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Integrating SAP Cloud for Customer with SAP CRM using SAP HANA Cloud Integration

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1 Integrating SAP Cloud for Customer with SAP CRM using SAP Cloud Integration

About this Document

This document describes how to integrate SAP Cloud for Customer with an existing on-premise SAP CRM system using SAP Cloud Integration (CI).

The document is intended only as a guide to help you prepare and apply the steps necessary for successful integration.

Methodology

When you configure your SAP Cloud solution, for integration with SAP CRM, 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 CRM on-premise system are identified by the prefix **CRM**
- SAP Cloud for Customer are identified by the prefix **Cloud Solution**
- SAP Cloud Integration are identified by the prefix **CI**

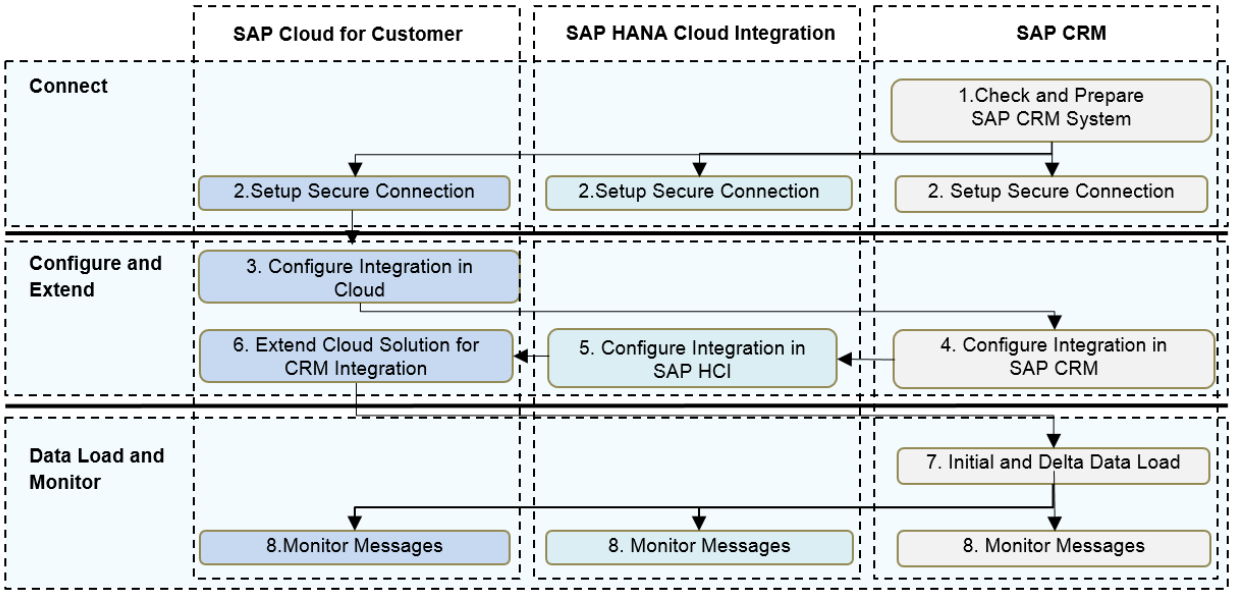
Target Audience

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 CRM Developer may be required, if additional BADI's or any custom work becomes necessary.

Role	Activity
SAP CRM Consultant	Configuration activities in the SAP CRM system
SAP CRM Middleware Developer	Ensuring BDOCs and destinations are correctly configured.
SAP Cloud Integration Consultant	Configuration activities in the SAP Cloud Integration
Cloud Administrator	Configuration activities in SAP Cloud for Customer. Will need functional expert participation for code-list mapping.
System Administrator	• Establishing a secure network connection between the SAP CRM system and SAP Cloud for Customer systems • Installing software components from SAP ONE Support Launchpad

Integration Guide Map

This integration guide map is an overview of the steps necessary for an end-to-end integration between SAP CRM and SAP 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 SAP CRM Integration Scenario Overview

Purpose

Integration of SAP Cloud for Customer with SAP CRM 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 transaction data is replicated between the two systems.

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

Summary of Useful Links for Future Reference

Useful Information	When to read it
SCN Blog - SAP Cloud for Customer Integration with SAP ERP and CRM: How-to Guides and E-Learning	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.
SAP Help portal – Integration Help for SAP CRM	One pager that contains all information about SAP CRM integration with SAP Cloud for Customer.
How-to guide (HTG) within the Best Practice for Integration Guide on the SAP Cloud for Customer product page.	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.

2 Connect Phase: Check and Prepare SAP CRM System

Prerequisites

Your enterprise operates on SAP CRM 7.0 EHP 0 or a higher release. To check the CRM release, go to *System* > *Status* under SAP System Data, check the component version.

- If you operate on SAP CRM 7.0 EHP 0, the minimum support package level to install the add-on is BBPCRM 700 SP6 (SAPKU70006). The other supported releases are SAP CRM 7.01, SAP CRM 7.02, SAP CRM 7.12, and SAP CRM 7.13.In case you need to upgrade your system, we recommend installing the latest support package for BBPCRM.
- If you operate on SAP CRM 7.0 EHP 1 or higher, no support package upgrade for BBPCRM is required to install the add-on.

Also, if you want to:

- Replicate attachments in opportunities and leads, you will need CRM 7.0 EHP 0, SP7 or higher.
- Exchange social media between SAP Cloud for Customer and CRM, you need at minimum CRM 7.0 EHP 3 and SAP_BS_FND 747 SP04 installed. Furthermore, to allow end users to access the UI function, enable the business function CRM_SMI.

2.1 CRM Software Components

Purpose

SAP Cloud for Customer (Cloud) provides an add-on for SAP CRM that mainly contains the following:

- Missing interfaces for the C4C-CRM integration,
- Convenience functionality to simplify the setup of the integration.

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

Each Cloud release comes with a new support package of the CRM 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 ERP 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

:

1. Go to **SAP ONE Support Launchpad** (Launchpad.https://support.sap.com).
2. Click *Software Downloads*.
3. Search for `CRMPCD01 700`.
4. Choose the entry marked for *Installation Software Component*.
5. If you install the add-on for the first time, click *Installation* and install the package.
6. On the `CRMPCD01 700` page, click *Support Packages and Patches*.
7. Select the required packages and click *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 *Download Manager*.
9. Install the add-on in your ERP system, and upgrade to the latest support package.

2.2 Important SAP Notes for CRM Core Component

This section points you to the *SAP Notes* you need to refer.

The SAP Note 2302112 lists important notes for the CRM core component that are required to make the integration between SAP Cloud for Customer and SAP ERP seamless. You must ensure the listed notes are implemented in your system.

We recommend that you regularly check for *SAP Notes* under software component *CRMPCD01* to receive any subsequent corrections.

2.3 Create SAP CRM User

This section is only required if you do not have communications user on SAP CRM or need help creating another user.

Purpose

This section describes how to create a user in SAP CRM that can be used by the Cloud solution for authentication against SAP CRM. You can enter this user when you configure outbound communication arrangements in the Cloud solution.

Procedure

1. In the on-premise system, go to transaction *SU01*.
2. In the *User* field, enter the name of the user you want to create, for example CODINTEG.
3. Select *Create*.
4. On the *Maintain User* screen, enter the data as shown in the table below, and then save your entries.

Maintain User Screen Fields

Address tab page	Last Name	Add a name, for example CODINTEG

Logon data tab page	User type	**C** Communications Data or **B** System
	Password	<password>
Profiles		Execute transaction SU22 and determine the authorizations required for business transactions (BP, Material, Opportunity, Lead) Make certain that the technical user has the same authorization objects and values assigned to him or her as that of the dialog user who has access to these business transactions. Additionally, the integration user must be assigned to the authority object SMI_AUTH for create, update and delete operations in social media user profile integration. **Note** Instead of using SU22, you can import the security role required for CRM, by applying the SAP note 1956819.

3 Connect Phase: Set Up Secure Connection between CRM-CI-Cloud Systems

This chapter covers the requirements for configuring secure connection between SAP 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**
>
> CI allows both certificate-based authentication and basic authentication. For more information, see Setting Up Inbound HTTP Connections (Integration Flow Processing).

Communication between Cloud Solution and CI Tenant

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

Communication from SAP CRM to CI Tenant

The SAP CRM system must be able to connect to the Internet via https protocol as a prerequisite for communication from SAP CRM 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 CRM 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 CI provisioning e-mail.

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

1. Go to https://cloudintegration.hana.ondemand.com/CI/help.
2. Open the complete documentation, say click SAP CI for process integration complete documentation (HTML).
3. Go to ▶ *Connecting a Customer System to SAP CPI* ▶ *Concepts of Secure Communication* ▶ *HTTPS-Based Communication* ▶ *Load Balancer Root Certificates Supported by SAP* ▶.

Communication From CI Tenant to SAP CRM

It should be possible for CI to access SAP CRM 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 CRM system, and go through the section *Network and Communication Security*.

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

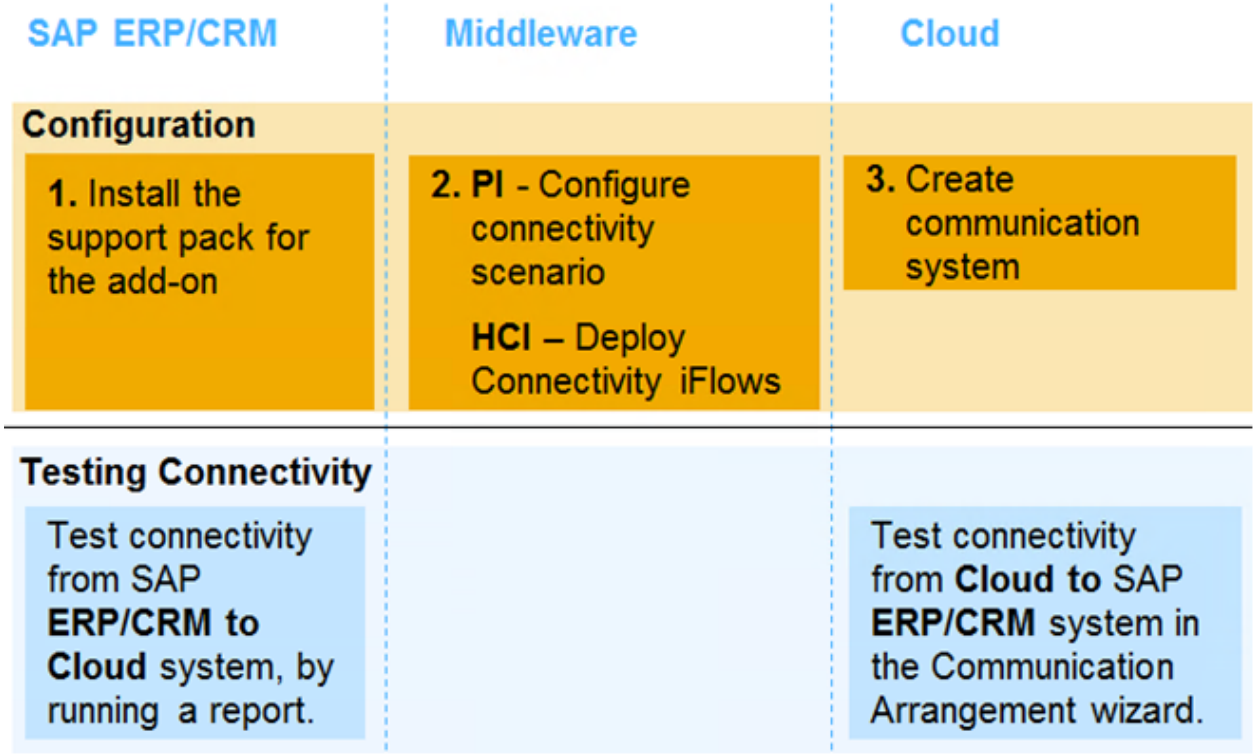
Ensure that the root CA of CI client certificate is trusted by your reverse proxy or SAP CRM system, as applicable.

> **Note**
>
> Alternatively, connection from CI tenant to SAP CRM can also be established via SAP Cloud Connector. For more information on setting up SAP Cloud Connector, see SAP Cloud Platform Connectivity.

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 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:



- **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 Integration in SAP Cloud for Customer

4.1 Activate SAP CRM 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 Project*s 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* .
6. Select the required scoping options and choose *Next*.

> **Note**
>
Select the node	If you want to
Integration with CRM	Ensure SAP CRM integration is active in your Cloud solution
Integration of Master Data	Enable exchanging master data between your Cloud solution and an external solution such as SAP CRM
Integration into Sales, Service, and Marketing Processes	Enable exchanging transactional data between your Cloud solution and an external solution such as SAP CRM

Select the node	If you want to
Business Process Management > *Process- Integrated Input and Output Management* Select both the scoping options under Web Service Message Monitor.	Monitor messages in the Web Service Message monitor under Administrator work center. → Recommendation SAP recommended you to activate this function while Scoping, in order to allow administrators to monitor the incoming and outgoing web service messages. For more information, see *Help Center* > *SAP Cloud for Customer Library* > *SAP Cloud for Customer Administration Guide* > *General Settings* > *System Administration* > *Web Service Message Monitoring Quick Guide*

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 now 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 Configuration view* > *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.

Field	Entry	Example
ID	ID or name of the on-premise system to be connected	Q5E
SAP Business Suite	Select the checkbox	X
Internal Comment	A short description of the on-premise system you are connecting	Q5E - ERP Test System
Host Name	• If using PI, then enter the reverse proxy of the middleware • If using CI, then enter the SAP Cloud Integration worker node host name provided by SAP Cloud Managed Services	PI: <XXX>.SAP.COM CI: https://<XXXXX>-ifl-map.cpisbt.<XXX>.hana.ondemand.com
System Access Type	Internet	Internet

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:

Field	Entry	Example
Business System Instance ID	Displays the ID or name of your business instance of the SAP on-premise systemclient	PI: Q5E_004 CI: Q5ECLNT004
Business System ID	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 *System Landscape* > *System Landscape Directory* > *Business Systems* > *Search for the ERP system, say Q5E** > *Go* > . In the *Overview* 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 CI, then default it to the same value as the IDoc Logical Sys tem ID. If you are using CI, enter the IDoc logical system ID of your ERP instance. For information on how to get the IDoc logical system ID, see below.	PI: Q5E_004 CI: Q5ECLNT004

Field	Entry	Example
IDoc Logical System ID	The IDoc logical system ID of the SAP on-premise client, maintained in ALE. Path. *SAP Customizing Implementation Guide* > *SAP NetWeaver* > *Application Server* > *IDoc Interface / Application Link Enabling* > *Basic Settings* > *Logical Systems* > *DefineLogical Systems*	Q5ECLNT004
SAP Client	Client of the SAP on-premise system	004
Preferred Application Protocol	Web Service	5_Web Service

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.

> **Note**
>
> The number of communication scenarios to be defined depends on the scoping you have performed.

You can find a list of all the communication arrangements and the corresponding service interfaces in the **Integration Flow** spreadsheet (*SAP Help Portal* > *Cloud for Customer* > *Integration* > *Integration Flows*).

Prerequisites

You know the following:

- Communication system ID as maintained in the *Set up Communication System.*
- Tenant ID of SAP 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, see the relevant integration guide.

4. Click *Next*.

3. 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 OutboundCommunication 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:

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*.
Service URL	Displays the URL of the 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:

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.
Port	Enter the reverse proxy port of the on-premise system
Path	Displays the path to the service interface.
Service URL	Displays the URL of the service.

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.

Authentication Method	Settings

SSL Client Certificate	If you use this authentication method, you need to either: • 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-CI/ LOD-PI). • 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. **To upload a PKCS#12 file:** • Choose *Certificate*. • Click and choose the relevantUpload Certificate • Click *OK*. **To create a PKCS#12 key pair file:** • Choose *Certificate*. • Click *Create and Download Key Pair*. • Enter a name for the PKCS#12 file and save it. • Define a password for the PKCS#12 file and click *OK*. The certificate details will be displayed. • Click *OK*.
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

Authentication Method	Authentication	Settings
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.
	Trusted Third-Party Key Pair	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. • Choose the option *Trusted Third-Party Key Pair*. • In the Certificate field, click *Edit Credentials*. • Click *Upload Key Pair*, and choose the PKCS#12 file you want to upload. • Enter the required password and click *OK*.
User ID and Password		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. • In the User ID field, click *Edit Credentials*. • Enter the user ID and password. • Click *OK*.

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.

In case, the chosen middleware is CI, to configure the connectivity, follow the steps outlined in the Client Certificate Authentication for Integration Flow Processing.

4.4 Export the Root Certificate

.

SAP 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 Perform Code List Mapping

For information on how to perform code list mapping, read the Quick Start Guide..

4.7 Create CRM ID Mapping

Purpose

This section describes how to create ID mapping for sales organizations, sales offices, sales groups and product categories. For these business objects, ID mapping is created manually. ID mapping for accounts, contacts, and

materials 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*.

Prerequisites

Before you create ID mapping, organizational data and product categories must be maintained in the cloud solution. Moreover, employees 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 CRM system.
4. Click *Go*.
5. In the *External ID* column, enter the ID of the object in the CRM system.
6. Repeat steps 2 to 5 for all the following objects:
    - Business partner
    - Material
    - Organizations and units
    - Product categories
7. Save your entries.

4.7.1 ID Mapping using the Microsoft Excel Template

The Microsoft Excel® template for ID mapping allows you to maintain IDs easily.

> ⓘ Note
>
> 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*.

> **Note**
>
> The Local IDs correspond to the IDs used in the cloud solution and the External IDs correspond to the IDs in the SAP CRM system.

7. You can 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* to download the excel template.
2. Open the file and accept messages to enable macros.
3. Go to *SAP Add-In Logon*, and provide the URL to Cloud system, 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 in the Cloud

4.8 Maintain Default Communication Language

Purpose

Many texts in SAP Cloud for Customer are language independent, whereas texts are usually language dependent in SAP CRM. You have to enter a default communication language in the Cloud solution. This communication language is used to identify the language dependent text in SAP CRM to be synchronized with the language independent text in the Cloud solution.

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 *Communication Language for Data Replication*.
5. Select *Additional Communication Language* and Click button *Add to Project*.
6. Open *Communication Language for Data Replication*.
7. Add row and select the language.
8. Save and close the activity.

If you have already entered a language for internal communication in SAP CRM, we recommend that you use the same language as the communication language in the Cloud solution.

For more information, refer to the activity under *SAP Customizing Implementation Guide* > *Customer Relationship Management* > *Basic Functions* > *Text Management* > *Define Language for Internal Communications* .

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 CRM

This chapter covers the configuration required on SAP CRM. This includes business partner customizing and middleware configuration.

5.1 SAP Customizing Implementation Guide in the CRM System

All the customization activities necessary to integrate SAP CRM with SAP 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 CRM system, go to the transaction *SPRO*, and click *SAP Reference IMG*.
2. Expand Integration with Other mySAP.com Components à Integration with SAP Cloud for Customer.:
3. Run the report to automatically perform the basic configuration activities:

IMG Activity	Description
Communication Setup Automatically > *Generate Integration Settings for Data Exchange*	This activity will run the report CRMPCD_CREATE_CONNECTIVITY_SIM, and automatically configures the basic settings for establishing a connection between the systems. . For example: • Creates RFC destinations to connect from SAP CRM 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 • Creates IDoc site and subscriptions for a site • Creates linkage between CRM Middleware and XIF and IDoc • Activates a service • Maintains endpoints for services • Schedules the inbound and outbound jobs for running change pointer reports, processes the collected IDocs, and reprocess the failed IDocs. **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*

ALE Settings for the HTTP inbound	
Define Logical System	The CRM system must be configured as client independent Customizing. The communication partner is not the middleware but the Cloud solution.
Define RFC destination	The CRM system must be configured as client independent Customizing. The RFC destination is required for the middleware system.
Maintain Port Definition	The CRM system must be configured as clientt independent Customizing.
Maintain Distribution Model	Create a distribution model to determine the system to which IDocs should be sent.

ALE Settings for the HTTP inbound	
Activate change pointers - General	In standard SAP delivery, the writing of change pointers is turned off. Ensure that the writing of change pointers is turned on.
Activate change pointers for message types	You must activate change pointers for message types in the SAP CRM system, in order to enable continuous replication of changes to SAP Cloud for Customer system.
Register Service for IDoc Inboun	You need to register the IDoc inbound service if IDocs have to be received by CRM via SOAP/HTTPS.
Maintain IDoc Partner Profile	Create a partner profile of type LS, and maintain the inbound and outbound parameters for inbound and outbound IDoc message types.
Setup ICF Nodes	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.
Configuration in SOA Management	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 CRM to SAP Cloud for Customer • To send attachments from SAP Cloud for Customer to SAP CRM
Create Communication Users	You need to create a user in SAP CRM, which can be used by the Cloud solution for authentication against SAP CRM. You can enter this user when you configure outbound communication arrangements in the Cloud solution.
Maintain Certificate to User Mapping	The client certificate (public key) of the middleware should be mapped to the communication user in the on-premise system.
Assign Authorization Profiles and Roles to Communication Users	You need to maintain the assignments of authorization required for business transactions to your communication user..
XIF Adapter Setup ▶ *Generation of BDoc Services* ◀	Ensure that BDoc Services have been generated, and function as expected. It is an activity not restricted to the integration of SAP CRM with SAP Cloud for Customer. It is an activity carried out during the initial setup of the SAP CRM system.
XIF Adapter Setup ▶ *Create Sites and Subscriptions* ◀	You need to create a site of type External Interface for IDocs that represents the Cloud solution. You need to add the subscription for your business objects. The subscription ensures that updates are replicated to the Cloud solution.

ALE Settings for the HTTP inbound	
XIF Adapter Setup ▶ *Assign Site and BDoc Type to Interface type* ▶	You need to make this assignment, in order to link the CRM middleware BDoc to the XIF IDoc. It must be maintained for each BDoc and IDoc combination..
XIF Adapter Setup ▶ *Register Middleware Queue* ▶ ▶	All replication and realignment queues for the data exchange from SAP CRM system are automatically registered when starting the replication. However, the CSA queues have to be manually registered.
Activate serialization for inbound iDocs	When serialization is active, the sequence of inbound iDocs is considered during processing. Therefore, an old iDoc will not be reprocessed if a more recent one for the same object is successfully processed.

:

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

ALE Settings for the HTTP inbound	<a one liner as to why this activity is necessary>
▶ *Business Partners* ▶ *Create Business Partner Identification Type* ▶	
▶ *Business Partners* ▶ *Number ranges and groupings for business partner* ▶ *Number ranges and groupings for business partner* ▶	To ensure that the account number in the SAP CRM system is the same as in the SAP Cloud for Customer system..
▶ *Business Partners* ▶ *Number ranges and groupings for business partner* ▶ *Define Groupings and Assign Number Ranges* ▶	A ssign the number range to the group that matches the grouping in SAP CRM. The (INTERNALID ↔GROUPING) will need to match the grouping configured in the IMG for the external number assignment.
▶ *Business Partners* ▶ *Contact Role Assignments to Contacts* ▶	You need to perform this activity in order to automatically assign the role Contact Person while creating a contact.
▶ *Business Partners* ▶ *Activate International Address Versions* ▶	You need to implement an SAP Note to receive information about any changes made to sales order's delivery and in-voice status changes in the sales order in Cloud..
▶ *Number Ranges* ▶ *Define Number Ranges for Customer and Contacts* ▶	You can maintain more than one version of an address at the same time, so an address can be held in various character sets, such as in English alphabets, Kanji characters and Latin letters. SAP delivers many version keys, and you can activate these version keys or create your own..

ALE Settings for the HTTP inbound	<a one liner as to why this activity is necessary>
Service Processing > *Time Sheet Integration* > *Define Derivation of Activity Type*	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 CRM system.

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 the available BAdIs for each object under *Application-Specific Settings* > *<business object>* > *BadIs*

BAdI	Description	Classic BAdI Definition Name	Enhancement Spot
IDoc: Inbound Mapping		IDOC_DATA_MAPP ER	
IDoc: Adding additional segments		IDOC_DATA_INSER T	
IDoc: Creation check		IDOC_CREATION_C HECK	
Reduce Change Pointers for Message Type	This reduces the scope of change pointers to be written to changes relevant to the distribution.	BDCP_BEFORE_WR ITE	

- For generic enhancements, under *Communication Setup* > *BAdIs* > *<business object>*:

BAdI	Description	Classic Classic BAdI Definition Name	Enhancement Spot
Product Category IDoc: Inbound Mapping	This BAdI when implemented is used to adjust the outbound message data from CRM for product category replication.	CRMPCD_PCH_MAP	
Product Category IDoc: Outbound Filtering	This BAdI when implemented is used to filter unintended product category from being replicated from CRM.	CRMPCD_PCH_VLD	

BAdI	Description	Classic Classic BAdI Definition Name	Enhancement Spot
Product IDoc: Outbound Mapping	This BAdI when implemented is used to adjust the outbound message data from CRM for product replication.	CRMXIF_PROD_MAT_MAP	
Organizational Units IDoc: Outbound Mapping	This BAdI is for adjusting the outbound message data from CRM for Organization replication	CRMPCD_ORG_UNIT_OUTBOUND	
Employee IDoc: Outbound Mapping	This BAdI when implemented is used to adjust the outbound message data from CRM for employee replication	CRMPCD_EMPLOYEE_OUTBOUND	
Employee IDoc: Change Pointer Registration	This BAdI when implemented is used to adjust the change pointer registration in CRM for employee changes.	HRBAS00INFTY	
Business Partner IDoc: Inbound and Outbound Mapping	This BAdI when implemented is used to adjust the inbound and outbound message mapping for business partner replication.	CRMXIF_PARTNER_MAP	
Business Partner Relationship IDoc: Inbound and Outbound Mapping	This BAdI when implemented is used to adjust the inbound and outbound message mapping for business partner replationship replication.	CRMXIF_PARTNER_R_MAP	

BAdI	Description	Classic Classic BAdI Definition Name	Enhancement Spot
Sales Territory IDoc: Change Pointer Registration	This BAdI when implemented is used to adjust the change pointer registration in CRM for sales territory changes.	CRM_TERRMAN_ATTRIB	
Sales Territory IDoc: Outbound Mapping and Filtering	This BAdI when implemented is used to adjust the outbound message mapping for business partner replication as well as to filter out non intended sales territory from replicating.	CRMPCD_TERRITORY_OUTBOUND	
Marketing Campaign IDoc: Outbound Mapping	This BAdI when implemented is used to adjust the outbound message data from CRM for marketing campaign.	CRMPCD_CGPL_MAP	
Marketing Plan IDoc: Outbound Filtering	This BAdI when implemented is used to filter out non intended marketing plan from being replicated.	CRMPCD_CGPL_VLD	
Marketing Plan IDOC: Outbound Mapping	This BAdI when implemented is used to adjust the outbound message data from CRM for marketing plan.	CRMPCD_MKTPLAN_MAP	
Business Transaction IDoc: Outbound Mapping	This BAdI when implemented is used to adjust the outbound message data from CRM for business transaction.	CRMXIF_ORDER_MAP	

BAdI	Description	Classic Classic BAdI Definition Name	Enhancement Spot
Pricing Request Service: Inbound and Outbound Mapping	This BAdI when implemented is used to adjust the inbound and outbound message data for pricing request.	CRMPCD_SE_EXT_DOC_DATA	
CRM Document flow in C4C: Output mapping	The BAdI in this enhancement spot when implemented is used to adjust the output data from CRM for document flow.		
Attachment Service: Register and Send Out		CRM_DOCUMENTS	

> **Note**
>
> The BAdI CRMXIF_PARTNER_MAP is not enabled for multiple uses. If CRMPCD_BUPA_MAP is the only implementation for the classic BAdICRMXIF_PARTNER_MAP, then you can simply activate the implementation after the installation of software component CRMPCD01 via transaction SE19.If an implementation already exists for the classic BAdICRMXIF_PARTNER_MAP, then you must merge the logic of implementationCRMPCD_BUPA_MAP into your existing implementation.

SAP has provided default implementation for the following objects:

Campaign

It is only possible to have one NOTE in the Cloud solution. So, by default only SAP Standard 'NOTE' with language 'EN' is replicated from SAP CRM to the Cloud solution.

Enhancement Spot: CRMPCD_CGPL_REPLICATION

BAdI Definition: CRMPCD_CGPL_NOTES_FILTER

Default Implementation: CL_CRMPCD_EX_CGPL_NOTES_FILTER

Lead

BAdI Definition: CRMXIF_ORDER_MAP

BAdI Implementation:

CRMPCD_SOD_1O_MAP

Product Category Hierarchy

It is only possible to have one product category hierarchy in the Cloud solution. Default implementation replicates only product hierarchy assigned to the "Sales" application.

Enhancement Spot: CRMPCD_PCH_REPLICATION

Default Implementation: CL_CRMPCD_PCH_FILTER

5.2 Area Menu in CRM

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

You can access this area menu in the transaction *CRMPCD_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 CRM to SAP Cloud for Customer*: Transactions of all reports that can be used to load and send data from SAP CRM to SAP Cloud for Customer system.
- : Transactions relevant for various industry solutions.

6 Configure Integration in SAP Cloud Integration

SAP provides prepackaged, generic integration content called integration flows (iFlows) for the integration of SAP Cloud for Customer with an on-premise system using SAP Cloud Integration. For the list of iFlows, see https://api.sap.com/package/SAPHybrisCloudforCustomerIntegrationwithSAPERP/overview

6.1 View Prepackaged iFlows using SAP CI Web UI

1. Access the web UI URL from the provisioning e-mail. It should be in the format: https://<cpitenant>.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 Integration Flow Artifacts

Prerequisites

- You have deployed the required security credentials for Basic and OAUTH authentication.
- You have added the key store entries for certificate based authentication.

For more information, see the relevant security guide for your environment at SAP Cloud Integration.

Procedure

1. Select and configure the required integration flows.
   You can also use 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 Cloud for Customer or SAP CRM or ERP)

3. **Optional:** If the *SAP Cloud Integration* tenant is on Neo environment and you must use client certificate authentication from the sender system, then use the *Client Certificate* authorization option and upload the client certificate under the *Sender* tab.
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 CI Eclipse environment, see https://tools.hana.ondemand.com/#cpi \
2. Maintain the CI Operation server details at *Windows* > *Preferences* > SAP Cloud Integration > *Operation server* (see provisioning e-mail for details)
3. Configure and deploy the pre-package content using CI web UI, see section above. http://help.sap.com/cloudintegration/SAP_CI_DevGuide.pdf (applicable only for SAP consulting)

6.3.1 Download the iFlow projects on your desktop

1. Go to *Integration Operations* Perspective.
2. In the Node Explorer, click the root element (this should launch the Message Monitoring and Deployed Artifacts view for that particular CI runtime tenant.
3. Go to *Deployed artifacts*.
4. For each iFlow that was previously deployed from SAP CI 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 CI 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.integrationflow*s.
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 CI. 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 CRM in CI

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

Agency 1	Scheme 1	Agency 2	Scheme 2
COD	BusinessSystemID	CRM	LogicalSystemID
COD	ResultStatusCode	CRM	Status
COD	ActivityLifeCycleStatusCode	CRM	ActivityLifeCycleStatusCode
COD	ActivityTypeCode	CRM	ActivityTypeCode

Agency 1	Scheme 1	Agency 2	Scheme 2
COD	CmpnLifeCycleStatusCode	CRM	CmpnLifeCycleStatusCode
COD	LeadLifeCycleStatusCode	CRM	LeadLifeCycleStatusCode
COD_OBJTYPE	OBJTYPE	CRM_OBJTYPE	OBJTYPE
COD_OpptLifeCycleStatusCodeInbound	OpptLifeCycleStatusCodeInbound	CRM_OpptLifeCycleStatusCodeInbound	OpptLifeCycleStatusCodeInbound
COD	OpptResultReasonCode	CRM	OpptResultReasonCode
COD	RoleCode	CRM	RoleCode
COD	ReceiverParty	CRM	ReceiverPort
COD	ResultReasonCode	CRM	ResultReasonCode
COD	SenderParty	CRM	SenderPort
COD	LifeCycleStatusCode	CRM	LifeCycleStatusCode
COD_SocialMediaChannel	SocialMediaChannel	CRM_ SocialMediaChannel	SocialMediaChannel
COD	CODPricingRequest	CRM	CRMDocumentTypeCode

Procedure

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 sets 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 an 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 CI runtime tenant.

7 Extend Phase: Extend Cloud Solution for CRM 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 the extended the source and target interfaces, you should map the extended field(s) in the SAP Middleware system. For more information, see:

- SAP Cloud for Customer Extension Guide on theSAP Cloud for Customer product page.
- How to Extend SAP Cloud for Customer - SAP On-Premise Pre-Packaged Integration Content -

Business Partner Extensibility

Extension fields created for a business partner address in Cloud, can now be replicated between CRM and Cloud.

Disclaimer

The business partner UI in SAP Cloud for Customer will be delivered in a 2015 release. Prerequisites to use the feature:

- In the Adapt mode, add extension fields to a business partner address
- Make the fields available to the following service interfaces via the link *Further Usages: BusinessPartnerReplicationIn* and *BusinessPartnerReplicationSelfInitiatedOut*
- Make the fields visible and publish your changes

8 Data Load Phase: Perform CRM Initial Data Load

This section describes how to extract data from the SAP CRM system and load it into the Cloud solution. As a prerequisite for the initial load, you must have made the entire configuration settings specified in the previous sections of this document for the SAP CRM, SAP middleware such as SAP Process Integration or SAP Cloud Integration, and Cloud systems.

The initial load guide describes the configuration settings necessary to send master data from the SAP CRM system to the Cloud solution, and to process data in the SAP CRM system that was sent from the Cloud solution. When you send and receive IDocs, SAP CRM and the cloud solution expect different sequences for various objects. 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 information on how you can plan for optimal performance during high volume data loads into your SAP Cloud for Customer solution from an SAP on-premise system, see Best Practices for Optimal Performance of Data Loads into SAP Cloud for Customer.

8.1 Template Reports

SAP provides ABAP template reports (listed in the Initial Load guide) that can be used for initial load scenarios.

Copy these template reports and adapt them to meet your business requirements.

1. To access the template reports, execute transaction **SE38**.
2. Adapt the templates according to modifications made in your SAP CRM system.

> **Note**
>
> If you have not made modifications in your SAP CRM system, you can use the templates as delivered.
>
> If you have made modifications in your SAP CRM system, refer to the SAP Help Portal for more information about adapting the templates.

8.2 Replication of Job IDs

Job IDs must be extracted and loaded into the Cloud solution via the Migration Workbench. This is required for loading the employees into the Cloud solution. Ensure that the ID is created in the Cloud solution in the same format as in SAP CRM. The jobs can be displayed in CRM using the transaction PPOMW. The job IDs can be extracted from table HRP1000 using the object type ‘C.’”

8.3 Executing Initial Load Reports

Assuming you have completed the necessary pre-requisites such as code list mapping, job ID load, you can now proceed with executing the initial load reports that are mentioned above. It is recommended to load small numbers of instances first and increase the package size incrementally if the previous run was successful.

8.3.1 Replication of Organization

Replication messages of organization units are processed by the background job "Organization Replication Request Processing Run" in the Cloud solution. If the organization units don't appear in the Cloud solution after you performed the load, you might check whether the background job for the organization replication already ran or when the next job is scheduled. To do this, choose the *Background Jobs* view in the *Administrator* work center and check the run type "Organization Replication Request Processing Run".

8.3.2 Replication of Product Category Hierarchy

It is possible to have only one product hierarchy modeled in the Cloud solution. For this reason, we recommend to transfer only the hierarchy that is assigned to the Sales application in SAP CRM. You can check which hierarchy is assigned to the Sales application under

SAP Customizing Implementation Guide > *Cross-Application Components* > *SAP Product* > *Product Category* > *Assign Category Hierarchies to Applications*

Per default only the hierarchy that is assigned to the application Sales is replicated from SAP CRM to the Cloud solution. This is the fallback implementation for the Business Add-In (BAdI) CRMPCD_PCH_FILTER of enhancement spot CRMPCD_PCH_REPLICATION. If you want to change this behavior, you have to create a BAdI implementation for the mentioned BAdI. For more information, review the section CRM: Customer Enhancements (BAdI Definitions).

8.3.3 Product Material Replication

It is only possible to replicate materials that are assigned to valid product categories, as this is a mandatory requirement in the Cloud solution. Therefore we recommend that you filter out materials that are not assigned to a product category of the hierarchy that is assigned to the Sales application. You can achieve this by implementing method CHANGE_MAPPED_DATA_OUT of the BAdI CRMXIF_PROD_MAT_MAP.

8.3.4 Business Partner Replication

When you load business partners into the Cloud solution, only the following roles are supported in the Cloud solution.

- Account (CRM000)
- Competitor (CRM005)
- Contact Person (BUP001)
- Prospect (BUP002)
- Sales and service partner (CRM011)

All other roles are filtered out. For persons, the system supports data records without a role. For organizations, at least one valid role is mandatory.

Make sure that the business partner roles codes of SAP CRM are mapped to the corresponding business partner roles codes of the Cloud solution using code list mapping in the Cloud solution.

Only the business partner categories Person and Organization are transferred to the Cloud solution. The business partner category Group is ignored during data load. (This is true for both initial download as well as delta replication.)

If time-dependent data (such as different time-dependent addresses) is maintained in SAP CRM, only the data that is currently valid is transferred to the Cloud solution.

If the business partner has multiple addresses in SAPCRM, only the default, ship-to, bill-to and payer addresses are transferred. Make sure that the address usage codes of SAP CRM are mapped to the corresponding address usage codes of the Cloud solution using code list mapping in the Cloud solution.

If a business partner address in SAP CRM contains multiple communication data (such as multiple telephone or fax numbers), only the default communication data is transferred to the Cloud solution.

In the Cloud solution only one industry classification system 0005 is supported. Make sure that your main industry classification system of SAP CRM is mapped to the industry classification system 0005 of the Cloud solution using code list mapping the Cloud solution.

8.3.5 Employee Replication

Employee data must be replicated from SAP CRM to SAP Cloud for Customer using the dedicated Employee web service.

> ### Note
>
> If you have chosen the employee replication in the Business Adaptation Catalog, the employee role is not supported via the business partner replication service. All other roles are filtered out. For employees, the system supports data records without a role. For organizations, a role is mandatory. Only the business partner categories *Person* and *Organization* are transferred to the Cloud solution. The business partner category Group is ignored during data load. (This is true for both initial download as well as data replication.)

> ### Note
>
> You can now assign multiple organizations to an employee in SAP Cloud for Customer. In SAP CRM, you need to implement the BAdI `CRMPCD_EMPLOYEE_OUTBOUND` and write a custom logic to determine the primary and

secondary organization assignments for an employee. You will see a new field, *Role Code*, that has been added under *Organizational Assignment* node that determines primary and secondary organization assignments. You need to upgrade your iFlow: *Replicate Employee from SAP Business Suite* to use this feature.

If the configuration in the SAP middleware is done accordingly, the employees will be replicated via a dedicated service.To support this scenario end to end, the employee replication has to be activated in BC Scoping in SAP Cloud for Customer. Remarks on using the web service:

- The business role is not filled by default; it can be filled by means of a BAdI implementation in the employee IDoc.
- If the user ID is not maintained in the Business Partner, then the user ID of the employee is defaulted to his or her e-mail address.
- The validity period of the employee is set to the validity period of his/her role assignment in SAP CRM.
- The business user can be activated immediately during replication. This is the default behavior.
- The replicated business object is not directly saved in the target business object but the saving needs to be triggered by the business user in the Data Integration work center or an automatic batch job.

If you cannot see the employees in the Cloud solution, you can find out when the job is scheduled to run. To do this, choose the *Background Jobs* view in the *Administrator* work center.

> **Note**
>
> Replication messages of employees are processed by a background job (scheduled job). Employees are not visible in the Cloud solution immediately but are available after the next scheduled run of the job.

8.3.6 Business Partner Relationship Replication

To load relationships from SAP CRM to SAP Cloud for Customer, first execute report CRMPCD_BUPA_REL_EXTRACT in transaction SE38.

Additional steps are outlined in 2103505 which you need to perform to complete replication from SAP CRM to SAP Cloud for Customer.

Once you load business partner relations into the Cloud solution, only the following relationship categories are supported.

- Has/Is Contact Person (BUR001)
- Has/Is the Employee Responsible For (BUR011)
- Parent/Child Relationship
- Custom Relationships

> **Note**
>
> Business partner replication from SAP Cloud for Customer to SAP CRM requires custom development in SAP CRM.

8.3.7 Business Attribute Assignment Replication

This step is only relevant if you want to replicate business attribute assignment to business partners from a Cloud system to a CRM system.

1. Ensure successful processing of the inbound IDoc CLFMAS.
2. To assign business partner GUID to the business attribute assignments replicated from Cloud to CRM, execute report CRM_MKTBP_ASSIGN_GUID in transaction SE38, with the following input parameters:
   - **ANZ_AUSP**: Number of rows to be modified during each update. Recommended value is 10,000.
   - **M_COUNT**: A number equal to or greater than the number of entries in table 'INOB' in CRM system. Normal value is 200,000.

8.3.8 Steps to consider for Bulking

Accounts/contacts and employees must be loaded separately.If the SAP CRM system is sending employee and account messages separately, the routing condition assigns employee messages to employee mapping and account messages to business partner account mapping. For example, if you send three IDocs in a package for accounts only, then these three IDocs will be bundled according to the business partner routing condition. The business partner mapping will be carried out, which supports bulking.

We recommend that you do not send bulk messages for employees because employee mapping does currently not support bulking. If a bulk message is sent from SAP CRM to SAP middleware, it does not produce expected result. For employees, the mapping must be adjusted.

> ### Note
>
> For Bulking scenarios, ensure that each of the objects are grouped separately. Otherwise you could have, for example, leads and opportunities alike collected in the same bulk message.

Procedure

Prepare the reports for the initial load.

1. In the SAP CRM system, execute transaction **WE20**.
2. In the *Outbound Parameters* field, expand the message type for the partner profile and select the object that you created while setting up the Outbound IDoc.

   For more information, see the IMG document in the on-premise system. Path: *Integration with SAP Cloud for Customer* > *Integration with Other SAP Components* > *Communication Setup* > *Manually Adjust Integration Settings for Data Exchange* > *Maintain Port Definition and* > *Maintain IDoc Partner Profile*
3. In the *Output Mode* section of the screen, select Collect IDocs, then select *Details*.
4. Enter a suitable package size.

   > ### Note
   >
   > The package size must be greater than or equal to the maximum number of relationships available for the accounts in the SAP CRM system. This is due to the technical limitation in the Cloud solution. We recommend that you send all relationships of an account in a single package if possible.

5. Click *Save*.
6. Repeat steps 1 through 5 for each object.
7. Start the initial load and execute the transaction **SE38**.
8. Create a variant according to the number of products that you want to send
9. Enter report RSEOUT00.
10. Select *Start with Variant*, and specify the variant you created.
11. When the initial load is finished, you must change the settings in the partner profile. To do this, repeat steps 1 through 3, and chose the option *Transfer IDoc Immediately* for each object.

8.4 Attachment Replication

The following are the two initial load reports for replicating attachments:

- *CRMPCD_BUPA_ATTACH_EXTRACT* for business partners
- *CRMPCD_ORDER_ATTACH_EXTRACT* for transactions

> **Note**
>
> Execute the load of the host object instances before loading the attachments. Packaging can be up to 500-800MB per package. If no receiver is provided, the attachments are sent to the same system as the host object instance.

9 Data Load Phase: Perform CRM Delta Load

This section describes the steps needed for objects, for example, territories, organization units and employees. Reports with delta load option must be scheduled as periodic background jobs (via transaction **SM37**) in your SAP CRM system. The frequency depends on the business process and the frequency of the changes in that system.

For information about the delta load report, see the report documentation in the system and refer to the CRM Initial Load guide.

10 Monitor Message Flow Across Systems

Messages are exchanged between the SAP on-premise, SAP Middleware and SAP 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

11 Deprecated Scenarios

Learn about deprecated functional scenarios. We do not recommend using deprecated scenarios since they are no longer supported.

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

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:

- *Characteristics* > *Merchandising Category* > *Article*

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

> ⓘ 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 CI 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: 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: https://host:port/sap/bc/srt/scs/sap/businessattributereplicationre?MessageId

> → Recommendation
>
> Use transaction `BD91` tto 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: 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: https://host:port/sap/bc/srt/scs/sap/businessattributesetreplicatio?MessageId

→ Recommendation

Use transaction WAFS to trigger the outbound Merchandising Category IDocs from theSAP IS-Retail system.

11.1.4 Article Replication (Inbound)

iFlow name: Replicate Articles from SAP IS Retail.

Sender Interface: ARTMAS.ARTMAS05.

Namespace: 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: 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.

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