



How To Set Up the Communication between ABAP Backend and SOAP Adapter using XI Protocol

Applicable Releases:

SAP Enhancement Package 1 for SAP NetWeaver PI 7.1

Topic Area:

SOA Middleware

Capability:

Service Bus

Version 1.0

October 2009



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Document History

Document Version	Description
1.00	First official release of this guide

Typographic Conventions

Type Style	Description
<i>Example Text</i>	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other documentation
Example text	Emphasized words or phrases in body text, graphic titles, and table titles
Example text	File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
Example text	User entry texts. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.

Icons

Icon	Description
	Caution
	Note or Important
	Example
	Recommendation or Tip

Table of Contents

1.	Scenario	1
2.	Introduction	1
	2.1 Adapter Engine and Proxy.....	1
	2.2 Enhancement with PI 7.1 (Local Processing on Advanced Adapter Engine)	2
	2.3 Enhancement with PI 7.11 (Message Protocol XI 3.0 in SOAP Adapter)	2
3.	Prerequisites	3
4.	Step-by-Step Procedure	4
	4.1 Configurations in the Sender ABAP System	4
	4.2 Configurations in Integration Directory (Sender Scenario).....	7
	4.3 Configurations in Integration Directory (Receiver Scenario)	10
	4.4 Runtime Behavior	11
5.	Limitation	12
6.	Related SAP Notes	13

1. Scenario

This how to guide explains the configuration to set up the communication between ABAP backend system and SOAP adapter based on the XI protocol. As of SAP enhancement package 1 for SAP NetWeaver PI 7.1 (in the following referred to as "PI7.11"), the SOAP adapter also supports the usage of the XI 3.0 protocol. Because of that, the Advanced Adapter Engine available with PI7.11 can now communicate with the application systems via XI 3.0 protocol.

SOAP Adapter in NetWeaver PI7.11 currently supports the following scenarios.

Communication based on XI protocol between:

- Advanced Adapter Engine 7.11 <-> Advanced Adapter Engine 7.11
- Advanced Adapter Engine 7.11 <-> Partner Connectivity Kit 7.11
- Advanced Adapter Engine 7.11 <-> ABAP Application System (Proxy) 7.00 or higher

2. Introduction

2.1 Adapter Engine and Proxy

As a very typical SAP NetWeaver PI(XI) use case, most systems connect with SAP NetWeaver PI(XI) via Adapter Engine. Adapters in the Adapter Engine can convert native protocols to XI message and vice versa.

As to SAP NetWeaver Application Server, the ABAP/Java proxy can communicate with central Integration Engine of SAP NetWeaver PI (XI) directly without using Adapter Engine. And there "XI protocol", which is SAP proprietary SOAP based protocol, is used for the communication.

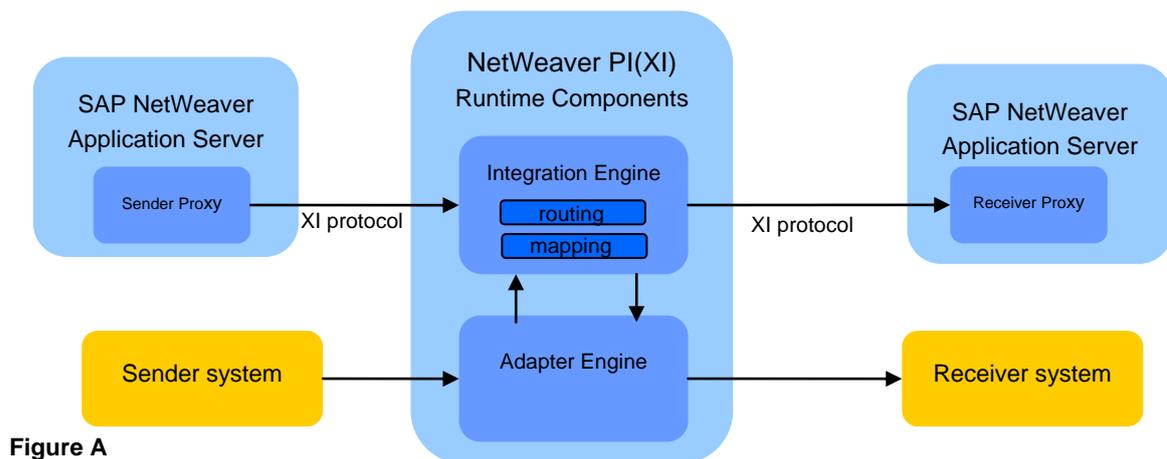


Figure A

2.2 Enhancement with PI 7.1 (Local Processing on Advanced Adapter Engine)

From SAP NetWeaver PI 7.1 (in the following referred to as "PI7.1"), the concept of local processing on Advanced Adapter Engine (in the following referred to as "AAE") got introduced which enabled SAP NetWeaver PI to process messages only with Java stack (see Figure B). With this option, you could gain great improvement in performance.

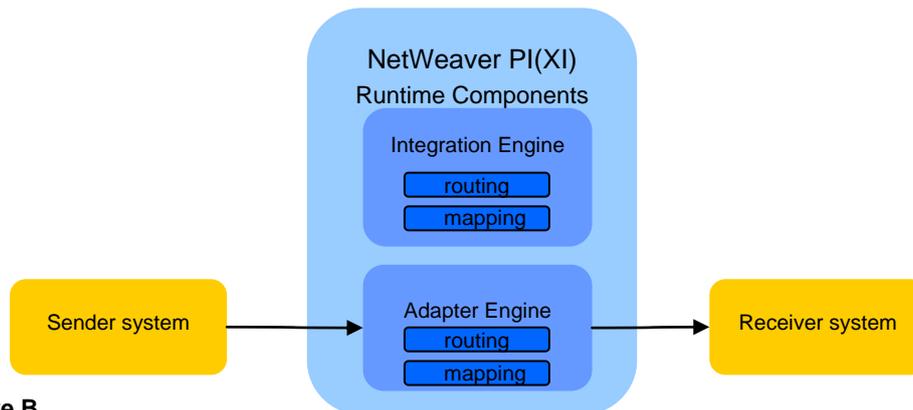


Figure B

AAE available with PI 7.1 could only support Java-based scenarios. Therefore it could not support ABAP-based scenarios, for example using the IDoc Adapter or HTTP Adapter etc. Even scenarios using ccBPM could not get processed via AAE local processing in PI 7.1.

2.3 Enhancement with PI 7.11 (Message Protocol XI 3.0 in SOAP Adapter)

From PI7.11, the SOAP adapter in AAE is enhanced. It is capable of handling XI protocol to communicate with ABAP proxy.

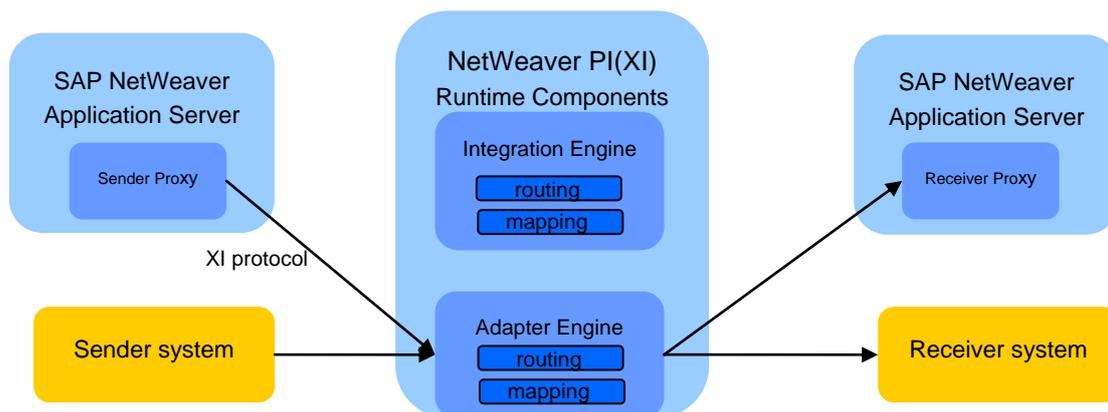


Figure C

Note:

As you would need to have both classic central Integration Engine-based scenario like *figure A* and AAE-based scenario like *figure C* at the same time, the **sender SAP NetWeaver Application Server ABAP is also enhanced** to be able to send message to both central Integration Engine and Advanced Adapter Engine.

3. Prerequisites

To configure the scenario, the systems have to meet the following prerequisites.

- The version of SAP NetWeaver PI must be 7.11 or higher
 - MESSAGING SYSTEM SP2 patch4 or higher
 - ADAPTER FRAMEWORK SP2 patch8 or higher
- The version of ABAP-based application systems must be 7.00 SP13 or higher.

- Following SAP note has to be applied to **ABAP-based Application System**
 - NOTE 1332856 Corrections for connecting the Advanced Adapter Engine
 - NOTE 1334174 Interface-specific IS_URL parameter
- Following SAP note has to be applied to **PI Java Server**
 - NOTE 1349125 Error in communication between ABAP Proxy Application
 - NOTE 1329319 SOAP adapter in XI 3.0 mode does not return a system

4. Step-by-Step Procedure

4.1 Configurations in the Sender ABAP System

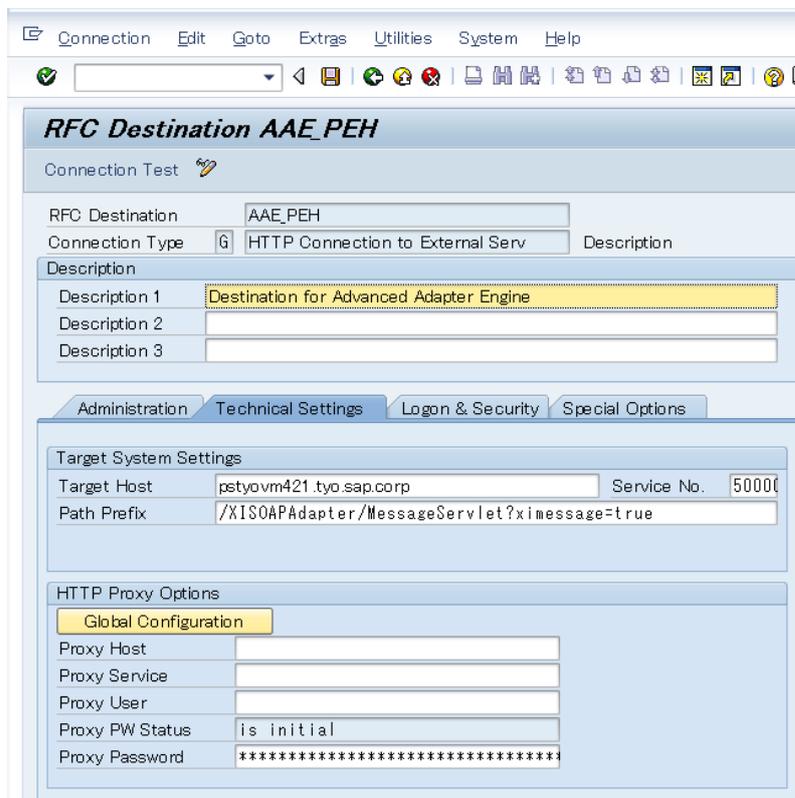
In classic scenario, we used the IS_URL in SXMB_ADM to send the messages to the central Integration Engine in SAP NetWeaver PI. By applying the NOTE1334174 to sender ABAP system, we now have the flexibility to configure IS_URL for both AAE and IS. This means, that each interface can now be pointed to either central Integration Engine or AAE. So we now have the capability where some scenarios can be processed by central Integration Engine and others can be locally processed in Advanced Adapter Engine.

1. Create Destination for AAE

Use transaction SM59 to define the destination to Advanced Adapter Engine in addition to the destination of central Integration Engine.

Please use the following parameters.

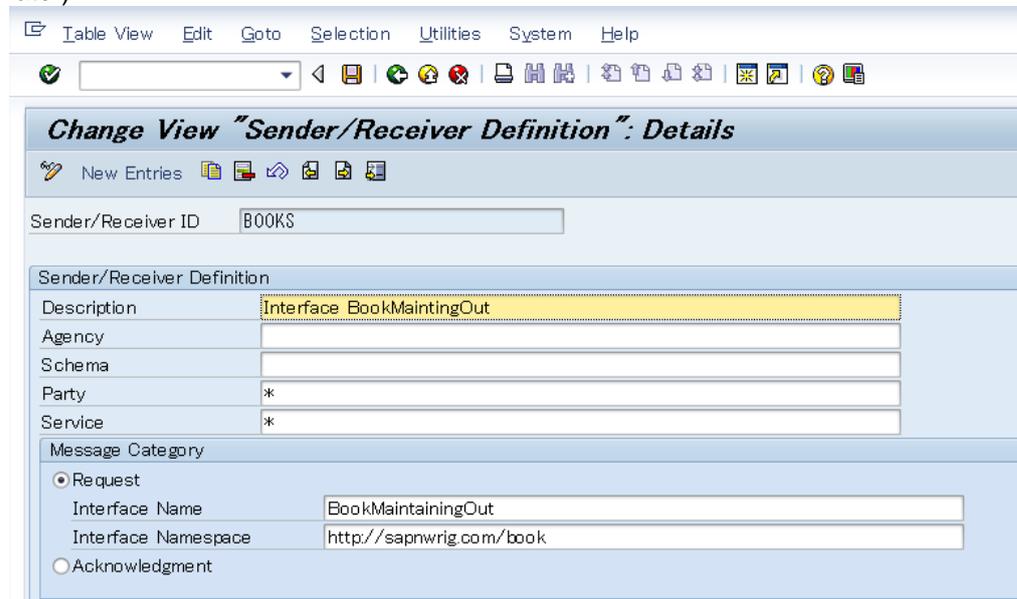
- Connection Type :G (HTTP Connection to External Server)
- Target Host :<Host Name of AAE server>
- Service No. :< HTTP Port Number of AAE server>
- Path : /XISOAPAdapter/MessageServlet?ximessage=true



2. Define the sender ID in SXMSIF

Here you can define so called "Sender ID" for each service interfaces.

The entry represents "Service Interface" and used as the sub parameter of IS_URL (discussed later).



The screenshot shows the SAP SXMSIF configuration interface. At the top, there is a menu bar with options: Table View, Edit, Goto, Selection, Utilities, System, and Help. Below the menu is a toolbar with various icons. The main title is "Change View 'Sender/Receiver Definition': Details". Underneath, there is a "New Entries" button and a "Sender/Receiver ID" field containing the value "BOOKS". The "Sender/Receiver Definition" section contains the following fields:

Description	Interface BookMaintainingOut
Agency	
Schema	
Party	*
Service	*

The "Message Category" section has two radio buttons: "Request" (selected) and "Acknowledgment". Below the "Request" radio button, there are two text fields:

Interface Name	BookMaintainingOut
Interface Namespace	http://sapnwig.com/book

Permitted values for Agency, Schema, Party are '*' or SPACE.

The component/service is ignored.

The 'Interface Name' and 'Interface Namespace' should point to the correct service interface.

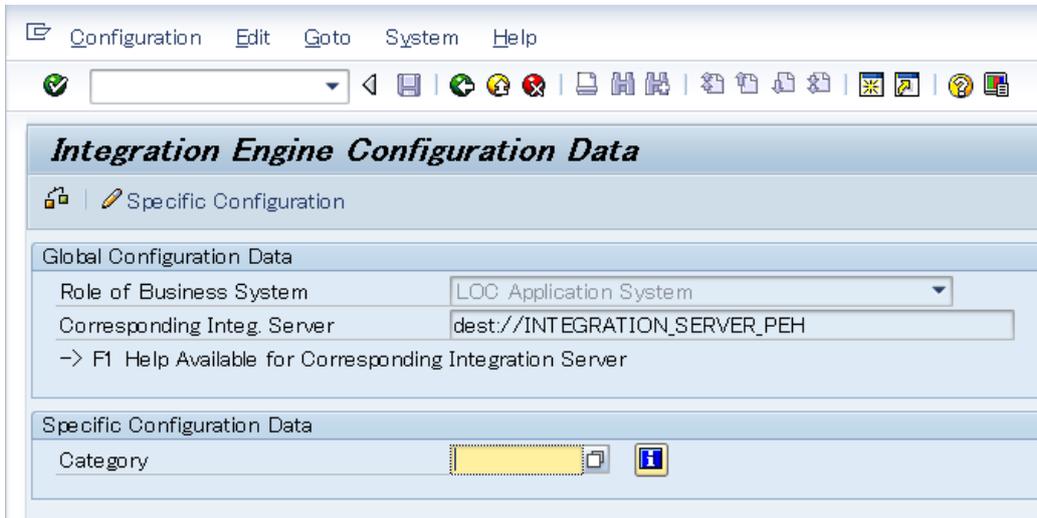
3. Enter the IS_URL parameter

Call transaction SXMB_ADM.

Choose Menu *Configuration*

Choose sub menu *Integration Engine Configuration*

You may have configured the destination of the central Integration Engine here.



Choose *Specific Configuration* to display the list of configurations.

Choose *New Entries* to make an entry of the destination for Advanced Adapter Engine.

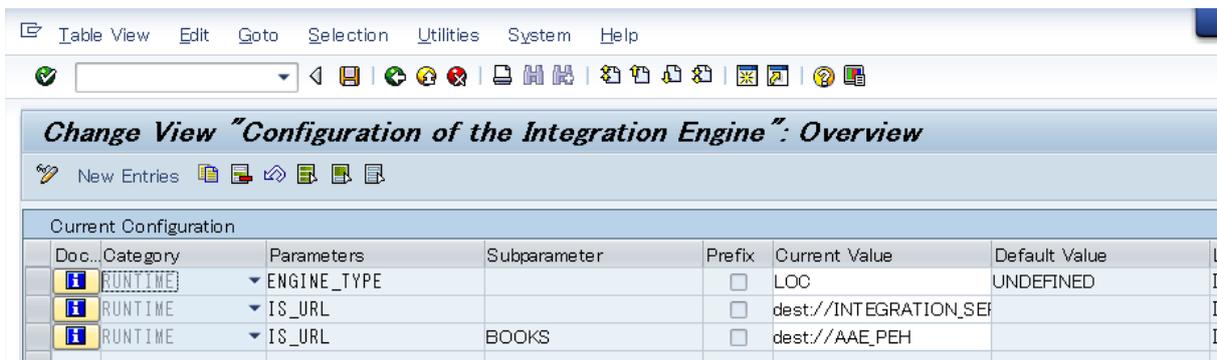
Category : RUNTIME

Parameter : IS_URL

Subparameter :<The entry of SXMSIF>

The system provides this list as F4 input help.

Current value : dest://<HTTP destination for Advanced Adapter Engine>



In runtime, the system checks the entries with sub parameter first and if nothing is found, then the more generic entry will be adapted.

For example, if you use the destination for the central Integration Engine as a generic one and also have multiple interfaces pointing to AAE, you need to make several entries with sub parameter .

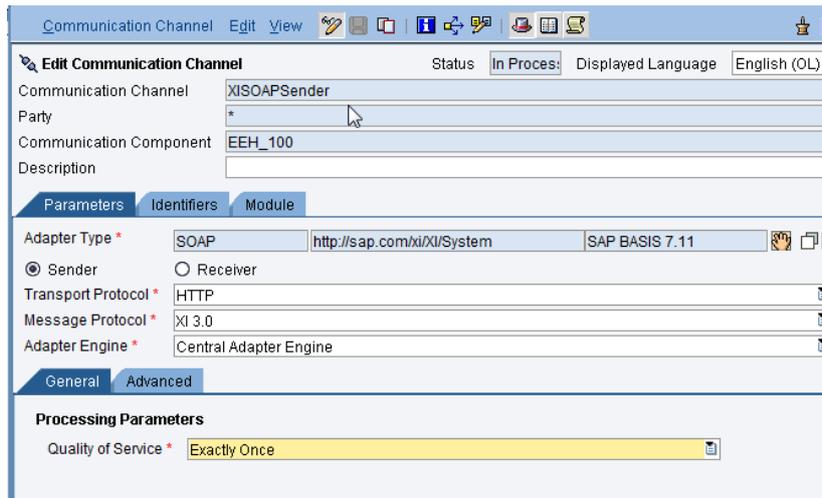
4.2 Configurations in Integration Directory (Sender Scenario)

1. Create the sender communication channel

In the Integration Directory, create a communication channel of adapter type SOAP.

Select SOAP for adapter type and XI 3.0 for Message Protocol.

Unlike XI adapter, we always need to create communication channel even if that is a sender side.



The screenshot shows the 'Edit Communication Channel' dialog box in SAP. The 'Parameters' tab is selected, displaying the following configuration:

- Communication Channel: XI SOAPSender
- Party: *
- Communication Component: EEH_100
- Adapter Type: SOAP (Selected)
- Transport Protocol: HTTP
- Message Protocol: XI 3.0
- Adapter Engine: Central Adapter Engine
- Quality of Service: Exactly Once

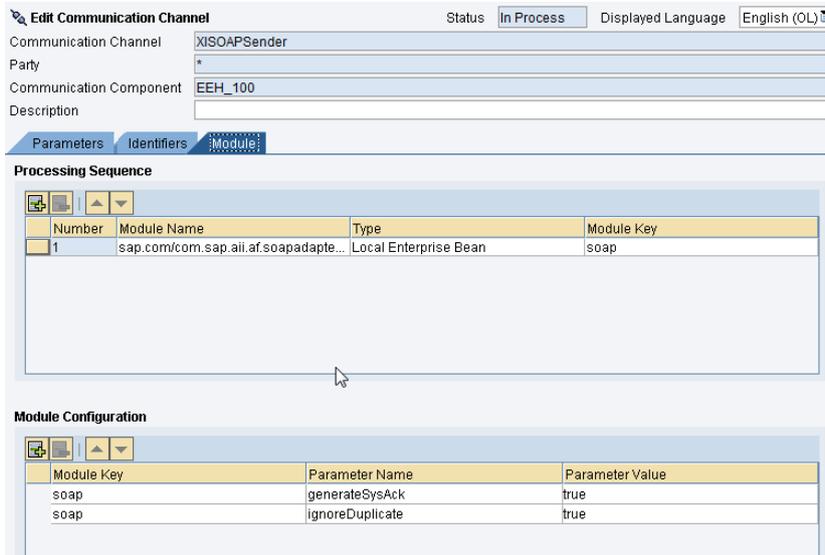
Remark/Note:

The parameter in "Processing Parameters" above is not used at runtime at all, while QoS or Queue ID sent from sender system is used at runtime. Therefore the adapter metadata for the SOAP adapter will be changed in ESR Content SAP BASIS 7.11 SP04 and this field will be removed.

Within the module tab, you need to set the following parameters for XISOAPAdapterBean Module if you use asynchronous commutation.

`ignoreDuplicate true`

`generateSysAck true`



The screenshot shows the 'Edit Communication Channel' dialog box with the following details:

- Communication Channel:** XISOAPSender
- Party:** *
- Communication Component:** EEH_100
- Description:**
- Parameters:** (tab selected)
- Identifiers:**
- Module:** (tab selected)

Processing Sequence

Number	Module Name	Type	Module Key
1	sap.com/com.sap.aui.af.soapadapte...	Local Enterprise Bean	soap

Module Configuration

Module Key	Parameter Name	Parameter Value
soap	generateSysAck	true
soap	ignoreDuplicate	true

ignoreDuplicate

By setting “true” to “ignoreDuplicate”, AAE can ignore the received message duplication and will just log a 'Warning' trace. Otherwise, the adapter will send “*DuplicateMessageException*” fault message back to the sender system. Even if there is duplication, the ABAP proxy runtime does not expect *fault message* but expects *success message*.

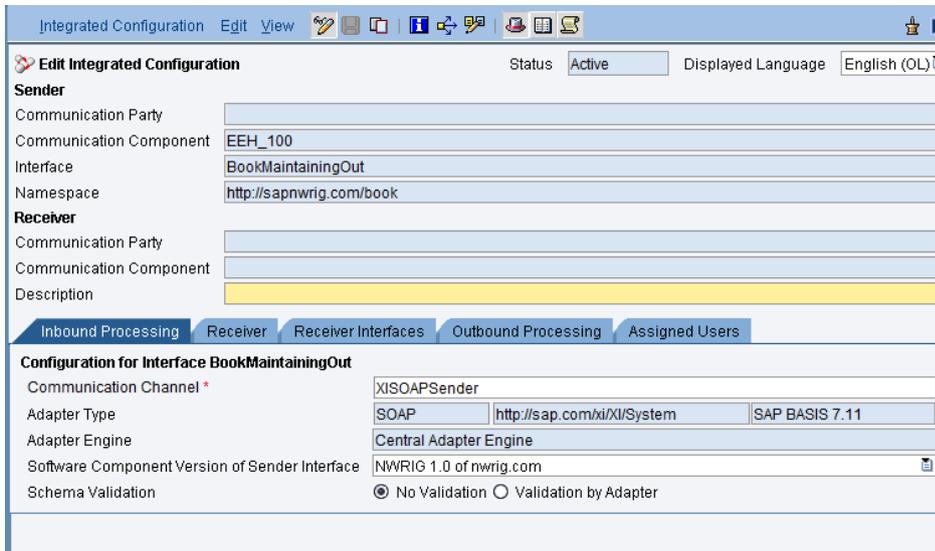
generateSysAck

By setting “true” to “generateSysAck”, AAE can generate system acknowledgement (SYS ack). As ABAP proxy runtime always expects a synchronous SYS acknowledgment even for EO/EOIO cases.

The change of default value in adapter metadata is planned for future release but you need to set the parameters for every asynchronous sender channel in PI 7.11.

2. Create the integrated configurations

In tab Inbound Processing, enter the sender communication channel created beforehand.



The screenshot shows the SAP Integrated Configuration tool interface. The title bar reads "Integrated Configuration Edit View". The main window is titled "Edit Integrated Configuration" and has a status of "Active" and a displayed language of "English (OL)".

The configuration is divided into "Sender" and "Receiver" sections. The "Sender" section is populated with the following values:

- Communication Party: (empty)
- Communication Component: EEH_100
- Interface: BookMaintainingOut
- Namespace: http://sapnwrig.com/book

The "Receiver" section is mostly empty, with a yellow highlight under the "Description" field.

Below these sections are tabs for "Inbound Processing", "Receiver", "Receiver Interfaces", "Outbound Processing", and "Assigned Users". The "Inbound Processing" tab is selected, showing the "Configuration for Interface BookMaintainingOut".

The configuration details for the interface are as follows:

- Communication Channel *: XISOAPSender
- Adapter Type: SOAP
- Adapter Engine: Central Adapter Engine
- Software Component Version of Sender Interface: NWRIG 1.0 of nwrig.com
- Schema Validation: No Validation Validation by Adapter

And about the other configuration, follow the other Integrated Configuration (in the following referred to as "ICO") setting document.

[How to Configure Integrated Configurations in the Advanced Adapter Engine \(SAP NetWeaver PI 7.1\)](#)

4.3 Configurations in Integration Directory (Receiver Scenario)

In case you use SOAP adapter for the communication based on XI protocol in receiver scenario, no additional configuration is required in receiver ABAP system.

In the Integration Directory, you need to create a new receiver communication channel and assign it to ICO.

Receiver communication channel

The screenshot shows the 'Edit Communication Channel' configuration in SAP. The channel is named 'XISOAPReceiver' and is associated with communication component 'DC3_800'. The configuration is set to 'Receiver' mode with the following parameters:

- Adapter Type:** SOAP
- Transport Protocol:** HTTP
- Message Protocol:** XI 3.0
- Adapter Engine:** Central Adapter Engine
- Target URL:** http://ps1yo906.tyo.sap.corp:8000/sap/xi/engine?type=entry
- Authentication Mode:** Use Logon Data for SAP System
- User Name:** I016095
- Logon Language:** EN
- Logon Client:** 100

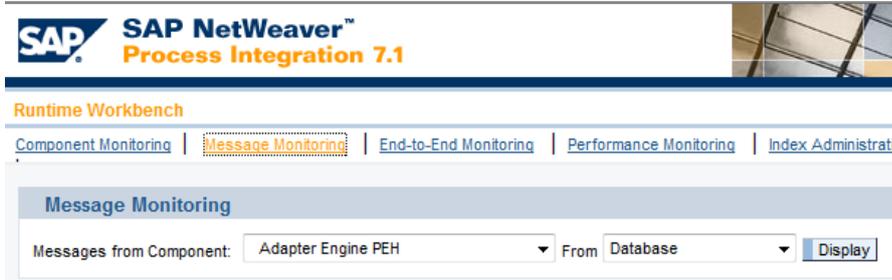
Integrated Configuration (ICO)

The screenshot shows the 'Edit Integrated Configuration' configuration in SAP. The configuration is for the interface 'BookMaintainingOut' and is set to 'Receiver' mode. The configuration is as follows:

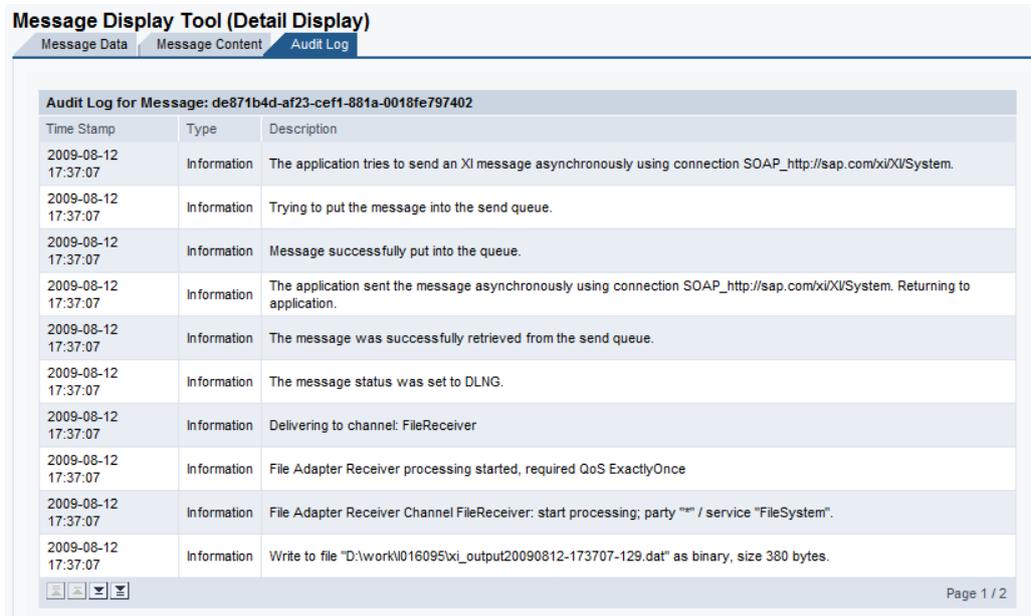
- Sender:**
 - Communication Party: [Empty]
 - Communication Component: FileSystem
 - Interface: BookMaintainingOut
 - Namespace: http://sapnwig.com/book
- Receiver:**
 - Communication Party: [Empty]
 - Communication Component: [Empty]
 - Description: [Empty]
- Configuration for Interface BookMaintainingIn | http://sapnwig.com/book | NWIRIG 1.0 of nwig.com**
 - Communication Channel: XISOAPReceiver
 - Adapter Type: SOAP
 - Adapter Engine: Central Adapter Engine
 - Software Component Version of Receiver Interface: NWIRIG 1.0 of nwig.com
- Header Mapping:**
 - Sender Communication Party: [Empty]
 - Sender Communication Component: [Empty]
 - Receiver Communication Party: [Empty]
 - Receiver Communication Component: [Empty]

4.4 Runtime Behavior

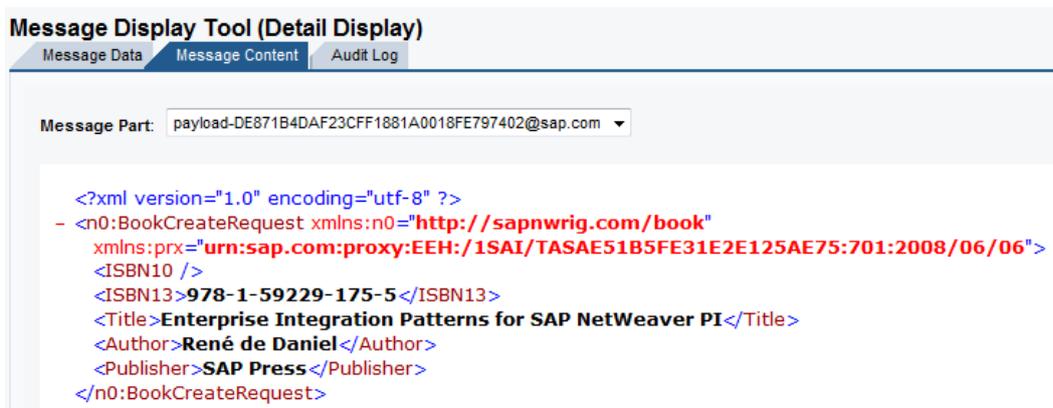
You can see the message log from Runtime Workbench *Message Monitoring*.



You can see the message is only processed in Advanced Adapter Engine.



The sent message looks like below.



5. Limitation

In SAP NetWeaver PI 7.11, the following scenarios are not supported.

- 1) Communications based on XI 3.0 protocols between:
 - a. AAE 7.11 and Java proxies
 - b. AAE 7.11 and Java SE Adapter Engines
 - c. AAE 7.11 and SAP Partner Connectivity Kit versions 7.10 and below,
 - d. AAE 7.11 and Adapter Engine version 7.10 and below
 - e. AAE 7.11 and Integration Server 7. 11 and below
- 2) Communications based on XI2.0 protocol

Additionally the following features are also not supported in PI 7.11.

- 1) Acknowledgements
- 2) Transport & message level security
- 3) Principal propagation
- 4) Bulk support on sender-side
- 5) HTTP destinations support

6. Related SAP Notes

NOTE 1349125 Error in communication between ABAP Proxy Application

NOTE 1329319 SOAP adapter in XI 3.0 mode does not return a system

NOTE 1332856 Corrections for connecting the Advanced Adapter Engine

NOTE 1334174 Interface-specific IS_URL parameter

NOTE 1247043 Release Restrictions for SAP EHP1 for SAP NetWeaver

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