

**Interface Functional Design
C4C.I.001**

Opportunity Update from Callidus CPQ Quote

CallidusCloud CPQ C4C Integration Project

Version 0.5

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1 Document Information

FD Document Name	C4C.I.001
Interface Name	Opportunity Update
Sub-Process	Opportunity Management
Complexity	Medium
Source System	CallidusCloud CPQ
Destination System	SAP Hybris C4C
Target Environment	

2 Overview and Scope

2.1 Functional Overview

This functional design details the process of updating opportunities in SAP Hybris Cloud for Customer (SAP Hybris C4C) from a quotation created in CallidusCloud CPQ. It defines the interface that is designed to update product and pricing details of a C4C opportunity from the associated Callidus CPQ quotation

2.1.1 Detailed Requirements

Requirement ID	Business Process/Stream	Short Description	Description	Requirement Type
	Opportunity Management	Update C4C Opportunity	Update of Opportunity Header and Item details from Callidus CPQ Quote	Integration

2.1.2 Gap in Standard SAP Filled by This Item

N/A

2.1.3 Solution Alternatives

N/A

2.1.4 Proposed Solution

Standard interface to be used to synchronize the product and price information maintained between a CallidusCloud quotation and the associated SAP C4C opportunity.

Business Benefit

Real-time update of C4C opportunities with the product and pricing details from the associated Callidus CPQ quotes makes sales forecasting and real-time sales reporting more precise and up-to-date.

2.2. Scope

2.2.1 Functionality

This interface is designed to be used to update header and item details of a C4C opportunity from the associated Callidus CPQ quote.

2.2.2 Region or Localization Considerations

N/A: As part of the product integration this would not be in scope and any such consideration would be handled by the implementation partner

2.3 Dependencies/Constraints

- Business users should have access to SAP Hybris C4C, SAP Cloud IDP (or any other IDP system for Single Sign-On) and CallidusCloud CPQ application.
- In order to update the opportunity in real time when creating or updating Callidus CPQ quote, the corresponding C4C opportunity must be in the display mode.

2.4 Assumptions

- Product master is in sync between SAP Hybris C4C and CallidusCloud CPQ system.
- Users access Callidus CPQ application via a mashup on a SAP C4C opportunity when the opportunity is in the display mode.

3 Detailed Functional Requirements

3.1 Functional Specification

- User opens a C4C opportunity and navigates to the Callidus CPQ tab (an HTML mashup) to create/update a CPQ quote.
- If the user opens the CPQ application for first time, a new quote will be immediately generated. If a CPQ quote has already been created, it is opened for further modifications.
- The user edits the quote; then saves it. The user can then update the C4C opportunity with the “Update Opportunity” action (Update Opportunity artefact). If the auto-sync is enabled for the user, the opportunity update action would be triggered automatically on the “Save” action (Update Sales Quote and Opportunity artefact).
- The field “Expected Value” at the opportunity header will be updated with the final price from the Callidus CPQ quote and the products from the quote will be added to the opportunity.
- The field “Total Negotiated Value” at the header will be auto-updated with the cumulative values at the item (product) level of all the products received from the CPQ Quote.
- In case of update CPQ quote scenario, all the products entered in the C4C Opportunity will be cleared first and then all products from the updated CPQ Quote will be saved in the opportunity
- If there are multiple revisions for the CPQ Quote, C4C opportunity will be updated with the products in the revision identified as active.
- User Text maintained at Callidus CPQ Quote (Header and Item) can also be maintained at C4C Opportunity notes field (Header and Item).

Specifics to be decided at SAP Cloud Platform Integration service (SCP IS) include (but not limited to) the following fields: Message Header, Action Code, Items List Completion Indicator, Language (EN.)

For configurable products, sub elements such as accessories or similar can be listed as line items. Each CPQ product has its own product attributes. A product attribute can be listed as a line item or as a part of main product. When attributes are selected as line items, in quote they will be shown as separate sub line items (not as a part of main item). For attributes that are not listed as line items, list prices will be added on the main item. In the latter scenario, the main item list price is NOT the sum of all sub line items. Each sub-item and the main item are independent. The extended (final) list price summarizes all items.

Example: In the case of SMS-13 notebook shown in the screenshot below, each component such as HDD, memory monitor, etc. is defined over product attributes while monitor is defined as a line item. For attributes that are not listed as line items, list prices will be added to main item (SMB-13).

Item	Quantity	List Price	Extended List Price	Discount Percent	Discount Amount	Net Price	Extended Amount	Margin Health
1 SMB13-I542U-8G-5GB-V7 SMB-13 Laptop Computer. Intel® Core™ i5 421...	1	\$ 700.00	\$ 700.00	0.00	\$ 0.00	\$ 700.00	\$ 700.00	🟢
1.1 LEN-100-27 Lenovo - 27" Widescreen Flat-Panel IPS LED H...	1	\$ 300.00	\$ 300.00	0.00	\$ 0.00	\$ 300.00	\$ 300.00	🟢
1.2 ACD-1000 Accidental Damage Coverage - 1 Year Basic Lim...	1	\$ 0.00	\$ 0.00	0.00	\$ 0.00	\$ 0.00	\$ 0.00	🟢
1.3 C-HL-3170CDW Canon - PIXMA MG6620 Wireless Inkjet Photo ...	1	\$ 150.00	\$ 150.00	0.00	\$ 0.00	\$ 150.00	\$ 150.00	🟢
1.4 AD211 Bluetooth Portable Speaker	1	\$ 60.00	\$ 60.00	0.00	\$ 0.00	\$ 60.00	\$ 60.00	🟢

Description	Extended List Price	Discount Percent	Discount Amount	Extended Amount	Margin Health
Product Type Hardware	\$ 760.00	0.00 %	\$ 0.00	\$ 760.00	🟢
Product Type Accessories	\$ 450.00	0.00 %	\$ 0.00	\$ 450.00	🟢
Product Type Support	\$ 0.00	0.00 %	\$ 0.00	\$ 0.00	🟢

Subtotal and Total	
Subtotal	
Extended List Price	\$ 1,210.00
Discount Percent	0.00 %
Extended Amount	\$ 1,210.00
Margin Health	🟢
Discounts	Add New

Having a defined rolled up price on the main item is possible. It summarizes all line items and displays the sum on the main item level. Callidus testing environment does not currently utilize this pattern.

There are several mandatory fields to be sent from Callidus CPQ Quote to update the relevant opportunity in C4C.

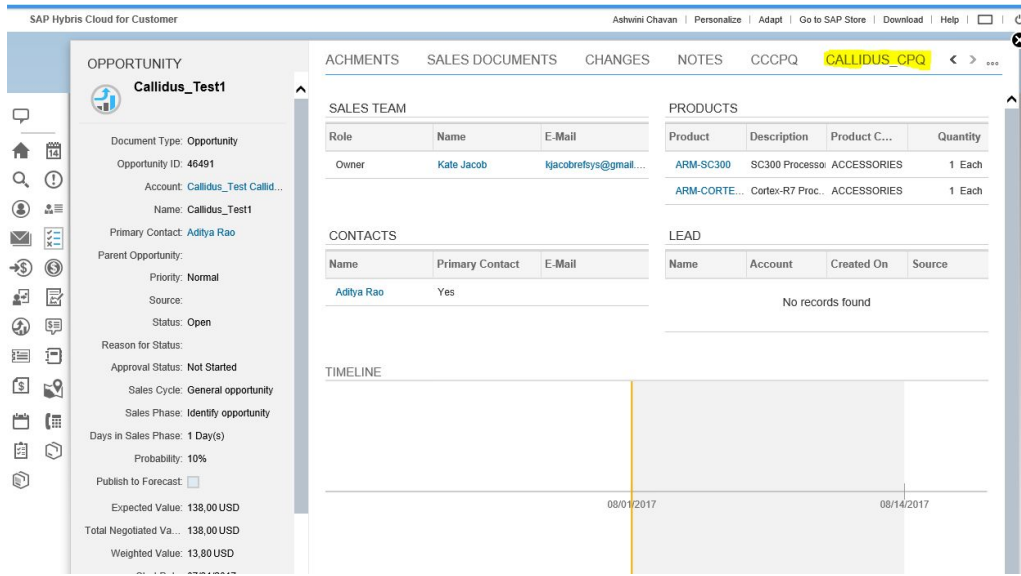
1. Opportunity ID
2. Product ID & Product Description
3. Product Quantity (including Unit Code)
4. Price Elements (Net Amount & Currency Code)

3.2 Process Flow Diagram

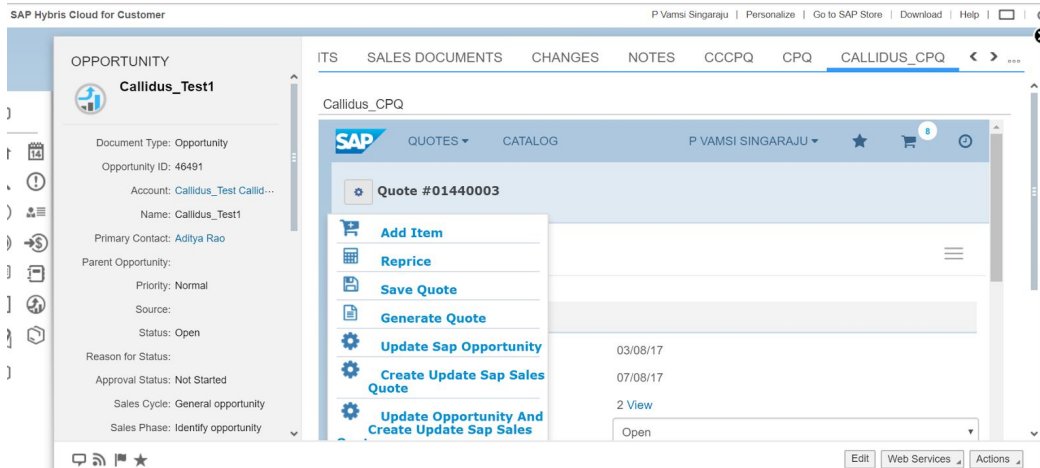
Update C4C Opportunity from Callidus CPQ Quote

1. User navigates to Callidus CPQ Quote from C4C Opportunity via the CPQ HTML Mashup using F-SSO (Single Sign-on).

Step 1.



Step 2.



2. Callidus CPQ Quote header and item details are sent from CPQ application to SCP IS using “Update Opportunity” and “Update Sales Quote and Opportunity” web services (Refer to the Update Sales Quote and Opportunity Technical and Functional Design)
3. A synchronous web service call passing data from SAP IS to C4C updates opportunity header and item details.

3.3 *Initiating Process/Transaction/Program*

N/A

3.4 *Security Requirements*

N/A

3.5 *System Details and Direction*

Interface Type: A2X
Direction: Inbound to SAP C4C
Source System: Callidus Cloud CPQ system
Destination System: SAP Hybris C4C
Middleware: SAP Cloud Platform Integration Services

3.6 *Proposed Transfer Method / Program*

Transfer Method (SAP): Web Service (SOAP)
Transport Protocol to partner system: HTTP Protocol

3.7 *Field Mapping from Source to Destination*

Fieldname	CPQ(Source)	C4C(Target)
actioncode	Will be defaulted to 04 in SCP - IS	actioncode
ItemListCompleteTransmissionIndicator	set to true in SCP - IS	Indicator
ID	Will be sent in request header	BusinessTransactionDocumentID
actioncode(item)	Will be populated by SCP - IS	Action Code
ID(item)	/Quote/Items/Item/CartItem - will be in increments of 1, should be multiplied by 10 in SCP - IS	BusinessTransactionDocumentItemID
Description	/Quote/Items/Item/Description	SHORT_Description
languageCode	Fix to EN-US	LanguageCode
Quantity	/Quote/Items/Item/Quantity	Quantity

Quantity/unitCode	ea (fixed in SCP - IS)	MeasureUnitCode
NetAmount	/Quote/Items/Item/PriceComponent [@TypeCode="ExtendedAmount"] /DecimalValue	Amount
ExpectedRevenueAmount	/Quote/Total Amount	ExpectedRevenueAmount
NetAmount/currencyCode	/Quote/Items/Item/PriceComponent [@TypeCode="ExtendedAmount"] /Currency	CurrencyCode
ExpectedRevenueDatePeriod/StartDate	leave blank (or map a quote item custom field if exists)	Date
ExpectedRevenueDatePeriod/EndDate	leave blank (or map a quote item custom field if exists)	Date
InternalID	/Quote/Items/Item/ExternalId	ProductInternalID
ChangeStateID	Change state ID/InfoMessage/Success	ChangeStateID

Post-Interface Activities

N/A

3.8 Custom Tables/Fields Specifications

N/A

3.9 Initial Data Set-Up, Conversion Requirements

Users, Product Categories and Products have to be in sync between SAP Hybris C4C and CallidusCloud CPQ.

3.10 Configuration Requirements

N/A

3.11 Language Considerations

N/A

3.12 **Error Handling**

There is a standardized error format developed to capture application and business errors in C4C and SCP IS (HCI).

Below are the status codes expected from Callidus CPQ:

200 – OK. Opportunity details found

401 – Unauthorized. In case when integration user credentials were not provided.

404 – Object not found

501 – Internal server error.

Below are the expected technical errors:

Error	How to Handle
Other than application errors	They are displayed in response and can be hence handled.
Application errors	Web Service Processing error for example can be viewed in Web Service Message Monitoring

3.13 **Security and Authorization**

Basic authentication is configured for the communication which is based on user credentials.

3.14 **Reconciliation Procedures and Audit Requirements**

3.14.1 **Approach**

3.14.2 **Metrics**

3.15 **Processing and Operational Considerations**

3.15.1 **Processing Type**

3.15.2 **Transaction Volume**

3.15.3 **Frequency and Timing**

Real-time update of a C4C opportunity from CallidusCloud CPQ quotation using this interface.

3.15.4 Performance

3.15.5 Batch Requirements

N/A

3.15.6 Data Maintenance Requirements

N/A

3.15.7 Re-use Details

N/A

3.15.8 Multi-company, Multi-jurisdiction Considerations

None

4 Technical Specifications

4.1. Creation of Communication System

For exchange of data between C4C and CPQ system, a communication system is created in C4C with host name provided as the URL of SCP IS (HCI.)

HostName: I5200-tmn.hci.us2.hana.ondemand.com

Host name can vary during migration to QA.

Business System ID: CLDS_HCI

4.2. Creation of Communication Arrangement

Create communication arrangement to link communication scenario and the System "HCI" created in previous steps.

4.3. Overview of the Process Steps

Process Step No.	Name	Description	Classification
PS1	Create Integration Project in SCP - IS	Create new integration project for SCP IS (HCI) in Web IDE / Eclipse	New
PS2	Develop Integration Flow Diagram	Model an iFlow based on the requirements	New

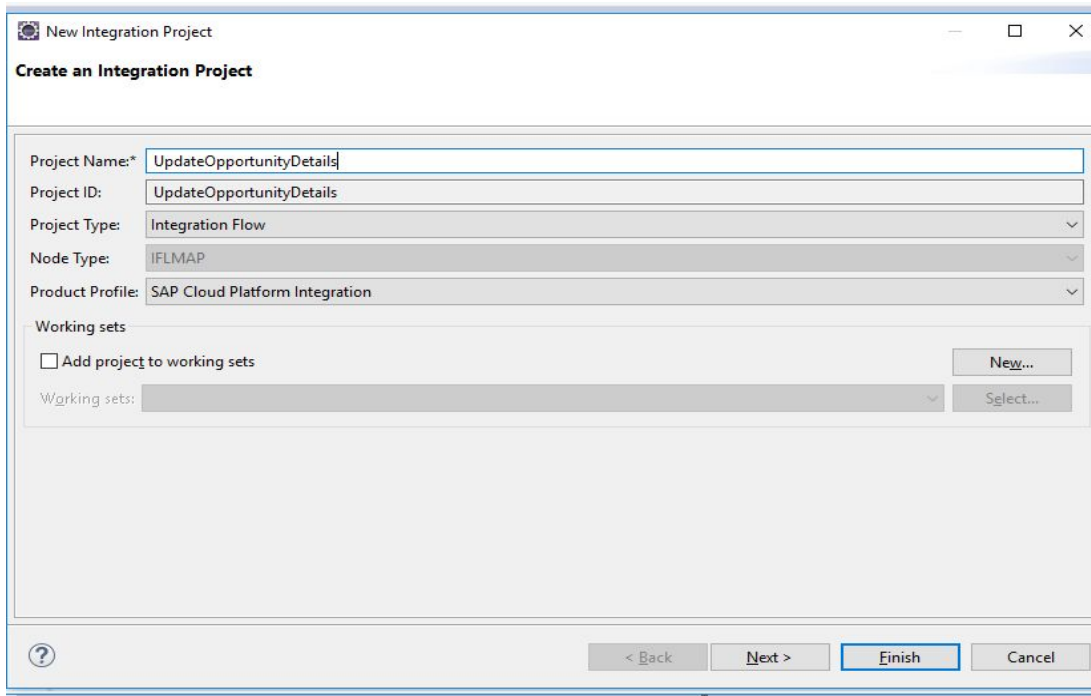
PS3	Import WSDLs and Schema Files	Import all files used for message mapping	
PS4	Create Message Mapping	Map source and target fields for data flow	New
PS5	Configure Channels	Configure sender and receiver channels	New
PS6	Deploy Artifact	Deployment of the artifact	New

4.3.1 Create Integration Project in SCP IS (HCI.)

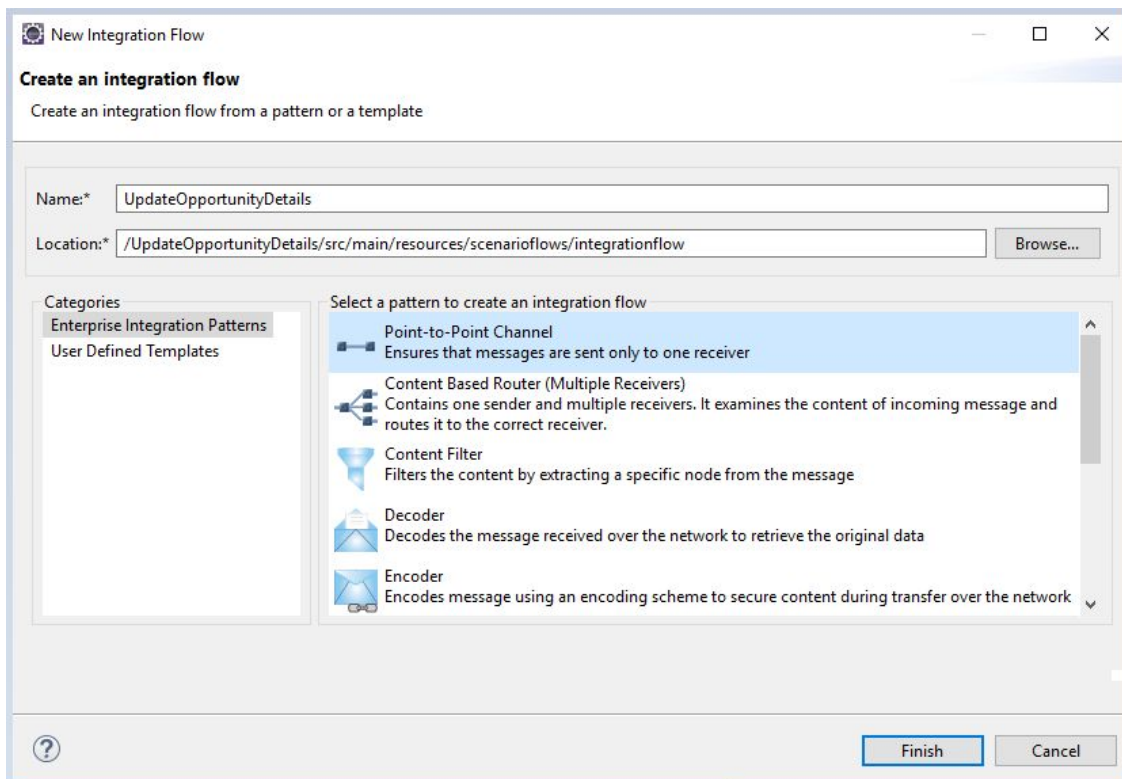
Classification	New Change of Existing Step Reuse of Existing Step
Objective	To create a new project in SCP - IS using Web IDE / Eclipse.
Involved Users	
Trigger	N/A
Precondition	SCP - IS developer is provided with the authorization to create artifact
Post-condition	The opportunity ID from Callidus CPQ should be valid and present in C4C.
End User Interaction with the System	End-user is not involved directly

1. Create an Integration Project in Eclipse.

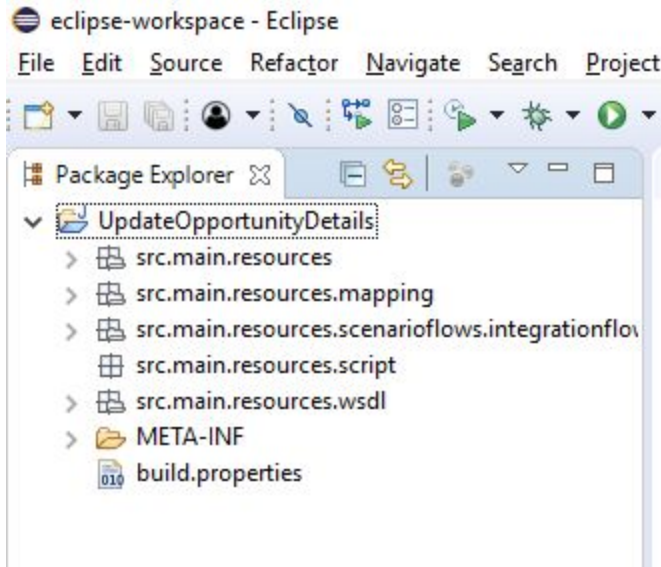
Go to **File**→**New**→**Integration Project**, enter the details of the project and click **Next**.



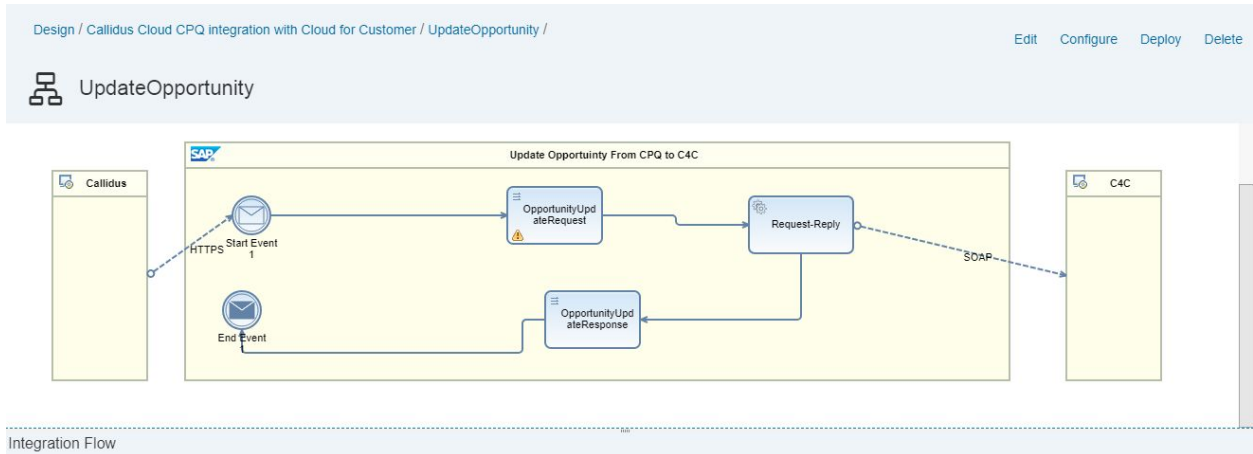
Select **Point-to-Point Channel** pattern for the integration project and click **Finish**.



Integration project gets created with the below folders.



4.3.2 Create an Integration Flow Diagram



4.3.2.1 Get Opportunity ID from Callidus CPQ.

The CPQ system will send the Opportunity ID through the message body which will reach the SCP - IS through HTTPS adapter.

4.3.2.2 Update Opportunity using Opportunity ID passed from Callidus CPQ.

To update the C4C Opportunity using Opportunity ID, request will be stored as Opportunity Update request in the content modifier.

Using a Request-Reply service call, the payload will be sent to the C4C receiver through the SOAP channel adapter and the corresponding response will be stored as Opportunity Update Response in the content modifier.

4.3.3 Import WSDLs and Schema Files

Classification	New	Change of Existing Step	Reuse of Existing Step
Objective	To Import all files which are used for message mapping		
Involved Users			
Trigger	N/A		
Precondition	There should be placeholder for each opportunity field coming from C4C in CPQ system.		
Post-condition	The Opportunity ID from CPQ system should be valid and present in C4C system.		
End User Interaction with the System	End user is not involved directly		

4.3.4 Create Message Mapping

Classification	New	Change of Existing Step	Reuse of Existing Step
Objective	Map individual fields from C4C to corresponding fields in Callidus CPQ (for Opportunity Update response)		
Involved Users			
Trigger	N/A		
Precondition	There should be a placeholder in Callidus CPQ for each opportunity field coming from C4C		
Post-condition	The opportunity ID from Callidus CPQ should be valid and present in C4C		


End User Interaction with the System	End-user is not involved directly
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This is done in order to map the corresponding fields from C4C to CPQ system. The following steps need to be done:

- Create message mapping.
- Import WSDL or schema.
- Define mapping between source and target.

Opportunity Update Request message mapping

Design / Callidus Cloud CPQ Integration with Cloud for Customer / UpdateOpportunity / OpportunityUpdateRequest /

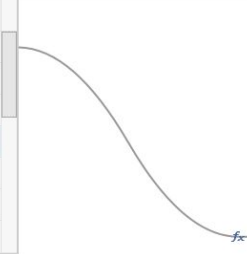
 OpportunityUpdateRequest

Quote ↻

Structure	Occurre...
Quote	1..1
CompositeNumber	1..1
DateClosed	1..1
DateCreated	1..1
DateModified	1..1
DateOrdered	1..1
MarketFactor	1..1

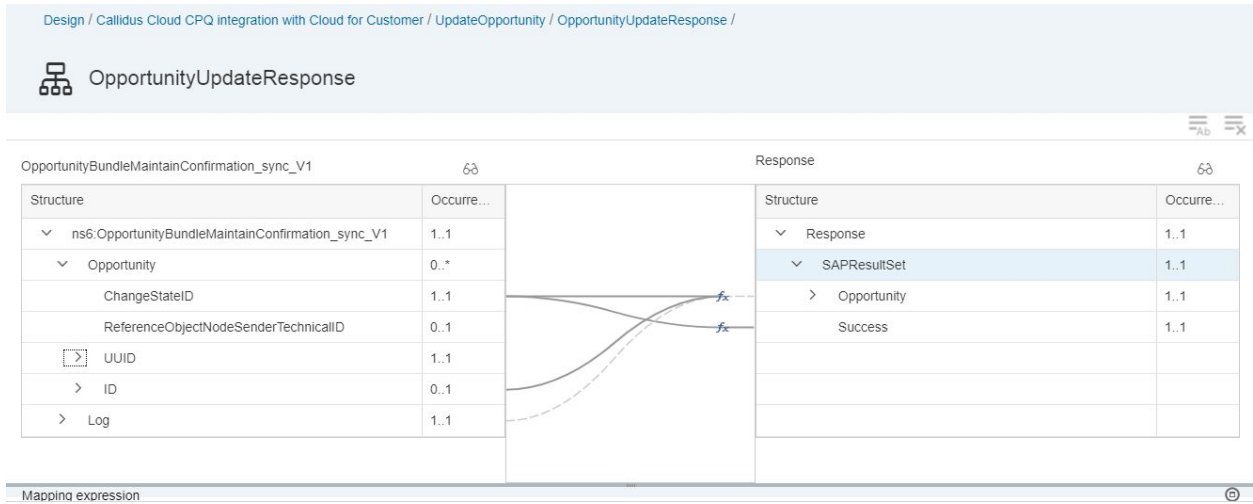
OpportunityBundleMaintainRequest_sync ↻

Structure	Occurre...
ns4:OpportunityBundleMaintainRequest_sync	1..1
BasicMessageHeader	1..1
ID	0..1
UUID	0..1
ReferenceID	0..1
ReferenceUUID	0..1
Opportunity	0..*



Mapping expression Ⓢ

Opportunity Update Response message mapping



4.3.5 Configure Channels

Sender and Receiver channels need to be configured with below details to receive and send data in correct format.

A) Sender's Channel:

The following configurations need to be done on the sender's adapter:

- Adapter Type: HTTPS
- Transport Protocol: HTTPS
- ❖ Adapter Specific Connection:
 - Address: Provide artifact path
 - Authorization: User Role (ESBMessaging.send)

General:

The screenshot shows the 'Sender Channel for Callidus_Cloud' configuration window with the 'General' tab selected. The 'General Details' section contains a 'Name' field with the value 'HTTPS' and an empty 'Description' field. The 'Adapter Type' section contains a dropdown menu with 'HTTPS' selected, a 'Browse...' button, and two other dropdown menus: 'Transport Protocol' with 'HTTPS' selected and 'Message Protocol' with 'None' selected.

Adapter Specific:

The screenshot shows the 'Sender Channel for Callidus_Cloud' configuration window with the 'Adapter Specific' tab selected. The 'Connection' section contains a 'Request Processing' sub-section with three fields: 'Address:*' with the value '{{Callidus_address}}', 'Authorization:*' with a dropdown menu showing 'User Role', and 'User Role:*' with the value 'ESBMessaging.send'. There is also an unchecked checkbox for 'CSRF Protected'.

B) Receiver Adapter:

The following configurations need to be done on the adapter:

- Adapter Type: SOAP
- Transport Protocol: HTTPS
- Message Protocol: SAP1.x/SAP RM

❖ Adapter Specific Connection:

- Address: C4C Inbound Address
- Proxy Type: Internet
- Authentication: Basic
- Credential Name: Provide a deployed credential name.

General:

Receiver Channel for C4C

General | Adapter Specific

General Details	Adapter Type
Enter name and description for this channel	Choose an adapter type and its protocols
Name: <input type="text"/>	Adapter Type*: <input type="text" value="SOAP"/> Browse...
Description: <input type="text"/>	Transport Protocol: <input type="text" value="HTTP"/> ▾
	Message Protocol: <input type="text" value="SAP RM"/> ▾

Adapter Specific:

Receiver Channel for C4C

General | Adapter Specific

Connection

Connection Details

Address* <input type="checkbox"/>	<input type="text" value="https://{{host}}:{{port}}/sap/bc/srt/scs/sap/manageopportunityin3"/>
URL to WSDL:	<input type="text"/> Browse...
Service:	<input type="text"/>
Endpoint:	<input type="text"/>
Operation Name:	<input type="text"/>
Proxy Type:	<input type="text" value="Internet"/> ▾
Authentication:	<input type="text" value="Basic"/> ▾
Credential Name*:	<input type="text" value="{{artifact_credentials}}"/>
Timeout (in ms):	<input type="text" value="60000"/>

Compress Message

4.3.6 Deploy Artifact

Classification	New	Change of Existing Step	Reuse of Existing Step
Objective	To deploy the artifact		
Involved Users			
Trigger	N/A		
Precondition	N/A		
Post-condition	The Opportunity ID from CPQ system should be valid and present in C4C system.		
End User Interaction with the System	End user is not involved directly		

After the completion of development, the artifact is ready to deploy.