How To Configure CIDX Standard Scenarios in SAP NetWeaver Process Integration

Applicable Releases:
- SAP NetWeaver Process Integration 7.1x and higher
- SAP NetWeaver Process Integration 7.00
- SAP NetWeaver Exchange Infrastructure 3.00

Topic Area:
SOA Middleware

Capability:
Service Bus

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<table>
<thead>
<tr>
<th>Document Version</th>
<th>Description</th>
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<tr>
<td>1.00</td>
<td>First official release of this guide</td>
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### Typographic Conventions

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<tr>
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<td><em>Example text</em></td>
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<td><em>Example text</em></td>
<td>File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.</td>
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<td><code>&lt;Example text&gt;</code></td>
<td>Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.</td>
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### Icons

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<td>Note or Important</td>
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1. **Background Information**

This guide explains how to configure Chemical industry standard CIDX scenarios using SAP NetWeaver PI.
2. Business Scenario

2.1 Introduction

SAP NetWeaver Process Integration is based on an open architecture that uses open standards and offers those services that are essential in a heterogeneous and complex system landscape. SAP NetWeaver leverages the flexibility of web standards such as Java and WSDL, as well as the power and scalability of ABAP. SAP NetWeaver PI supports both A2A and B2B Scenarios. It includes content provided by SAP, reducing the amount of work the customer must do to implement an integration scenario. It includes shared collaboration knowledge for transparency in integration scenarios.

SAP NetWeaver capabilities that can be used for B2B integration include:

- Supporting Industry Standards to Improve Processes
- Predefined Integration Content
- Adapter Partner Ecosystem
- Central Interface Repository
- Trading Partner Collaboration
- Secure Messaging and Routing

In addition to integration technology, SAP delivers "XI-Content Industry Standards interface" to facilitate the implementation process and thus reduce the TCO for the customers. This content includes data structures, interfaces, mapping programs, integration processes, and integration scenarios, and is synchronized with the related business applications and versions. SAP delivers pre-packaged integration content based on the SAP SOA design methodology. The content delivered by SAP can be divided into the following categories:

- **SAP Application Content**: The content is mainly used in A2A scenarios and is used to integrate with SAP applications in the SAP Business suite. This business content includes global data types, service interfaces, and mapping definitions.
  
  **More Information:**
  - SAP Community Network: [Process Integration Scenarios for SAP Business Suite](https://community.sap.com)
  - SAP Community Network: [Process Integration Scenarios for Industry Solutions](https://community.sap.com)
  - SAP Community Network: [Process Integration Scenarios for SAP NetWeaver](https://community.sap.com)
  - SAP Community Network: [Process Integration Scenarios for xApps](https://community.sap.com)

- **SAP Business Packages**: SAP NetWeaver provides industry-specific business packages to support the integration of industry standards, such as CIDX for the chemical industry. These business packages include the integration content defined by the respective industry standards, and the technical adapters (for example, the CIDX adapter) required for the transport, routing, and packaging of industry-specific messages.
  
  **More Information:**
  - SAP Community Network: [SAP Business Package for CIDX](https://community.sap.com)
  - SAP Community Network: [SAP Business Package for RosettaNet](https://community.sap.com)
  - SAP Community Network: [SAP Business Package for STAR](https://community.sap.com)

- **Content delivered by Third-party Vendors**: Many SAP Partners are providing integration content that extends the content offering by SAP for both A2A and B2B Scenarios.
2.2 CIDX Standard Basics

CIDX (Chemical Industry Data Exchange) is a global non-profit trade association whose mission is to improve the speed and cost of securely conducting business electronically between chemical companies and their trading partners. It is a membership-based organization serving the chemical industry that mainly focuses on the development of eBusiness standards called Chem eStandards. CIDX standard is supported by all major chemical companies.

Chem eStandards are developed specifically for the buying, selling and delivery of chemical products. These standards are based on the XML. Chemical industry leaders from around the world including chemical producers, suppliers, marketplaces and industry consultants participate in CIDX to help identify and develop emerging eCommerce technologies, and to support the Chem eStandards for carrying out highly secure transactions with suppliers and customers over the Internet.

Chem eStandards business transactions comprise the following information:

- Specification of partner business roles such as buyer and seller
- Activities performed between the partners
- Type, content, and sequence of the business process documents that are exchanged between partners during activities.
- The time, security settings, and authentication of the interactions are defined

The structure and content of the documents exchanged are defined by XML document type definitions (DTDs). Business partners involved in a Chem eStandards business transaction exchange documents that correspond to these DTDs. They use transport protocols HTTP and SMTP.

Each transaction implemented by CIDX is assigned with an alphanumeric code, for example, E41 for OrderCreate and E81 for Invoice. Below given is the list of transaction codes from Chem eStandards Version 4.0, which were used in the Order to Invoice Scenario:

<table>
<thead>
<tr>
<th>Section</th>
<th>Transaction Name</th>
<th>Transaction Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Order</td>
<td>OrderCreate</td>
<td>E41</td>
</tr>
<tr>
<td>Purchase Order</td>
<td>OrderResponse</td>
<td>E42</td>
</tr>
<tr>
<td>Purchase Order</td>
<td>OrderChange</td>
<td>E45</td>
</tr>
<tr>
<td>Logistics</td>
<td>ShipNotice</td>
<td>E72</td>
</tr>
<tr>
<td>Logistics</td>
<td>ReceiptNotice</td>
<td>E75</td>
</tr>
<tr>
<td>Logistics</td>
<td>Invoice</td>
<td>E81</td>
</tr>
</tbody>
</table>

Source: www.cidx.org

The Envelope and Security messaging technology used by Chem eStandards is a variation of the RosettaNet Implementation Framework (RNIF) version 1.1. However, this specification is not the same as RNIF. The specification is slightly different implementation of RNIF and has been broadly adopted by chemical companies.
2.3 CIDX Message Types

CIDX messages are exchanged between partners involved in the Chem eStandards based data exchange. These messages are divided into two types:

- **CIDX Action message**: This message contains business content such as OrderCreate.
- **CIDX Signal message**: These messages are acknowledgements sent in response to CIDX action messages. These messages are exchanged asynchronously and are further divided into two types:
  - Positive Signal message
  - Negative Signal message:
    - Receipt Acknowledgement exception
    - General exception

More Information:
- SAP Help Portal: [Chem eStandard Message Types](#)

2.4 CIDX Message Structure

CIDX uses the message structure as defined in RNIF version 1.1. The message structure involves three xml documents namely, Preamble Header, Service Header and Service Content. Service content contains the CIDX action or CIDX signal messages.

![RNIF message structure](#)

**Figure 1: RNIF message structure**

More Information:
- SAP Help Portal: [CIDX Message Structure](#)
2.5 Scenario Description

To better understand the whole process flow it is necessary to take a simple business scenario where a Customer (Buyer) sends a CIDX E41 Order create message to the Supplier (Seller). This scenario implements a Single-action asynchronous Order Create scenario.

The Order create process is initiated when a Buyer commits to buy a product from Seller. The Buyer sends an order create E41 message to the seller. Upon receipt of the message, the Seller sends a receipt acknowledgement (Chem eStandard signal message) to the Buyer in response to the E41 action message confirming the validity of the message in regards to content and syntax. In this Business Scenario 3rd Party CIDX complaint system is represented as the Buyer and the SAP ECC system is represented as the Seller.

The CIDX adapter in the SAP NetWeaver PI is used for handling the CIDX message exchange between Integration Server and the CIDX-Complaint system in the cross company process. CIDX adapter processes the incoming message and forwards the message to integration Server for further processing. Integration Server converts the Order Create message to ORDERS.ORDERS05 IDoc and forwards it to the backend ECC system via IDoc adapter. The IDoc interface in the backend ECC system posts the IDoc in the database and triggers inbound processing. If no errors occur, the system posts the standard order automatically.

The following diagram describes the important application components and their communication with the PI system for a typical three system landscape.

![Figure 1: Overview of the process](image-url)
3. Prerequisites

3.1 Prerequisites

- Good Knowledge of B2B concepts and Chem eStandards V4.0 or higher
- Good Knowledge of SAP NetWeaver PI configuration
- Basic understanding of CIDX Adapter and RNIF Specifications
- Good knowledge of ALE/IDoc configuration
- Good knowledge of SAP R/3 or ECC systems

3.2 Supported Releases

- SAP NetWeaver Process Integration 7.1x or higher
- SAP NetWeaver Process Integration 7.00
- SAP NetWeaver Exchange Infrastructure 3.00
- SAP R/3 ERP 2004
- SAP R/3 Enterprise 46C or higher
- SAP R/3 Enterprise 47X110 or higher

3.3 Relevant SAP Notes

870270  FAQ note for initiating Support related to ISpeak Adapters
825460  URL for B2B Adapters RNIF2.0 & CIDX
1330993  Support for CIDX → JMS and CIDX → JDBC Scenarios
1327344  Out of Memory errors and Memory Leaks in ISpeak Adapters
834728  CIDX Adapter – Inbound Acknowledgement Failure
817894  Fixes for CIDX Adapter XI3.0 – SP10
788690  RNIF 2.0/CIDX Adapter Authentication problem with HTTPS
821268  XI 3.0/PI 7.0: Overview of available FAQ Notes
816022  FAQ: XI/PI 3.0/7.0/7.1 J2EE Adapter Engine/Messaging System
724719  How to enable HTTP tracing in SAP J2EE Engine 6.40/7.0
4. SAP Business Package for CIDX

4.1 CIDX Business Package

SAP’s continuing support for CIDX standard is demonstrated by the release of SAP CIDX Business Package for SAP NetWeaver. This Business package allows rapid implementation of CIDX standard transactions into back-end SAP applications for business process automation and contains the process integration content for the Order to Invoice business scenario.

This business scenario covers the Order to Invoice process involving an IDoc adapter and provides customers with an end-to-end solution for collaborative commerce based on chemical industry standards (CIDX).

![CIDX Business Scenario Process Diagram](image)

**Figure 3: Order to Invoice Business Scenario Process**

4.2 Process Flow

The CIDX business scenario in the CIDX Business Package consists of two major parts:

**SAP R/3 Enterprise as Buyer**

The first part reflects the case where SAP R/3 Enterprise is in the role of a buyer and a third-party application is in the role of a seller.

- In the SAP R/3 Enterprise Order Create process is initiated when a Buyer commits to buy a product from a Seller. Purchase Order is created that triggers the Purchase Order IDoc and sent to the SAP NetWeaver PI.
- In the SAP NetWeaver PI, Purchase Order IDoc is mapped to CIDX order create message and sent to the 3rd party application.
3rd Party Application receives the Order Create message.

3rd Party Application initiates the Order Response process to confirm that the purchase order from the Buyer was received and sends an Order Response message to Buyer.

The Order Response message was converted to Order Response IDoc in the SAP NetWeaver PI and sends it to the back end SAP R/3 Enterprise.

To modify a PO, changes to the PO are made in the SAP R/3 Enterprise that in turn triggers Change PO IDoc and sent to the SAP NetWeaver PI.

In the SAP NetWeaver PI, Change PO IDoc is mapped to CIDX Order Change message and sent to the 3rd Party Application.

3rd Party Application receives the Order change message and commits the changes to the Order.

3rd Party Application initiates the Ship Notice message once the transportation of the requested products is done to the Buyer. Ship Notice message is created and sent to the SAP NetWeaver PI.

SAP NetWeaver PI receives the Ship Notice message and converts it into Advance Shipment Notification IDOC and sends to SAP R/3 Enterprise.

Advance Shipment Notification IDoc is received and saved in the SAP R/3 Enterprise system.

Once the Shipment is made, the 3rd Party Application initiates the Invoice process and sends an Invoice message to SAP NetWeaver PI.

SAP NetWeaver PI converts the Invoice message to Invoice IDoc and sends it to the backend R/3 system.

Invoice IDoc is received in the SAP R/3 Enterprise system and invoice document is created.

Figure 4: SAP R/3 Enterprise as a Buyer – Process Flow
SAP R/3 Enterprise as Seller

This part reflects the case where SAP R/3 Enterprise is in the role of a seller and a third-party application is in the role of a buyer.

Figure 5: SAP R/3 Enterprise as a Seller – Process Flow

- In the SAP 3rd Party Application, Order Create process is initiated when a Buyer commits to buy a product from a Seller. Order Create message is created and sent to the SAP NetWeaver PI.
- In the SAP NetWeaver PI, Order create message is converted to orders IDoc and sent to the back end SAP R/3 Enterprise Application.
- SAP R/3 Enterprise Application receives the IDoc and creates a Sales Order document.
- SAP R/3 Enterprise Application initiates the Order Response process to confirm that the purchase order from the Buyer was received, and sends an Order Response IDoc to SAP NetWeaver PI.
- The Order Response IDoc was converted to Order Response message in the SAP NetWeaver PI and sends it to the 3rd Party Application system.
- To modify the Order, changes to the Order are made in the 3rd Party Application and sends an Order change message to the SAP NetWeaver PI.
- In the SAP NetWeaver PI, Order Change message is mapped to Order Change IDoc and sent it to the SAP R/3 Enterprise Application.
- SAP R/3 Enterprise Application receives the Order change IDoc and commits the changes to the Order.
- SAP R/3 Enterprise Application initiates the Ship Notice message once the transportation of the requested products is done to the Buyer. Ship Notice IDoc is created and sent to the SAP NetWeaver PI.
SAP NetWeaver PI receives the Ship Notice IDoc and converts it into Ship Notice message and sends it to the 3rd party Application.

Ship Notice message is received and saved in the 3rd Party Application system.

Once the Shipment is made, the SAP R/3 Enterprise Application initiates the Invoice process and sends an Invoice IDoc to SAP NetWeaver PI.

SAP NetWeaver PI converts the Invoice IDoc to Invoice message and sends it to the 3rd Party Application System.

Invoice message is received in the 3rd Party Application system and invoice document is created.

The process integration content for the Order to Invoice business scenario is split into the following process integration scenarios:

• **Order create buyer**
  A buyer (an SAP R/3 Enterprise application component) can use this process integration scenario to send a Purchase Order (in IDoc format) to a seller (a third-party application). The seller receives an OrderCreate message.

• **Order create seller**
  A buyer (a third-party application) can use this process integration scenario to create an OrderCreate message and to send it to a seller (an SAP R/3 Enterprise application component). The seller receives the OrderCreate message in the form of an IDoc.

• **Order response buyer**
  A buyer (an SAP R/3 Enterprise application component) can use this process integration scenario to initiate the Order Response process. The seller (a third-party application) responds to a purchase order or purchase order change from the buyer. The seller confirms that the purchase order from the buyer was received.

• **Order response seller**
  A buyer (a third-party application) can use this process integration scenario to initiate the Order Response process. The seller (an SAP R/3 Enterprise application) responds to a purchase order or purchase order change from the buyer or changes the corresponding sales order by sending an order response (in IDoc format) to the buyer. The buyer receives an Order Response message.

• **Order change buyer**
  A buyer (an SAP R/3 Enterprise application) can use this process integration scenario to send changes to a purchase order (in IDoc format) to a seller (a third party application). The seller receives an Order Change message.

• **Order change seller**
  A buyer (a third-party application) can use this process integration scenario to change the purchase order. The seller (an SAP R/3 Enterprise application) receives the Order Change message in the form of an IDoc.

• **Ship notice buyer**
  A seller (a third-party application) can use this process integration scenario to send an advanced shipping notification (ASN) to the buyer (an SAP R/3 Enterprise application component). The buyer receives the ASN in the form of an IDoc.

• **Ship notice seller**
  A seller (an SAP R/3 Enterprise application component) can use this process integration scenario to send an advanced shipping notification (ASN) (in IDoc format) to the buyer (a third-party application). The buyer receives a Ship Notice message.
• **Invoice buyer**  
A seller (a third-party application) can use this process integration scenario to send an invoice to a buyer (an SAP R/3 Enterprise application component). The buyer receives the Invoice in the form of an IDoc.

• **Invoice seller**  
A seller (an SAP R/3 Enterprise application component) can use this process integration scenario to send an invoice (in IDoc format) to a buyer (a third-party application). The buyer receives an Invoice message.

### 4.3 Downloading the Business Package

SAP Business package for CIDX can be downloaded from the SAP Service Market Place website at the following link. There will be some limitations in the licensing. Contact your SAP Representative for further details.

- [http://service.sap.com/patches](http://service.sap.com/patches) ➔ Support Packages and Patches ➔ Entry by Application ➔ SAP Content ➔ ESR Content (XI Content) ➔ XI Content CIDX.

- [http://service.sap.com/patches](http://service.sap.com/patches) ➔ Support Packages and Patches ➔ Entry by Application ➔ SAP Content ➔ ESR Content (XI Content) ➔ XI Content CIDX ERP

SAP Business Package consists of two Software components that contain process integration content for CIDX. It comes in the .tpz format and can be imported into the Enterprise Service Repository of SAP NetWeaver PI.

- **CIDX**: The CIDX Software Component version contains the standard content. Process Integration Content in this software component represents interfaces of Chem eStandards as they are defined in the documentation of the standard. This includes different versions of CIDX standard interfaces in the form of External Definitions, Service Interfaces, Communication Channel Templates, and Process Integration Scenarios. The communication channel templates are used during the configuration of the CIDX adapter in the Integration Directory.

- **CIDX ERP**: The CIDX ERP Software Component version contains integration content representing the mapping from SAP standard interfaces to Industry standard interfaces. This includes process integration scenarios, operation mappings, message mappings between CIDX standard interfaces to SAP R/3 IDocs and vice versa, and the mapping templates.

### 4.4 CIDX Adapter in SAP NetWeaver PI

The CIDX Adapter in SAP NetWeaver PI is based on the Chem eStandards Envelope and Security specifications based on RNIF 1.1 protocol. This adapter is used for exchanging messages between SAP NetWeaver PI and a CIDX-complaint system in a cross company process. The CIDX Adapter supports the single-action asynchronous business transaction pattern.

**More Information:**

- SAP Help Portal: [CIDX Adapter](http://service.sap.com/patches)
- SAP Help Portal: [Naming conventions for Communication Component](http://service.sap.com/patches)
5. Configuration Steps in Detail

This section covers the complete configuration steps that are required in Backend ECC and PI Systems for message processing.

5.1 Configuration in the Backend ECC System

Your backend ECC system need to be configured in order to receive the Order data via IDoc from the SAP NetWeaver PI system. The necessary configuration needs to be done in the SAP Materials Management (MM), Sales and Distribution (SD), and Financial and Controlling (FI/CO) modules. This procedure is normally performed by the MM and SD configuration areas according to their specific requirements. This guide assumes that this configuration has already been done in your ECC system. In this section we only discuss how to configure the inbound processing to receive the Order data via an IDoc.

5.1.1 Prerequisites

1. The Segment E1EDKA1 with partner function AG (sold-to party) must exist in the incoming ORDERS05 IDoc. The system can determine the Customer from this entry.
2. The material number maintained in your system must be specified in the IDoc in a segment of type E1EDP19 with the qualifier 002.

5.1.2 Partner Profile

1. You need to maintain the partner profile using transaction WE20. Maintain the inbound parameters for the partner type KU (Customer).

2. Maintain the following inbound parameters for the incoming IDoc messages:
   - Partner Type: KU
   - Partner Role: AG (Sold-to Party)
   - Message Type: ORDERS
   - Process Code: ORDE
5.1.3 Inbound Processing

The IDoc interface posts the IDoc in the database and triggers inbound processing. If no errors occur, the system posts or updates the standard order automatically.

5.2 Configuration in the PI System

The section covers configuration steps required in the PI system to configure the CIDX Standard Scenario. This includes verifying the Software components and Business systems in the System Landscape Directory (SLD), installing and verifying the CIDX Business package in the ES Repository, and defining the configuration and routing objects in the Integration Directory of SAP NetWeaver PI.

1. Logon to the SAP NetWeaver PI via SAPGUI with your username and password.
2. From the main menu select “Start Integration Builder” (Transaction SXMB_IFR). This will launch the Integration Builder homepage in a separate window as shown below.
5.2.1 System Landscape Directory

This section covers the creation of Software Component for housing the design objects, and creation of Technical and Business Systems necessary for communicating with the backend ECC system.

5.2.1.1 Verify CIDX Software Components

In this section, we will check the existence of Software Components that are necessary for the CIDX Scenario.

1. In the Integration Builder Home Page, select “System Landscape Directory”. This will bring up the SLD in a separate window.

2. Select “Software Components” from the “Software Catalog”. In the next screen, enter “CIDX*” in the filter. This brings up all the software components that start with the prefix CIDX as shown in the screen below. Verify your software components “CIDX” and “CIDX ERP” exist.

![View Products and Software Components](image)

**Note**

If you can’t find these two software components in the SLD, update your component repository (CR content) in the SLD. For more information on updating the CR content, see SAP Note 669669.

5.2.1.2 Create Technical and Business Systems

This guide assumes that the technical and business systems have already been defined for the backend ECC systems.

**Note**

For detailed steps on how to create the technical and business systems in the SLD of SAP NetWeaver PI, refer to the Appendix A section.
5.2.2 Enterprise Services Repository

This section covers the steps required in the ES Repository (Integration Repository in the previous versions of PI) for the CIDX Scenario.

5.2.2.1 Installing the CIDX Business Package

1. To install the Business Package for CIDX, download the files from the SAP Service market place as described in the section 4.3. The Business Package comes in two archive files in the following format:
   - XI7_1_CIDX_1.0.tpz
   - XI7_1_CIDX_ERP_1.0.tpz

2. Upload these archive files into the Import directory of the SAP NetWeaver PI host machine, found at the following location:
   \(<PI\_Host>\<sapmnt\<PI\ System\ ID>\SYS\global\xi\repository_server\import

3. From the Integration Builder home page, select “Enterprise Services Builder”. This will launch the java web start application. Login with your user ID and password.

4. In the ES Repository, choose **Tools ➔ Import Design Objects** and select import source as “Server”. Select CIDX 1.0, and CIDX ERP 1.0 from the list of software component versions and click OK to import these software component versions.

5.2.2.2 Activities in the ES Repository

1. Verify the Design Objects in the CIDX 1.0 software component. CIDX 1.0 SWCV contains the standard content such as External definitions for CIDX interfaces, service interfaces, and communication channel templates as shown in the screen below:
### Service Interfaces

- AcceptanceNotification
- CarrierWeights
- CertificateOfAnalysis
- CostSupportCreditRequest!
- CostSupportCreditResponse
- CostSupportRequest
- CostSupportRequestChange
- CostSupportResponse
- CustomerSpecificCatalogUpdate
- DeliveryReceipt
- DeliveryReceiptResponse
- DemandForecast
- DemandForecastResponse
- DemandPlan
- DemandPlanResponse
- FreightBill
- InventoryActualUsage
- InventoryActualUsageResponse
- Invoice
- InvoiceResponse
- LoadTenderMotor
- LoadTenderOcean
- LoadTenderRail
- LoadTenderResponse
- OrderChange
- OrderCancel
- OrderResponse

### External Definitions

- AcceptanceNotification
- CarrierWeights
- CertificateOfAnalysis
- CIDXActionType
- CIDXActionCodeSymbol
- CIDXBatchNumberCreator
- CIDXCharacteristicCodeType
- CIDXCommunicationMethodType
- CIDXComparator
- CIDXControlPoint
- CIDXDateQualifier
- CIDXDocumentDeliveryCode
- CIDXDutyDrawBack
- CIDXEmergencyResponseContactType
- CIDXEUSubstanceNumberDomain
- CIDXEventDateTimeType
- CIDXHandlingDateTimePerformanceIndicator
- CIDXHazardousCodeDomain
- CIDXHazardousPasswordNotificationAgency
- CIDXInstructionType
- CIDXInvoiceQualifier
- CIDXLoadingIdentificationAgency
- CIDXLocationCode
2. Standard channel templates for the scenarios are delivered as part of the standard content in the CIDX 1.0 SWC. These channel templates are used during the configuration of CIDX adapter in the Integration Directory. Channel templates refer to the business activity performance controls of the Chem eStandard messages.
3. Now let us verify the Design Objects in the CIDX ERP 1.0 software component. CIDX ERP 1.0 SWCV contains the integration content such as Process Integrations scenarios, Operation mappings, message mappings, and mapping templates as shown in the screen below:
4. Below screen shows the predefined message mapping from CIDX Order Create message to IDoc ORDERS.ORDERS05:

5. In the left frame, Click on the menu **Object → New**. In the next dialog-window, select “Work Areas” and “Software Component Versions” and choose the radio button “Import from SLD”.

6. Import the SAP APPL 46C software component version if it is not already imported.

   **Note**

   The version of the SAP APPL software component depends on the SAP backend system to which it is connected. If you are using a SAP ECC 6.04, then you would choose the SAP APPL 6.04, and so on.

7. SAP APPL software component will house all the SAP IDoc metadata necessary for the CIDX Business Package. Import the following IDocs into this SWCV if they are not already imported:
   - ORDERS.ORDERS05
   - ORDCHG.ORDERS05
   - ORDRSP.ORDERS05
   - INVOIC.INVOIC02
   - DESADV.DELVRY03

8. Since we will be using preconfigured out-of-the-box content for our business scenario, no further configuration in the ES Repository is needed.
5.2.2.3 Extending the Business Package

The best practice is to create your own SWCV with dependency to CIDX ERP Software component so that all the original mappings and any subsequent changes or modifications from CIDX ERP are shown in the new SWCV. If the CIDX content is updated, and if there are conflicts, the “derived” mappings are also checked.

Note

For detailed steps on how to extend the CIDX Business Package, refer to the Appendix section.

5.2.3 Integration Directory

This section covers the steps required in the Integration Directory for the CIDX Scenario.

1. From the Integration Builder home page, select “Integration Builder”. This will launch the java web start application. Login with your user ID and password.

Step 1 – Defining Parties and Communication Components

Defining Parties

You need to define a party for your own company and for each of the business partners with whom you want to exchange business documents. You also need to assign a DUNS number to each of your Business Partner to uniquely identify him. DUNS number is a unique 9-digit number that is used to identify a Party in the exchange of CIDX business documents. This is available to organizations by registering with Dun and Bradstreet.

The following table details the roles that individual parties will play within this Scenario for the CIDX E41 Order Create Scenario.

<table>
<thead>
<tr>
<th>Party</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIDX_Buyer_Party</td>
<td>Buyer</td>
</tr>
<tr>
<td>CIDX_Seller_Party</td>
<td>Seller</td>
</tr>
</tbody>
</table>

Buyer – CIDX_Buyer_Party

2. In the left frame, Click on the menu **Object → New**. In the create dialog-box, select Collaboration profile→Party and assign the name ‘CIDX_Buyer_Party’ to this component and click **Create**.

In the next screen, enter the DUNS number of your partner in the Party Identifiers as shown below. You also need to enter the Partner number that was assigned to the Party (this was used to uniquely identify the party in the backend system) with the following Syntax:

- **Agency**: `<Backend R/3 /ERP SID>_<Client Number>`
- **Scheme**: `ALE#<Partner Role>#<Partner Function>`
- **Name**: Partner Number of the Party in the Backend system
Save to save your party definition.

**Seller – CIDX_Seller_Party**

3. In the left frame, Click on the menu **Object ➔ New**. In the create dialog-box, select **Collaboration profile ➔ Party** and assign the name ‘CIDX_Buyer_Party’ to this component and click **Create**. In the next screen, enter the DUNS number of your Company in the Party Identifiers as shown below. **Save** to save your party definition.

---

**Defining Business Components**

You must create a Business Component for each of these parties using a naming convention. This name binding for the Business Component is runtime-relevant. The CIDX Adapter determines the partner’s Business component name and the local business component name for an incoming CIDX Action message based on the selected header fields of the RNIF 1.1 protocol service header.

**Naming Convention:** \( CIDX\langle\text{Transaction Code}\rangle\_\langle\text{Version}\rangle\_\langle\text{Partner Role}\rangle \)

The Business Component names for the two parties would be:

- CIDXE41_40_Buyer for the Buyer
- CIDXE41_40_Seller for the Seller

More Information:
- SAP Help Portal: [Naming conventions for Communication Component](#)
### Buyer – Business Component

4. Edit the party definition “CIDX_Buyer_Party” and in the “Communication Components” tab, right-click on **New**. In the next screen, enter the name as “CIDXE41_40_Buyer” with an optional description. In the Outbound Interfaces **Sender** Tab, choose “OrderCreate” from the drop-down list as shown below. Click on **Save**.

![Display Communication Component](image1)

### Seller – Business Component

5. Edit the party definition “CIDX_Seller_Party” and in the “Communication Components” tab, right-click on **New**. In the next screen, enter the name as “CIDXE41_40_Seller” with an optional description. In the Inbound Interfaces **Receiver** Tab, choose “OrderCreate” from the drop-down list as shown below. Click on **Save**.

![Edit Communication Component](image2)
Defining Business System

6. You need to assign a Business system for the Back end ECC system. In the left frame, expand the node **Communication Component without Party**, right-click on the Business System node and click on **Assign Business Systems**. In the next pop-up dialog, select the Business system for the backend WC1 system WC1_800 (See APPENDIX A for instructions on how to create a business system), uncheck the “Create Communication Channels automatically” check box, and click on **Finish**.

Defining Communication Channels

7. **Receiver Communication Channel**: In this step, you will create the communication channel to communicate with the backend ECC system using IDoc Adapter. In the left frame, right-click on the Business SystemÆWC1_100ÆCommunication Channel and click on **New**. In the next screen, enter the values as shown in the screen below and save.

- **RFC Destination**: RFC Destination for the Backend ECC system created using Transaction Code SM59
- **Interface Version**: Interface version of the IDOC
- **Port**: Port for the backend system created using Transaction code IDX1.
- **SAP Release**: Release of the SAP System
Click on the Identifiers Tab of the communication channel, and enter the values for the Sender Agency and Schema as shown in the screen. This step is needed for the partner conversion in the backend system.

<table>
<thead>
<tr>
<th>Communication Channel</th>
<th>Status</th>
<th>Displayed Language</th>
<th>English (CL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDoc_Receiver_CIDXE41</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Save the definition of the communication channel.

8. **Sender Communication Channel**: Next step is to configure the CIDX adapter with the communication channels. The Channel templates from the Enterprise Services Repository can be used in configuring the Communication Channels.

In the Left frame, select the Business Component `CIDXE41_40_Buyer` of the CIDX_Buyer_Party and right-click on New to create the new communication channel as shown below:

In the next pop-up dialog-box, enter the name of the Communication Channel as `Buyer_Send_OrderCreate` as shown in the screen below:

9. In the newly created Communication Channel, click on menu option Communication ChannelÆApply Template and choose the template `Buyer_Send_OrderCreate` from the list of templates.
Most of the fields in the communication channel were populated with this template as shown in the screen below:

<table>
<thead>
<tr>
<th>Display Communication Channel</th>
<th>Status</th>
<th>Action</th>
<th>Displayed Language</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Channel</td>
<td>Buyer_Send_OrderCreate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Party</td>
<td>CIDK_Buyer_Fardy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Component</td>
<td>CIDK51_49_Buyer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>CIDK 5149 Buyer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Parameters**

- **Adapter Type**: CIDK
- **Sender**: http://<host>:<port>MessagingSystem/receive/CIDXAdapter/CIDX
- **Transport Protocol**: HTTP 1.1
- **Message Protocol**: RJN 1.1
- **Adapter Engine**: Central Adaptor Engine

**Configuration Type**: Single-Action Asynchronous Request

**Message Protocol Specific Information**

- **Process Name**: OrderCreate
- **Current Business Service Code**: Seller Service
- **Partner Business Service Code**: Buyer Service
- **Supply Chain Code**: Chemical

**xmlTransaction Information**

- **Code**: E41
- **Version**: 4.0
- **Requesting Message**: OrderCreate
- **Current Role**: Seller
- **Partner Role**: Buyer

**Message Exchange Controls**

- **Number of Retries**: 3
- **Receipt Acknowledgement**: Weak

**Security Policy**

- Check: Sign Action Message
- Check: Sign Signal Message
- Check: Non-Repudiation

Click on the **Source** tab of the communication channel and enter the URL and Client Authentication information for the Partner system to which the adapter is to send the signal message. If the Partner system's is a PI system then the URL would be as follows:

http://<host>:/<port>MessagingSystem/receive/CIDXAdapter/CIDX
Step 2 – Configuring a new Partner using Model Configurator

Selecting the Process Integration Scenario

10. The first step is to select the process integration scenario from Enterprise Services Repository and create a scenario in the Integration Directory to group all the relevant configuration objects. To call the model configurator, choose the menu option Tools → Apply Model from ES Repository as shown below.

11. In the next popup-dialog window, make sure that the model type Process Integration Scenario is selected. Choose the input help and select the Process Integration Scenario OrderCreate_Seller (Namespace http://sap.com/xi/CIDX/40/R3/46C, Software Component Version CIDX ERP 1.0) from the dropdown list and choose Continue.
12. On the next screen, edit the predefined name of the scenario and change the name to `CIDX_OrderCreate_Seller` and choose **Finish**.

```
Create Configuration Scenario
Configuration Scenario: CIDX_OrderCreate_Seller
```

13. The system creates the configuration scenario. Choose **Close**. The Process Integration Scenario `OrderCreate_Seller` is displayed in a graphical wizard.

14. Select the push button **Select Component View**. A new screen appears where the available component views for the process integration scenario are displayed. In the preview area, select the component view `Order Create Seller (B2B Model)` and choose **Apply**.

### Assigning Communication Components

You use the steps below to assign the communication components to the application components of the process integration scenario.

15. In the graphical editor, clicking on the lane representing the **Buyer** application component. This calls the **Assign Business Components for B2B Configuration** dialog box for the **Buyer Application**. In the tab **Business Components for B2B**, click in the input field in the Communication Component column and call the input help (⋮) and select the communication component `CIDXE41_40_Buyer` for the Party `CIDX_Buyer_Party`. Choose **Apply**.

```
Assign Business Components for B2B Configuration

<table>
<thead>
<tr>
<th>Party</th>
<th>Communication Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIDX_Buyer_Party</td>
<td>CIDXE41_40_Buyer</td>
</tr>
</tbody>
</table>
```

16. In the **Assign Business Components for B2B Configuration** dialog box, click the navigation arrow (⋮) to switch to the application component **R3 SD as Seller**.

17. In the **Assign Components for A2A and B2B Communication**, select the Business Component `WC1_800` (your backend R3 system) from the Business System Components input help. In the Business Component for External Communication column, select the component `CIDXE41_40_Seller` for the Party `CIDX_Seller_Party` from the input help as shown below:

```
Assign Components for A2A and B2B Communication

<table>
<thead>
<tr>
<th>Business System Components</th>
<th>Business Components for External Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Party</td>
<td>Component</td>
</tr>
<tr>
<td>WC1_800</td>
<td>CIDX_Seller_Party</td>
</tr>
<tr>
<td></td>
<td>CIDXE41_40_Seller</td>
</tr>
</tbody>
</table>
```
**Configuring Connections**

The below steps are used to configure the connections for the CIDX Process Integration Scenario.

18. In the graphical editor, click on the connection between the lanes representing the two application components. This calls the *Configure Connection* dialog box for the connection between the actions *Buyer* and *R3 SD as Seller*.

19. In the *Connections from Component Assignment* tab, select the communication channel *Buyer_Send_OrderCreate* (created in Step 8 and 9 above) from the input help for the column *Sender Business System Components*. Select the communication channel *IDoc_Receiver_CIDXE41* (created in Step 7 above) from the input help for the column *Receiver Business System Components* as shown below:

---

**Generating the Configuration Objects**

20. Choose the push button *Create Configuration Objects* and in the next popup dialog box, select the *Generation* radio button and choose *Start* as shown below:
21. All the configuration objects for the CIDX scenario will be generated and the generation log is called. The generation log contains an overview of all information relating to generation and indicates if any manual editing is necessary for the generated objects. **Save** the CIDX Process integration Scenario.

**Configuring Security in the Integration Directory**

22. In this step you configure the security settings for the CIDX Adapter in the Sender Agreement.

   ![Diagram of Trust Model settings]

   **Note**
   For detailed steps on how to configure security in AS Java, refer to Appendix C.

23. Edit the Sender Agreement for the process integration scenario *CIDX_OrderCreate_Seller*, and configure the security services as shown below and **Save**.

   - **Trust Model**: *Direct*
   - **Current Certificate for Signing**
     - **Algorithm**: *SHA-1*
     - **Keystore View**: *CIDX* (Name of the view in the AS Java key storage)
     - **Keystore Entry**: *Seller* (Name of your private key in the AS Java key storage)
   - **Partner Certificate for Signing**
     - **Keystore View**: *CIDX* (Name of the view in the AS Java key storage)
     - **Keystore Entry**: *Buyer-cert* (Partner certificate in the AS Java key storage)

24. As a last step, activate all the change lists for this Scenario.
5.3 Testing your Scenario

1. From the CIDX complaint system (You can use another PI system with CIDX adapter as the sender system for this purpose), send a test CIDX E41 order create message.

2. When you send the CIDX message to PI system, send it to the following URL of the PI system:
   http://<host>:<port>/MessagingSystem/receive/CIDXAdapter/CIDX

5.4 Monitoring your Scenario

1. From the Integration Builder home page, choose Runtime Workbench. Login with your user ID and password. In the next screen, choose Message Monitoring. In the selection screen, enter CIDX_Buyer_Party for the Sender Party and click Display. This will display the business action message sent by the Buyer to the Seller and the Receipt acknowledgement message sent by the Seller to the Buyer after successful receipt of the business action message.

2. Choose the business action message (the last message in the above list) and click on Details button. In the Click on the Adapter Details tab, to get the details of the CIDX Adapter. This will display the details as shown in the screen below:
3. In the Message Display Tool (Detail Display), choose the Audit Log tab to get the detailed processing of the CIDX message.

4. In the ABAP Stack of the SAP NetWeaver PI, go to transaction SXMB_MONI and choose Monitor for Processed XML messages and click Execute ( ). In the next screen, You can filter using Sender Party as shown below:

5. In the monitor screen, your messages should appear with a checkered flag (message processed successfully) if it is processed successfully.
6. From this screen, you can navigate to the details of the message as shown in the screen below:

7. In the backend R/3 or ECC system, go to transaction **WE05** and search for the IDocs with logical message type ORDERS. Make sure that your IDoc was posted. If everything goes well, the IDoc should have status 53 (Application document posted).

8. Check the transaction VA03 to see if an inbound Sales order has been created.
6. **APPENDIX**

**A – Creating Technical and Business systems in PI**

**Creating Technical System**

This section explains the detailed steps required to define a Technical System for the backend ECC system.

1. In the SLD Home Page (Click “Home” in the upper left corner), select “Technical Systems” from Landscape section and click on “New Technical System”. This will take you to a wizard for creating a new technical system.

2. For the type of technical system, select “AS ABAP” and enter the backend ECC system’s SID, Installation number and the Host Name.

3. In the next screen, add the central servers and application servers to the technical system.

4. In the subsequent screen, add the Client number and the Client Logical name.
5. In the next screen, select “ECC 5.0” from the list of available products, and select the software component “SAP BASIS 6.40” from the list of available software components and click on “Finish”.

**More Information:**
- SAP Help Portal: [Working with Technical Systems](#)

### Creating Business System

In this section, you will define a Business System for the backend ECC system.

1. In the SLD Home Page (Click “Home” in the upper left corner), select “Business System” from the Landscape section and click on “New Business System”. This will take you to a wizard for creating a new business system.

2. For the type of technical system that the business system is associated with, select “AS ABAP” and click “Next”.

3. In the next screen, Select “ECC on ecchost” you created in the previous section as the technical system and click “Next”.

4. In the next screen, enter “ECC_100” as the name of the Business system. In the following screen, verify the products and software components that are installed for the business system.

![Business System Wizard](image)

5. In the next screen, select the role of the business system, specify the integration server and click on “Finish”.

![Business System Wizard](image)

**More Information:**
- SAP Help Portal: [Working with Business Systems](#)
B – Extending the CIDX Business Package

Activities in the SLD

The best practice is to create your own SWCV with dependency to CIDX ERP Software component so that all the original mappings and any subsequent changes or modifications from CIDX ERP are shown in the new SWCV. If the CIDX content is updated, and if there are conflicts, the “derived” mappings are also checked.

1. In the Integration Builder Home Page, select “System Landscape Directory”. This will bring up the SLD in a separate window.

2. To create a new software component, select “Products” from the “Software Catalog”. This will take you to a wizard for creating a new Product and Software Component Version. In the next screen, create a new product called “CIDX_<your Company Name>” with the Unit Name “CIDX_Unit”.

   In the next screen, add the software component version to this product and name it “CIDX_<Your Company Name>” as shown in the below screen.

   ![Image of creating a new software component version](image1)

3. Create dependencies to the CIDX_<your company name> SWC with dependency to CIDX ERP SWC with the context “Installation Time” as shown in the screen below:

   ![Image of defining prerequisite software components](image2)

More Information:
- SAP Help Portal: [Software Component Versions](#)
Activities in the ES Repository

1. From the Integration Builder home page, select “Enterprise Services Builder”. This will launch the java web start application. Login with your user ID and password.

2. In the left frame, Click on the menu Object → New. In the next dialog-window, select “Work Areas” and “Software Component Versions” and choose the radio button “Import from SLD”.

3. Select the SWCV “CIDX_DWC” from the list of software component versions and click “Import”. The newly created SWCV should appear in the left frame.

4. Open the SWCV and then double-click on the version. This will bring the SWCV in the right frame. Switch to edit mode and choose the original language as “English”. Save and Close. In the left frame, you should see the CIDX 1.0 and CIDX ERP 1.0 software components under the node Basis Objects of the CIDX_DWC (your own software component).

Extending the Business Package

If you need to extend the mappings of the CIDX ERP software component, make the necessary changes to the objects of the CIDX ERP under the node Basis Objects of CIDX_DWC (Your own software component). This will create a copy of the mappings in the CIDX ERP software component without affecting the original mappings.

For example, you can make changes to the OrderCreate_OrdersOrders05 mapping in the CIDX_DWC software component to meet your specific needs as shown in the screen below. Click the Modify button in the pop-up dialog box to make the necessary changes to the mapping.
CAUTION

It is extremely important that you use Basis Objects under your own software component (for example, CIDX_DWC) to extend or make any changes to the mappings in the CIDX Business Package. Please do not make copies of the mapping using the "copy object" to make changes.
C – Configuring Security

The AS Java supports the use of transport layer security for network communications. Depending on the protocol for the connection, it supports SSL or SNC. To configure use of SSL for the AS Java you have to perform the following steps for each server that uses SSL.

1. Installing the SAP Cryptographic library for SSL
   More Information:
   ○ SAP Help Portal: Installing the SAP Cryptographic library for SSL

2. Maintain the ICM parameters for the SSL
   More Information:
   ○ SAP Help Portal: Maintain the ICM parameters for the SSL

3. Create the Server’s Key pair to use for SSL
   More Information:
   ○ SAP Help Portal: Configuring the Server’s Key pair to use for SSL

4. Test the connection
   More Information:
   ○ SAP Help Portal: Test the SSL Connection

Maintaining the Key Storage

The Key Storage management functions of the SAP NetWeaver Administrator enable you to manage AS Java certificates and keys. You access the server credentials from multiple virtual key stores called keystore views. The keys and certificates in the Key Storage views can be used for encryption, identification and verification purposes when using AS Java function. The Key Storage entries themselves are stored in a distributed database and can be assigned particular access rights using code based security.

You can use the procedure below to configure the key pair and trusted client certificates to use for establishing SSL connections on the AS Java. You create a new key pair or upload an existing key pair or a trusted X.509 client certificate from the file system.

1. Logon to NetWeaver Administrator (URL: http://<host>:/<port>/nwa) with your username and password and choose the menu Configuration Management ➔ Security ➔ Certificates and Keys. You need to have administrative privileges for performing key store maintenance on the AS Java.
2. In the next screen, choose the Key Storage Content tab and switch to edit mode. Select the key store view CIDX from the key store views list. In the Entries tab, click on Create. Add New Keystore Entry dialog box appears.

3. In the Step 1 define the basic settings of the new entry as shown below and choose Next.

   - Entry Name: Buyer
   - Algorithm: RSA
   - Key Length: 2048
   - Valid From: 3/17/2009
   - Valid To: 3/17/2029
   - Store Certificate: Checked
4. In the Step 2 specify the *Country Name* and the *Common Name* properties for the certificate as shown below and choose **Next**.

5. The Step 3 is an optional entry. You can sign entry with a key pair. If you want to specify a Certification Authority (CA) key, choose **Select Key Pair** button and select the view from which to import the CA key. Choose **Next**.
6. In the Step 4 preview your settings and choose **Finish** button to create the new entry.

7. The key pair and the certificate are generated and displayed in the **Keystore Entries** list as shown below:
Exporting Key or Certificate to the file system

1. In this process, you export the newly generated entry to the file system. To export the certificate, choose **Buyer-cert** from the Key store entries list. Choose **Export To File**.

2. In the next dialog window, select **Base64 X.509** as the export format. Choose the download link and specify the location in the file system where you want to save the file and **Close** the **Export Entry To File** dialog window.

3. Having the newly generated certificate, you can go on with the following scenarios:
   - Sign it using the AS Java as a self issuing CA.
   - Send it to an external CA for sign and then to import the signed certificate back to the Key Storage.