WBI adapter for XI has processed the request by browsing the archive queue.
3. The SAP XI JMS-Adapter picks up the message from the queue. You can verify the JMS message ID in the log of the JMS Inbound adapter:



4. You can check again the created message on the SAP XI technical monitor:



## **6 Summary**

This paper provides a quick guide for configuring an asynchronous scenario between SAP XI and IBM WBI and a short tutorial for testing the configured infrastructure.

This document only presents the essential steps. For further configuration features or using alternative Integration Brokers please consult the extended information listed in 1.4.



© Copyright IBM Corporation 2004

IBM Corporation  
Westchester Avenue  
White Plains, NY 10604  
Ibm.com

Printed in Germany

All Rights Reserved

IBM, the IBM logo and the e-business logo are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

Other company, product and service names may be trademarks or service marks of others.



© Copyright SAP AG 2004

SAP AG  
Neurottstrasse 16  
D-69190 Walldorf  
Germany  
sap.com

SAP, the SAP logo and all other SAP products and services mentioned herein are trademarks or registered trademarks of SAP AG in Germany and several other countries.

Other product or service names mentioned herein are the trademarks of their respective owners.

For more information  
contact the IBM SAP International  
Competence Center (ISICC) at:  
IBM-SAP-CTSC@sap.com

Please visit also our alliance website:  
[www.ibm-sap.com](http://www.ibm-sap.com)