SAP XI - Interoperability with EAI Products

SAP AG
Introduction

Interoperability Options

Summary
XI in a Nutshell

The SAP Exchange Infrastructure is an integration platform
- For SAP and non-SAP applications
- For A2A and B2B communication
- For Business Process Management
- Based on industry and Web services standards
Key Principles of SAP Exchange Infrastructure

Shared integration knowledge
- Pre-packed integration content delivered with SAP solutions
- For a common understanding of how collaborative processes work

Openness
- Integration of SAP and non-SAP applications via adapters
- Strict usage of standards

Loose coupling via XML messaging
- Asynchronous communication as far as possible
- Synchronous communication where required

Flexibility
- Adoption of scenarios by configuration – no coding required
- Allows easy and non-disruptive addition of new services and processes

Lower TCO
- Centralized design, configuration, execution and monitoring
- XI comes as integral part of SAP NetWeaver
More and more SAP applications are making use of SAP Exchange Infrastructure and introducing XI to a customer landscape. The following applications now use XI:

- **xApps** (such as xRPM, Resource and Program Management)
- **MDM** (SAP Master Data Management)
- **SRM** (SAP Supplier Relationship Management)
- **SCM** (SAP Supply Chain Management)
- **BI** (SAP Business Intelligence, for Global Spending Reporting)
- **R/3 Enterprise** (for Industry Standard Support)
- **CRM** (SAP Customer Relationship Management, for Extended Order Management)
- **SBO** (SAP Business One)
There are various reasons for installing SAP Exchange Infrastructure is installed at a customer’s site:

- The customer has chosen XI as his strategic integration solution.
- An SAP solution is introduced to a system landscape and depends on functionality which is provided by XI.

In certain cases the customer already has an EAI product (for example, from BEA, IBM, Microsoft, SeeBeyond, Tibco, Vitria etc.) in place when XI is installed. This can happen when

- Different country organizations or divisions within a group use different integration solutions.
- A company has used another integration solution until now.
- A group buys a new company which relies on different software products.
In all the above-mentioned cases it is necessary for different integration solutions to interact. So the question is: How does XI interoperate with EAI products?
The SAP Exchange Infrastructure strictly uses open standards for its Shared Collaboration Knowledge.

SAP XI allows you to export and import metadata, which are stored within the Integration Repository.

This applies with minor restrictions to:
- Interface descriptions (WSDL)
- Business Process descriptions (BPEL)

So as a first option an interoperability of SAP XI with EAI products can be supported through the exchange of metadata.
Three Ways to Interoperate on a Messaging Level

There are three XI adapters that are ideally suited to interoperating out-of-the-box with the runtime environment of other integration solutions.

There are therefore three ways to interoperate:

- Via JMS (Java Messaging Service)
- Via SOAP (Simple Object Access Protocol)
- Via HTTP (Hypertext Transfer Protocol) or HTTPS (Hypertext Transfer Protocol over Secure Socket Layer)
Option 2: Interoperability Via JMS Adapter

The JMS Adapter connects JMS enabled messaging systems to the Integration Server. The advantages are:

- **Secure asynchronous delivery**
- **Connection to all JMS enabled messaging systems (such as MQSeries or Sonic MQ)**
XI Java Messaging Service (JMS) Adapter

Supported Features

- XI messaging (message parsing and serialization, guaranteed delivery)
- Technical transformation
- Services (centralized configuration, monitoring and error handling)
- The JMS Adapter allows bi-directional messaging (access to and from connected systems)

Supported Quality of Service in Messaging

- Guaranteed exactly once delivery (EO)
- Guaranteed exactly once in order delivery (EOIO)
Option 3: Interoperability Via SOAP

The SOAP adapter allows connectivity via SOAP protocol.

Advantages:

- Secure synchronous delivery
- Secure asynchronous delivery (requires guaranteed messaging capability)

![Diagram of SOAP adapter connectivity]
XI SOAP Adapter

Supported Features

- The SOAP adapter enables the exchange of SOAP messages between the Integration Server and remote clients or providers of Web Services.

- The SOAP inbound adapter runs on the Integration Server. You can configure and maintain the SOAP outbound adapter on the Integration Server or on another host.

- The SOAP adapter allows bi-directional messaging (access to and from connected systems)

Supported Quality of Service in Messaging

- Best effort delivery (BE)

- Guaranteed exactly once delivery (EO) (if appropriate parameters are transferred in the URL or in the message header)
Option 4: Interoperability Via HTTP(S)

The HTTP Adapter allows connectivity via HTTP(S) protocol.

Advantages:

- Secure synchronous delivery
- Secure asynchronous delivery (requires guaranteed messaging capability)

![Diagram showing the connectivity between SAP XI Integration Server and Runtime Server of other vendor through HTTP(S) Adapter with SOAP attachments and header extensions]
XI "Plain HTTP" Adapter

Supported Features

- The plain HTTP adapter enables application systems to communicate with the Integration Server and to exchange business data via HTTP without a SOAP envelope around the HTTP payload (plain HTTP).
- The external systems are connected using the Internet Communication Framework of the SAP Web Application Server.
- The plain HTTP adapter allows bi-directional messaging (access to and from connected systems).
- You can send the payload in HTML form using HTTP post. The payload is enhanced correspondingly.

Supported Quality of Service in Messaging

- Best effort delivery (BE)
- Guaranteed exactly once delivery (EO) (if appropriate parameters are transferred in the URL or in the message header)
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Summary
Several interoperability options

The interoperability of the SAP Exchange Infrastructure and EAI products can be supported on the one hand through the exchange of metadata using open standards.

On the other hand XI provides adapters that enable out-of-the-box interoperability between SAP XI and the runtime environment of other EAI products.

- A secure asynchronous and synchronous exchange of messages is guaranteed.
- Various features (such as bi-directional messaging) and different Qualities of Services are supported.

All these interoperability options apply to EAI products such as BEA WebLogic Integration, IBM Websphere Business Integrator, Microsoft Biztalk, SeeBeyond E*gate Integrator, Tibco Active Enterprise, Vitria BusinessWare etc.