Integrating SAP Hybris Cloud for Customer with SAP ERP using SAP HANA Cloud Integration
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1 Integrating SAP Hybris Cloud for Customer with SAP ERP using SAP HANA Cloud Integration

About this Document

This document describes how to integrate SAP Hybris Cloud for Customer with an existing on-premise SAP ERP system using SAP HANA Cloud Integration (HCI).

The document is intended only as a guide to help you prepare and apply the steps necessary for successful integration. Before you start working through this document, ensure that you have downloaded the most recent version of this document available from SAP Service Marketplace.

Methodology

When you configure your SAP Cloud solution with SAP ERP, you must observe dependencies that arise among the activities in different systems. We therefore strongly recommend that you perform the activities in this guide in the sequence in which they are documented. Pay special attention to the prerequisites, if mentioned, at the beginning of each section. Activities that you must perform in:

- SAP ERP system are identified by the prefix ERP
- SAP Hybris Cloud for Customer are identified by the prefix Cloud Solution
- SAP HANA Cloud Integration are identified by the prefix HCI

For an overview of what is performed in each of these phases, read the Integration: Basic On-Boarding guide on SAP Service Marketplace.

Target Audience

Typically, several functional and configuration experts are involved in the integration process. The following table outlines the roles and responsibilities during a standard integration. Additional role of an SAP ERP Developer may be required, if additional BADI’s or any custom work becomes necessary.

Table 1:

<table>
<thead>
<tr>
<th>Role</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ERP Consultant</td>
<td>Configuration activities in Sales and Distribution area of the SAP ERP system</td>
</tr>
<tr>
<td>SAP HANA Cloud Integration Consultant</td>
<td>Configuration activities in the SAP HANA Cloud Integration</td>
</tr>
<tr>
<td>Cloud Administrator</td>
<td>Configuration activities in SAP Hybris Cloud for Customer Will need functional expert participation for code-list mapping.</td>
</tr>
</tbody>
</table>

Integrating SAP Hybris Cloud for Customer with SAP ERP using SAP HANA Cloud Integration
### Role Activity

<table>
<thead>
<tr>
<th>Role</th>
<th>Activity</th>
</tr>
</thead>
</table>
| System Administrator     | • Establishing a secure network connection between the SAP ERP system and SAP Hybris Cloud for Customer systems  
                          | • Installing software components from the SAP Service Marketplace       |

### Integration Guide Map

This integration guide map is an overview of the steps necessary for an end-to-end integration between SAP ERP and SAP Hybris Cloud for Customer. It acts as a checklist outlining various activities to be performed in each of the systems in a given phase.

### 1.1 What's New in ERP Integration

This section provides you with information about the new capabilities of ERP Integration.

- Support tax numbers in the SAP Hybris Cloud for Customer Business Partner
- SAP ERP Customer master integration
- Replicate equipment classification from SAP ERP to SAP Hybris Cloud for Customer
- External pricing now returns results in the SAP Hybris Cloud for Customer
- External pricing now supports field extensions in response
- Transfer work ticket summary & attachments from SAP Hybris Cloud for Customer to ERP billing request.
1.2 SAP ERP Integration Scenario Overview

Purpose
Integration of SAP Hybris Cloud for Customer with SAP ERP using SAP Middleware is to exchange both master data and transactional data. Most of the communication is bidirectional, and automated replication that is mediated by the SAP Middleware system is particularly for mapping purposes. You can find detailed information about what master data and transactional data is replicated between the two systems.

For a detailed presentation on the scenarios supported with the SAP ERP and SAP Hybris Cloud for Customer prepackaged integration, see the SAP Hybris Cloud for Customer Integration with SAP On-Premise: ERP, CRM, BW blog on SAP Community Network (SCN).

Summary of Useful Links for Future Reference

Table 2:

<table>
<thead>
<tr>
<th>Useful Information</th>
<th>When to read it</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCN Blog - SAP Hybris Cloud for Customer Integration with SAP ERP and CRM: How-to Guides and E-Learning</td>
<td>Bookmark this blog. It is a compilation of all Cloud for Customer integration collateral - presentations, demos, youtube videos, and how-to guides. It is kept up-to-date.</td>
</tr>
<tr>
<td>SAP Help portal – Integration Help for SAP ERP</td>
<td>One pager that contains all information about SAP ERP integration with SAP Hybris Cloud for Customer.</td>
</tr>
<tr>
<td>How-to guide (HTG) within the SAP Best Practice for Cloud for Customer integration</td>
<td>The how-to guide gives you instructions similar to those available in this integration guide for select scenarios. Read it if you are new to the integration topic, and want to view illustrations of the configuration activities.</td>
</tr>
</tbody>
</table>
2 Connect Phase: Check and Prepare SAP ERP System

Prerequisites

Your enterprise operates on SAP ECC 6.0 EHP 0 or a higher release. To check the ERP release, go to System Status. Under SAP System Data, check the component version. The minimum support package levels for the software component SAP APPL needed for SAP Hybris Cloud for Customer Integration are as follows.

Table 3:

<table>
<thead>
<tr>
<th>SAP APPL Version</th>
<th>Minimum Support Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.00</td>
<td>(At least SAPKH60015)</td>
</tr>
<tr>
<td>6.02</td>
<td>(At least SAPKH60206)</td>
</tr>
<tr>
<td>6.03</td>
<td>(At least SAPKH60305)</td>
</tr>
<tr>
<td>6.04</td>
<td>(At least SAPKH60405)</td>
</tr>
<tr>
<td>6.05</td>
<td>(At least SAPKH60503)</td>
</tr>
<tr>
<td>6.06</td>
<td>(At least SAPKH60601)</td>
</tr>
<tr>
<td>6.16</td>
<td>(At least SAPKH61601)</td>
</tr>
<tr>
<td>6.17</td>
<td>(At least SAPKH61701)</td>
</tr>
<tr>
<td>6.18</td>
<td>(At least SAPK-61801INSAPAPPL)</td>
</tr>
</tbody>
</table>

In case you need to upgrade your system, we recommend installing the latest support package.

Prerequisites for select features

Table 4:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDF version of ERP customer fact sheet</td>
<td>• SAP_APPL 602</td>
</tr>
<tr>
<td></td>
<td>• Activation of Business Function SD_01</td>
</tr>
<tr>
<td></td>
<td>• Configuration of Adobe Document Server</td>
</tr>
<tr>
<td>External pricing from sales quote, sales order,</td>
<td>• SAP Note 1984312</td>
</tr>
<tr>
<td>service ticket and contract</td>
<td>• SAP Note 2220998</td>
</tr>
<tr>
<td>Query of ERP sales order details</td>
<td>SAP_APPL 602</td>
</tr>
<tr>
<td>Query of ERP sales quote details</td>
<td>SAP_APPL 603</td>
</tr>
</tbody>
</table>
### Feature | Prerequisites
--- | ---
Print preview of ERP sales document details | - SAP_APPL 604  
- SAPScript or Adobe Print Forms (Smartforms are not supported)  
- Activation of Business Function LOG_SD_SIMP_02  
- Activation of Business Function SD_01
Print preview of ERP delivery or billing document details | - Adobe Print Forms  
  - SAP_APPL 602  
  - Activation of Business Function SD_01  
- SAPScript Forms  
  - SAP_APPL 604  
  - Activation of Business Function SD_01  
  - Activation of Business Function LOG_SD_SIMP_02  
- Smartforms are not supported
Exchange rates for currencies | Installation of Add-On ECC-SE. See SAP Note 1162517

---

### 2.1 SAP ERP Software Components

**Purpose**

SAP Hybris Cloud for Customer (Cloud) provides an add-on for SAP ECC that mainly contains the following:
- Missing interfaces for the Cloud for Customer-ERP integration,
- Convenience functionality to simplify the setup of the integration.

The add-on does not modify any core ERP coding, and hence is modification-free.

Each Cloud release comes with a new support package of the ECC add-on that may contain additional functionality to enable new integration scenarios. An upgrade to a newer version of the add-on is only required if you plan to enable one of these new integration scenarios after the Cloud upgrade.

Install the latest available SP in one of the following cases:
- The add-on is not yet installed in your SAP ECC system, or
- If an upgrade is required in order to use new features available in the latest Service Pack.

In other words, if you already have the add-ons installed, and do not need to upgrade, you may skip this chapter.

**Procedure**

2. Click on Software Downloads.
4. Choose the entry marked for Installation Software Component.
5. If you install the add-on for the first time, click on Installation and install the package.
7. Select the required packages and click on Download Basket. If you are upgrading from an SP, download the next available SP and above. For example, if you are upgrading from SP2, then download SP3 and above.
8. Select the items you want to download and click on Download Manager.
9. Install the add-on in your ECC system, and upgrade to the latest support package.

2.2 Important SAP Notes in ERP (HCI) Integration

We recommend that you install the latest support package, and if necessary find all the relevant notes in the component LO-INT-COD.

You can find a list of all ERP notes that may be relevant in this integration in the SAP Note 2293774.

2.3 Business Configuration Sets

The COD_BYD_ERP_INT business configuration (BC) set is contained in the add-on CODERINT 600:

Several customizing entries described in this guide are contained within the BC set COD_BYD_ERP_INT. Each section that contains a description of these customizing entries contains note referring to the BC set. If you activate this BC set now, you can skip those sections. Activate this BC set in the client you use for the integration of SAP Hybris Cloud for Customer and SAP ERP.

Note

If you do not use standard SAP Customizing for sales document types, BC set COD_BYD_ERP_INT is not completely activated. If this is the case, follow the steps described in the section Configure Phase: Configure Integration in SAP ERP.

For general information about BC sets, see SAP Help Portal.

2.4 Create SAP ERP User

Purpose

The following procedure describes how to create a user in SAP ERP with the necessary roles. This user enables communication from SAP Hybris Cloud for Customer to SAP ERP. This user is entered in:

- The SAP Hybris Cloud for Customer system, when you configure outbound communication arrangements to allow communication from SAP Hybris Cloud for Customer to SAP Middleware.
- The middleware (SAP HCI or SAP PI) system, which is used to login from your SAP Middleware to SAP ERP.

Recommendation
For the SAP ERP user, maintain the user type as B - System or C - Communication. SAP recommends that you only provide minimal authorizations to this user.

The ERP add-on contains the following PFCG roles:

- SAP_SD_COD_INTEGRATION
- SAP_SD_COD_INTEGRATION_EXT

You can use these roles as a template for the authorizations. As these PFCG roles are not tailored to your specific needs, please maintain individual PFCG roles.

In case you use HCI as middleware, please see SAP Note 2242343 - How to restrict the IDoc transfer C4C > HCI > ERP.

Procedure

1. Open the transaction SU01.
2. In the User field, enter the name of the user you want to create, for example CODINTEG.
3. Choose Create.
4. On the Maintain User screen, enter the data according to the tables below, and save your entries.

Table 5:

<table>
<thead>
<tr>
<th>Tab Page</th>
<th>Field Name</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Last Name</td>
<td>Add a name, for example CODINTEG</td>
</tr>
<tr>
<td>Logon data</td>
<td>User type</td>
<td>C Communications Data or B System</td>
</tr>
<tr>
<td></td>
<td>Password</td>
<td>&lt;password&gt;</td>
</tr>
<tr>
<td>Roles</td>
<td></td>
<td>Add one of the following roles (see Important SAP Notes): SAP_SD_COD_INTEGRATION or SAP_SD_COD_INTEGRATION_EXT</td>
</tr>
</tbody>
</table>
3 Connect Phase: Set Up Secure Connection between ERP-HCI-Cloud Systems

This chapter covers the requirements for configuring secure connection between SAP Hybris Cloud for Customer and SAP On-Premise. In addition to the information in this chapter, you can refer to the Technical Connectivity for generic connectivity issues.

Note
Path to the Technical Connectivity Guide on the SAP Service Marketplace ➔ Products ➔ Installation & Upgrade Guides ➔ Cloud Solution from SAP ➔ SAP Cloud for Travel and Expense ➔ Select the required version ➔ Display All Documents ➔ Technical Connectivity Guide.

The following diagram illustrates a typical setup for secure communication between the Cloud network and the on-premise network. Communication between the Cloud solution and the SAP ERP system must be secured by transport layer security (TLS) in both directions using the https protocol.

Communication between Cloud Solution and HCI Tenant
To establish communication between the SAP Hybris Cloud for Customer tenant and the SAP HANA Cloud Integration tenant, there must be secure HTTPS connections set up as part of the tenant provisioning configuration.

Communication from SAP ERP to HCI Tenant

Integrating SAP Hybris Cloud for Customer with SAP ERP using SAP HANA Cloud Integration
Connect Phase: Set Up Secure Connection between ERP-HCI-Cloud Systems
The SAP ERP system must be able to connect to the Internet via https protocol as a prerequisite for communication from SAP ERP to the Cloud solution. The Cloud solution tenant can only be reached by a reverse proxy used in the SAP cloud network. The server certificate of this reverse proxy is signed by the certification authority (CA) Baltimore CyberTrust Root.

You must import the certificates of the above mentioned CA into the SAP ERP system in transaction STRUST. Import the certificates into the folder SSL Client (Standard) for authentication with client certificate. You can obtain the Baltimore CyberTrust root certificate from the HCI provisioning e-mail.

Additionally, the SAP ERP client certificate should be signed by the authorities listed here:

2. Open the complete documentation, say click SAP HCI for process integration complete documentation (HTML).
3. Go to Connecting a Customer System to SAP HCI Concepts of Secure Communication HTTPS-Based Communication Load Balancer Root Certificates Supported by SAP.

Communication From HCI Tenant to SAP ERP

It should be possible for HCI to access SAP ERP system over the Internet. For more information on how to establish secure communication between these systems, see the SAP NetWeaver Security Guide, in the appropriate NetWeaver version of your ERP system, and go through the section Network and Communication Security.

The server certificate used by the reverse proxy must be trusted by the cloud HCI tenant. Therefore, it must be signed by one of the certification authorities.

Ensure that the root CA of HCI client certificate is trusted by your reverse proxy or SAP ERP system, as applicable.

3.1 Check End-to-End Connectivity

You can now check if a technical connection has been successfully established between your SAP on-premise and SAP Hybris Cloud for Customer systems. A successful connection ensures that the data is flowing between the two systems via the SAP Middleware.
The necessary configuration to use this feature is explained in the graphic below:

<table>
<thead>
<tr>
<th>SAP ERP/CRM</th>
<th>Middleware</th>
<th>Cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Install the support pack for the add-on</td>
<td>2. PI - Configure connectivity scenario</td>
<td>3. Create communication system</td>
</tr>
<tr>
<td></td>
<td>HCI – Deploy Connectivity iFlows</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Testing Connectivity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Test connectivity from SAP ERP/CRM to Cloud system, by running a report.</td>
<td></td>
<td>Test connectivity from Cloud to SAP ERP/CRM system in the Communication Arrangement wizard.</td>
</tr>
</tbody>
</table>

- **ERP report**: RCOD_CHECK_E2E_CONNECTIVITY
- **CRM report**: CRMPCD_CHECK_E2E_CONNECTIVITY

In the Cloud system, you can click the **Test Connection** in the **Communication Arrangement** wizard to check if the data is successfully reaching the SAP on-premise system.
4 Configure Phase: Configure Integration in Cloud Solution

4.1 Activate SAP ERP Integration in Scoping

**Purpose**
You must check the scope of your Cloud solution and ensure that the required integration is active.

**Procedure**
1. Logon to the Cloud solution as a system administrator.
2. In the Business Configuration work center, choose the Implementation Projects view.
3. Select your implementation project and click Edit Project Scope.
4. In the scoping wizard, choose Next until the Scoping screen appears.
5. Expand the nodes Communication and Information Exchange ➤ Integration with External Applications and Solutions ➤ Integration with ERP.
6. Select the required scoping options and choose Next.

<table>
<thead>
<tr>
<th>Select the node</th>
<th>If you want to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration with ERP</td>
<td>Ensure SAP ERP integration is active in your Cloud solution</td>
</tr>
<tr>
<td>Integration with Master Data</td>
<td>Allow master data to be exchanged with SAP ERP</td>
</tr>
<tr>
<td>Integration into Sales, Service and Marketing Processes</td>
<td>Allow transactional data to be exchanged with SAP ERP</td>
</tr>
</tbody>
</table>

The Questions screen displays only the selected scoping options.

7. On the Questions screen, expand Communication and Information Exchange, and review the scoping questions.
8. After you have carefully reviewed and confirmed your entries, click Finish.

**Caution**
Although you have defined the scoping of the solution, you have not yet deployed it. To do so, confirm the milestone Design Accepted in the activity list of the project.
1. Go to Business Configurationview > Open Activity List
2. Select Confirm Milestone: Design Accepted.
3. Select Design Accepted and click Confirm.

4.2 Set Up Communication System

Purpose

A communication system represents an external system for communication. A communication system is also the reference for ID mapping maintained within your Cloud solution. It must be representative of the on-premise client, even if the technical communication occurs using an SAP middleware.

To integrate your Cloud solution and an on-premise system using an SAP middleware, you define the on-premise client as the communication system. Note that all information except the host name is that of the on-premise system.

Before a communication system can be used for data exchange, communication arrangements must be maintained. For additional information, see Configure Communication Arrangements.

Prerequisites

You have administrator user rights.

Procedure

1. In the Administrator work center choose Communication Systems.
2. Click New.
3. On the New Communication System screen, in the Basic Information section, enter the following information.

<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>ID or name of the on-premise system to be connected</td>
<td>Q5E</td>
</tr>
<tr>
<td>SAP Business Suite</td>
<td>Select the checkbox</td>
<td>X</td>
</tr>
<tr>
<td>Internal Comment</td>
<td>A short description of the on-premise system you are connecting</td>
<td>Q5E - ERP Test System</td>
</tr>
<tr>
<td>Host Name</td>
<td>○ If using PI, then enter the reverse proxy of the middleware</td>
<td>PI: &lt;XXX&gt;.SAP.COM HCI: https://&lt;XXXX&gt;-ifimap.hcisbt.&lt;XXX&gt;.hana.ondemand.com</td>
</tr>
<tr>
<td></td>
<td>○ If using HCI, then enter the SAP HANA Cloud Integration worker node host name provided by SAP Cloud Managed Services</td>
<td></td>
</tr>
<tr>
<td>System Access Type</td>
<td>Internet</td>
<td>Internet</td>
</tr>
</tbody>
</table>

4. (Optional): In the Technical Contact section, you can enter data of the contact person for this system.
5. Save your data.
6. In the **System Instances** section, enter the following data:

<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business System Instance ID</strong></td>
<td>Displays the ID or name of your business instance of the SAP on-premise system/client</td>
<td>PI: Q5E_004 HCI: Q5ECLNT004</td>
</tr>
<tr>
<td><strong>Business System ID</strong></td>
<td>Business system ID of the SAP on-premise client. If you are using PI, then you can get the business system ID in one of the following ways: ○ Under <strong>System Landscape</strong> &gt; <strong>System Landscape Directory</strong> &gt; <strong>Business Systems</strong> &gt; <strong>Search for the ERP system</strong>, say Q5E* &gt; Go. In the <strong>Overview</strong> tab, you will find Name, which is the business system name ○ Run this function module in the ERP system: LCR_GET_OWN_BUSINESS_SYSTEM If you are using HCI, then default it to the same value as the IDoc Logical System ID. If you are using HCI, then default it to the same value as the IDoc Logical System ID</td>
<td>PI: Q5E_004 HCI: Q5ECLNT004</td>
</tr>
<tr>
<td><strong>IDoc Logical System ID</strong></td>
<td>The IDoc logical system ID of the SAP on-premise client, maintained in ALE. Path.</td>
<td>Q5ECLNT004</td>
</tr>
<tr>
<td><strong>SAP Client</strong></td>
<td>Client of the SAP on-premise system</td>
<td>004</td>
</tr>
<tr>
<td><strong>Preferred Application Protocol</strong></td>
<td>Web Service</td>
<td>5_Web Service</td>
</tr>
</tbody>
</table>

7. Choose **Actions** > **Set to Active**
8. Choose **Save and Close**.

### 4.3 Configure Communication Arrangements

**Purpose**

You need to configure and activate the communication arrangements to enable the integration between an on-premise system and the Cloud solution. Multiple communication arrangements can be created for on-premise integration through a guided activity. Instead of repeating common information each time you create a communication arrangement, you can enter common information once, and create communication arrangements in bulk.
You can find a list of all the communication arrangements and the corresponding service interfaces in the INTEGRATION: Integration Flow spreadsheet on the SAP Service Marketplace.

Prerequisites

You know the following:

- Communication system ID as maintained in the Set up Communication System.
- Tenant ID of SAP Hybris Cloud for Customer. For more information, see Determine Short Tenant ID.

Procedure

1. To create multiple communication arrangements go to Administrator ➝ Communication Arrangement for On-Premise Integration ➝ common task.
2. In the Select Communication System step, enter business data.
   1. Under Integration Details select the system that you want to Integrate with and the relevant tabs are displayed, depending on Integration Middleware that you want to use.
   2. Under Communication System, enter the System Instance ID of the communication system with which you want to set up communication arrangements.
   3. Select the code list mapping that should be used for this integration, say SAP On Premise Integration.
   
   ![Note]
   
   If a communication arrangement contains a service interface that supports code list mapping, the Code List Mapping field is displayed. In this field, you can choose the relevant code list mapping group for the communication scenario that you are using. For more information, please refer to the relevant integration guide on SAP Service Marketplace.

3. Click Next.
4. In the Communication Arrangements step, select the communication scenarios for which you want to create the communication arrangements.
   You can only select those communication scenarios for which a communication arrangement has not yet been created.
4. The Inbound and Outbound Communication Scenario. For example, if a communication arrangement has only an inbound service interface, then the Inbound tab is displayed.
5. For each of the communication scenarios, check the details on the Inbound tab as necessary:
   
   ![Table 9]

   | Enabled | If you do not want to use a service, uncheck the checkbox. If the service is mandatory, the checkbox is disabled. |
   | Service | Displays the name of the service. |
   | Application Protocol | Check if the protocol is Web Service. |
6. To check the information on an inbound service, select the service and click **Check Service**.

7. For each of the communication scenarios, check the details on the **Outbound** tab as necessary:

<table>
<thead>
<tr>
<th>Table 10:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enabled</strong></td>
</tr>
<tr>
<td><strong>Service</strong></td>
</tr>
<tr>
<td><strong>Port</strong></td>
</tr>
<tr>
<td><strong>Path</strong></td>
</tr>
<tr>
<td><strong>Service URL</strong></td>
</tr>
</tbody>
</table>

8. In the **Communication Credentials** step, provide the inbound and outbound credentials.

1. If you use inbound communication, select the **Authentication Method** in the **Inbound Communication Credentials** section. In the **User ID** field, click **Edit Credentials**.

   Depending on the chosen authentication method, you need to define the credentials of the communication user as described in the following table. The user ID of the communication user is created automatically.

<table>
<thead>
<tr>
<th>Table 11:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Authentication Method</strong></td>
</tr>
<tr>
<td><strong>SSL Client Certificate</strong></td>
</tr>
<tr>
<td>○ Upload the public key certificate that has been provided by your communication partner as part of provisioning. You can also receive it on creating an incident in the component for your respective SAP Middleware (LOD-HCI/LOD-PI).</td>
</tr>
<tr>
<td>○ If the communication partner cannot provide a certificate, then create a PKCS#12 key pair file, which is password encrypted and contains a public key certificate and a private key, and provide the credentials to your communication partner.</td>
</tr>
<tr>
<td><strong>To upload a PKCS#12 file:</strong></td>
</tr>
<tr>
<td>○ Choose <strong>Certificate</strong>.</td>
</tr>
<tr>
<td>○ Click and choose the relevant <strong>Upload Certificate</strong>.</td>
</tr>
<tr>
<td>○ Click <strong>OK</strong>.</td>
</tr>
<tr>
<td><strong>To create a PKCS#12 key pair file:</strong></td>
</tr>
<tr>
<td>○ Choose <strong>Certificate</strong>.</td>
</tr>
<tr>
<td>○ Click <strong>Create and Download Key Pair</strong>.</td>
</tr>
<tr>
<td>○ Enter a name for the PKCS#12 file and save it.</td>
</tr>
<tr>
<td>○ Define a password for the PKCS#12 file and click <strong>OK</strong>. The certificate details will be displayed.</td>
</tr>
<tr>
<td>○ Click <strong>OK</strong>.</td>
</tr>
</tbody>
</table>
User ID and Password

If you use this authentication method, you need to define a password as follows:

- Choose Change Password.
- Enter a password.

**Note**
You need the user ID and password while configuring the receiver communication channel in SAP Middleware.

- Click OK.

2. If you use outbound communication, select the **Authentication Method** in the **Outbound Communication Credentials** section. Select the **Authentication Method**.

Depending on the chosen authentication method, you need to define the relevant settings as described in the following table:

**Table 12:**

<table>
<thead>
<tr>
<th>Authentication Method</th>
<th>Authentication</th>
<th>Settings</th>
</tr>
</thead>
</table>
| SSL Client Certificate | SAP System Key Pair (recommended) | If you use this authentication, the relevant certificate must be known to the communication partner. Download the certificate as follows:
- In the Certificate field, click Download.
- Choose a location to save the certificate, enter a file name, and click Save.
The certificate will be downloaded with the specified name, and in the chosen folder you need to export the certificate. |
<table>
<thead>
<tr>
<th>Authentication Method</th>
<th>Authentication</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trusted Third-Party Key Pair</td>
<td></td>
<td>If you use this authentication, you need to upload the PKCS#12 key pair file provided by your communication partner. The PKCS#12 file is password encrypted and contains a public key certificate and a private key.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Choose the option <strong>Trusted Third-Party Key Pair</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ In the Certificate field, click <strong>Edit Credentials</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Click <strong>Upload Key Pair</strong>, and choose the PKCS#12 file you want to upload.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Enter the required password and click <strong>OK</strong>.</td>
</tr>
<tr>
<td>User ID and Password</td>
<td></td>
<td>If you use this authentication method, you need to enter the user ID and password that is used by the communication partner for the same communication arrangement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ In the User ID field, click <strong>Edit Credentials</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Enter the user ID and password.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Click <strong>OK</strong>.</td>
</tr>
</tbody>
</table>

9. To create and activate your communication arrangements in the system, click **Finish**.

**Result**

A success message is shown once the communication arrangement has been created successfully.

For information on how to manually create or edit a communication arrangement, see **Communication Arrangements Quick Guide**.

In case, the chosen middleware is HCI, to configure the connectivity, follow the steps outlined in the **Configure SAP HCI Certificate based Authentication for SAP Hybris Cloud for Customer**.
4.4 Export the Root Certificate

SAP Hybris Cloud for Customer client certificate is signed by SAP Passport CA. This CA needs to be imported into the middleware system. You can download the Passport CA certificate here.

4.5 Determine Short Tenant ID

Purpose
The tenant ID is required for several upcoming configuration steps in the SAP middleware system. We recommend that you note it at this point in your configuration.

Procedure
1. In the Administrator work center, choose Communication Arrangements.
2. Select a communication arrangement that you have created in, for example, Business Partner Replication from External System.
3. Under My Communication Data section, note the ID under My System.

4.6 Optional: Maintain ERP Number Ranges

Purpose
ERP number ranges for accounts (KUNNR) and contacts (PARNR) are used when these objects are created in SAP ERP using IDoc. This activity is an optional one because default numbers are already provided. If you want to change the default numbers and you do not see this activity in the fine tuning activity list, choose All Activities from the Show drop-down list.

Prerequisites
You have configured at least one internal number range. Make sure that the number range has enough values available. You can also use the number range in standard customizing delivered with your solution.

Procedure
1. In the Business Configuration work center, choose the Implementation Projects view.
2. Select the line that contains your project, and click Open Activity List.
4. Click Integration of Business Partner Data from Your Cloud Solution to SAP ERP. The system provides default number ranges for prospects, contacts, and customers that can be used in SAP ERP.
5. Make sure the number ranges you define match the number ranges defined in the ERP system. For more information, see Define Number Intervals.
Table 13:

<table>
<thead>
<tr>
<th>ERP System</th>
<th>Cloud Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debitor C1</td>
<td>Prospect</td>
</tr>
<tr>
<td>Debitor C2</td>
<td>Customer</td>
</tr>
<tr>
<td>Partner C1</td>
<td>Contact</td>
</tr>
</tbody>
</table>

**Note**

The entries you make must be copied from the test environment (cloud tenant and ERP tenant) to the productive environment.

**Caution**

Changing previously assigned number ranges can lead to problems. You should create number ranges with sufficient intervals to avoid future complications. If you connect more than one cloud tenant to one SAP ERP system, make sure to define specific number ranges for each cloud tenant. If you do not, you might risk sending different business partners with the same ID to SAP ERP, which leads to inconsistencies.

### 4.7 Perform Code List Mapping

For information on how to perform code list mapping, read the quick start guide. You can access it on [Service Marketplace](https://service.sap.com/integration) » INTEGRATION: Quick Start Guides.

### 4.8 Create ID Mapping

**Purpose**

This section describes how to create ID mapping for, selected objects, such as sales and product categories. For these business objects, ID mapping is created manually. ID mapping for most objects is carried out automatically during the initial load of data into the system. However, it can be checked and adapted in this view as well.

You can maintain the entries for ID mapping either directly in the system user interface or in a Microsoft Excel template, that can be downloaded from the user interface. For information on ID mapping using the Microsoft Excel template, see [ID Mapping using the Microsoft Excel Template](https).

**Prerequisites**

Before you create ID mapping, the data for these objects must be maintained in the cloud solution. Also, data must have been migrated so that they can be mapped.

**Procedure**
1. In the Administrator work center under Common Tasks, choose Edit ID Mapping for Integration.
2. From the Mapping Of dialog box, choose the object for which you want to map the IDs.
3. In the System Instance ID field, use the input help to select the ID of your SAP ERP system.
4. Click Go.
5. In the External ID column, enter the ID of the object in the system.
6. Repeat steps 2 to 5 for the following objects.
   - Company
   - Accounts
   - Contacts
   - Employees
   - Equipments
   - Functional locations
   - Materials
   - Measurement points
   - Planning group
   - Product categories
   - Planning group
   - Sales office
   - Sales organizations

   **Note**

   Table 14:
<table>
<thead>
<tr>
<th>ERP values for:</th>
<th>ERP Customizing path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product categories/ material group</td>
<td><a href="#">Logistics General → Material Master → Settings for Key Fields → Define Material Groups</a></td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>In the standard integration content, the product category in the Cloud solution is the material group in ERP.</td>
</tr>
<tr>
<td>Employees</td>
<td><a href="#">Enterprise Structure → Assignment → Human Resource Management → Assign employee subgroup to employee group → Enterprise Structure → Definition → Human Resource Management → Employee Groups</a></td>
</tr>
</tbody>
</table>

7. Save your entries.

### 4.8.1 ID Mapping using the Microsoft Excel Template

The Microsoft Excel® template for ID mapping allows you to maintain IDs easily.
You cannot use the Microsoft Excel Template to change mappings that have been created directly on the user interface. If you want to change mappings using the Microsoft Excel template, you must create them in this template as well.

Prerequisites

You have installed the Add-In for Microsoft Excel, which is available as a download in your system.

Procedure

Download the content to Microsoft Excel

1. From the Mapping Of drop-down box, choose object for which you want to download ID mappings.
2. In the Business Instance ID field, use the input help to select the ID of your SAP on-premise system.
3. Click Go.
4. Click ID Mapping to Microsoft Excel. The data is downloaded to an excel file.
5. Open the file, and accept messages to enable macros.
6. Go to SAP Add-In Logon, and provide the URL to Cloud system, and your user credentials, and click Log On.

   i Note

   The Local IDs correspond to the IDs used in the cloud solution. The External IDs correspond to the IDs in the SAP ERP system.

7. Make the necessary changes and save the excel file.

Upload the changed Microsoft Excel document to Cloud

1. In the Cloud system, Click ID Mapping from Microsoft Excel. An excel template is downloaded.
2. Open the file, and accept messages to enable macros.
3. Go to SAP Add-In Logon, and provide the URL to Cloud system, and your user credentials, and click Log On.
4. Copy the content from the excel file where you have saved your changes.
5. Under SAP Add-In Workbook Save Data to in order to save data to Cloud.

4.9 Optional: Handling of Inconsistent Address Data

In addition to the topics we are covering as part of the Integration Guide map, there is an additional topic of handling inconsistent address data. This chapter describes how to turn-off the address checks provided by default. This section is optional.

Purpose

The system checks if address data, such as country, region, and postal code length, is consistent. Inconsistent address data leads to error messages and cannot be saved or activated unless you allow it by specifying it in Fine Tuning.

Procedure

1. In the Business Configuration work center, select the Implementation Projects view.
2. Mark the line that contains your project and click **Open Activity List**.
3. On the **Activity List** screen, select **Fine-Tune**.
4. Show **All Activities** and find for **Address Checks**.
5. Select **Address Checks** and click **Add to Project**.
6. Open **Address Checks**
7. Optionally, if you want to allow inconsistent address master data to be saved, select the check box **Allow saving of inconsistent address based on your business requirements**. Any inconsistent address data in the check results are shown as warnings, and the data will be saved. This setting affects addresses of master data, such as business partners and organizational units, when you maintain the data in the work center views for master data, during migration, and during data replication. Checks of address data for business documents are not affected.
8. Save and close the activity.
5 Configure Phase: Configure Integration in SAP ERP

5.1 SAP Customizing Implementation Guide in the ERP System

All the customization activities necessary to integrate SAP ERP with SAP Hybris Cloud for Customer are defined in a hierarchical structure in the SAP Implementation Guide structure. The necessary documentation is also made available with the activity.

For example, the structure contains the customizing activities for code lists, automatic generation of integration settings, manually maintaining the integration settings, and BADIs.

Purpose
1. In the ERP system, go to the transaction SPRO, and click SAP Reference IMG.
2. Expand Integration with Other mySAP.com Components and Integration with SAP Hybris Cloud for Customer
3. Run the report to automatically perform the basic configuration activities:
Table 15:

<table>
<thead>
<tr>
<th>IMG Activity</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Communication Setup Automatically Generate Integration Settings for Data Exchange** | This activity will run the report RCOD_CREATE_CONNEC TIVITY_SIMPL, and automatically configures the basic settings for establishing a connection between the systems. For example:  
  ○ Creates RFC destinations to connect from SAP ERP to SAP middleware  
  ○ Creates port definition with the required configuration for outbound and inbound message types  
  ○ Creates partner profiles with the required configuration for outbound and inbound message types  
  ○ Maintains ALE distribution model  
  ○ Activates a service  
  ○ Maintains endpoints for services  
  ○ Creates logical port in SOA Management for attachment replication  
  ○ Processes jobs for inbound and outbound IDocs, and time slice reports |

**Note**

The report only supports creation of entities, and does not update any existing entities.

4. If you want to manually update any entries, expand **Communication Setup Manually Adjust Integration Settings for Data Exchange**.

Table 16:

<table>
<thead>
<tr>
<th>ALE Settings for the HTTP Inbound</th>
<th>&lt;a one liner as to why this activity is necessary&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define Logical System</td>
<td>The ERP system must be configured as clientinde pendent Customizing. The communication partner is not the middleware but the Cloud solution.</td>
</tr>
<tr>
<td>Define RFC destination</td>
<td>The ERP system must be configured as clientinde pendent Customizing. The RFC destination is required for the middleware system.</td>
</tr>
<tr>
<td>Maintain Port Definition</td>
<td>The ERP system must be configured as clientinde pendent Customizing.</td>
</tr>
<tr>
<td>Maintain Distribution Model</td>
<td>Create a distribution model to determine the system to which IDocs should be sent.</td>
</tr>
<tr>
<td>Register Service for IDoc Inbound</td>
<td>You need to register the IDoc inbound service if IDocs have to be received by ERP via SOAP/HTTPS.</td>
</tr>
<tr>
<td>ALE Settings for the HTTP inbound</td>
<td>&lt;a one liner as to why this activity is necessary&gt;</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Maintain IDoc Partner Profile</td>
<td>Create a partner profile of type LS, and maintain the inbound and outbound parameters for inbound and outbound IDoc message types.</td>
</tr>
<tr>
<td>Setup ICF Nodes</td>
<td>You can configure HTTP services and activate them individually, so HTTP requests can be handled in the work process of an SAP System (server and client). You need to activate the service /sap/bc/srt/IDoc (Inbound SOAP for IDoc) before registering it.</td>
</tr>
<tr>
<td>Configuration in SOA Management</td>
<td>In SOA Management, you need to perform configuration:  ○ To generate PDF files of sales orders or quotes in an opportunity  ○ To maintain end points for services  ○ To send attachments from SAP ERP to SAP Hybris Cloud for Customer  ○ To send attachments from SAP Hybris Cloud for Customer to SAP ERP</td>
</tr>
<tr>
<td>Create Communication Users</td>
<td>You need to create a user in SAP ERP, which can be used by the Cloud solution for authentication against SAP ERP. You can enter this user when you configure outbound communication arrangements in the Cloud solution.</td>
</tr>
<tr>
<td>Maintain Authorizations</td>
<td>You need to maintain the assignments of authorization required for business transactions to your communication user.</td>
</tr>
<tr>
<td>Maintain Certificate to User Mapping</td>
<td>The client certificate (public key) of middleware system should be mapped to the communication user in the on-premise system.</td>
</tr>
<tr>
<td>Activate Event Linkage</td>
<td>You need to activate the event linkage for the object types.</td>
</tr>
<tr>
<td>Maintain Requirement Routine</td>
<td>&lt;a one liner as to why this activity is necessary&gt;</td>
</tr>
<tr>
<td>Maintain Output Determination Procedure</td>
<td>&lt;a one liner as to why this activity is necessary&gt;</td>
</tr>
<tr>
<td>Maintain Output Types</td>
<td>You need to define all the output types representing supported SD outputs, such as quotations, order confirmations, and delivery notes in the SAP system.</td>
</tr>
<tr>
<td>Maintain Output Condition Records</td>
<td>You need to add your Sales Document Type to the output type in this transaction.</td>
</tr>
</tbody>
</table>

5. Based on the objects you want to replicate between ERP and SAP Hybris Cloud for Customer, perform the necessary configuration activities under Application-Specific Settings:
Table 17:

<table>
<thead>
<tr>
<th>ALE Settings for the HTTP inbound</th>
<th>&lt;a one liner as to why this activity is necessary&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales Processing</strong> &gt; Setup: Sales Document &gt; Define Sales Document Type</td>
<td>To define sales document type request for customer quote and sales order.</td>
</tr>
<tr>
<td><strong>Sales Processing</strong> &gt; Setup: Sales Documents &gt; Assign Item Categories</td>
<td>To create item category determination for the defined sales document types.</td>
</tr>
<tr>
<td><strong>Sales Processing</strong> &gt; Setup: Sales Document Confirmation &gt; Maintain Output Types</td>
<td>To create output types, say, COD1 and COD4, and add the processing routine for the ALE.</td>
</tr>
<tr>
<td><strong>Sales Processing</strong> &gt; Setup: Sales Document Confirmation &gt; Maintain ALE Outbound Process Code</td>
<td>To create the process codes for objects that need confirmation, say opportunity and service request.</td>
</tr>
<tr>
<td><strong>Sales Processing</strong> &gt; User Exists &gt; User Exit for Sales Order Status Replication</td>
<td>To implement an SAP Note to receive information about any changes made to sales order’s delivery and invoice status changes in the sales order in Cloud..</td>
</tr>
<tr>
<td><strong>Number Ranges</strong> &gt; Define Number Ranges for Customer and Contacts</td>
<td>To ensure that the customer and contact ID in the SAP ERP system is the same as in the SAP Hybris Cloud for Customer system.</td>
</tr>
<tr>
<td><strong>Maintain Workflow for Incoming Request</strong> &gt; Definition of an Agent Determination Rule</td>
<td>To maintain workflow for incoming requests from SAP Hybris Cloud for Customer.</td>
</tr>
<tr>
<td><strong>Maintain Workflow for Incoming Request</strong> &gt; Maintain Agent Assignments for Standard Tasks</td>
<td>To maintain workflow for incoming requests from SAP Hybris Cloud for Customer.</td>
</tr>
<tr>
<td><strong>Maintain Workflow for Incoming Request</strong> &gt; Maintain Agent Assignments in Workflow Template</td>
<td>To maintain workflow for incoming requests from SAP Hybris Cloud for Customer.</td>
</tr>
<tr>
<td><strong>Service Processing</strong> &gt; Time Sheet Integration &gt; Assign Data Entry Profile</td>
<td>To specify the data entry profile, which should be used for the transfer of confirmation items from SAP Hybris Cloud for Customer to the crossapplication time sheet (CATS) in SAP ERP.</td>
</tr>
<tr>
<td><strong>Service Processing</strong> &gt; Time Sheet Integration &gt; Define Derivation of Activity Type</td>
<td>To define the activity type for a service material, which should be used when transferring confirmation items with a service from the Cloud system to the time sheet in the ERP system.</td>
</tr>
<tr>
<td><strong>Service Processing</strong> &gt; Controlling Integration &gt; Create and Change Controlling Scenario</td>
<td>To create a controlling scenario. If you have specified controlling type and singleobject controlling for a transaction type in the IMG activity and Controlling Scenarios, assign one of the controlling scenarios created here.</td>
</tr>
</tbody>
</table>
ALE Settings for the HTTP inbound | `<a one liner as to why this activity is necessary>`

- **Service Processing > Controlling Integration > Establish Controlling Type and Controlling Scenarios**
  - To specify the controlling type for a transaction type. If you selected single-object controlling as the controlling type, you also specify the controlling scenario.

- **Service Processing > Logistics Integration > Assign Plant to Service Organizational Units**
  - As SAP Hybris Cloud for Customer does not have any plant information, and a plant is necessary for processes in ERP, you need to define how the plant and other logistic relevant information are determined.

6. In case you want to enhance the standard delivered content, you can check for available BAdIs and implement them. We recommend that you perform business checks based on the receiver logical system when multiple receivers are available in the system landscape. You can find BAdIs:
  - For generic enhancements, under **Communication Setup > BAdIs > <business object>**

<table>
<thead>
<tr>
<th>BAdI</th>
<th>Description</th>
<th>Classic BAdl Definition Name</th>
<th>Enhancement Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDoc: Inbound Mapping</td>
<td></td>
<td>IDOC_DATA_MAPP</td>
<td></td>
</tr>
<tr>
<td>IDoc: Adding additional segments</td>
<td></td>
<td>IDOC_DATA_INSERT</td>
<td></td>
</tr>
<tr>
<td>IDoc: Creation check</td>
<td></td>
<td>IDOC_CREATION_CHECK</td>
<td></td>
</tr>
<tr>
<td>Reduce Change Pointers for Message Type</td>
<td>This reduces the scope of change pointers to be written to changes relevant to the distribution.</td>
<td>BDCP_BEFORE_WRITE</td>
<td></td>
</tr>
</tbody>
</table>

- For each object under **Application > Specific Settings > <business object> > BAdIs**

<table>
<thead>
<tr>
<th>BAdI</th>
<th>Description</th>
<th>Classic BAdl Definition Name</th>
<th>Enhancement Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Units IDoc: Outbound Mapping</td>
<td>This BAdl when implemented will adjust the outbound mapping message from ERP for Organization replication.</td>
<td>COD_ERP_ORG_UNIT_OUTBOUND</td>
<td></td>
</tr>
<tr>
<td>BA(\text{d})I</td>
<td>Description</td>
<td>Classic BA(\text{d})I Definition Name</td>
<td>Enhancement Spot</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Quotation Pricing Request Service: Inbound and Outbound Mapping</td>
<td>This BA(\text{d})I when implemented will adjust the inbound and outbound data for quotation pricing request.</td>
<td>COD_SLS_SE_ADJUST_DATA</td>
<td></td>
</tr>
<tr>
<td>Opportunity Pricing Request Service: Inbound and Outbound Mapping</td>
<td>This BA(\text{d})I when implemented will adjust the inbound and outbound data for opportunity pricing request.</td>
<td>COD_SLS_SE_SLS_ORDPRCGINFOQR</td>
<td></td>
</tr>
<tr>
<td>Print Preview Service: Output Type Retrieval</td>
<td>This BA(\text{d})I when implemented will adjust the retrieval of output type for print preview different from the default one.</td>
<td>COD_SLS_SE_GET_OUTPUT_TYPE</td>
<td></td>
</tr>
<tr>
<td>Adjust Sales order replication information</td>
<td>This BA(\text{d})I when implemented will adjust the sales order replication data in ERP.</td>
<td>COD_SLS_SE_SALES_ORDER_REPL</td>
<td></td>
</tr>
<tr>
<td>ERP Document flow in C4C: Output mapping</td>
<td>This enhancement will be used by the function module 'COD_ERP_GET_DOC_FLOW'. This can be used for any type of changes to a document flow which will be sent to an external system from an SAP ERP system.</td>
<td>BADI_COD_ERP_DOC_FLOW</td>
<td></td>
</tr>
<tr>
<td>User Exit for Sales Order Status Replication</td>
<td>When ECC sales order’s delivery and invoice status changes, these statuses in the corresponding SAP Hybris Cloud for Customer sales order is not updated. Check Note 2142202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workflow: Follow-Up Document Type Determination</td>
<td>This BA(\text{d})I when implemented is for the determination of follow up document type for workflows.</td>
<td>BADI_COD_ERP_INT_INQUIRY_PROC</td>
<td></td>
</tr>
<tr>
<td>BAdI</td>
<td>Description</td>
<td>Classic BAdI Definition Name</td>
<td>Enhancement Spot</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>BAdI: Enhancements for Service Processing</td>
<td>This BAdI when implemented will adjust the service processing data in ERP.</td>
<td>BADI_COD_ERP_SERVICE_CONF</td>
<td></td>
</tr>
</tbody>
</table>

### 5.2 Area Menu

An area menu is available to consolidate all the commonly used transactions for integrating SAP ERP with the SAP Hybris Cloud for Customer solution.

You can access this area menu in the transaction COD_INT_MENU.

The transactions are grouped as follows:

- **Monitor and Process Errors**: Transactions used to monitor IDocs, XML messages, scheduled jobs, and RFC queues, and also the transactions to reprocess IDocs, and analyze application logs.
- **Periodic Processing**: Transactions used to work with change pointers, send and process collected IDocs, and distribute time-dependent data.
- **Initial Loading or Resending Objects from SAP ERP to SAP Hybris Cloud for Customer**: Transactions of all reports that can be used to load and send data from SAP ERP to SAP Hybris Cloud for Customer system.

For more information about the reports, and the sequence in which these reports should be run, see INTEGRATION: ERP Initial Load Guide on SAP Service Marketplace.
6 Configure Phase: Configure Integration in SAP HCI

SAP provides prepackaged, generic integration content called integration flows (iFlows) for the integration of SAP Hybris Cloud for Customer with an on-premise system using SAP HANA Cloud Integration. The list of iFlows with their corresponding mappings, downloaded as a spreadsheet. You can download and drill down for more detailed sample field mapping description in the Integration Flows spreadsheet for each of the iFlows on the SAP Service Marketplace.

Prerequisites
To be able to import and deploy iFlows, you need the AuthGroup.IntegrationDeveloper role assigned in your tenant.

6.1 View Prepackaged iFlows using SAP HCI Web UI

1. Access the web UI URL from the provisioning e-mail. It should be in the format: https://<hcitenant>.hana.ondemand.com/itspaces.
2. View all pre-packaged iFlows in the Catalog tab.
3. Click on the package SAP Cloud for Customer Integration with CRM or SAP Cloud for Customer Integration with ERP name of the on-premise solution.
4. For each iFlow, select the Download option, and view all iFlow relevant metadata.

6.2 Configure and Deploy the iFlow using SAP Web UI

1. Select all the iFlows you want to deploy for each iFlow, and select the Deploy Mass Configure option.
2. Under the Endpoints tab, for Receiver Endpoints, enter the hostname and port information of the “Receiver” system (either SAP Hybris Cloud for Customer or SAP CRM or ERP)
3. Under the Certificates tab, for the externalized parameters, select the Browse button to upload the client certificate of the sender system.
4. Click Deploy to see the “Deploy Successful” message in the console.

6.3 View and Extend the Deployed iFlow using SAP Eclipse

Pre-requisites
1. Install the SAP HCI Eclipse environment, see https://tools.hana.ondemand.com/#hci
2. Maintain the HCI Operation server details at Windows Preferences SAP HANA Cloud Integration Operation server (see provisioning e-mail for details)

6.3.1 Download the iFlow projects on your desktop

1. Go to Integration Operations Perspective.
2. In the Node Explorer, Click on the root element (this should launch the Message Monitoring and Deployed Artifacts view for that particular HCI runtime tenant.
3. Go to Deployed artifacts.
4. For each iFlow that was previously deployed from SAP HCI Web UI, click Download.
5. Save the zipped file locally on your desktop.

6.3.2 Import the iFlow projects into the local workspace

1. Import the iFlow projects into your eclipse environment by going to the Integration Designer perspective, Windows Open Perspective Integration Designer.
2. Click on File Import option.
3. Select the option Existing projects into Workspace and Click on Next.
4. Browse and import the downloaded version of the iFlow project (as done in step 1).
5. Click Finish.
6. The selected iFlow projects are now imported into your local workspace in the HCI eclipse environment.

6.3.3 View the configured certificates and externalized parameters

1. In the Project Explorer expand the tree view and double click to open the iFlow found under src.main.resources.scenarioflows.integrationflows.
2. In the Integration Designer, select the iFlow.
3. Within the iFlow, select the sender system, and under Properties tab.
4. If you wish to update the authentication of the iFlow to Basic Authentication, it is possible by selecting the mode of authentication as Basic Authentication. For more information on configuring basic authentication, see How-To guides.

Note
When using basic authentication make sure to create new SCN user or use the existing SCN user and password to authenticate into HCI. The SAP SCN can be accessed from http://scn.sap.com.
5. For Certificate-based Authentication, view the details under the Properties tab.
6. To view the configuration of the iFlow, click on Externalized Parameters tab, under the Value field, and view the configured <host>:<port> information of the receiver system.

6.3.4 Extend the Project in Eclipse and Deploy

1. To extend the iFlow project, you can make modifications to either of the three folders,
   ○ src.main.resources.mapping
   ○ src.main.resources.scenarioflows.integrationflow
   ○ src.main.resources.wsdl
2. Deploy the modified iFlow project by using the right-click option at the iFlow project level and select Deploy Integration Content.
3. Enter the Tenant ID and click OK.

6.3.5 Maintain Value Mapping between Cloud and ERP in HCI

The value mappings listed in the table below are delivered as part of the pre-packaged HCI content which can be found in the eclipse project com.sap.sod.scenarios.valuemapping.

Table 20:

<table>
<thead>
<tr>
<th>Agency 1</th>
<th>Scheme 1</th>
<th>Agency 2</th>
<th>Scheme 2</th>
</tr>
</thead>
<tbody>
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<td>ERP</td>
<td>ReceiverPort</td>
</tr>
<tr>
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<td>SenderParty</td>
<td>ERP</td>
<td>SenderPort</td>
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<td>ERP_PartyFunction</td>
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<td>LogicalSystemID</td>
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</tr>
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<td>COD</td>
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</tr>
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<td>AcademicTitleCode</td>
<td>COD_Academictitlecode</td>
<td>AcademicTitleCode</td>
</tr>
</tbody>
</table>
1. Import the project com.sap.sod.scenarios.valuemapping into the Eclipse similar to importing an iFlow.
2. In the Project Explorer, open the value mapping file value_mapping.xml found in the value mapping project.
3. In the value_mapping.xml file each group element should have two set of agency, schema and value element representing source and target values.
4. Maintain the value mapping based on the requirement by providing the source agency name, source schema name, source value with respective target agency name, target schema name and target value.
5. To change the value of existing value mapping identify the respective source and target agency-schema combination and change the value mapping as required.
6. A new value mapping entry can also be added by using the existing value mapping entry as a template.
7. Save the value_mapping.xml file.
8. Deploy to the HCI runtime tenant.

**Note**

**Transfer accounts with sales area data from Cloud to ERP**

You can create and edit sales area information in an account in the Cloud system, and also transfer it to ERP. Special consideration when you create a new sales area in Cloud and transfer it to SAP ERP:

- Few sales-area-specific fields may be mandatory in your ERP system (depending on your system configuration) which are not available in Cloud. This can lead to errors in iDoc processing in ERP.
- To overcome this, you can use BAdIs to fill the mandatory fields, for example, with default values.
- SAP Note 2065329 provides an example code for BAdI implementation.

If you do not want to use this feature, deactivate sales area data segment /DEBMAS06/IDOC/E1KNA1M/E1KNVVM in the target interface through the message mapping COD_ERP_BusinessPartnerERPBulkReplicateRequest.
7 Extend Phase: Extend Cloud Solution for ERP Integration

If you want additional fields from your on-premise system to be displayed in the Cloud solution, you can extend pre-packaged content delivered by SAP (iFlows). SAP recommends you to use SAP Key User Tool (KUT) for simple extensions, and the SAP Cloud Studio for complex extensions. Once you have extended the source and target interfaces, you should map the extended field(s) in the SAP middleware system.

For more information, see the following:

- INTEGRATION: Extending SAP Hybris Cloud for Customer
- How to Extend SAP Hybris Cloud for Customer - SAP On-Premise Pre-Packaged Integration Content
8  Data Load Phase: Perform ERP Initial Data Load

The Data Load Phase defines how to extract data from the SAP ERP system and loads it into the Cloud solution. As a prerequisite for the initial load, you must specify the entire configuration settings for SAP ERP, SAP middleware such as SAP Process Integration or HANA Cloud Integration, and Cloud systems.

The initial load guide describes the configuration settings necessary to send master data from the SAP ERP system to the cloud solution and to process data in the SAP ERP system that was sent from the cloud solution. When you send and receive IDocs, SAP ERP and the cloud solution expect different sequences for customers and addresses. In order to send and process IDocs in the right sequence, you need to adhere to the sequence of steps as mentioned in the guide while defining background jobs.

For more information, see INTEGRATION: ERP Initial Load Guide on SAP Service Marketplace.

For information on how you can plan for optimal performance during high volume data loads into your SAP Hybris Cloud for Customer solution from an SAP on-premise system, see Best Practices for Optimal Performance of Data Loads into SAP Hybris Cloud for Customer.
9 Data Load Phase: Perform ERP Delta Load

The Data Load Phase defines the steps required for the delta load of customer hierarchies. During the initial load, the change pointers created for customer hierarchy takes only the current state into account. Hence, there is a mechanism necessary to also identify the time slice changes. As this is not triggered by any user interaction, there are no change pointers created. For example, an end date for a specific entry is reached, and the customer hierarchy turns invalid. If the change pointers are not created, the hierarchy deletion information is not reflected in the Cloud solution.

To overcome this issue, the report RCOD_CUSTHIER_TIME_SLICES must be scheduled as daily background job in transaction SM36 in your ERP system. It discovers time slice changes and creates change pointers for the same.
10 Monitor Phase: Monitor Message Flow Across Systems

Messages are exchanged between the SAP on-premise, SAP Middleware and SAP Hybris Cloud for Customer systems, during data load and go-live phases. These messages need to be monitored for following reasons:

- Identify incorrect data in messages
- Narrow down on the component where the message has failed
- Check connectivity issues between the components

For more information about monitoring the data across these systems, see the Monitoring Guide SAP Service Marketplace.
11 Appendix

11.1 (Deprecated) SAP Hybris Cloud for Customer for Retail: Integration Overview (HCI)

This section, in the integration guide, contains integration information specific to the industries solutions in SAP Cloud for Customer. We recommend you reading through the information in the section relevant for each industry solution before setting-up your landscape.

This chapter and the following related topics contain information specific to integration of SAP Cloud for Customer for Retail with the SAP IS-Retail system.

The following communication scenarios are pre delivered for the retail solution:

- Characteristics Replication (inbound to Cloud for Customer)
- Merchandising Category Replication (inbound to Cloud for Customer)
- Article Replication (inbound to Cloud for Customer)

Perform the replication of characteristics, merchandising category, and articles in the following order:

1. Characteristics
2. Merchandising Category
3. Article

It is important to follow the order because these master data objects are dependent on each other.

i Note

This standard ERP report RCOD_CREATE_CONNECTIVITY_SIMPL for creating connectivity objects for interfaces is not used for the IS Retail solution. Therefore, the connectivity objects for interfaces for IS Retail objects must be manually defined.

Example

Article replication depends on merchandising category that is already being replicated to Cloud for Customer. Merchandising category replication depends on the associated characteristics which is already being replicated to Cloud for Customer.
11.1.1 View Prepackaged iFlows using SAP HCI Web UI

Procedure

1. Access the web UI URL from the provisioning e-mail. It should be in the format: https://%20%3Chcitenant%3E.hana.ondemand.com/itspaces
2. View all pre-packaged iFlows in the Catalog tab.
3. Choose the SAP Cloud for Customer Integration with IS Retail package.
4. For each iFlow, select the Download option, and Save to view all iFlow relevant metadata.

11.1.2 Characteristics Replication (Inbound)

**iFlow name:** Replicate Characteristics from SAP IS Retail.

**Sender Interface:** CHRMAS.CHRMAS04.

**Namespace:** [[unresolved text-ref: urn:sapcom:document:sap:idoc:messages]].

**Receiver Interface:** IS_Retail_BusinessAttributeReplication_In.

**Namespace:** http://%20sap.com/xi/AP/FO/BusinessAttribute/Global.

**Mapping:** ERP_COD_IS_Retail_BusinessAttributeReplicateBulk.

**SOAP receiver Communication Channel Path:** [[unresolved text-ref: https://host:port/sap/bc/srt/scs/sap/businessattributereplicationre?MessageId]].

➤ **Recommendation**

Use transaction BD91 to trigger the outbound characteristics IDocs from the SAP IS-Retail system.

11.1.3 Merchandising Category Replication (Inbound)

**iFlow name:** Replicate Merchandising Category from SAP IS-Retail.

**Sender Interface:** WMERCAT.WMERCAT01.

**Namespace:** [[unresolved text-ref: urn:sapcom:document:sap:idoc:messages]].

**Receiver Interface:** IS_Retail_Business_AttributeSetReplication_In.

**Namespace:** http://%20sap.com/xi/AP/FO/BusinessAttribute/Global.

**Mapping:** ERP_COD_IS_Retail_MerchandisingCategory.

**SOAP receiver Communication Channel Path:** [[unresolved text-ref: https://host:port/sap/bc/srt/scs/sap/businessattributereplicationre?MessageId]].
11.1.4 Article Replication (Inbound)

**iFlow name:** Replicate Articles from SAP IS Retail.

**Sender Interface:** ARTMAS.ARTMAS05.

**Namespace:** [[unresolved text-ref: urn:sapcom:document:sap:idoc:messages]].

**Receiver Interface:** IS_Retail_MaterialReplicationBulkIn.

**Namespace:** http://sap.com/xi/A1S/Global.

**Mapping:** ERP_COD_IS_Retail_ARTMAS.

**SOAP receiver Communication Channel Path:** [[unresolved text-ref: https://host:port/sap/bc/srt/scs/sap/retailmaterialreplicatein?MessageId]]

**Integration Scenario to be maintained on C4C Communication Arrangement:** Replicate SAP IS-Retail products from external system.

Recommendation

Use transaction BD10 to trigger the outbound Article IDocs from the SAP IS-Retail system.

11.2 MRS Integration Overview via HCI

This section contains information specific to integration between SAP Cloud for Customer for MRS and SAP ERP-MRS Add on.

The following communication scenarios are pre delivered for the MRS solution:

- DemandReplication (outbound replication from Cloud for Customer to MRS)
- DemandAssignment (inbound replication to Cloud for Customer from MRS)
- AssignmentStatus (outbound replication from Cloud for Customer to MRS)

**Note**

- Perform employee replication from MRS to Cloud for Customer using the standard employee replication content which is documented in the *Initial Load and Quick Setup* topics in the *Administrator Guide*:
- Set up organization units in Cloud for Customer corresponding to the organizational unit structure available in MRS as follows:
  - As part of the Org Setup, for those of the Org Units created in Cloud for Customer corresponding to the MRS Org Units, the *Service Organization* and *Customer Service* attributes have to be selected in Org Setup.
As part of the Org Setup, the ID mapping has to be performed manually in Cloud for Customer in the administrator work center. The MRS Org Unit IDs have to be mapped against the corresponding Cloud for Customer Org Unit IDs via **CRM Organizations and Units** scheme for the MRS communication system.

If a Ticket is assigned to a service technician team which does not have an ID mapping, then such ticket is transferred to MRS by **Releasing for Scheduling** action. Then this outbound message fails and gives a mapping error in Cloud for Customer. This is the desired behavior; and to rectify this issue, the missing ID mapping has to be maintained for the Cloud for Customer Org Unit and the message would be reprocessed in the **Web Service Message Monitor** tool.

- See [2163862](#) for the MRS SP installation information.

For the technical user created in MRS for communication between SAP ERP Process Integration and MRS, the following roles need to be added:

- SAP_BC_LVC_USER
- SAP_BC_WEBSERVICE_CONSUMER
- SAP_BC_WEBSERVICE_PI_CFG_SRV
- SAP_BC_WEBSERVICE_SERVICE_USER
- SAP_QAP_BC_SHOW
- SAP_QAP_XI_APPL_RWB
- SAP_SLD_GUEST
- SAP_XI_APPL_SERV_USER

In addition, the following authority object with the mentioned activities must also be configured for the same user:

- Authority Object - PLOG

**Known Issues**

After the replication of Demand from Cloud for Customer to MRS, if there is a change on only the ticket subject and no other field, then, this update does not flow to MRS.

When a user is on the ticket details screen, and there are assignment update messages for the same ticket from MRS that gets processed in Cloud for Customer, and if the user tries to delete a ticket item, then this error message displays:

*Data has been changed in parallel session*

In this scenario, the user has to **Refresh** the ticket details screen before proceeding with any further action.

### 11.2.1 View Prepackaged iFlows using SAP HCI Web UI (MRS)

**Procedure**

1. Access the web UI URL from the provisioning e-mail. It should be in the format: `https://hcitenant %20.hana.ondemand.com/itspaces`
2. View all pre-packaged iFlows in the Catalog tab.
3. Choose the SAP Cloud for Customer Integration with MRS package.
4. For each iFlow, select the Download option, and Save to view all iFlow relevant metadata.
11.2.2 Demand Replication (Outbound)

This outbound interface replicates service tickets and ticket items, such as: Demands; which are created and marked as Relevant for Scheduling from Cloud for Customer to MRS.

**iFlow name:** Replicate Demand to MRS

**Sender Interface:** DemandPushOut Namespace: [http://sap.com/xi/A1S/Global]

**Receiver Interface:** PushDemand Namespace: http://sap.com/xi/MRSS_NW

**Operation Mapping:** COD_MRS_DemandPush

**SOAP receiver Communication Channel Path:** [https://host:port/ sap/bc/srt/xip/mrss/pushdemand/<client>/mrss_pushdemand/mrss_pushdemand?MessageId]

*Maintain integration scenario in Communication Arrangement for Cloud for Customer: Demand replication to External System*

11.2.3 Demand Assignment (Inbound)

In MRS, employees are assigned to each ticket item or demand. These assignments created in MRS would be replicated to Cloud for Customer using this interface.

**iFlow name:** Replicate Demand Assignment from MRS

**Sender Interface:** AssignmentsPublish Namespace: http://sap.com/xi/MRSS_NW

**Receiver Interface:** DemandAssignmentIn Namespace: http://sap.com/xi/A1S/Global

**Operation Mapping:** MRS_COD_Demand_Assignment

**SOAP receiver Communication Channel Path:** [https://host:port/ /sap/bc/srt/scs/sap/demandassignmentreplicationin?MessageId]

*Integration Scenario to be maintained on Cloud for Customer Communication Arrangement: Demand replication to External System*

11.2.4 Assignment Status (Outbound)

This pertains to the visits created in Cloud for Customer corresponding to the MRS assignments. Any assignment or visit status changed in Cloud for Customer is sent back to MRS using this interface.

**iFlow name:** Replicate Assignment Status to MRS

**Sender Interface:** DemandAssignmentStatusOut Namespace: http://sap.com/xi/A1S/Global

**Receiver Interface:** PushAssignmentStatus Namespace: http://sap.com/xi/MRSS_NW

**Operation Mapping:** COD_MRS_AssignmentStatus

**SOAP receiver Communication Channel Path:** [https://host:port/ sap/bc/srt/xip/mrss/pushassignmentstatus/<client>/pushassignmentstatusfromc4c/pushassignmentstatusfromc4c?MessageId]
Integration Scenario to be maintained on Cloud for Customer Communication Arrangement: Demand replication to External System.
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