SAP Hybris Cloud for Customer

Quick Start Guide

Integration of SAP Hybris Cloud for Customer with SAP On-Premise Solutions

April 2017

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Quick Start Guide

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About this Document

This quick start guide describes major configuration activities required for integrating a feature between SAP Hybris Cloud for Customer and an SAP on-premise system. It focuses on only what is unique for the scenario. The assumption is that integration with SAP on-premise is already configured. If this is not the case, then use the integration guide on SAP Service Marketplace to configure all integration scenarios.

SAP Hybris Cloud for Customer is commonly referred as **Cloud** in this document.

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1 Account 360 Integration with SAP ERP

Business Scenario Overview

This scenario is used when your company has SAP on-premise systems such as SAP ERP or SAP Business Warehouse (BW), and these systems have additional information about say, accounts or sales orders. You can bring this information into your SAP Hybris Cloud for Customer (Cloud) solution. To set up the 360 overview, administrators must set up a bridge so that the SAP on-premise systems can communicate with the SAP Cloud solution. When both halves of the bridge are in place, information from your SAP on-premise system appears in your SAP cloud solution, providing a broader perspective for your users.

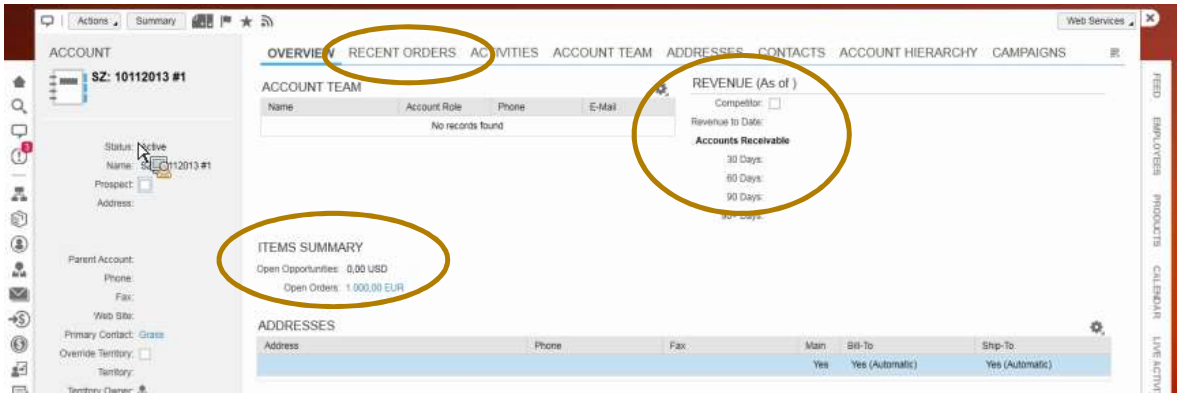
Process Flow

Account 360 information in the *Accounts* view, comes from both SAP ERP and BW systems. Once you complete the required configuration, you can view the information that you have retrieved from your on-premise systems in SAP Hybris Cloud for Customer accounts:

- *Accounts* view → *Overview* tab. The data under the *Revenue* and *Items Summary* sections is from BW.
- *Accounts* view → *Recent Orders* tab. The data in this tab is from ERP.

Note

If these tabs are not visible, you can add them either in the *Adaptation* mode or in *Personalization*.



Technical Scenario Overview

The report in the SAP on-premise systems (ERP and/or BW) collects data and sends it to SAP Hybris Cloud for Customer. These reports can be scheduled as batch jobs.

- BW report: SAP provides an example report via SAP Note 1724752 as a basis to implement an own report in the customer namespace.
- ERP report: With the ERP Add-On CODERINT 600 SP14, SAP ships the standard report RCOD_SEND_RECENT_ORDERS. Until SP14 is available, the program is provided as

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advance development in the SAP Note 2108612. This report calls the Cloud system twice, and hence two communication arrangements need to be set up.

- First the report queries ID Mapping for all accounts from Cloud. With this list, it can be assured that only recent orders for accounts which exist in Cloud are transferred.
- Then the report collects orders according to the selection parameters of the report. The second call to Cloud is to transfer the recent orders.

Scenario Assumptions & Prerequisites

Prerequisites

Support package 14 of the CODERINT add-on has been applied

1.1 Configuration in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange → Integration with External Applications and Solutions → 360 Overview - Account*

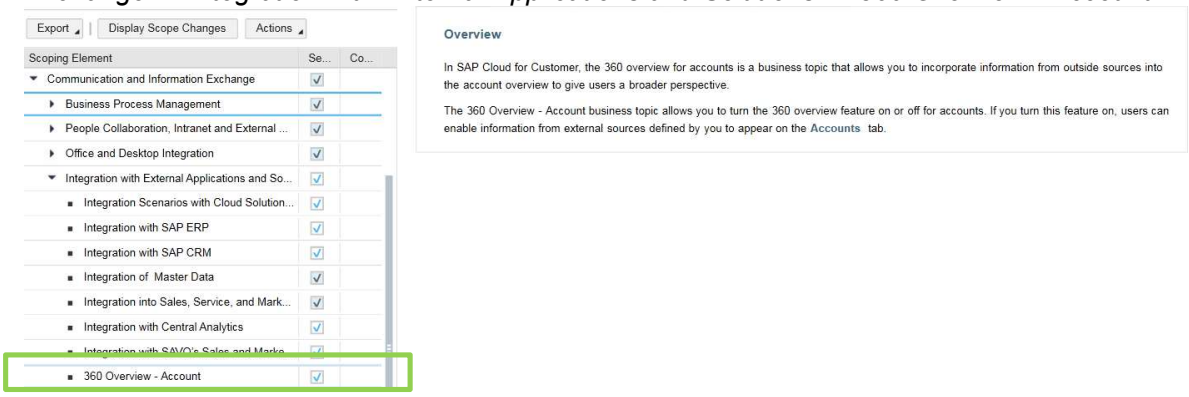

Figure: Scoping in Cloud

Fine-Tuning/Code List Mapping

None specific to this scenario

Communication System

In the communication system that you use for ERP integration, uncheck the flag *SAP Business Suite*.

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Communication Arrangements and Services

Configure and activate the following communication arrangements:

- Analytics Integration
- 360 Overview – Account

Use the communication system that you updated as the communication partner.

If you want to send KPI data from your BW system, you also need to download the following WSDLs. On the basis of these WSDLs, you will create consumer proxies in your BW system.

To retrieve ID mapping from Cloud, download the following WSDL:
- Communication Arrangement: Analytics Integration
- Inbound Service: Analytics Integration

To retrieve information from SAP Business Warehouse for 360 degree overview of accounts, download the following WSDL:
- Communication Arrangement: 360 Overview – Account
- Inbound Service: Manage Revenue Data

Expose the Data Source for ID Mapping

The communication arrangement for the *Analytics Subsidiaries Integration* communication scenario that you just created is a data source. Exposing this data source allows the SAP on-premise system to get the ID mapping from SAP Hybris Cloud for Customer.

To expose the data source for ID mapping, do the following:
1. Go to *Administrator* → *Business Analytics* → *Data Sources*, and search for *Object ID Mapping*.
2. Choose the *Object ID Mapping* data source and expose it.

Note
If the *Expose* button is not visible, please check whether *Integration with Central Analytics* is scoped.

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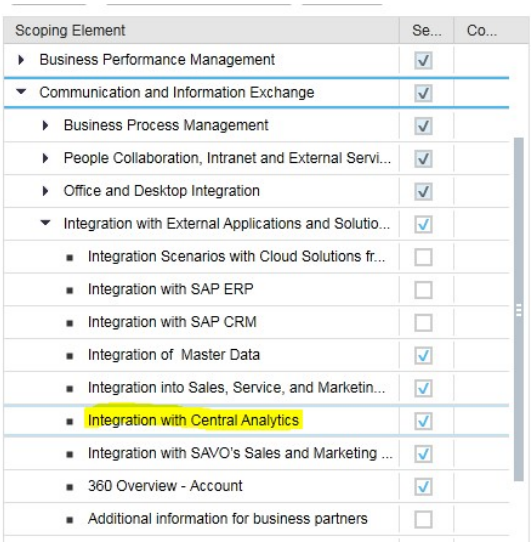

1.2 Configuration in SAP ERP

Create Logical Ports with SOAMANAGER in SAP systems

You need to create logical ports in SOAMANAGER in order to send web service calls to your middleware system.

1. Open transaction SOAMANAGER in your ERP system.
2. Choose *Service Administration* → *Web Service Configuration*.
3. Search for consumer proxy *CO_CODERINT_OPERATIONAL_DATA_P*. Click to view the details.
4. Choose *Create* → *Manual configuration*.
5. Enter information based on your middleware configuration. Here are some example values which need to be adjusted according to your configuration. Example URL Path:
   - /XISOAPAdapter/MessageServlet?channel=:ABC_004:ERP_SOAP_QueryIdMapping_Send&sap-client=238
   - /cxf/COD/ERP/queryidmapping_qxl238
6. To confirm that the logical port was created and configured correctly, ping the Web service. If the ping was successful, a confirmation message appears.
7. Repeat these tasks for consumer proxy *CO_CODERINT_MANAGE_EXTERNAL_AG*. Example URL path:
   - /XISOAPAdapter/MessageServlet?channel=:ABC_004:ERP_SOAP_RecentOrders_Send&sap-client=238
   - /cxf/ERP/COD/ManageRecentOrderData_QXL238

Test the report and schedule a batch job

You can first test the report RCOD_SEND_RECENT_ORDERS by transferring data for one specific account. Once the report was executed successfully you can schedule the report as daily batch job.

Note

If you want to transfer huge number of accounts or orders, then we recommend the transfer into multiple jobs, by using a selection criterion.

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1.3 Configuration in BW

For BW there is no standard report. You find an example report which you can use as a template in SAP Note 1724752.

Create consumer proxies

Create consumer proxies on the basis of the WSDL files you have downloaded before.
Create a consumer proxy for *Manage Revenue Data* using transaction SE80.

1) Select a package where you want to create the consumer proxy.
2) Right-click on level *Enterprise Services* and choose *Create*.
   A wizard helps you to create the consumer proxy. Choose the following values:
   - Object Type: Service Consumer
   - Generation Source: External WSDL
   - WSDL source: Local File → Select the WSDL file you have downloaded before transport.
   - Package: <your package>
   - Request/Task: Select workbench request.
3) Complete the process and activate the consumer proxy.
4) Repeat these steps with the WSDL for *Analytics Integration*.

Create Logical Ports with SOAMANAGER in SAP systems

You need to create logical ports in SOAMANAGER in order to send web service calls to your middleware system or directly to your Cloud system.

Note
SAP doesn´t provide middleware content for this interface. You would need to create this content. The following steps describe how to create logical ports for a point-to-point connection.

1. Open transaction SOAMANAGER in your ERP system.
2. Choose *Service Administration* → *Web Service Configuration*.
3. Search for object OperationalDataProvisioning and click to view details.
4. Choose *Create* → *WSDL based configuration*.
5. Logical Port Name: ID_MAP
   WSDL Base: WSDL File from Upload. Choose the WSDL you have downloaded before. To confirm that the logical port was created and configured correctly, ping the Web service. If the ping was successful, a confirmation message appears.
6. Repeat this task for the other interface. Search for object ManageExternalCustomerKPIViewIn and use the logical port name KPI.

Create a Z-Report to send KPI data to Cloud

1. Open transaction SE38 in your BW system.
2. Create a report by copying and pasting the contents of the sample report template located in SAP Note 1724752.
3. When you perform a syntax check, the system will show some missing objects. These objects are available in your generated consumer proxies. Adjust the report accordingly and use the generated objects.

1.4 Configuration in Middleware

Value Mapping

No value mapping specific to this scenario

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Integration Flow

Go to the *Integration Flows* excel on Service Marketplace, and filter by:

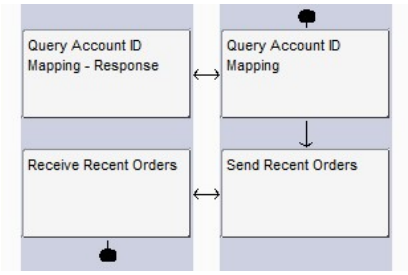
- Business object: Account
- Source system: C4C
- Target system: ERP

The ones that are specific to Account 360 are: Analytics Integration and Manage Recent Order Data.

Integration Builder

SAP provides PI content for sending recent orders from ERP in the following object:

- Process Integration Scenario: COD_ERP_BusinessDataSync
- Namespace: http://sap.com/xi/CODERINT/IC
- Software Component Version: COD_ERP_INT_IC 6.00



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2 Employee Replication from SAP ERP

Business Scenario Overview

This scenario is applicable when you want employee master data created in SAP ERP system to be replicated to SAP Hybris Cloud for Customer. In principle, as SAP Hybris Cloud for Customer, is only catering to Customer Engagement and Commerce, only a subset of the capabilities offered in SAP ERP is required to be mapped to SAP Hybris Cloud for Customer.

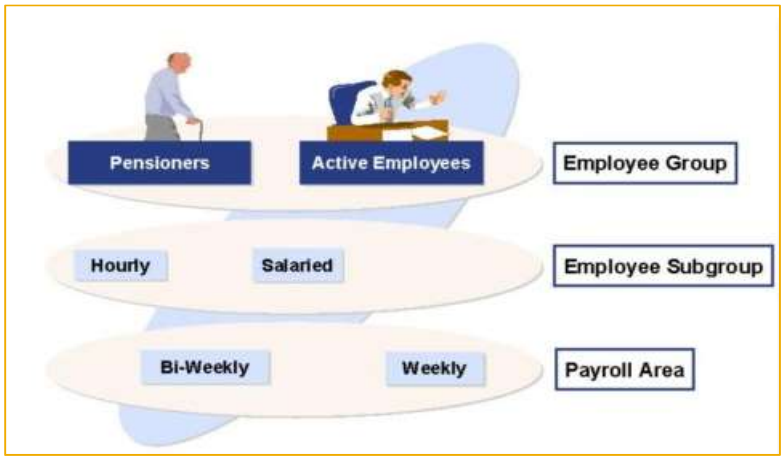
Technical Scenario Overview

Employee data form is part of the SAP HR module. The administrative personnel structure for SAP Human Resources relates primarily to working hours and compensation. It is made up of three elements:

- Employee group
- Employee subgroup
- Payroll area

An example of a personnel structure is illustrated below:

- Employee group: The employees are categorized as active employees or pensioners.
- Employee subgroup: The active employees are divided into two subgroups – hourly and salaried.
- Payroll area: The active employees are also divided into two payroll areas that determine when they receive their pay – weekly or bi-weekly.



Employee master data in the SAP ERP System is maintained in infotypes and is linked to employee identification numbers.
Employee data is grouped as follows:

- Individual Information, such as last name, first name, and date of birth, is defined in data fields.
- These data fields are grouped into information units according to their content.

In the SAP HR component, these information units are called information types or infotypes - in short - and are identified by a four-digit key.

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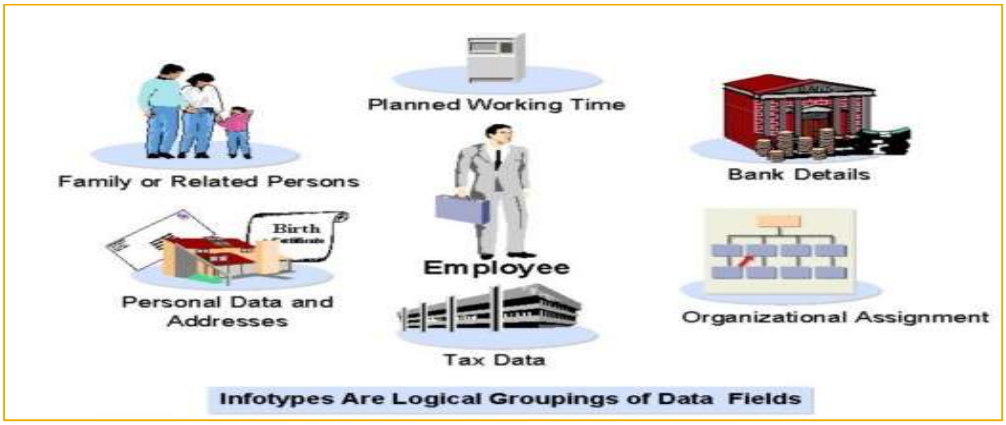
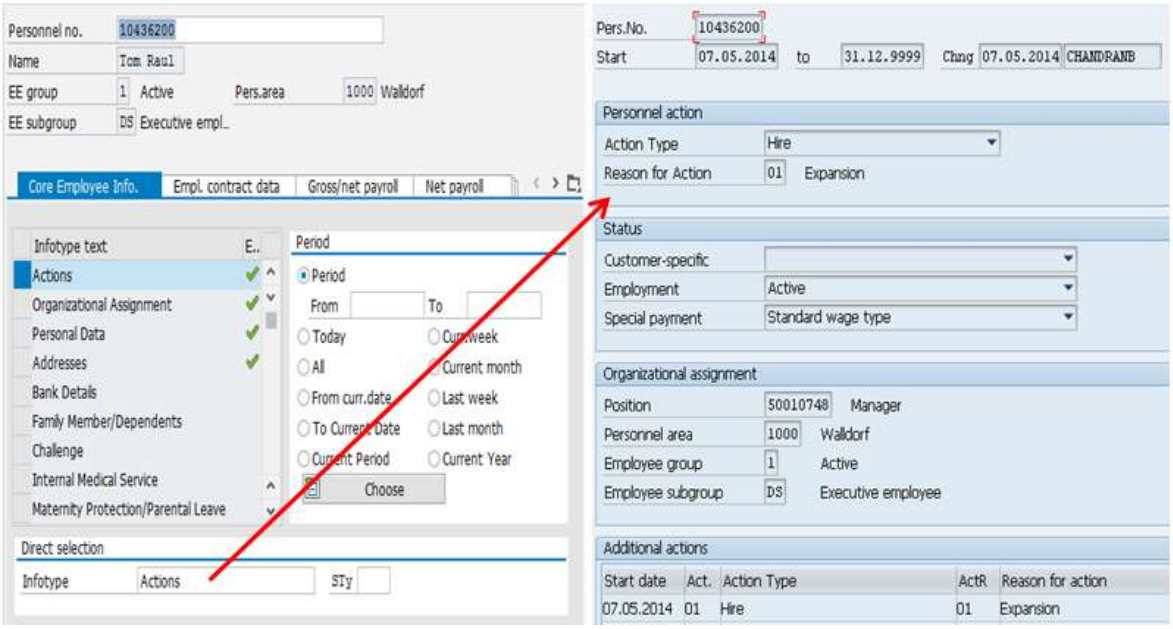


The end user sees each infotype as a data entry screen which can be navigated from the employee master main screen.
For example the infotype 'Actions' groups all action type related information of the employee. The actions can be anything from hiring, adding a family member, leaves, changes in position / job etc. All these actions are linked with a start and end date which maintains the whole change log for the information. In the backend there are separate tables associated with each infotype.



Scenario Assumptions & Prerequisites

Assumptions

The employee replication is unidirectional from SAP ERP to SAP Hybris Cloud for Customer. This means that once employee replication is enabled, you cannot create or modify employee data in SAP Hybris Cloud for Customer.

Prerequisites

- You have the support packages delivered in October, 2014 or later.
- Organization structure is replicated from SAP ERP to SAP Hybris Cloud for Customer before starting employee replication to enable org unit assignment.

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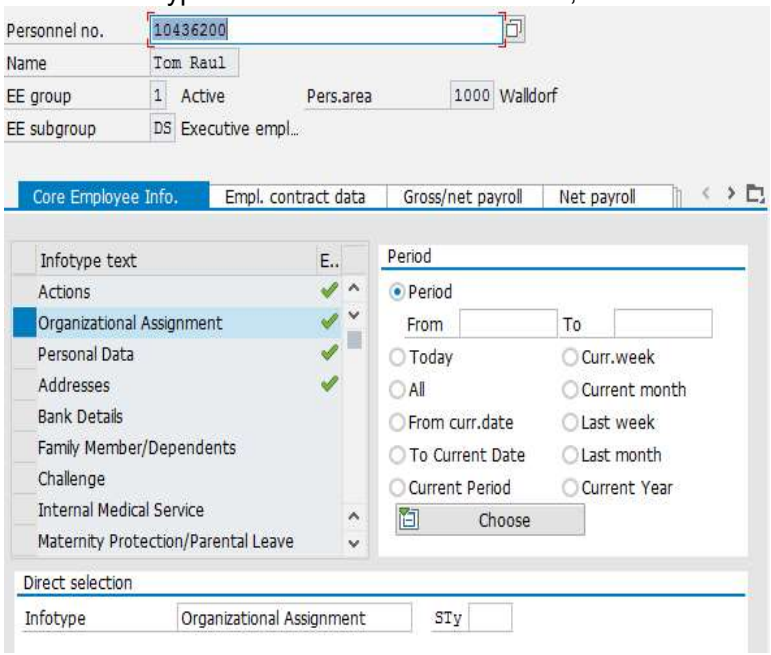
Integration scope

For integration between SAP ERP and SAP Hybris Cloud for Customer, only data from below mentioned infotypes are considered.

- 0000 – Actions
- 0002 – Personal Data
- 0105 – Communication
  Subtypes
  - 0001 – System User Name
  - 0010 – Email
  - 0005 – Fax
  - CELL – Cell Phone
  - 0020 – First Telephone number at work
- 0900 – Sales Data

InfoTypes for Employee in ERP

Employee data is stored in various infotypes, and we will see what data from these infotypes are replicated to SAP Hybris Cloud for Customer. Let us take an example of an employee with the personnel number 10436200. Only data from these infotypes are replicated to SAP Hybris Cloud for Customer.
The Employee Data Overview screen in ERP contains various tabs which are basically data groups. Inside each group, the relevant infotypes are listed. For example, in the 'Core Employee Info.' tab, we have infotypes which have data for Actions, Personal Data etc.



Since all employee data are time dependent, a valid from and valid to is associated with all infotypes. But while replicating to SAP Hybris Cloud for Customer, we consider only data valid till the replicated date. Future data is ignored and is replicated only after the start date for the record.

Action infotype (0000) - In this infotype, an employee's start and end dates are maintained. An employee is active or locked is based on these dates. This data determines the status of an employee in SAP Hybris Cloud for Customer.

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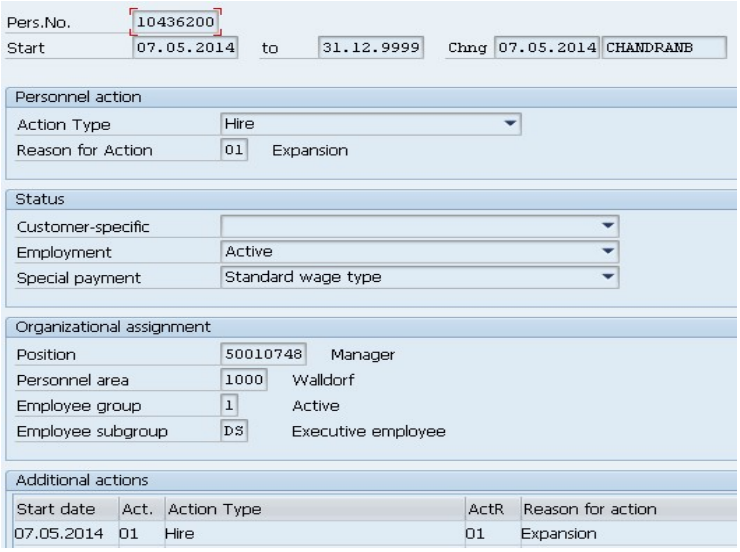
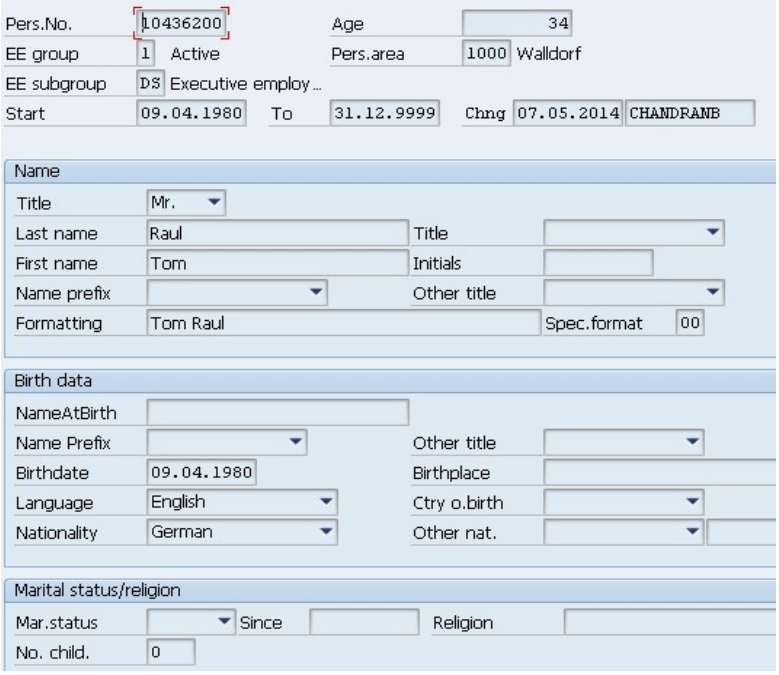


Personal Data infotype (0002) - In this infotype, the following data is replicated to SAP Hybris Cloud for Customer:

- Title
- Academic title
- First name
- Last name
- Middle name
- Second name
- Gender
- Marital status
- Nationality
- Birth date
- Birth name
- Birth place



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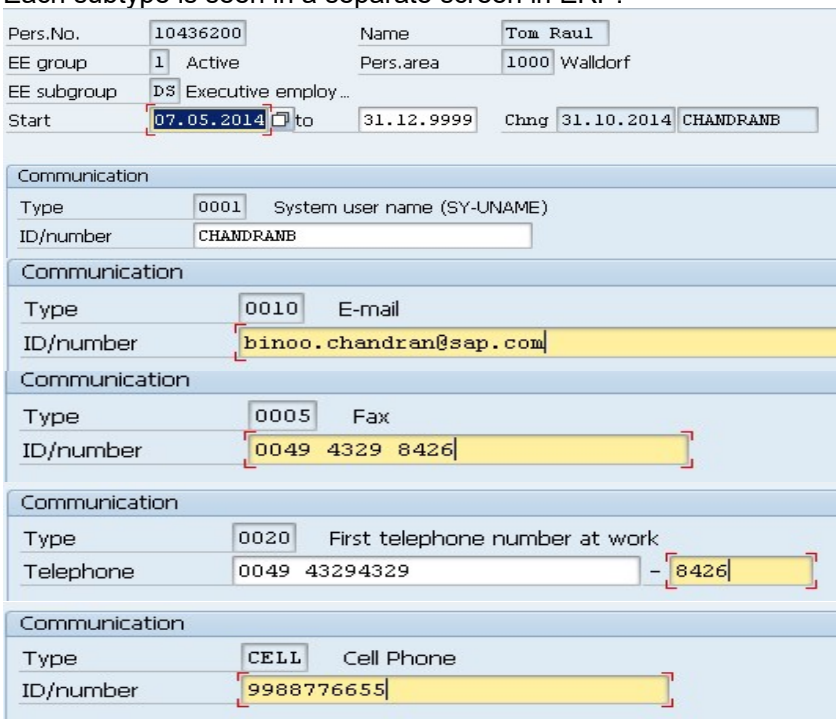
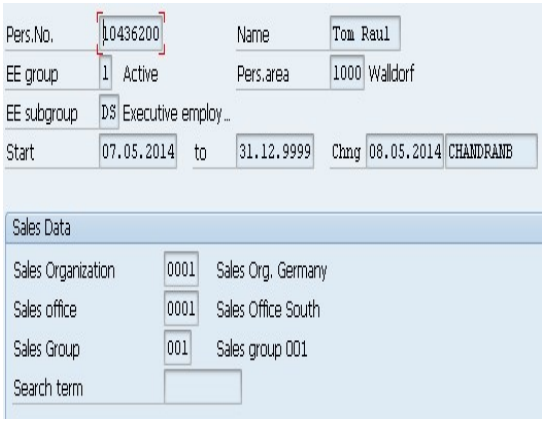
Communication infotype (0105) – This infotype has various subtypes under it. Subtypes are basically to differentiate the data which fall under particular information (communication in this case). Each subtype is seen in a separate screen in ERP.



The communication details such as email, fax, office phone and cell phone are replicated and will be displayed under the same headings in SAP Hybris Cloud for Customer. The information under subtype 0001 (system user name) is used in creating the identity in SAP Hybris Cloud for Customer for the employee. The identity is basically the business user and associated information is created for the employee in SAP Hybris Cloud for Customer.

Sales Data infotype (0900) - The Sales group or Sales office or Sales Organization is replicated to SAP Hybris Cloud for Customer based on data availability in the field as per above sequence. This data determines the Sales org assignment for the employee in SAP Hybris Cloud for Customer.



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Time Dependency of Employee Data

All employee data in ERP is time dependent. This means each set of data has a validity period determined by the start and end date field associated with each record.

In ERP, there is an option of entering future data for an employee. For example, an employee will be hired in 10 days from today. While creating an employee in the system today, you can enter all the details and create the employee record with action 'hire' for start date as today's date + 10. Till that day, the entry will not be valid and automatically becomes valid on that day.

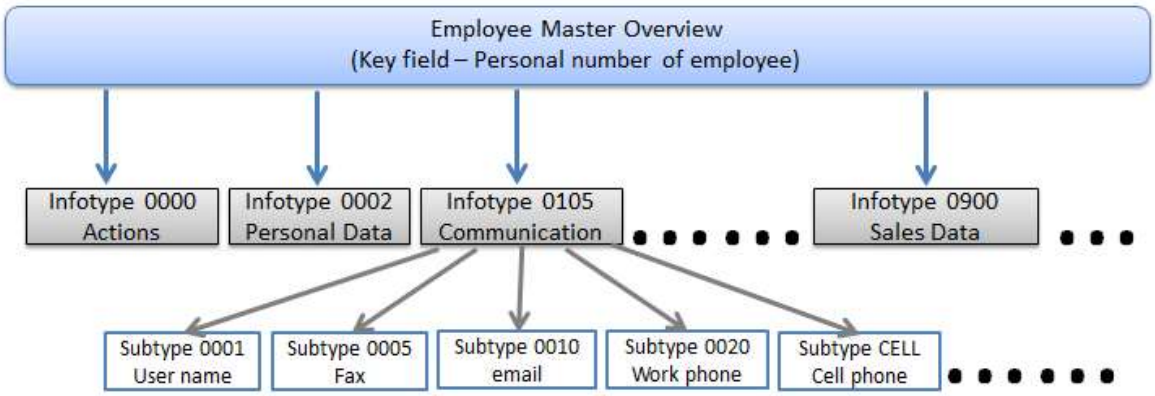
Whenever the employee record changes, say marital status, the old status will be given an end date which will be corresponding to start date of new status, this maintaining data history.

No future data is replicated to SAP Hybris Cloud for Customer, and such entries get replicated only on the date they becomes valid. There are reports to be scheduled in ERP which takes care of this functionality.

2.1 Data Model

Data Model in SAP ERP

There are separate tables associated with each infotype, where data for each employee is identified via personnel number. There would be ideally one entry which is relevant and rest would be either historical data or future data which is identified by start and end date for each record. A record created for the future will become active only on the start date specified.



Data Model in SAP Hybris Cloud for Customer

The data in SAP Hybris Cloud for Customer is persisted in the business object (BO) EMPLOYEE. In SAP Hybris Cloud for Customer, employee data is persisted in two steps. First, the data sent from ERP is stored in staging which is like an intermediate data / message storage mechanism, where the user will be able to see the migrated data and do any adjustments if needed before the employee gets created in the SAP Hybris Cloud for Customer system.

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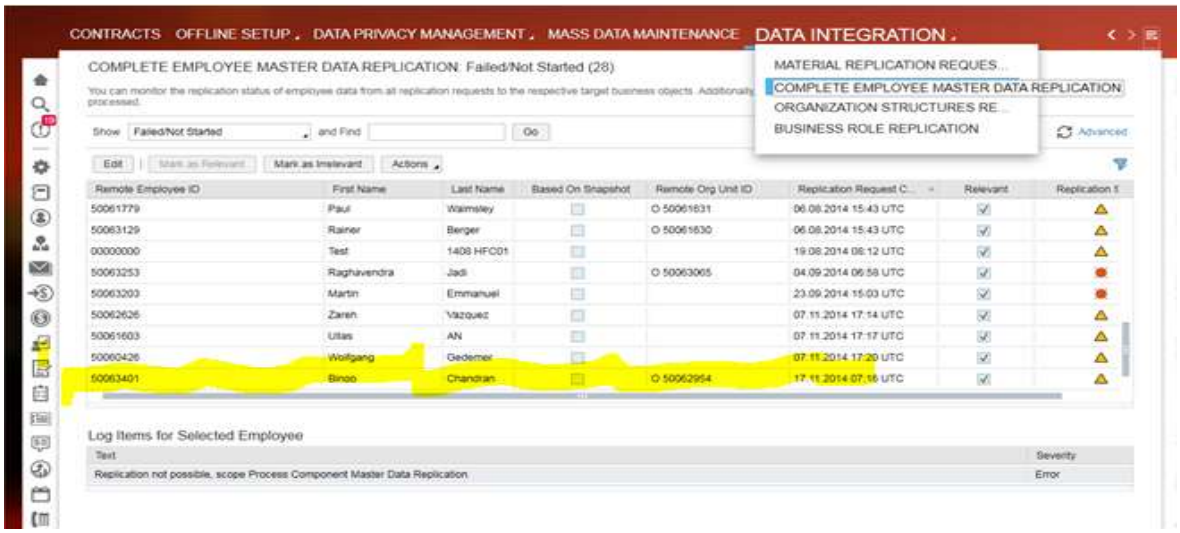
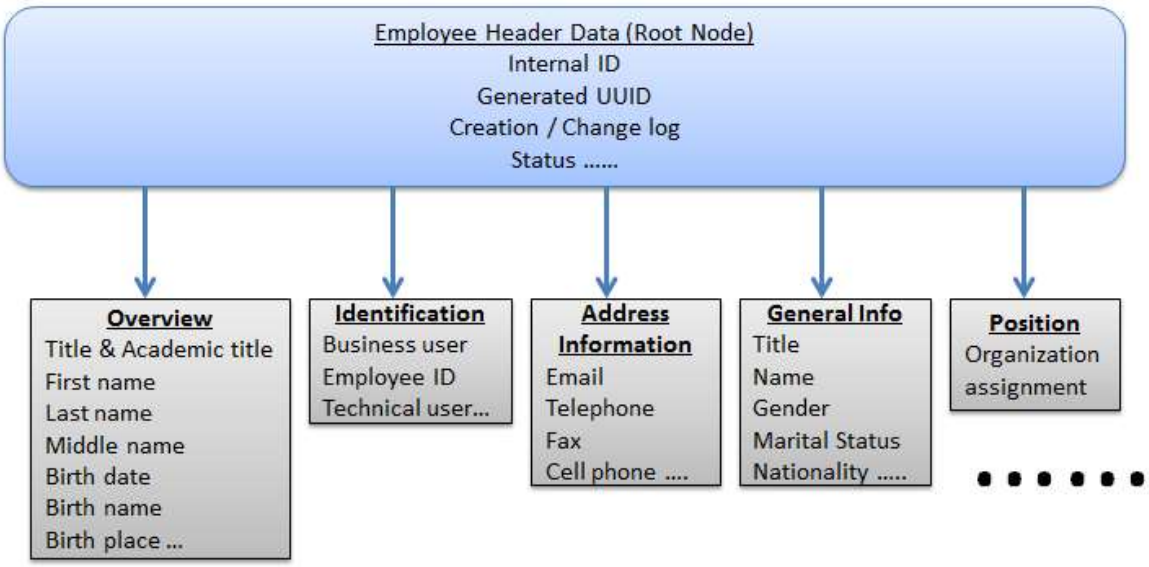


From this stage, the user selects desired records and starts the replication. All data validations and actual creation of the employee happens now. Even though all historical data is seen in the staging only the current valid data is persisted. The data is stored in BO and the data model concept is to have the header level / root level data in the ROOT node (structure) and then there will be other associated nodes to store the detailed information. Similar to the concept discussed for infotypes, logically similar information will be grouped under the same node. There will be a unique key (UUID) generated for each employee and this is the key which provide the data linkage from root node to the associated nodes.



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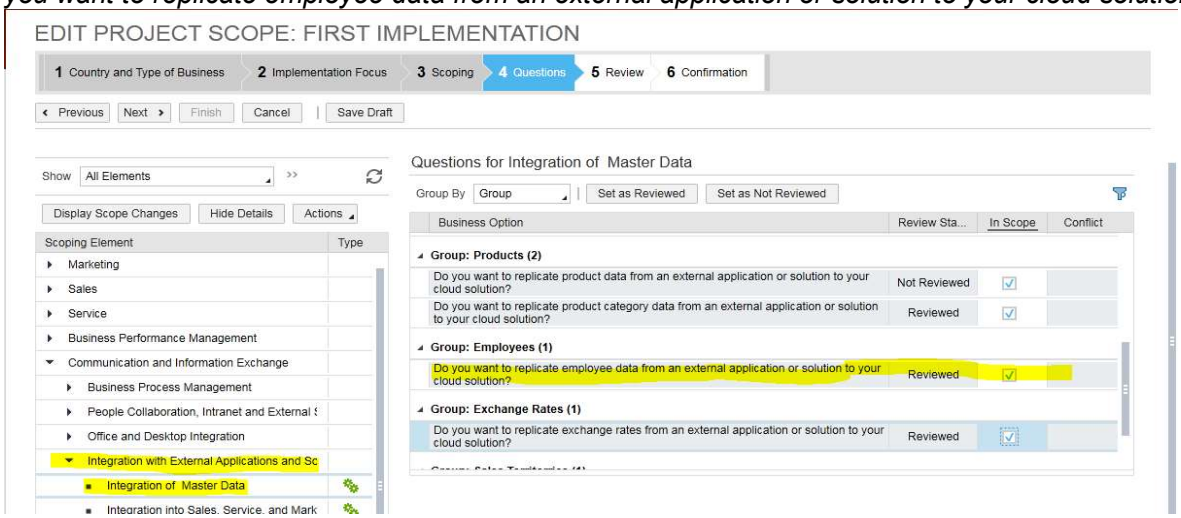
Field Level Data Mapping between the Systems

ERP Field	Infotype in ERP for this data	SAP Hybris Cloud for Customer Field
Personal Number	0002	Employee ID
Start Date & End Date	0000	Determines whether employee is in active status.
Title	0002	Title
Academic title	0002	Academic title
First name	0002	First Name
Last name	0002	Last name
Middle name	0002	Middle name
Second name	0002	Second name
Gender	0002	Gender (Not displayed)
Marital status	0002	Marital Status (Not displayed)
Nationality	0002	Nationality (Not displayed)
Birth date	0002	Birth date (Not displayed)
Birth name	0002	Birth name (Not displayed)
Birth place	0002	Birth place (Not displayed)
Sales group or Sales office or Sales Organization	0900	Department
Email	0105	Email
Phone	0105	Phone
Fax	0105	Fax
Cell phone	0105	mobile

2.2 Configuration in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange → Integration with External Applications and Solutions → Integration of Master Data → Do you want to replicate employee data from an external application or solution to your cloud solution?*



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ID Mapping

ID mapping for employee is carried out automatically during the replication of data into the system. However this can be changed in SAP Hybris Cloud for Customer, if adjustments are required.

Fine-Tuning/Code List Mapping

You can find a list of code lists relevant for Employees scenario in the INTEGRATION: Code Lists Supported (CRM ERP) on SAP Service Marketplace.

Communication Arrangement

- Communication arrangement: Employee Replication from External System

Note
The details on setting up the configuration are available in integration guide for ERP.

2.3 Configuration in SAP ERP

IDoc of type HRMD_A is used for the replication of employee data. The IDoc type and associated changes are available in the on-premise support packages delivered in October, 2014.

To enable the continuous replication of changes to SAP Hybris Cloud for Customer – including delta changes that occur after the initial data load of data – you must activate change pointers in the SAP on-premise system for the said message type.

The detailed steps for setting up the On Premise configuration for enabling replication to SAP Hybris Cloud for Customer is available in integration guide for ERP (separate document for PI & HCI) available at SAP Service Marketplace.

Application Configuration

The details on establishing initial data load and resending of data are described in the employee initial load session of ERP Initial load guide. For more information, see the initial load chapter in the integration guide.

2.4 Configuration in Middleware

Value Mapping

No value mapping specific to this scenario.

Note
If the customer has maintained custom subtypes in ERP, then a corresponding value mapping has to be maintained which is not part of standard deployment.

Integration Flow

Go to the *Integration Flows* excel on Service Marketplace, and filter by:

- Business object: Employee
- Source system: C4C
- Target system: ERP

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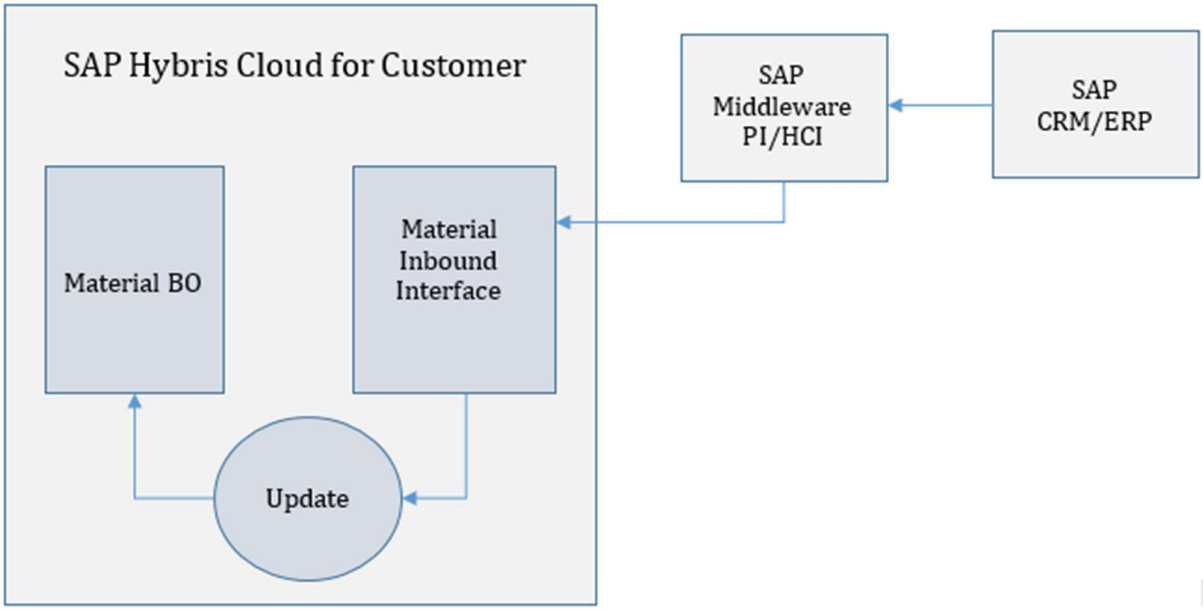
3 Material Replication from SAP CRM /SAP ERP to SAP Hybris Cloud for Customer

Material replication is unidirectional from SAP CRM/SAP ERP to SAP Hybris Cloud for Customer.

Materials are sent out of ERP using IDocs. Message type MATMAS_CFS is used to trigger the IDoc. Once a material is created in ERP (MM01), we trigger the idoc using BD10 transaction. Based on the logical system setup in WE20, the IDocs are sent out of ERP.

Materials are sent out of CRM, the IDoc used is CRMXIF_PRODUCT_MATERIAL_SAVE. The IDoc will be triggered whenever a material entry is saved. Based on the logical system setup in WE20, the IDocs are sent out of CRM.



Scoping

Business Configuration → Edit Project Scope → Scoping → *General Business Data* → Products → Scope the following based on your requirements.

Questions

Questions Screenshot

Communication Arrangement

Communication Arrangement Screenshot

For Material Replication, in the communication arrangement, the SAP On Premise Integration Code List Mapping must be used.

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To have the same material ID in both the CRM/ERP system and Cloud for Customer system, the element <ReceiverID> </ReceiverID> also has to be mapped to the MATNR field from IDOC. If the MATNR is numeric, please make sure that you are not deleting the leading 0's. This is in addition to the mapping of MATNR to the ID field, which is available in standard mapping. For alphanumeric IDs, send it as it is. Refer to SAP Note 2181670.

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4 Sales Order Integration with SAP ERP

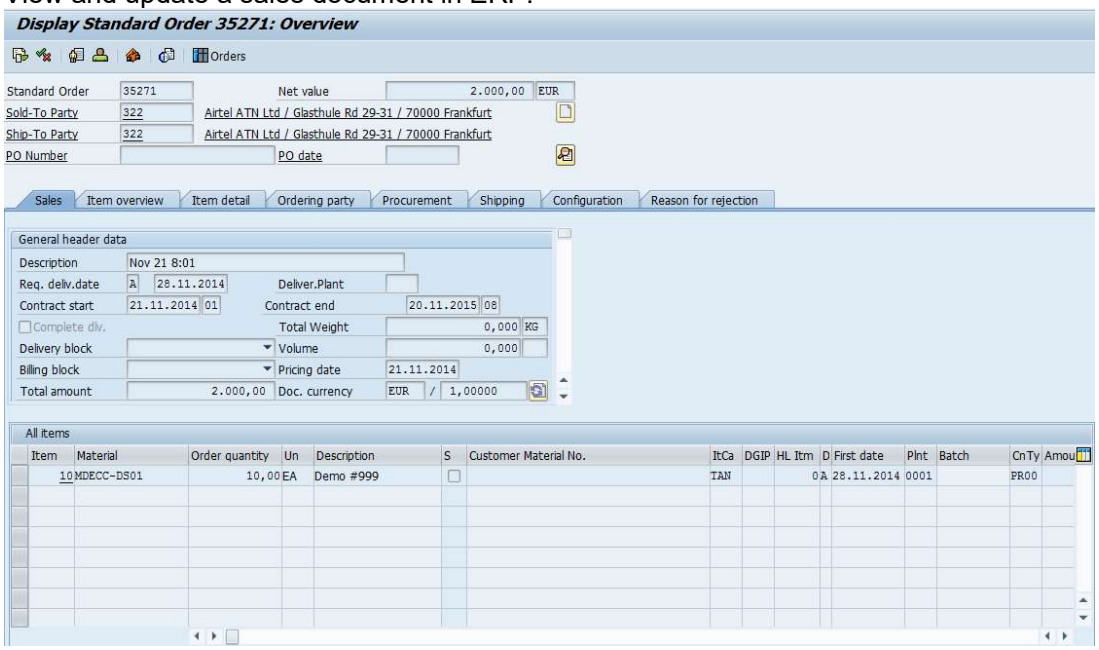
Business Scenario Overview

You can create or replicate sales orders in ERP, based on the customer quote, opportunity or sales order in SAP Hybris Cloud for Customer (Cloud). It focuses on only what is unique for this scenario. From the Cloud system, you can trigger the creation of a sales order in ERP in the following ways:

- **Option 1: Order → Order**
  When you create a sales order in SAP Cloud, the sales order is replicated in ERP.
- **Option 2: Quote → Order**
  From a quote in SAP Cloud, you can request for creation of a sales order in ERP.
- **Option 3: Opportunity → Order**
  From an opportunity in SAP Cloud, you can request for creation of a sales order in ERP.
- **Option 4: Opportunity → Quote → Order**
  From an opportunity in SAP Cloud, you can request for a quote in ERP, which will further create a sales order.
- **Option 5: ERP Quote → Quote**
  You can replicate an ERP Quote as a read-only quote in SAP Hybris Cloud for Customer.

Once the follow-on documents for a quote or opportunity have been created in ERP, you can:

- View these follow-on documents in SAP Cloud → *Quote* or *Opportunity* view → *Sales Documents* facet. On click, you can also view the PDF version of these documents.
- View and update a sales document in ERP.



You can replicate attachments created for a quote and an order. The attachments created for a quote in Cloud can be replicated to ERP, and the ones created for sales order is bidirectional. All the attachments are displayed in the *Attachments* tab of the *Quote* and *Sales Orders* view in Cloud. An attachment can be created from a local file, a web link or a file from the Cloud library. For more information, see Configuring Sales Orders and Creating and Processing Sales Quotes.

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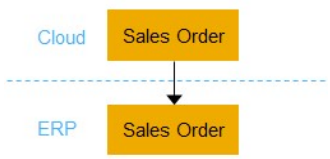
This document explains how to use each of the options in SAP Cloud, and gives high-level information on the necessary configuration.

Option 1: Order → Order

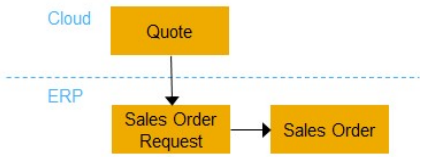
1. Create a sales order with products in Cloud, and click *Simulate*.
   The external pricing information along with the free goods determination, credit and ATP check results are retrieved from ERP.
2. Click *Transfer* to replicate the sales order in ERP.



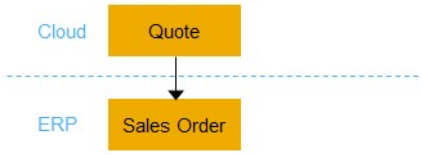
Option 2: Quote → Order

1. Create a quote with products in Cloud, and submit for approval.
2. Once approved, click *Create External Follow-Up Document* for creation of a sales order in ERP.
3. Based on the configuration, the system creates one of the following:
   a. A sales order request in ERP, followed by a sales order in ERP.
   b. A direct sales order in ERP.

a.



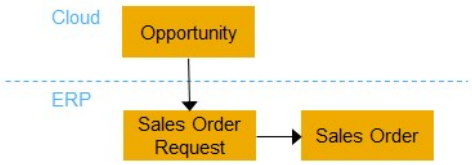
b.



Option 3: Opportunity → Order

1. Create an opportunity with products in Cloud, and submit for approval.
2. Once approved, click *Create ERP Sales Order* for creation of a sales order in ERP.
3. Based on the configuration, the system creates one of the following:
   a. A sales order request in ERP, followed by a sales order in ERP.
   b. A direct sales order in ERP.

a.



b.

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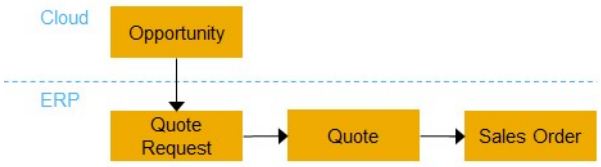
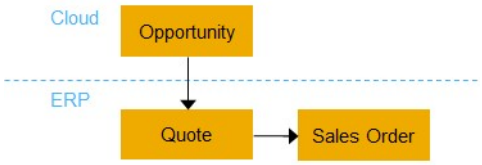
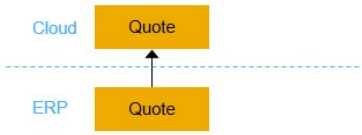
Option 4: Opportunity → Quote → Order

1. Create an opportunity with products in Cloud, and submit for approval. 2. Once approved, click *Create ERP Sales Quote* for creation of a quote in ERP. 3. Based on the configuration, the system creates one of the following: a. A quote request in ERP, followed by a quote, and then an order in ERP. b. A quote, followed by an order in ERP.	a.  b. 

Option 4: ERP Quote → C4C Quote

A quote in ERP is replicated to Cloud as a read-only quote.	

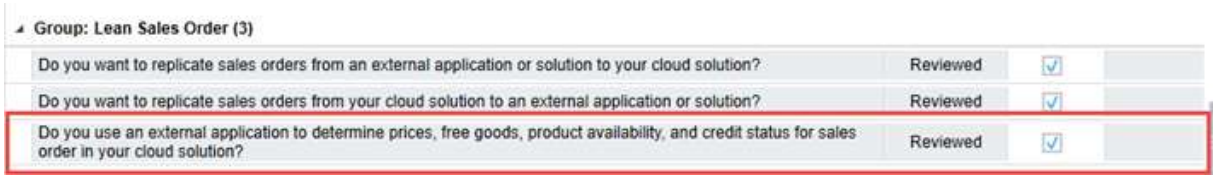
4.1 Configuration in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange* → Scope the following based on your requirements:

Option 1: Order → Order

Integration with External Applications and Solutions → Integration into Sales, Service, and Marketing Processing →
Do you want to replicate sales orders from an external application or solution to your cloud solution?
Do you want to replicate sales orders from your cloud solution to an external application or solution?
Do you use an external application to determine price, free goods, product availability and credit status for sales order in your cloud solution?



Group: Lean Sales Order (3)		
Do you want to replicate sales orders from an external application or solution to your cloud solution?	Reviewed	☑
Do you want to replicate sales orders from your cloud solution to an external application or solution?	Reviewed	☑
Do you use an external application to determine prices, free goods, product availability, and credit status for sales order in your cloud solution?	Reviewed	☑

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Option 2: Quote → Order
Integration with External Applications and Solutions → Integration into Sales, Service, and Marketing Processing → Do you want to create follow-up document for sales quotes from your cloud solution to an external application?

Group: Sales Quotes (2)		
Do you want to create follow-up documents for sales quotes from your cloud solution to an external application?	Reviewed	☑
Do you use an external application to determine prices, free goods, product availability, and credit status for sales quotes in your cloud solution?	Reviewed	☑

Option 3 (Opportunity → Order) and option 4 (Opportunity → Quote → Order)
Integration with External Applications and Solutions → Integration into Sales, Service, and Marketing Processing → Do you want to create follow-up documents for opportunities you're your Cloud solution to an external application?

Group: Opportunities (3)		
Do you want to replicate opportunities from your cloud solution to an external application or solution?	Reviewed	☐
Do you want to replicate opportunities from an external application or solution to your cloud solution?	Reviewed	☐
Do you want to create follow-up documents for opportunities from your cloud solution to an external application?	Reviewed	☑

Option 5 (ERP Quote → Read Only Quote in SAP Hybris Cloud for Customer
From 1602 release onwards quote and order scenario supports the replication of item categories as well.
Integration with External Applications and Solutions → Integration into Sales, Service, and Marketing Processing → Do you want to replicate sales quotes from an external application or solution to your cloud solution?

Group: Sales Quotes (3)		
Do you want to create follow-up documents for sales quotes from your cloud solution to an external application?	Reviewed	☑
Do you use an external application to determine prices, free goods, product availability, and credit status for sales quotes in your cloud solution?	Reviewed	☑
Do you want to replicate sales quotes from an external application or solution to your cloud solution?	Reviewed	☑

Fine-Tuning/Code List Mapping

- **Option 1: Order → Order**
  Since it is a new feature in 1502, you need to perform code list mapping
- **Option 2: Quote → Order**
  None specific to this scenario
- **Option 3: Opportunity → Order**
  None specific to this scenario
- **Option 4: Opportunity → Quote → Order**
  None specific to this scenario
- **Option 5: ERP Quote → Read only Quote**
  None specific to this scenario

! Note: From 1602 item categories are supported for replication in quote and order. In order to enable this special code list mapping changes are to be adapted as described in below session.

Code List Mapping to Support item categories in quote and order

Item categories are the same for Quote and Order in SAP Hybris Cloud for Customer, but the corresponding codes in ERP are different for both. Due to this it becomes impossible to use the same code list content for quote and order scenarios as we cannot link the same SAP Hybris

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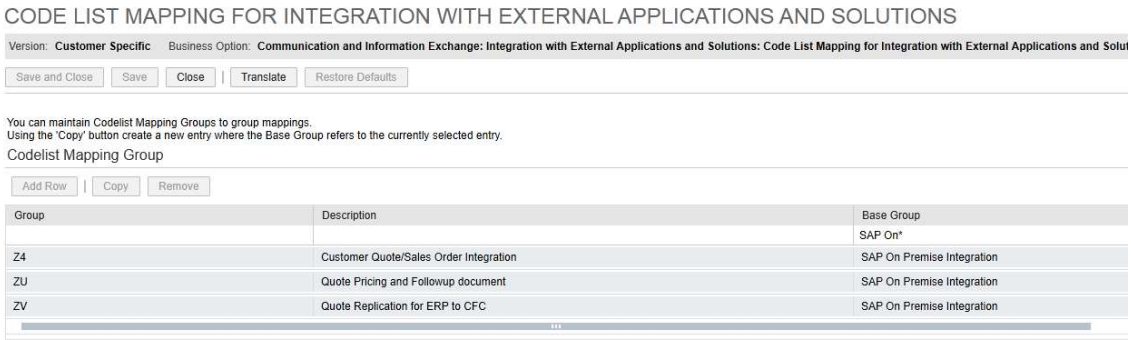
Cloud for Customer code to different ERP codes. So the following separate code list mapping groups has to be created / used for each of the following scenarios:

Scenario	Quote/Order	CL Group	E.g mapping relevant for the group
Quote Create Follow-up document	Quote	Quote Pricing and Follow-up document	AGN → TAN AGN → ‘ ’ …
Quote – Request for External Pricing	Quote	Quote Pricing and Follow-up document	AGN → TAN AGN → ‘ ’ …
Quote Replication from ERP to CFC	Quote	Quote Replication from ERP to CFC	AGN ←→ AGN …
Order Replication from CFC to ERP and vice versa	Order	SAP On-Premise Integration	ORN ←→ TAN ORN → ‘ ’ …
Order Simulation	Order	SAP On-Premise Integration	ORN ←→ TAN ORN → ‘ ’ …

The code list mapping group SAP On-Premise Integration is the default mapping group delivered with the integration content. While creating the other code list mapping groups the base group has to be maintained as SAP On-Premise Integration.
Note: If you have been using any other custom code list mapping for the above scenarios instead of SAP On-Premise Integration till now then use that as the base group.



Since we maintain the base group as the default code list mapping group which is already been used, only the mapping for ‘BusinessTransactionDocumentItemProcessingTypeCode’ need to be maintained inside the new group. The system will determine all code list mappings which are not available in the group from the base group.

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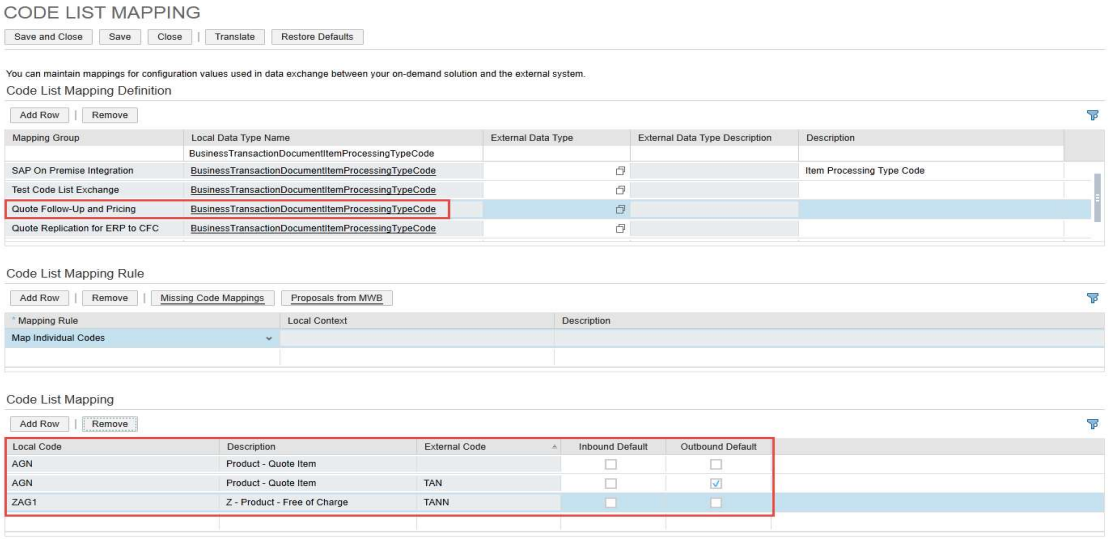
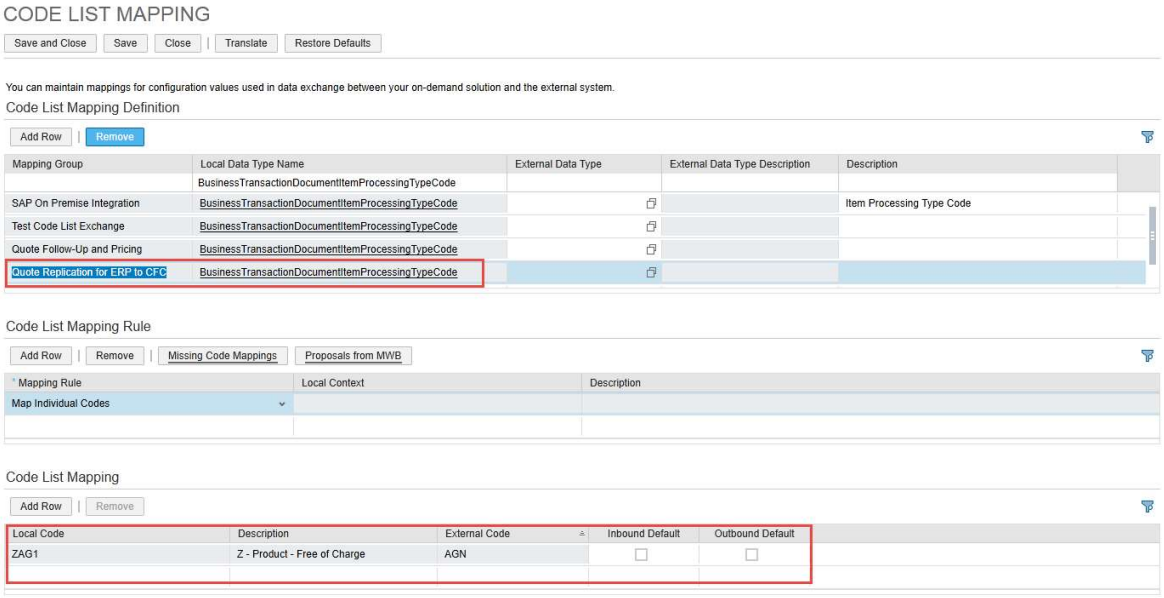
Code List mapping maintained for Quote Follow-up and pricing looks as below



Code List's maintained for replication from ERP to CFC, looks as below



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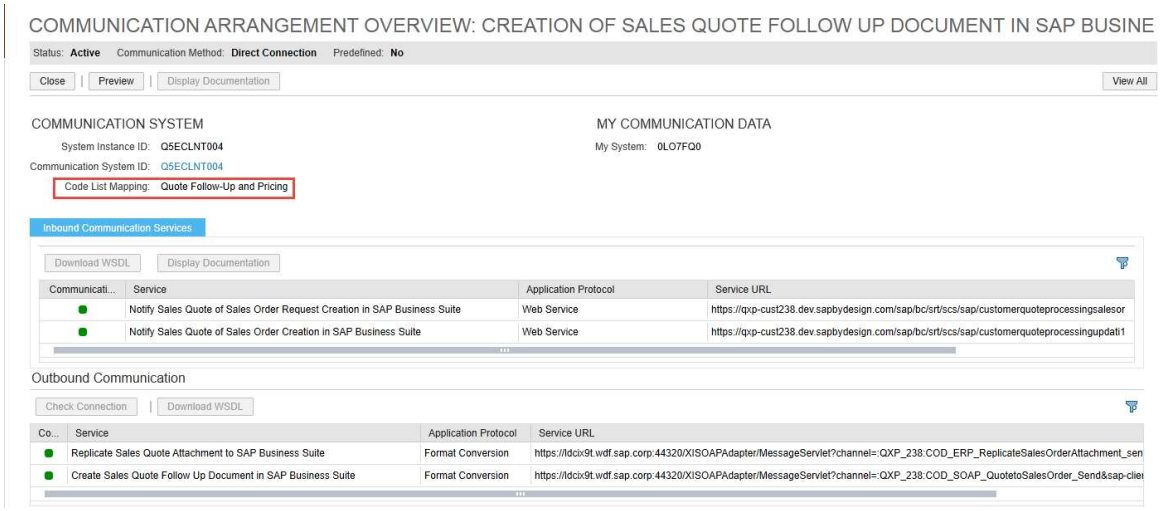
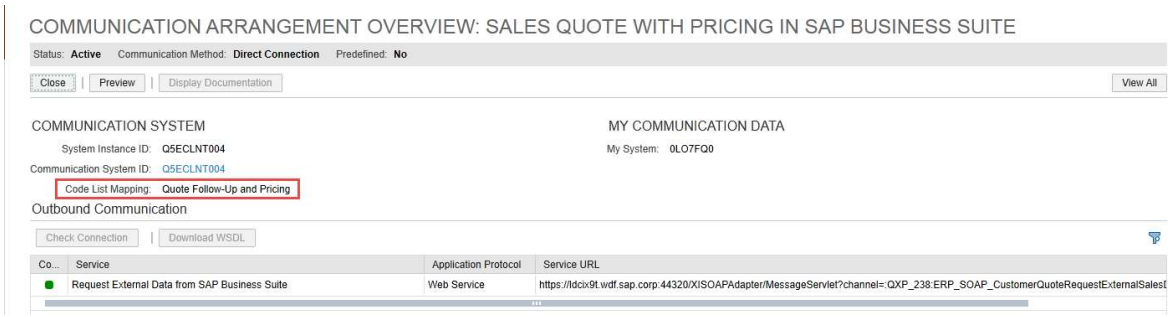
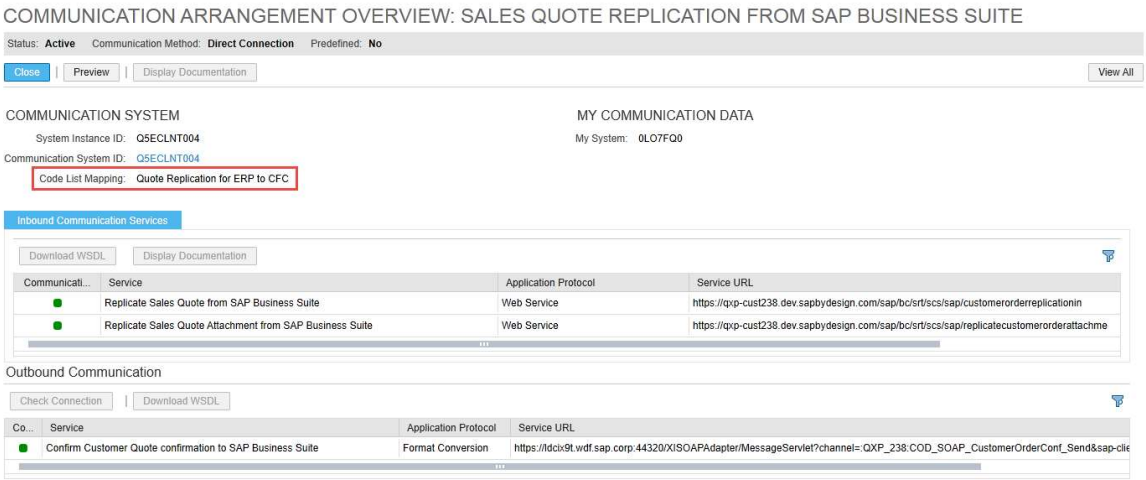
The new code list mapping group has to be maintained in the communication arrangement for the scenarios as shown.







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Communication Arrangements and Services

Option 1: Order → Order

- Communication arrangement: Sales Order Replication to SAP Business Suite
- Outbound service: Replicate Sales Order to SAP Business Suite

To replicate attachments, you need to enable the service interface in the communication arrangement.

Option 2: Quote → Order

Cloud → ERP

- Communication arrangement: Creation Of Sales Quote Follow Up Document In SAP Business Suite
- Inbound Service: Notify Sales Quote of Sales Order Creation in SAP Business Suite
- Outbound Service: Create Sales Quote Follow Up Document in SAP Business Suite

ERP → Cloud (Confirmation message on successful creation of quote or order)

- Communication arrangement: Sales Order Replication from SAP Business Suite
- Inbound Service: Notify Sales Quote of Sales Order Creation in SAP Business Suite

To replicate attachments, you need to enable the service interface in the communication arrangement.

Option 3(Opportunity → Order) and option 4 (Opportunity → Quote → Order)

- Communication arrangement: Creation Of Opportunity Follow Up Document In SAP Business Suite
- Inbound Service: Notify Opportunity of Follow Up Document from SAP Business Suite
- Outbound Service: Create Opportunity Follow Up Document in SAP Business Suite

4.2 Configuration in SAP ERP

- **Option 1: Order → Order**
  - Maintain COD4 as output type
  - Maintain IDoc partner profile for the message type COD_REPLICATE_SALES_ORDER
  - Maintain distribution model for the message type COD_REPLICATE_SALES_ORDER. If required, you can create a filter group on the following fields to distribute only selected orders to Cloud:
    - Sales Organization
    - Division
    - Distribution channel
    - Sales Order Type

  Note
  For order confirmation to be sent to a quote/opportunity, you need to set COD1 output type in the ERP sales order output procedure.
- **Option 2 to option 5**
  None specific to these scenarios

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You need to configure the web services in SOA Manager, in order to replicate attachments between Cloud and ERP. For more information, see the following chapters in the integration guide:

- Configuration to send attachments from SAP ERP to SAP Hybris Cloud for Customer
- Configuration to send attachments from SAP Hybris Cloud for Customer to SAP ERP

Also, If you want to see the attachments icon (services for object) in the *Sales Order* screen in ERP, do the following: Go to *System* → *User profile* → Maintain Own Data → add the user parameter, SD_SWU_ACTIVE=X.

An order can be edited both in the Cloud and ERP systems. If changes are made to the same order in both these systems at the same time, it can lead to inconsistencies. Hence, a process is implemented to rectify this problem, and the process depends on the field UPD_Tmstmp in ERP. This field is available in the ERP release. In case you use a lower release, check SAP Notes.

4.3 Configuration in Middleware

Adjust Routing Conditions

To receive a confirmation from ERP about the created documents, update routing condition in PI: COD_OPPT_CONF.ORDER05

- /ORDERS05/IDOC/E1EDK01/ABRVW_BEZ = 'BUS200111'
- /ORDERS05/IDOC/E1EDK01/ABRVW_BEZ = 'BUS2031' and /ORDERS05/IDOC/E1EDK01/ABRVW = 'INQ'
- /ORDERS05/IDOC/E1EDK01/ABRVW_BEZ = 'BUS2031' and /ORDERS05/IDOC/E1EDK01/ABRVW = 'ORD'

Integration Flow

Go to the *Integration Flows* excel on Service Marketplace, and filter by:

- Business object: Quote, order and opportunity
- Source system: C4C
- Target system: ERP

The ones that are specific to direct document creation are:

- Replicate Order from SAP Business Suite to SAP Hybris Cloud for Customer
- Replicate Order from SAP Hybris Cloud for Customer to SAP Business Suite
- Create Business Document from Sales Quote
- Create Business Document from Opportunity

Support for Other Party

As part of 1511 C4C release, we started support for replication of other party information in sales order replication request. You need to do the following value mapping in Integration Builder to use this feature.

Example:-
Suppose you want to add ZZ, WC, Y1 and ZX as Other Party Partner Role Codes then you need to do the following value mapping as shown in below screenshot.

For Agency ERP, COD and Scheme OtherPartyPartnerRole, please do the value mapping.
Ideally ERP and COD other party role codes are same but in case if they are different please adopt accordingly.

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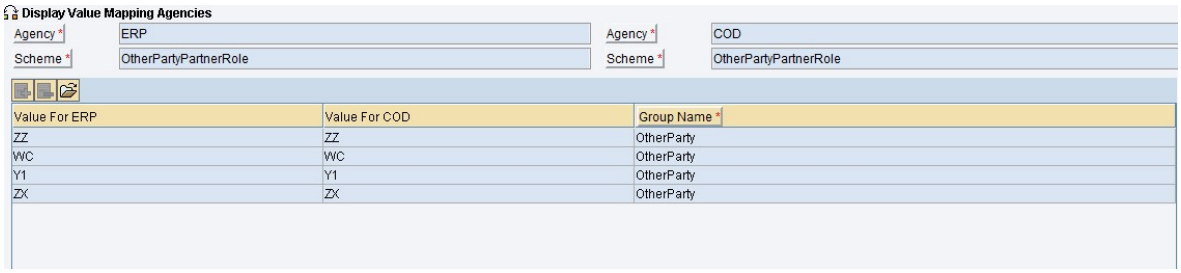
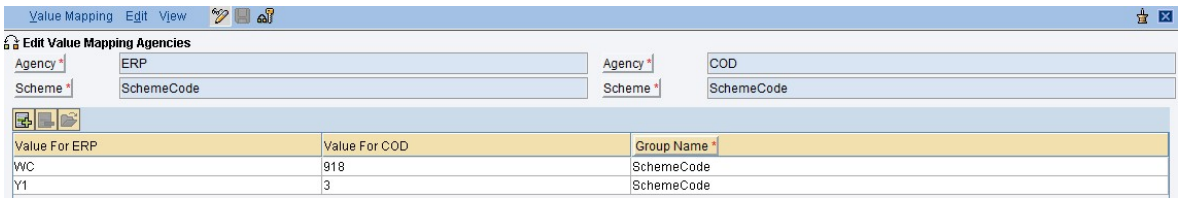


Also you need to do the mapping for scheme codes for the corresponding OtherPartyPartnerRole codes added in above step. If you have not maintained any value mapping for scheme codes then by default scheme code 918 (ERP Customer Number) will be set for corresponding OtherPartyPartnerRole(s).

For example,
OtherPartyPartnerRole Code Y1 is mapped to Scheme code “3” (ERP employee).

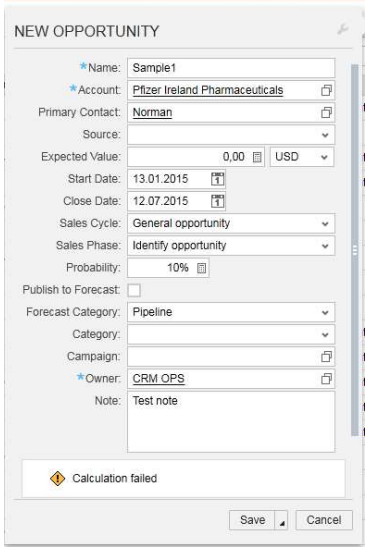


4.4 Example Execution with Results

The following shows an example execution on creating an order from an opportunity with expected results.

SAP Hybris Cloud for Customer Actions

1. Create an opportunity in Cloud.



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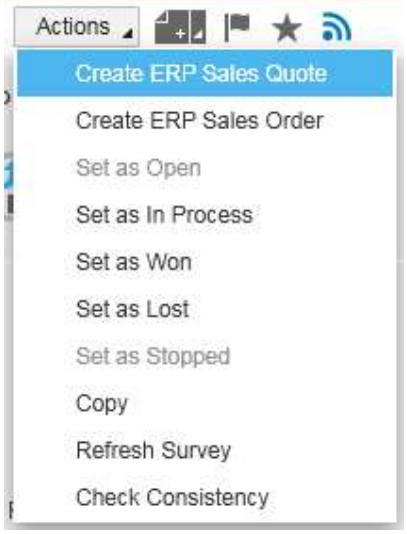
2. Add a product

3. Create Business Document According to requirement, say quote or order.



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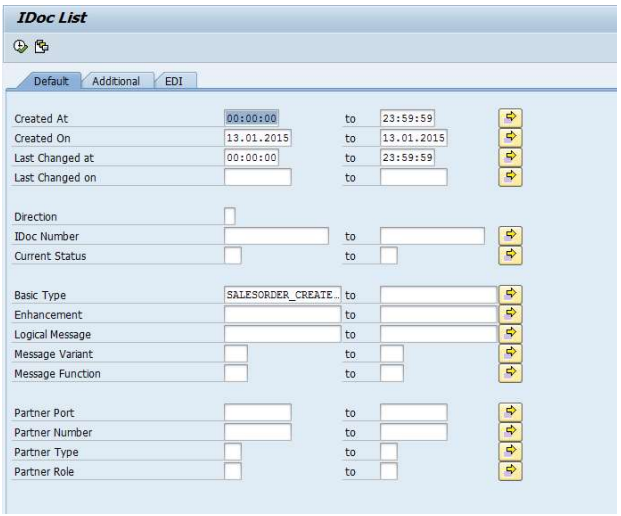
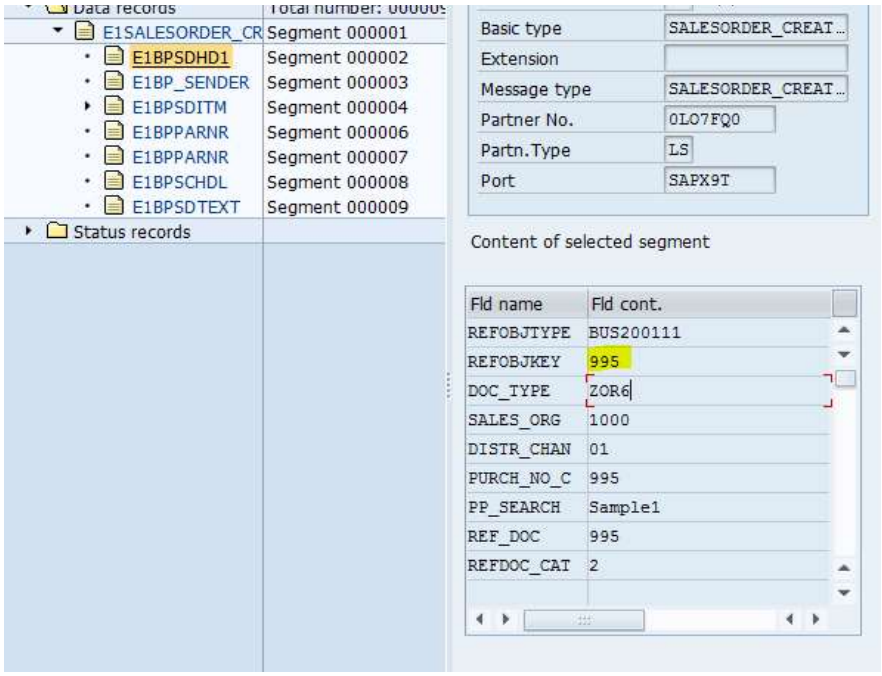
SAP ERP Actions

1. Check the IDoc in WE05 using *Message Type* SORDER_CREATEFROMDAT2 and *Basic Type* SALESORDER_CREATEFROMDAT202.



2. Verify the *Opportunity ID* with IDoc field *REFOBJKEY*.



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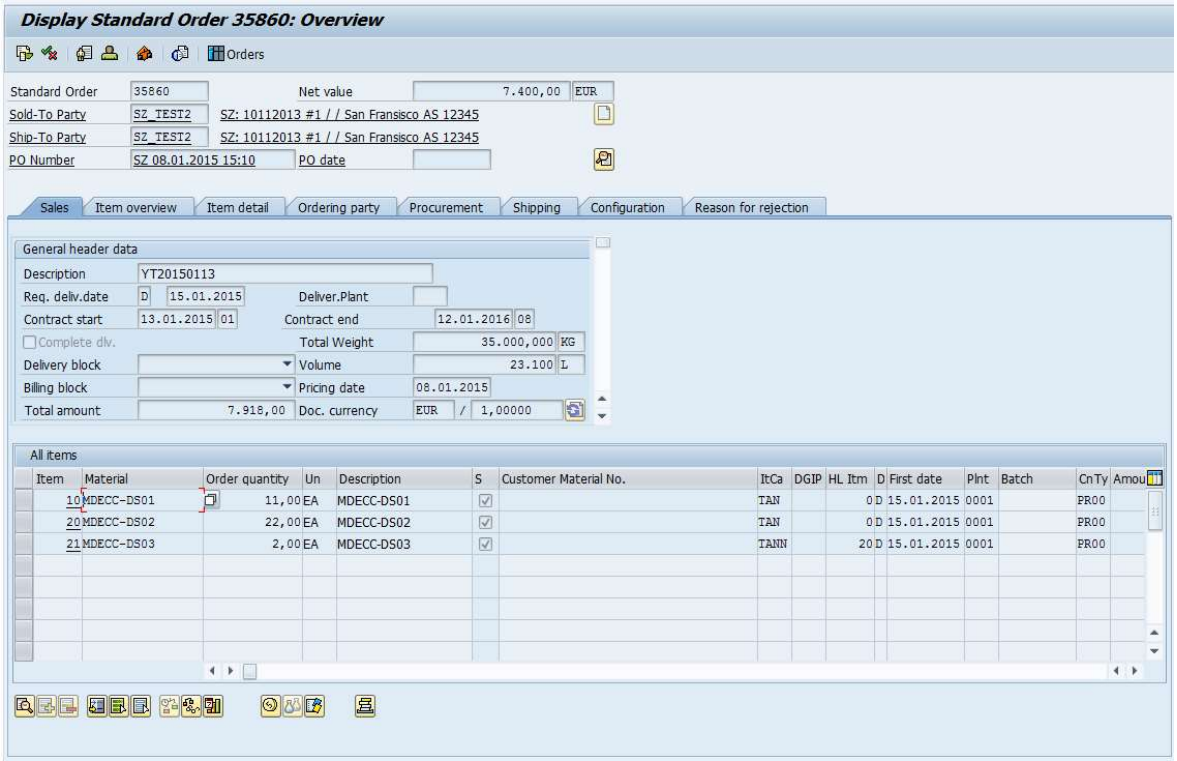
3. Note the number of the Debit Memo Request, for example 70000312.

4. Review the newly created Sales Order in transaction VA03. Use sales order ID provided from status record of the IDoc.



5. Check if the Sales Order document number is updated successfully in SAP Hybris Cloud for Customer, under Opportunity view → *Sales Documents* facet.

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4.5 Offline Pricing in SAP Hybris Cloud for Customer

The pricing conditions can be replicated from SAP ERP to SAP Hybris Cloud for Customer and this enables the pricing to work in offline mode. The replicated pricing for each product will be available in the pricing WoC available in the offline url.

e.g.
https://my313070.crm.ondemand.com/sap/public/ap/ui/repository/SAP_BYD_UI/HTML5/newofflineapp.html

Configuration in ERP

The partner profile settings are to be maintained for outbound parameters for message type COND_A.

The details on establishing initial data load and resending of pricing data are described in the pricing condition initial load session of ERP Initial load guide. For more information, see the initial load chapter in the integration guide.

Configuration in SAP Hybris Cloud for Customer

Communication Arrangement: Price Condition Replication from SAP Business Suite has to be activated for inbound processing.

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5 Sales Quote Integration with SAP ERP

Business Scenario Overview

Sales Quote is integrated between SAP ERP and SAP Hybris Cloud for Customer. You can create or update a sales quote in SAP Hybris Cloud for Customer and replicate it to SAP ERP. You can also create or update a sales quote in SAP ERP and these changes will be replicated in SAP Hybris Cloud for Customer.

Cloud for Customer Sales quote is bi-directionally replicated with ERP:

- **C4C Sales Quote → ERP Quote**
- **ERP Quote → C4C Sales Quote**

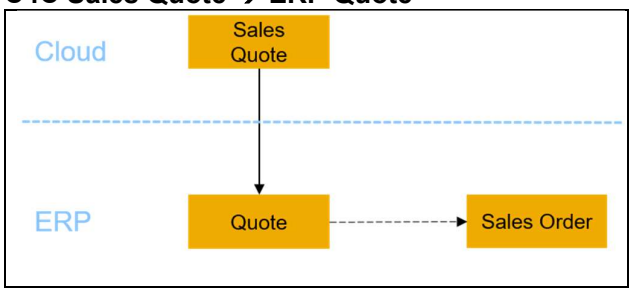
When a follow-up order is created in ERP Quote, this follow-on document will be available in *Document Flow* in Cloud for Customer Quote.

Note: *Document Flow* is only available in HMTL5.

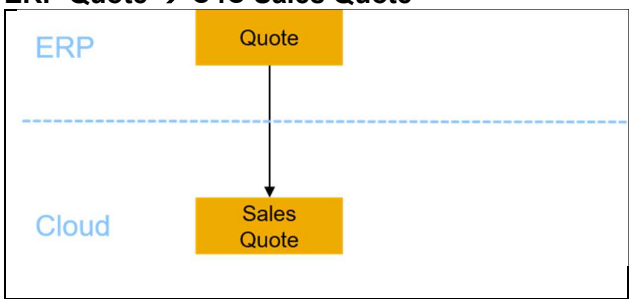
- View these follow-on documents in SAP Cloud → *Sales* → *Sales Quote* → *Document Flow*. On click, you can also view the PDF version of these documents.

You can also replicate attachments created for a quote bi-directionally between SAP ERP and SAP Cloud for Customer. All the attachments are displayed in the *Attachments* tab of the *Quote* in the cloud solution. An attachment can be created from a local file, a web link or a file from the Cloud library. Refer Configuring Sales Quote and Creating and Processing Sales Quotes for more information on how to use each of the options in SAP Cloud and for high-level information on the necessary configuration.

C4C Sales Quote → ERP Quote



ERP Quote → C4C Sales Quote



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5.1 Configuration in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Implementation Projects → Select First Implementation Project → Click on *Edit Project Scope*

Integration with External Applications and Solutions → Integration into Sales, Service, and Marketing Processes → Check below questions:

Do you use an external application to determine price, free goods, product availability and credit status for sales order in your cloud solution?
Do you want to replicate sales quotes from an external application or solution to your cloud solution?
Do you want to replicate sales quotes from your cloud solution to an external application or solution?

Fine-Tuning/Code List Mapping

- **C4C Sales Quote → ERP Quote**
  None specific to this scenario
- **ERP Quote → C4C Sales Quote**
  None specific to this scenario

Code List Mapping to Support item categories in quote and order

Item categories are the same for Quote and Order in SAP Hybris Cloud for Customer, but the corresponding codes in ERP are different for both. Due to this it becomes impossible to use the same code list content for quote and order scenarios as we cannot link the same SAP Hybris Cloud for Customer code to different ERP codes. So the following separate code list mapping groups has to be created / used for each of the following scenarios:

Scenario	Quote/Order	CL Group	E.g mapping relevant for the group
Bi-directional Quote Replication from ERP to C4C	Quote	Quote Replication and Pricing	AGN ←→ AGN …

If you have been using any other custom code list mapping for the above scenarios instead of SAP On-Premise Integration till now then use SAP On Premise as the base group.

Since we maintain the base group as the default code list mapping group which is already been used, only the mapping for 'BusinessTransactionDocumentItemProcessingTypeCode' need to be maintained inside the new group. The system will determine all code list mappings which are not available in the group from the base group.

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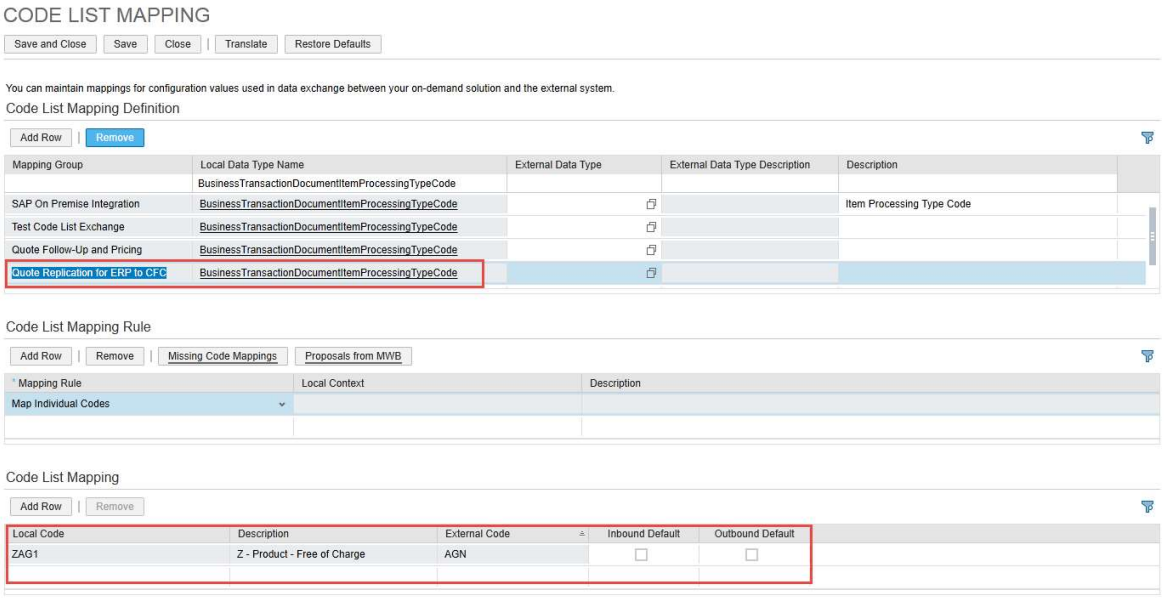
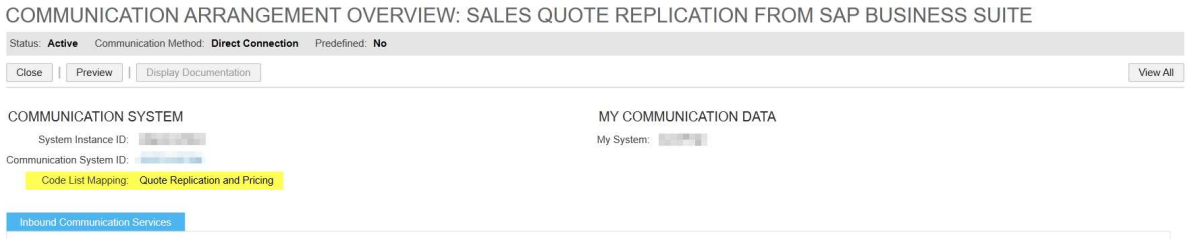
Code Lists maintained for replication from ERP to C4C, looks as below



The new code list mapping group has to be maintained in the communication arrangement for the scenarios as shown.



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Communication Arrangements and Services

Option 1: C4C Quote → ERP Quote

- Communication arrangement: Sales Quote Replication to SAP Business Suite
- Outbound service: Replicate Sales Quote to SAP Business Suite

Option 2: ERP Quote → C4C Quote

- Communication arrangement: Sales Quote Replication from SAP Business Suite
- Outbound service: Replicate Sales Quote from SAP Business Suite

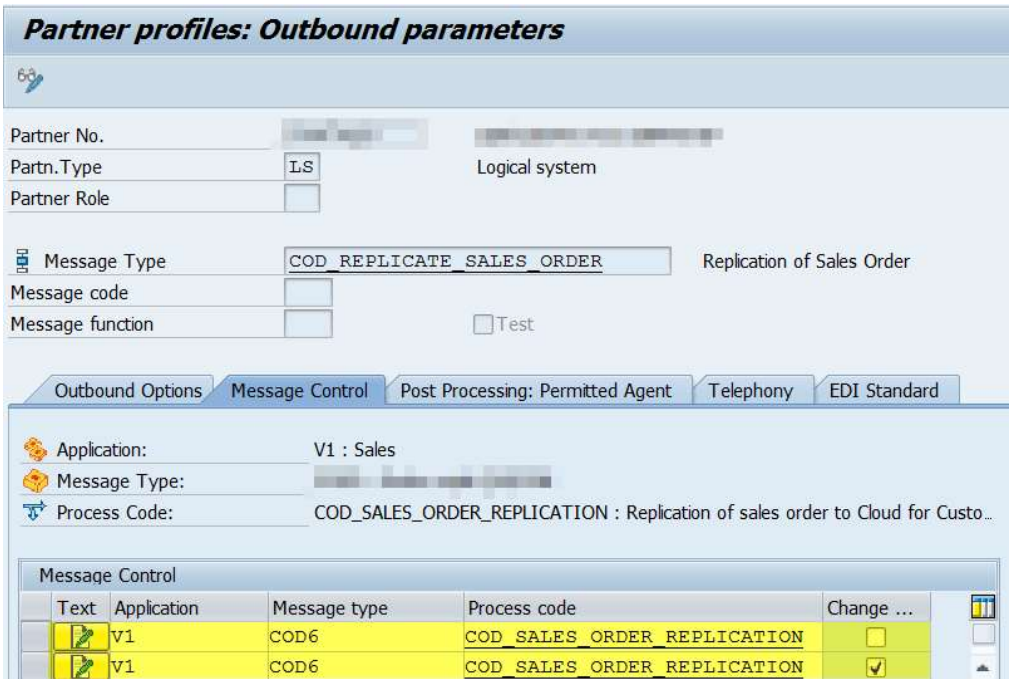
Option 3: C4C Quote Pricing → ERP Quote

- Communication arrangement: Sales Quote Replication with Pricing in SAP Business Suite
- Outbound service: Request Sales Document Data from SAP Business Suite

To replicate attachments, you need to enable the service interface in the communication arrangement.

5.2 Configuration in SAP ERP

- **Option 1: C4C Quote → ERP Quote**
  This does not require any specific configuration.
- **Option 2: ERP Quote → C4C Quote**
  To send a sales quote to C4C, we need to maintain the following configuration.
  - Maintain COD6 as output type
  - Maintain IDoc partner profile for the message type COD_REPLICATE_SALES_ORDER



  - Maintain distribution model for the message type COD_REPLICATE_SALES_ORDER. If required, you can create a filter group on the following fields to distribute only selected orders to Cloud:
    - Sales Organization
    - Division
    - Distribution channel
    - Sales Order Type

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You need to configure the web services in SOA Manager, in order to replicate attachments between Cloud and ERP. For more information, see the following chapters in the integration guide:

- Configuration to send attachments from SAP ERP to SAP Hybris Cloud for Customer
- Configuration to send attachments from SAP Hybris Cloud for Customer to SAP ERP

Also, If you want to see the attachments icon (services for object) in the *Sales Order* screen in ERP, do the following: Go to *System* → *User profile* → Maintain Own Data → add the user parameter, SD_SWU_ACTIVE=X.

An order can be edited both in the Cloud and ERP systems. If changes are made to the same order in both these systems at the same time, it can lead to inconsistencies. Hence, a process is implemented to rectify this problem, and the process depends on the field UPD_Tmstmp in ERP. This field is available in the ERP release. In case you use a lower release, check SAP Notes.

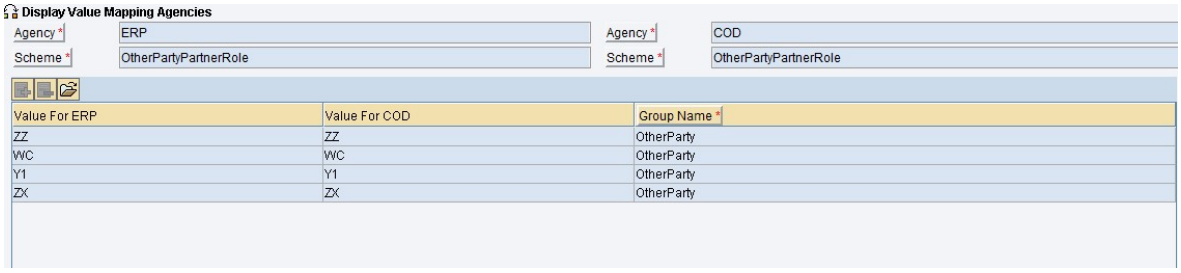
5.3 Configuration in Middleware

Support for Other Party

For other party information replication, you need to do adjust value mapping in Integration Builder.

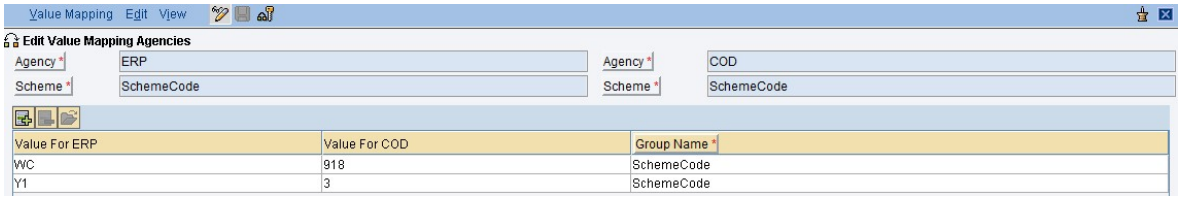
Example:-
Suppose you want to add ZZ, WC, Y1 and ZX as Other Party Partner Role Codes then you need to do the following value mapping as shown in below screenshot.

For Agency ERP, COD and Scheme OtherPartyPartnerRole, please do the value mapping.
Ideally ERP and COD other party role codes are same but in case if they are different please adopt accordingly.



Also you need to do the mapping for scheme codes for the corresponding OtherPartyPartnerRole codes added in above step. If you have not maintained any value mapping for scheme codes then by default scheme code 918 (ERP Customer Number) will be set for corresponding OtherPartyPartnerRole(s).

For example,
OtherPartyPartnerRole Code Y1 is mapped to Scheme code “3” (ERP employee).



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Integration Flow

If the middleware you are using is SAP HANA Cloud Integration (HCI), the following iFlows will have to be maintained.
Go to the *Integration Flows* excel on Service Marketplace, and filter by:

- Business object: Quote, order and opportunity
- Source system: C4C
- Target system: ERP

The ones that are specific to direct document creation are:

- Replicate Sales Quote from SAP Business Suite
- Replicate Sales Quote to SAP Business Suite
- Request Sales Document Data from SAP Business Suite

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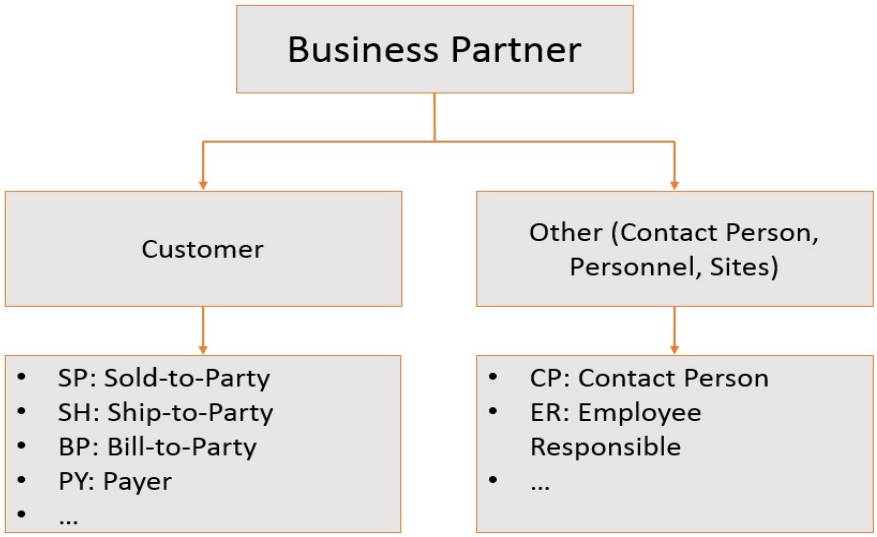
6 Business Partner Replication from SAP ERP

Business Scenario Overview

For integration between SAP ERP and SAP Hybris Cloud for Customer, it is essential to understand the data model differences between the two systems. In principle, as SAP Hybris Cloud for Customer, is only catering to Customer Engagement and Commerce, only a subset of the capabilities offered in SAP ERP is required to be mapped to SAP Hybris Cloud for Customer. In this document we attempt to explain such differences and also highlight the mapping of key SAP ERP attributes to SAP Hybris Cloud for Customer

Technical Scenario Overview

For integration between SAP ERP and SAP Hybris Cloud for Customer, only highlighted business partner types and corresponding partner functions from SAP ECC are supported out of the box.



Business Partners in SAP ERP are divided into the following categories,

- **Customers:** a business partner to whom you are providing goods or services. Customers can be external or internal, and if that customer is also providing you with goods and services, you can link the customer master record to a vendor master. Individual customer master records can be defined for specific partner functions and can be linked together.
- **Other Partners:** Includes a mix of things such as site data, contact person, sales personnel, individual customers and competitors.

Scenario Assumptions & Prerequisites

Assumptions

The business partner replication is bi-directional from SAP ERP to SAP Hybris Cloud for Customer. Vendor master is not in scope of the integration.

Prerequisites

- You have the latest support package for the Add-On installed.
- Organization structure is replicated from SAP ERP to SAP Hybris Cloud for Customer

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6.1 Integration scope

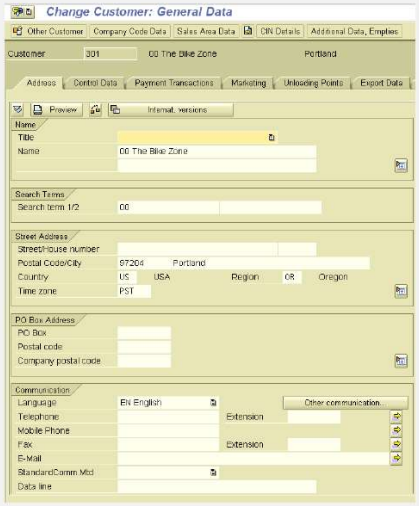
For integration between SAP ERP and SAP Hybris Cloud for Customer, the following business roles are supported out of the box,

- Sold-To-Party
- Prospect
- Contact
- Competitor

Customer Master

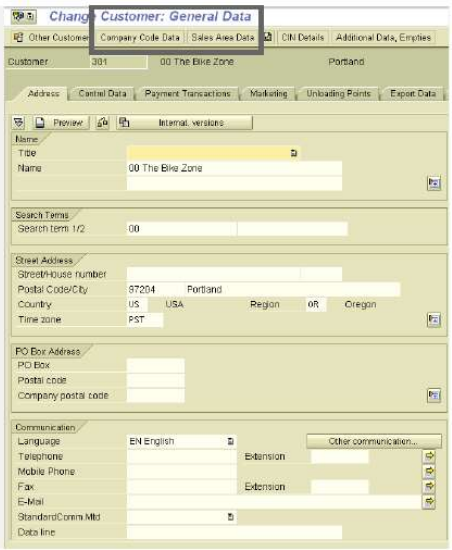
SAP ERP Customer Master Data

- Customer Master
  - Contains all of the information necessary for processing orders, deliveries, invoices and customer payment
  - Every customer MUST have a master record
- Created by Sales Area
  - Sales Organization
  - Distribution Channel
  - Division



SAP ERP Customer Master Data

- The customer master information is divided into 3 areas:
  - General Data
  - Company Code Data
  - Sales Area Data



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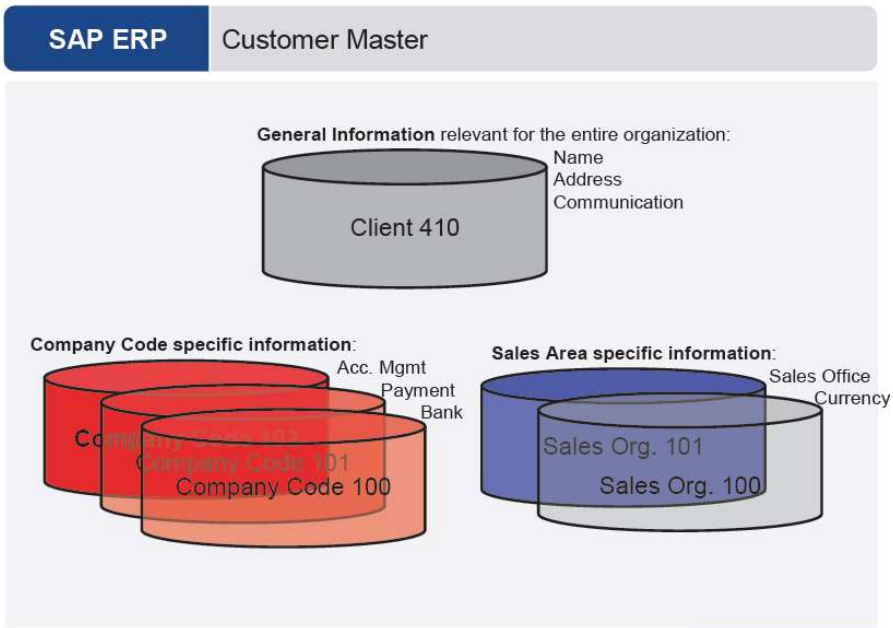

General Data: This section contains common information such as the Address tab, which includes name and contact information details, control data (such as industry, transportation zone and tax information), payment transaction (bank details and payment card details), marketing (Nielsen ID and other classification) and other tabs based on the type of business.

Sales Data: This section contains Sales information (such as the Sales Groups, pricing classification etc.), Shipping data (such as delivery priority shipping conditions etc.), Billing (tax classification, incoterms details) and Partner Functions.

Account Groups

SAP comes with a set of standard account groups that should meet most of your company's business requirements. Account groups are used to segregate groups of customers based on size, geography or nature of business relationship (e.g. one-time, premium etc.). Using account groups lets you customize screen layout, number ranges, sequence, mandatory fields, partner functions and partner function combinations etc.

Account Group	Name
0001	Sold-To Party
0002	Ship-To Party
0003	Payer
0004	Bill-To
CPDA	One-Time Customer
0012	Hierarchy Nodes

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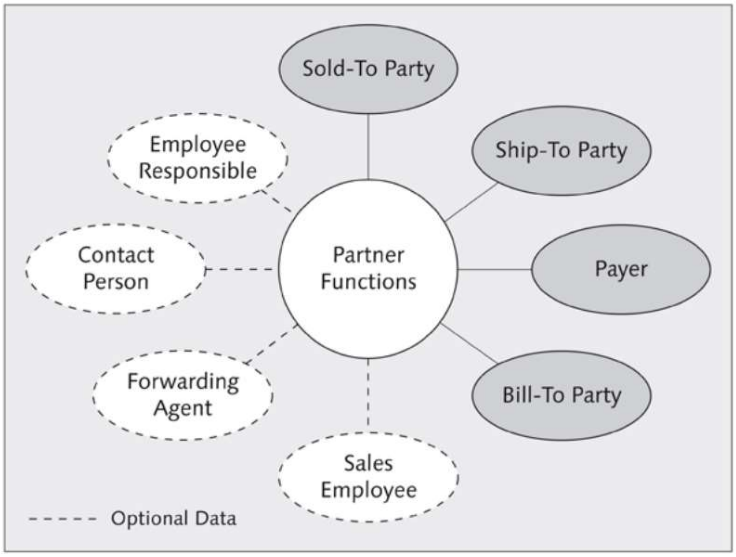
The Account group field in the IDoc segment can be seen in the below example,

Partner Functions

Partner functions are used to define the rights and responsibilities of each business partner in a business transaction. You assign partner functions when you create a master record for a business partner.



The following are examples of partner functions that are defined in the standard R/3 System for Business partner type customer:

- Sold-to Party: Contains data on sales, such as the assignment to a sales office or a valid price list
- Ship-to Party: Contains data for shipping, such as unloading point and goods receiving hours
- Bill-to Party: Contains the address and data on document printing and electronic communication
- Payer: Contains data on billing schedules and bank details

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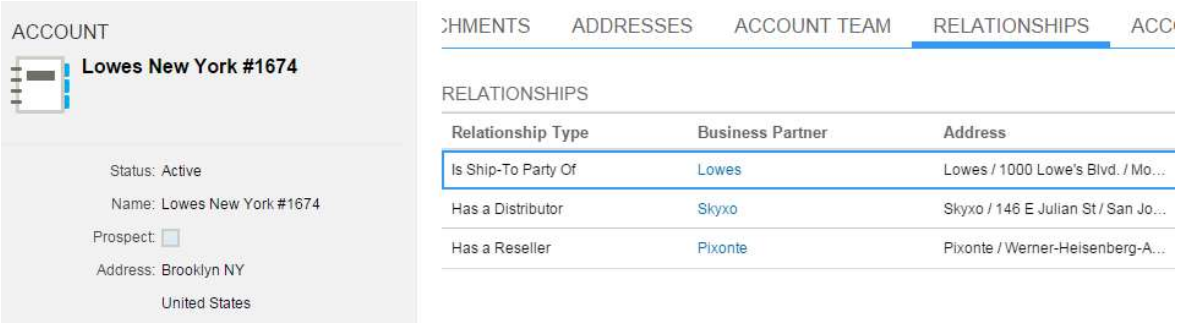
See example below,

In the above example, the customer has the same sold-to, bill-to, payer and ship-to. In other cases, there could be multiple ship-tos associated with the same ship-to. These partner functions are shown in the relationships facet in SAP Hybris Cloud for Customer.



In addition to these partner functions, there are also partner functions such as employees, employee responsible, and account team members. The employee relationships are stored in the account team facet.

The value mapping determines where the partner function from SAP ERP is stored in SAP Hybris Cloud for Customer.

Partner functions are replicated only for SAP ERP to SAP Hybris Cloud for Customer and not vice versa.

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Sales-area-dependent partner functions are now replicated from ERP to SAP Hybris Cloud for Customer. In the customer view, you can now add partner functions that are specific to a sales area.

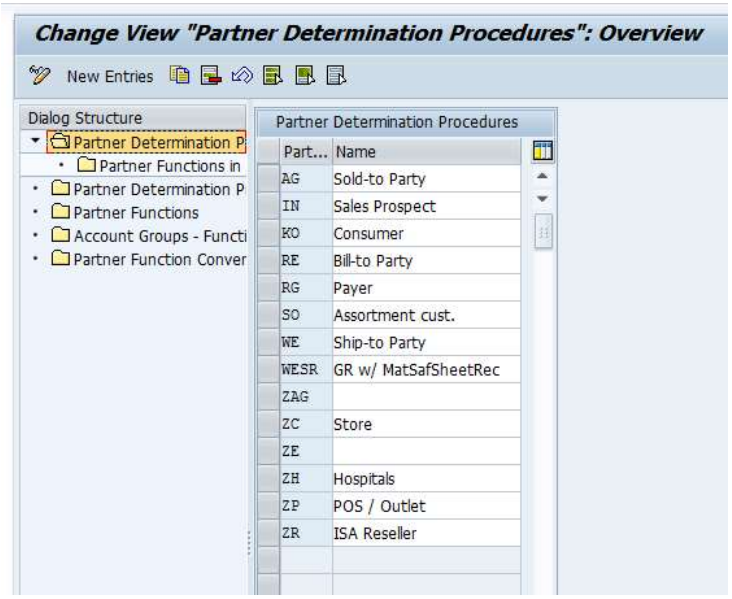
To enable this the following settings in business configuration fine tuning activity has to be done:

1. Go to the fine tuning activity *General Business Partners → Relationships*.
2. Check S*ales Area Dependent* check box for all the partner functions you want to allow in SAP Hybris Cloud for Customer.

Partner Determination

The component Partner Determination in Sales and Distribution enables you to display the partners involved in the business transaction, their functions and their business relationships in the R/3 system. When creating or processing sales documents, the system can determine the partners automatically.
Partners appear in the system at different levels. You can define your own partner determination procedure for customer master.
Access the partner determination procedure assignment for customer master using the below transaction and menu path.

Transaction code	SPRO
IMG menu	*Sales and Distribution → Basic Function → Partner Determination → Set up Partner determination → Set up Partner determination for customer master*



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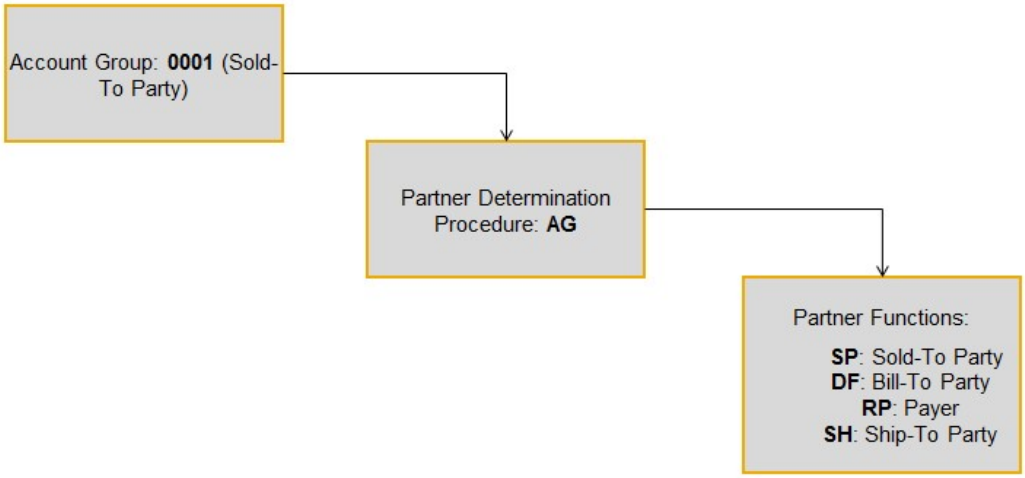
Example of how partner procedure assignment is invoked for customer master.



6.2 Mapping SAP ERP Data Model entities to SAP Hybris Cloud for Customer

The following table shows the ERP account groups mapped to the Cloud business roles.

ERP Account Group	Description	Cloud BP Role	Cloud UI
0001	Sold-To-Party	CRM000	Account/Individual Thing Inspector
0002	Ship-To-Party	CRM000	Account/Individual Thing Inspector
0003	Payer	CRM000	Account/Individual Thing Inspector
0004	Bill-To-Party	CRM000	Account/Individual Thing Inspector
0005	Prospect	BUP002	Account/Individual Thing Inspector
	Contact	BUP001	
0006	Competitor	CRM005	Account/Individual Thing Inspector

Since there are no standard fields in SAP Hybris Cloud for Customer to capture the Account group, it is recommended to Use a Field Extension to map Account Groups in SAP Hybris Cloud for Customer, if you need that information in SAP Hybris Cloud for Customer.
Additionally it is possible since 1505 to create your own custom Cloud for Customer BR Roles, e.g. ZCRM000. This is only possible for the basis role CRM000 and BUP002. In this way you could also reflect your account groups in SAP Hybris Cloud for Customer. For e.g. by creating a role Z0001 for “Sold-To-Party” and mapping it in the code list mapping to the ERP code 0001.

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6.3 Prospect Management

SAP Hybris Cloud for Customer includes Accounts and Prospects.

A prospect is converted to an account in SAP Hybris Cloud for Customer when the prospect flag is removed.

When integrating with ERP, it is important to consider the overall prospect to account business process.

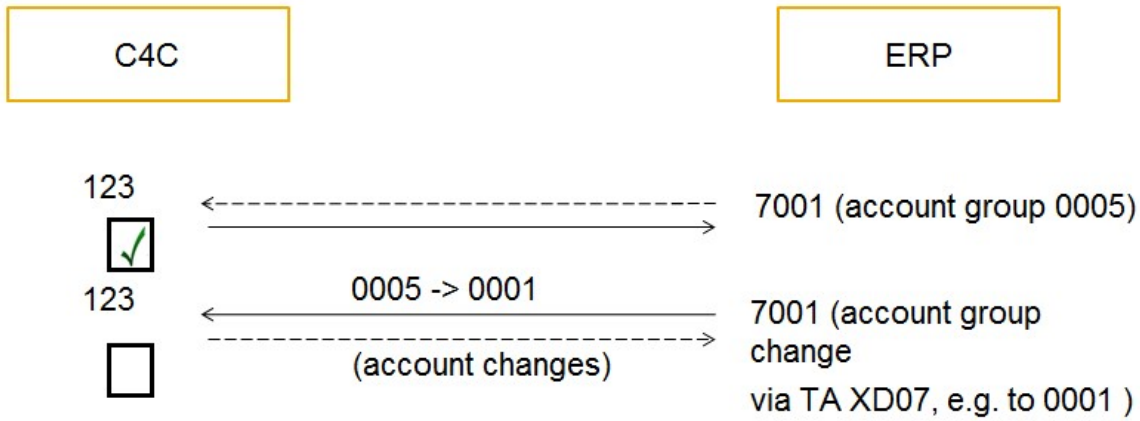
When integrating accounts with SAP ERP, the customer should answer the following questions:

- Do you want to create prospect for new accounts?
- How do you convert prospects to accounts, what is the process flow?
- Can sales reps create accounts today? Is this managed by a data governance team?

In SAP Hybris Cloud for Customer there are several options on how this can be handled.

Option 1: Prospecting is done in SAP ERP.

This scenario is used when prospects should be replicated from Cloud to ERP.



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Prospect 123 is created in Cloud. This is replicated to ERP and creates prospective account 7001 in account group 0005. When the prospect flag is removed in Cloud, a manual change is done to the account group in ERP using transaction code XD07. The account group changes from 0005 to 0001.

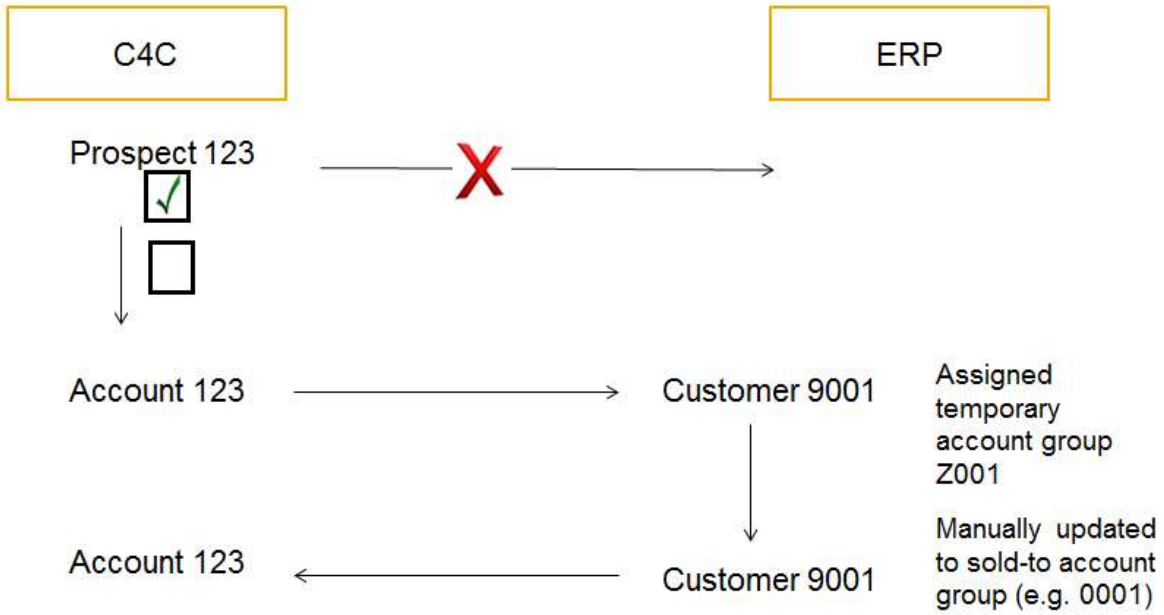
Considerations

The customer master number range depends on the account groups. Even if the prospect is changed to a real customer in ERP by changing the account group, the number remains still the same and corresponds to the original “prospect” account group.

Technical Details
You have to map the business partner roles (in standard CRM000 and BUP002) to the corresponding ERP account groups using the code list mapping in Cloud for Customer.

Option 2: Prospect in Cloud, not in ERP

This scenario blocks the replication of prospects from Cloud. The account is only replicated to ERP once the user removes the prospect flag in Cloud.



Prospect 123 is created in Cloud and all prospects are blocked so no data in replicated to ERP. In this case, the transactional data created locally in SAP Hybris Cloud for Customer for the prospect, like opportunities, quotes etc. are also blocked from being send to ERP. Later the prospect flag is removed creating account 123. Account 123 is replicated to ERP and creates customer 9001. Customer 9001 is temporarily assigned account group Z001. The customer data management team then completes the update of the new account, adding all data required in Cloud for full customer data. When the account is ready, account group is manually updated to the sold-to account group 0001. The account changes are replicated back to Cloud.

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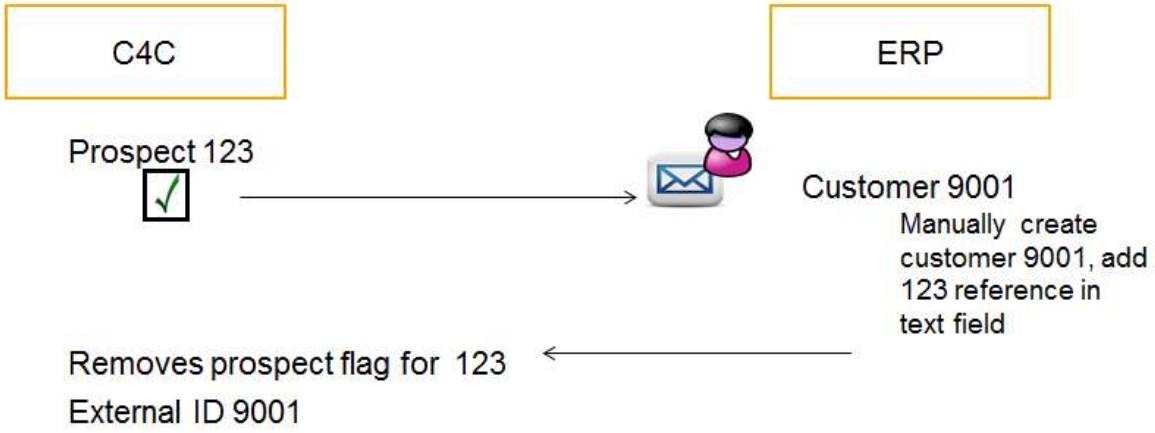
Considerations

The users in Cloud for Customer can create and update customer master data in ERP. This is not always wanted. Often customer master data can be maintained in ERP only by a special master data governance team.

Technical Details
To block the replication of prospects use the following scoping path:
Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange → Integration with External Applications and Solutions → Integration with SAP ERP → Do you want to block prospects created in Cloud solution from being replicated to your ERP solution?*

Option 3: Prospect in Cloud, create customer in ERP manually and link back convert Cloud prospect to account

In this scenario the creation of accounts is not allowed in Cloud. Accounts can only be created in SAP ERP by the master data governance team.



A Cloud user creates the prospect 123. When the Cloud team is ready to convert them to an account, an email is sent to the master data governance team. The master data governance team manually creates customer 9001 and references the Cloud prospect 123 in a text field. By entering (and persisting) the customer ID of Cloud in the ERP customer master, it is guaranteed that the IDoc that is send out from ERP identifies the corresponding Cloud instance, does not create a duplicate but updates the existing prospect instance and finally remove the prospect flag.

Considerations
Entering the customer ID of Cloud for Customer in the ERP customer master is a mandatory step to avoid duplicates in Cloud for Customers.
The step of the process to send an email to the master data governance team is not provided in the standard. This requires a custom solution.

Technical Details
Enhance your customer master by a 10 character field for the customer ID of Cloud for Customer. The proposed data element is KUNNR. See note 577502 for details how to enhance the customer master.

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Enhance segment E1KNA1M of DEBMAS06 by the same field. Or identify an existing field in segment E1KNA1M that is not used in your processes and that can be used to carry the customer ID of Cloud for Customer.

Note

If you re-use an existing field, the mapping adjustments in PI will be easier because you won't have to upload the IDoc definition and do the field mappings again.

Create a BAdI implementation for BAdI CUSTOMER_ADD_DATA_BI. Implement method FILL_ALE_SEGMENTS_OWN_DATA and fill the customer ID of Cloud for Customer in the field that holds the Cloud ID.

Enhance the message mapping ERP_COD_BusinessPartnerERPBulkReplicateRequest in the following way: Map the IDoc field that holds the customer ID of Cloud for Customer to the following target field: BusinessPartnerERPBulkReplicateRequest → BusinessPartnerERPReplicateRequestMessage → BusinessPartner → ReceiverInternalID

Option 4: No prospecting, allow account creation in Cloud

In this scenario prospecting is not in scope or not done at the company. The company does allow account creation in both Cloud and ERP.

In Cloud account 112 is created and replicated to 7001. Account 9001 created in ERP is replicated to Cloud. Bi-directional updates may be allowed on the accounts.

Option 5: No prospecting, account creation only allowed in ERP

In this scenario accounts are only created in ERP and sent to Cloud.

If you choose this scenario, you need to determine how contacts will be handled. For example, account 9001 is replicated to Cloud. In Cloud the account data cannot be changed but contacts can be changed. Contact JC Smith is added to account 112 in Cloud. However, contacts are not replicated to ERP. In ERP, when contact MW White is added, the contacts from ERP are replicated to Cloud.

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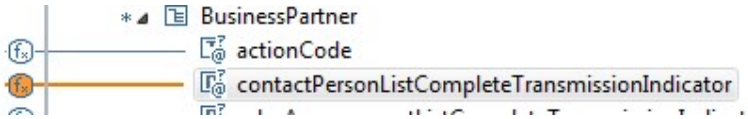
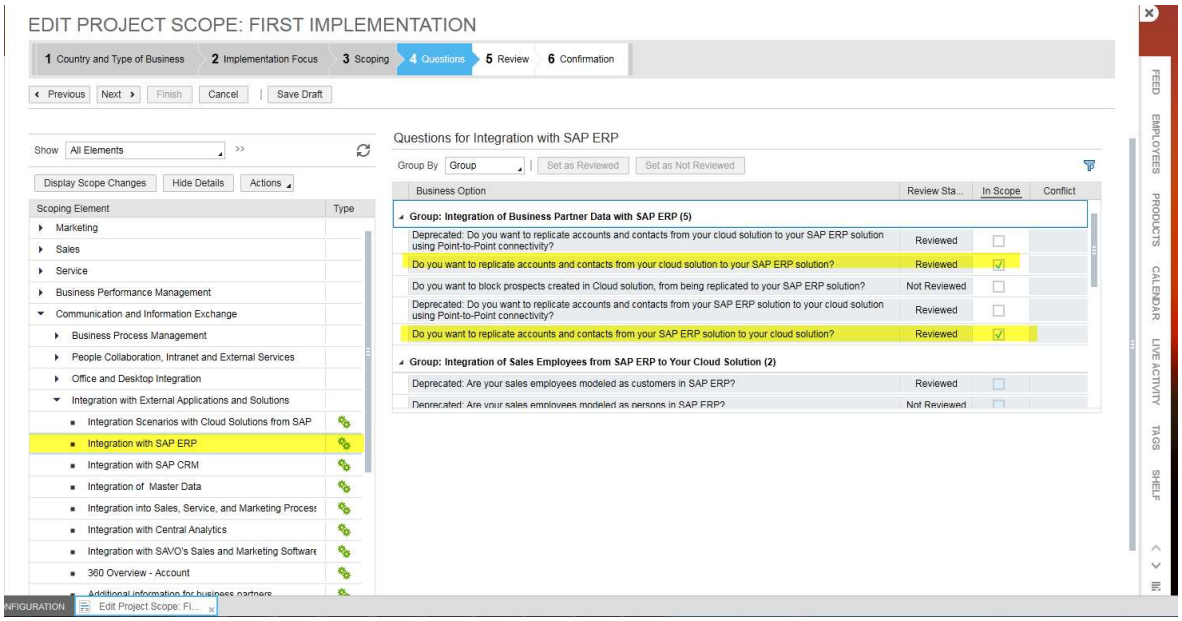
This replication will remove all contact relationships to account 112 and MH White will be the only contact in Cloud. In order to change this behavior you must update the middleware mapping, setting contactPersonListCompleteTransmissionIndicator to false.



6.4 Configuration in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange → Integration with External Applications and Solutions → Integration of Master Data → Do you want to replicate accounts and contacts from your SAP ERP solution to your cloud solution?*



ID Mapping

ID mapping for accounts and contacts is carried out automatically during the replication of data into the system. However this can be changed in SAP Hybris Cloud for Customer, if adjustments are required.

Fine-Tuning/Code List Mapping

You can find a list of code lists relevant for Business Partners or basic integration scenario in the INTEGRATION: Code Lists Supported (CRM ERP) on SAP Service Marketplace.

Communication Arrangement

- Communication arrangement: Business Partner Replication from ERP

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Note

The details on setting up the configuration are available in integration guide for ERP.

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6.5 Configuration in SAP ERP

IDocs of type DEBMAS_CFS, ADRMAS and ADR3MAS are used for the replication of customer master, customer address and contact address data from ERP to SAP Hybris Cloud for Customer and DEBMAS_CFS, ADRUPD and ADR3UPD for replication back from Cloud to ERP. The international address versions of the organization address is also replicated if this is correctly scoped in SAP Hybris Cloud for Customer. The IDoc types and associated changes are available in the on-premise support packages delivered in October, 2014.

To enable the continuous replication of changes to SAP Hybris Cloud for Customer – including delta changes that occur after the initial data load of data – you must activate change pointers in the SAP ERP system for the above message types.

The detailed steps for setting up the On Premise configuration for enabling replication to SAP Hybris Cloud for Customer is available in integration guide for ERP (separate document for PI & HCI) available at SAP Service Marketplace.

Application Configuration

The details on establishing initial data load and resending of data are described in the employee initial load session of ERP Initial load guide. For more information, see the initial load chapter in the integration guide.

6.6 Configuration in Middleware

Value Mapping

Since sold-to, ship-to, employee responsible, account team are stored differently in SAP Hybris Cloud for Customer, the mapping must include the type of partner in the mapping. This is done in the value mapping. For example, if the partner function is employee responsible, it goes to the account team. ZM is the employee responsible in German and this is what you will see in the value mapping. SAP has pre-delivered a few value mappings.

These value mappings are discussed in the integration guide.

Integration Flow

Go to the *Integration Flows* excel on Service Marketplace, and filter by:

- Business object: Account
- Source system: C4C
- Target system: ERP

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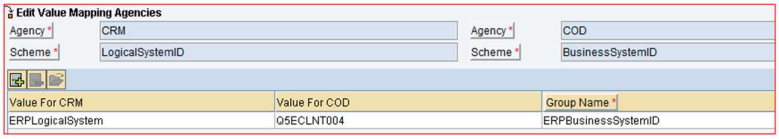
7 Configuration to Include ERP IDs

If you are connecting your SAP Hybris Cloud for Customer system with both SAP ERP and SAP CRM systems, then it is necessary to uniquely-identify your master data. The accounts, contacts, products, and organization unit replicated from CRM to Cloud now contains the ERP IDs of these records. For example, the accounts and trade promotions are replicated from CRM to Cloud, but the sales orders are created against ERP. In such a case, the ERP IDs are used for communication between systems.

> **Note**
> You should additionally scope for ERP integration, and create a business system representing ERP in your Cloud system.

If you have:

- A single ERP system, then activate the following BAdIs: CRMPCD_BUPA_MAP, CRMPCD_BUPA_REL_MAP
- Multiple ERP systems, then do the following value mapping in PI: CRM-LogicalSystemID ↔ COD-BusinessSystemID



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8 Configuration to Replicate International Customer Names and Addresses

Corporate accounts can have international versions of an address. These details of business partners can now be replicated between an SAP on-premise backend system and Cloud. In order to use this feature, you need to do the following:

- Maintain backend table in the SAP on-premise backend system
  Path: Transaction SPRO → *SAP NetWeaver* → *Application Server* → *Basic Services* → *Address Management* → *International Setting* → *Activate International Address Version*
- Scope the option in Cloud
  Path: *Built-in Services and Support* → *Business Environment* → *Addresses and Languages* → *Do you want to specify textual master data using international address versions?*
- Configure the relevant languages in Cloud
  Business Configuration activity *International Address Versions*

Once an international address is maintained in Cloud, the system does not allow you to disable this feature.

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9 Replication of Functional Location and Equipment

Several customers were requesting the capability to exchange functional locations and equipments with their ECC system, to allow using this kind of information in their SAP Hybris Cloud for Customer (Cloud) service processes. For example, to reference these objects in the Cloud service tickets. The replication is unidirectional from ECC to Cloud.

Note

If your ERP support package (SP) < 15, then apply the note 2160512.

From 1602 release Outbound replication from SAP Hybris Cloud for Customer is now supported for functional location, equipments, measuring point and measuring document.

9.1 Data Model in ERP

In the ERP system, functional locations and equipments are completely independent entities with individual storage locations. The most important databases are IFLOT for functional locations and EQUI for equipments. The hierarchy information is located in the DB table fields IFLOT-TPLMA (functional location) and EQUZ-HEQUI (equipment). In comparison to the functional location hierarchy information the one for equipments is time dependent.

9.2 Data Model in SAP Hybris Cloud for Customer

In Cloud there are the following business objects available, which might represent possible counterparts for functional locations and equipments.

Equipment

The *Registered Product* is semantically the counterpart of equipments in Cloud. It consists of two business objects:

- The serialized product (BO PDM_INDIVIDUAL_PRODUCT) represents the core equipment information.
- The BO /IBASE/INSTALL_POINT contains additional information about the serialized product. For example, location, involved parties and the hierarchy.
  To support the hierarchy information, which is also a strong requirement, we would also need the BO /IBASE/INSTALLED_BASE. This BO is currently used as an entry point to the different hierarchies in the UI. In our scenario there would not be the need to have this object at all, but the current data model requires this BO to represent the hierarchy, thus it is mandatory.

Functional Location

For the following alternatives, the BO's /IBASE/INSTALLED_BASE, mainly used for representing the hierarchy, and /IBASE/INSTALL_POINT, representing the functional location master data, are taken into account:

SAP ECC		SAP Cloud
Alternative 1		
Function Location 1	→	IBase 1
→ Functional Location 2	→	→ Installation Point 1
Alternative 2		
Function Location 1	→	Installation Point 1
→ Functional Location 2	→	→ Installation Point 2

The decision was made to go for alternative 2.

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9.3 New IDocs

New IDoc types COD_EQUIPMENT_SAVE01 and COD_FUNCTIONAL_LOCATION_SAVE01 are available. Both were generated using transaction BDFG, based on the parameter structure of the function modules COD_EQUIPMENT_SAVE and COD_FUNCTIONAL_LOCATION_SAVE. Both IDoc types are bulk enabled, due to the defined structure and do not need to be used with technical bulking. The corresponding message types are COD_EQUIPMENT_SAVE and COD_FUNCTIONAL_LOCATION_SAVE.

9.4 ERP Outbound Processing

Initial Load

For the initial load, the reports RCOD_EQUIPMENT_EXTRACT and RCOD_FLOC_EXTRACT were created. The following are the parameter list:

- User status (status number)
- System status (internal field. Can we do a nice F4 help)
- Class
- Object Type
- Validity
- Category
- Equipment ID
- Sales Org
- Distr. Channel
- Division
- Maintenance Plant

Functional location is the same except for the maintenance plant and the validity.

Delta Load

To generate the IDocs directly, it is possible to register for Business Transaction Events (BTE) triggered by the application. It is not possible to use change pointers because some data updates (for example, Partners, Texts, and Warranty) will not create change documents and/or change pointers.
The available BTEs are: PM000020 - Update Equipment, PM000070 - Update Technical Location
The registered modules can be maintained using transaction FIBF and are called COD_EQUIPMENT_BTE_CHANGE and COD_FLOC_BTE_CHANGE.

Based on the created or updated object instance, the relevant data is determined, then mapped to the IDoc structures, and later the IDocs are generated. An application log is created if an error occurs. To read the current data by using existing APIs, it must be ensured, that all buffers and/or the database are up to date. This could be achieved by using update function modules running in delayed mode (V2 updates). These FMs execute the described logic: COD_EQUIPMENT_BTE_CHANGE_UPD and COD_FLOC_BTE_CHANGE_UPD. All created modules are located in function group COD_EQUI_MODULES or COD_FLOC_MODULES of package COD_BYD_ERP_INT.

Relevant Transactions

The transactions IE01, IE02 and IE03 for equipments, and IL01, IL02 and IL03 for functional locations are used.

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9.5 PI Mapping Entities

For the middleware, it is necessary to create the operation mappings ERP_COD_RegisteredProductBulkReplicateRequest for equipments and ERP_COD_InstallationPointBulkReplicateRequest for functional locations. Both are located in the namespace http://sap.com/xi/CODERINT/IC and software component version COD_ERP_INT_IC 6.00.

9.6 SAP Hybris Cloud for Customer Inbound Processing

Business Object Mapping

As described in the chapter *Data Model in SAP Hybris Cloud for Customer*.

ID Handling

The *Installation Point ID* is used in Cloud as the leading ID for registered products and installation points. Inbound processing will create ID mapping entries, based on the ID types provided in the interfaces. The current default ID Mappings are:

- Registered Products: Cloud ID type = 185 Installation Point ID; ERP ID type = 451 ERP Individual Material ID
- Installation Points: Cloud ID type = 185 185 Installation Point ID; ERP ID type = 450 ERP Installation Point ID

To provide maximum flexibility of the Cloud interfaces, the ID types of the referenced objects (for example, material and partners) are part of the message as well. Additionally, default ID types based on the ERP integration scenario are used in case they are not provided in the message.

Code Mapping

The delivered code mapping entries are available in BC set A1S_BCC_FND_CLM_IPOINT. For functional locations, we only transfer LTXT, because there is only LTXT available in ERP. For equipments, both LTXT and INTV are transferred. Hence, you have to maintain the following code list mapping:

- 1006 – INTV (to cover the equipment use case)
- 1024 – LTXT (to cover both, equipment and functional location use case)

There is no need to create a new code list mapping group.

Service Interfaces

The inbound service interfaces are:

- II_APFO_REG_PRODUCT_REPL_IN: RegisteredProductReplicationInitiatedByExternalIn
- II_IPOINT_REPLICATION_EXT_IN: InstallationPointReplicationInitiatedByExternalIn

Especially for the Installation Point, inbound several interfaces are available. However we decided to create new and not to reuse existing interfaces, in order to be independent from industry solution and migration scenarios and to follow the A2A integration guide principles. Further modelling and implementation details are available in MDRS.

Business Configuration

Scope the business option in Business Configuration, to enable replication of installation points and/or registered products.

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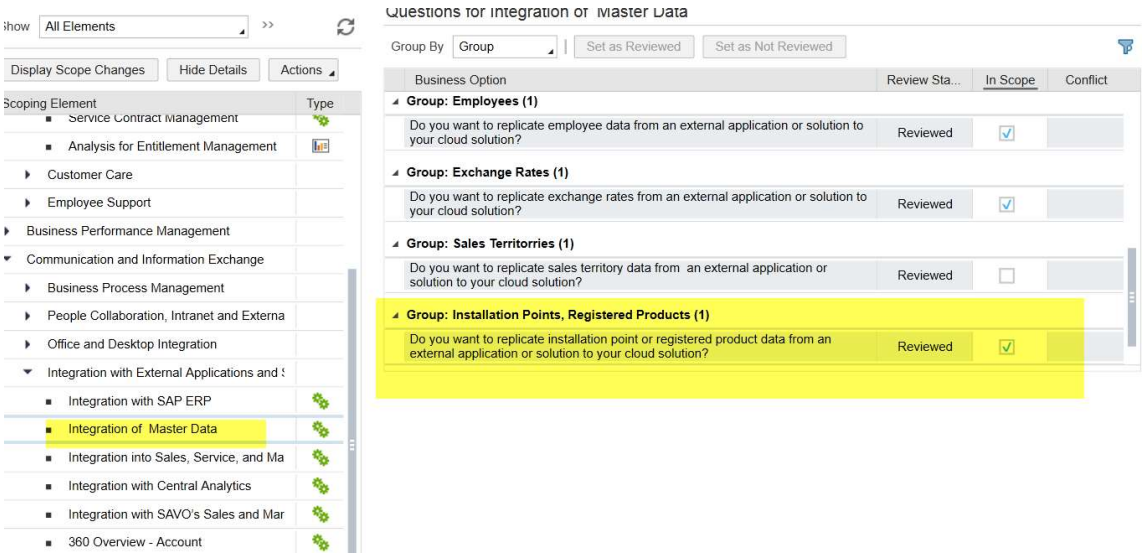

Also, please make sure that the Registered Products and Installed Base of Entitlement Management is selected. In addition, add the views Registered Products and/or Functional Locations to the relevant users.

Special Inbound Processing for Hierarchy Information

The message types of the inbound service interfaces support mass data instances (bulking). Additionally, the hierarchy information of the parent instance is included in the message types. So in case there is a bulk message received, containing a non-existing parent instance and a not yet existing child instance referring to this parent, the inbound processing of the child instance will fail unless the parent instance is processed successfully. To solve this issue, the inbound agents will take care, that the parent instance is processed before the child instance (sequential processing). The implementation for that can be found in the MBF exit and the redefined process agent method MODIFY_BO.

- Registered Products: CL_REG_PROD_REPLREQ_MBF_EXIT → MAP_HIERACHY_RELATIONSHIP, CL_APFO_REG_PRODUCT_REPL_IPA → MODIFY_BO
- Installation Points: CL_IPOINT_REPL_EXT_IN_MBF → MAP_HIERACHY_RELATIONSHIP, CL_REPLICATE_IPOINT_IPA → MODIFY_BO

9.7 SAP Hybris Cloud for Customer Outbound Processing

Business Configuration

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange* → *Integration with External Applications and Solutions* → *Integration of Master* Data → → *Group: Installation Points, Registered Products, Measurement Points/Docs* → select the appropriate scoping question:

- Do you want to replicate measurement point or measurement document data from your cloud solution to an external application or solution?
- Do you want to replicate installation point or registered product data from your cloud solution to an external application or solution?

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- Configure the communication arrangements:
  - Measurement Point and Measurement Document Replication to SAP Business Suite
  - Registered Product and Installation Point Replication to External System

Settings in ERP

To consume the interface, and replicate data between SAP Hybris Cloud for Customer and ERP, you need to take care of the following:

1. Create IDoc/web service in ERP.

2. Expose/model the ERP service, and do the PI mapping

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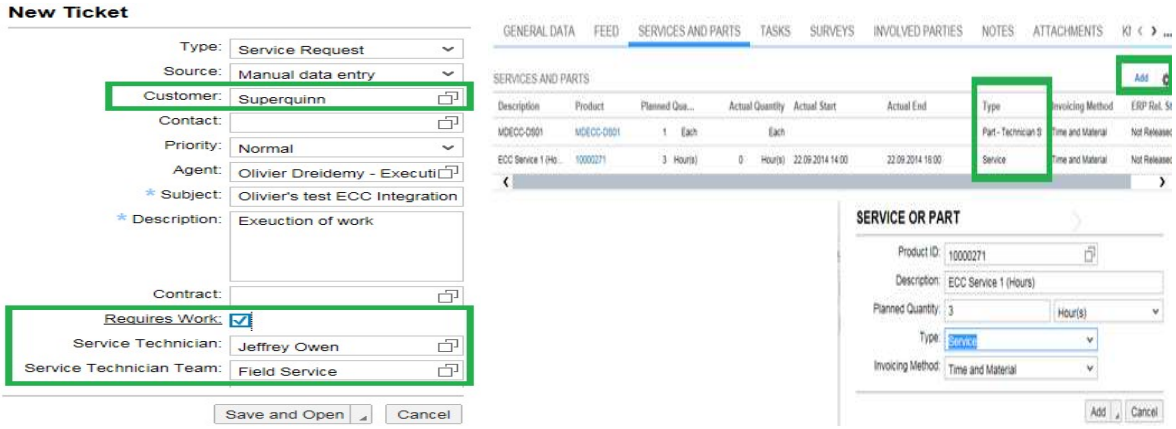
10 Work Ticket Integration with SAP ERP

Purpose

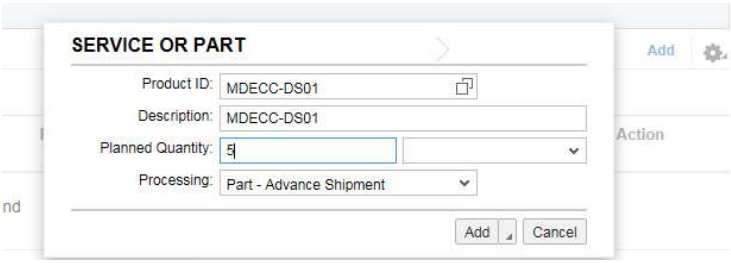
This document describes the technical details of the integration of SAP Hybris Cloud for Customer (Cloud) Work Ticket with the existing logistical processes in SAP ERP. Integration into Controlling is done via the “Account Assignment Manager” (AAM). AAM provides the capability to perform controlling based on an external object and also provides convenient API’s.
One Work Ticket message from Cloud requires several API’s on SAP ERP to be orchestrated in in a consistent way. Additionally, customers require flexibility for the follow-on processes in SAP ERP. Therefore, the Add-On was enhanced to manage the required ERP follow-on actions to simplify the messages being sent from Cloud. This means one Cloud message triggers multiple actions in SAP ERP.

10.1 Overall Flow

The Work ticket itself contains header information and service items and/or spare part items. The flow is driven purely from the action type of the item.
The user in SAP Cloud for Service creates a Work Ticket. The user selects the flag “requires work” in the Work Ticket.



The user then selects the type of work and/or processing. For example, the user may select the type of work as part, service. The user may say the processing is an advanced shipment.



Based on the settings in the Work Ticket, the appropriate action codes are sent to SAP ERP.

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Action Codes (for details refer to data type: COD_SERV_PROC_TYPE)

Action Code	Action Description	Processing Logic in ERP
0001	Service	The internal order is determined/created. A cats booking is created for the provided Service Technician based on Actual quantity. Billing Request Item is created based on Target quantity if invoicing method is set to relevant (T&M or Fix Price)
0002	Spare Part from Technicians Stock	The internal order is determined/created. The spare parts are reduced from the technician's consignment stock or from a dedicated storage location based on actual quantity. Billing Request Item is created based on Target quantity if invoicing method is set to relevant (T&M or Fix Price)
0003	Spare Part from Customer Consignment Stock	The internal order is determined/created. The spare parts are reduced from the customers consignment stock (determined based on original CF order/item) and actual quantity. Billing Request Item is created based on Target quantity if invoicing method is set to relevant (T&M or Fix Price)
0004	Non billable fill-up of customer consignment stock.	The internal order is determined/created. An SD order e.g. of type KB is created based on Customer ID and Target quantity. With this SD Order the spare parts are transferred from a delivery plant (determined in ERP) to a customer consignment stock.
0005	Non billable pick-up of unused parts from consignment stock	The internal order is determined/created. An SD order e.g. of type KA is created based on Customer ID and Target quantity. With this SD Order the spare parts can be transferred back from the customer consignment stock to the original stock.

Detailed Process Flow

An IDoc message is received containing one or several items each with dedicated action code. In general the flow is the following:

1) An Internal Order (IO) is created and persisted (includes commit work). There will be exactly one IO for a Work Ticket ID. If an IO exists already for the work ticket, it will be reused.
2) Items are processed according to the above logic of the action codes

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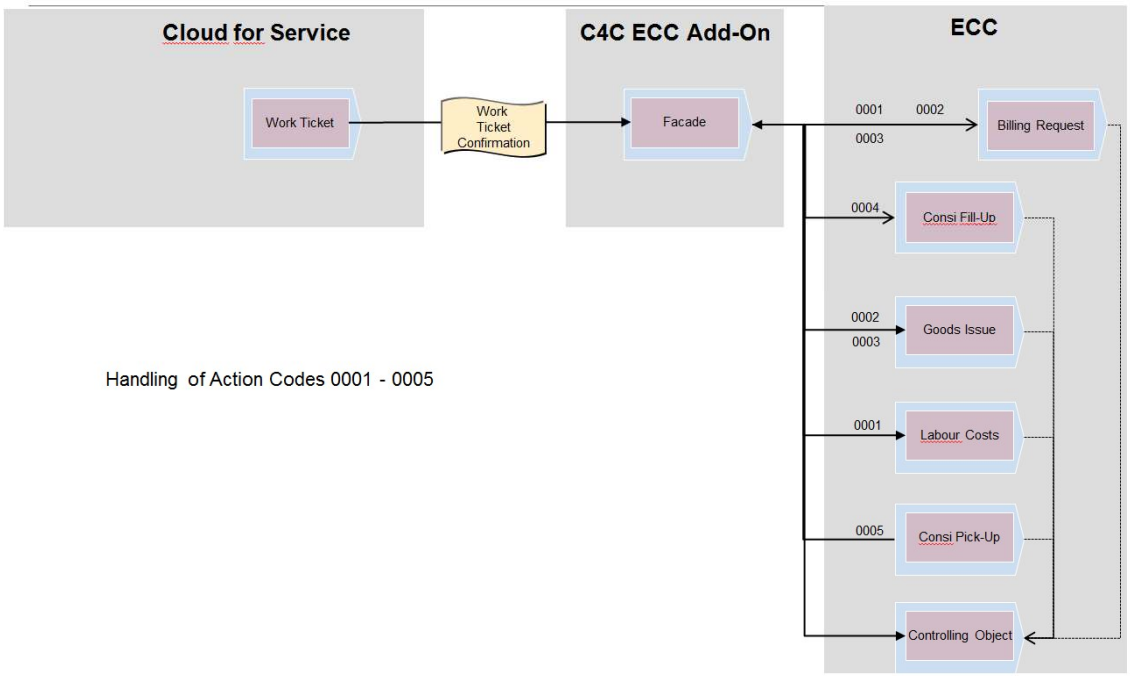
3) Billing Request is created including all billing relevant items of the IDoc message
4) If no error occurs – all data gets saved (commit work)
5) From the billing request a confirmation IDoc is sent to the work ticket containing the billing request ID.

Field Service – Cloud for Service (SD/MM/FI without CS)



Fix Price versus Time and Material (T&M)

Within Cloud it is possible to create the work ticket as a standalone object. However, it is also possible to create upfront a customer quote including the services, materials and spare parts which are relevant for the ticket processing. Therefore the business process is also deeply integrated within the customer quote processing in Cloud. The work ticket and the customer quote will also contain pricing information and will differentiate different billing types, for example fix price billing and time & material (T&M) billing. The differentiation between fix price and T&M is handled in the following way:

- On Item level we offer two quantity fields: Target Quantity and Actual Quantity.
- The Target Quantity will be used purely for billing purpose
- The consumer can decide whether the planned (fix price) or the fulfilled (T&M) quantity is provided as target quantity
- The second quantity field “Actual Quantity” is purely used for spare part confirmation. This quantity indicates the actual needed amount independently from the billing process
- Pricing and conditions are also support. Specific conditions like discounts, agios, etc. can be used.

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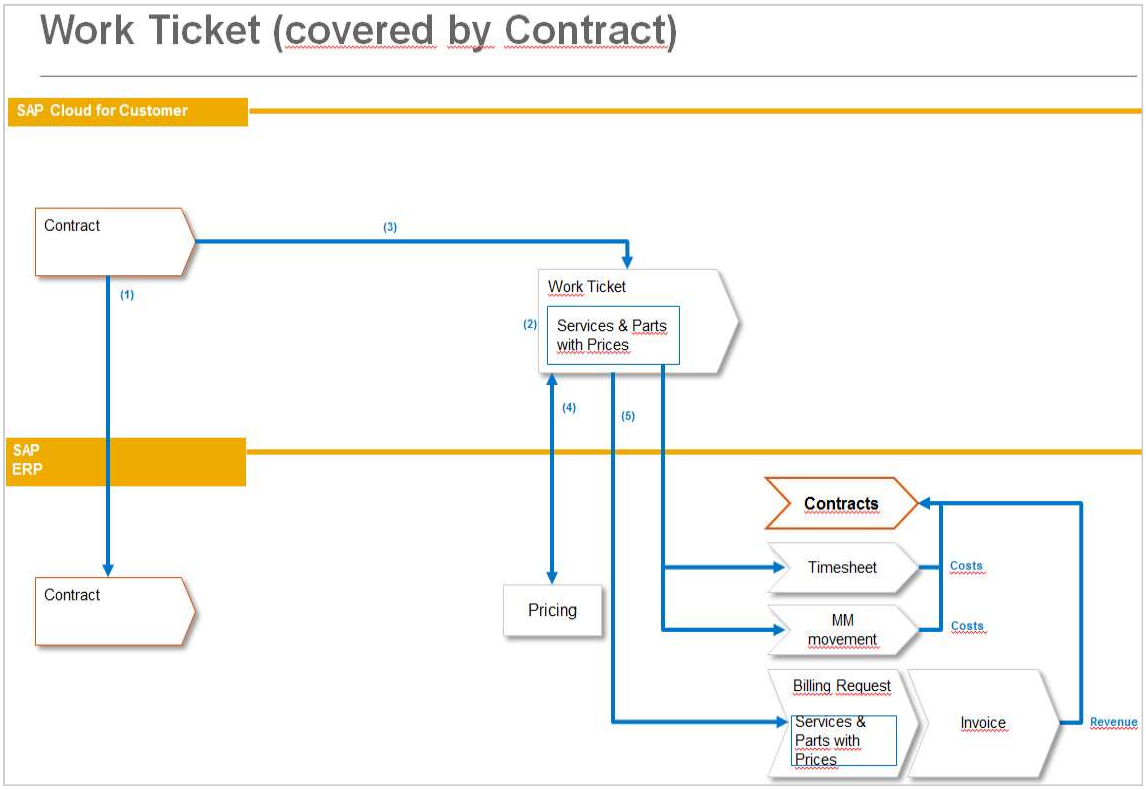
Contract as a Cost Collector Configuration

When integrating contracts from SAP Hybris Cloud for Customer so SAP ERP, it is possible to make use of Contract as a Cost collector object instead of Internal Order. All the costs/revenues will be posted against Contract. The following diagram shows the costs and revenue referring to the contract.



This scenario assumes that contracts created in C4C are replicated to SAP ERP.

When a ticket is created in SAP Hybris Cloud for Customer, a contract can be provided. If a contract is input with the ticket, the contract is used in SAP ERP against the ticket. Ticket header and item is associated with Contract header and item. This information will be additionally passed to ERP. It is not mandatory that all the ticket items are against a contract. In the SAP ERP inbound, if the ticket is associated with contract header/item, then, contract would be used as cost collector. Otherwise, internal order would be used as a cost collector. Hence, there is a possibility that for a ticket in SAP Hybris Cloud for Customer has parts of costs collected on a contract and other parts collected on an internal order. There would be one internal order created for all ticket items that do not have a contract associated with it.

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10.2 Configuration Settings in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange → Integration with External Applications and Solutions → Integration into Sales, Service, and Marketing Processing → Do you want to create follow-up documents for service requests from your cloud solution to an external application?*

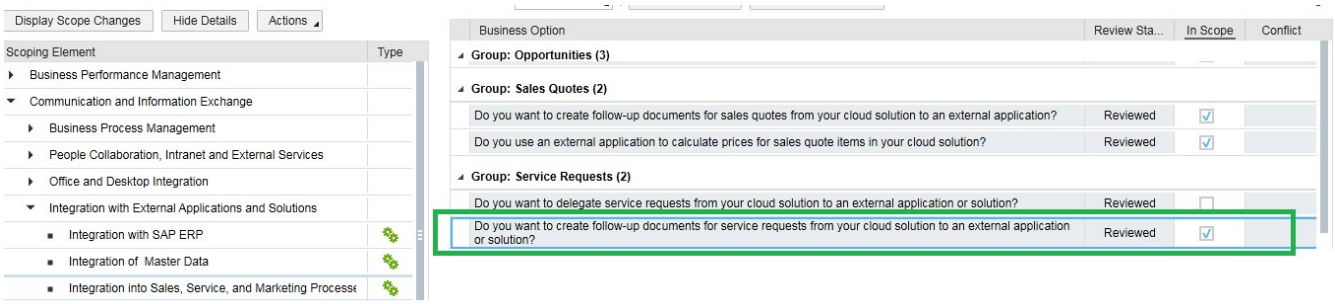


Figure 1 Scoping in Cloud

Fine-Tuning/Code List Mapping

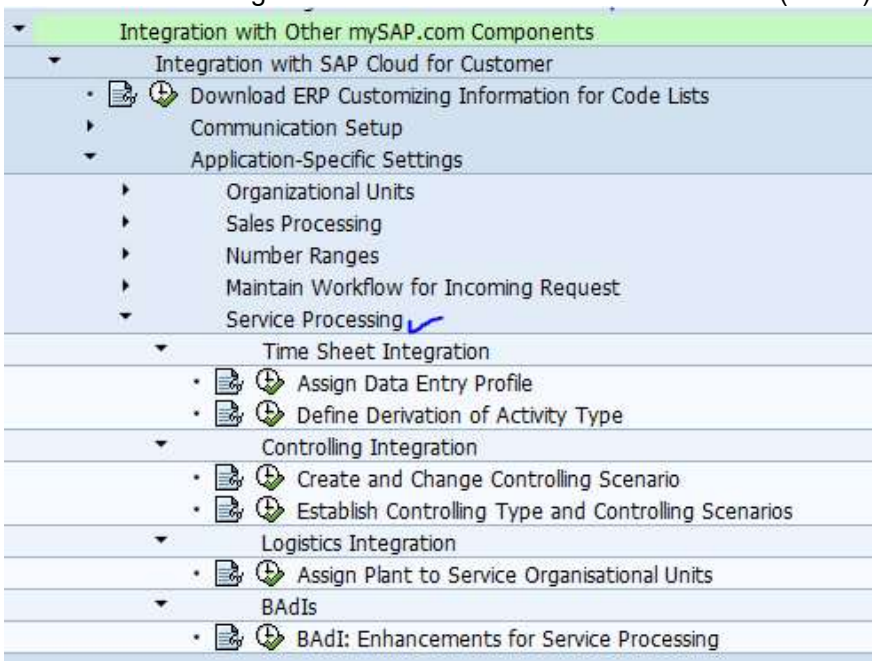
None specific to this scenario

Communication Arrangements and Services

For a list of communication arrangements and services see the integration flow spreadsheet at https://service.sap.com/cloud4customer. Filter on the object Service Ticket.

10.3 Configuration Settings in SAP ERP

There are several tables that need to be configured as well as technical settings to setup the message types. The settings can be made using the connectivity report and in the IMG settings. The Technical settings also include available Business Add-Ins (BAdIs).



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Application Configuration

The following describe the master data, background jobs, and IMG/table settings required in ERP for this scenario.

Master Data

If the technician's stock is handled as consignment stock, then each service technician/employee working on service tickets needs to be a customer in ERP. This is not required if the technicians stock is a dedicated storage location.

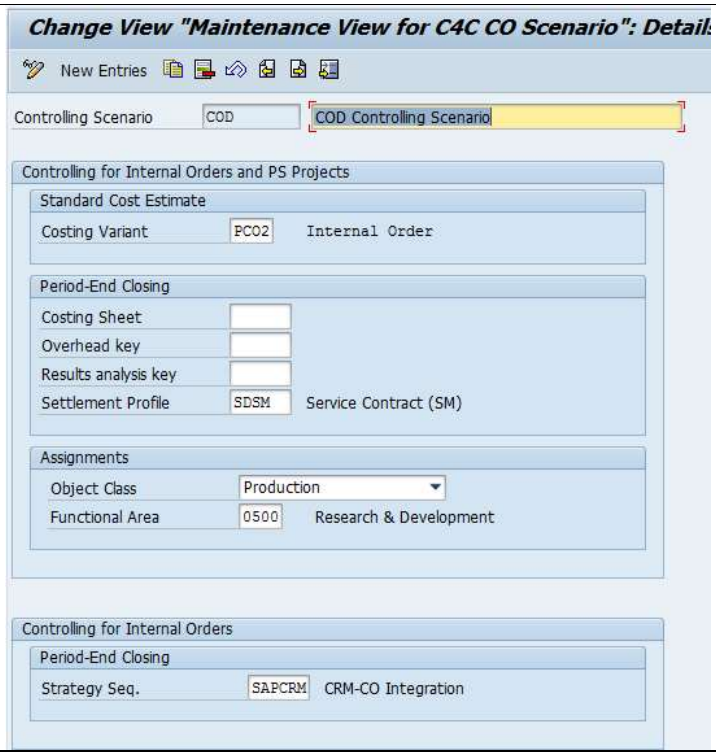
Background Jobs

Schedule CAT7 to ensure booking from CATS are accounted to an internal order. This can also be done manually using transaction CAT7.

Important Transaction Codes and Views

IAOM1, IAOM2 are important transaction codes that need to be updated for the controlling area. Views to update using transaction code SM30 are COD_V_PLANT_SRV and COD_V_MAT_ACTTY. The views determine what plant is used for stock as well as the activity for the service agents.
NOTE: This scenario also requires a confirmation back to Cloud. This is done via output type COD3. This is explained in the ERP integration guide at https://service.sap.com/cloud4customer

IAOM1 & IAOM2
Create a new Controlling Scenario using scenario ID COD in transaction code IAOM1. Configure the single-object controlling area in IAOM2.



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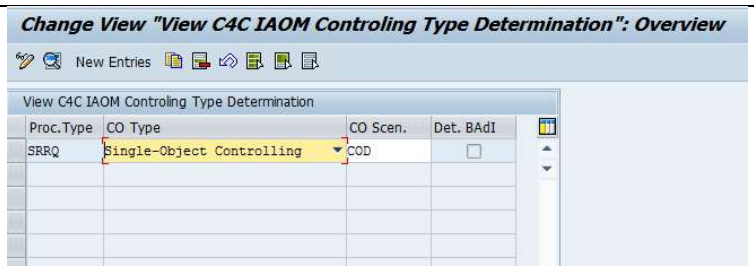
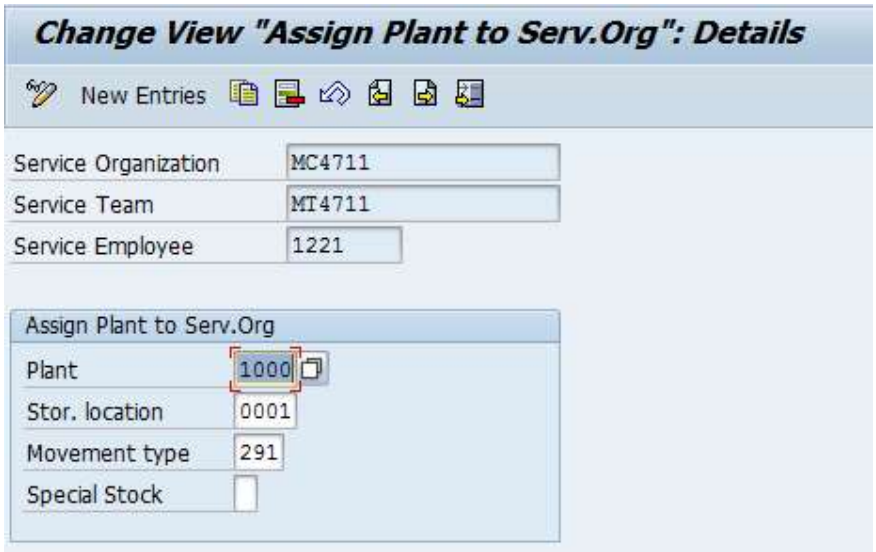
	
COD_V_PLANT_SRV The plant which is needed for identifying the right consignment stock can be derived internally via Service Technician, Service Team or Service Org. To identify the right consignment stock to be used by the technician, maintain the derivation login in SM30 in COD_V_PLANT_SRV. If the consumer already provides a plant this determination logic will not be called.	The differentiation of the two alternatives (consignment stock versus dedicated storage location) is done indirectly via the Special Stock indicator: W for consignment and blank for technician storage location. Below would be an example for assigning storage location 0001 to technician 1221  Versus this would be the way how to use a consignment stock for technician 1221 inside plant 1000 (Van stock). “W” indicates that the stock is a consignment stock.

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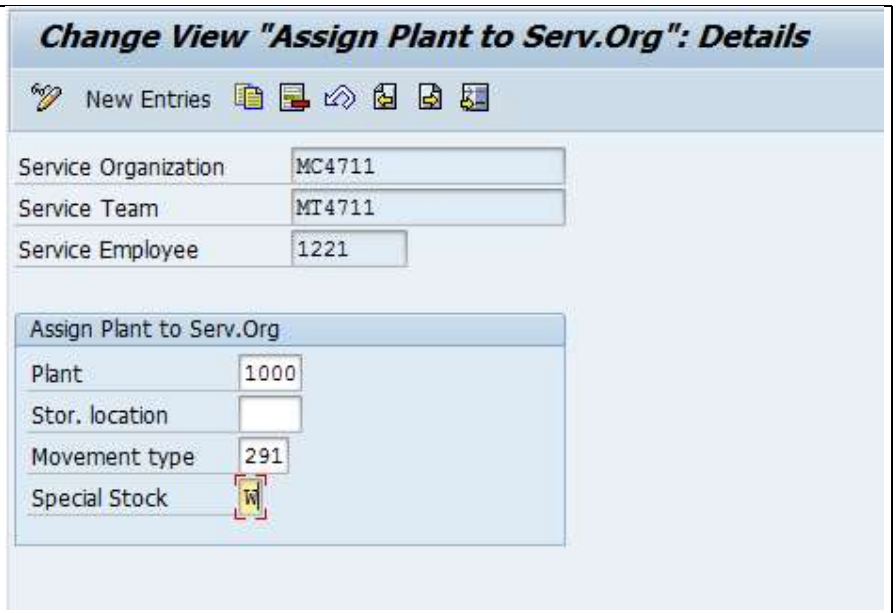
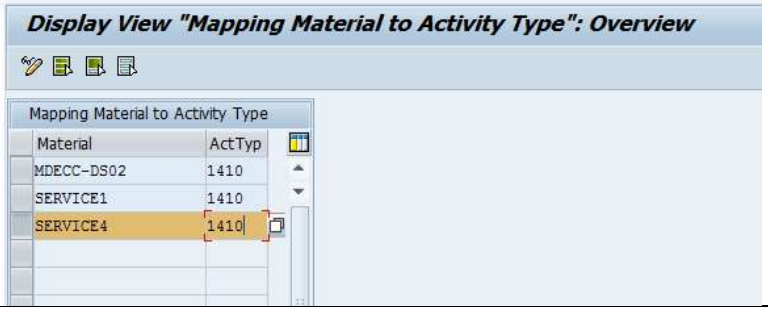
	 From the work order a withdrawal can be triggered by specifying the service technician ID, the spare part ID and quantity as well as the action code = 0002.
COD_V_MAT_ACTTY To identify the right activity type for CATS confirmation, maintain the material used on item level in SM30 in COD_V_MAT_ACTTY .	

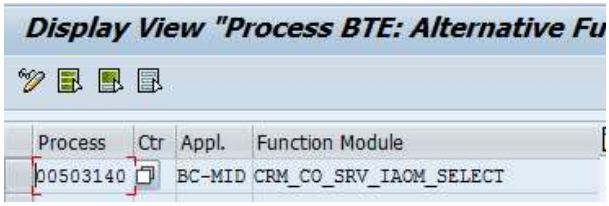
Technical Settings

Message Type: COD_SERVICE_REQUEST_CONF

Output determination procedure COD3 is setup with the BC Set.
Note that you may already have this configured from a previous release. If not, use the BC SET mentioned in the integration guide for COD3, or use the integration guide to configure COD3.

Business Transaction Event 00503140

Important Note: The link to the Internal Order or any other Accounting Object is done indirectly via a Business Event 00503140. This can be seen in table TPS31 in transaction code SM30.



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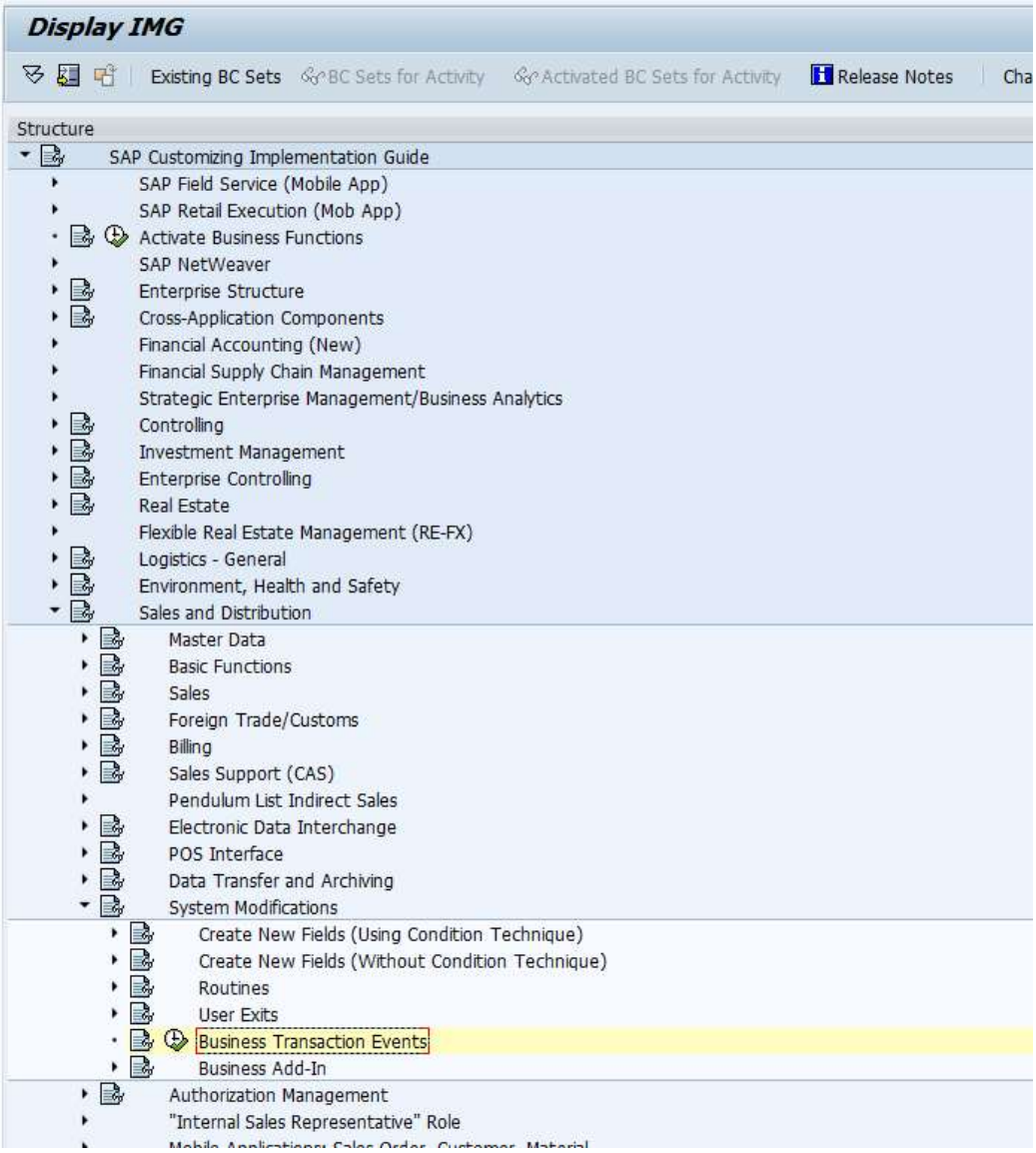
Since in standard the event 00503140 is already used by CO scenario CRMSRV customers have currently to register manually a different FM COD_CO_IAOM_SELECT in TPS34 (as a customer solution). This entry will overrule the standard FM for this event. As a consequence the scenarios COD and CRMSRV cannot be installed in parallel.

The steps for this update to the business transaction event are outlined below.

1. In IMG open the following path:



2. Click on Business Transaction Events (you will see an empty screen).

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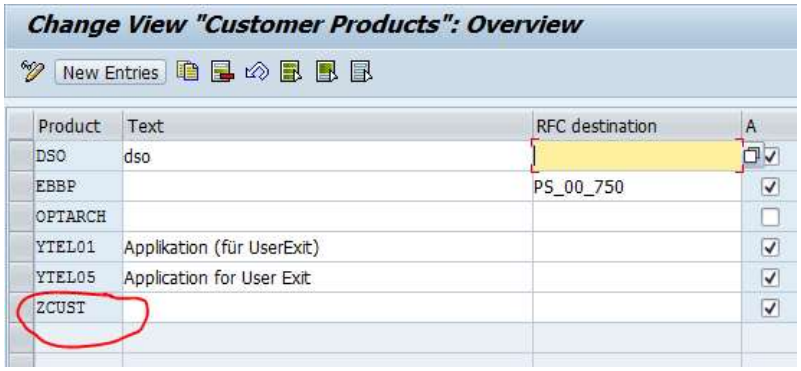
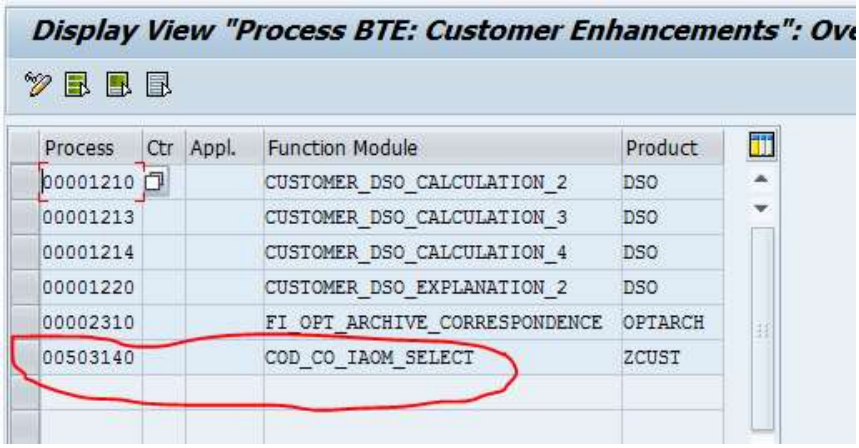
3. Navigate to Settings →Products → Of a customer, and create a new product:



4. Go back and choose path: Settings → Process Modules → Of a customer, and create a new entry for Process 503140 containing the FM below:



Available BAdIs

Standard extensibility concepts apply. The IDoc can be extended via standard ALE tools. Additionally, there are available BAdIs if you need to do the internal order based on something other than the work ticket order.
BAdI methods exist for the following use cases:

- Customer wants to add extension fields to the application logic provided in the Add-On
- Customer wants to map data in another way before calling the inner application API's
- Customer wants to determine Plant, Stocks, Activity Types in a different way

BAdI allows for small derivations from the standard behavior.
The Enhancement Spot offered for this purpose is COD_ERP_SERVICE_CONF. The corresponding BAdI definition is BADI_CO_ERP_SERVICE_CONF.
This BAdI offers access to the message structure of the IDoc and allows for each process step a customer specific mapping. Below are the interface methods offered:

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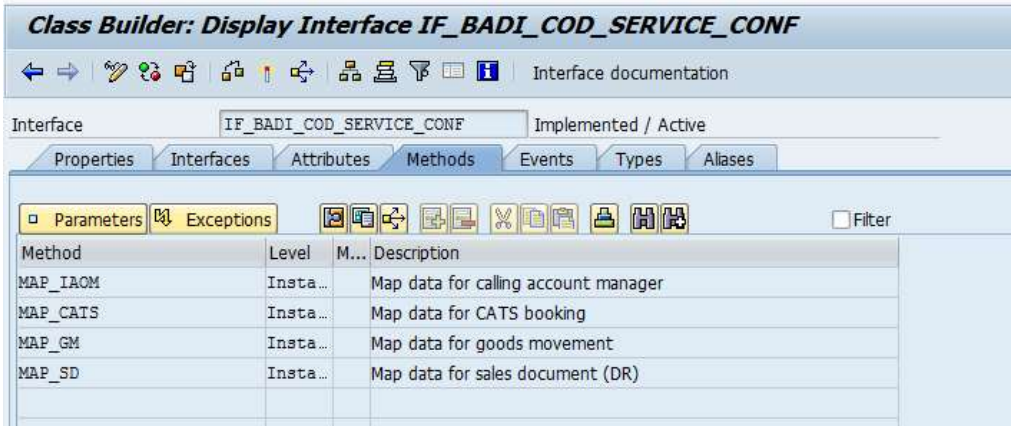

So the overall logic in each case is:

- First call SAP standard mapping logic
- Second provide original message as well as standard mapping to the BAdI method
- Finally call the Business API

Coding Example for Goods Movement:

Method PROCESS_MM Active

```
METHOD process_mm.
  DATA ls_goodsmvt_header TYPE bapi2017_gm_head_01.
  DATA ls_goodsmvt_headret TYPE  bapi2017_gm_head_ret .
  DATA lt_goodsmvt_itm TYPE bapi2017_gm_item_create_t.
  DATA lt_return TYPE bapiret2_tab.
  DATA lv_string TYPE string.

  mm_fill_data(
    EXPORTING
      is_message         = is_message
    IMPORTING
      es_goodsmvt_header = ls_goodsmvt_header
      et_goodsmvt_item = lt_goodsmvt_itm  )    .

  IF NOT mr_badi_cod_erp_service_conf IS INITIAL.
    CALL BADI mr_badi_cod_erp_service_conf->map_gm
      EXPORTING
        is_message         = is_message
      CHANGING
        cs_goodsmvt_header = ls_goodsmvt_header
        ct_goodsmvt_item   = lt_goodsmvt_itm.
  ENDIF.

  IF NOT lt_goodsmvt_itm IS INITIAL.

    CALL FUNCTION 'MESSAGES_INITIALIZE'
      EXCEPTIONS
        OTHERS = 0.

    CALL FUNCTION 'BAPI_GOODSMVT_CREATE'
      EXPORTING
        goodsmvt_header              = ls_goodsmvt_header
        goodsmvt_code                = '03'   " good issue
     IMPORTING
       goodsmvt_headret             = ls_goodsmvt_headret
      TABLES
        goodsmvt_item                = lt_goodsmvt_itm
*     ><oodsmvt_serialnumber        =
        return                       = lt_return            .
```

In case the customer wants to implement a complete different process, then the standard BAdI will not be sufficient. The customer can implement a custom function module registered to the standard IDoc COD_SERVICE_CONFIRMATION01.

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10.4 Configuration Settings in Middleware

Value Mapping

Fix value mapping is delivered for the ERP transaction types for Billing Request, consignment Fill-up and Consignment Return.
In the field service scenario, work ticket can now trigger procurement of parts in ERP. Update the PI value mapping; COD:ConsiDocType – ERP:ConsiDocType to enable this.

Integration Flows

For a list of integration flows required see the integration flow spreadsheet at https://service.sap.com/cloud4customer. Filter on the object Service Ticket.

Field Mappings

Field mapping details are found in the "Integration Mapping Descriptions" spreadsheet at https://service.sap.com/cloud4customer.
The following are some key fields included in the mappings.

Source – Cloud	Destination - ERP
ID	e1salesorder_createfromdat2/e1bpsdhd1/ref_doc
Name	e1salesorder_createfromdat2/e1bpsdhd1/name
Recipient Party ID	e1salesorder_createfromdat2/e1bpparnr/partn_numb
Role Code	e1salesorder_createfromdat2/e1bpparnr/partn_role
Receiver Sales Organisation ID	e1salesorder_createfromdat2/e1bpsdhd1/sales_org
Receiver Sales Group ID	e1salesorder_createfromdat2/e1bpsdhd1/sales_grp
Receiver Sales Office ID	e1salesorder_createfromdat2/e1bpsdhd1/sales_off
Distribution Channel Code	e1salesorder_createfromdat2/e1bpsdhd1/distr_chan
Division Code	e1salesorder_createfromdat2/e1bpsdhd1/division
Warranty ID	e1salesorder_createfromdat2/e1bpcond/cond_type
Item ID	e1salesorder_createfromdat2/e1bpschdl/itm_number
Item Receiver ID	e1salesorder_createfromdat2/e1bpsditm/material
Confirmed Fulfilled Quantity	e1salesorder_createfromdat2/e1bpschdl/req_qty
Unit Code	e1salesorder_createfromdat2/e1bpsditm/s_unit_iso
Type Code	e1salesorder_createfromdat2/e1bpsdtext/text_id
Content Text	e1salesorder_createfromdat2/e1bpsdtext/text_id
Language Code	e1salesorder_createfromdat2/e1bpsdtext/langu_iso

10.5 Extensibility Options

We are using standard extensibility concepts for the whole process. First of all the IDoc can be extended via standard ALE tools.
Further on we are offering BAdI methods for the following use cases:

- Customer wants to add extension fields to the application logic
- Customer wants to map data in another way before calling the inner application API's
- Customer wants to determine Plant, Stocks, Activity Types in a different way

This BAdI will allow small derivations from the standard behavior.
The Enhancement Spot offered for this purpose is:
COD_ERP_SERVICE_CONF
Corresponding BAdI definition is
BADI_CO_ERP_SERVICE_CONF

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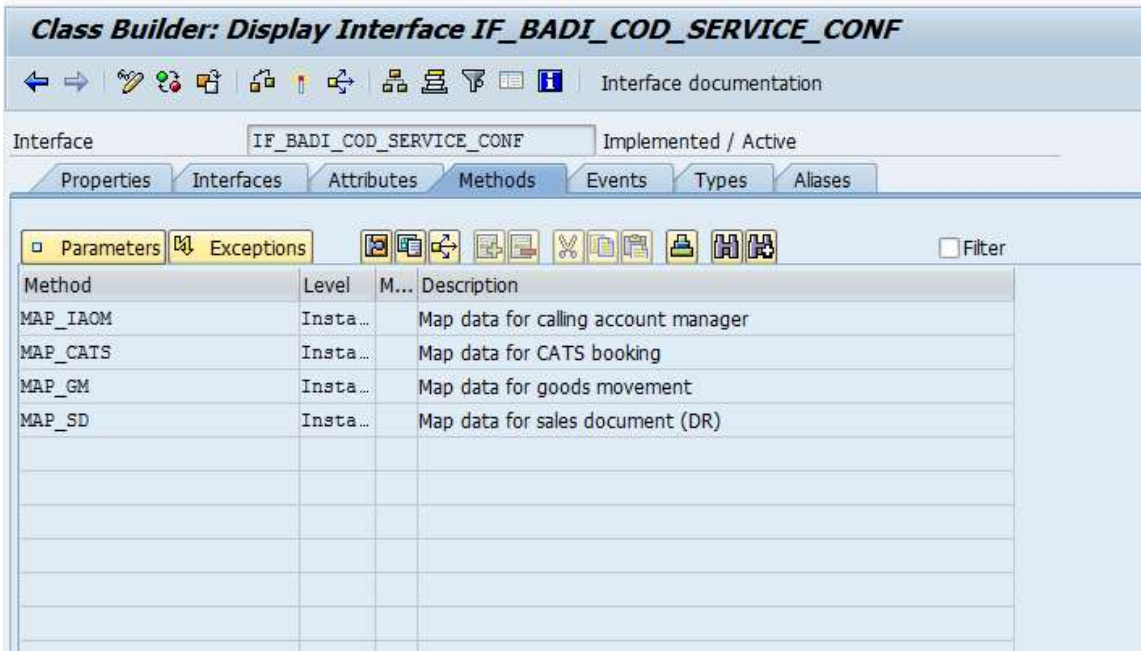
This BAdI offers access to the message structure of the IDoc and allows for each process step a customer specific mapping. Below you'll find the interface methods offered for this purpose.



So the overall logic in each case is:

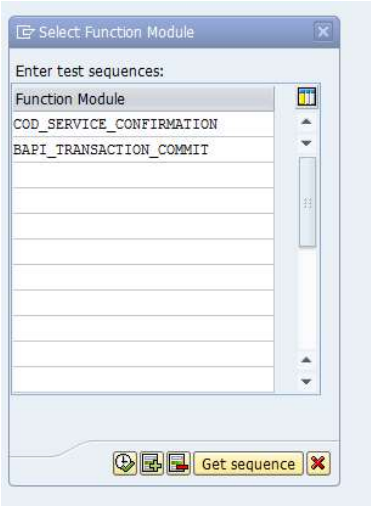
- ➔ First call SAP standard mapping logic
- ➔ Second provide original message as well as standard mapping to the BAdI method
- ➔ Finally call the Business API

In case the customer wants to implement a complete different process, this will not be supported by the Standard BAdI. Instead of this a customer can implement their own function module registered to the standard IDoc COD_SERVICE_CONFIRMATION01.

10.6 Tips and Tricks

How to test this new function?

You can test the new function module COD_SERVICE_CONFIRMATION. Since the function module does not trigger a commit work, you have to use test sequence like the one below.



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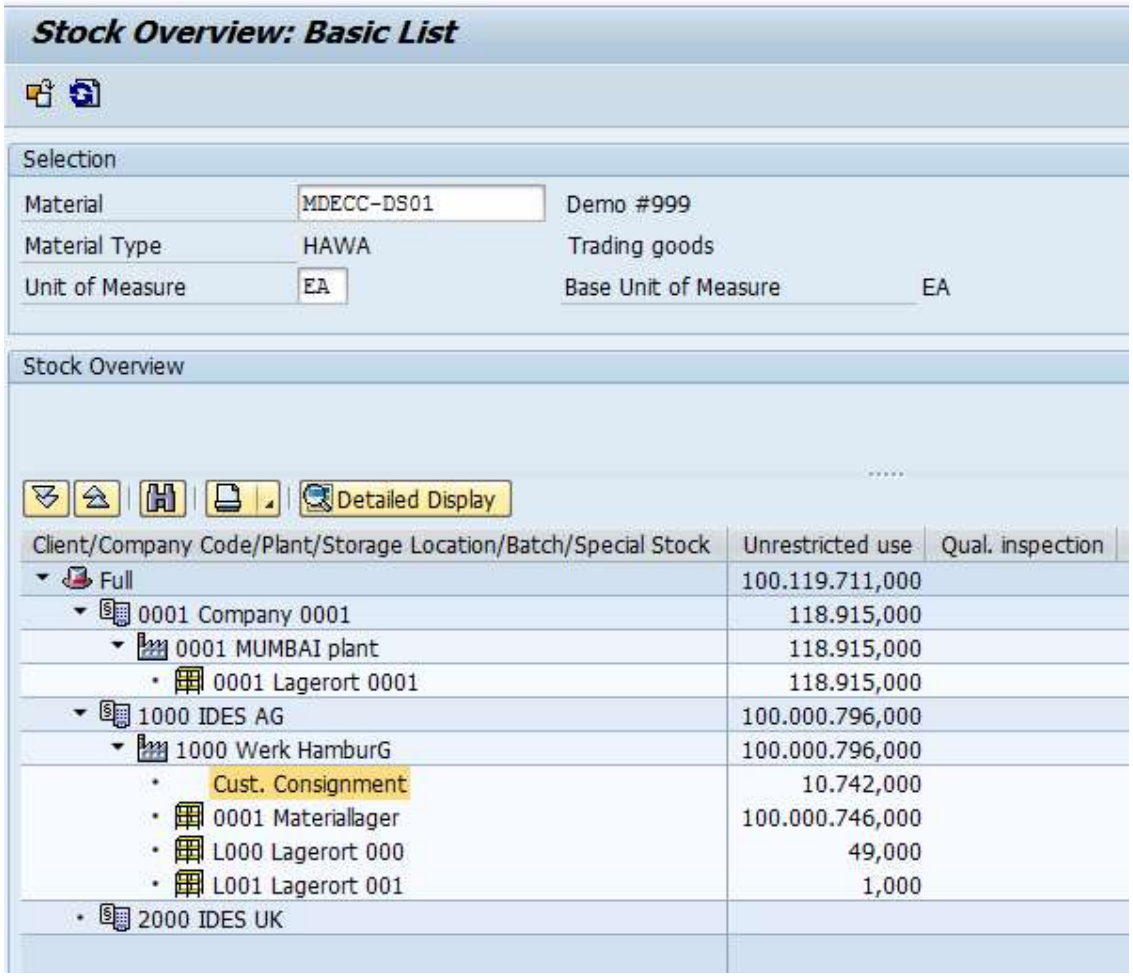
How to monitor the goods movement?

Transaction MMBE



Select Environment → Material Movements

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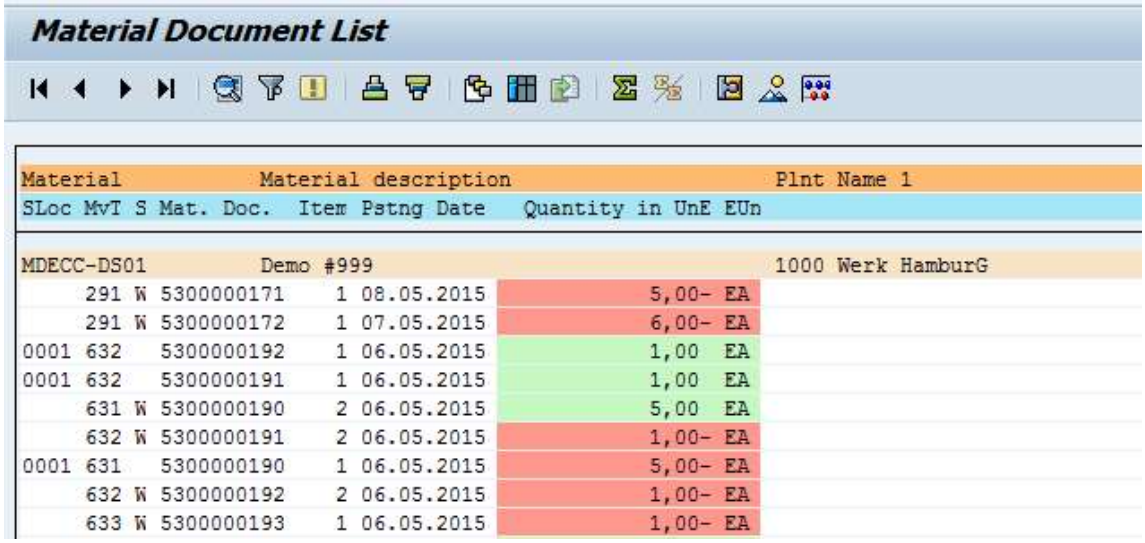
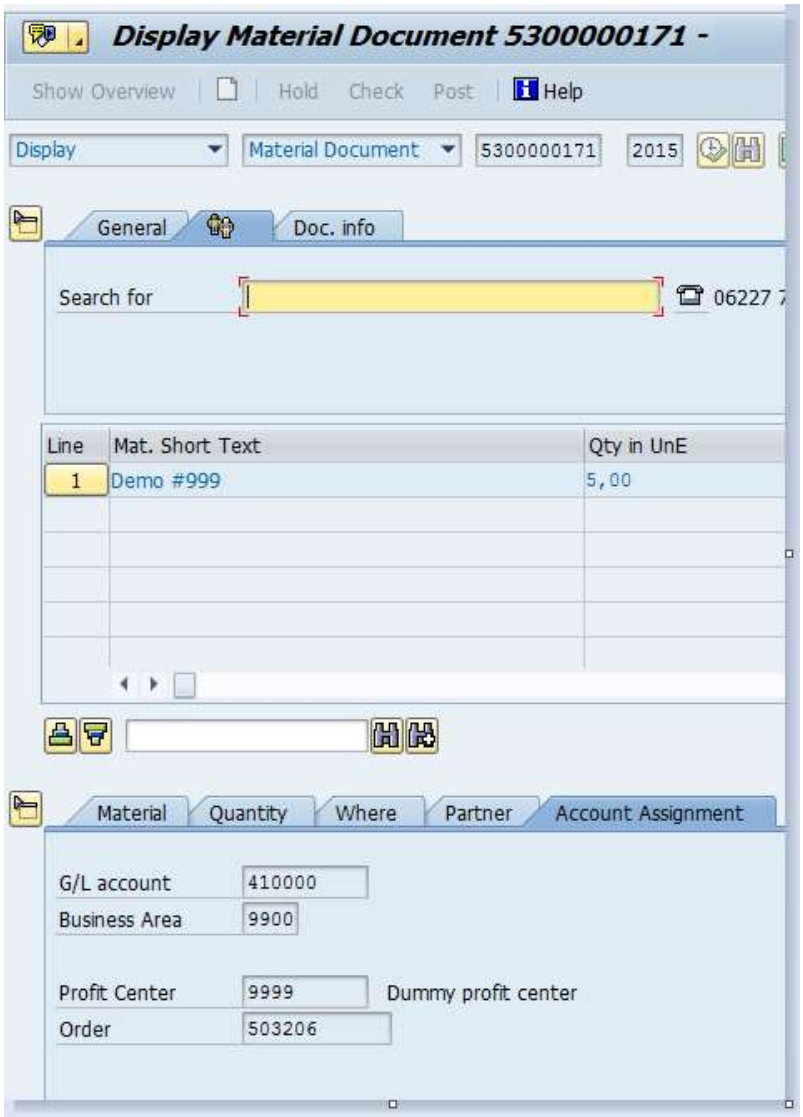


Double-click on row:



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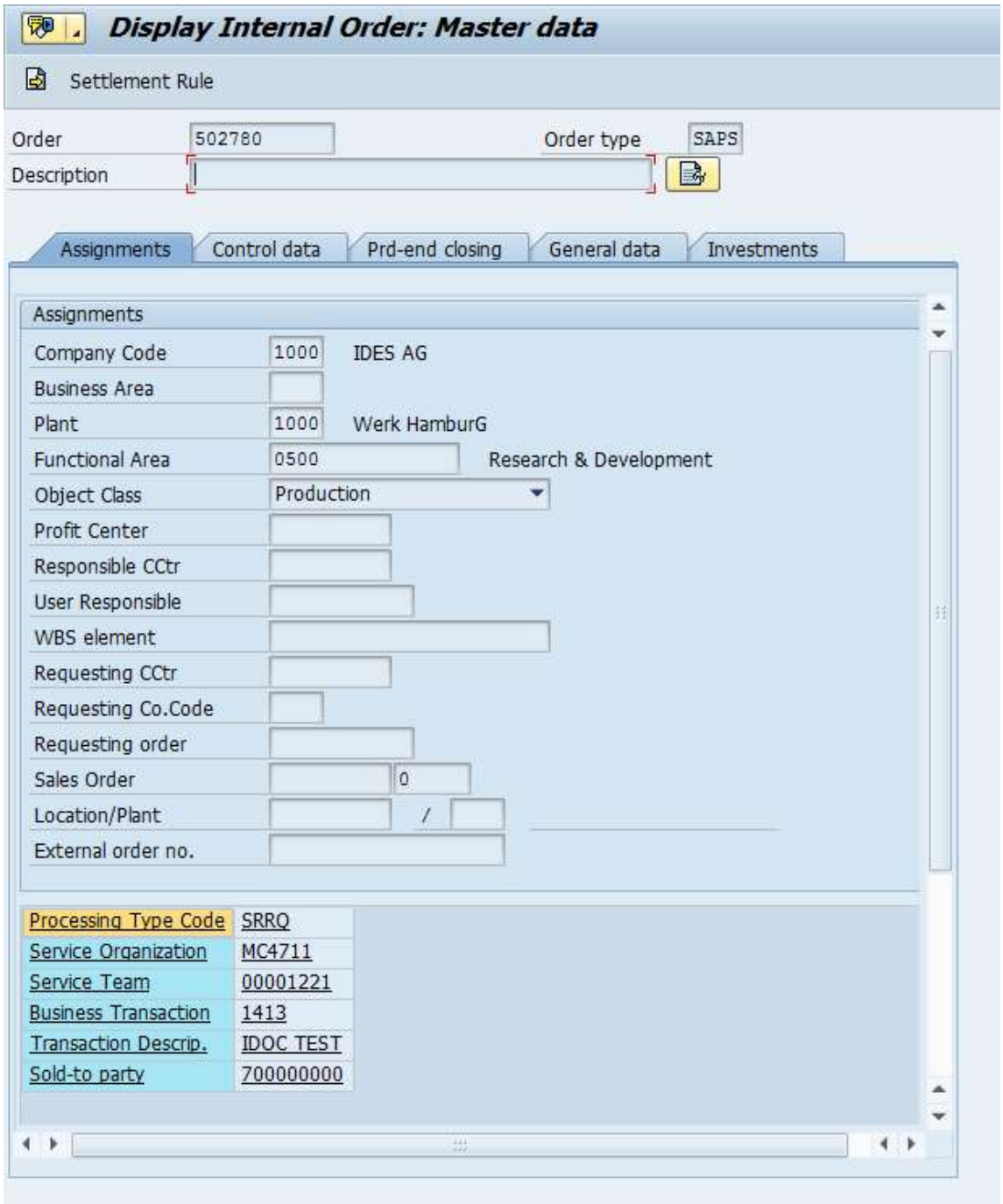
How to find the internal order?

Transaction KO03 and search with internal order ID



Click on Extras → Cost Analysis:

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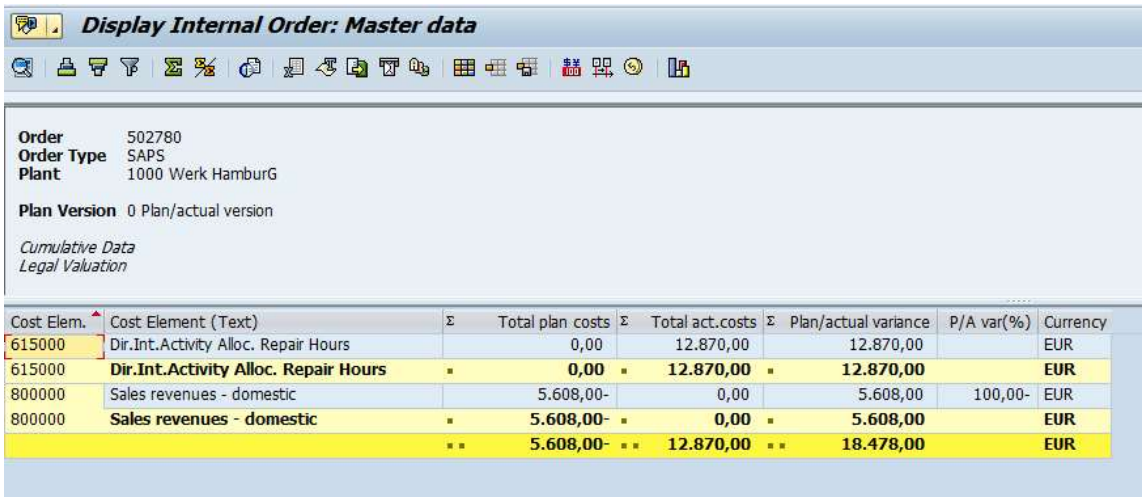

Cost Elem.	Cost Element (Text)	Σ	Total plan costs	Σ	Total act.costs	Σ	Plan/actual variance	P/A var(%)	Currency
615000	Dir.Int.Activity Alloc. Repair Hours		0,00		12.870,00		12.870,00		EUR
615000	**Dir.Int.Activity Alloc. Repair Hours**	▪	**0,00**	▪	**12.870,00**	▪	**12.870,00**		**EUR**
800000	Sales revenues - domestic		5.608,00-		0,00		5.608,00	100,00-	EUR
800000	**Sales revenues - domestic**	▪	**5.608,00-**	▪	**0,00**	▪	**5.608,00**		**EUR**
		▪▪	**5.608,00-**	▪▪	**12.870,00**	▪▪	**18.478,00**		**EUR**

How to handle errors from Account Assignment Manager?

If you receive any error from the AAM for example that the internal order could not be created – then first place for analysis is the logbook of the AAM:
The log can be switched on with transaction IAOMD:

Don't forget to hit the "POST" button because this saves the logbook parameters and activates the trace.

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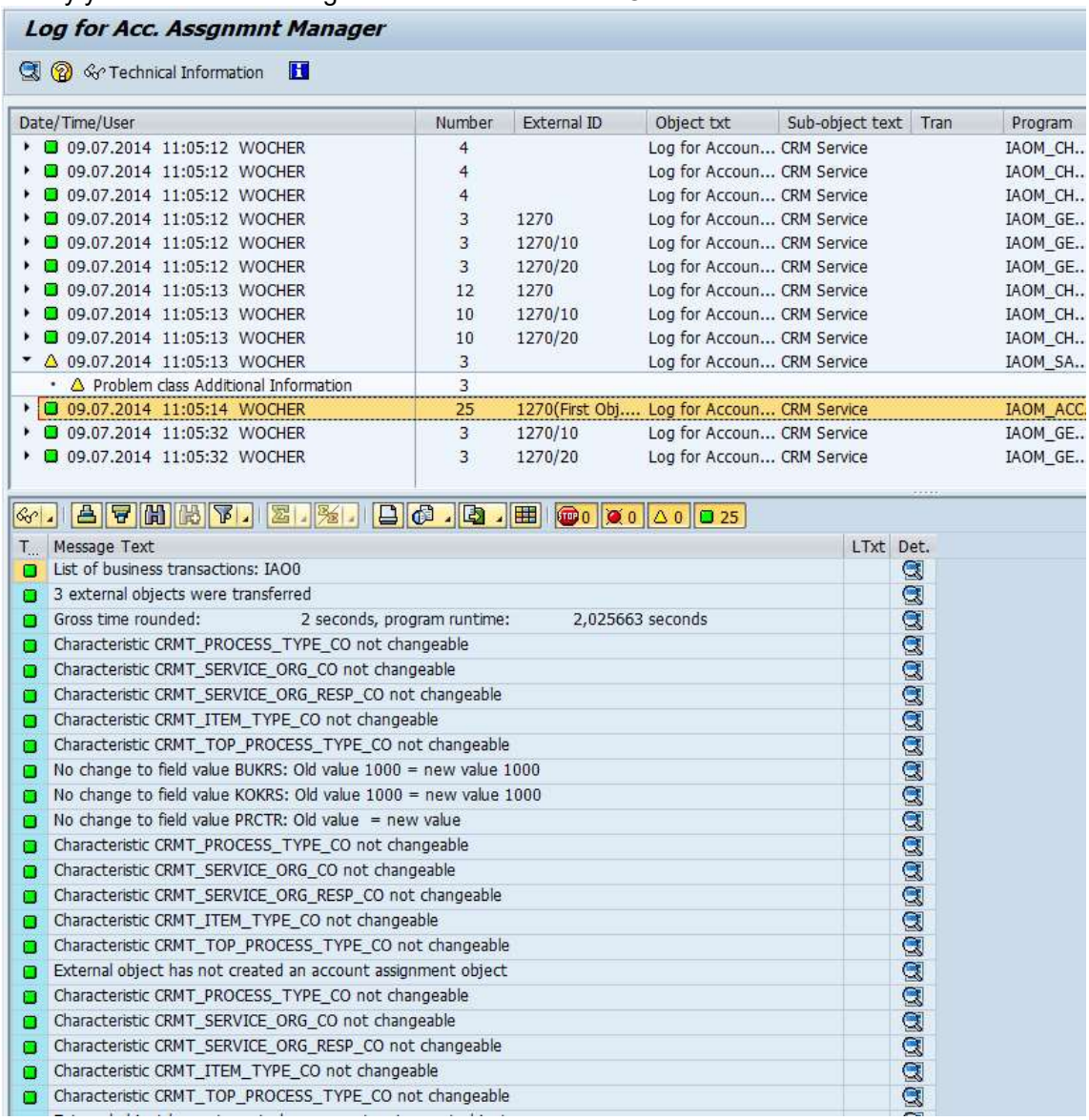
In the second step you can now execute the SM37 function module COD_SERVICE_CONFIRMATION.
Finally you can check the log book with transaction IAOMA:



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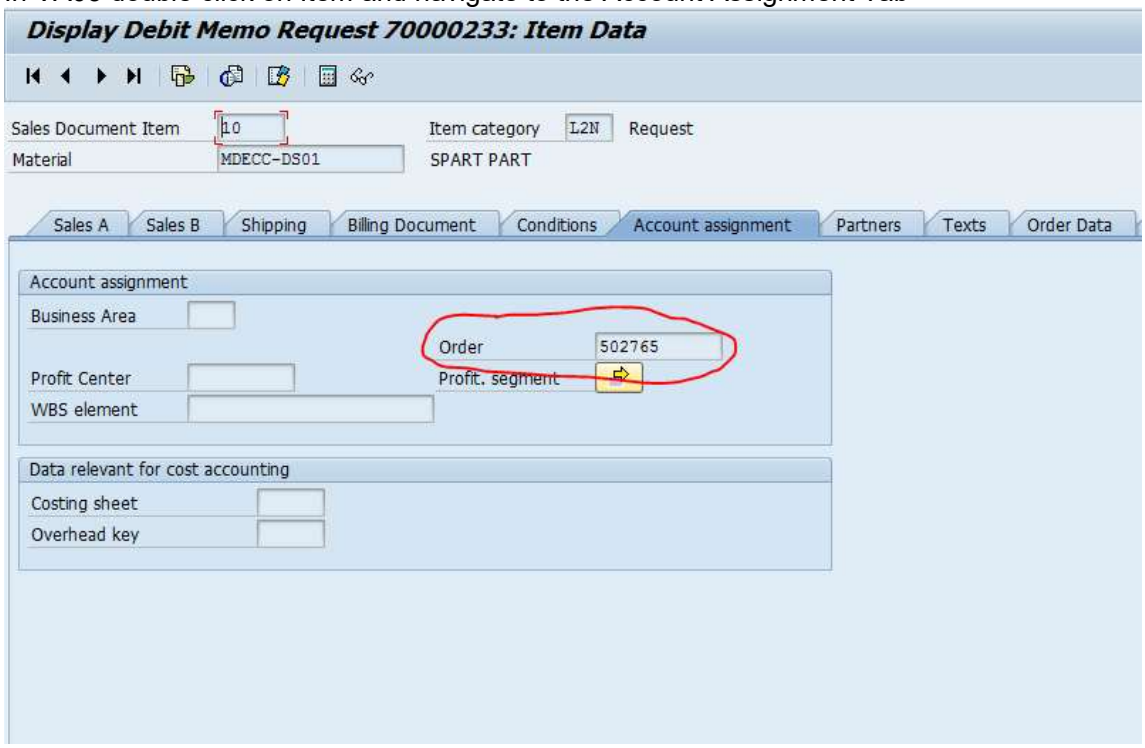
Where can I find the internal order in SD Billing Request?

In VA03 double click on Item and navigate to the Account Assignment Tab



Double click on the IO number

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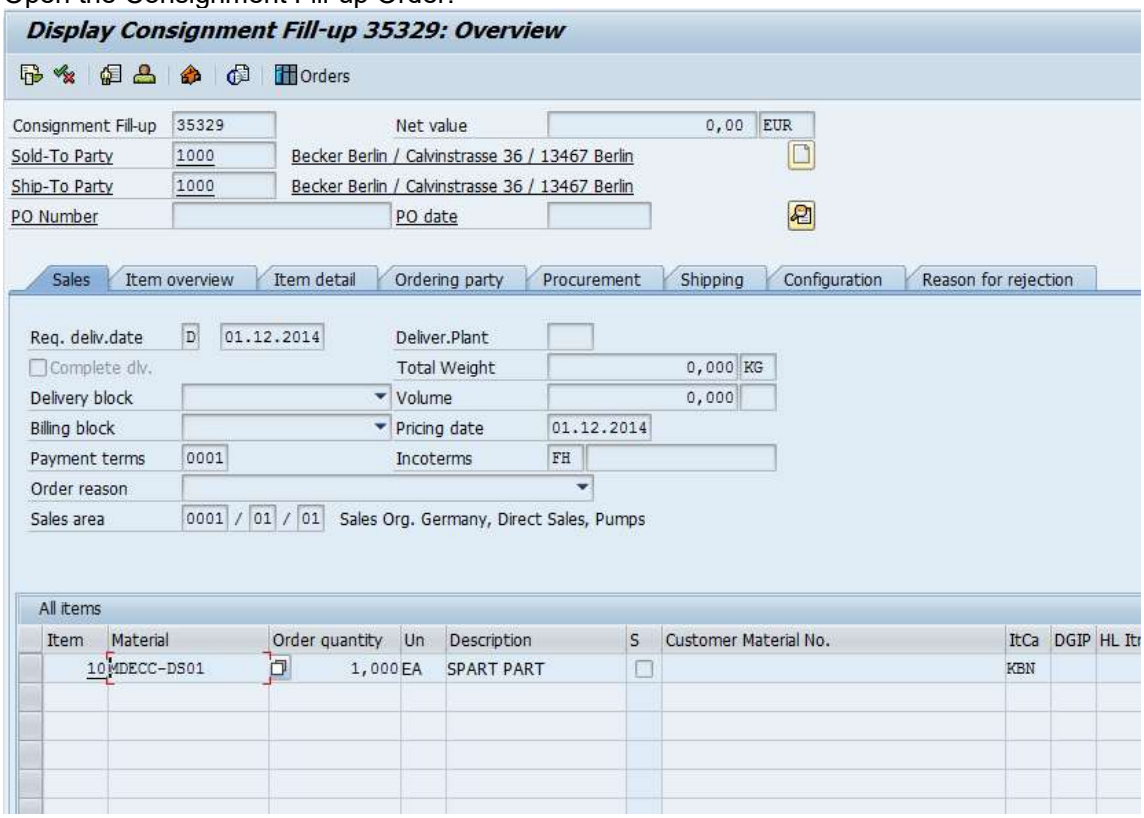
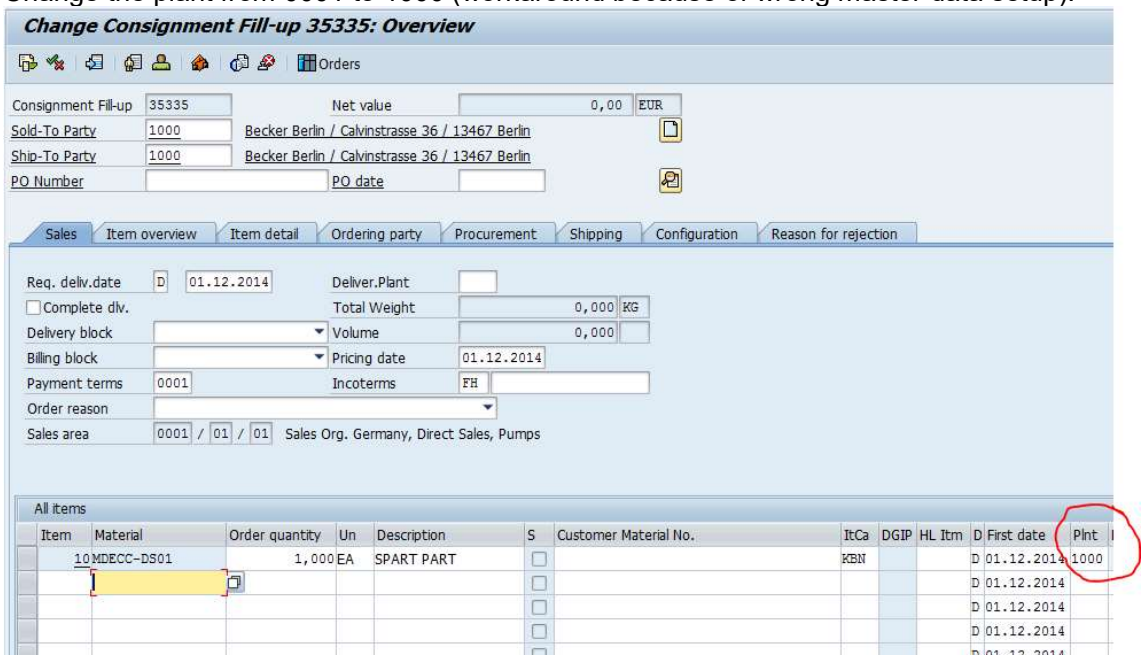
How to deliver a consignment fill-up?

Open the Consignment Fill-up Order:



Change the plant from 0001 to 1000 (workaround because of wrong master data setup):



And create the Follow Up Delivery

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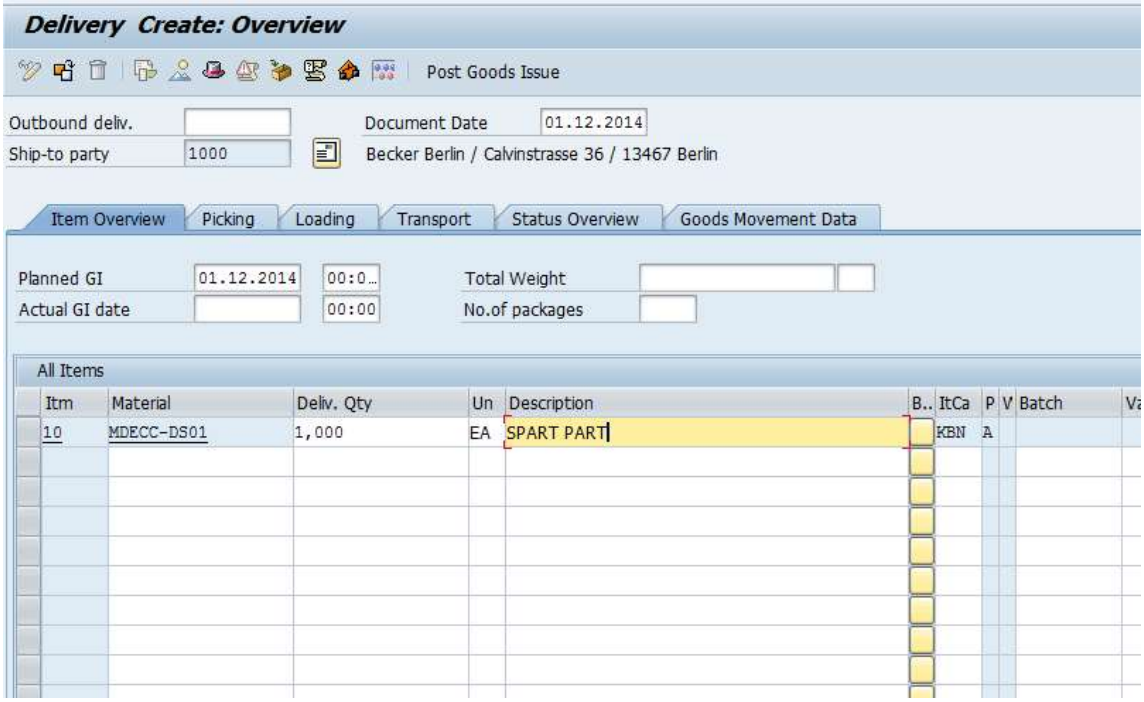
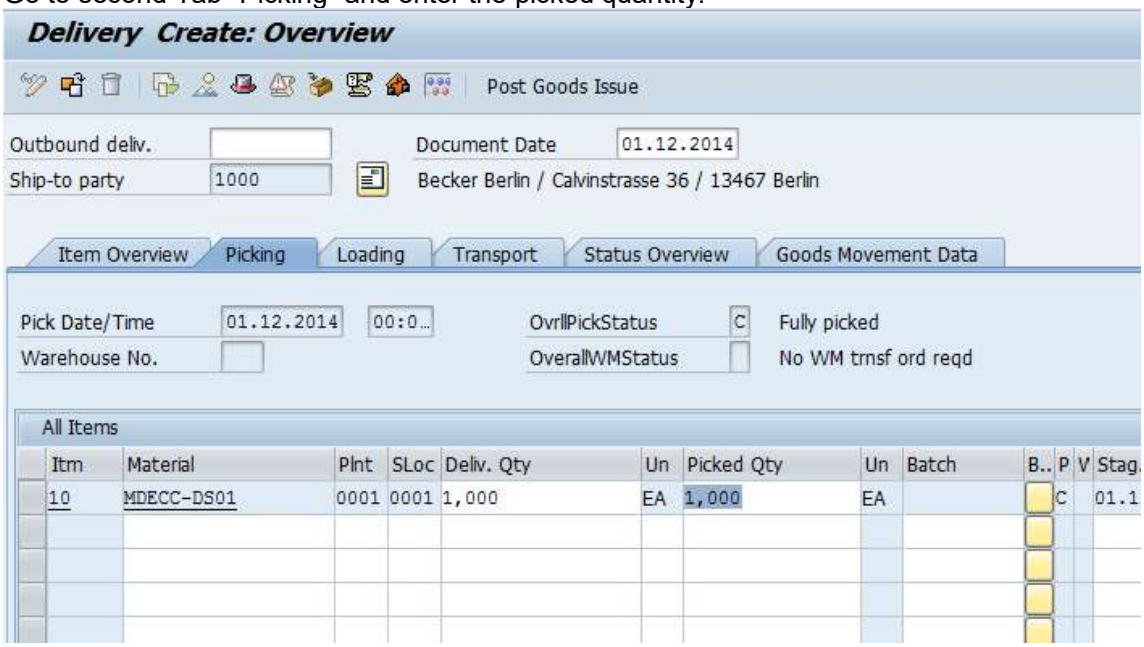


Go to second Tab “Picking” and enter the picked quantity:



And post goods issue:

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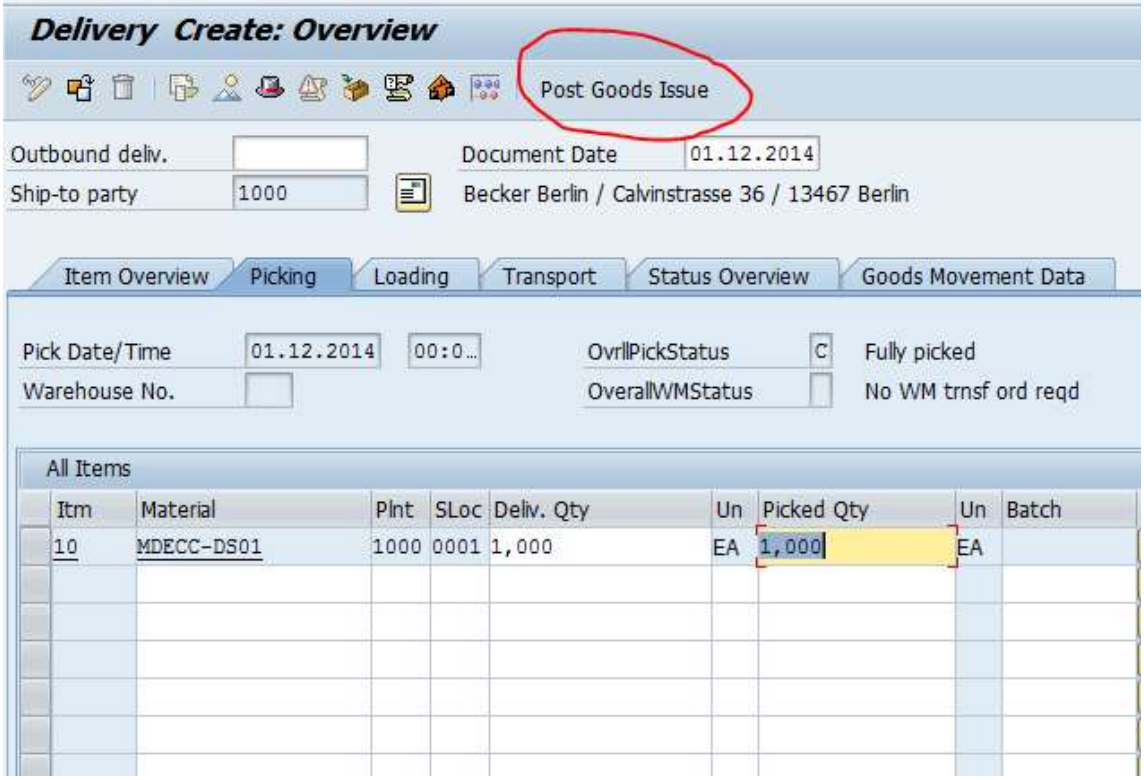
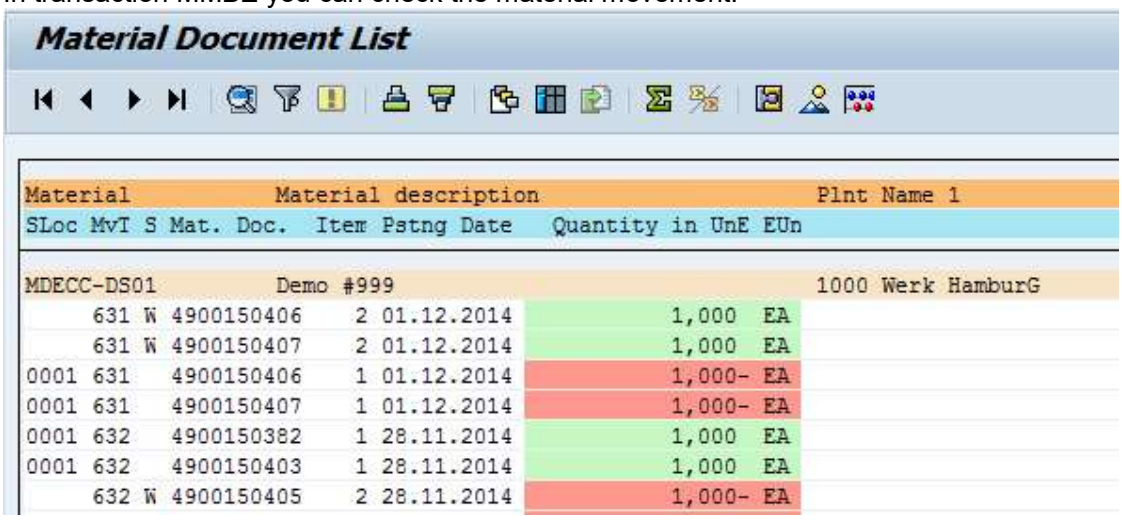


In transaction MMBE you can check the material movement:



Especially the transfer posting to customer's consignment accounted to the internal order

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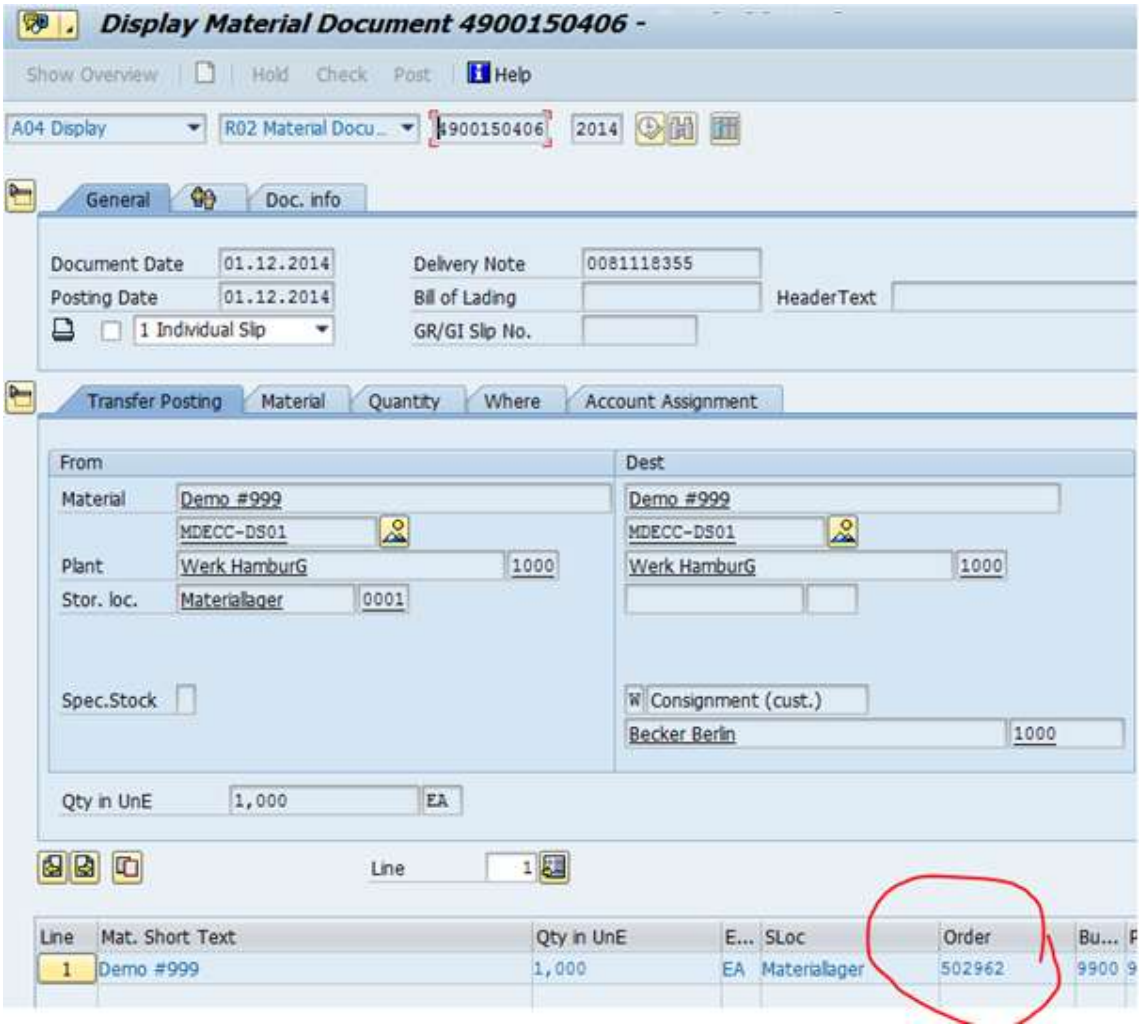
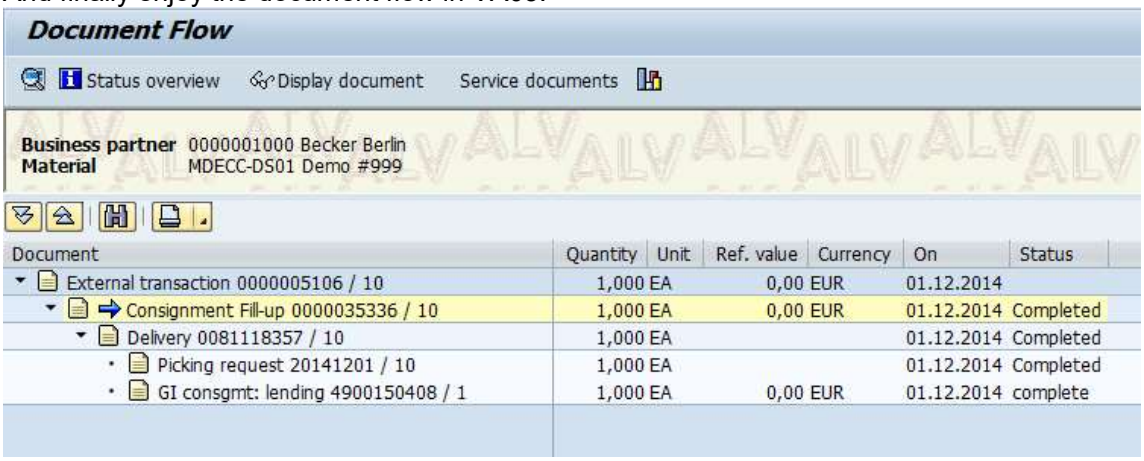


And finally enjoy the document flow in VA03:



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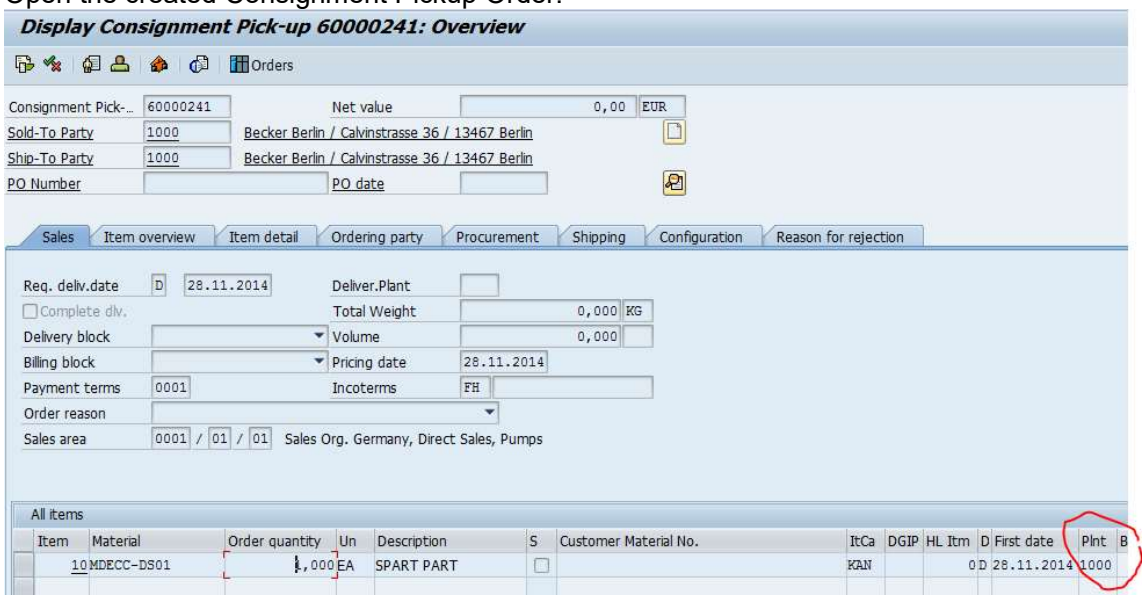
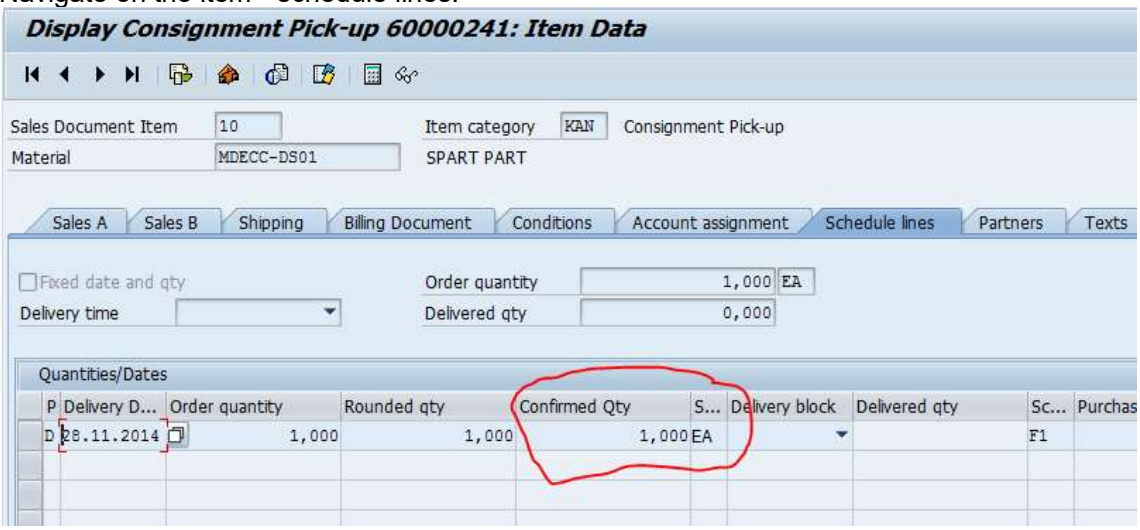
How to deliver the consignment pickup?

Open the created Consignment Pickup Order:



The plant has been defaulted by the related consignment fill-up process.
Navigate on the item->schedule lines:



And check if the confirmed quantity is equal to ordered quantity. If not than the consignment stock did not contain the necessary parts.
In the menu click on Sales Documents->Delivery:

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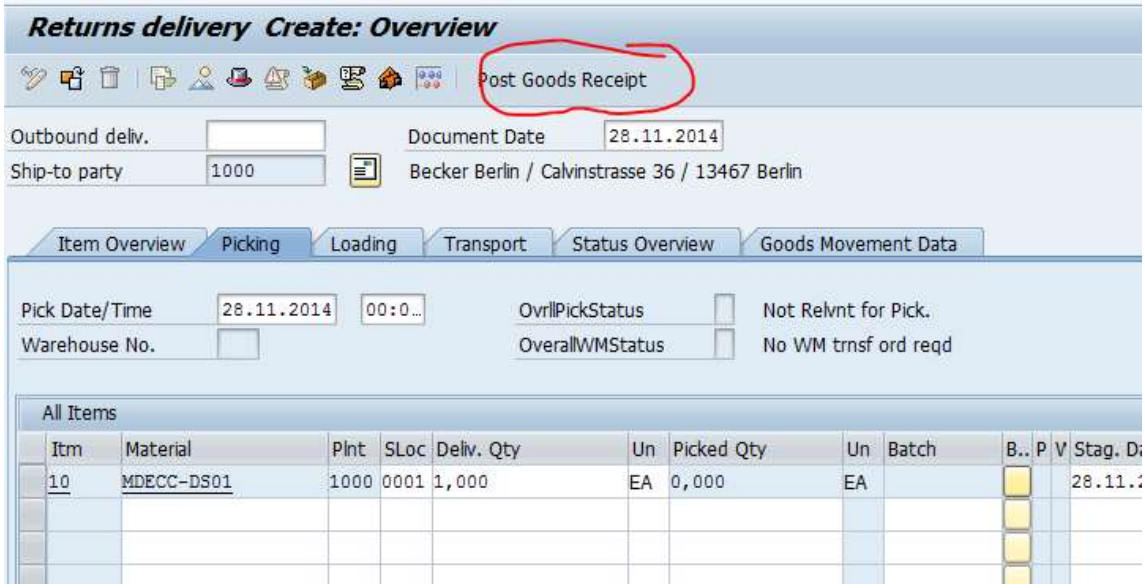

And trigger “Post Goods Receipt”

Finally go back to VA03, open your Consignment Pickup Order and check the document flow:

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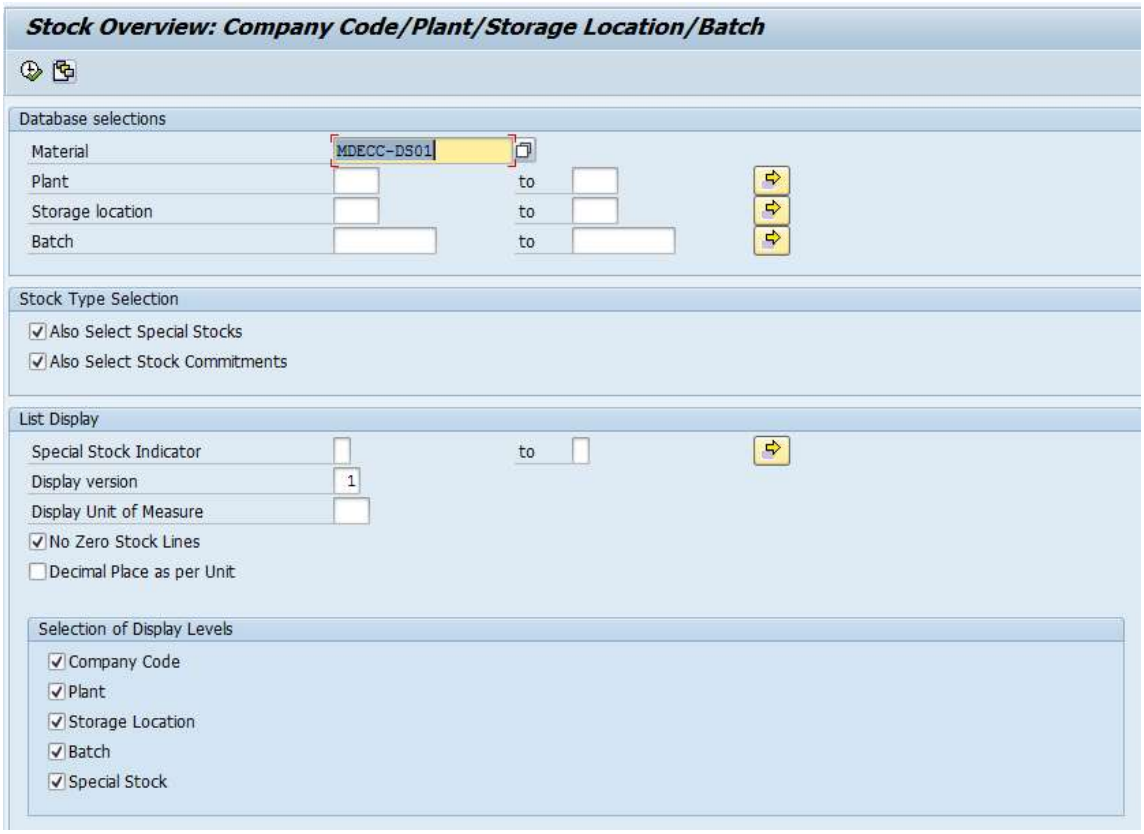
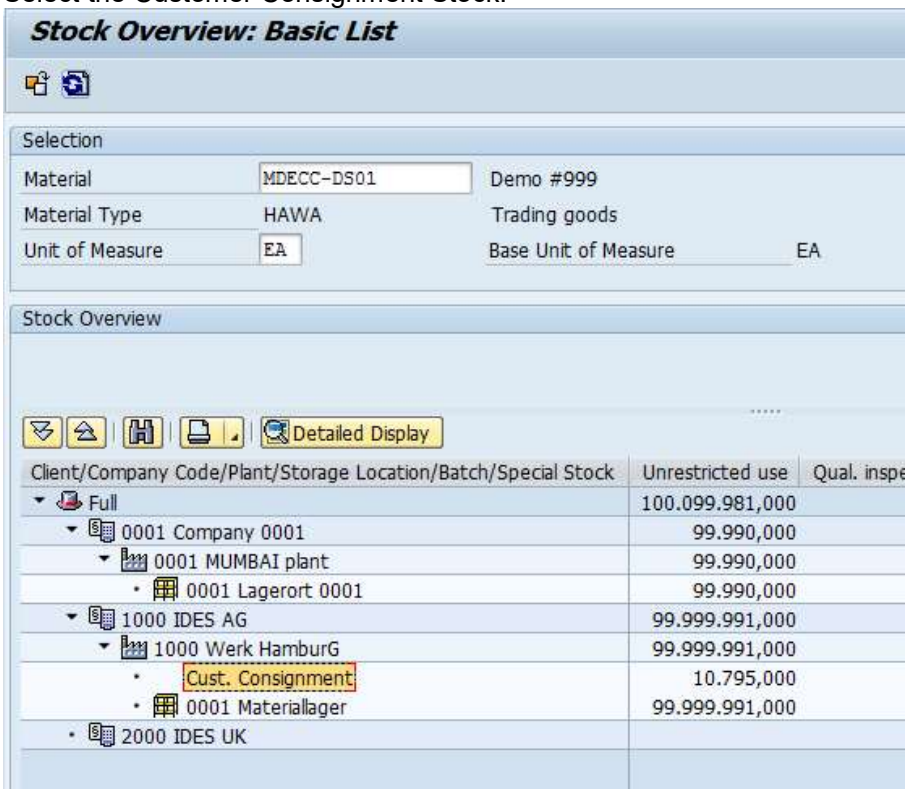
Finally you can check the goods movement in transaction MMBE:
Click F8



Select the Customer Consignment Stock:



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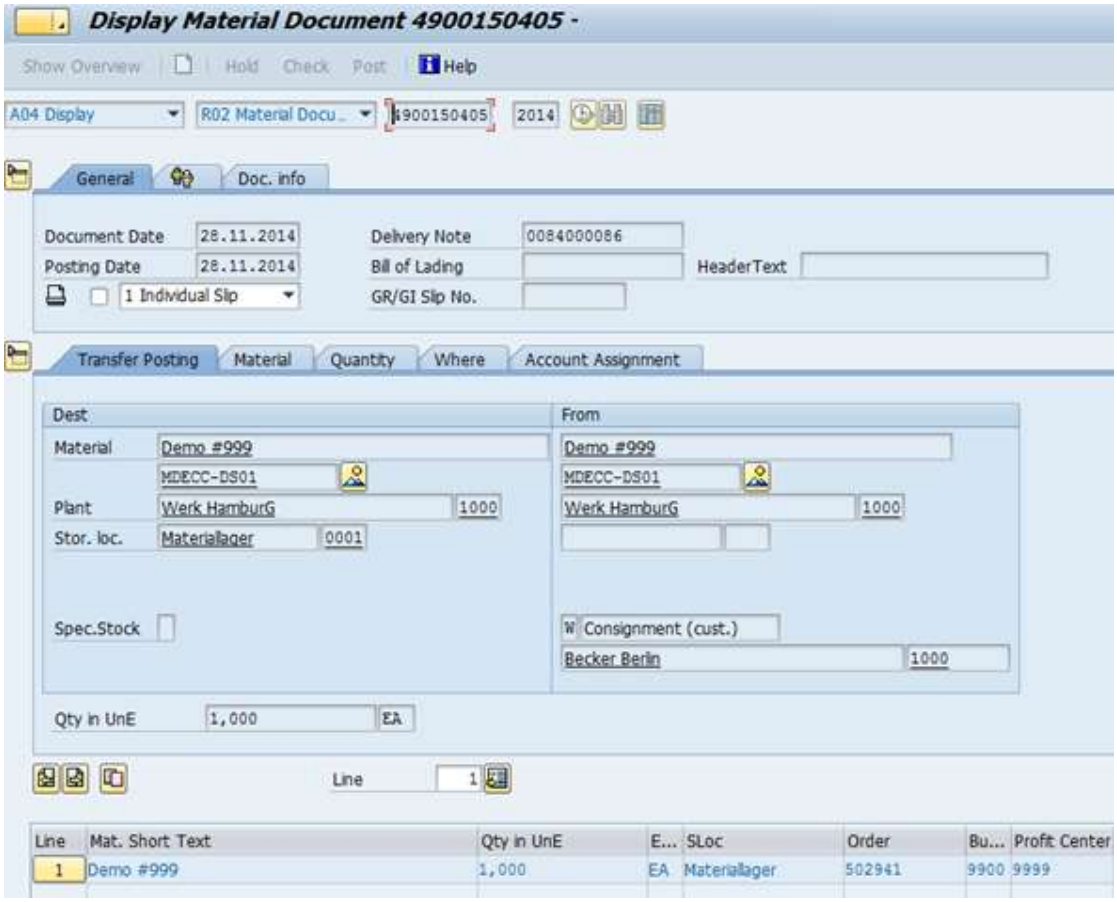
In the menu choose Environment->Material Movements



Here you can see the transfer of the material from consignment stock back to plant 1000 storage location 0001.

What is not supported?

Cancellation of Work Tickets or Work Ticket Items

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11 Code List Mapping

Business Overview

Code list is a user defined list of values, for a list element on a screen. For example, for the UI element, Occupation, here are the possible values maintained in different systems.

Code list for *Occupation* in **SAP Hybris Cloud for Customer**		Code list for *Occupation* in **SAP CRM**	
Value	**Description**	**Value**	**Description**
1	Student	1	Student
2	Professional	2	Entrepreneur
3	Entrepreneur	3	Professional
4	Unemployed	4	Unemployed

As you see in the example above, the code list values in SAP Hybris Cloud for Customer and SAP CRM systems do not mean the same. For example, value 3 in Cloud system means *Entrepreneur*, whereas in the CRM system value 3 is *Professional*. If during transfer of data from Cloud to ERP/CRM, a Cloud code list value is not converted to the corresponding ERP/CRM value, this might lead to wrong results. Hence, we need to map these values during Customizing in SAP Hybris Cloud for Customer.

Code list mapping is a critical step to ensure that integration works functionally and with correct required data. Code list mapping is used to map certain codes, such as partner roles, distribution channels, or legal forms of a business between an SAP on-premise solution and SAP Hybris Cloud for Customer. The code lists in these systems may or may not be identical, and mapping ensures correct data replication into the right fields.

Example

The partner role code maintained in the on-premise system for an account is SAP000 and in the Cloud solution is BBP002. You can map these codes during code list mapping.

Partner role	Partner role code in an on-premise backend system	Partner role code in Cloud
Supplier	BBP000	BBP000
Bidder	BBP001	BBP001
Account	SAP000	BBP002
Employee	BUP003	BBP004

You can group mappings in a mapping group, which are then assigned to one or more communication arrangements.

Mapping groups are typically created when there are:	For example
Extensions to standard code lists	You have extended the Academic Title code list with additional titles.
Read only code lists that you want to modify	There are code lists delivered as part of the base group that are read-only, and you want to change the mapping.

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Same code lists are maintained for a field in different systems	The unit of measure for distance in: • On-premise backend 1 is meters with the code m • On-premise backend 2 is miles with the code m If both of these on-premise systems are connected to Cloud for Customer, then, for the code list Distance, you cannot maintain the mapping “m” for both meters and miles.

We recommend you to use the base mapping group, say SAP On-Premise Integration, and assign any deviating mappings to a separate mapping group. For example, you can create a code list mapping group named SAP-Backend 1 Integration and maintain all deviations in this code list mapping. This integration mapping group can then be assigned to all the communication arrangements created for integrating Cloud solution with your SAP on-premise backend system 1. There are two ways in which you can map the code lists: manual and automatic.

Ways in which you can map code lists

There are two ways in which you can map the code lists:

- Manually in the fine tuning activity *Code List Mapping for Integration with External Application and Solutions*
- Automatically during Customizing

Note
Until 1411, SAP recommended using the automatic configuration during initial load and manual maintenance during updates. Starting 1502, you can use automatic configuration for both initial and delta load.

11.1 Manually map the code lists

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. In the filter *Show* select *All Activities*
5. Select the row *Code List Mapping for Integration with External Application and Solutions*, and if the solution is currently not in your project, click on “Add to Project”
6. Click *Code List Mapping for Integration with External Application and Solutions*.
7. Click *Maintain Code List Mapping Groups*.
8. Click *Add Row* to create a mapping group, and select the base mapping group, say SAP On-Premise Integration.
9. Save and close your mapping group.
10. Click *Maintain Code List Mapping*.
    In the *Code List Mapping Definition* section, you can view all local data types that can be mapped to external data types.
11. For each definition, confirm that the underlying mapping rule and the code mappings are valid.
    a. Select a base mapping group or the mapping group you have created, to maintain deviations in mappings.
    b. Select the data type that you want to confirm.
    c. In the *Code List Mapping Rule* section, check if the existing entries can be used in your system.
        - *Local And External Code Are Equal*: The values are the same in SAP CRM and in the Cloud solution.

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- *Map Individual Codes*: Values are mapped explicitly in the *Code List Mapping* section.

12. For each *Map Individual Codes* rule, review and if necessary, adapt the existing values. Click *Missing Code Mappings* to display local codes that have not yet been mapped to an external code. You can maintain the external codes directly in the *Mapping Proposals* dialog box.

Note

You cannot change existing values in the *Code List Mapping* section directly, because both codes are key fields. If you have to make changes, delete the entries first and create new ones.
Note regarding Outbound Default and Inbound Default: If you create n:n mappings, these checkboxes define which value is used as the default value for inbound or outbound mapping. For example, if you have two different local codes in your Cloud solution, which represent the same external code in your SAP on-premise system, you would select the checkbox in the *Inbound Default* column for the line containing the local code. This should be used as the default code for this mapping. For example, if you wanted to map the colors light red and dark red from the SAP CRM system to the color red in the Cloud solution, you would have to select the checkbox *Outbound Default* for either light red or dark red.

For more information about the values in SAP on-premise system, see Appendix.

11.2 Automated Configuration of Code List Mapping

You can automatically configure all the code lists and the mappings between the SAP Hybris Cloud for Customer and on-premise solutions, instead of manually maintaining the mapping for each of the code lists. From the 1602 release, only the code lists that are applicable for the scenarios scoped in business configuration, are considered for automatic configuration of code lists.
The code lists from the Cloud solution are first downloaded into an archive file, and this file is uploaded to the on-premise system to retrieve the mapping information. The retrieved file is then uploaded back to the Cloud solution.

Important information on automatic configuration

Before you decide to use automatic configuration, please note the following points:

- Only the code lists listed in the INTEGRATION: Code Lists Supported (CRM ERP) spreadsheet on Service Marketplace can automatically be configured in ERP and in CRM. For the other code lists, you need to manually maintain the mapping in the fine tuning activity.

  Note

  For the code lists *CashDiscountTermsCode* and *BusinessPartnerRelationshipCategoryCode*, not all the values are transferred to Cloud. Hence, if you use either of these two code lists, review and adjust the values and mappings manually directly in the fine tuning activity.

- If code lists are deleted in the on-premise system, the corresponding code list and the mapping are not automatically deleted in the Cloud system during upload.
- Delta changes will not change the default mapping. For example, if you make a change in ERP or CRM and there is already a default mapping in Cloud, this will not be changed. Therefore, all changes after the initial automatic configuration should be done manually.

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- While downloading the differential changes from the on-premise system, the system may propose changes in mapping. If in the SAP Cloud system, the rule type for a code list is set to *Local and remote are equal*, and a differential mapping is proposed for this code list, then these changes are overwritten during upload into Cloud system. In other words, if a different mapping is proposed by the system in the .CSV file than the one maintained in the Cloud system, the value *Local and remote are equal* will be changed to *Map individual codes* for the corresponding code list during an upload in the Cloud system.
- Hence, it is important that you review all the suggested values in the .CSV files before you upload the archive file in the Cloud solution.

Procedure

To download the code lists and code mappings, proceed as follows:

1. Login to SAP Hybris Cloud for Customer.
2. Go to *Business Configuration* → *Download Code List*.
3. Click on *Download Code List*.
   The *Download Code Lists and Code Mappings* screen is displayed.
4. Select a *Code List Mapping Group*.
   Note: You will use the Code List Mapping Group and Delimiter selected here while mapping the code list in the CRM/ERP.
5. Select a Language.
6. Click on *Download*.
   The following documents are downloaded into an archive file:
   - CodeList.csv: This document contains the selected code lists.
   - CodeMapping.csv: This document contains the corresponding mappings for the selected code lists.

Step 2: Using the downloaded archive file, retrieve the differential mapping information from the SAP on-premise system

You can download the differential mapping using the report *Download CRM Customizing Information for Code Lists*. The code list mapping is downloaded to a Microsoft Excel® file.

1. Login to the SAP on-premise backend system.
2. Go to transaction SE38.
3. To download the mappings from:
   - SAP CRM, execute the report CRMPCD_CUST_EXCHANGE.
   - SAP ERP, execute the report CODD_CODE_LIST_MAPPING.
4. Enter the code list mapping group ID as the group code ID. This is the ID you noted down while downloading the code lists and mappings in Cloud for Customer.
5. Specify the path where the code list information from CRM/ERP should be saved.
6. Ensure that the delimiter that you specify here is the same as the delimiter that you had specified while downloading the code lists in the Cloud solution.
7. Specify the path to the Microsoft Excel® file downloaded from SAP Hybris Cloud for Customer.
8. Check Consider C4C code list mapping, if you do not want to change the existing mapping information. Only those ERP/CRM codes that do not occur in the existing mapping are added. This will prevent the mapping information which already exist in your C4C tenant from being overwritten even if the descriptions of the code in ERP doesn't match. This is preferred during an upgrade so that your existing mappings stay as it is and only the new codes/mappings are added to the C4C system.
9. Uncheck Consider C4C code list mapping, like during an initial load, if you want only the code lists to be considered, and all existing mappings to be overwritten. This will overwrite any code list mapping which exist in C4C system with the new proposed mappings from ERP. Internally the system checks if there are any code list mappings

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which are proposed with Action Code as 'NO ACTION' or not. If not it overwrites all the existing mapping in the C4C system with the proposed mapping.

10. If you want to download the code lists in additional languages, select the required languages. Code lists in the selected languages will also be downloaded, which can be further used to upload to Cloud solution. If a description already exists in Cloud in the selected additional language, the description is not updated.
11. Execute the report.

The delta changes to the code lists and the mappings will be downloaded to the customized directory you specified in an archive file. Since the file you downloaded from SAP Hybris Cloud for Customer has only those code lists that are defined in scoping, the system also proposes mappings only for those corresponding code lists. This avoids any unnecessary task of deleting all the unwanted code lists and mappings in the CSV files.

Step 3: Review and adjust the mappings in the .CSV file as per your requirement.
You should review the .CSV files thoroughly and make any required changes and save your changes in the same .CSV file format.

Caution

SAP recommends that you edit the .CSV file in an editor, which does **not** automatically apply any formatting. For example, if you open a .CSV file containing a value '02-10' in Microsoft Excel®, it will automatically convert the value to '10-Feb'.

For example, if you prefer to open the .CSV in Microsoft Excel in a text format, you can do the following:

a. Open Microsoft Excel.
b. In the *Data* tab, under *Get External Data* click *From Text*.
c. Select the .CSV file and click *Import.*
d. Specify the delimiter, say comma.
e. Click a column and select the data format as *Text*.
f. Repeat it for each of the columns.

Note: The merge report proposes few codes as inbound/outbound default when more than one code is mapped to same code. You should review the defaults before uploading to Cloud system in case you want a particular code to be used as a default.

Step 4: Upload the reviewed code lists and mappings into SAP Hybris Cloud for Customer
You can upload the .ZIP file containing the .CSV files to Cloud.

1. Login to the SAP Hybris Cloud for Customer solution.
2. Go to Business Configuration → Upload Code List.
3. Select Upload Code List.
4. Select the same code list mapping group that you selected during download.
5. Choose Upload.
6. Select the archive file that is retrieved from the on-premise system.

All the changes in the code lists and the mappings available in the retrieved archive file will be uploaded into the Cloud solution. Once you initiate the upload of code lists, a job is scheduled in the background, and an application log is created. The log allows you to monitor the status and messages generated during the upload. If the status in the application log is finished and there are no errors, then the corresponding code lists and mappings are successfully uploaded in the SAP Hybris Cloud for Customer system. If there are any errors, you can manually correct them in the .CSV files and upload the .ZIP file again.

Step 5: Check the status of code list upload in the Application Log
To view the status or messages:

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1. Go to *Business Configuration* → *Upload Code List* → *Application Log*.
2. Click on the required *Application Log ID*.

   The log displays information in the following tabs:
   - General: Displays a high-level summary and administrative data for the job
   - Settings: Displays settings selected during an upload
   - Results: Displays the detailed results of the job including a list of detailed message descriptions, and the nature of the message.

   You can also export the information on the tabs to Microsoft Excel®. To do this, click *Export to Microsoft Excel*, and select the tab from which you want to export the data.

11.3 Example use case: Automatic configuration during initial load

Now, let us take a scenario where you are performing an initial load, and rule type for the code lists are set to *Local and remote are equal* in the Cloud system. Here is a snapshot of the code list *Academic Title* and the corresponding values in the Cloud and CRM systems. Let us discuss what happens during each step of automatic configuration.

Code list for *Academic Title* in **SAP Hybris Cloud for Customer**

Value	Description
0001	Dr
0002	Professor
0003	Professor Doctor
0004	Bachelor of Arts
0005	Master of Business Administration
0006	Doctor of Philosophy
0007	Mr.

Code list for *Academic Title* in **SAP CRM**

Value	Description
0001	Professor
0002	Dr.
0003	Professor Doctor
0004	Bachelor of Arts
0005	Master of Business Administration
0006	Doctor of Philosophy
0008	Mrs.
0009	Mr.

As you see:
- The values do not match; 0001 in Cloud is *Dr*, whereas it is *Professor* in CRM.
- There are additional values in each of the systems; 0007 in Cloud, and 0008/0009 in CRM.

Step 1: Download code list from SAP Hybris Cloud for Customer
When you download code list in the Cloud system under *Business Configuration* → *Download Code List*, the system will download two .CSV files in a .ZIP file:

- The *CodeList.CSV* file will contain all the code list values from 0001 to 0007. This is the list of values you can find in the Cloud system under *Business Configuration* → fine tuning activity *General Business Partners* → *Academic Titles*.
- The *CodeMapping.CSV* file will contain the code list mapping that is currently maintained in the fine tuning activity *Code List Mapping for Integration with External Application and Solutions* for the code list Academic Title. Since it is an initial load, and by default the rule type is *Local and remote are equal*, 0001 in Cloud will map to 0001 in CRM.

Note: There is also a flag in the .CSV file that tells if a code list mapping entry has the rule type *Local and remote are equal*.

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Step 2: Download the differential mapping information from SAP ERP/CRM
Download the mapping information from the SAP on-premise system using the report, CRMPCD_CUST_EXCHANGE for CRM or the report CODD_CODE_LIST_MAPPING for ERP. The archive file will contain two new .CSV files in the new .ZIP file. Now, in this example, the:

- The new *CodeList.CSV* file will contain the following code list values:

Value	Description	Reason
Z002	Dr.	Since these code values are not available in the Cloud system, a corresponding code value is proposed.
Z008	Mrs.	

- The new *CodeMapping.CSV* file will contain the following mappings:

Cloud Code	Cloud Description	External Code	External Description	Reason
Value in Cloud system	Description in Cloud system	Value in SAP on-premise system	Value in SAP on-premise system	Explanation on why system proposed the mapping
0002	Professor	0001	Professor	Since an identical description is found, a mapping is proposed
Z002	Dr.	0002	Dr.	Dr. and Dr are not identical. Hence, value 0002 in CRM is not mapped to value 0001 in Cloud. Instead a new value Z002 is proposed. If you want Dr. to be mapped to Dr, you can delete the code value in CodeList.CSV, and manually change the mapping in CodeMapping.CSV before you upload.
0003	Professor Doctor	0003	Professor Doctor	A match in description is found, hence the corresponding values are proposed.
0004	Bachelor of Arts	0004	Bachelor of Arts	
0005	Master of Business Administration	0005	Master of Business Administration	
0006	Doctor of Philosophy	0006	Doctor of Philosophy	
Z008	Mrs.	0008	Mrs.	The value and description are not present in Cloud, and a code value and the mapping are proposed.
0007	Mr.	0009	Mr.	A match in description is found, hence the corresponding value is proposed.

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Step 3: Review the downloaded files
You should review the .CSV files thoroughly and make any required changes. The merge report proposes some codes as inbound / outbound default when more than one code is mapped to same code. You should review the defaults before uploading to Cloud system in case you want a particular code to be used as a default.
For example, a new code list Z002 Dr. (in Cloud) has been proposed to be mapped with 0002 (in CRM). However, you may want to map 0001 Dr (in Cloud) to 0002 Dr. (in CRM). You can change it manually in the .CSV file.

Step 4: Upload the .ZIP file containing the reviewed .CSV files to Cloud, and check the application log for the upload status and to correct any errors.

11.4 Frequently Asked Questions

Which code lists are supported for automatic configuration?

You can find the complete list of all supported code lists and also the details on where to configure the code lists in SAP Hybris Cloud for Customer, CRM and ERP, in the INTEGRATION: Code Lists Supported (CRM ERP) spreadsheet on SAP Service Marketplace.

Additionally, you can find the industry-specific code lists that are supported for automatic code list mapping.

Where can I find the code lists and their mappings?

When you download the code lists from SAP Hybris Cloud for Customer, the system will save a .ZIP archive file, which contains the following two files:

- CodeList.csv: It contains the code lists which will be created/modified in SAP Hybris Cloud for Customer.
- CodeMapping.csv: It contains the mapping for those code lists available in the CodeList.csv file.

What code lists do these CSV files contain?

The CodeList.CSV file will only contain those code lists that are necessary for the scenarios scoped in SAP Hybris Cloud for Customer Business Configuration. The CodeMapping.CSV file will contain the corresponding mappings maintained in the fine tuning activity in the selected mapping group.

How are the values compared?

Code list mapping depends on the text of the code list value. These text from Cloud and ERP are compared to check if the two values are exactly the same. In other words, a space, any special character in the text also count. Hence, *Doctor* is not the same as *Dr* or *Dr.* for the system even though we can see that semantically they all are the same. The system will propose new code list values for each. Therefore, the language in which the code list mapping is done is very important. The main language used for the initial load should never be changed for any subsequent runs of the process.

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Is delta upload also supported with automatic code list mapping?

Yes, since 1502 and ERP add-on version 14, delta upload and updates in multiple languages are supported. However, you should ensure that the language used for delta upload should be the same as the language used during initial load so that the system understands that there are updates to be made for the **same** code list values.

If a different language is used as main language during delta, and there are no texts available in Cloud in that language, then the merge program will propose new code list values for the codes in ERP/CRM because system thinks that these are new code list values.

Any tips on reviewing the .CSV files?

Yes, during automatic code list mapping (initial or delta), you have to review the merge file produced by the ERP/CRM program before uploading back into Cloud. Few things to note are:

a. For codes where all the values are not be uploaded in Cloud (for example, CashDiscountTermCode), the values which are not to be uploaded to Cloud have to be deleted from the CodeList.csv and CodeMapping.csv. The merge program does not take care of that. It merges all code list values in the csv files.
b. The files need to be corrected for code list values which are semantically the same but have slight difference in texts (for example, Dr in Cloud and Dr. in ERP). These would have got created as different code list values. You need to manually delete the redundant code list value, say Dr., from the CodeList.csv and CodeMapping.csv. Also, correcting the mapping in the CodeMapping.csv (for example, to map Dr of Cloud to Dr. of ERP) is required.

c. If there are identical texts for more than 1 code list value on ERP side, then merge program will create only one code list value in CodeList.csv and there will be two mapping entries for that value in CodeMapping.csv. You need to correct the texts for the code list values in ERP and rerun the merge program.

I downloaded the CSV files last week. Is it OK to use the same in the CRM/ERP report now?

One should always download the latest code lists and mappings from Cloud, and use it for the automatic code list mapping process. Do not use old csv files you may have downloaded earlier.

Can I try the automatic code list mapping for a few codes first?

It is a good idea or even a recommendation to execute the automatic code list mapping process for select codes at a time. It makes it easier to review the data, as the list is shorter. This can be done by deleting the entries from the merged files (both CodeList.csv and CodeMapping.csv) for the codes which are not to be uploaded in Cloud.

For example, you want to setup account replication scenario, then find out code lists that are relevant for this scenario, and try automatic code list mapping process only for those code lists.

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12 Contract Replication between SAP Hybris Cloud for Customer and SAP ERP

Business Scenario Overview

This scenario is applicable when you want Contract data created in SAP ERP system to be replicated to SAP Hybris Cloud for Customer or vice versa. For the integration scenario even if the contract is first created in SAP Hybris Cloud for Customer or in SAP ERP we assume ERP to be the leading system. This is due to the fact that even if the Contract is created in SAP Hybris Cloud for Customer the pricing calculations and all condition determinations are done in ERP via a synchronous call from the Contract view in SAP Hybris Cloud for Customer.

Technical Scenario Overview

The Contract business process is used to outline and record an agreement or detailed information about a service package negotiated between a service provider and a customer, such as the services that are to be performed (for example, routine maintenance on equipment that the customer owns or rents), maintenance scheduling, pricing agreements, cancellation data, and spare parts required.

After you have created a service contract, customer service arranges service assignments for routine maintenance in accordance with the service contract conditions. Any routine maintenance performed is billed according to the conditions in the billing plan that apply to the respective service contract item. The service employees may have to perform activities that the service contract does not include. In such cases, customer service decides whether to bill the customer for services or spare parts based on the available service contract. If additional services or products are to be billed, a billing request must be used.

Scenario Assumptions & Prerequisites

Assumptions

Contract replication is bidirectional between SAP ERP and SAP Hybris Cloud for Customer. But SAP ERP is considered as the leading system.
I.e. in the event of a conflict or error during replication the current data available in SAP ERP will be replicated to SAP Hybris Cloud for Customer so that there is no data inconsistency between the 2 systems.

Prerequisites

- You have the support packages delivered in October, 2015 or later.
- Organization structure is replicated from SAP ERP to SAP Hybris Cloud for Customer before starting Contract replication to enable org unit assignment.
- Business Partners are replicated to SAP Hybris Cloud for Customer before starting Contract replication so to enable party assignments.
- Service products used in the Contract are already replicated from SAP ERP to SAP Hybris Cloud for Customer.

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Integration from SAP ERP to SAP Hybris Cloud for Customer

The replication from SAP ERP is triggered via condition type. The condition types are maintained via transaction VOK2 or from the IMG.

As part of the standard content we deliver the condition type COD5 under application V1 for contract. This value can be used for creating the partner profiles unless you create a condition type of your own and do all configurations for that. So when a Contract is SAVED in ERP an outbound IDoc (COD_CONTRACT_CREATEFROM_DAT) will be triggered, provided the partner profile and distribution channel entries are maintained.

There is also a report in ERP 'RCOD_CONTRACT_EXTRACT' for initial load or resending of contracts from ERP.

Integration from SAP Hybris Cloud for Customer to SAP ERP

The replication from SAP Hybris Cloud for Customer is a 2 stage manual process. No message will be triggered unless the user choses to trigger the transfer to ERP.
Once a contract is created the user has an option to 'Request External Pricing'. This process does a synchronous call to ERP where a contract creation is simulated with the data entered in SAP Hybris Cloud for Customer so that the pricing conditions are determined and amounts calculated. The response of the call will update SAP Hybris Cloud for Customer with all the determined and calculated data which makes the contract data in SAP Hybris Cloud for Customer complete.

After this if you can add a manual pricing condition if needed. A Request Pricing is expected after adding a manual condition so as to recalculate the amounts.

Now you can submit the contract for approval. If an approval workflow is not configured then it will be auto approved and the Action to Transfer the contract to ERP will be active. Once you select the Action Transfer a message will be triggered in SAP Hybris Cloud for Customer to ERP, provided the communication arrangement is configured correctly.
Whenever a successful replication happens from SAP Hybris Cloud for Customer to SAP ERP, by default an IDoc with the entire data persisted in ERP is send to SAP Hybris Cloud for Customer instead of just a confirmation message. This replication will update the BTD reference in SAP Hybris Cloud for Customer with the ERP contract ID as external ID. The complete data replication proves the fact that ERP is the leading system for contracts.

12.1 Special Use Case (Billing Plan Update with custom values in SAP ERP)

The Contract Billing Plan is not available in SAP Hybris Cloud for Customer and is hence not considered as part of the standard integration content.
Also the ERP BAPI which creates / updates the contract determines the billing plan data based on default configuration for the Document Category as follows.

The fields relevant for change in the billing plan are Rule for Origin of Next Billing/Invoice Date, Checkbox to determine if billing / invoice creation happens in advance, Billing Start and End Dates and Horizon for billing.

For every Document Category there will be a Billing Plan Type assigned to it. The Billing Plan Type will be assigned a default value for Rule for Origin of Next Billing/Invoice Date, billing / invoice creation happens in advance, Horizon and rule to determine the billing start and end date.
Once a contract is created you are allowed to edit these values manually and the Net Value of the contract changes accordingly.

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We are providing an additional functionality wherein you can edit these fields while replicating the contract from SAP Hybris Cloud for Customer provided you take care of some additional custom activities in ERP and extension activities in SAP Hybris Cloud for Customer.

Custom Changes in ERP for replication with billing plan

As mentioned earlier the ERP BAPI does not handle custom values for billing plan and hence the replication is a 2 stage process.
First the BAPI will create / update the contract with all data other than billing plan data. Once this is successfully done the system checks the payload to see if the billing plan update with custom values is expected. If so then the billing plan update API are called.

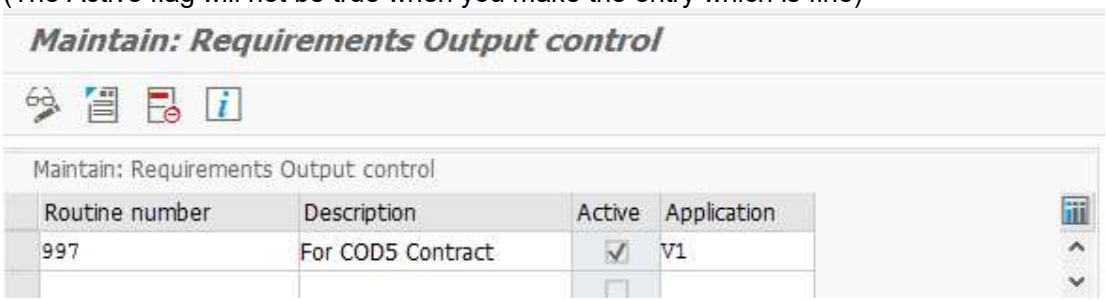
Note: With this approach there are 2 SAVE operation on the contract which will trigger the condition type twice resulting in 2 IDocs, 1 with the values based on default billing plan determined and the second one with the final values based on the custom billing plan values.

How to Solve this?

The first IDoc is not of any value and need not be generated.
This means the condition type should not be triggered for the first SAVE. To make this happen we need to implement a requirement routine as illustrated below. The global variable checked inside the requirement routine is set to true before the first SAVE and is reset before the second SAVE. This makes sure that the first IDoc is blocked whereas the second one is triggered.

The requirement routine is created from transaction VOFM.
1. Go to transaction VOFM.
2. Navigate in the menu to Requirements → Output Control

In the appearing screen create an entry as shown.
(The Active flag will not be true when you make the entry which is fine)



3. Double click the number 997 which you entered.

A new Include will be generated with the below code.

```
1  FORM KOBED_997.
2  ENDFORM.
3  FORM KOBEV_997.
4  ENDFORM.
```

4. Modify the Include with the below code.

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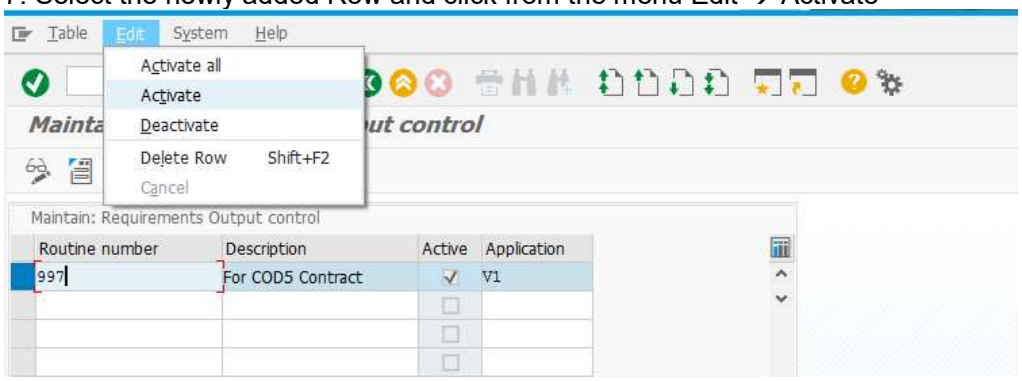
```
*&---------------------------------------------------------------------*
*& Form KOBED_997
*&---------------------------------------------------------------------*
* text
*----------------------------------------------------------------------*
FORM kobed_997.
* If the inbound contract replication from C4C updates billing_plan as w
ell
* then there will be an additional COMMIT_WORK in the IDoc FM
* The output condition should not be triggered for this additional COMMI
T
* So this commit will set this flag to ABAP_TRUE which is checked below
* The flag will be cleared later before the final COMMIT and that time t
he
* the output will be triggered.
 IF cl_cod_binrel_utilities=>gv_contract_commit_flag = abap_true.
 sy-subrc = 4.
 ELSE.
 sy-subrc = 0.
 ENDIF.
ENDFORM. "KOBED_997
*&---------------------------------------------------------------------*
*& Form KOBEV_997
*&---------------------------------------------------------------------*
* text
*----------------------------------------------------------------------*
```

6.

5. Save and Activate.
6. Navigate back to the main screen.
7. Select the newly added Row and click from the menu Edit → Activate



8. Now go to transaction VOK2
9. Navigate to SD document → Sales document → Output determ.proc.
10. In the screen select line item for V08000 (Contract Output) and double click Control on the left side tree

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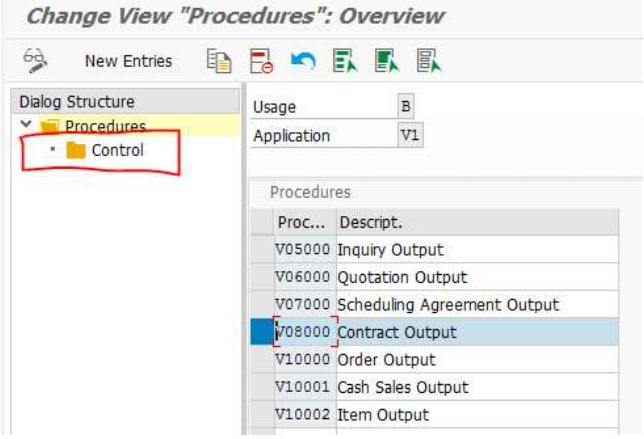
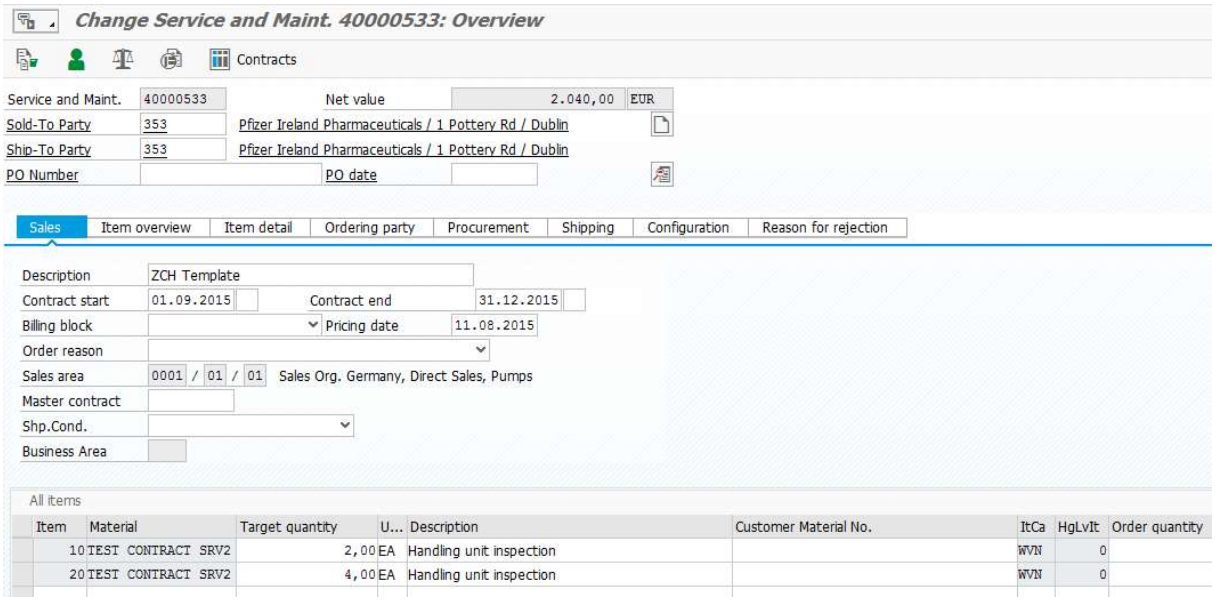


11. In the upcoming screen you will find an entry for COD5 which is the condition type for contract in the standard delivered content. Enter the number 997 (created in VOFM above) in the column "Requirement" in the row corresponding to COD5.
If you have made a different condition type (not COD5) or created a requirement with a different number (not 997) do make the entries accordingly.
12. Save and exit the transaction.

12.2 Data Model

Data Model in SAP ERP

In ERP the Contracts are created via transaction VA41. Once created it can be changed via VA02 and displayed using VA03 transactions.
The contract data is also saved in the standard sales document tables with document type as 'G'. For e.g. the header data goes to table VBAK, item data to VBAP and so on.



The following information inside the contract are of interest for us from an integration point of view.

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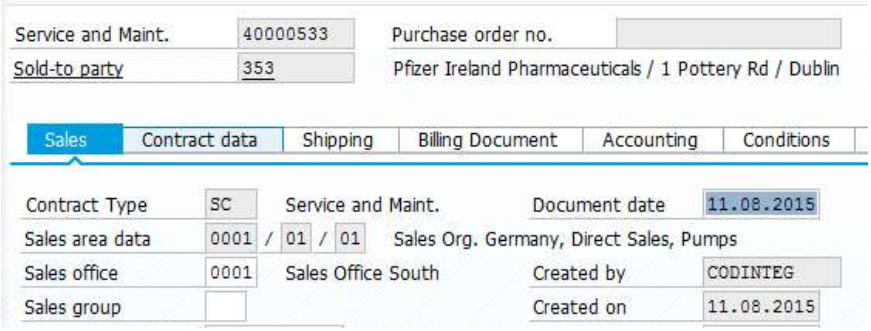
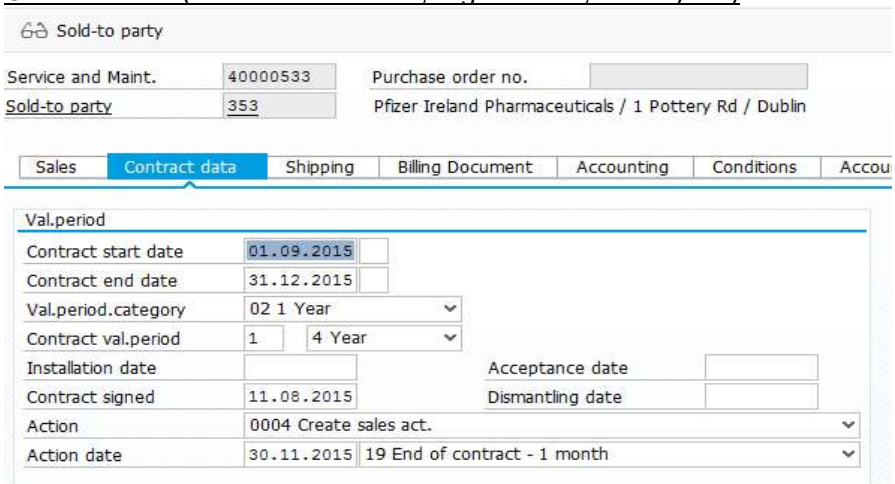
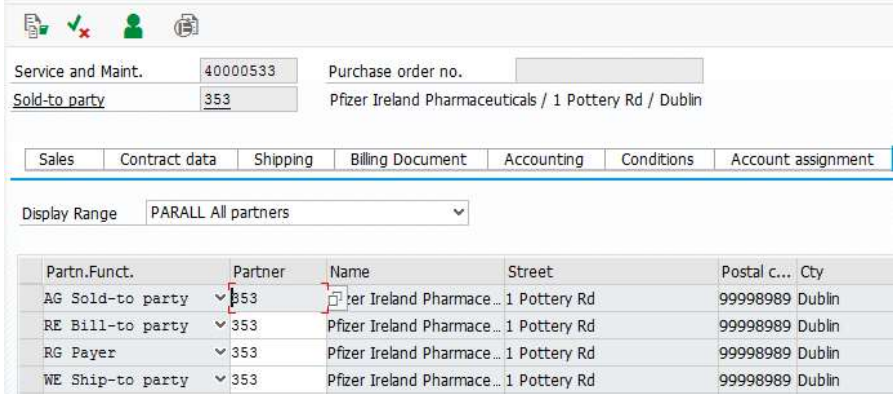
Sales area information (Sales Org, Distr. Channel, Division …)



Contract Data (Start and End date, Signed date, Validity ….)



Partners



Item Billing Plan

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Sales Document Item 10 Item category WVN Maint.Contract Item
Material TEST CONTRACT SRV2 Handling unit inspection

Sales A | Sales B | Contract data | Shipping | Billing Document | Billing plan | Conditions | Account as

Net value 680,00 EUR

Billing plan

BillingPlan Type 02 Periodic Billing 53 Monthly InAdvance 53
Start date 01.09.2015 02 Contract start date Dates from 01.09.2015 02
End date 31.12.2015 09 Contract end date Dates until 31.12.2015 09
Horizon 29.09.2016 10 Todays date + 1 year Corr Cal-Id

Dates

Settlement	To	Billing date	Bill.value	Crcy	Block	BillSt	Man.	Cor	PayT	DCat	Bil
01.09.2015	30.09.2015	30.10.2015	170,00	EUR	04	A				01	
01.10.2015	31.10.2015	30.11.2015	170,00	EUR	04	A				01	
01.11.2015	30.11.2015	30.12.2015	170,00	EUR	04	A				01	
01.12.2015	31.12.2015	31.01.2016	170,00	EUR	04	A				01	

The net value in the billing plan tab is the cumulated amount for the entire billing / invoice generated for the period from billing start date to billing end date.

Header Pricing Conditions

Service and Maint. 40000533 Purchase order no.
Sold-to party 353 Pfizer Ireland Pharmaceuticals / 1 Pottery Rd / Dublin

Sales | Contract data | Shipping | Billing Document | Accounting | Conditions | Account assignment | Partners | Texts | Order

Net 510,00 EUR
Tax 81,60

Pricing Elements

N..	CnTy	Name	Amount	Crcy	per	U...	Condition value	Curr.	Status	Condition value	CdCur	S...
	PPSV	Service Price Item					600,00	EUR		0,00		
		Gross Value					600,00	EUR		0,00		
	K020	Price Group	15,000-	%			90,00-	EUR		0,00		
		Discount Amount					90,00-	EUR		0,00		
		Net Value for Item					510,00	EUR		0,00		
	MWST	Output Tax	16,000	%			81,60	EUR		0,00		
		Total					591,60	EUR		0,00		
	SKTO	Cash Discount	0,000	%			0,00	EUR		0,00		☑

Item Pricing Conditions

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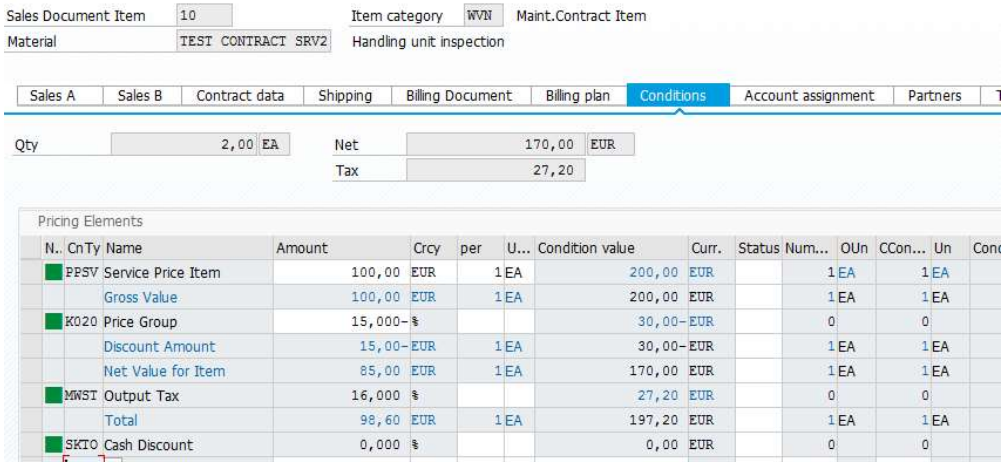
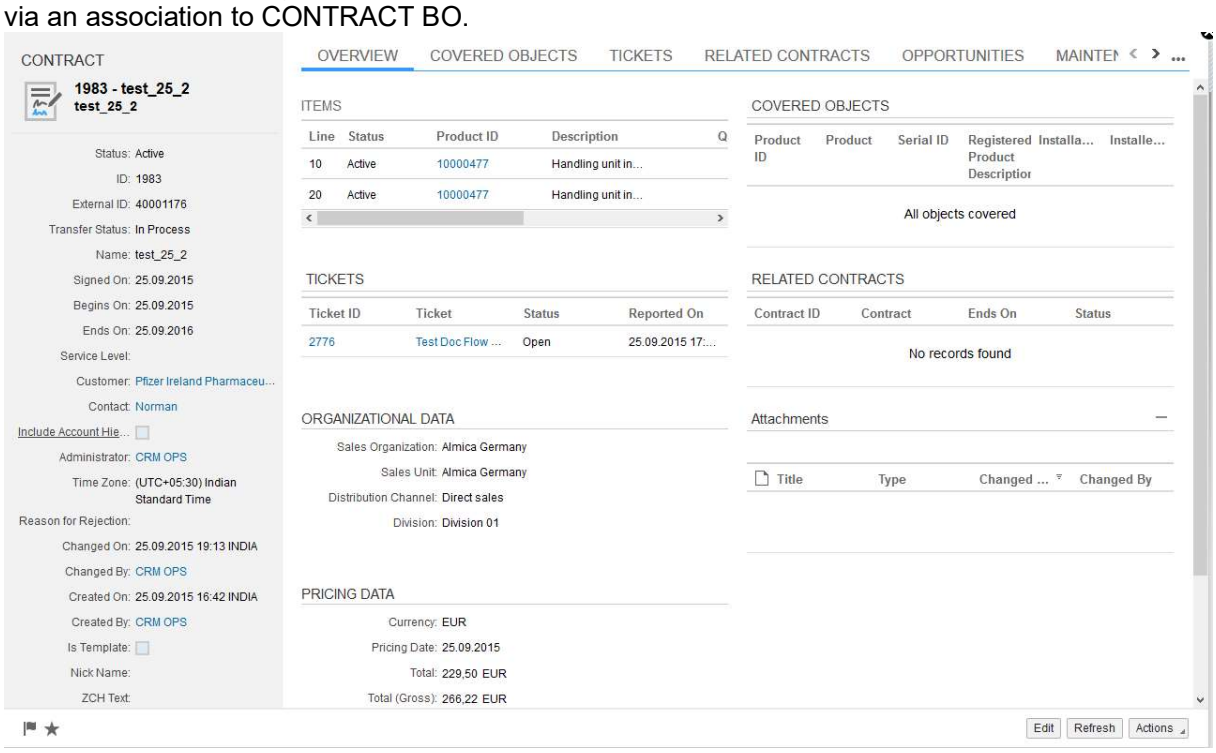


Data Model in SAP Hybris Cloud for Customer

The data in SAP Hybris Cloud for Customer is persisted in the business object (BO) CONTRACT.

The ROOT node of the BO stores the header level information and the ITEM node has the item information. The pricing condition are stored in BO EXTERNAL_PRICE_DOCUMENT and is linked via an association to CONTRACT BO.



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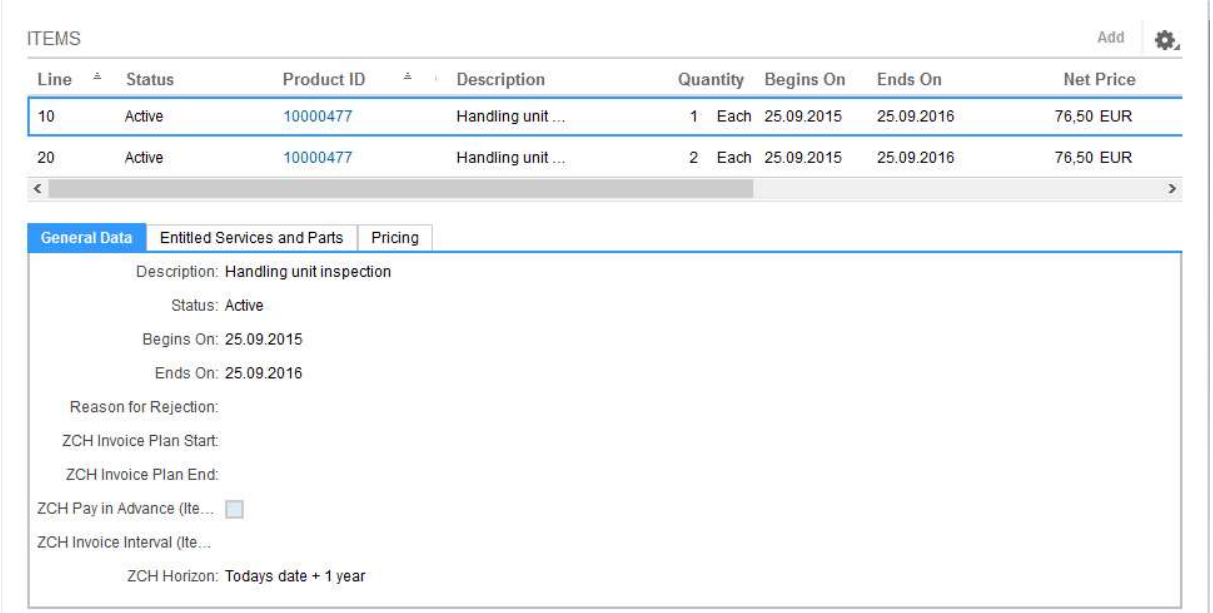
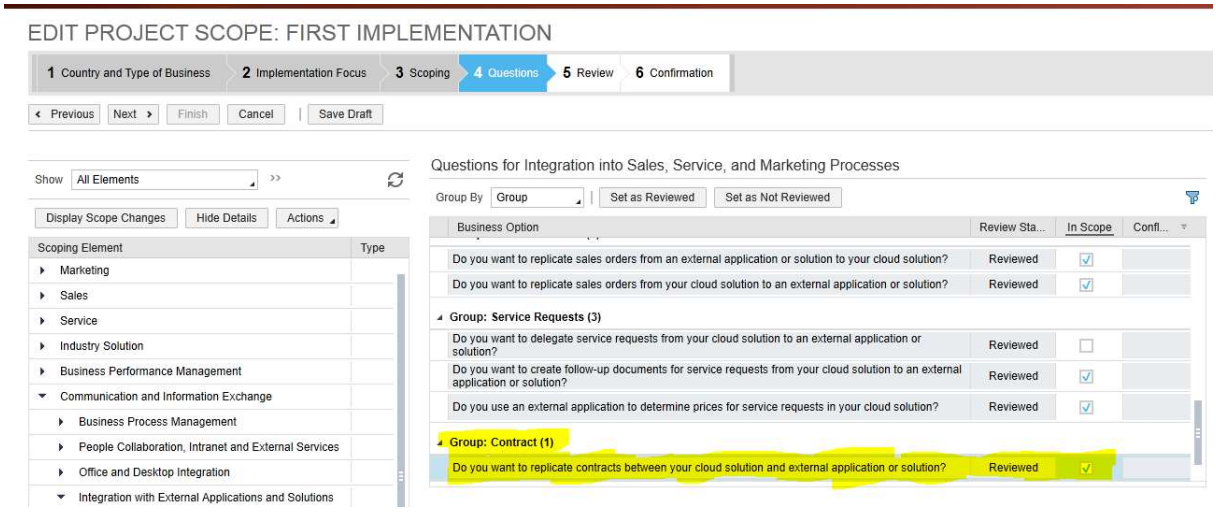
The ITEM node has further associations to store the schedule line, product related information.



12.3 Configuration in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange → Integration with External Applications and Solutions → Integration of Master Data → Do you want to replicate contracts between your cloud solution and external application or solution?*



BTD Reference / Binary Relationship

The link to ERP contract is stored in SAP Hybris Cloud for Customer as a BTD reference in the CONTRACT BO. The ERP Contract ID is displayed in SAP Hybris Cloud for Customer UI as the external ID.

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Similarly the reference to SAP Hybris Cloud for Customer Contract ID is stored in ERP as a Binary Relationship of type COD2 which denotes a replication relationship. This info can be viewed from the relationship link available in the contract screen.

Fine-Tuning/Code-list Mapping

This information is available in the initial load under chapter 5.2.

Special Code List Mapping for Contract

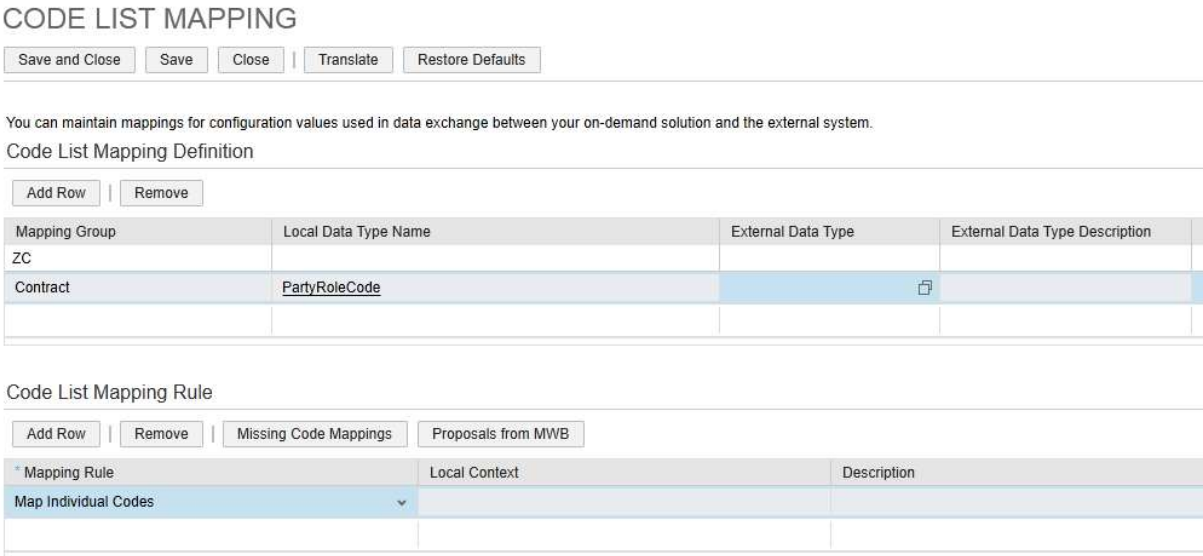
In Contract replication we have a slightly different mapping for the involved party.

We map the ERP employee party to the C4C Contract Administrator
and the ERP Sales Representative as C4C Employee Responsible.

Due to this difference we are using a special code list mapping group for Contract replication and this mapping group need to have only the code list for ***PartyRoleCode***.

Create a custom mapping group named 'Contract'(ZC) as below with the base group as 'SAP On Premise Integration' (03).
You can also use a different name than ZC if desired.

Now create code list mapping for 'PartyRoleCode' alone for this mapping group as below.



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Code List Mapping

Add Row | Remove

Local Code	Description	External Code	Inbound Default	Outbound Default
ZAN2	Other Party AN2	Y9		
ZAN1	Other Party AN1	Y8		
8	Payer	RG		
46	Sales Employee	VE		
44	Sales Unit	44		
39	Employee Responsible	Y1		
204	Contracting Unit	204		
2	Seller	2		
1122	Contract Administrator	ZM		
1005	Ship-To	WE		
1001	Account	AG		
10	Bill-To	RE		

As highlighted in the above screenshot be sure to map the local code 39(Employee Responsible) to ERP Sales Representative and 1122(Contract Administrator) to the ERP Employee responsible. Mapping for the other codes are as per standard.

For all the other data types the code list mapping will be fetched from the base group and hence you need not maintain those for ZC.

Communication Arrangement

- Communication arrangement: Contract Replication between Cloud for Customer and SAP Business Suite

For contract replication while creating the communication arrangement select the Code List Mapping as 'Contract' which is the special code list mapping group mentioned in previous session.

COMMUNICATION ARRANGEMENT OVERVIEW: CONTRACT REPLICATION FROM AND TO SAP BUSINESS SUITE

Status: **Active** Communication Method: **Direct Connection** Predefined: **No**

Close | Preview | Display Documentation

COMMUNICATION SYSTEM

System Instance ID: Q5ECLNT004

Communication System ID: Q5ECLNT004

Code List Mapping: Contract

MY COMMUNICATION DATA

My System: 0LO7FQ0

Inbound Communication Services

Note

The details on setting up the configuration are available in integration guide for ERP.

12.4 Configuration in SAP ERP

IDoc of type COD_CONTRACT_CREATEFROM_DAT is used for the replication of contract data. The IDoc type and associated changes are available in the on-premise support packages delivered in October, 2015.

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The detailed steps for setting up the On Premise configuration for enabling replication to SAP Hybris Cloud for Customer is available in integration guide for ERP (separate document for PI & HCI) available at SAP Support Portal - INTEGRATION.

Application Configuration

The details on establishing initial data load and resending of data are described in the employee initial load session of ERP Initial load guide. For more information, see the initial load chapter in the integration guide.

12.5 Configuration in Middleware

Value Mapping

No value mapping specific to this scenario.

> **Note**
> If the customer has maintained extension fields for billing plan and want to replicate the information the settings has to be done as described in session 8.1.

Integration Flow

Go to the *Integration Flows* excel on Service Marketplace, and filter by business object “Contract” and source system “C4C” and “ERP”.

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13 Trade Promotion Replication from SAP CRM

Business Scenario Overview

This scenario is used when your company has an SAP CRM on-premise system, and you want to replicate the promotions and the associated attached documents from SAP CRM to SAP Hybris Cloud for Customer (Cloud). The replicated promotions in Cloud are read-only, and cannot be edited.

You can view these promotions in:

- The *Marketing* work center → *Promotions* view. These promotions will either be grouped based on a responsible employee or a territory. A new sales employee role can be manually added or removed to provide access to the relevant promotions.
- The *Account* view → *Promotions* facet. You can view all promotions valid for the selected account. These promotions may either be assigned directly to the account or via the parent hierarchy.
- The *Product* view → *Promotions* facet. You can view all promotions valid for the selected product. These promotions are either assigned to product or its product category.
- The *Visit* view → *Promotions* facet. You can view all promotions valid for the selected account. In the *Overview* facet, you can also view the number of ongoing and incoming promotions.

You can add these promotional products in a sales order.

1. In the sales order view, you can add promotional products to the order.
2. The system displays all released promotions, which are valid for the account for which the sales order is being created.
3. Once the sales order is saved and transferred to SAP ERP, the relevant promotional pricing is applied for the promotional products.

This functionality is only available in responsive UI.

You can view all the promotions planned/running in the Promotion Calendar for a specific month, quarter or a duration. In standard actual, planned and buying dates are considered.
The dates are represented as different color blocks, for example, orange for planned, blue for buying and green for actual. Statuses of the promotion are also color coded. You can search for and sort promotions by a customer, product or a promotion ID.

13.1 Configuration in SAP Hybris Cloud for Customer

Scoping

Business Configuration → Edit Project Scope → Scoping → *Marketing* → *Promotion management* → *Promotions*

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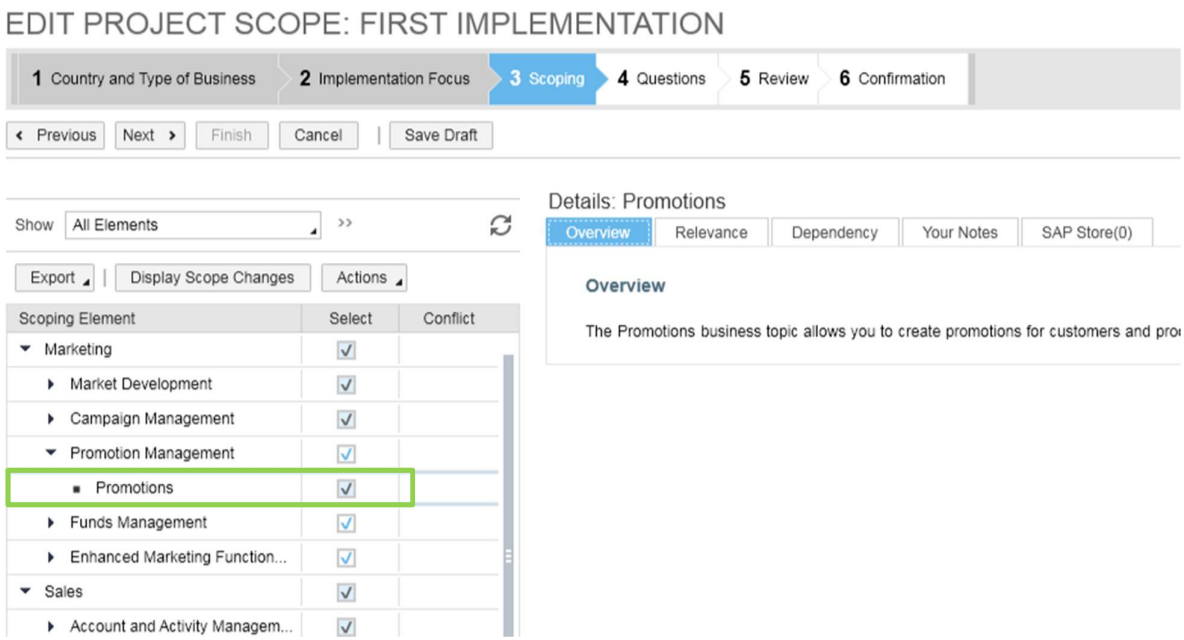
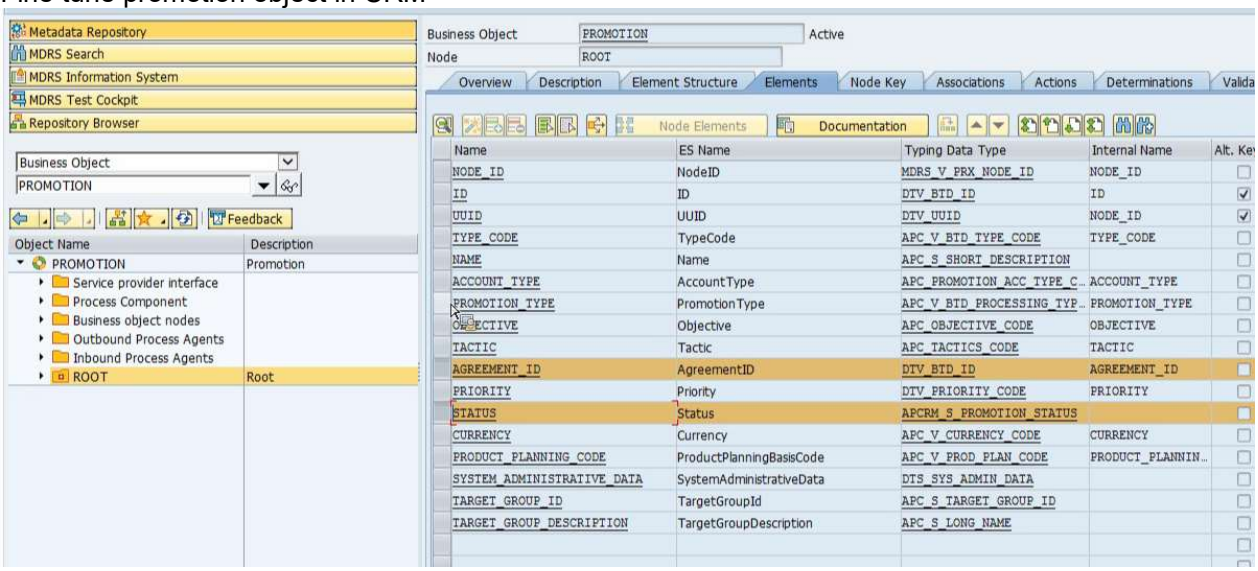


Figure: Scoping in Cloud

Fine-Tuning

- Fine tune promotion object in CRM



Promotion type to status – fine tunable

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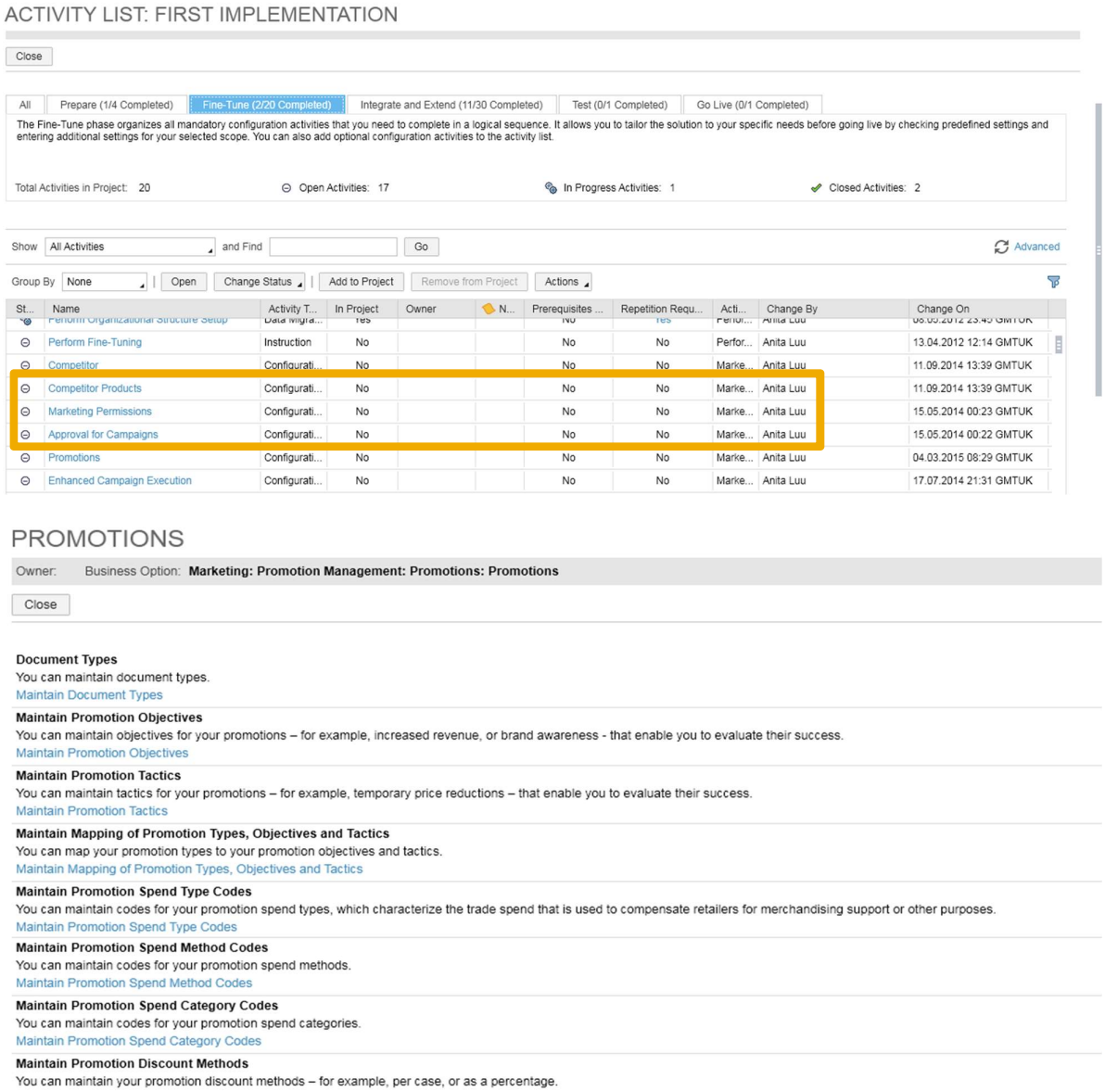
Fine tuning activity in SAP Hybris Cloud for Customer



Code List Mapping

Do the following:

- Maintain fine-tuning for the Promotions activity.
- Define a new code list mapping group, specifically for promotion integration (with base group as ‘SAP on premise integration’)
- While performing code list mapping for the following code lists use the newly created code list mapping group:
  - Process Type
  - Text Type

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- While performing code list mapping for the following fields, you can use the 'SAP on premise integration' code list mapping group.
    - Promotion Objective
    - Promotion Tactic
    - Spend Type
    - Spend Method
    - Spend Category
    - Discount Method
- Choose the code list mapping rule for each group according to the requirement (Local and Remote codes are equal/Map individual codes)

ID Mapping

Do the ID mapping for the following:

- Accounts - Business Partners
- Sales Organization - CRM Organizations and Units
- Products - CRM Materials
- Product Category - CRM Product Categories

User Access to Promotions View

Maintain user access to the *Marketing* work center and *Promotions* view. Update the standard roles with promotions work center view under Marketing work center

Communication System

In the communication system that you use for ERP integration, uncheck the flag *SAP Business Suite*.

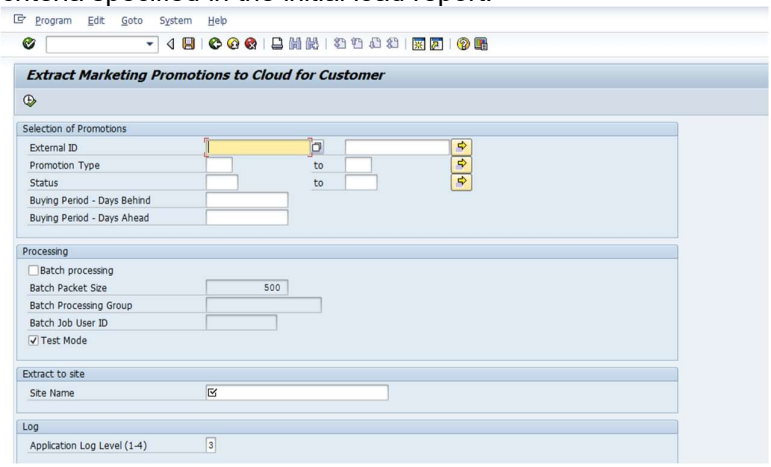
Communication Arrangements and Services

Configure and activate the communication arrangement: Promotion Replication from SAP Business Suite. Mention CRM System Instance ID and the promotion-specific code list mapping.

13.2 Configuration in SAP CRM

Test the report and schedule a batch job

You can run the report in CRM to transfer all valid promotions business configuration and the criteria specified in the initial load report.



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You can first test the report CRMPCD_PROMOTION_EXTRACT by transferring few records. Once the report executes successfully and you verify the records in Cloud, you can schedule the report as daily batch job.

Note
If you want to transfer huge number of accounts or orders, then we recommend the transfer into multiple jobs, by using a selection criterion.

13.3 Configuration in Middleware

Value Mapping

Value mapping needed on PI:

- Priority
  - Agency – CRM <-> COD
  - Scheme – PromotionPriorityCode
- Role Code
  - Agency – CRM <-> COD
  - Scheme – RoleCode

Integration Flow

Go to the *Integration Flows* excel on Service Marketplace, and filter by the following:

- Business object: Promotion
- Source system: CRM
- Target system: C4C

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14 SAP Hybris Cloud for Customer Pricing Integration

Purpose

This guide assumes you already have integration between SAP Hybris Cloud for Customer and SAP ERP or SAP CRM. This guide focused on the pricing integration available, how to configure and special considerations for usage.

Prerequisites

This guide assumes that you already know how pricing works in SAP Hybris Cloud for Customer and that you have some background in pricing in SAP ERP. Before reading this guide please ensure read the following:

- Presentation on pricing in SAP Hybris Cloud for Customer on SCN: http://scn.sap.com/docs/DOC-68030
- Wiki on pricing in SAP ERP: http://wiki.scn.sap.com/wiki/display/SD/SD+Pricing+overview

14.1 Comparison of SAP Hybris Cloud for Customer and SAP ERP Pricing

After a review of the C4C and ERP pricing you can see that they work very differently. SAP ERP is based on condition technique, analyzing the pricing procedure with condition types and access sequence to determine the type of pricing to be used. In general terms, conditions represent a set of circumstances that apply when a price is calculated. For example, a particular customer orders a certain quantity of a particular product on a certain day. The variable factors here - the customer, the product, the order quantity, the date - determine the final price the customer gets. The information about each of these factors can be stored in the system as master data. This master data is stored in the form of condition records. Condition records allow you to store and retrieve pricing data in the system. All the pricing elements of your daily business - the prices, discounts, and surcharges for freight and taxes - that you want to use for automatic pricing must be stored in the system as condition records. You can define as many condition records as you want for the different pricing elements for any validity period.

Price Conditions Example:

10 Laptops ($1000 each):	1000.00 USD
5% Discount for Orders of $5000 or more:	-500.00 USD
$100 Rebate:	-100.00 USD
Transportation:	+25.00 USD
Total Price:	9425.00 USD

In SAP ERP terms, conditions are combined with pricing procedures and access sequence to determine the right price.

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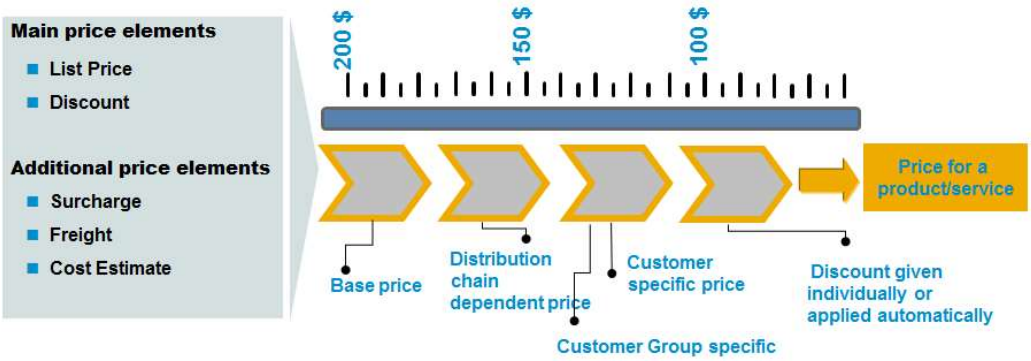
Whereas SAP Hybris Cloud for Customer starts with a base price and narrows it by additional price lists and discount types.



SAP Hybris Cloud for Customer internal pricing is simplified compared to SAP ERP pricing. SAP Hybris Cloud for Customer internal pricing has the following:

- Fixed amount of price list types
- Fixed amount of discount list types
- Single pricing procedure with predefined price elements
- Limited customizing capabilities
- One pricing procedure valid for ALL document types

Pricing integration with SAP ERP or SAP CRM is used when the pricing in SAP Hybris Cloud for Customer needs to follow the same pricing rules that already exist in SAP on-premise applications.

14.2 Pricing Integration with SAP ERP

Pricing integration works with opportunities, sales quotes, sales orders, and work tickets. The pricing with sales quotes, sales orders, and work ticket is referred to as external pricing that uses the ERP condition technique. The pricing with an opportunity simulates an order and returns the net pricing. First we will look at the opportunity pricing then look at the external pricing that is use for quotes, orders, and work tickets.

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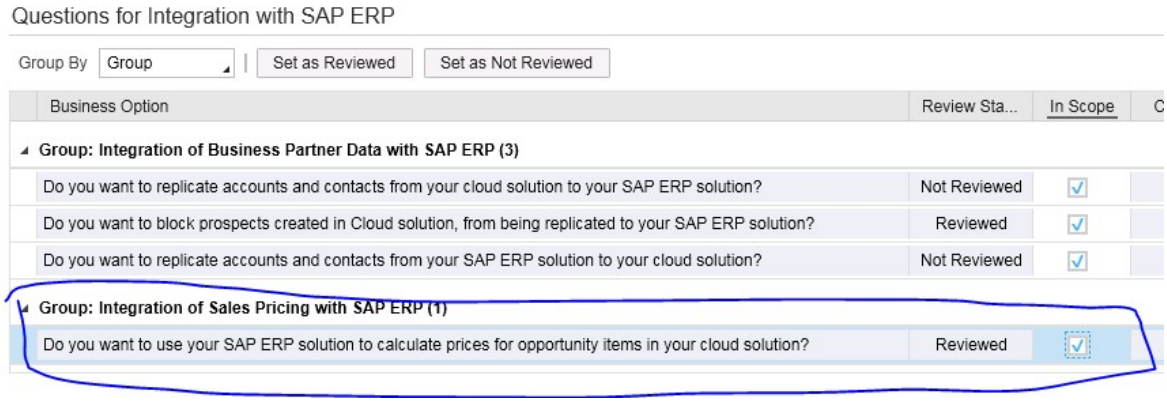
14.3 Opportunity Pricing with SAP ERP

Opportunity pricing uses a Web Service that simulates a sales order and returns the net pricing. It does not allow the C4C user to additional discounts or add additional price conditions. This is because the opportunity pricing is a general price. The opportunity is not a legal binding document and does not have the final price the customer will pay. Once an opportunity is converted to a quote, the price is not converted; this is also because the opportunity price is not a legally binding price and should not be used for the quote price.

Cloud Configuration

There is one scoping question for the Opportunity pricing with SAP ERP.

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange → Integration with External Applications and Solutions → Integration with SAP ERP → Do you want to use your SAP ERP solution to calculate prices for opportunity items in your cloud solution?*



The communication arrangement is *Opportunity with Sales Pricing in SAP ERP*. Be sure to use the integration flow spreadsheet at https://service.sap.com/cloud4customer to get all the details from the communication arrangement name to the target URL's, to the operations mappings and all other details.

SAP ERP Configuration

From transaction code SOAMANAGER search for the object name *pricing* and you will find the Web Service. It is called SALESORDERPRICINGINFORMATIONQU. This Web Service should be configured as other Web Services. Web Service configuration is not explained in detail here since it is not unique to C4C integration.

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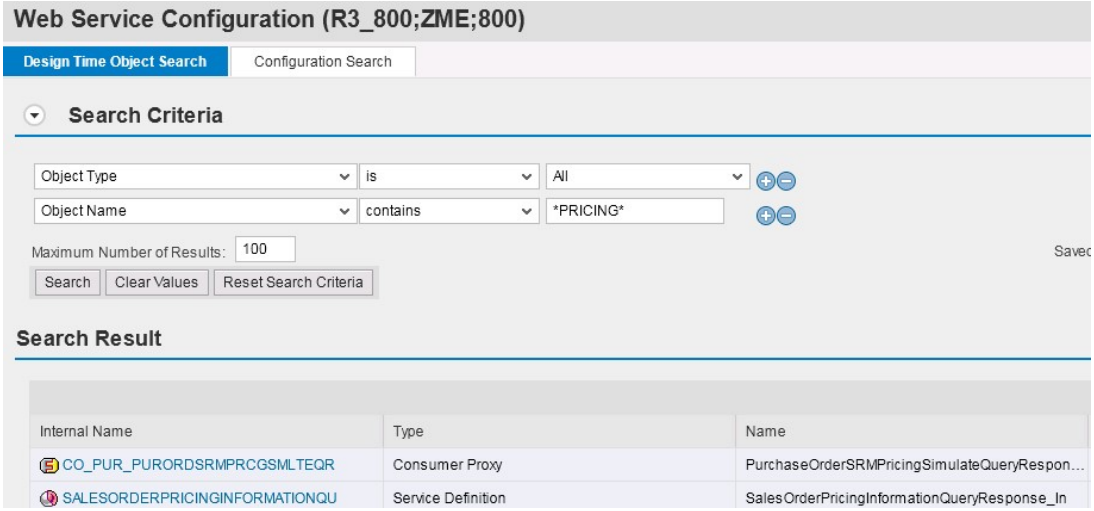
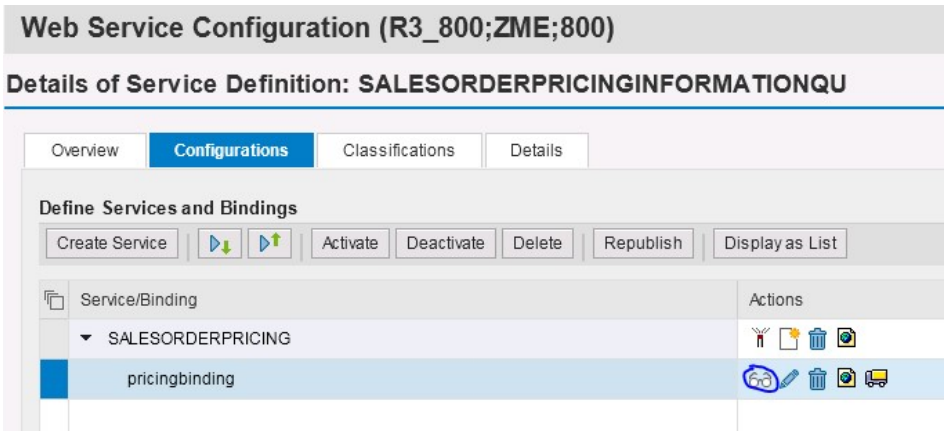
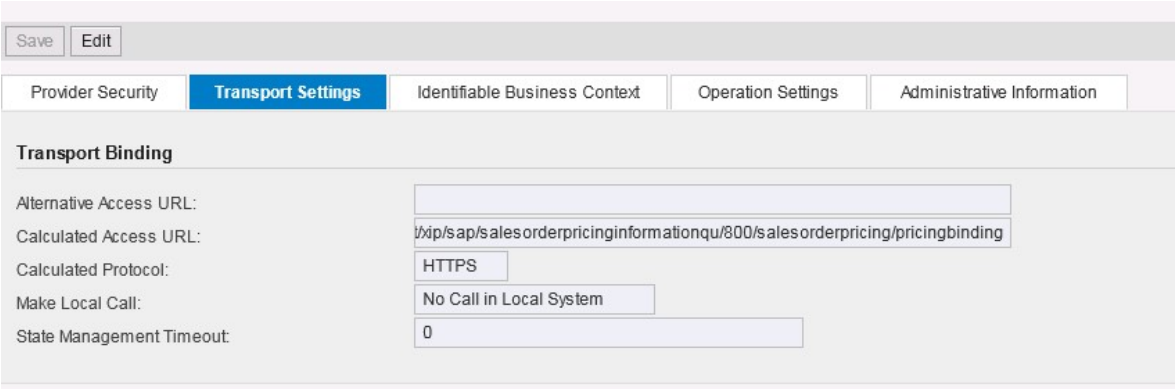


When you configure the Web Service in SOAMANAGER the default binding name is normally 'binding'. In the following screenshot, the name 'pricingbinding' was used. This is for example only to show the importance of referencing the path of the Web Service.



Be sure to use the *Transport Settings* to know the exact URL required to be called from HCI or PI. In the example below, the *Access URL* is:
/sap/bc/srt/xip/sap/salesorderpricinginformationqu/800/**salesorderpricing**/pricingbinding

This is what will be used in the middleware to form the URL for the pricing call to SAP ERP.



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Middleware Configuration

The PI and HCI details are provided in the integration flow spreadsheet at https://service.sap.com/cloud4customer. In the middleware configuration, you need to ensure the URL is set directly. For example, in HCI it defaults to: https://{{Host}}:{{Port}}/sap/bc/srt/scs/sap/salesorderpricinginformationqu?sap-client={{client}}. However, when looking at the transport settings we can see the URL we need is: https://{{Host}}/sap/bc/srt/xip/sap/salesorderpricinginformationqu/{{client}}/salesorderpricing/pricing binding.
Ensure the URL provided in the middleware matches what you configured in SOAMANAGER when you configured the Web Service.

Special Considerations for Opportunity Pricing

Pricing for opportunity simulates a standard order type in ERP. The order type used for the simulation is defined in the middleware in value mapping. For example, in HCI value mapping has the following:

```
<group id="fb114882f5a249c584595da0ea72c210">
 <entry>
 <agency>ERP</agency>
 <schema>ERPDocumentTypeCode</schema>
 <value>TA</value>
 </entry>
 <entry>
 <agency>COD</agency>
 <schema>CODPricingRequest</schema>
 <value>PricingRequest</value>
 </entry>
 </group>
```

By default, the opportunity uses the standard order type in SAP ERP. This cannot yet be overridden by code list mapping.
When you do the pricing from the Opportunity, you must provide the complete sales area, so sales org, distribution channel, and division. You may need to Adapt/Personalize the Opportunity screen to see these fields.

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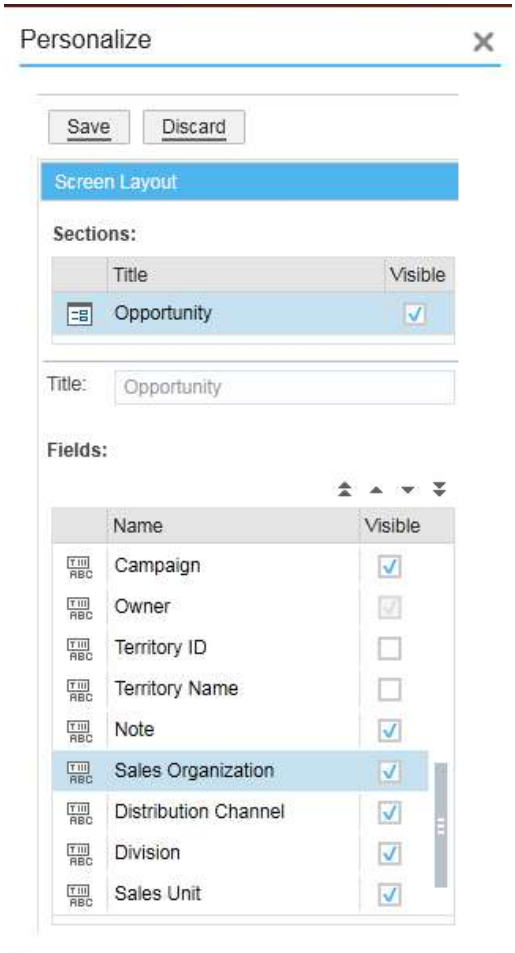

As mentioned previously, when the opportunity is converted to a quote the pricing will not copy over. This works as designed. The opportunity is not legally binding and the quote document is, so the pricing must be specific to the quote object.

14.4 External Pricing with SAP ERP

The external pricing feature for sales quote, sales order and work ticket work the same. This pricing calls the SAP ERP pricing, returning the conditions and pricing, allowing the C4C user to adjust discounts, and or remove other special pricing, and then get updated pricing again from SAP ERP. Once the pricing on the C4C quote or C4C order is finalized, this pricing is passed to SAP ERP when the ERP order is created.
If free goods, product availability, credit status, product substitutions are maintained in SAP ERP or SAP CRM, they are returned with the call. Additionally, if the material is a bill-of-material (BOM), the pricing result also returns the BOM explosion.

Configuration in SAP Hybris Cloud for Customer

Cloud configuration for external pricing includes scoping, fine tuning, and code list mapping.

Scoping

Business Configuration → Edit Project Scope → Scoping → *Communication and Information Exchange* → *Integration with External Applications and Solutions* → *Integration into Sales, Service, and Marketing Processes* → Select the appropriate scoping question:

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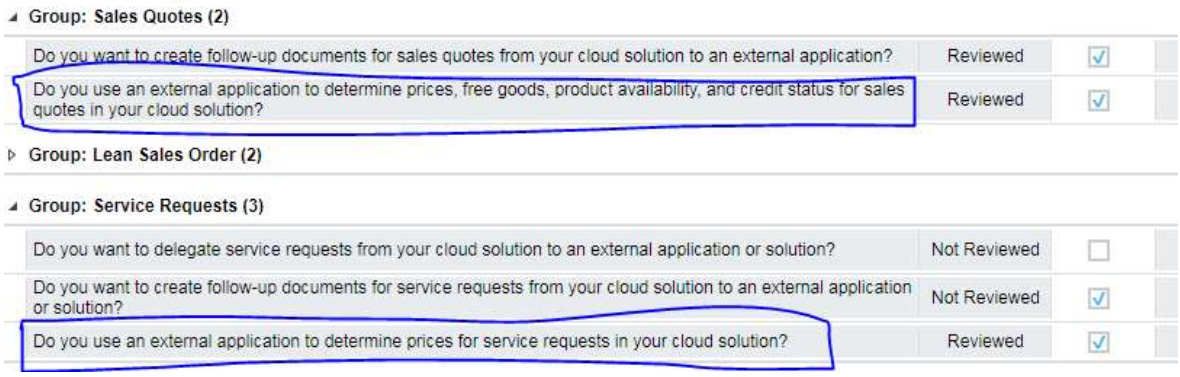
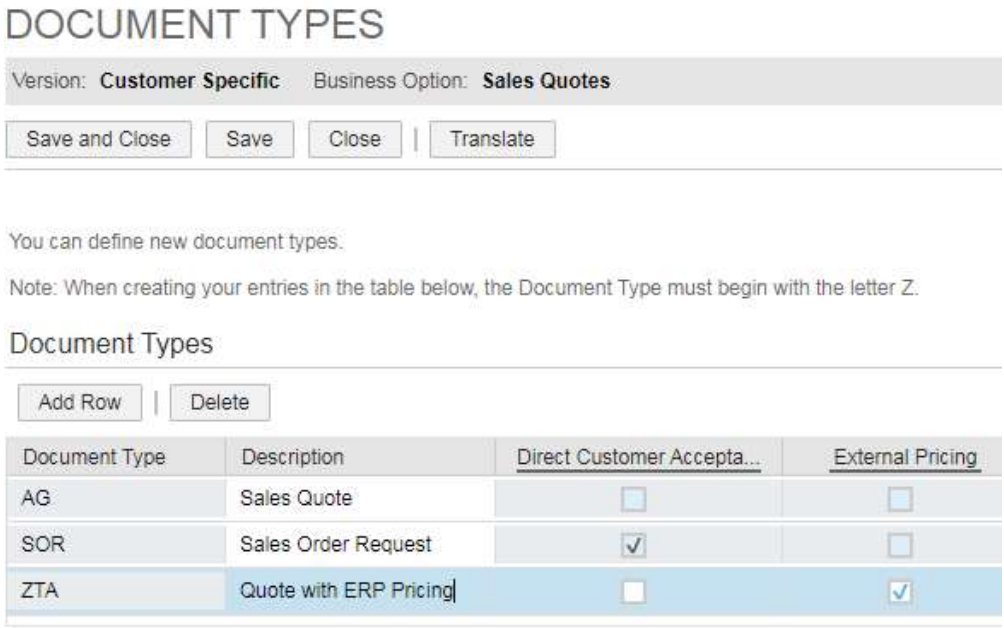
- For sales quotes and orders: Group Sales Quotes / Lean Sales Order → Do you use an external application to determine prices, free goods, product availability, and credit status for sales quotes in your cloud solution?
- For work tickets: Group Service Requests → Do you use an external application to determine prices for work tickets in your cloud solution?



Fine tuning

In fine tuning you need to maintain document types, pricing procedures, condition types, and code list mapping. This is done in the fine tuning activities for Sales Quote, External Pricing, and Code List Mapping.
Fine Tuning for Sales Quotes: Within the fine tuning for quotes you add a document type. This document type is set to external pricing.



In the code list mapping, the document type is mapped to the SAP ERP sales order type that is used to simulate the order to generate the pricing.

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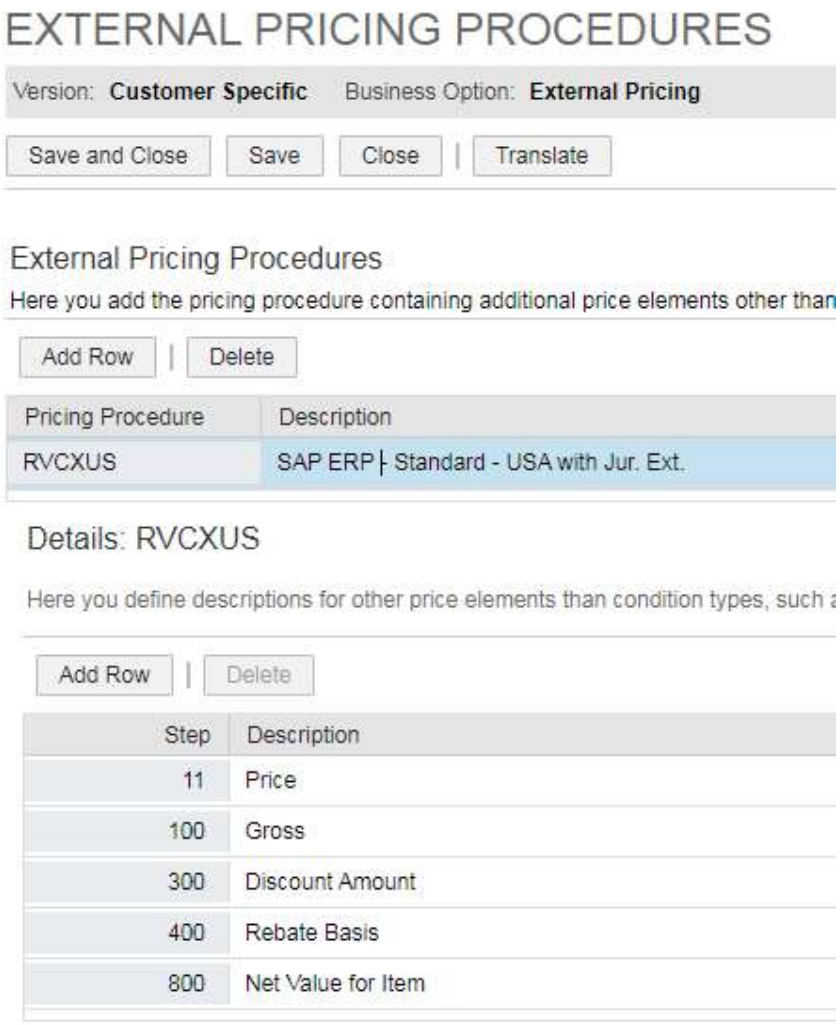
Fine Tuning for External Pricing: In the External Pricing fine tuning activity you provide the SAP ERP pricing procedures and SAP ERP pricing conditions. The pricing procedure maintenance is required in order to maintain the schema-dependent texts for the sub-totals. The ERP condition types need to be maintained so that when you get call the pricing you can see the condition types with the correct text, as it is in SAP ERP. You also need to maintain the text subtotals. This will show up in the quote document.
The following screenshot shows a common pricing procedure in SAP ERP, RVCXUS. Notice the procedure name and steps in the procedure are provided.



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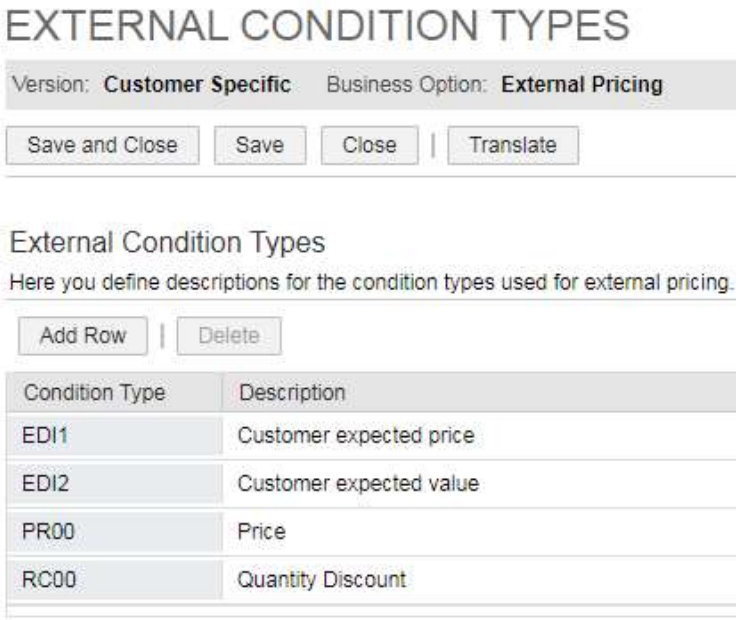
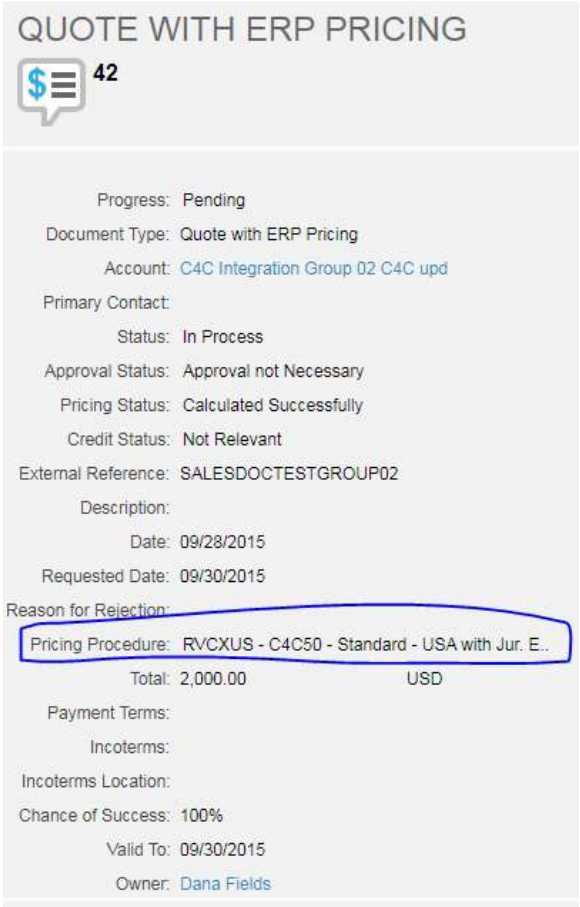
The following is an example of the condition types. These must be maintained so that the correct text is displayed in the quote.



When you create the quote, you can personalize the screen to show the pricing procedure being used.



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When you create the quote you can see the pricing conditions in the quote.

OVERVIEW PRODUCTS INVOLVED PARTIES SALES DOCUMENTS ATTACHMENTS APPROVAL

PRODUCTS

Line	Product ID	Description	Quantity	Acti
10	10000030	P300300 C4C50 Material	2 ea	

PRODUCT PRICING

Price C...	Description	Status	M...	Amount	For	Price Component Value	Action
PR00	Price			1,000.00 USD	1 ea	2,000.00 USD	
	Gross			1,000.00 USD	1 ea	2,000.00 USD	
RC00	Quantity Discount			0.00 USD	1 ea	0.00 USD	
	Discount Amount			0.00 USD	1 ea	0.00 USD	
	Rebate Basis			1,000.00 USD	1 ea	2,000.00 USD	

PRODUCT AVAILABILITY

Delivery Date	Quantity	ATP Type
09/30/2015	0 ea	Non-Binding Confirmation

Communication Arrangement

The integration flow spreadsheet at https://service.sap.com/cloud4customer contains all the details from the communication arrangement name to the target URL's, to the operations mappings and all other details. Note that there are separate communication arrangements integration flows for the quote and the work ticket pricing. This is due to the different mapping services required for different objects in SAP Hybris Cloud for Customer.

PDF Print Form

For print form SAP includes the following in the output message for the pricing details:
Item Data:

- AdjustedNetAmount
- AdjustedNetPrice
- PriceComponent from 'ToBePrintedItemPriceComponent'

Header Data:

- NetAmount
- PricingProcedureCode
- PriceComponent from 'ToBePrintedItemPriceComponent'

To adapt the form template changes the Adobe LiveCycle Designer is required. The 'ToBePrintedPriceComponent' depends on the customizing of the on-premise system. If condition is valid for printing the price element will be included in the output message.

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SAP ERP Configuration

In SAP ERP you need to configure the Web Service for the external pricing. It is called COD_SALESORDER_SIMULATE.

Middleware Configuration

There is no special configuration required for this scenario. The details of the integration flow and service names are found in the integration flow spreadsheet at https://service.sap.com/cloud4customer. Note that there are separate integration flows for the quote and the work ticket pricing. This is due to the mapping on the ERP side.

Example with free goods, product availability, and credit status

Free goods are shown when a pricing condition exists, for example, 0NRA in the example below, includes the free goods from the pricing.

PRODUCTS

Line	Product	Description	Quantity	Reason ...	Adjusted Item Price	Adjusted Item Value	Parent ...	Action
10	MDECC-DS01	MDECC-DS01	10 ea		434,39 EUR	4.343,85 EUR		
20	MDECC-DS02	MDECC-DS02	20 ea		9,85 EUR	197,00 EUR		
25	MDECC-DS02	MDECC-DS02	2 ea		0,00 EUR	0,00 EUR	20	
30	10000380	MDECC-DS014	27 ea		492,50 EUR	13.297,50 EUR		
40	10000380	MDECC-DS014	3 ea		0,00 EUR	0,00 EUR	30	

PRODUCT PRICING

Price C...	Description	Status	M...	Amount	For	Price Component Value	Action
0PR0	Price	Subsequent P...		500,00 EUR	1 ea	5.000,00 EUR	
0PR2	Graduated Price			490,00 EUR	1 ea	4.900,00 EUR	
	Gross			490,00 EUR	1 ea	4.900,00 EUR	
0K07	Customer Discount			-1,5		-73,50 EUR	
	Discount Amount			-7,35 EUR	1 ea	-73,50 EUR	
0NTP	Price			482,65 EUR	1 ea	0,00 EUR	
	Net Value for Item			482,65 EUR	1 ea	4.826,50 EUR	
0NRA	Free Good Discount			-482,65 EUR	1 ea	-482,65 EUR	
	Net Value Without Tax			434,39 EUR	1 ea	4.343,85 EUR	
	Total			434,39 EUR	1 ea	4.343,85 EUR	

Product substitutions are shown when the material determination has been configured in SAP ERP. In the C4C pricing call shown below, product ID 10000600 was the original product. After the pricing call, product 10000592 is the substituted product.

QUOTE /W EXT. PRICING

1249 - TK20150305-...

Progress: Not Relevant

Account: Pfizer Ireland Phar...

OVERVIEW | PRODUCTS | INVOLVED PARTIES | DOCUMENT FLOW | SALES DOCUME

PRODUCTS

Line	Product	Descriptio	Quantity	Adjust...	Adjust...	ATP Q...	ATP D...	Origin...	Action	REx D...
10	10000592	PRODS...	1 ea	1... EUR	1... EUR	1 ea	07.03.2...	10000600		Demo

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The following screenshot shows an example of the product availability check return.

10	MDECC-DS01	MDECC-DS01	10 ea		434,39 EUR	4.343,85 EUR		
20	MDECC-DS02	MDECC-DS02	20 ea		9,85 EUR	197,00 EUR		
25	MDECC-DS02	MDECC-DS02	2 ea		0,00 EUR	0,00 EUR	20	
30	10000380	MDECC-DS014	27 ea		492,50 EUR	13.297,50 EUR		
40	10000380	MDECC-DS014	3 ea		0,00 EUR	0,00 EUR	30	

PRODUCT PRICING

Add

Price C...	Description	Status	M...	Amount	For	Price Component Value	Action
0PR0	Price			500,00 EUR	1 ea	13.500,00 EUR	
	Gross			500,00 EUR	1 ea	13.500,00 EUR	
0K07	Customer Discount			-1,5		-202,50 EUR	

PRODUCT AVAILABILITY

Delivery Date	Quantity	ATP Type
12.12.2014	27 ea	Non-Binding Confirmation

The credit limit result is shown in the header part of the quote.

Actions

SALES QUOTE WITH EXTERN

1133 - Paul Credit Error

Post Update

Progress:	Not Relevant
Account:	Pfizer Ireland ...
Primary Contact:	Dr. Patrick Joh...
Status:	Open
Approval Status:	Not Started
Pricing Status:	Calculated Succes...
Credit Status:	Limit Exceeded
External Reference:	PAUL CREDIT ER...
Description:	Paul Credit Error
Date:	10.11.2014
Requested Date:	12.11.2014
Reason for Rejection:	
Currency:	EUR
Pricing Date:	10.11.2014
Total:	3.378,55 EUR
Total (Gross):	3.378,55 EUR
Payment Terms:	Payable immediate...

OVERVIEW PRODUCTS INVOLVED PARTIES SALES DOCUMENTS ATTACHME

INVOLVED PARTIES

Role	Name	Address	E-Mail	Phone	M...
Bill-To	Pfizer Ireland Pharmaceuticals ...	1 Pottery Rd / Dubli			✓
Account	Pfizer Ireland Pharmaceuticals ...	1 Pottery Rd / Dubli			✓
Ship-To	Pfizer Ireland Pharmaceuticals ...	1 Pottery Rd / Dubli			✓
Seller	Almica Incorporation	Dietmar Hopp Allee	contact(	+49 6227762019	✓
Employee	Paul Walmsley				✓

PRODUCTS

Line	Product	Description
10	MDECC-DS01	MDECC-DS01

OUTPUT

Resubmit | Set to Successful | View Data XML | Refresh

File ...	Document Name	Status	Recipient	Sent By	Sender

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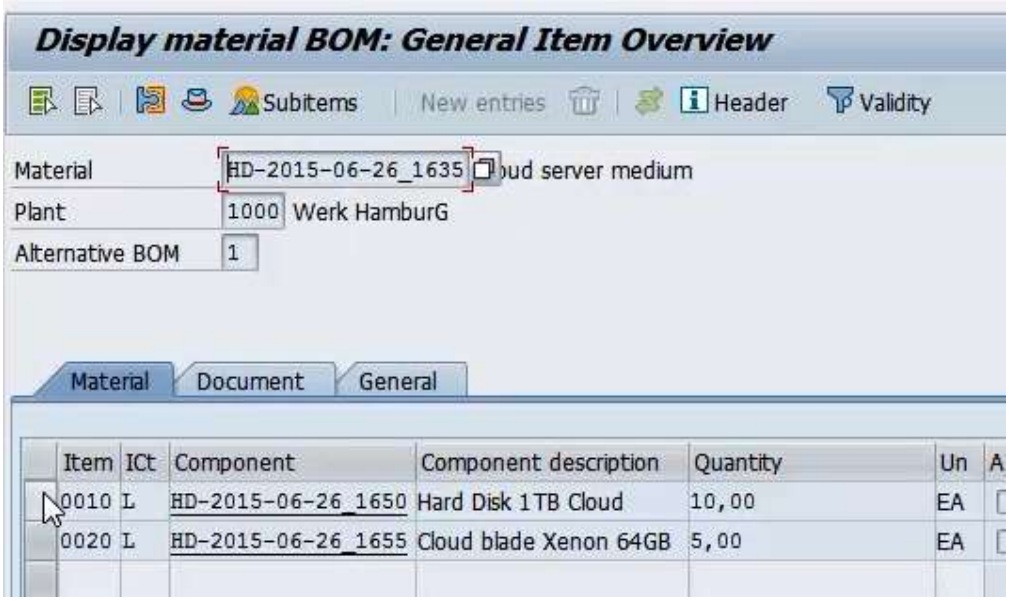
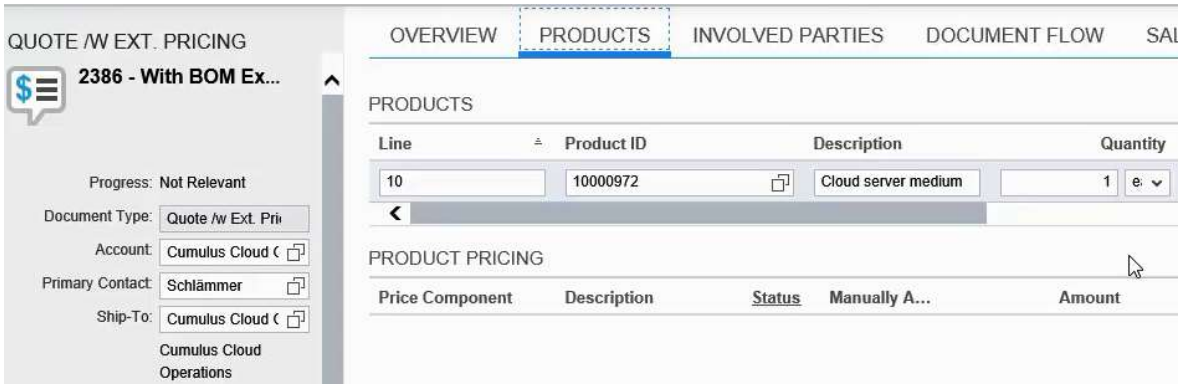
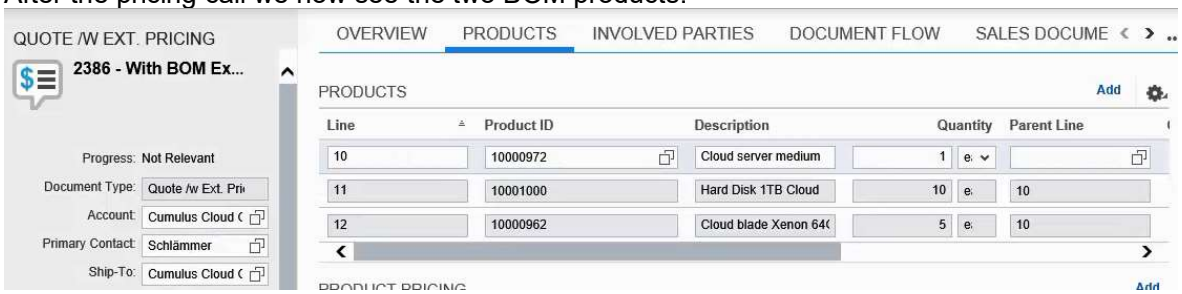
In the next example first is shown a simple BOM in SAP ERP. Notice the material is called “Cloud server Medium” and it has two products in the BOM.



For that same bill of material you see the “Cloud Server Medium” product in C4C prior to pricing call:



After the pricing call we now see the two BOM products:



Special Considerations

Both internal and external pricing are supported for quotes and sales orders. Once you get the price results back, the external system controls what can and cannot be changed. For example, you can increase the price but cannot change a value added tax returned. Once you change a value and calculate the price, your change remains.

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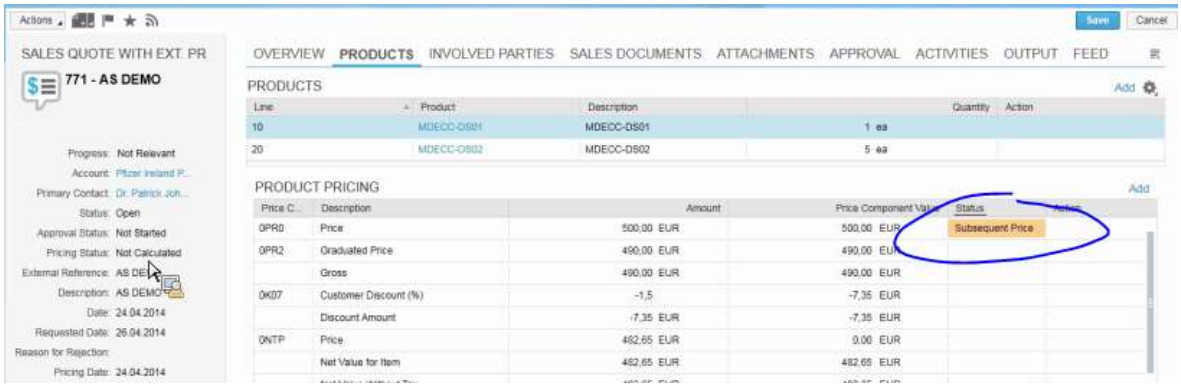
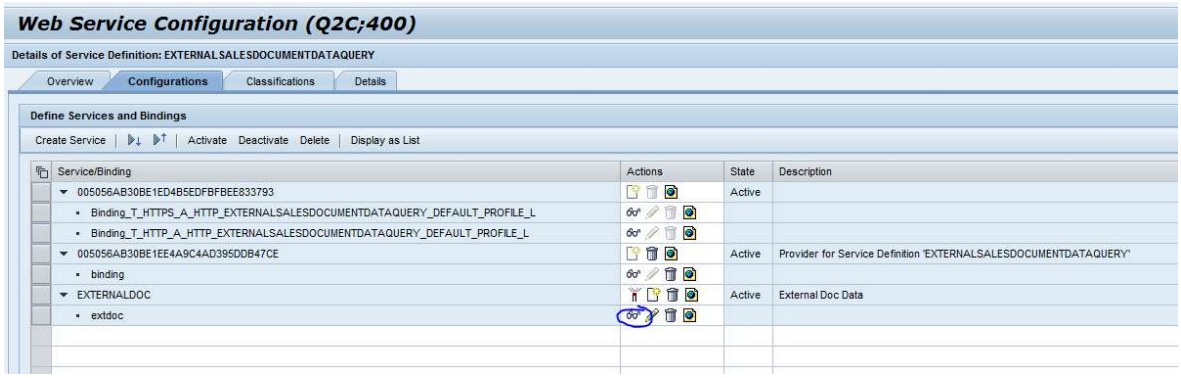
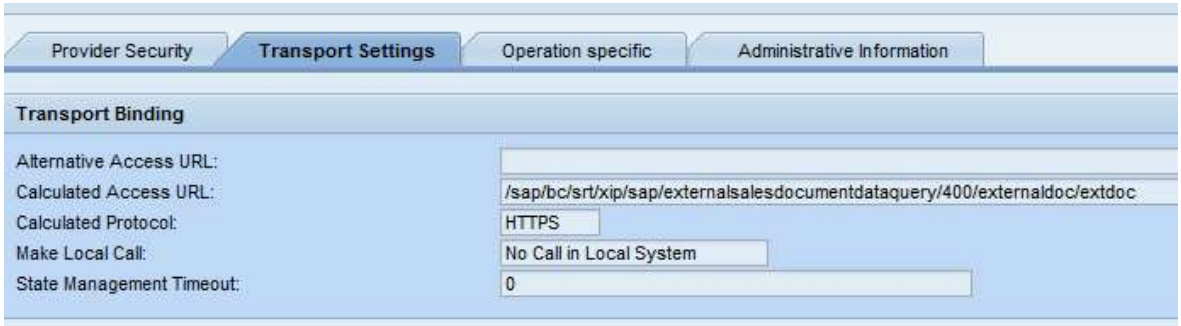
The status field has the status from ERP. Yellow means inactive and red means error.



Sales Quote External Pricing for SAP CRM

CRM supports external pricing for the quote. It does not support external pricing for the order or the work ticket. For the quote it works the same as SAP ERP, so the cloud configuration previously discussed applies to SAP CRM as well. The service and middleware details are in the integration flow spreadsheet at https://service.sap.com/cloud4customer.
In SAP CRM transaction code SOAMANAGER you will see EXTERNALSALESDOCUMENTDATAQUERY.





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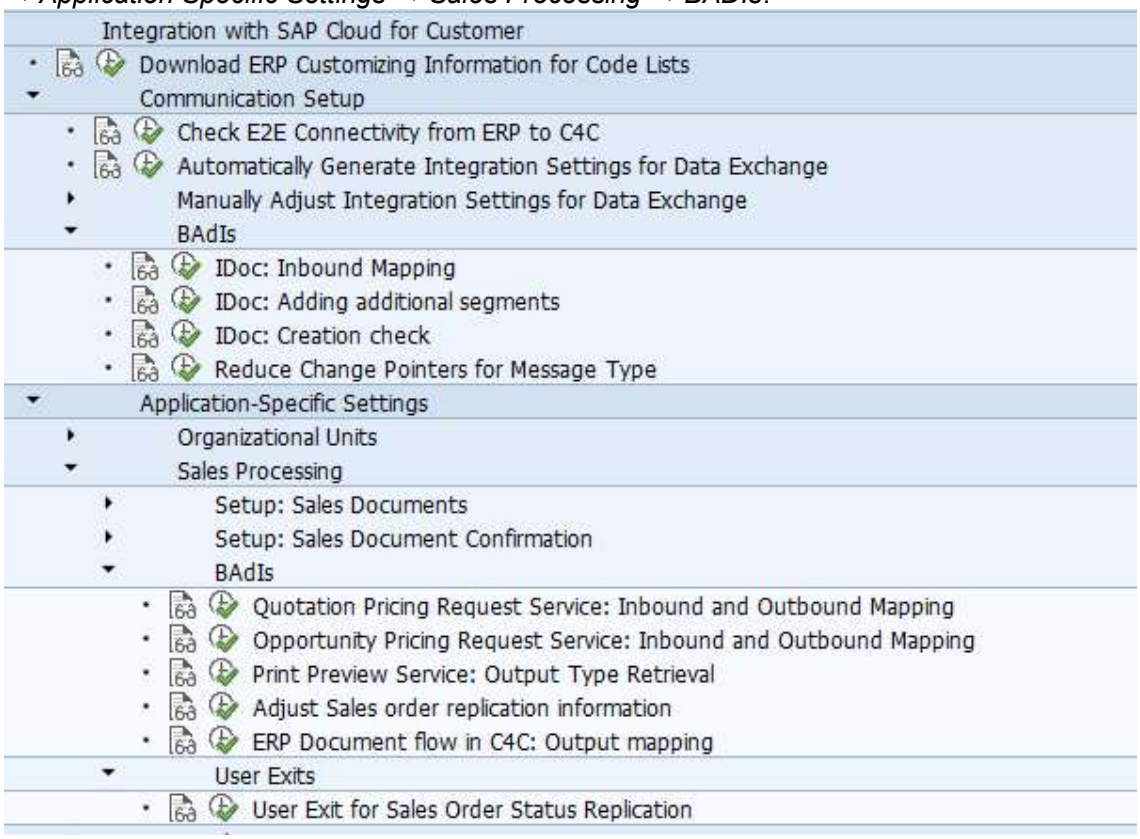
BADIs

If you want to see the pay load of any of the pricing requests, turn on the trace in transaction code SRT_UTIL to trace the call and view the payload. If you are using SAP NetWeaver Process Integration or SAP Process Orchestration as your middleware, you can view the payload. If you are using SAP HANA Cloud Integration, you must turn on payload monitoring.
If you need to extend the pricing request, BADI's are available in the IMG using the path *Integration to Other mySAP.com Components → Integration with SAP Hybris Cloud for Customer → Application Specific Settings → Sales Processing → BADIs*.



Summary

This document has provided the details you need to use pricing in SAP Hybris Cloud for Customer. If you have questions please post them on SCN, please also blog your experiences and learnings with others.

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15 Refresh SAP Hybris Cloud for Customer Tenant

Purpose

SAP ERP and SAP CRM test systems are usually refreshed based on the corresponding productive system, at regular intervals. Similarly, you may want to periodically refresh your SAP Hybris Cloud for Customer test tenant based on the productive tenant. This helps in keeping the tenants in sync with their backend source systems.

The default expectation is that the integration between the SAP Hybris Cloud for Customer and the on-premise systems work with minimal effort. However, customers face challenges, and we have tried to ease the effort.

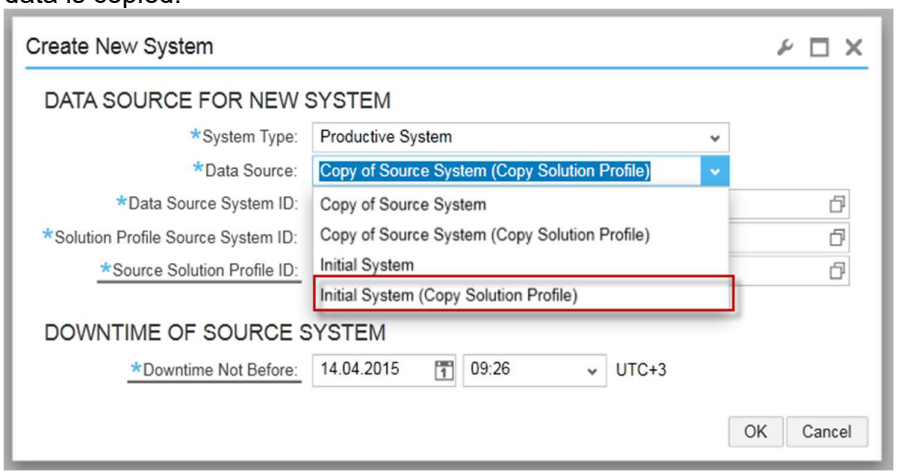
15.1 Basic Preparation

1. Ensure that your test and production tenants are on same patch level before initiating the tenant copy.
2. Clear up or cancel any error or queued messages.
3. To maximize data parity between the two systems, we recommended that there is as little time gap between the distribution of new SAP Hybris Cloud for Customer tenant and the new on premise (CRM/ERP) test tenant. Data discrepancy due to timing issues of the two test systems, may prevent subsequent master and transactional data from replicating successfully.

15.2 Request an SAP Hybris Cloud for Customer tenant

In the *Service Control Center* → *Systems* view, you can request for the creation of a new tenant. For example, you can request:

- A new productive tenant from a test tenant.
  Typically, applicable for new customer who starts with a test system, and then request for a productive system. In this case, master data, configuration and flexibility data is copied from the source system [**Test Tenant**] to the target system [**Production Tenant**]. No transactional data is copied.



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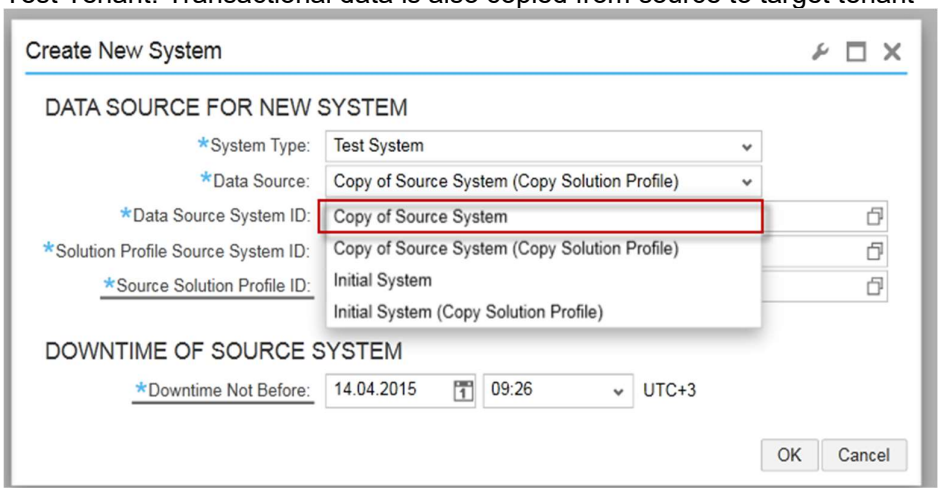
- A new test tenant from a test/production tenant.

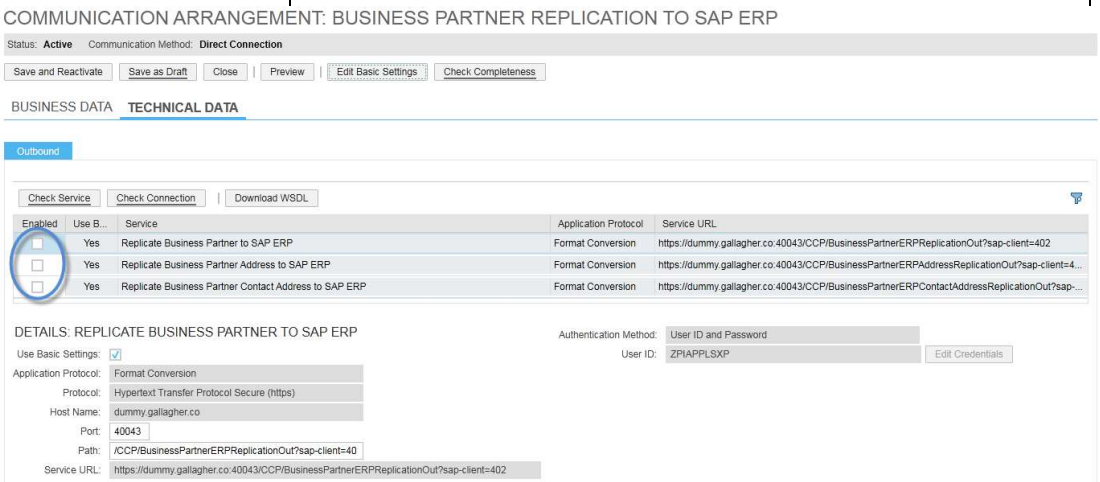
This is often done to refresh and have most up-to-date data into the test system for training or test purposes. This is a complete copy of the source system [Test/Production] to the target Test Tenant. Transactional data is also copied from source to target tenant



15.3 Activities in the new SAP Hybris Cloud for Customer tenant

1. Adjust communication system and communication arrangements, so that they are pointing to the right on-premise system.

If the tenant was copied from a:	Then:
Productive Tenant	• All communication systems and communication arrangements are copied • All the outbound services are set as **inactive** (irrelevant) This prevents accidental update of Customer productive backend system data from the new test tenant.
Test Tenant	• All communication systems and communication arrangements are copied • All the outbound services are set as **active**



Note: New communication system and communication arrangement are created in the copied tenant. System does not edit any existing communication system and communication arrangement.

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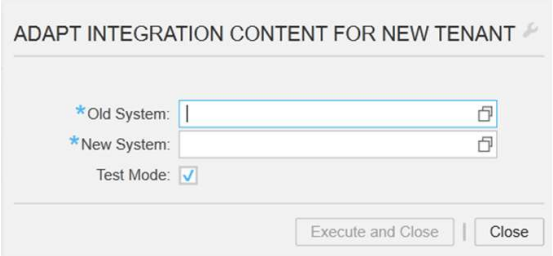
2. Adjust integration content for new tenant:
    a. Go to *Administrator* work center.
    b. Under *Integration*, click *Adapt Integration content for new tenant*.
    c. In Click New Adaptation.



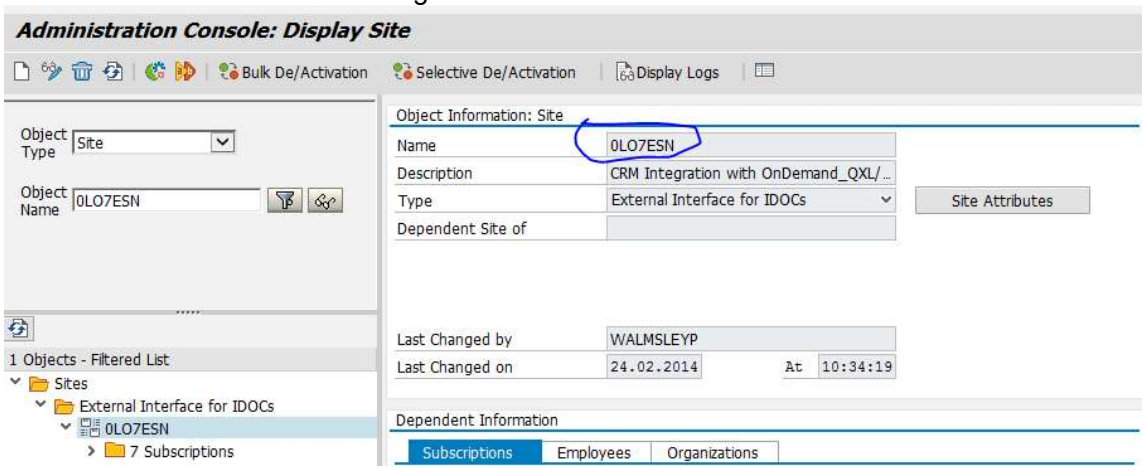
    d. Enter the following and click *Execute and Close*:
        - System instance ID from which this tenant was copied.
        - New communication system instance ID created in the copied tenant.

    The BTD references and ID mapping will be adjusted. You can check the status in the application log.

15.4 Activities in the on-premise suite system

This is the system which is going to be integrated with the new SAP Hybris Cloud for Customer tenant.

1. Refresh the on-premise test system from the corresponding production system.
2. Create a logical system for the SAP Hybris Cloud for Customer tenant using BD54.
3. Run BDLS to update the old logical system with new logical system. BDLS copies the partner profile from the old logical system to the new logical system.
4. Adjust the RFC destinations and SOAMANAGER endpoints.
5. If the on-premise system is SAP CRM, then additionally adjust the SITE.
    a. Go to T-code SMOEAC and change the site name.



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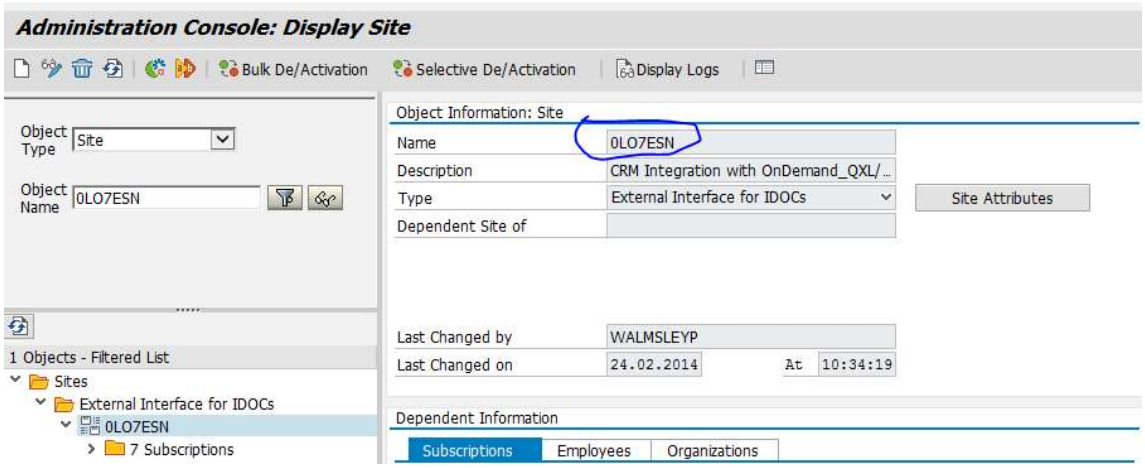
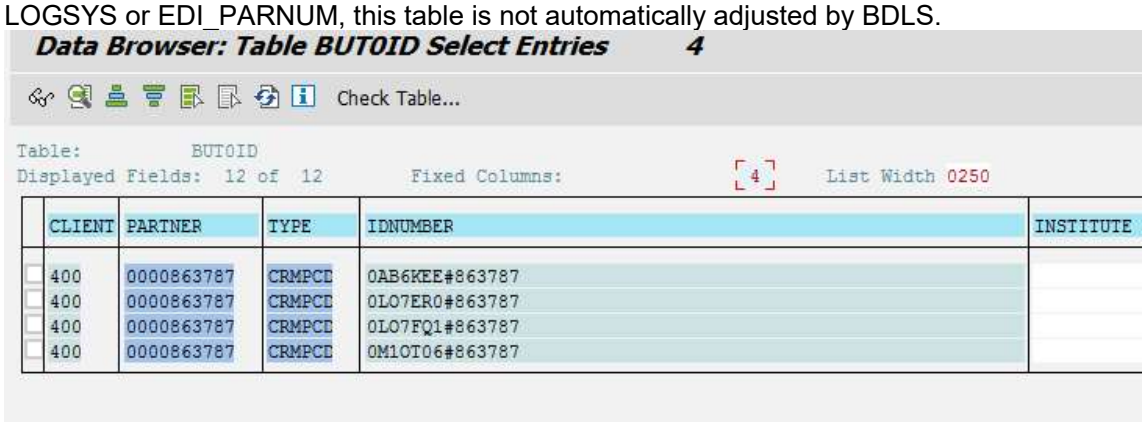
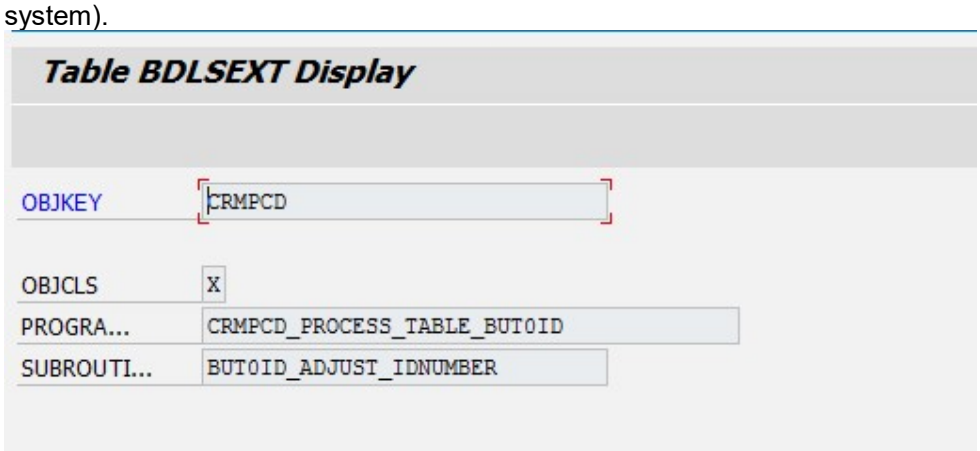
b. Change the site attributes. EDI partner number should be the logical system created for the refreshed Cloud tenant.



c. Adjust DBTABLES which store tenant ID. BUT0ID (BP: ID Numbers) DBTABLE stores the tenant ID as a part of ID number. Since the IDNUMBER column is not of domain LOGSYS or EDI_PARNUM, this table is not automatically adjusted by BDLS.



Hence, a special routine is executed with BDLS which replaces all the entries in the BUT0ID table where IDNUMBER contains the old tenant ID, with new tenant ID (logical system).



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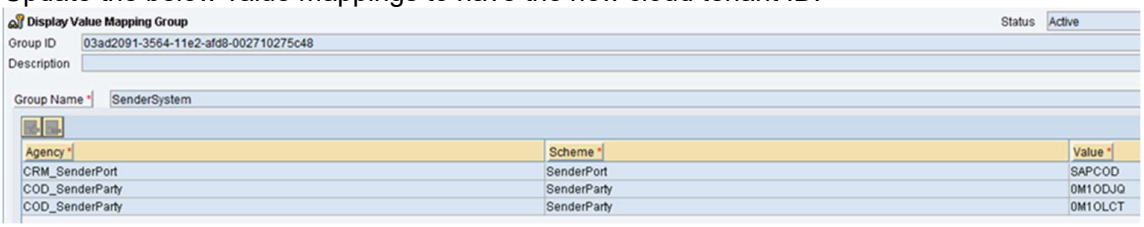
15.5 Settings in PI

1. Update all receiver communication channels, which send data to SAP Hybris Cloud for Customer with the new tenant host name. Also, update the authentication information.

2. Update the below value mappings to have the new cloud tenant ID.



3. Adapt the adapter-specific identifiers with the new logical system name in the IDOC receiver adapter if required.

15.6 Settings in HCI

1. Change all end point URLs in externalized parameters for both Cloud URL and ERP /CRM host and authentication information.
2. Assign the Cloud tenant certificate to all integration flow artifacts, where SAP Hybris Cloud for Customer is the sender for certificate based authentication from Cloud to HCI.

15.7 Decommission the existing test tenant

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