

PI Adapter for EntireX

Installation and Getting Started

Version 4.1.2

April 2016

This document applies to PI Adapter for EntireX Version 4.1.2 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Preface

The Software AG PI Adapter for EntireX allows EntireX applications to communicate and exchange data with multi-vendor processes that are connected through the SAP Exchange Infrastructure.

- Release Notes** What's new in this version. Prerequisites.
- Installation** How to copy the SAP PI integration components of the PI Adapter to the machine where SAP PI is running.
- Product Overview** Introduction to PI Adapter for EntireX.
- Getting Started** Getting started with PI Adapter for EntireX.

1 About this Documentation

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Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
Monospace font	Identifies service names and locations in the format <i>folder.subfolder.service</i> , APIs, Java classes, methods, properties.
<i>Italic</i>	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
Monospace font	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the symbol.
[]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

Online Information and Support

Software AG Documentation Website

You can find documentation on the Software AG Documentation website at <http://documentation.softwareag.com>. The site requires credentials for Software AG's Product Support site Empower. If you do not have Empower credentials, you must use the TECHcommunity website.

Software AG Empower Product Support Website

If you do not yet have an account for Empower, send an email to empower@softwareag.com with your name, company, and company email address and request an account.

Once you have an account, you can open Support Incidents online via the eService section of Empower at <https://empower.softwareag.com/>.

You can find product information on the Software AG Empower Product Support website at <https://empower.softwareag.com>.

To submit feature/enhancement requests, get information about product availability, and download products, go to [Products](#).

To get information about fixes and to read early warnings, technical papers, and knowledge base articles, go to the [Knowledge Center](#).

If you have any questions, you can find a local or toll-free number for your country in our Global Support Contact Directory at https://empower.softwareag.com/public_directory.asp and give us a call.

Software AG TECHcommunity

You can find documentation and other technical information on the Software AG TECHcommunity website at <http://techcommunity.softwareag.com>. You can:

- Access product documentation, if you have TECHcommunity credentials. If you do not, you will need to register and specify "Documentation" as an area of interest.
- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Release Notes

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New in Service Pack 4.1.2

This service pack supports the new RPC-related functionality introduced with EntireX 8.2 and 9.7:

- Client-side mapping file for Natural
- Client-side mapping file for COBOL

New in Service Pack 4.1.1

The PI Adapter for EntireX has been certified by SAP AG for integration with SAP NetWeaver 7.3, using the SAP integration scenario NW-XI-AF 7.1.

This service pack supports the new RPC-related functionality introduced with EntireX 7.3 and 8.0:

- Unicode data types "U" and "UV"
- Up to 99 levels in structured data types
- Reliable RPC

New in Version 4.1

This section describes changes to product functionality since the previous release.

- [Support for SAP NetWeaver Process Integration 7.1](#)
- [Dynamic Socket Pooling for Sender Channels](#)
- [New Internal Parameters](#)

Support for SAP NetWeaver Process Integration 7.1

Version 4.1.0 of the Adapter supports SAP NetWeaver Process Integration 7.1.

Dynamic Socket Pooling for Sender Channels

TCP/IP socket pooling has been automated for the internal RPC servers which are processing the sender channels. The socket pool size is no longer restricted to 32 and it is no longer necessary to specify the pool size as part of the `Port` attribute. If a `poolsize` is specified in the `Port` attribute it will be ignored.

New Internal Parameters

`max.server.replicates`

The maximum number of internal RPC server replicates which are processing the inbound requests of a sender channel is now restricted. The default number is 8. This can be changed to a different value using the internal parameter `max.server.replicates`.

`reconnection.waittime`

When the internal RPC servers that are processing the inbound requests of a sender channel cannot connect to the EntireX Broker due to socket errors, they try to reconnect after a certain wait time. The default wait time is 120 seconds. This can be changed to a different value using the internal parameter `reconnection.waittime`.

`server.receive.waittime`

The receive wait time for sender channels can be set using the internal parameter `server.receive.waittime`. The default wait time is 30 minutes.

See *Advanced Mode* in the Administration documentation.

General Issues

When you install the new version of the PI Adapter, any existing previous version of the adapter on the same computer is overwritten. If you have installed a previous version of the product, it is not necessary to perform any migration of stored information.

Supported Platforms

Detailed information regarding supported operating system versions, General Availability (GA), platform retirement, End of Maintenance (EOM), and End of Sustained Support (EOSS) dates for this product can be found under *Products & Documentation > Product Version Availability* on Software AG's Empower website <https://empower.softwareag.com>.

Prerequisites

The PI Adapter is compatible with SAP NetWeaver PI 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.4, SAP NetWeaver 7.5 and all higher versions of SAP NetWeaver as long as there are no incompatible changes in the Process Integration component of SAP NetWeaver.

The PI Adapter is compatible with all supported versions of EntireX. All RPC-related functionality introduced with EntireX 9.7 is now supported by the PI Adapter with the exception of features 'Mixed-case RPC passwords' and 'Increased precision for IDL types N, NU, P, PU'.

3 Installing Software AG PI Adapter for EntireX

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This chapter describes how to copy the SAP PI integration components of the PI Adapter from the CD to the machine where SAP PI is running.

The HTML page *install.htm* in the CD root directory gives a brief summary of how to carry out the installation procedure. Depending on your machine configuration, this page may be displayed automatically in your default web browser when you mount the CD, otherwise you can view it by loading it manually into your web browser.

Scope

The distribution kit for the PI Adapter for EntireX consists of a CD that contains components that integrate into the SAP PI infrastructure. The CD contains among others the following files that are required for the installation:

CD Path/File Name	Contents
ADAPTER/com.softwareag.xiadapter.ra.entirex.rar	The RAR file containing the adapter.
ADAPTER/xie.xml	The adapter metadata file.

Installation Steps

The installation consists of the following steps:

- [Deploying the Adapter](#)
- [Loading the Adapter Metadata](#)

Deploying the Adapter

The PI Adapter must be deployed into the SAP AS Java System of the SAP NetWeaver installation:

» To deploy the adapter into the SAP AS Java System

- 1 Start the SAP NetWeaver Developer Studio and open the **Deploy** perspective.
- 2 Add a PI instance to **Preferences** (host and instance number 0).
- 3 Select the **Deploy View** tab, click on **External Deployable Archives** and add the adapter RAR file from the CD.
- 4 Click the **Deploy** icon to deploy the adapter.

After the RAR file has been successfully deployed, the adapter is shown in the **Repository View** tab as *com.softwareag.xiadapter.ra.entirex(softwareag.com)*.



Note: If you have already installed a previous version of the adapter, the deployment will update the adapter to the new version.

Loading the Adapter Metadata

The adapter metadata file has to be uploaded into the Enterprise Services Builder of SAP. The adapter metadata is part of a Software Component Version, this can be either a Software Component Version imported from the System Landscape Directory (SLD), or it can be a Local Software Component Version. In the following we assume that such a Software Component Version has been created with the name "SAG-ADAPTER" (the actual name can be different).

» To update existing adapter metadata in the Enterprise Services Builder from a previous installation

- 1 Activate the Enterprise Services Builder tool and open the "SAG-ADAPTER" software components.
- 2 Open the Adapter Metadata object EntireX under the namespace *http://softwareag.com/xiadapter*.
- 3 Switch to Edit Mode.
- 4 Choose Upload XML description from file.
- 5 Choose the metadata XML file *ADAPTER/xie.xml* from the CD.

6 Save the metadata schema and activate it using **Change Lists/Standard change list/Activate**.

➤ **To load the adapter metadata into the Enterprise Services Builder for the first time**

- 1 Open the software component "SAG-ADAPTER" and create a new namespace *http://software-ag.com/xiadapter*.
- 2 Under this namespace, open the context menu under **New > Adapter Objects/Adapter Metadata**.
- 3 Enter the name EntireX. It is absolutely essential that the name be written exactly as it appears here. Any variation of spelling or case will result in an error.
- 4 Choose **Create**.
- 5 Choose **Adapter Metadata > Properties**. Make sure that the entry for **Original Language** is set to "English" to avoid problems with language-specific settings.
- 6 Choose **Adapter Metadata > Import XML Description ...**
- 7 Choose the metadata XML file *ADAPTER/xie.xml* from the CD.
- 8 Save the metadata schema and activate it using **Change Lists/Standard change list/Activate**.

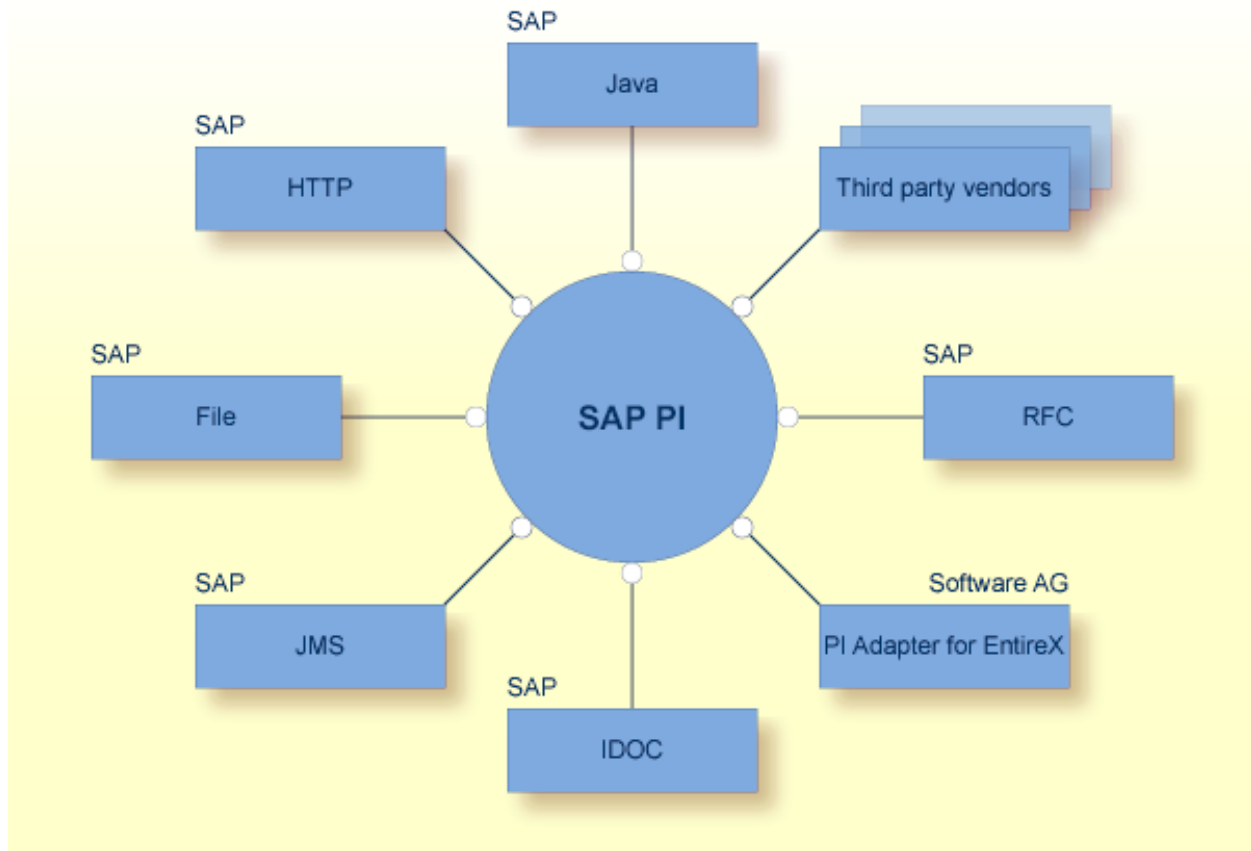
Now the adapter should be visible in the selection list for the configuration of the communication channel.

4 Product Overview

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The Software AG PI Adapter for EntireX allows EntireX applications to communicate and exchange data with multi-vendor processes that are connected through the SAP Exchange Infrastructure.

The SAP PI framework provides a set of standard adapters and provides mechanisms for users to add their own adapters. Inside SAP PI, messages can be exchanged between the Software AG adapters and the adapters provided by SAP or third party adapter vendors.



Overview of SAP Exchange Infrastructure

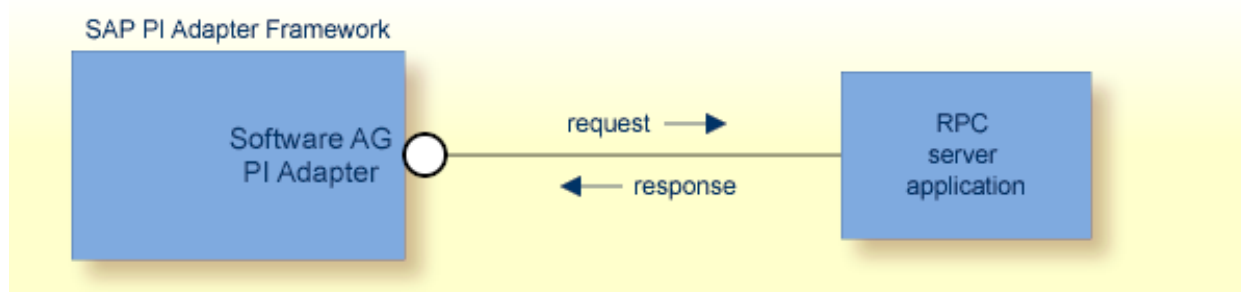
The PI Adapter for EntireX supports both the "Sender" direction and the "Receiver" direction.

The PI Adapter for EntireX requires an existing installation of the EntireX Workbench, EntireX Broker and an RPC client or an RPC server.

For communication with the PI Adapter for EntireX, an XMM (XML Mapping) file (which contains the IDL-to-XML mapping) is required. The IDL-to-XML mapping as well as the XSD files are generated by the EntireX Workbench. Also an IDL file (together with an XMM mapping file) can be generated by exporting the message definitions as XSD schema files from the PI Integration Builder and then importing the XSD files with the EntireX Workbench.

Receiver Direction

The connection between the Software AG adapter and the EntireX application occurs over an EntireX Broker connection to an appropriate RPC server. Messages received by the Software AG adapter are translated into a format understood by the RPC Server, then passed to the RPC Server. For synchronous messages, a response is generated by an RPC module and returned.



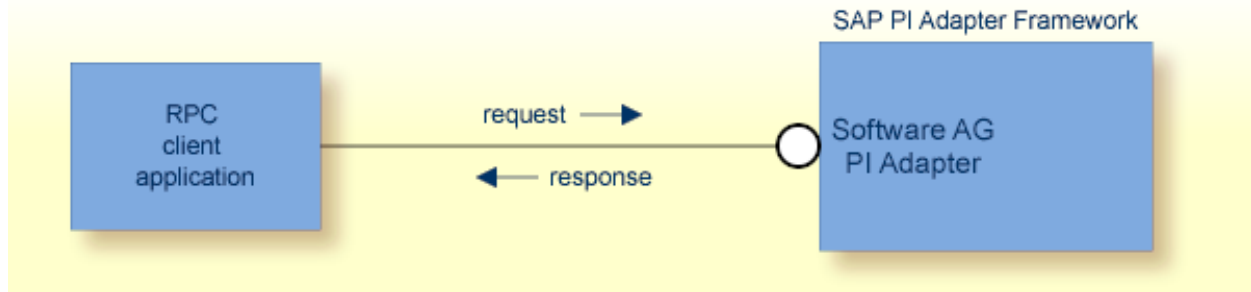
The PI Adapter for EntireX is used in integration scenarios where the Software AG product web-Methods EntireX is already installed and in use.

The PI Adapter is called by SAP PI and receives a PI message. The payload of the PI message is an XML document that the PI Adapter translates into the appropriate format and passes to the EntireX application. The application performs the processing that is requested by the message and sends its results back to the PI Adapter. The PI Adapter converts the results to an XML document, then builds a response PI message that contains the XML document as the payload and sends it to SAP PI.

If you are using "EntireX Reliable RPC" as the message protocol, the RPC request is sent asynchronously to the RPC server application and the PI Adapter does not wait for a response.

Sender Direction

The connection between the RPC client application and the Software AG adapter occurs from an appropriate RPC client over an EntireX Broker connection. Subprogram (RPC) calls received by the Software AG adapters are translated into a PI message, then passed to the PI Integration Server. For synchronous messages, a response is generated by the PI Integration Server scenario and returned to the RPC client application.



The PI Adapter is called by the RPC client application and receives an RPC request. The RPC request is converted to a PI message which is passed to the infrastructure of the PI Integration Server. The corresponding PI sequence is executed and returns its result as a PI message. The PI Adapter converts the PI message to an RPC response message which is sent back to the RPC client application to complete the RPC call.

If you are using "EntireX Reliable RPC" as the message protocol, no response message is sent back to the RPC client.

5 Getting Started

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The Software AG PI Adapter for EntireX consists of the PI Adapter for EntireX itself and EntireX components. See [Installing Software AG PI Adapter for EntireX](#) for details.

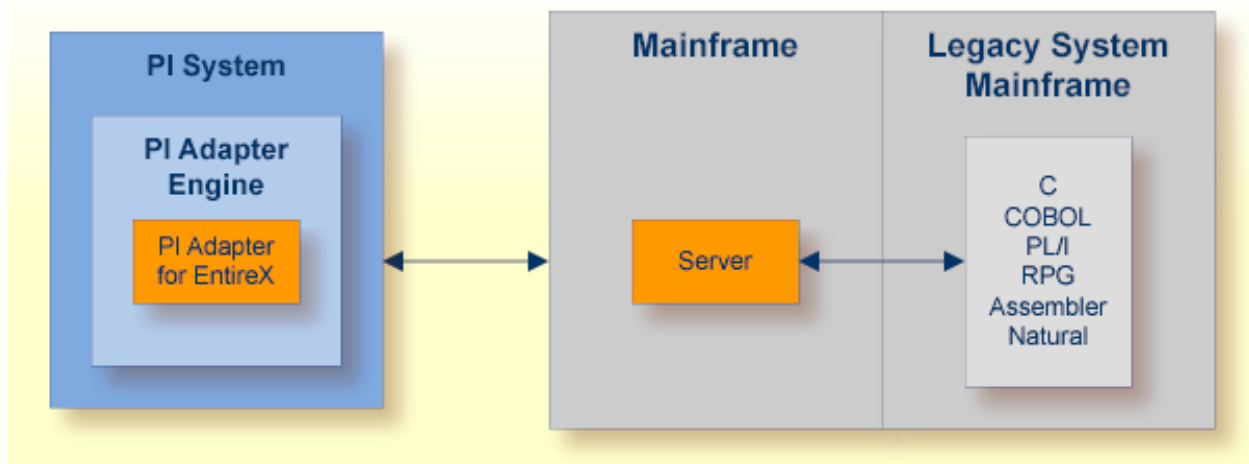
The PI Adapter for EntireX is fully integrated into the SAP Exchange Infrastructure via the PI Adapter Framework. The server components have to be installed on the legacy platform to ensure efficient communication with mainframe applications.

This chapter provides information on getting started with the Software AG PI Adapter for EntireX. It covers the following topics:

Installing the Components of the PI Adapter for EntireX

The following components must be installed on your system:

- The PI Adapter for EntireX is installed on an SAP PI Adapter engine. Installation is fully supported by standard SAP NetWeaver tools. For details on installation, see [Installing Software AG PI Adapter for EntireX](#) and for the prerequisites see [Prerequisites for Installing the SAP PI Integration Components of the PI Adapter](#).
- The server components are installed on the legacy system server, using the easy-to-follow, step-by-step installation instructions. Sample JCL is provided for mainframe to guarantee simple installation.



Using the Components of the PI Adapter for EntireX

- [Creating a Mainframe Integration Scenario](#)
- [Integration Scenario I: Mainframe as Receiver](#)
- [Integration Scenario II: Mainframe as Sender](#)

Before running a PI scenario, the respective Communication Channel needs to be set up with several parameters. See *Configuring on SAP PI* for details on configuring the sender and receiver adapter. XMM files are used to define mapping between PI message format and RPC-based data-format. These are specific to the message type. The XMM file location also has to be specified in the Communication Channel.

The XMM file is generated fully automatically by the EntireX Workbench. Refer to the EntireX Documentation for details.

Creating a Mainframe Integration Scenario

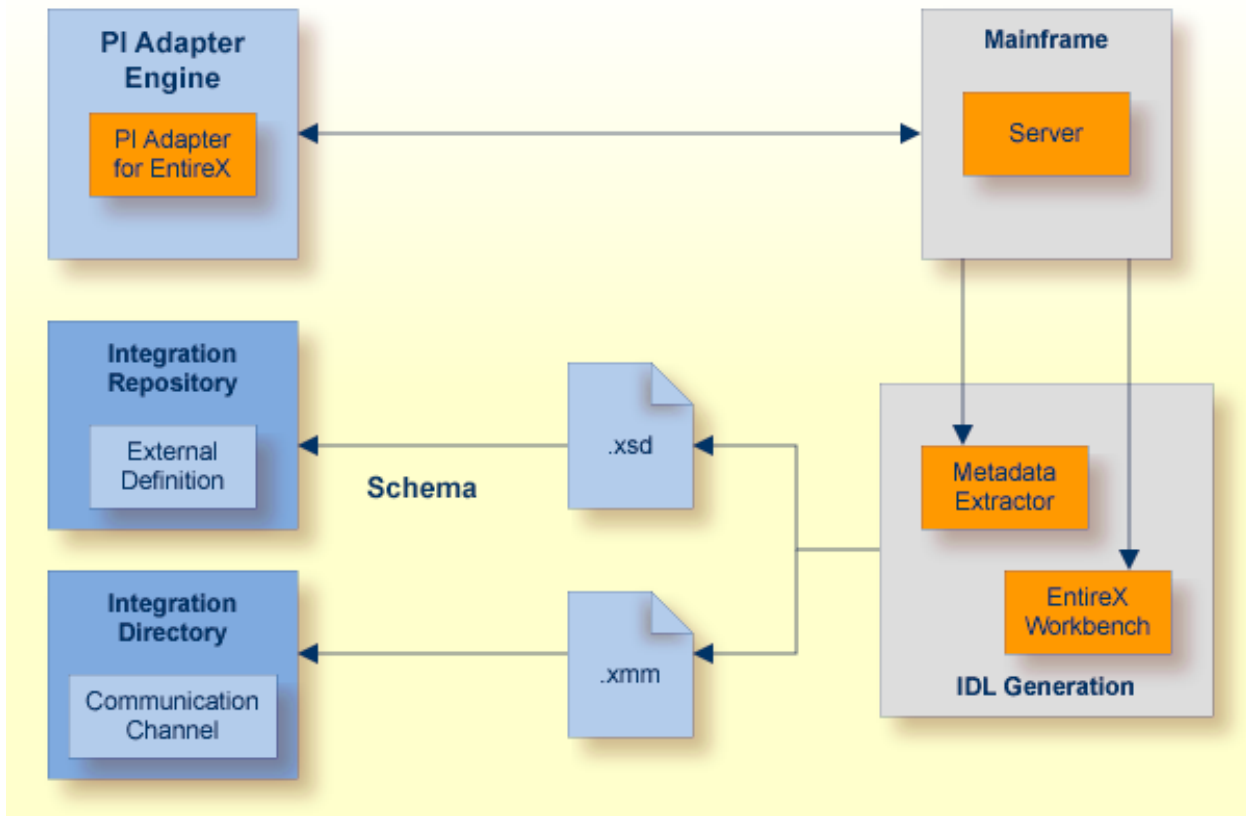
The following sections outline two typical integration scenarios. The first scenario illustrates a receiver PI Adapter with a receiving mainframe application. The second scenario shows the opposite case with respect to the direction of communication: A message is invoked by a mainframe application using a sender PI Adapter.

Integration Scenario I: Mainframe as Receiver

After having installed the components of the PI Adapter for EntireX, you can begin creating legacy integration scenarios. This section will serve as a preliminary guide to your enterprise-class integration with SAP PI systems:

» To configure scenario I

- 1 Generate the definition file (IDL).
- 2 Wrap schema definition (XSD) with SAP PI external definition.
- 3 Create a communication channel using configuration definition (XMM).
- 4 Incorporate both objects (XSD and XMM) into your SAP PI integration scenario.
- 5 Start the server components on the mainframe.
- 6 Start and test your legacy integration scenario.



The major steps will be described in greater detail in the following section.

The RPC messages are defined with an Interface Description Language (IDL). You can automatically generate the IDL files used for your integration scenarios from the application's source. The IDL can be reused for editing and regeneration if desired. Every SAP PI Message needs a message type definition. Likewise, to be able to effectively talk to the server component, the PI Adapters need to be configured with message type information (XMM). Both types of definitions can be generated from the legacy application's interface definitions (IDL).

For the PI, the message is described with an XML Schema Definition (XSD). This XSD has to be wrapped by an SAP PI External Definition object. Once wrapped in an External Definition, the message type is known to SAP PI.

As previously stated, the PI Adapters also need message-type information. To be able to map the XML message payload to the RPC-based format effectively, XMM files are used. These XMM files are referred to in the Communication Channels.

➤ Generate the necessary files for scenario I

- The EntireX Workbench is used to generate the files. After some basic settings have been made and the desired sources have been selected, three types of files are generated:

1. IDL - for the RPC message definition
2. XMM - an XML mapping file needed for the adapter
3. XSD - XML Schema Definition of the message type

The SAP PI External Definition will subsequently be used by the Message Interface objects of your integration scenario. The configured Communication Channel and the Definition allow you to define your scenario in detail.

The server on the mainframe needs to be started to forward incoming requests to your application server program. In this manner, the server program can be offered as a service.

Integration Scenario II: Mainframe as Sender

For the mainframe-as-sender scenario, the connection from a client running on the mainframe, to the SAP PI is provided.

After having built your client application and installed the server components, you can begin creating Legacy Integration scenarios. This section will serve as a preliminary guide to configuring a client program that integrates with SAP PI:

» To configure scenario II

- 1 Generate message type definition files (IDL).
- 2 Create a Communication Channel using configuration definition (XMM).
- 3 Incorporate both objects (XSD and XMM) into your SAP PI integration scenario.
- 4 Generate and install the client.
- 5 Start the server components on the mainframe.
- 6 Start and test your legacy integration scenario.

Most of the steps needed are identical to those in the first scenario. Therefore, only the differences will be covered in detail in the following sections.

As in the first scenario, RPC messages are defined with an Interface Description Language (IDL). Here, the message type will be taken from PI message type descriptions. This means that a different source will be used to generate the IDL. You can generate IDL from XML Schema Definitions (XSD) or, depending on your requirements, you can use a variety of sources such as DTDs, Web Service Descriptions (WSDL) or a sample XML document.

It is common when working with PI to describe best effort PI message interfaces with two XSD files: one for the message and one for the message response. Subsequently, the best way to generate IDL is by using these two XML schema definitions as input.

As described in the first scenario, users generate IDL and the XMM file. The XML mapping file will again be used in the Communication Channel settings. Since PI already knows the message interface through the XSD files, your SAP PI integration scenario can be fully described.

For a client interface, you now have to generate the related client adapter together with the related services. The generated files are transferred to the mainframe using ftp, for instance. The new members should now be compiled and linked.

Add the related RPC service to the attribute file of the EntireX Broker before starting the server components on the mainframe.

Users can write their own client program or adapt an existing one. The client programs written in mainframe languages can actually be docked. Once the client program has been written and compiled, it is ready to run, and the new integration scenario can be tested.