How to Configure Integration between SAP CRM and SAP Hybris Cloud for Customer using SAP HCI
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# How to Configure Integration between SAP CRM and SAP Hybris Cloud for Customer using SAP HCI

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1 Introduction

1.1 Business Scenario

Historically, SAP customers have made large investments in on-premise CRM application capabilities. The SAP CRM application continues to be viable in the corporate system landscape, but many customers want to enable a fresh and intuitive user experience, increased functionality, and faster delivery of new functionality. The hybrid integration scenario is a great enabler of application delivery via the cloud, because it allows the customer to preserve the investment already made in the on-premise SAP CRM application. By the utilization of iFlow solution content delivered by HANA Cloud Integration (HCI), a bridge between the on-premise SAP CRM system and the SAP Hybris Cloud for Customer system is established, thus allowing the customer to take advantage of the strengths of both.

1.2 Background Information

This document details the steps required to enable bi-directional communication between an SAP Hybris Cloud for Customer and SAP CRM systems, using SAP HCI as the cloud-based middleware layer. iFlow solutions designed for SAP HCI are enabled for configuration and deployment utilizing this document.

1.3 Prerequisites

**SAP CRM**
1. SAP CRM 7.0 is required, with at least support package BBPCRM 700 SP06 (SAPKU70006)
2. For Attachment replication in Opportunities and Leads, SAP CRM 7.0 EHP0, SP07 is required
3. The SSL client SSL client (standard) or a similar PSE is configured in the CRM system which will be used for authentication for calls made from CRM into the HCI system.

**SAP HCI**
SAP HANA Cloud Integration tenant is available with a deployed keystore that contains the following certificates:
1. Certificate used for X.509 authentication from HCI to CRM and SAP Hybris cloud for customers
2. GTE - Root certificate required for SSL handshake into the SAP Hybris Cloud for customers. Download from https://secure.omniroot.com/support/sureserver/rootcert.cfm
4. Root certificate(s) used for SSL handshake into the SAP CRM on-premise system – these must be root certificates used for the entity in charge to do the SSL termination at the customer side, which could be the CRM system or any reverse proxy like SAP Web Dispatcher or application firewall.

**Eclipse** - installed on the Computer/Server used to configure iFlow content.
**SAP Integration Add-on** - deployed on the computer/server that will be used to configured iFlows for deployment to SAP HANA Cloud Integration.

The tasks described in this document should be performed by a qualified SAP Basis Administrator, with a solid conceptual understanding of SSL and certificate-based encryption concepts.
2 Connect Phase: Check and Prepare SAP CRM System

2.1 CRM Software Components

Remember to update the SPAM to the latest support pack before start the installation of the add-on.

1. Copy the installation package and support packages to the EPS/in directory within the “trans” directory.

2. Call transaction SAINT and load the packages from the menu Installation Package → Load Package → From Application Server.

3. Once the packages are loaded, install the add-on by clicking Environment → Add-on Manager for EBP/CRM.

4. Click Continue
5. Verify that the add-on was recognized, and click Continue.
6. Start the Installation of the add-on in dialog or background.

7. When the installation process finishes, click the Back arrow to finish the process, and click Continue.

8. Click Complete
2.2 Implement Support Packages for the Add-on

1. Call transaction SPAM to start the implementation of the support packages for this add-on. Click in the menu Environment → Support Package Manager for EBP/CRM.

2. Click Continue
3. Select the latest support packages, and click Continue.
4. Validate the queue, and select Continue.
5. Select the processing mode and start the process.

6. When the process finishes, click Back.

7. Click Continue

8. Click complete
2.3 Create SAP CRM User

1. Using transaction SU01, create a service account with required authorization. Check SAP Note 1956819 for the authorization role to be assigned to the below user.
3 Connect Phase: Set up Secure Connection between CRM-HCI-Cloud

3.1 Supported Certification Authorities (HCI Integration)

2. Navigate to Connecting a Customer System to SAP HCI.
5. Select HTTPS-Based Communication.
6. Select Load Balancer Root Certificates Supported by SAP and Open SAP HCI for process integration complete documentation (HTML) to find the list of all the supported certification authorities in the HCI documentation.

3.2 Check End-to-End Connectivity

1. Go to transaction SE38 in the SAP ERP system.
2. In Program field enter report name CRMPCD_CHECK_E2E_CONNECTIVITY
3. Choose Execute.
3.3 Download Root SSL certificate for SAP HCI

1. Open a Web explorer and enter the URL of the worker node that was provided in the onboarding e-mail adding the path /cxl at the end, by example:

   https://<host>:<port>/cxl

2. When connected use the Web explorer to get the certificate, by example in Chrome click in the lock icon at the left of the URL and then click in certificate information.

3. From the Certification Path select first root certificate Baltimore CyberTrust Root and click View Certificate.
4. Click in the menu Details and the click the button Copy to file.

5. Click Next
6. Select Base-64 encoded x.509 (.CER) and click Next.

7. Select the location of the file and click Next.
8. Click Finish

9. Follow the above steps for the second root certificate, Cybertrust Public SureServer SV CA.
3.4 Load Root Certificate Used to Sign HCI SSL Server Certificate into SSL Client

1. Call transaction STRUST

![Trust Manager](image1)

2. Open the SSL Client SSL client Standard PSE

![Trust Manager](image2)

3. In the Certificate area, click in the Import Certificate button.

![Certificate](image3)
4. Depending of the format of the certificate, select either Binary or Base64 and find the root certificate used to sign the HCI SSL server certificate (Import the two certificates that were saved in the previous step)

5. Add the imported certificate into the certificate list clicking in the Add to Certificate List button.

6. Repeat the previous two steps for the second root certificate, and save the changes.
3.5 Load Root Certificate Used to Sign HCI SSL Client Certificate for x.509 Authentication into SSL Server Standard

1. Call transaction STRUST

2. Open the SSL Server Standard PSE

3. In the Certificate area click i the Import Certificate button.
4. Depending of the format of the certificate, select either Binary or Base64 and find the root certificate used to sign the HCI SSL client certificate (in most of the cases is SAP Passport).

5. Add the imported certificate into the certificate list clicking in the Add to Certificate List button.

6. Save the changes.
### 3.6 Export Public Key for SSL Client

1. Call transaction STRUST

![Trust Manager](image)

2. Open the SSL Client SSL client Standard PSE

![Trust Manager](image)

3. Double click on the own certificate. This will load the certificate into the Certificate section.
4. Click the Export button.

5. Save the certificate into a file.
4  Configure Phase: Configure Integration in Cloud Solution

4.1  Activate SAP CRM Integration in Scoping

1. Connect to the SAP Hybris Cloud for Customers system using the internet browser and open the Business Configuration tab.

2. Click All Current Projects

3. Select the project and click Edit Project Scope
4. Click Next

**EDIT PROJECT SCOPE: FIRST IMPLEMENTATION**

<table>
<thead>
<tr>
<th>1 Country and Type of Business</th>
<th>2 Implementation Focus</th>
<th>3 Scoping</th>
<th>4 Questions</th>
<th>5 Realize</th>
</tr>
</thead>
</table>

**IMPLEMENTATION FOCUS**

You can implement capabilities from the complete SAP® solution.

Select Implementation Focus

- SAP Cloud for Customer

5. Click Next and under Sales → New Business select Sales Lead Management, Opportunities.

6. Under Communication and Information Exchange → Integration with External Application and Solutions select Integration with SAP CRM, Integration of Master Data and Integration into Sales, Service and Marketing Processes
7. Click Next and under Communication and information Exchange → Integration with External Application and Solutions → Integration of Master Data, select the following scenarios:

- Do you want to replicate business partner data from an external application or solution to your cloud solution?
- Do you want to replicate business partner data from your cloud solution to an external application or solution?
- Do you want to replicate account hierarchy data from an external application or solution to your cloud solution?
- Do you want to replicate product data from an external application or solution to your cloud solution?
- Do you want to replicate product category data from an external application or solution to your cloud solution?
- Do you want to replicate employee data from an external application or solution to your cloud solution?
- Do you want to replicate sales territory data from an external application or solution to your cloud solution?

8. Under Communication and information Exchange → Integration with External Application and Solutions → Integration into Sales, Services, and Marketing Processes select the following scenario:

- Do you want to replicate campaign documents from an external application or solution to your cloud solution?
- Do you want to replicate activities from your cloud solution to an external application or solution?
- Do you want to replicate activities from an external application or solution to your cloud solution?
- Do you want to replicate leads from an external application or solution to your cloud solution?
- Do you want to replicate leads from your cloud solution to External Application?
- Do you want to replicate opportunities from your cloud solution to an external application or solution?
- Do you want to replicate opportunities from an external application or solution to your cloud solution?
- Do you want to delegate service requests from your cloud solution to an external application or solution?
9. Click Next and then 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.

a. Go to Business Configuration view → Open Activity List.
b. Select *Confirm Milestone: Design Accepted*.
c. Select *Design Accepted* and click *Confirm*.

### 4.2 Set Up Communication System

1. Under the tab Administrator, click Communication Systems.

2. Click New to create a new communication system

3. Enter the information about the backend CRM system. Important Note: all the information is associated with the CRM system (logical system name, SAP client, and so on.) with the exception of the Host Name, which should be the host name used to
access the SAP HCI system. SAP Client should be the client of the On-Premise CRM system and Preferred application protocol is “Web Service”. Also make sure that you check the option of “SAP Business Suite”.

Note: The System Instance ID and Business System ID should be same for attachment replication to work from CRM to SAP Hybris Cloud for Customer.

4. Click Actions  Set to Active

5. Click Save and Close

4.3 Configure Communication Arrangements

You can find a list of all the communication arrangements and the corresponding service interfaces in the INTEGRATION: Integration Flow spreadsheet on SAP Service Marketplace.

1. Login to the SAP Hybris Cloud for Customer system.
2. Open Communication Arrangement For On-Premise Integration under Administrator tab.

3. Under Select Communication System tab, choose Integration Details as shown below.

5. Choose Next.

5. Under Communication Arrangements tab, select the Communication Scenarios relevant for your scope. Choose Select All in case you want to configure all of the communication scenarios. Note: In case you do not see any of the configuration scenarios, re-check the project scoping to add the necessary scoping elements.

7. Under Inbound tab, select the Application Protocol as Web Service.

8. Under Outbound tab, adjust the Port and Path if required.
9. Choose Next

10. Under Inbound Communication Credentials, select the Authentication Method. For example in this case, SSL Client Certificate is selected. Choose Edit Credentials.

11. In the Certificate tab, choose Upload Certificate and choose the HCI Client Certificate.
12. Choose Ok

13. For Outbound Communication Credentials, select Download.

OUTBOUND COMMUNICATION CREDENTIALS

Authentication Method: SSL Client Certificate
Certificate: SAP Business ByDesign System Key Pair
Host Name: fniapv005avb0035avb00avb0026.intasa.sccn melancholica.com

14. Download the C4C Client Certificate x.509 (example C4CSSSLClient.cer) and choose Save. This file has to be uploaded later to HCI iFlow configuration.
15. Choose Finish.

16. Under Confirmation, Choose Close.

17. 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. To configure the connectivity, follow the steps outlined in the Configure SAP HCI Certificate based Authentication for SAP Cloud for Customer.

Refer to the Appendix section for creating and editing the communication arrangement manually.

4.4 Export the Root Certificate

1. Go to the folder that has the downloaded certificate (for example: C4CSSLClient.cer).
2. Double-click on it to open the certificate.
3. In the Certification Path tab, select the root certificate.
4. Click View Certificate to view the certificate.
5. In the Details tab, click Copy to File, and click Next.
6. Select the option Base-64 encoded X.509 (.CER) and click Next.
7. Specify the location to save the file and click Next.
8. Click Finish.
4.5 Determine Short Tenant ID

1. Connect to the SAP Hybris Cloud for Customers system using the internet browser and open the Administrator tab.

2. Click in the Communication Arrangements link.

3. Select a communication arrangement that you have created, for example, Business Partner Replication from External System or Business Partner Replication from SAP CRM.

4. Under the My Communication Data section, note the ID under My System.

4.6 Perform Code List Mapping

4.6.1 Manually Map the Code lists

1. Connect to the SAP Hybris Cloud for Customers system using the internet browser and open the Business Configuration tab.
2. Select All Current Projects

3. Select the project and click Open Activity List

4.6.2 Automated Configuration of Code List Mapping

1. Login to the SAP Hybris Cloud for Customer system,

![Login to SAP Hybris Cloud for Customer](image1)

2. In the Business Configuration WorkCentre, choose DOWNLOAD CODE LIST.

![Business Configuration WorkCentre](image2)

3. Click the link Download Code List.
4. Enter the details like Code List Mapping Group (example 03), Language, CSV Delimiter and select Download.

DOWNLOAD CODE LISTS AND CODE MAPPINGS

You can download the code lists and code list mappings created for integrating the Cloud solution with an external application or solution.

- Code List Mapping Group: 03 - SAP On Premise Integration
- Language: EN - English
- CSV Delimiter: 
- Local Code: Download

5. Save the file as a zip file. For example, codelist.zip.

6. Log in to the CRM back-end system that the Cloud for Customer system is connected to.
7. Open the transaction SE38 and run the report CRMPCD_CUST_EXCHANGE.
8. Choose Execute.

9. Alternatively, you can access the same report via IMG Menu path. Go to transaction SPRO.

10. Select SAP Reference IMG

11. Expand IMG menu path Integration With Other SAP Components → Integration with SAP Cloud for Customer and choose IMG activity Download CRM Customizing Information for Code lists.

12. Enter the Main Language and other parameters as shown below
Merged Customizing directory is where you want the merged code list mappings filled. C4C Business Configuration File is the codelist.zip file that was downloaded from the Cloud for Customer system.

13. Choose Execute to run the report. The output file (example CodeOutput.zip) will be found in the folder you specified. This file contains all the code lists and mappings for the requested languages.

14. Login to the SAP Hybris Cloud for Customer system again.
15. In the Business Configuration Workcenter, choose UPLOAD CODE LIST.

16. Click on the link Upload Code List.
17. Select the Code List Mapping Group (example 03) and choose Upload. 
   Note: In case of errors during the upload. Refer to SAP Note 2091243 for doing manual corrections 
   described in the Note.


Now the code list mapping in C4C is updated.

20. Click on Application Log to check the status of the code list upload.

4.7 Create CRM ID Mapping

1. Under the context menu for the tab Administrator, select the option ID MAPPING FOR INTEGRATION.

2. Click on Edit ID Mapping for Integration.

3. In the “Mapping Of” field, select CRM Organizations and Units and in the System Instance ID, select the communication system created in previous steps, and click Go.

4. Enter the external ID of the sales organization that will be mapped from CRM with the sales organization on Cloud for Customers.
5. Click Save.

4.7.1 ID Mapping Using the Microsoft Excel Template

1. In the "Mapping Of" field, select CRM Organizations and Units and in the System Instance ID, select the communication system created in previous steps, and click Go. Next choose ID Mapping to Microsoft Excel.

2. Data is downloaded to an excel file. Open the Excel file and enable Macros if prompted for.

3. Navigate to SAP Add-In and choose Logon.
4. Enter the Cloud for Customer URL and logon details and click Log On.

5. Make the relevant changes to the Excel file in External ID field and choose Save.


7. An Excel template is downloaded. Open the file and accept macros.

8. Navigate to SAP Hybris Cloud for Customer and choose Logon.
9. Enter the Cloud for Customer URL and logon details and choose Log On.

![Login to SAP Cloud for Customer](image)

10. Copy the content from the excel file where you saved the changes and then choose SAP Add-In → Workbook → Save Data to, to save the data to Cloud.

![Save Data to Cloud](image)

### 4.8 Maintain Default Communication Language

1. Connect to the SAP Hybris Cloud for Customers system using the internet browser and open the Business Configuration tab.

![Business Configuration](image)

2. Click All Current Projects
3. Choose Open Activity List.
5. Show All Activities and find for Communication Language for Data Replication.

6. Select Communication Language and Click button Add to Project.

7. Open Communication Language for Data Replication.
8. Add row and select the language.
9. 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

1. Connect to the SAP Hybris Cloud for Customers system using the internet browser and open the Business Configuration tab.

2. Click All Current Projects

3. Choose Open Activity List.


5. Show All Activities and find for Address Checks.

6. Select Address Checks and Click button Add to Project.
7. Open Address Checks.
8. Select the checkbox *Allow Saving of inconsistent address based on your business requirements.*
9. Save and close the activity.

### 4.10 Configure End Points Communication Arrangements with Outbound Interfaces

1. Connect to the SAP Hybris Cloud for Customers system using the internet browser and open the Administrator tab.

2. Click in the Communication Arrangements link.

3. Edit the communication Arrangements with outbound interfaces adding the correct URL for the HCI Web dispatcher. The following table shows an example of the URL that have to be used where we use the Business System or Business Component, for example:

   `/cxf/COD/CRM/BUSINESSACTIVITY_CONFIRMATION_qxl232?sap-client=400`
4. Select one of the Communication Arrangements and click Edit.

Communication Arrangements
You can view, create, and edit communication arrangements between your company and customers or suppliers with whom you want to exchange data. You can create communication arrangements in different ways:

- Create communication arrangements manually
- Create communication arrangements based on your integration scenarios

Show: All Communication Arrangements
and Find

<table>
<thead>
<tr>
<th>Communication Scenario</th>
<th>Communication Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access documents via WebDAV</td>
<td>Application Integration</td>
</tr>
<tr>
<td>Account Hierarchy/Simple Replication from External System</td>
<td>Application Integration</td>
</tr>
<tr>
<td>Account Hierarchy/Simple Replication from External System</td>
<td>Application Integration</td>
</tr>
<tr>
<td>Analytic Integration</td>
<td>Application Integration</td>
</tr>
<tr>
<td>Business Activity Replication from External System</td>
<td>Application Integration</td>
</tr>
<tr>
<td>Business Activity Replication to External System</td>
<td>Application Integration</td>
</tr>
</tbody>
</table>

5. Click in the Technical Data Tab.

BUSINESS DATA
 TECHNICAL DATA

COMMUNICATION SYSTEM
Communication System ID: Q2CCNT400
System Instance ID: Q2CCNT400
Code List Mapping: SAP On Premise Integration

CONTACT
Contact Name: Zareh Vazquez

6. Click in Edit Advance Settings button.

TECHNICAL DATA

UNIFICATION: BASIC SETTINGS
Enabled: [ ]
Protocol: [ ]
Method: [ ]
User ID: [ ]

7. Click in the Outbound Tab
8. Select each of the outbound services and edit SSL port and Path.

9. Click Save and Reactivate.

10. Repeat the previous steps for the rest of the communication arrangements with outbound services.
Note. Once the HCI configuration is complete (Section 6), you can check if there is connectivity from the cloud system to the HCI system by selecting one of the outbound services and click in Check Connection. If there is any problem with SSL certificates or authentication, it will show an error here.

Note: For the Lead Replication from External System, the outbound services use two different application protocols for each of the two outbound services, You will need to uncheck the Use Basic Settings.

a) For “Confirmation of replicated leads to the SAP Business Suite CRM system” use Web Service

b) For “Lead status notification to the SAP Business Suite CRM system” use Format Conversion.
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Details: Lead Status Notification to the SAP Business Suite CRM System

- **Application Protocol:** HTTP/HTTPS
- **Host Name:**
- **Port:** 50001
- **Path:** /OAP/Adapter/MessageServlet?channel=HfR_240
- **Service URL:** https://<hostname>:50001/OAP/Adapter/MessageServlet?channel=HfR_240

Optional setting:
- **Enabled:** Checked
- **Use Basic Settings:** Checked
- **Notification to the SAP Business Suite CRM System:** Checked

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5 Configure Phase: Configure Integration in SAP CRM

5.1 SAP Customizing Implementation Guide in the CRM system

All the customization activities necessary to integrate SAP CRM 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.

1. In SAP CRM system, execute transaction SPRO.
2. Choose SAP Reference IMG.
3. Expand Integration With Other SAP Components → Integration with SAP Cloud for Customer

![Display IMG](image)

4. Navigate to Communication Setup → Automatically Generate Integration Settings for Data Exchange to run the report to perform basic configuration activities. Detailed procedure of the report is explained in the section Automatically Generate Integration Settings for Data Exchange.

5. To manually adjust the entries created by the above report, navigate to Communication Setup → Manually Adjust Integration Settings for Data Exchange
6. Based on the objects you want to replicate between CRM and SAP Hybris Cloud for Customer, perform the necessary configuration activities by navigating to Integration with Other SAP Components → Integration with SAP Cloud for Customer → Application-Specific Settings

7. For enhancing the standard delivered content, implement the BADIs for the object available under Integration with Other SAP Components → Integration with SAP Cloud for Customer → Application-Specific Settings → <business object> → BADIs

Below is an example screenshot showing for Organizational Unit Object.

5.2 Area Menu

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

You can access this area menu in the transaction CRMPCD_INT_MENU.
Note: During Sales quote pricing test, if you encounter any validation error in the CRM system “The value '0' is not in the value range of the XML schema type 'int' or it does not meet the specified limitations” then ensure the level field maintained for the pricing procedure is within the range 1 to 999999999. Change this value for pricing procedure and then re-test.

5.3 Automatically Generate Integration Settings for Data Exchange

1. Execute the program CRMPCD_CREATE_CONNECTIVITY_SIM using the below options.

<table>
<thead>
<tr>
<th>Transaction code</th>
<th>CRMPCD_CONNECTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP CRM IMG menu</td>
<td>Integration With Other SAP Components → Integration With SAP Cloud for Customer → Communication Setup → Automatically Generate Integration Settings for Data Exchange</td>
</tr>
</tbody>
</table>
2. Choose SAP HANA Cloud Integration as the middleware and choose Next.

3. Select the scenarios you would like to generate the configuration entities for and choose Next. Note: Select the Marketing Attribute message types for creating the ALE distribution model.

4. Choose the Logical system of Cloud for Customer that you want to connect to. In case the logical system is not created, you can create one using the button Create Logical System. Choose Next.
5. Enter the HCI worker node URL, Proxy Host, Proxy Service. Choose the Logon Procedure as SSL Client Certificate and select the correct SSL Client Certificate PSE (check the correct PSE in STRUST transaction where all the relevant certificates are imported). Choose Next.

6. In the Summary screen, select the Generate button to generate the configuration entities.

7. In the confirm pop-up screen choose Yes

8. In the log you can check which entities were created.
6 Configure Phase: Configure Integration in SAP HCI

HCI Configuration can be done in 2 ways:
- Using the Web UI
- Using Eclipse IDE (This is explained in the Appendix section)

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 delivered by SAP in the Catalog tab.
3. Click on the package SAP Hybris Cloud for Customer Integration with CRM.
4. For each iFlow, select the Download view option, to view all iFlow relevant metadata.

6.2 Configure and Deploy the iFlow using SAP Web UI
1. Connect to the tenant management node of the HCI system to the url http://<tenant management node>/itspaces
2. Hover your mouse on the content package. For example SAP Hybris Cloud for Customer Integration with SAP CRM (select the required version) and choose Copy to Workspace.
3. If the Integration package is being created first time, then you would see the message ‘Integration Package Created’. If not, you will see the below pop-up asking to either create a new copy of the package or to overwrite the existing integration package content.

4. Select the Design mode to configure the iFlows.

5. Select the Integration Package copied. You should see all the iFlows under the package.
6. Click the Package Content. All the iFlows will be shown/listed in the right side of the page.
7. Select the iFlows you want to configure and choose Actions button in the right and select Configure. Note: You can also configure a single iFlow or do a mass configuration by checking multiple artifacts.

8. Confirm the Information message by choosing OK.

Supports Mass Configuration of SOAP/I/doc adapter. Please be patient, operation might take few seconds.

9. Configure the sender system (in this example CRM) and receiver system (in this example COD) details. Choose Certificate based authentication from the dropdown and import the CRM Client certificate using Browse button. For the receiver, enter the host name and port details of the COD system.

When the sender system is COD and receiver system is CRM, configure the iFlow as shown below.
Choose Certificate based authentication from the dropdown and import the C4C Communication arrangement certificate using the Browse button. For the receiver, enter the reverse proxy host name, CRM Client, and CRM system port number which, is configured in the reverse proxy server.

10. Choose Deploy.

11. The integration flows are deployed in the HCI tenant.

6.3 View and Extend the Deployed iFlow using SAP Eclipse.

The following sections describe the procedure to configure the iFlows using Eclipse IDE

6.3.1 Download the iFlow projects on your desktop

1. Open the Integration Operations Perspective by navigating to Windows→Open Perspective→Integration Operations.
2. In the Node Explorer, click the Root element and go to deployed artifacts.
3. Select the iFlow that was previously deployed from SAP HCI Web UI and click Download button.

4. Save the zip file locally on your system.

6.3.2 Import the iFlow projects into the local workspace

1. Open the Integration Designer Perspective by navigating to Windows→Open Perspective→Integration Designer.
2. Choose File → Import.

3. Select Option Existing projects into workspace and choose Next.
4. Browse and import the downloaded iFlow Object.

5. Click Finish.

6. The iFlow is imported into your local workspace in HCI 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 https://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, you can make modifications to either of the folders,
   src.main.resources.mapping
   src.main.resources.scenarioflows.integrationflow
   src.main.resources.wsdl

2. Deploy the modified iFlow project by right clicking at iFlow project level and choose Deploy Integration Content.

3. Enter the tenant id and click OK.
6.3.5 Maintain Value Mapping between Cloud and CRM in HCI

1. Open the value_mapping.xml file within the project com.sap.scenarios.c4c.valuemapping from the Integration Designer perspective.

2. Maintain the value mapping by providing source agency name, source schema name, source value with respective target agency name, target schema name and target value. Below is an example of RoleCode value mapping.
3. Maintain the value mapping by providing source agency name, source schema name, source value with respective target agency name, target schema name and target value. Below is an example of product replication value mapping.

4. Save the value_mapping.xml file.

5. Select the project for deployment by right clicking on the context menu from the Integration Designer perspective and choose Deploy Integration Content.

6. Enter the Tenant ID and click OK.
7. Click OK – Within the Console tab it is possible to see if the deployment process was successful.

8. Maintain the mapping for all other values as shown in the table in Chapter Maintain Value Mapping of the Integration Guide.
7 Data Load Phase: Perform CRM Initial Data Load

Refer to the *INTEGRATION: CRM Initial Load Guide* on SAP Service Marketplace to load the data from SAP CRM to SAP Hybris Cloud for Customer System.
8 Monitor Phase: Monitor Message Flow across Systems

Refer to the Monitoring Guide to monitor data flow from SAP CRM to SAP Hybris Cloud for Customer System and vice versa.
9 Appendix

9.1 Cloud Solution: Configuration

9.1.1 Maintain Communication Arrangement

1. Under the tab Administrator click in Communication Arrangements

2. Create the following communication arrangements, as called for in the project scope. If particular objects are not part of your project scope for replication, the communication arrangements need not to be configured:
   - Business Partner Replication from External System (inbound)
   - Business Partner Replication to External System (outbound)
   - Product Replication from External System (inbound)
   - Opportunity Replication to External System (outbound)
   - Opportunity Replication from External System (inbound)
   - Opportunity Update from External Sales Documents (inbound)
   - Lead Replication from SAP Business Suite CRM System (inbound)
   - Service Request Delegation to External System (outbound)
   - Campaign Replication from External System (inbound)
   - Product Categories Replication from External System (inbound)
   - Account Hierarchy Simple Replication from External System (inbound)
   - Employee Replication from External System (inbound)
   - Activity Replication to External System (Outbound)
   - Activity Replication from External System (Inbound)
   - Organization Unit Replication from External System (Inbound)
   - Sales Territory Replication from External System (Inbound)

3. As an example we will create the Communication Arrangement for Product Replication, To begin, Click New:
4. Select the Communication Arrangement to be created, and click Next.

5. Select the communication system and the code list mapping, and click Next,

6. Select the protocol “Web Service” and the required authentication method. In this case, User ID, and Password are selected.
7. Edit the password of the service account clicking “Edit Credentials”.

8. The inbound Communication Arrangement is shown configured below. For outbound Communication Arrangements, configure the outbound communication settings.

9. Click Next and then Finish. Repeat this process for the rest of the needed Communication Arrangements.
9.2 SAP CRM: Configuration

9.2.1 Configure SSL Client Certificates for On-Premise

1. Call transaction SM30

2. Enter the name of the view VUSREXTID in the Table/View field and click the Maintain button.
3. In the external ID type enter ‘DN’, and click Continue.

4. Create a new entry by clicking in the New Entries button.

5. Click the Import button to import the public client certificate from the SAP HCI system.
6. Select the file that contains the public certificate and click Open.

7. Enter the sequence, by example 000, the User id created in the previous step and check the Activated check-box.
8. Click the Save button.

9.2.2 Create Business Partner Identification Type

1. Call transaction SPRO, and click SAP Reference IMG.

3. Click in New Entries
4. Enter the following settings, and save the new entry.
   - ID type: CRMPCD
   - Description: CoD Identification Number
   - Category: CRMPCD
   - Select the checkboxes for Persons and Organizations

9.2.3 Create Business Partner Number Range

1. Execute Transaction SPRO
2. Click on SAP Reference IMG node.
3. Navigate to Cross-Application Components → SAP Business Partner → Business Partner → Basic Settings → Number Ranges and Groupings → Define Number Ranges
4. Choose Change Intervals.

5. Choose Insert line to maintain a new number range interval.

6. Enter a No., From No., To Number and check field External Assignment. Below is an example screenshot for No Y3. This will ensure the account number in SAP CRM system is the same as in SAP Hybris Cloud for Customer system.

7. Choose Save.

9.2.4 Create Groupings and Assign Number Ranges

1. Execute Transaction SPRO.
2. Click on SAP Reference IMG node.
3. Navigate to Cross-Application Components → SAP Business Partner → Business Partner → Basic Settings → Number Ranges and Groupings → Define Groupings and Assign Number Ranges
4. Choose New Entries.

5. Enter Grouping, example Y3, short name, description, Number Range created above and check field External. Below is an example screenshot.

6. Choose Save.

**9.2.5 BDoc Configuration**

**9.2.5.1 Generation of BDoc Services**

1. Call transaction GENSTATUS to verify the status of middleware generation; specifically, that the following objects are not waiting or in error:
   - BUS_TRANS_MSG (Lead, Opportunity, Service Request, Business Activity, Task)
   - BUPA_MAIN (Business Partner)
   - BUPA_REL (Business Partner Relationship)
   - PRODUCT_MAT (Product Material)
   - MKTPL_MKTELEM (Campaign)
   - HIERARCHY_PROD (Product Category Hierarchies)
2. You can check the log for generation jobs or generation check by clicking in the generation log button.

![Image of generation log]

**9.2.5.2 Middleware Queues**

1. Call transaction SMQR, and check that the queue CSA* is registered.

![Image of SMQR transaction]

2. If not, register the queue by clicking in the Registration and manually register the queue with the following parameter:

![Image of queue registration dialog box]
9.2.6 Create Logical System for SAP Hybris Cloud for Customer System on SAP CRM

1. Open one of the communication arrangements created in section 4.6 of this document.

2. The select the Communication Arrangement and click Edit.

3. The logical system name is the “My System:”, you can right click in the test and click Copy.
4. Create the logical system by clicking New Entries.

5. Enter the logical system name and a description.

6. Click Save.
9.2.7 Inbound IDoc Setup – Register Service for IDoc Inbound

Pre-requisite:

1. Check if the IDoc service is active by right mouse clicking on the service name in transaction SICF.

2. Open transaction SRTIDOC.

3. Click the Register Service checkbox and enter the following parameters for service attributes and choose Execute.
   - URI SOAP Application: urn:sap-com:soap:runtime:application:idoc
   - Name of Web Service Definition: GENERIC
   - Call Address (ICF Path) : /sap/bc/srt/idoc

9.2.8 ALE Setting for the HTTP Inbound

1. Open transaction OYEA.

3. Choose Save.

9.2.9 Inbound IDoc Setup - Reprocessing of IDocs with Temporary Sequence

1. Open transaction SA38 and execute program RBDMANI2.

2. Enter the following parameters
   Message Type = CRMXIF_PARTNER_REL_SAVE_M
   Sender partner Type = LS
   Sender partner no. = <logical system name of the Cloud system>
3. Schedule the program to be executed in background selecting the menu Program → Execute in Background.

4. Verify the output device and click Check.
5. The job has to be scheduled and repeated, and the frequency could vary depending of the specific needs. The frequency could be defined in the Period values button.

6. Finally click in the Save icon to schedule the periodic background job.
9.2.10 SOAMANAGER Configuration for Attachment Replication

Pre-requisite:
To ensure attachment message flow from and to SAP CRM system, ensure the following is done in the SAP CRM system:

1. Check if RFC destination BGRFC_SUPERVISOR is available with the user BGRFC_SUPER assigned.
2. User BGRFC_SUPER must have role SAP_QAP_SOAMANAGER assigned and User type is Service and User Group assigned as Tester.
3. In transaction SRT_TOOLS, double click on bgRFC Configuration under Technical Configuration and ensure the RFC destination is maintained under the tab Define Supervisor Dest.

9.2.10.1 Configuration to send attachments from SAP CRM to SAP Hybris Cloud for Customer

1. Call transaction SOAMANAGER and login with your credentials if asked for.

![SOAMANAGER Login](image)

2. Choose Web Service Configuration under the tab Service Administration.

![Web Service Configuration](image)

3. Choose Object Type as Consumer Proxy and enter Object Name as CO_CRMPCD_ATTACHMENT_FOLDER_RE and choose Search.
4. Open the Consumer Proxy by selecting the hyperlink.

5. In Configurations tab, choose Create Manual Configuration.

6. Enter Logical Port Name and Description and check field Logical Port is Default. Choose Next.

7. Select Authentication Setting as User ID/Password and choose Next.
8. The value for URL Access Path can be retrieved from WSDL of the Sender Agreement configured in PI system and represents the endpoint on PI. Choose Next.

Example of the URL parameter:
/cxf/CRM/COD/OPPORTUNITY_ATTACHMENT_REPLICATION

10. Choose Next twice.
11. Choose Finish. The logical port is created and set as Default.

9.2.10.2 Configuration to send attachments from SAP Hybris Cloud for Customer to SAP CRM

1. Call transaction SOAMANAGER and login with your credentials if asked for.

2. Choose Web Service Configuration under the tab Service Administration.
12. Choose Object Type as All and enter Object Name as ATTACHMENTFOLDERREPLICATIONREQ and choose Search.

13. Open the Object by selecting the hyperlink.


15. Enter Service Name and Description and New Binding Name. Choose Next.

17. Choose Finish.

18. Choose Display Binding to View the Calculated Access URL which should match with the HCI iflow receiver URL for SAP CRM system.
9.2.10.3 Configuration for receiving pricing information from SAP CRM

1. Call transaction SOAMANAGER and login with your credentials if asked for.

2. Choose Simplified Web Service Configuration under the tab Service Administration.

3. Enter Search Pattern as EXTERNALSALESDOCUMENTDATAQUERY and choose Go.

4. Select the entry and choose Set Selected. Choose Save.

5. Choose Show Details to view the access URL in the HCI receiver agreement.
Note: During Sales quote pricing test, if you encounter any validation error in the CRM system “The value '0' is not in the value range of the XML schema type 'int' or it does not meet the specified limitations” then ensure the level field maintained for the pricing procedure is within the range 1 to 999999999. Change this value for pricing procedure and then re-test.

9.3  HCI: Configuration
9.3.1  Configure and Deploy iFlows using SAP Eclipse
9.3.1.1  Adjust the hostname for the COD2CRM and CRM2COD scenario

1. Open one of the COD2CRM project from the Integration Designer perspective by example com.sap.scenarios.cod2crm.appointmentactivity.confirmation and under the src.main.resource open the file parameters.prop.

2. Adjust the host, port, and client accordingly based upon where the SAP CRM on-premise system is accessible from the Internet.

3. Close the file and save the changes.
9.3.1.2 Add x.509 Sender Certificate for to iFlows for COD2CRM Scenarios

1. Open the iFlow within the project from the Integration Designer perspective.

2. Select the Sender system within the iFlow and in the Properties tab, click the Browse button to add the certificate.
4. Now the certificate will be loaded into the sender system within the iFlow.

5. Click Save to save the iFlow. Follow the previous steps for the rest of the COD2CRM scenarios.

9.3.1.3 Add x.509 Sender Certificate for to iFlows for CRM2COD Scenarios

1. Open the iFlow within the project from the Integration Designer perspective.

2. Select the Sender system within the iFlow and in the Properties tab click the Browse button to add the certificate.
3. Select the correct certificate for the SAP CRM calls and click Open.

4. The certificate will be loaded into the sender system within the iFlow.

5. Click Save to save the iFlow

9.3.1.4 Deploy project from Eclipse to SAP HANA Cloud Integration

1. From the Node Explorer section, you can get the tenant ID where the content will be deployed, by example in this case the tenant name is sodw004
2. Select the project that needs to be deployed and right-click to open the context menu from the Integration Designer perspective.
3. Click in Deploy Integration Content from the context menu.

4. Enter the tenant ID and click OK.

5. Click OK - Within the Console tab it is possible to see if the deployment process was successful.
9.3.1.5 Check for Project Deployment

The “Deployed Artifacts” tab from the Integration Operation perspective will show all the deployed projects in that specific tenant.