

Async/Sync and Sync/Async Bridge Scenarios

Configuring Async/Sync Bridge and Sync/Async Bridge without BPM

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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. 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.

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

This manual describes simple application cases for the de-central adapter engine for process integration and all the configuration steps that are necessary to execute the application cases on the basis of SAP NetWeaver 7.31.

1.3 Intended Audience

This manual is intended to be used by both technology and application consultants.

1.4 Structure

The structure of this document follows the sequence of steps required to configure and run the use cases.

In this document, the scenarios are developed in swing client and Integrated Configuration Objects are created. The same scenarios can be developed using Integration iFlows (NWDS/eclipse/IntegrationTool)

2 INTRODUCTION AND PREREQUISITES

2.1 Introduction

The following use case variants are defined in this test:

Variant	Description
Variant 1: Async/Sync Bridge by means of module processor	This test case describes how to connect an asynchronous system to a synchronous system by means of an async/sync bridge without using BPM
Variant 2: Sync/Async Bridge by means of module processor	This test case describes how to connect a synchronous system to an asynchronous system by means of a sync/async bridge without using BPM

2.2 Prerequisites

The web service tool used in this test case is SOAP workbench (from Apache) for testing. Any external SOAP Request/Response tool which supports web service can be used for testing. Eg, SOAP UI. Refer <http://www.soapui.org/Getting-Started/web-service-sample-project.html> for steps to use this tool.

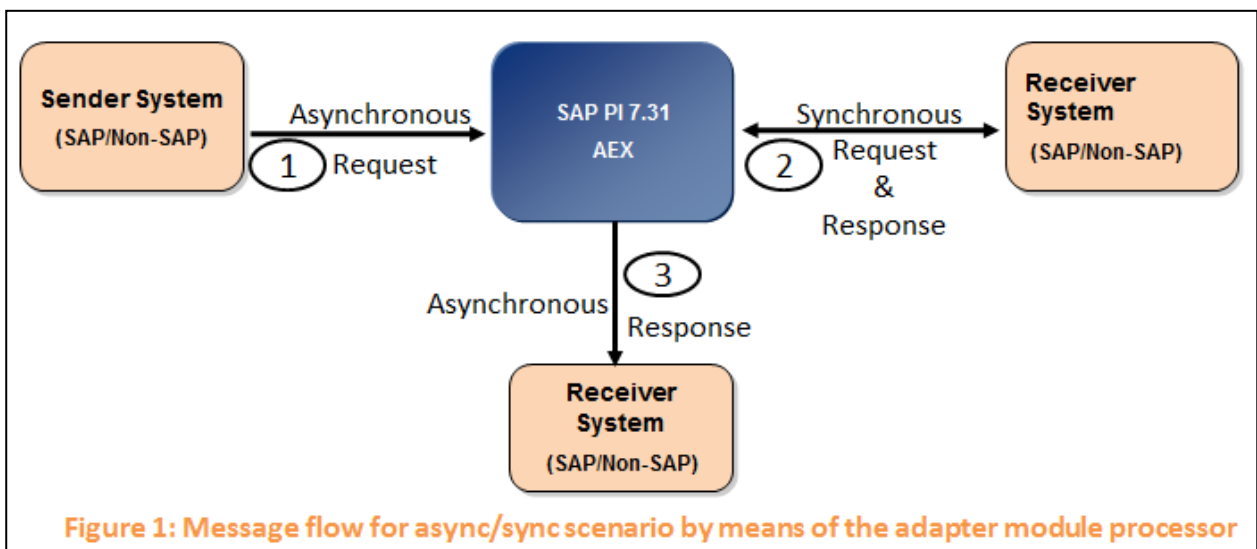
3 VARIANT 1: ASYN/SYNC BRIDGE BY MEANS OF MODULE PROCESSOR

3.1 Introduction

This test case describes how to connect an asynchronous system to a synchronous system by means of an async/sync bridge without using BPM. This is required if you have a sender system that only supports asynchronous message processing to communicate with a purely synchronous receiver application. The async/sync bridge handles the conversion from an asynchronous message sent from the sender to the receiver into a synchronous message, and the other way round for the synchronous reply.

3.2 Async/Sync Bridge

The asynchronous request and response messages are mapped to a synchronous call by means of the module processor. The overall communication sequence looks like below diagram: an asynchronous request message is converted to a synchronous request in the module processor. The synchronous system sends a response which is converted to an asynchronous response message in the module processor which is then passed to receiver.



3.3 Test scenario

The scenario in this document refers to send IDOC to RFC and response back from RFC to web service.

- PI receives the IDOC from ECC system. JIDOC Sender Adapter is used in PI to get the data from ECC.
- PI does the request mapping and sends the request to BAPI and gets back the response from BAPI via RFC Receiver adapter.
- The response from BAPI is sent to web service via SOAP adapter

4 PREPARATION

4.1 User Permissions

The tester should have permission to log on the PI test system and to open the SOA Monitors in the NetWeaver Administrator. Also the user should have access permissions to R/3 system to perform the testing.

Here PI 7.31 AEX, R/3 system, PI 7.31 Double Stack are used to execute this test. The system environment may differ in your test executions.

Note: The RFC program is created in dual stack server and the request and response is fetched by 7.31 AEX from dual stack system

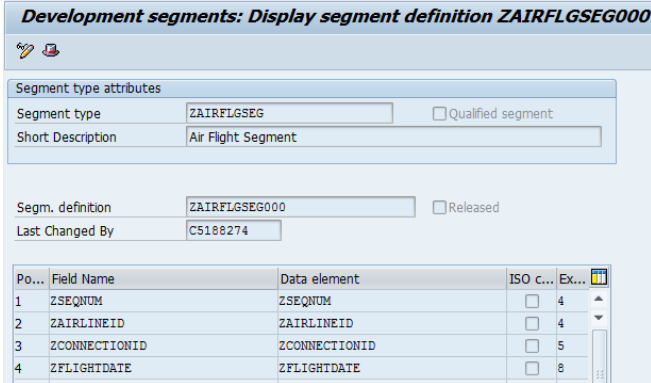
4.2 Preconditions

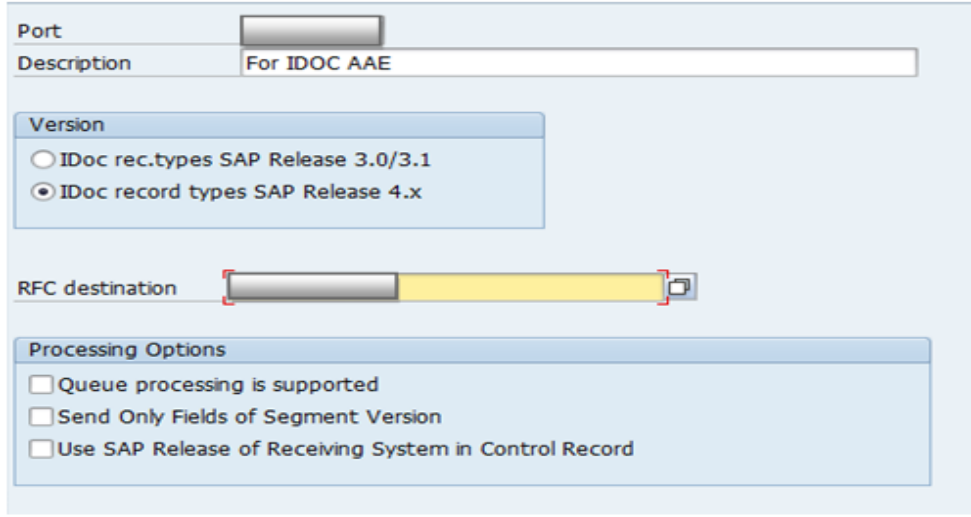
1. Configurations in NWA

Actions	System	Details
Settings in Application Resources	PI 7.31	<ol style="list-style-type: none"> Open NWA (<a href="http://<host>:<port>/nwa">http://<host>:<port>/nwa) <ul style="list-style-type: none"> Configuration > Infrastructure > Application Resources Filter for Resource Adapter, inboundRA Click on Properties tab below: <ul style="list-style-type: none"> Set value for "MaxReaderThreadCount" between 5 to 10 Set Value of ProgramID as JIDOC_..._PID_DEMO (This must be used when creating the RFC in ECC system) Set Local as false (don't change) Set values for default GatewayServer as host of PI SystemSet values for default GatewayService Save Changes
Create JCO RFC Provider destination	PI 7.31	<ol style="list-style-type: none"> Open NWA (<a href="http://<host>:<port>/nwa">http://<host>:<port>/nwa) <ul style="list-style-type: none"> Configuration > Infrastructure > JCO RFC Provider Create JCO RFC Provider destination with name JIDOC_..._PID_DEMO in NWA where PIDEV refers to the PI System ID Save Changes

2. Configurations at Sender System (SAP ECC)

This section describes all the configurations needed in the Sender SAP System (ECC) for sending an IDoc to PI

Actions	Details
IDOC Creation	<p>The IDoc used in variant1 (JIDOC-RFC-SOAP) is a custom IDoc (ZAIRFLG) In SAP ECC system,</p> <ul style="list-style-type: none"> Goto transaction code(tcode) we31 to create segment (ZAIRFLGSEG) which will have the fields as below:  <ul style="list-style-type: none"> Goto tcode we30 to create the IDOC (ZAIRFLG) <p>Below link can be referred for creation of custom IDOC in SAP ECC system and the custom IDoc created should be imported in ESR</p> <p>http://wiki.scn.sap.com/wiki/display/ABAP/Steps+to+create+custom+IDOC</p>

RFC Destination	<p>On your SAP ECC system in order to send the IDOCs you need to create an RFC destination of type T (TCP/IP)</p> <p>Go to Transaction SM59 create a new RFC destination of Type T</p> <ul style="list-style-type: none"> • Select the radio button Registered Server Program • In the program ID enter the program ID from inboundRA of NWA • Enter the gateway host and gateway service of your PI server <p>After you configure that you should be able to check the configuration using the test connection button on the RFC destination.</p>
Port	<p>Goto Transaction WE21</p> <ul style="list-style-type: none"> • Click on the Transactional RFC from Ports (left tree panel) • Click on Create Button • Give Port Name (SAP<SID>) here or select generate port name and click on continue. • Give the description of the port and select RFC destination of type T created above. Now click on save. 
Logical System	<ul style="list-style-type: none"> • Click on create Button • Give name for your Logical System (<SID>CLNT<CIntNo.>) • Now click on save
Partner Profile	<p>Create Partner Profile with outbound parameter (WE20) to be send to the PI receiver system</p> <ol style="list-style-type: none"> 1. Go to Transaction WE20 2. Select Partner Type LS 3. Click on Create Button 4. Give Logical System Name which we have just created above as Partner No, Partner Type should be LS, Agent (some valid data), Language (EN). Now click on Save

Partner No. [] []

Partn.Type LS Logical system

Post processing: permitted agent Classification T. [] [] []

Ty. 0 ☐ Organizational unit

Agent 50010120 EDI Department

Lang. EN English

5. Now create an Outbound Parameter.
 - Select the required Message Type.
 - Select the Receiver Port (which we have created in step 2 in this example).
 - Select Transfer IDoc Immediately option in Output mode for Immediate Testing.
 - Select Basic Type Save.
 - Enter all credentials in the post processing permitted agent tab.

Partner profiles: Outbound parameters

Partner No. [] []

Partn.Type LS Logical system

Partner Role []

Message Type ZAIRFLG_MSG Idoc for Flight Availability Scenario

Message code []

Message function [] ☐ Test

Outbound Options Message Control Post Processing: Permitted Agent Tel... [] [] []

Receiver port [] Transactional RFC For IDOC AAE

Pack. Size 1

☐ Queue Processing

Output Mode

☒ Transfer IDoc Immed. Output Mode 2

☐ Collect IDocs

IDoc Type

Basic type ZAIRFLG Air Flight IDOC

Extension [] ☐

View []

☒ Cancel Processing After Syntax Error

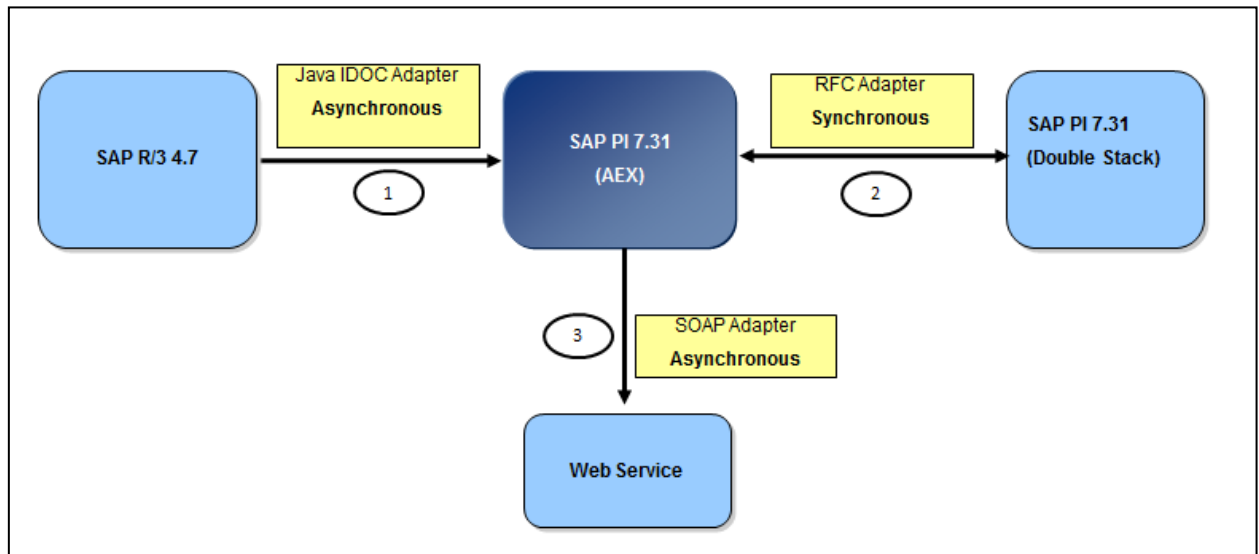
Seg. release in IDoc type [] Segment Appl. Rel. []

3. The tester should fulfill the ESR Objects and the Configuration Objects as shown in the subsequent sections of this document.

5 JIDOC-RFC-SOAP

5.1 Overview

This test case describes how to connect an asynchronous system to a synchronous system by means of an async/sync bridge.



5.2 Description

SAP R/3 system sends the IDOC using Java IDOC Sender Adapter. PI does the request mapping and sends the request to BAPI and gets back the response of BAPI via RFC adapter. The response received is sent to web service via SOAP Adapter.

To implement the scenario, we need to define two ICO. One for routing the request message from the IDOC to the RFC, and one for routing back the response message to web service.

5.3 Repository Objects

In the Enterprise Service Repository – on PI test system:

- We should have the custom Idoc created as in section 4.2-2 and RFC “SXIDEMO_AIRL_FLIGHT_CHECKAVAIL” under Imported Objects folder. In this scenario the custom Idoc created and imported is “ZAIRFLG_MSG.ZAIRFLG”

Steps to import Idoc:

- Double click and open the software Component version and provide the details in “Interface import”. The Client and Message Server is of the ECC system in which IDoc is developed

Interface Import	
Connection Data for Import from SAP System	
System	<input type="text"/>
Client	<input type="text"/>
Message Server	<input type="text"/>
Group	<input type="text"/>

- Right click on “Imported Objects-IDocs” and click on “Import of SAP Object”
- Provide the *Application Server* and *System Number* in which the custom Idoc is been developed and also provide *UserName* and *password* and click Continue and then Finish button
- Once the Idoc is imported, the structure (fields) of IDOC is as below:

Display IDOC: ZAIRFLG_MSG_ZAIRFLG

Structure XSD WSDL

Sensitive Data

Search

Name	Category	Type	Context Object	Description
ZAIRFLG	Element			
IDOC	Element	ZAIRFLG_MSG_ZAIRFLG		
BEGIN	Attribute	xsd:string		
EDIDC40	Element	EDIDC40_ZAIRFLG_MSG_ZAIRFLG		
ZAIRFLGSEG	Element	ZAIRFLG_ZAIRFLGSEG		
SEGMENT	Attribute	xsd:string		
ZSEQUNUM	Element	xsd:string		Seq Number - Air Flight
ZAIRLINEID	Element	xsd:string		Airline ID
ZCONNECTIONID	Element	xsd:string		Connection ID
ZFLIGHTDATE	Element	xsd:string		Flight Date

Steps to import RFC:

1. Follow the Step 1 as defined in import idoc above.
2. Right click on "Imported Objects-RFC" and click on "Import of SAP Object"
3. Provide the *Application Server* and *System Number* in which the RFC is been developed and also provide the *UserName* and *password* and click Continue and then Finish button

Display RFC: SXIDEMO_AIRL_FLIGHT_CHECKAVAIL

Structure WSDL

Sensitive Data

Display Message Type: Request

Search

Name	Category	Type	Context Object	Description
SXIDEMO_AIRL_FLIGHT_CHECKAVAIL	Element			
FLIGHT_KEY	Element	BAPISFLKEY		
AIRLINEID	Element	xsd:string		Airline Code
CONNECTID	Element	xsd:string		Flight Connection Number
FLIGHTDATE	Element	date		Flight date

- The Message Mapping *FSACheck_Agency2AirlineRFC_Req*(as below) and Operation Mapping *FSACheck_Agency2Airline* should be created

Message Mapping Edit View

Display Message Mapping: FSACheck_Agency2AirlineRFC_Req

Definition Test Signature Functions Compare Versions

IDoc: ZAIRFLG_MSG_ZAIRFLG

Structure	Occurrences	Type	Description
CREDAT	0..1	xsd:string	CREDAT
CRETIM	0..1	xsd:string	CRETIM
REFINT	0..1	xsd:string	REFINT
REFGRP	0..1	xsd:string	REFGRP
REFMES	0..1	xsd:string	REFMES
ARCKEY	0..1	xsd:string	ARCKEY
SERIAL	0..1	xsd:string	SERIAL
ZAIRFLGSEG	0..20	xsd:string	ZAIRFLG_ZAIRFLGSEG
SEGMENT	required	xsd:string	
ZSEQUNUM	0..1	xsd:string	Seq Numit
ZAIRLINEID	0..1	xsd:string	Airline ID
ZCONNECTIONID	0..1	xsd:string	Connectio
ZFLIGHTDATE	0..1	xsd:string	Flight Date

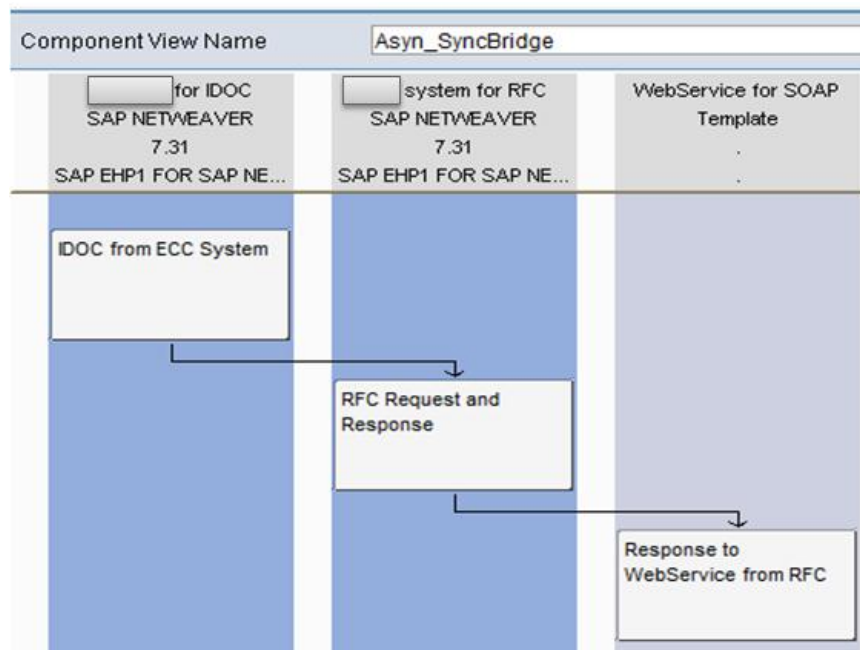
RFC Message: SXIDEMO_AIRL_FLIGHT_CHECKAVAIL

Structure	Occurrences	Type	Description
SXIDEMO_AIRL_FLIGHT_CHECKAVAIL	1..1		
FLIGHT_KEY	1..1	rfc:BAPISFLKEY	
AIRLINEID	0..1	xsd:string	Airline Code
CONNECTID	0..1	xsd:string	Flight Connection Num
FLIGHTDATE	0..1	rfc:date	Flight date

Mapping: Constant → FLIGHT_K...

To do this – call the URL <http://<server>:<host>/dir> of the Process Integration system and open the link to the Enterprise Services Builder.

The following graphic shows the component view



5.4 Configuration Objects

5.4.1 Configuration Overview

Display Configuration Scenario

Configuration Scenario: XIVERI_7_3_1_AEX_IDOC2RFC2SOAP_AsyncSyncBridge

Status: Active

Displayed Language: English

Description:

ES Repository Model

Table Graph

Sender Receiver

XIVERI_AEX_Receiv... XIVERI_AEX_Receiv... AsyncSyncBridge

ZAIRFLG_MSG_ZAIRFLG XSIDEMO_AIRL_FLIGHT_CHECKAVAIL

XIVERI_AEX_Receiv... AsyncSyncBridge

Objects of Selected Connection

Type Object

Integrated Configuration ZAIRFLG_MSG_ZAIRFLG |

Sender Communication Channel JIDOC_Sender_Test

Receiver Communication Channel XIVERI_AEX_Receiv... AsyncSyncBridge | RFC_AirlineFlight_Receiver

Display Configuration Scenario

Configuration Scenario: XIVERI_7_3_1_AEX_IDOC2RFC2SOAP_AsyncSyncBridge

Status: Active

Displayed Language: English (OL)

Description:

ES Repository Model

Table Graph

Sender Receiver

XIVERI_AEX_Receiv... XIVERI_AEX_Receiv... AsyncSyncBridge

XSIDEMO_AIRL_FLIGHT_CHECKAVAIL XSIDEMO_AIRL_FLIGHT_CHECKAVAIL

Objects of Selected Connection

Type Object

Integrated Configuration XIVERI_AEX_Receiv... AsyncSyncBridge | XSIDEMO_AIRL_FLIGHT_CHECKAVAIL

Sender Communication Channel XIVERI_AEX_Receiv... AsyncSyncBridge | SOAP_Sender_ResponseFromRFC

Receiver Communication Channel SOAP_Receiver_ResponseFromRFC

5.4.2 Integrated Configuration Objects in Integration Directory

The **first ICO** defines the routing from the JIDOC to the RFC. In the Inbound Processing, the JIDOC sender channel (*JIDOC_Sender_Test*) is specified.

Integrated Configuration Edit View

Display Integrated Configuration Status: Active Display

Sender

Communication Party:

Communication Component:

Interface: ZAIRFLG_MSG_ZAIRFLG

Namespace: urn:sap-com:document:sap:idoc:messages

Receiver

Communication Party:

Communication Component:

Description:

Inbound Processing Receiver Receiver Interfaces Outbound Processing Assigned Users Advanced Settings

Configuration for Interface ZAIRFLG_MSG_ZAIRFLG

Communication Channel: IDOC_Sender_Test

Adapter Type: IDoc_AAE

Adapter Engine: Central Adapter Engine

Software Component Version of Sender Interface: TEST1.1.0 of saptest.com

Virus Scan: Use Global Configuration

Schema Validation: ☒ No Validation ☐ Validation by Adapter

http://sap.com/xi/XI/System SAP BASIS 7.31

Display Communication Channel Status: Active

Communication Channel: IDOC_Sender_Test

Party:

Communication Component:

Description:

Parameters Identifiers Module

Adapter Type: IDoc_AAE

Adapter Engine: Central Adapter Engine

Transport Protocol: RFC

Message Protocol: idoc.xml

Adapter Engine: Central Adapter Engine

RFC Parameters

RFC Server Parameters: Manual

RFC Server Parameters

Program ID: IDOC

SAP Client: 800

User Name:

Password:

SNC Mode: ☐

Language: EN

Server Name:

System Number: 10

Inbound Message Settings

☒ Multiple IDocs in single XI Message (or IDOCXML)

☐ ECHO Enabled

On tab *Receiver* of the ICO, the RFC Receiver Business Component is defined

Inbound Processing Receiver Receiver Interfaces Outbound Processing Assigned Users Advanced Settings

Type of Receiver Determination: ☒ Standard ☐ Extended

Configured Receivers

Search Go

Condition	Communication Party	Communication Component
		XIVERI_AEX_Receiver_AsyncSyncBridge

On tab *Receiver Interfaces*, the Operation Mapping for request mapping is set

Inbound Processing Receiver Receiver Interfaces Outbound Processing Assigned Users Advanced Settings

Receiver

Type	Communication Party	Communication Component
Communication Component		XIVERI_AEX_Receiver_AsyncSyncBridge

Receiver Interfaces

☐ Maintain Order At Runtime

Condition	Operation Mapping	Name	Namespace	Software Component Version	Multiplicity	Parameters
FSACheck_Agency2Airline	XSIDEMO_AIRL_FLIGHT_CH	urn:sap-com:document:sap:rfi:XIVERI_7_3_1_of_xi.com			1	

On tab *Outbound Processing*, the RFC receiver channel is specified.

Configuration for Interface SXIDEMO_AIRL_FLIGHT_CHECKAVAIL | urn:sap-com:document:sap:rfc:functions | XIVERI 7_3_1 of xi.com

Communication Channel * RFC_AirlineFlight_Receiver

Adapter Type RFC http://sap.com/xi/XI/System SAP BASIS 7.31

Adapter Engine Central Adapter Engine

Software Component Version of Receiver Interface XIVERI 7_3_1 of xi.com

Virus Scan Use Global Configuration

Schema Validation ☒ No Validation ☐ Validation by Adapter

Display Communication Channel Status Active

Communication Channel RFC_AirlineFlight_Receiver

Party

Communication Component XIVERI_AEX_Receiver_AsyncSyncBridge

Description

Parameters **Identifiers** **Module**

Adapter Type * RFC http://sap.com/xi/XI/System SAP BASIS

☐ Sender ☒ Receiver

Transport Protocol * RFC

Message Protocol * RFC (RFC XML)

Adapter Engine * Central Adapter Engine

Target **Advanced**

RFC Client Parameter

RFC Server Type SAP System

☐ Load Balancing

Application Server *

System Number *

Authentication Mode * Use Logon Data for SAP System

Logon User *

Logon Password * *****

Logon Language * EN

Logon Client *

Maximum Connections 1

☐ Advanced Mode

In the RFC receiver channel, the modules AF_Modules/RequestResponseBean and AF_Modules/ResponseOnewayBean are defined in the right sequence in **Module** tab.

The specified parameters points to the second ICO.

Display Communication Channel Status Active Display Language

Communication Channel RFC_AirlineFlight_Receiver

Party

Communication Component XIVERI_AEX_Receiver_AsyncSyncBridge

Description

Parameters **Identifiers** **Module**

Processing Sequence

Number	Module Name	Type	Module Key
1	AF_Modules/RequestResponseBean	Local Enterprise Bean	request
2	RfcAFBean	Local Enterprise Bean	1
3	AF_Modules/ResponseOnewayBean	Local Enterprise Bean	response

Module Configuration

Module Key	Parameter Name	Parameter Value
request	passThrough	true
response	interface	SXIDEMO_AIRL_FLIGHT_CHECKAVAIL
response	interfaceNamespace	urn:sap-com:document:sap:rfc:functions
response	replaceInterface	true

RequestResponseBean

Use

RequestResponseBean module is used to convert an asynchronous request message to a synchronous request message.

If the thread that enters the module is part of a transaction, the transaction is suspended.

Entries in Module Configuration

Parameter	Sender Adapter	Receiver Adapter
passThrough	<p>If you want the module to forward the message to the next module in the module chain, enter true. The default value is false.</p> <p>The module then calls the messaging system.</p>	<p>If you want the module to forward the message to the next module in the module chain, enter true. The default value is false.</p> <p>The module then calls the ResponseOnewayBean module</p>

ResponseOnewayBean

Use

A standard module used for converting an inbound message to an asynchronous message. If the thread that enters the module is part of a suspended transaction, the transaction is resumed.

Parameters (**interface**, **interfaceNamespace** and **replaceInterface**) mentioned in module Configuration points to the second ICO.

The **second ICO** defines the routing from the RFC to the Web Service. In the *Inbound Processing*, the SOAP sender channel is defined. Note, that in the header of the ICO the corresponding receiver communication component has to be specified as virtual receiver.

(The receiver of the first ICO become Sender and the Sender has to be defined as Virtual Receiver)

The screenshot shows the 'Display Integrated Configuration' window for a SOAP sender channel. The 'Sender' section is active, showing the 'Communication Component' as 'XIVERT_AEX_Receiver_AsyncSyncBridge' and the 'Interface' as 'SXIDEMO_AIRL_FLIGHT_CHECKAVAIL'. The 'Receiver' section is also visible but empty. Below the configuration fields, there are tabs for 'Inbound Processing', 'Receiver', 'Receiver Interfaces', 'Outbound Processing', 'Assigned Users', and 'Advanced Settings'. The 'Inbound Processing' tab is selected, showing the 'Configuration for Interface SXIDEMO_AIRL_FLIGHT_CHECKAVAIL'. Under 'Adapter Type', 'SOAP' is selected. Under 'Adapter Engine', 'Central Adapter Engine' is selected. The 'URL' field contains 'http://sap.com/xi/XI/System'. The 'Schema Validation' section shows 'No Validation' selected. At the bottom, there are checkboxes for 'Principal Propagation Properties' and 'Metering of Service Calls'.

In the SOAP sender channel, the *Quality of Service* is set as *Exactly Once*.

Display Communication Channel Status: Active

Communication Channel: SOAP_Sender_ResponseFromRFC

Party:

Communication Component: XIVERI_AEX_Receiver_AsyncSyncBridge

Description:

Parameters **Identifiers** **Module**

Adapter Type *: SOAP http://sap.com/xi/XI/System SAP BASIS 7.31

☒ Sender ☐ Receiver

Transport Protocol *: HTTP

Message Protocol *: SOAP 1.1

Adapter Engine *: Central Adapter Engine

General **Advanced**

Inbound Security Checks

HTTP security level *: HTTP

Security Parameters

☐ Select security profile

Conversion Parameters

☐ Use No SOAP Envelope

☐ Keep Headers

☐ Keep Attachments

☐ Use Encoded Headers

☐ Use Query String

Processing Parameters

Quality of Service *: Exactly Once

On tab *Receiver*, the receiver Business system is defined.

Inbound Processing **Receiver** **Receiver Interfaces** **Outbound Processing** **Assigned Users** **Advanced Settings**

Type of Receiver Determination: ☒ Standard ☐ Extended

Configured Receivers

Search: Go

Condition	Communication Party	Communication Component *

On tab *Receiver Interfaces*, the asynchronous response inbound interface is defined as receiver interface

Inbound Processing **Receiver** **Receiver Interfaces** **Outbound Processing** **Assigned Users** **Advanced Settings**

Receiver

Type	Communication Party	Communication Component
Communication Component		

Receiver Interfaces

☐ Maintain Order At Runtime

Condition	Operation Mapping	Name *	Namespace *	Software Compone...	Multiplicity
		SXIDEMO_AIRL_FLIGHT_CHECKAVAIL	urn:sap-com:document:sap:rfc:functions		

On tab *Outbound Processing*, the SOAP receiver Channel is set.

Inbound Processing **Receiver** **Receiver Interfaces** **Outbound Processing** **Assigned Users** **Advanced Settings**

Configuration for Interface SXIDEMO_AIRL_FLIGHT_CHECKAVAIL | urn:sap-com:document:sap:rfc:functions

Communication Channel *: SOAP_Receiver_ResponseFromRFC

Adapter Type: SOAP http://sap.com/xi/XI/System SAP BASIS 7.31

Adapter Engine: Central Adapter Engine

Software Component Version of Receiver Interface:

Virus Scan: Use Global Configuration

Schema Validation: ☒ No Validation ☐ Validation by Adapter

Display Communication Channel

Communication Channel: SOAP_Receiver_ResponseFromRFC

Party: [Empty]

Communication Component: [Empty]

Description: [Empty]

Parameters | Identifiers | Module

Adapter Type: SOAP | http://sap.com/xi/XI/System

Sender: ☐ Receiver: ☒

Transport Protocol: HTTP

Message Protocol: SOAP 1.1

Adapter Engine: Central Adapter Engine

General | **Advanced**

Connection Parameters

Target URL: [Empty]

☐ Configure User Authentication

☐ Configure Certificate Authentication

☐ Configure Proxy

Security Parameters

☐ Select Security Profile

Conversion Parameters

☐ Do Not Use SOAP Envelope

☐ Keep Headers

☐ Keep Attachments

☐ Use Encoded Headers

☐ Use Query String

SOAP Action: [Empty]

5.4.3 Test Description

Testing the scenario JIDOC → PI → RFC → PI → SOAP please follow the steps below:

- Check whether both (Sender & Receiver) channels being used in this scenario are started. If not then start them via Channel Monitoring of NWA/RWB.
- Execute transaction “we19” in Sender R/3 system for triggering an IDoc. Enter IDoc Types as “ZAIRFLG”.

Test tool for IDoc processing

Template for test

☐ Existing IDoc

☒ BasicTyp: ZAIRFLG | Air Flight IDOC

☐ withEnhancement

☐ Via message type

☐ File as template

☐ w/o template

☐ Unicode

- Double click on EDIDC(Control Record) and enter the Sender, Receiver details and Message Type ZAIRFLG_MSG

Test tool for IDoc processing

Standard inbound | Inbound function module | Inbound file | Standard outbound processing

EDIDC: 000000000000000000000000 | 2

ZAIRFLGSEG

Edit control record fields

Receiver		Sender	
Port		Port	
Partner No.		Partner No.	
Part. Type	LS	Part. Type	LS
Partner Role		Partner Role	

Logical Message Type

Message Type	ZAIRFLG_MSG
Message Variant	
Message Function	

☐ Test Flag

✓ All Fields ✗

- d) Double click on IDOC type and enter the record data and click on *Standard Outbound Processing*

Change Data Record

ZSEQNUM	1
ZAIRLINEID	AA
ZCONNECTIONID	0017
ZFLIGHTDATE	20130315

✓ ✗

Test tool for IDoc processing

Standard inbound Inbound function module Inbound file **Standard outbound processing**

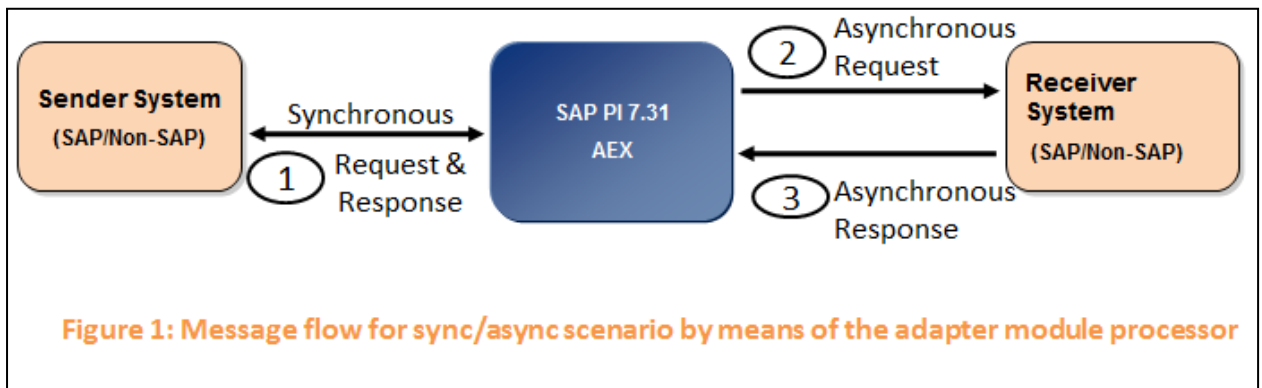
EDIDC	0000000000000000	2M16CLNT800LST90CLNT090
ZAIRFLGSEG	1	AA 0017 20130315

- e) The IDoc is immediately sent to XI system. A message confirming the same appears at the bottom of the page. "An Idoc < IdocNo> added".
- f) The same can be confirmed by using transaction "we05" or "we02" and in the Direction box, choose "Outbound". The list shows all the IDoc that have left the R/3 system.

On Sender Side, Check for "Idoc No." which should be same as above sent from R/3 system. Get the Msg. ID for this flow of Idoc

This Msg. ID should be checked within Message flowing on Receiver Comm. Channel
RFC_AirlineFlight_Receiver

To check on the modules process, goto Message Log of RFC Channel



6.3 Test scenario

The purpose of this scenario is to configure SOAP to FILE communication where SOAP is sync and FILE is Async

7 PREPARATION

7.1 User Permissions

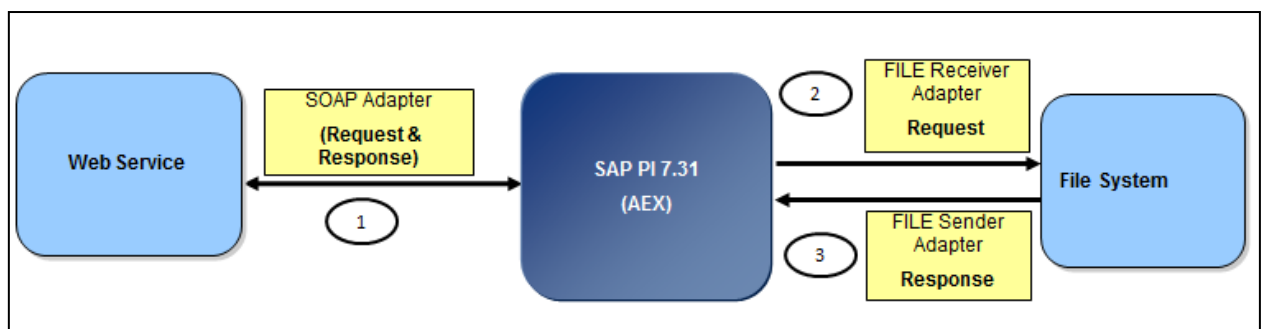
The tester should have permission to log on the PI test system and to open the SOA Monitors in the NetWeaver Administrator. Here PI 7.31 AEX is used to execute the test case. The system environment may differ in your test executions.

SOAP Workbench tool is used to respectively send and receive the messages.

8 SOAP - FILE

8.1 Overview

This test case describes how to connect an synchronous system to a asynchronous system by means of an sync/async bridge.



8.2 Description

Web service sends the data to PI (SOAP Sender Adapter used) and PI does the request mapping and sends the request to FILE and the filename placed is with the message ID to correlate with the response message. Once the file is placed, the response (Status) is sent to web service via SOAP Adapter.

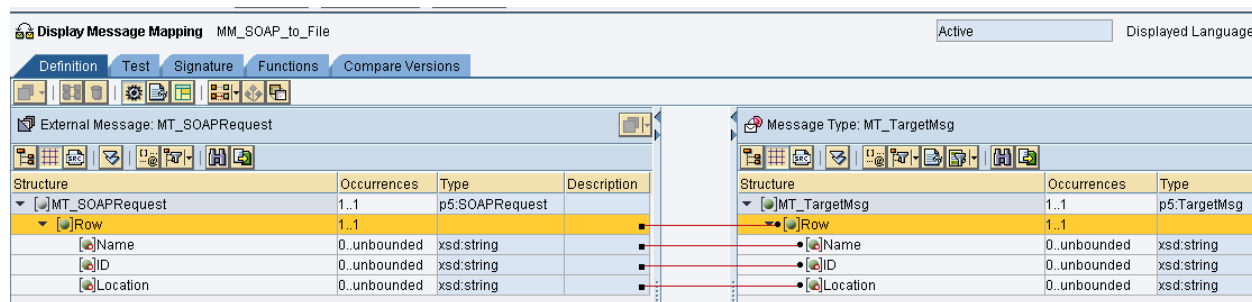
To implement the scenario, we need to define two ICO. One for routing the request message from the Web Service client to the File system, and one for routing back the response message.

8.3 Repository Objects

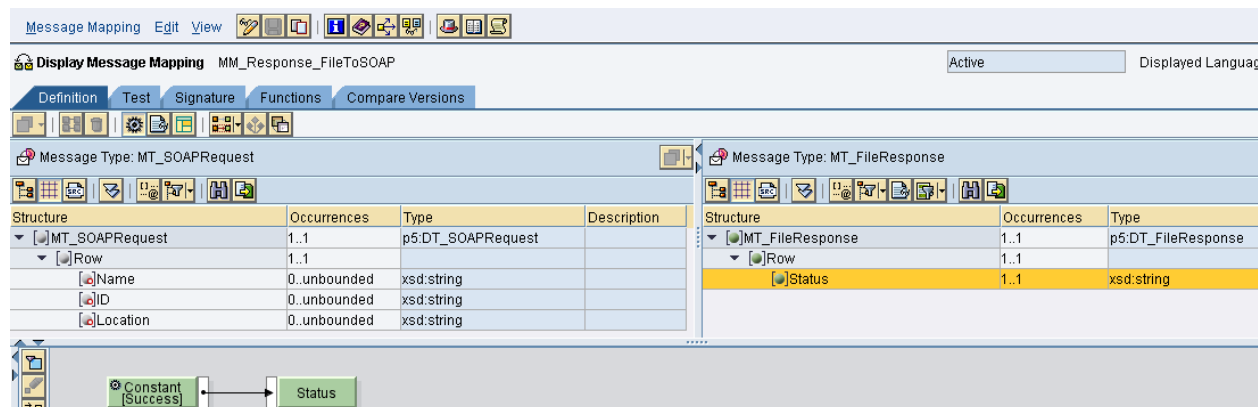
In the Enterprise Service Repository – on PI test system the below screenshot objects are created and used in this test case. The field structure can be referred in the Request and Response Mapping given below during creation.



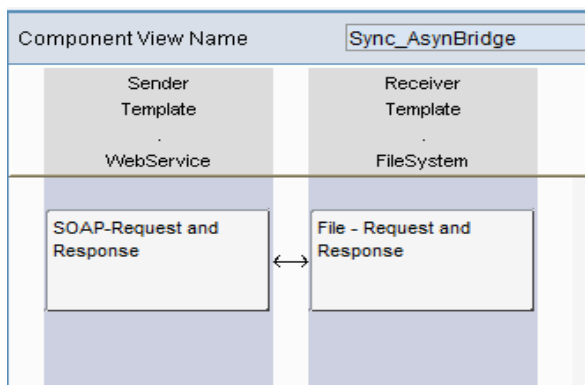
Request Mapping: MM_SOAP_to_File



Response Mapping: MM_Response_FileToSOAP



The following graphic shows the component view:



8.4 Configuration Objects

8.4.1 Configuration Overview

Display Configuration Scenario Status: Active Displayed Language

Configuration Scenario: XIVERI_7_3_1_AEX_SOAP2FILE_SyncAsyncBridge

Description:

ES Repository Model Objects Configuration Overview

Table Graph

Sender	Receiver
XIVERI_AEX_Recevier_SyncAsyncBridge	XIVERI_AEX_Sender_SyncAsyncBridge
XIVERI_AEX_Sender_SyncAsyncBridge	XIVERI_AEX_Recevier_SyncAsyncBridge
SOAP_OutSync	File_InSync

Objects of Selected Connection

Type	Object
Integrated Configuration	XIVERI_AEX_Sender_SyncAsyncBridge SOAP_OutS...
Sender Communication Channel	XIVERI_AEX_Sender_SyncAsyncBridge SOAP_Send...
Receiver Communication Chann...	XIVERI_AEX_Recevier_SyncAsyncBridge FileReceiver

Display Configuration Scenario Status: Active Displayed Language

Configuration Scenario: XIVERI_7_3_1_AEX_SOAP2FILE_SyncAsyncBridge

Description:

ES Repository Model Objects Configuration Overview

Table Graph

Sender	Receiver
XIVERI_AEX_Recevier_SyncAsyncBridge	XIVERI_AEX_Sender_SyncAsyncBridge
File_OutAs	SOAP_InAs
XIVERI_AEX_Sender_SyncAsyncBridge	XIVERI_AEX_Recevier_SyncAsyncBridge

Objects of Selected Connection

Type	Object
Integrated Configuration	XIVERI_AEX_Recevier_SyncAsyncBridge File_OutAs
Sender Communication Channel	XIVERI_AEX_Recevier_SyncAsyncBridge FileSenderRes
Receiver Communication Channel	XIVERI_AEX_Sender_SyncAsyncBridge SOAP_Receiver_Test

8.4.2 Integrated Configuration Objects in Integration Directory

The first ICO defines the routing from the Web Service client to the File System. In the *Inbound Processing*, the SOAP sender channel is specified.

Display Integrated Configuration Status: Active

Sender

Communication Party: _____

Communication Component: XIVERI_AEX_Sender_SyncAsyncBridge

Interface: SOAP_OutSync

Namespace: http://sap.com/xi/SyncAsynBridge

Receiver

Communication Party: _____

Communication Component: _____

Description: _____

Configuration for Interface SOAP_OutSync

Communication Channel: SOAP_Sender_Test

Adapter Type: SOAP

Adapter Engine: Central Adapter Engine

Software Component Version of Sender Interface: XIVERI 7_3_1 of xi.com

Virus Scan: Use Global Configuration

Schema Validation: ☒ No Validation ☐ Validation by Adapter

Principal Propagation Properties

☐ Propagate Principal

☐ Metering of Service Calls

In the sender channel of type SOAP, the *Quality of Service* is set to *Best Effort*.

Display Communication Channel

Communication Channel: SOAP_Sender_Test

Party: _____

Communication Component: XIVERI_AEX_Sender_SyncAsyncBridge

Description: _____

Parameters **Identifiers** **Module**

Adapter Type: SOAP

Transport Protocol: HTTP

Message Protocol: SOAP 1.1

Adapter Engine: Central Adapter Engine

General **Advanced**

Inbound Security Checks

HTTP Security Level: HTTP

Security Parameters

☐ Select Security Profile

Conversion Parameters

☐ Do Not Use SOAP Envelope

☐ Keep Headers

☐ Keep Attachments

☐ Use Encoded Headers

☐ Use Query String

Processing Parameters

Quality of Service: Best Effort

On tab *Receiver* of the ICO, the receiver communication component is defined

Inbound Processing **Receiver** **Receiver Interfaces** **Outbound Processing** **Assigned Users** **Advanced Settings**

Type of Receiver Determination: ☒ Standard ☐ Extended

Configured Receivers

Condition: _____

Communication Party: _____

Communication Component: XIVERI_AEX_Receiver_SyncAsyncBridge

On tab *Receiver Interfaces*, the Operation Mapping for request mapping is set

The screenshot shows the 'Receiver' tab in the SAP NetWeaver Administrator. The 'Receiver' section is expanded, showing a table with the following data:

Type	Communication Party	Communication Component
Communication Component		XIVRI_AEX_Receiver_SyncAsyncBridge

Below this, the 'Receiver Interfaces' section is expanded, showing a table with the following data:

Condition	Operation Mapping	Name *	Namespace *	Software Component Version	Multiplicity	Parameters
	OM_Req_SOAPToFile	File_InSync	http://sap.com/xi/SyncAsyncBridge	XIVRI 7_3_1 of xi.com	1	

On tab *Outbound Processing*, the FILE receiver channel is specified.

The screenshot shows the 'Outbound Processing' tab in the SAP NetWeaver Administrator. The 'Configuration for Interface File_InSync | http://sap.com/xi/SyncAsyncBridge | XIVRI 7_3_1 of xi.com' is displayed. The 'Communication Channel' is set to 'FileReceiver'. The 'Adapter Type' is 'File', and the 'Adapter Engine' is 'Central Adapter Engine'. The 'Software Component Version of Receiver Interface' is 'XIVRI 7_3_1 of xi.com'. The 'Virus Scan' is set to 'Use Global Configuration'. The 'Schema Validation' is set to 'No Validation'. The 'Header Mapping' section is expanded, showing the following settings:

Header Mapping	Value
Sender Communication Party	
Sender Communication Component	
Receiver Communication Party	
Receiver Communication Component	

In the Parameters tab, maintain the target directory and set the file name scheme as "%mid%" (without quotes), so we can set the filename with the message id through variable substitution. Set the construction mode as create (do not append any info after the message id) and enable variable substitution, with a single entry: name="mid", reference="message:message_id" (also, without quotes).

The screenshot shows the 'Parameters' tab in the SAP NetWeaver Administrator. The 'Display Communication Channel' section is expanded, showing the following data:

Communication Channel	Party	Communication Component	Description
FileReceiver		XIVRI_AEX_Receiver_SyncAsyncBridge	

Below this, the 'Parameters' section is expanded, showing the following data:

Adapter Type *	Adapter Engine *
File	Central Adapter Engine

The 'Target' section is expanded, showing the following data:

Target Directory *	Create Target Directory	File Name Scheme *
	<input checked="" type="checkbox"/>	%mid%

Display Communication Channel Status: **Active**

Communication Channel: **FileReceiver**

Party:

Communication Component: **XIVERI_AEX_Receiver_SyncAsyncBridge**

Description:

Parameters | Identifiers | Module

Adapter Type *: File http://sap.com/xi/XI/System SAP BASIS 7.31

☐ Sender ☒ Receiver

Transport Protocol *: File System (NFS)

Message Protocol *: File

Adapter Engine *: Central Adapter Engine

Target | Processing | Advanced

Variable Substitution (Target Directory/File Name Scheme)

☒ Enable

Variable Name	Reference
mid	message:message_id

☐ Disable Security Checks

Adapter-Specific Message Attributes

☐ Use Adapter-Specific Message Attributes

Adapter Status

Status: **Active**

For more details on variable substitution made in File Receiver channel:

In the Module tab, insert the "AF_Modules/RequestOnewayBean" module before the CallSapAdapter module, and set its parameter "passThrough" with value "true"; also, insert the "AF_Modules/WaitResponseBean" module after the CallSapAdapter module

Processing Sequence

Number	Module Name	Type	Module Key
1	AF_Modules/RequestOnewayBean	Local Enterprise Bean	0
2	CallSapAdapter	Local Enterprise Bean	1
3	AF_Modules/WaitResponseBean	Local Enterprise Bean	2

Module Configuration

Module Key	Parameter Name	Parameter Value
0	passThrough	true

The **second ICO** defines the routing of the response message from File to the Web Service client. In the *Inbound Processing*, the File Sender channel is defined.

Display Integrated Configuration Status

Sender

Communication Party:

Communication Component:

Interface:

Namespace:

Receiver

Communication Party:

Communication Component:

Description:

Configuration for Interface File_OutAs

Communication Channel:

Adapter Type:

Adapter Engine:

Software Component Version of Sender Interface:

Virus Scan:

Schema Validation: ☒ No Validation ☐ Validation by Adapter

Navigation: Inbound Processing | **Receiver** | Receiver Interfaces | Outbound Processing | Assigned Users | Advanced Settings

In the Parameters tab, maintain the source directory and set the file name as "*" (without extension); set the polling interval for a short time, for example, 10 seconds (a long polling time may cause a timeout in the sync SOAP); make sure you set the "Set Adapter-Specific Message Attributes" flag, with the File Name flag active
The file picked is been archived.

Display Communication Channel

Communication Channel:

Party:

Communication Component:

Description:

Parameters | Identifiers | Module

Adapter Type:

☒ Sender ☐ Receiver

Transport Protocol:

Message Protocol:

Adapter Engine:

Source | Processing | Advanced

File Access Parameters

Source Directory:

File Name:

☐ Advanced Selection for Source File

☐ Additional File(s)

Source	Processing	Advanced
Processing Parameters		
Quality of Service *	Exactly Once	
Poll Interval (secs) *	10	
Poll Interval (msecs)		
Retry Interval (secs)		
Processing Mode *	Archive	
<input checked="" type="checkbox"/> Add Time Stamp		
Archive Directory		
Empty-File Handling	Do Not Create Message	
<input type="checkbox"/> Archive Faulty Source Files		
<input type="checkbox"/> Process Read-Only Files		
Processing Sequence	By Name	
File Type *	Binary	

Display Communication Channel		
Communication Channel	FileSenderRes	
Party		
Communication Component	XIVERR_AEX_Receiver_SyncAsyncBridge	
Description		
Parameters	Identifiers	Module
Adapter Type *	File	http://sap.com/xi/XI/System
<input checked="" type="radio"/> Sender <input type="radio"/> Receiver		
Transport Protocol *	File System (NFS)	
Message Protocol *	File	
Adapter Engine *	Central Adapter Engine	
Source	Processing	Advanced
Adapter-Specific Message Attributes		
<input checked="" type="checkbox"/> Set Adapter-Specific Message Attributes		
<input checked="" type="checkbox"/> File Name		
<input type="checkbox"/> Directory		
<input type="checkbox"/> File Type		
<input type="checkbox"/> Source File Size		
<input type="checkbox"/> Source File Time Stamp		
Adapter Status		
Status	Active	
<input type="checkbox"/> Advanced Mode		

In the Module tab, replace the "CallSapAdapter" module with the "AF_Modules/NotifyResponseBean" (since the message doesn't need to be sent to the Integration Engine, but rather to the waiting WaitResponseBean); also, before the NotifyResponseBean, insert the "AF_Modules/DynamicConfigurationBean" module, with the following parameters and respective values: name="key.0" value="write <http://sap.com/xi/XI/System/File> FileName", name="value.0" value="message.correlationId".

Display Communication Channel Status: **Active** Displayed Language:

Communication Channel: **FileSenderRes**

Party:

Communication Component: **XIVERI_AEX_Receiver_SyncAsyncBridge**

Description:

Parameters Identifiers **Module**

Processing Sequence

Number	Module Name	Type	Module Key
1	AF_Modules/DynamicConfigurationBean	Local Enterprise Bean	1
2	AF_Modules/NotifyResponseBean	Local Enterprise Bean	2

Module Configuration

Module Key	Parameter Name	Parameter Value
1	key.0	write http://sap.com/xi/XI/System/File FileName
1	value.0	message.correlationId

The DynamicConfigurationBean module will get the filename ASMA-Adapter Specific Message Attributes (which was previously set by the adapter) and write its value in the message.correlationId attribute, before the message is sent to the waiting process (WaitResponseBean) by the NotifyResponseBean module.

8.4.3 Test Description

Testing the scenario SOAP - > FILE please follow the steps below:

Pushing the Message

- Check whether both (Sender & Receiver) channels being used in this scenario are started. If not then start them via Channel Monitoring of NWA/RWB.
- Open the external SOAP Request/Response tool being used
- In the field URL set the below value.

https://<HOST>:<PORT>/XISOAPAdapter/MessageServlet?senderService=XIVERI_AEX_Sender_SyncAsyncBridge&interface=SOAP_OutSync&interfaceNamespace=http://sap.com/xi/SyncAsyncBridge

Set the host and port of the PI server.

Note: The URL specified here is for SOAP Workbench tool when used. If any other external tool is used, the URL should be changed accordingly.

- Select "Use Authentication". Then enter your username and password for the PI server.
- Under the label SOAP delete the existing text. Now copy the content from the payload file below and paste it in the editbox under label SOAP.

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns0:MT_SOAPRequest xmlns:ns0="http://sap.com/xi/SyncAsyncBridge">
      <Row>
```

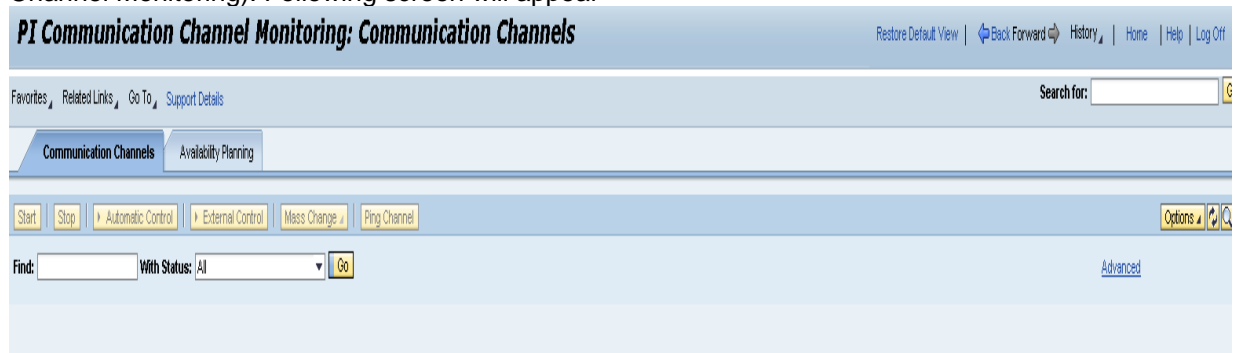
```
<Name>ABC</Name>
<ID>123</ID>
<Location>Bangalore</Location>
</Row>
</ns0:MT_SOAPRequest>
</soapenv:Body>
</soapenv:Envelope>
```

- f) Click on the Send button. It will push a message.
- g) As QoS is Best Effort in SOAP Sender adapter the response is received as below:

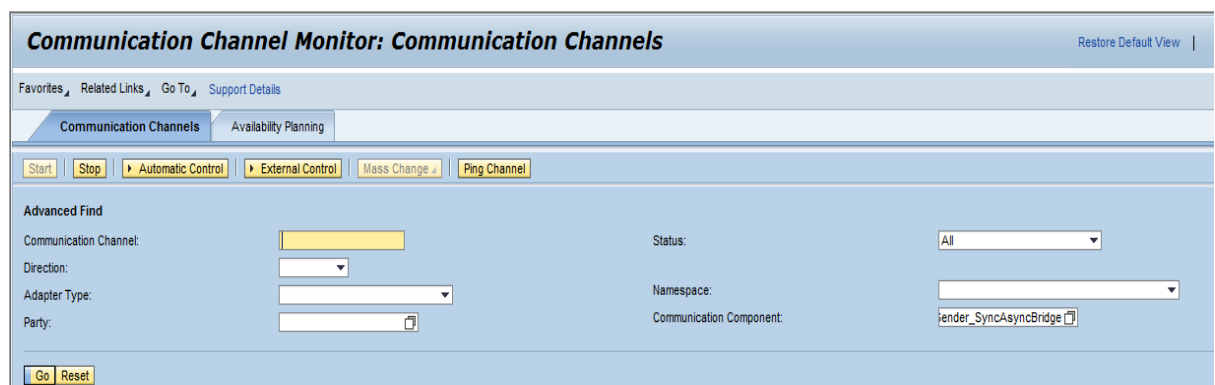


Channel Monitoring

Open the **PI Communication Channel Monitoring** (NWA→SOA→ Monitoring→ PI Communication Channel Monitoring). Following screen will appear



Click on the link “Advanced”. The following screen appears. Set the Sender Communication Component “XIVERI_AEX_Sender_SyncAsyncBridge” in the edit box “**Communication Component**” & hit **GO** button.



As a result we see successful message in the SOAP Sender channel

Goto File Receiver Communication Channel to check the message received.

To check on the modules process, goto Message Log of either SOAP Sender Channel or File Receiver Channel

Message Details	Message Log	Further Links
Time	Status	Description
5/2/2013 9:22:56.311 AM	Information	SOAP: Request message entering the adapter processing with user c5188274
5/2/2013 9:22:56.313 AM	Information	Application attempting to send an XI message synchronously using connection SOAP_http://sap.com/xi/XI/System
5/2/2013 9:22:56.313 AM	Information	MP: processing local module localejs/CallSapAdapter
5/2/2013 9:22:56.314 AM	Information	VirusScan called.
5/2/2013 9:22:56.315 AM	Information	VirusScan succeeded.
5/2/2013 9:22:56.321 AM	Information	Trying to put the message into call queue
5/2/2013 9:22:56.327 AM	Information	Message successfully put into the queue
5/2/2013 9:22:56.339 AM	Information	Message retrieved from call queue
5/2/2013 9:22:56.357 AM	Information	Message status set to DLNG
5/2/2013 9:22:56.376 AM	Information	Executing Request Mapping "http://sap.com/xi/SyncAsyncBridge/OM_Req_SOAPToFile" (SWCV f7a554b0a08b11df9608c3ba0a42301e)
5/2/2013 9:22:56.459 AM	Information	Delivering to channel: FileReceiver
5/2/2013 9:22:56.481 AM	Information	MP: processing local module localejs/AF_Modules/RequestOnewayBean
5/2/2013 9:22:56.486 AM	Information	ROB: entering RequestOnewayBean
5/2/2013 9:22:56.487 AM	Information	MP: processing local module localejs/CallSapAdapter
5/2/2013 9:22:56.487 AM	Information	ROB: forwarding the request message
5/2/2013 9:22:56.487 AM	Information	ROB: leaving RequestOnewayBean
5/2/2013 9:22:56.488 AM	Information	File adapter receiver: processing started; QoS required: ExactlyOnce
5/2/2013 9:22:56.575 AM	Information	File Adapter Receiver Channel FileReceiver: Start processing; party "" / service "XIVERI_AEX_Receiver_SyncAsyncBridge"
5/2/2013 9:22:56.669 AM	Information	Write to file "connectivity_TestTest_XIPatternsTarget1c21a24d-b2f9-11e2-906b-0000008d08e2" as binary, size 190 bytes
5/2/2013 9:22:56.676 AM	Information	File processing finished
5/2/2013 9:22:56.459 AM	Information	Delivering to channel: FileReceiver
5/2/2013 9:22:56.481 AM	Information	MP: processing local module localejs/AF_Modules/RequestOnewayBean
5/2/2013 9:22:56.486 AM	Information	ROB: entering RequestOnewayBean
5/2/2013 9:22:56.487 AM	Information	MP: processing local module localejs/CallSapAdapter
5/2/2013 9:22:56.487 AM	Information	ROB: forwarding the request message
5/2/2013 9:22:56.487 AM	Information	ROB: leaving RequestOnewayBean
5/2/2013 9:22:56.488 AM	Information	File adapter receiver: processing started; QoS required: ExactlyOnce
5/2/2013 9:22:56.575 AM	Information	File Adapter Receiver Channel FileReceiver: Start processing; party "" / service "XIVERI_AEX_Receiver_SyncAsyncBridge"
5/2/2013 9:22:56.669 AM	Information	Write to file "connectivity_TestTest_XIPatternsTarget1c21a24d-b2f9-11e2-906b-0000008d08e2" as binary, size 190 bytes
5/2/2013 9:22:56.676 AM	Information	File processing finished
5/2/2013 9:22:56.679 AM	Information	MP: processing local module localejs/AF_Modules/WatResponseBean
5/2/2013 9:22:56.683 AM	Information	WRB: entering WatResponseBean
5/2/2013 9:22:56.683 AM	Information	WRB: retrieving the message for 1c21a24d-b2f9-11e2-906b-0000008d08e2 ...
5/2/2013 9:23:23.134 AM	Information	WRB: retrieved the message: ApplicationResponse
5/2/2013 9:23:23.135 AM	Information	WRB: leaving WatResponseBean
5/2/2013 9:23:23.209 AM	Information	Application sent message synchronously using connection SOAP_http://sap.com/xi/XI/System. Returning to application
5/2/2013 9:23:23.219 AM	Information	SOAP: Processing completed
5/2/2013 9:23:23.220 AM	Information	SOAP: Response message leaving the adapter
5/2/2013 9:23:23.228 AM	Information	Message was successfully transmitted to endpoint <local> using connection SOAP_http://sap.com/xi/XI/System
5/2/2013 9:23:23.228 AM	Information	Message status set to DLVD

The response is sent from File to SOAP can be checked in the communication channel monitor of channel FileSenderRes

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