SAP BUSINESS TECHNOLOGY PLATFORM | EXTERNAL

Setup Guide

Reconnection Process using SAP Build Process Automation or SAP Workflow Management

THE BEST RUN SAP

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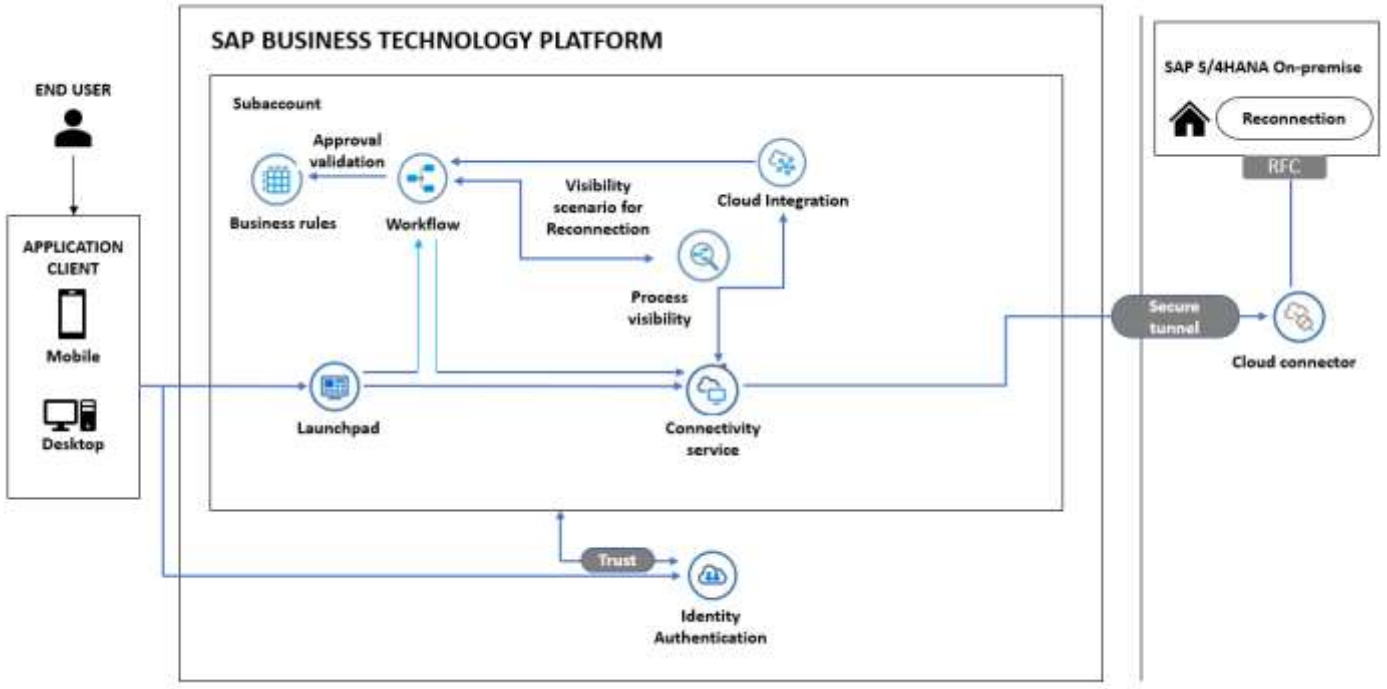
Overview

This document provides information about setting up the SAP Business Technology Platform account to consume the workflow content package Reconnection Process. The main audience of this document are technical IT/system administrators. Reconnection process is carried out by ISU user for reconnecting utility services like electricity, water, etc. The process involves creating service request followed by creating reconnection order and finally updating the meter readings.

Salient features of this content package are:

- Easy integration with SAP S/4 HANA.
- New Process variants can be configured in a no-code approach.
- Agent/approver determination using Business Rules or external service.
- Pre-built integration content to call SAP S/4 HANA from SAP Workflow Management or SAP Build Process Automation.
- Out-of-the-box visibility into key process performance indicators.



Required SAP BTP Services

The workflow content package Reconnection Process is intended to be used for SAP S/4HANA and requires the following services in SAP Business Technology Platform.

- SAP Build Process Automation or SAP Workflow Management to orchestrate the process.
- SAP Connectivity service (cloud connector) to establish access to SAP S/4HANA on-premise.
- SAP Cloud Portal service or SAP Launchpad service to access the apps that are involved in the process.
- SAP Cloud Identity Services - Identity Authentication (optional).
- SAP Business Application Studio to modify/deploy the SAPUI5 applications.
- SAP BTP, Cloud Foundry runtime.

Setup SAP BTP Account

Reconnection Process content package requires SAP Build Process Automation or SAP Workflow Management subscription or a CPEA contract. Based on which service you plan to use, follow the appropriate section to configure either SAP Build Process Automation or SAP Workflow Management.

Configure SAP Build Process Automation

Follow the setup and configuration section of SAP Build Process Automation:

1. Subscribe to SAP Build Process Automation (Standard Plan)
2. Configure Destinations for Live Process Projects
    a. Import Package Destination
    b. Business Rules Destination to support start and step conditions
3. [Optional] Configure SAP Launchpad Service for SAP Build Process Automation

Configure Process Automation Destination

A HTTP destination is required in the BTP subaccount where SAP Build Process Automation is subscribed. Create a destination with name "sap_process_automation_service" with the following configuration if it doesn't exist already. Please refer how to create a HTTP destination OAuth 2.0 Authentication (client credentials).

Name	sap_process_automation_service
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2ClientCredentias
URL	<"endpoints"."api">
Client ID	<"uaa":"clientis">
Client Secret	<"uaa":"clientsecret">
Token Service URL	<"uaa":"url">/oauth/token

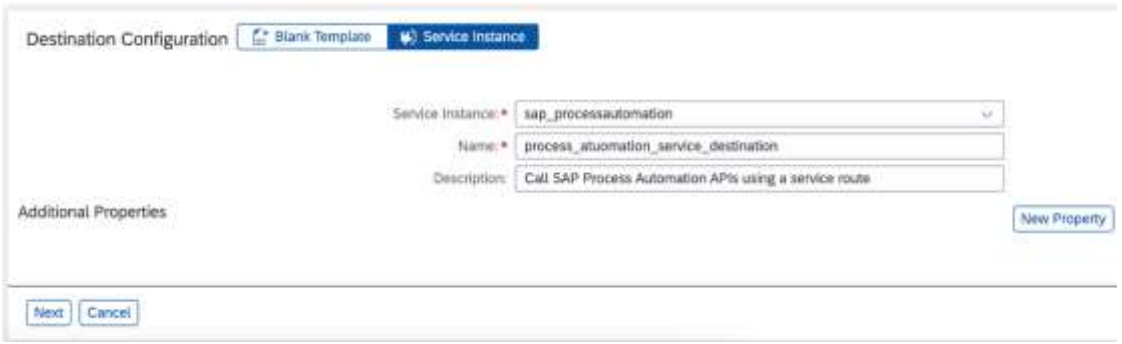
Note: While creating the service instance for SAP Build Process Automation service, make sure that at least the required scopes are assigned (help documentation to enable technical authentication to access the SAP Build Process Automation APIs). If the scopes are not assigned, you can also update the service instance with the required scopes.

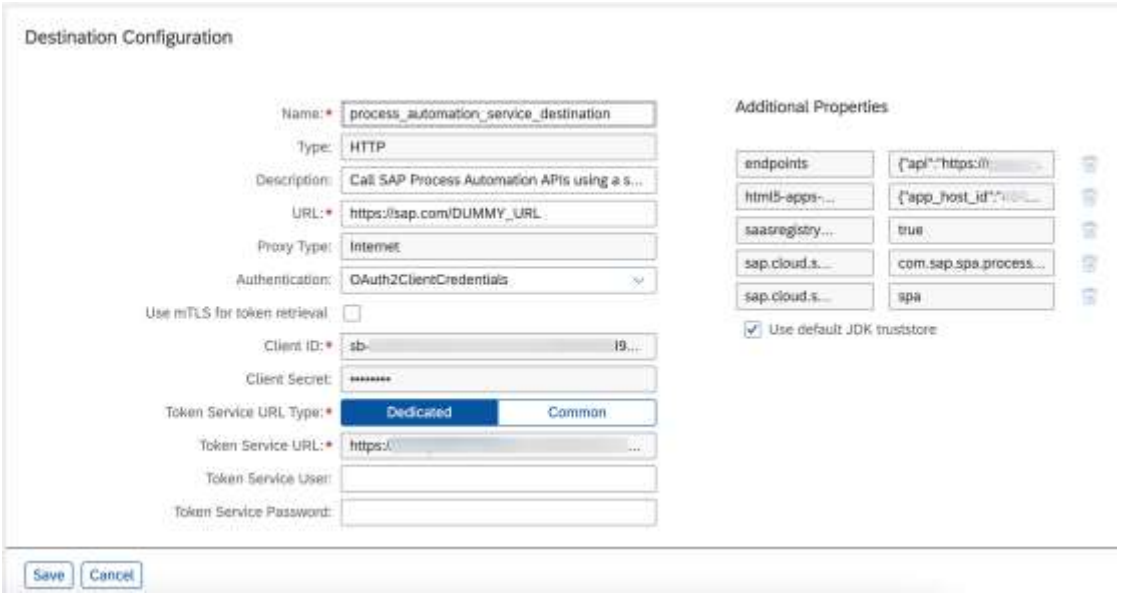
Configure OAuth2ClientCredentials SAP Build Process Automation Destination (Service Instance)

Ignore this step if there is already a destination using SAP Build Process Automation service instance created.

Create new destination to call SAP Build Process Automation APIs using a service route from SAP UI5 component. For more details, follow the help document:

https://help.sap.com/viewer/cca91383641e40ffbe03bdc78f00f681/Cloud/en-US/685f383cebb54c009b2fac633b32c90f.html.





Configure SAP Workflow Management

Reconnection Process content package requires SAP Workflow Management subscription or a CPEA contract. Follow the setup and configuration section of SAP Workflow Management.

Note: While creating the service instance for Workflow service, make sure that at least the following scopes are assigned (help documentation to enable technical authentication to access the workflow APIs). If the scopes are not assigned, you can also update the service instance with the following scopes.

- WORKFLOW_INSTANCE_GET
- WORKFLOW_INSTANCE_START
- WORKFLOW_INSTANCE_CANCEL

Configure Workflow Email Destination

Configure workflow email destination to automatically send email notification to the involved parties. For more information on configuring the destination, see configure workflow email destination.

Configure Workflow Destination

A HTTP destination is required in the BTP subaccount where SAP Workflow Management is subscribed. Create a destination with name "Workflow" with the following configuration, if it doesn't exist already. Please refer how to create a HTTP destination OAuth 2.0 Authentication (client credentials).

Please refer help documentation how to get URL, Client ID , Client Secret and Token Service URL. For more information refer to how to create a HTTP destination and how to use Workflow APIs

Name	Workflow
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2ClientCredentials
URL	<rest_api_url>
Client ID	<client ID>
Client Secret	<client secret>
Token Service URL	<uaa.url>/oauth/token

Configure Business Rules Destination

A HTTP destination is required in the Cloud Foundry account where SAP Workflow Management is subscribed. Create a destination with name "BUSINESS_RULES" with the following configuration, if it doesn't exist already. Please refer how to create a HTTP destination and how to access business rules APIs using OAuth 2.0 Authentication (client credentials)

Name	BUSINESS_RULES
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2ClientCredentials
URL	<rule_runtime_url>/rules-service
Client ID	<client ID>
Client Secret	<client secret>
Token Service URL	<uaa.url>/oauth/token

Configure Destination to Enable Start & Step Conditions

To enable the usage of start conditions and step conditions on a process variant, create a destination for business rules (WM_BUSINESSRULES) with the configuration as mentioned in the help document.

Configure Cloud Integration Destination

To call an integration flow, a HTTP destination is required in the SAP BTP tenant where the SAP Workflow Management is subscribed. Create a destination called CPI with either Basic Authentication or OAuth2ClientCredentials.

Destination with Basic Authentication

Name	CPI
Type	HTTP
Proxy Type	Internet
Authentication	Basic Authentication
URL	<runtime.url>

Username	<user>
Password	<password>

Destination with OAuth2ClientCredentials Authentication

Name	CPI
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2ClientCredentials
URL	<runtime.url>
Client Id	<client ID>
Client Secret	<client secret>
Token Service URL	<oauth.url.for.clientCredentials>

Please refer help documentation how to get URL, Client ID, Client Secret and Token Service URL.

Configure RFC Destination

Create an RFC destination in the SAP BTP tenant where the SAP Cloud Integration is enabled.

Name	S4I or <any name, but make sure that the destination name is used in the integration flow configuration>
Type	RFC
Proxy Type	OnPremise
User	<USER>
Password	< PASSWORD>
Repository User	
Repository Password	
Location ID	<location ID, if maintained in cloud connector>
Additional Properties	Name: jco.client.ashost Value: <abapServerHost> Name: jco.client.client Value: <client id> Name: jco.client.sysnr

	Value: <systemNumber>

Configure SAP S/4 HANA Destination

Name	S4HANA
Type	HTTP
Proxy Type	OnPremise
Description	
URL	http://virtual_OData_host:virtual_port
User	<TECHNICAL_USER>
Password	<PASSWORD>
Authentication	BasicAuthentication
Additional Properties	HTML5.DynamicDestination: True product.name: SAP S/4HANA sap-client:<client id> WebIDEEnabled: True WebIDEUsage: Odata_gen.odata_abap

Configure Cloud Connector

For SAP S/4HANA on-premise landscape, configure cloud connector to enable secure tunnel to SAP BTP tenant for RFC & OData calls. Please refer the help documentation to configure Cloud Connector.

Expose the Following BAPI/RFC in the SAP Cloud Connector:

- TH_GET_VRT_HOST_DATA – This RFC is used to get the host and port of the SAP S/4HANA. It is used in the integration flow to form the direct link to access the transaction via WebGUI.
- RFC_READ_TABLE – This RFC is used in the integration flow to fetch F4 values for UI fields- Field Service request type, Order Code, Meter Reading Type etc.

Services that need to be exposed from SAP S/4HANA on-premise using Cloud Connector

Rest Service	End Point URL	Protocol	Backend System
Read Installation Details	/zreconnect/Installation?	HTTPS	ABAP System
Create Re connection Order	/zreconnect /reconnectionOrder?	HTTPS	ABAP System

Details			
Read Meter Details	/zreconnect /meterread?	HTTPS	ABAP System
Create Meter Reads	/zreconnect /meterread?	HTTPS	ABAP System
Retrieve Project URL for Reconnection	/ReEnergization/buildPSURL	HTTPS	ABAP System
Update Disconnection Order Details	/zreconnect /reconnectionOrder?	HTTPS	ABAP System

Import, Configure and deploy Integration Content

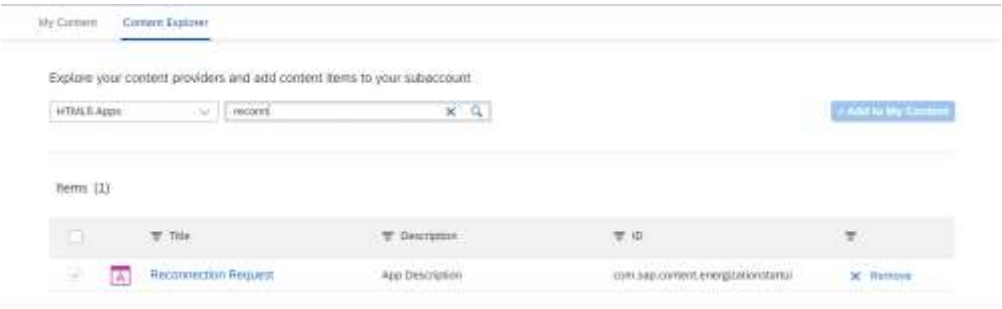
This package utilizes Cloud Integration capability within SAP Integration Suite to provide integration between SAP ERP (or SAP S/4HANA) and SAP Build Process Automation or SAP Workflow Management. Further details can be found in dedicated integration guide of the integration package "SAP Build Process Automation Integration with SAP S/4HANA for Reconnection ".

Configure SAP Central Fiori Launchpad Site for SAP Workflow Management

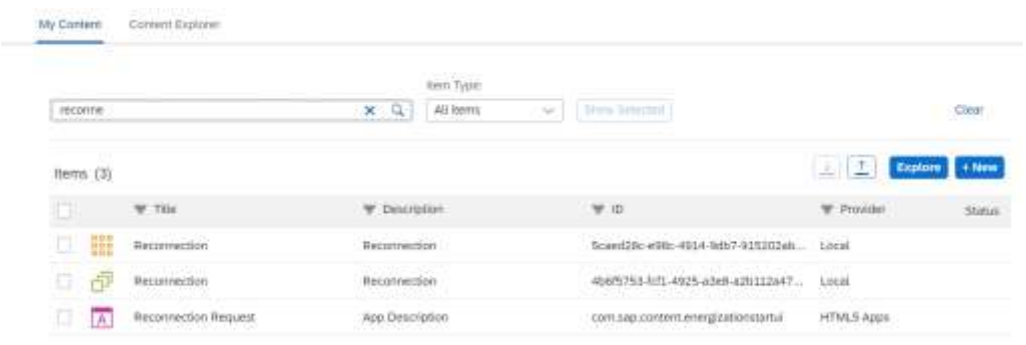
If you plan to use SAP Launchpad service, then configure Fiori Launch Pad site to access Workflow Monitoring applications, My Inbox, Process Visibility Workspace and Start UI application to create reconnection requests. Please refer help documentation how to configure a start UI tile on Central Fiori Launchpad

Configure Reconnection Request tile in the Launchpad Site

- Open SAP Launchpad site manager application.
- Select Content Manager and Content Explorer
- Search com.sap.content.energizationstartui and select SAP UI5 component.
- Click Add to My Content button to include the UI5 component.



- Add the app to the required role and group.

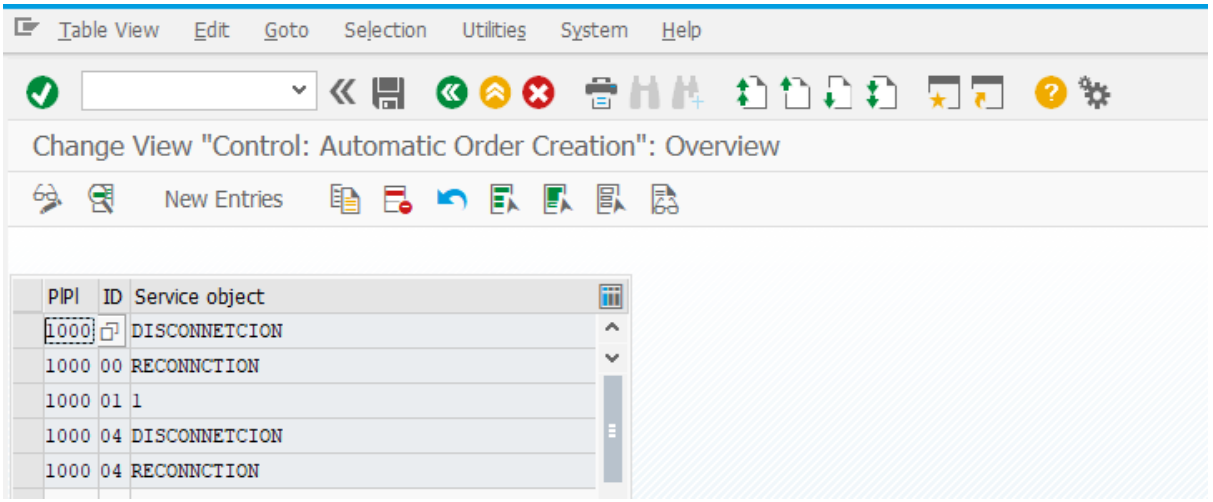


Custom Implementation in SAP S/4HANA

Define Service Objects-

In this IMG activity you define service objects. You also specify the parameters that are automatically transferred into the order.

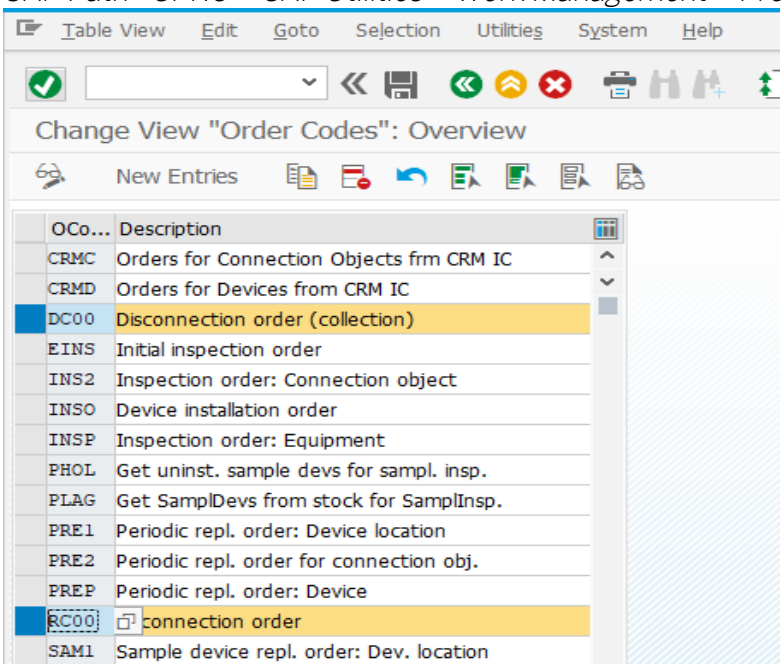
The following data can be specified in accordance with the plant, service object and service object ID:
SAP Path - SPRO – *SAP Utilities – Work Management – Master data – Define service objects*



Define Order Codes-

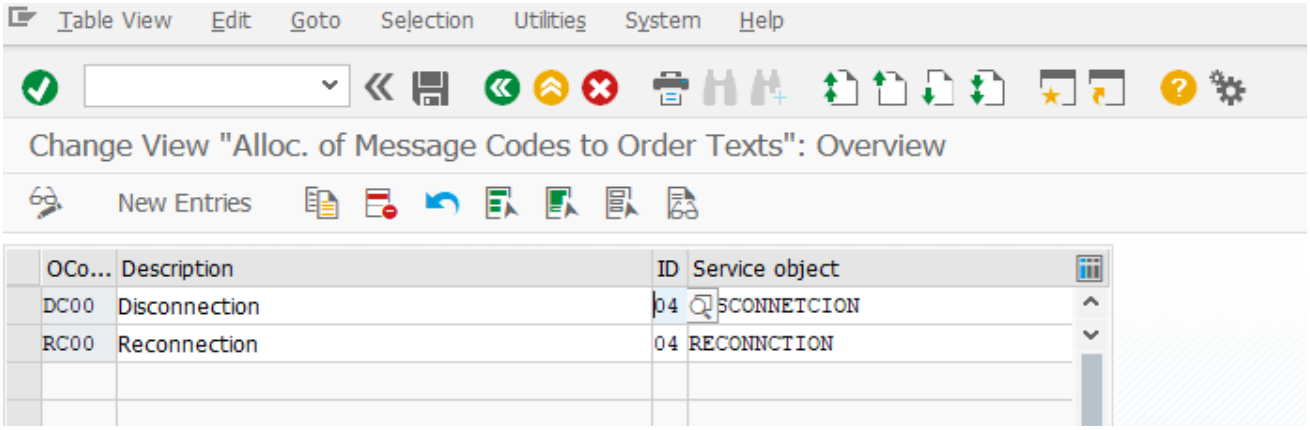
The table below contains all the order codes supplied by SAP and the reference object type that you have to use in the respective service object.

SAP Path - *SPRO – SAP Utilities – Work Management – Processing – Define Oder Codes.*



Service Objects to Order Codes

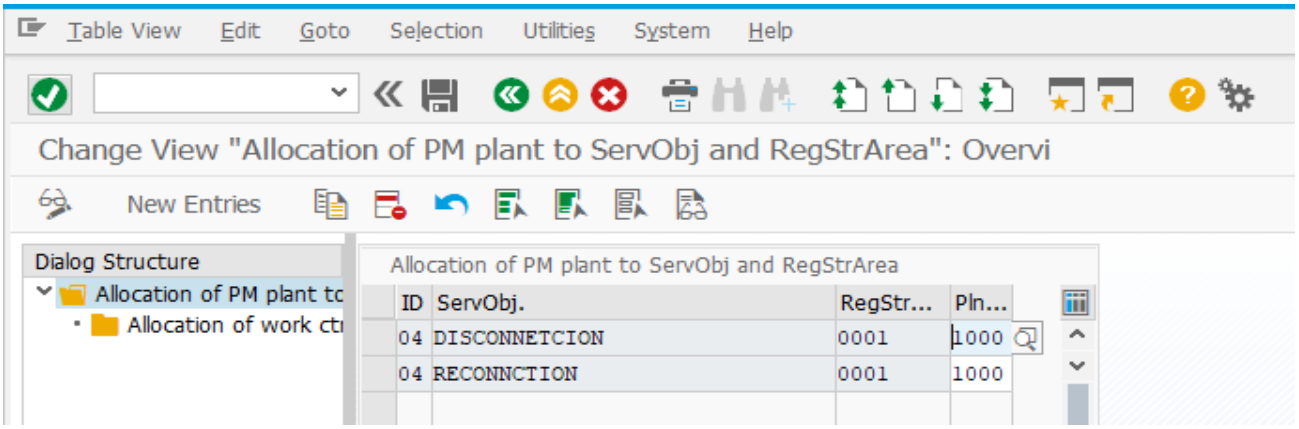
In this IMG activity you allocate service objects to order codes. The service object contains all settings, such as order type and work center, which are automatically transferred into the work order.
SAP Path - SPRO – SAP Utilities – Work Management – Processing – Allocate Service Objects to Order Codes.



Plant and Work Center Determination for Orders -

In this IMG activity you allocate PM planning plants to service objects und regional structure areas. The PM planning plants are determined later in work order generation from the order code (service object and its ID)

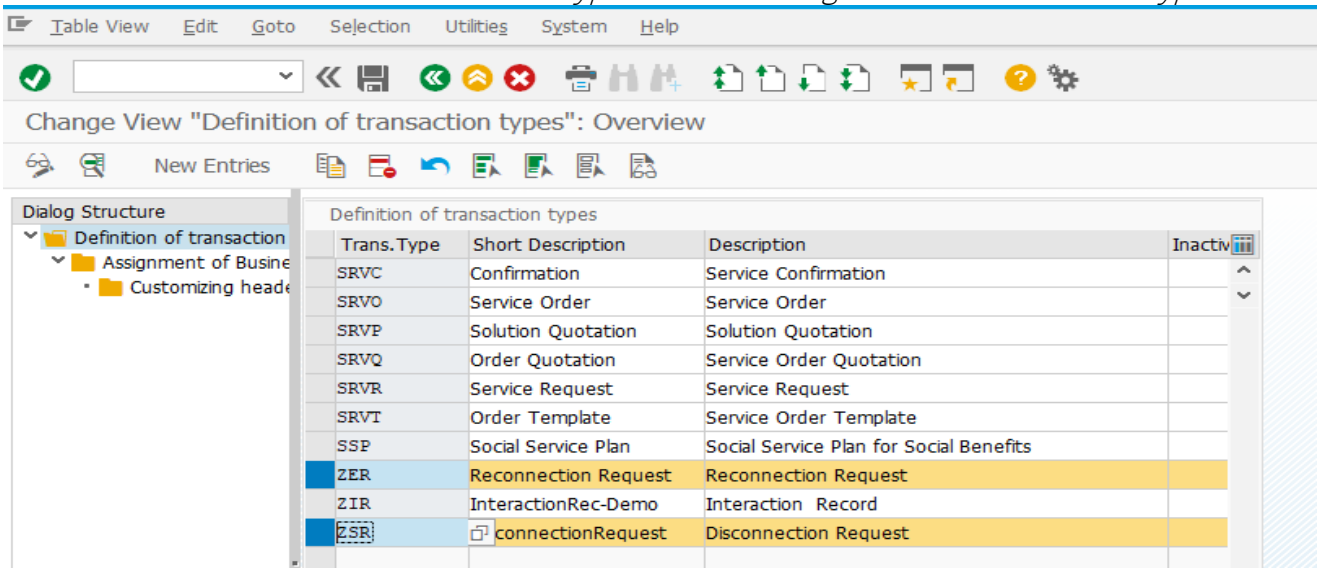
SAP Path - *SPRO – SAP Utilities – Work Management – Processing – Define Plant and Work Center Determination for Orders*



Define service request Type –

A transaction type defines the attributes and characteristics of a business transaction (for example, service order) and the controlling attributes (for example, text determination procedure, partner determination procedure, status profile, organizational data profile). A transaction type controls how a specific business transaction is processed.

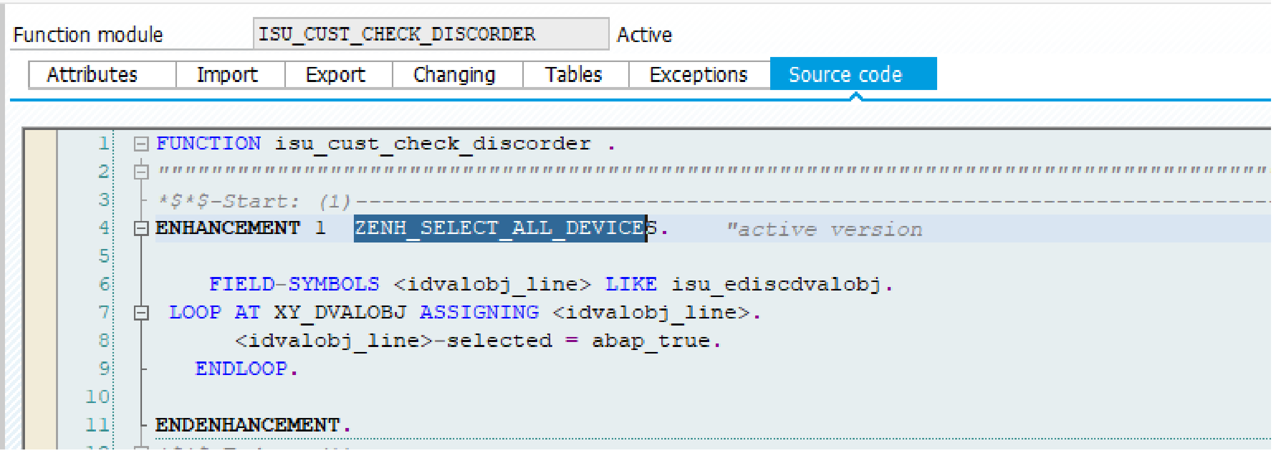
SAP Path - *SPRO – Service – Transaction Types – Basic settings – Define Transaction Types*



Note – Copy standard transaction type SRVR to ZER- reconnection process.

Implicit Enhancement

The Function Module ISU_CUST_CHECK_DISCORDER should be enhanced with implicit enhancement as shown below. The source code is available in SAP Note <todo>.



Create Service Handler Class

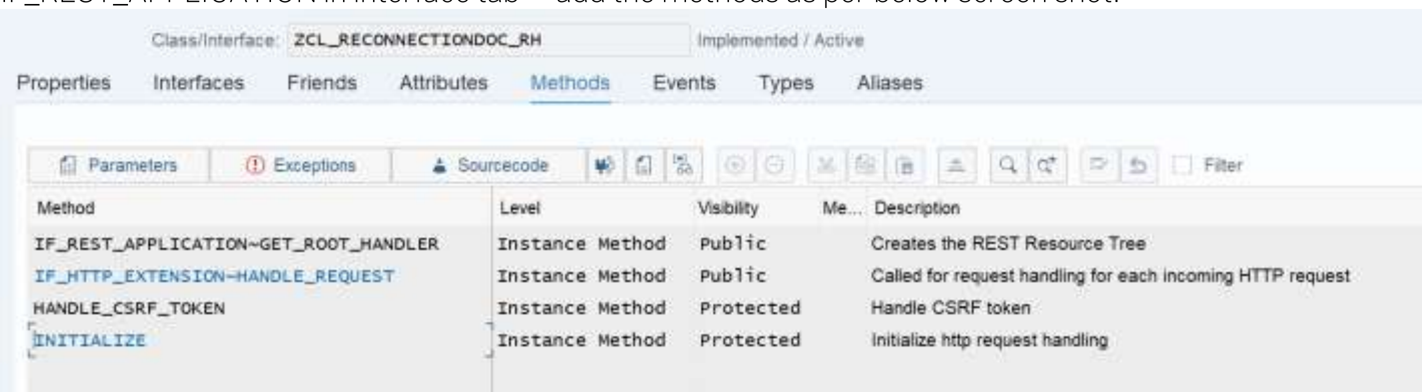
The Handler class ZCL_RECONNECTIONDOC_RH will refer to the below classes

1. ZCL_REST_RE_INSTL
2. ZCL_REST_REORD
3. ZCL_REST_REMR

Note: Text files with source code for each of the class will be attached to SAP Note ....

ZCL_RECONNECTIONDOC_RH

Steps to be followed to create classes: Go to SE24 -> Give object type name as ZCL_RECONNECTIONDOC_RH -> Click on create button-> add interface names IF_HTTP_EXTENSION, IF_REST_APPLICATION in interface tab-> add the methods as per below screen shot.

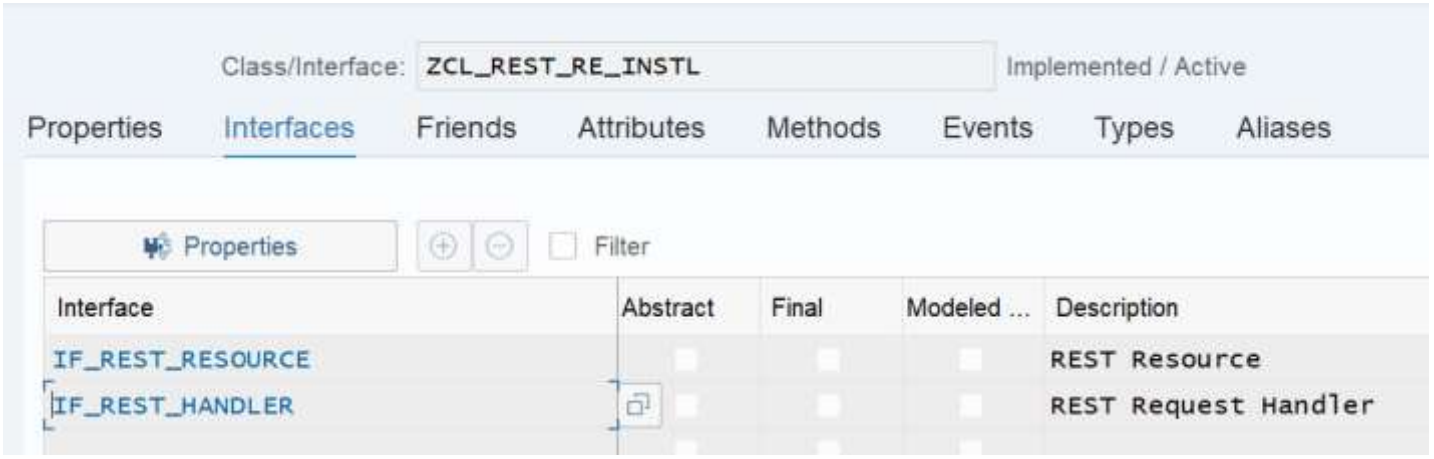


Implements the logic as per attached document.

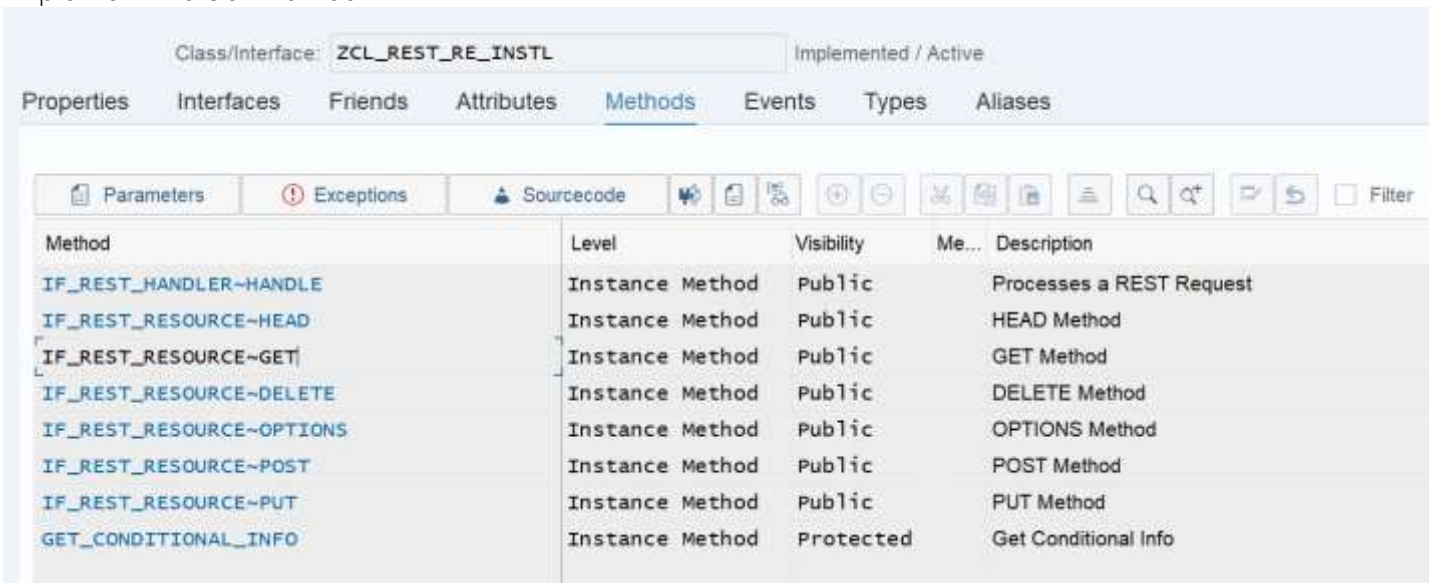
ZCL_REST_RE_INSTL

Steps to be followed to create classes: Go to SE24 -> Give object type name as ZCL_REST_RE_INSTL

-> Click on create button-> add interface names IF_REST_RESOURCE, IF_REST_HANDLER in interface



Implement the Get method

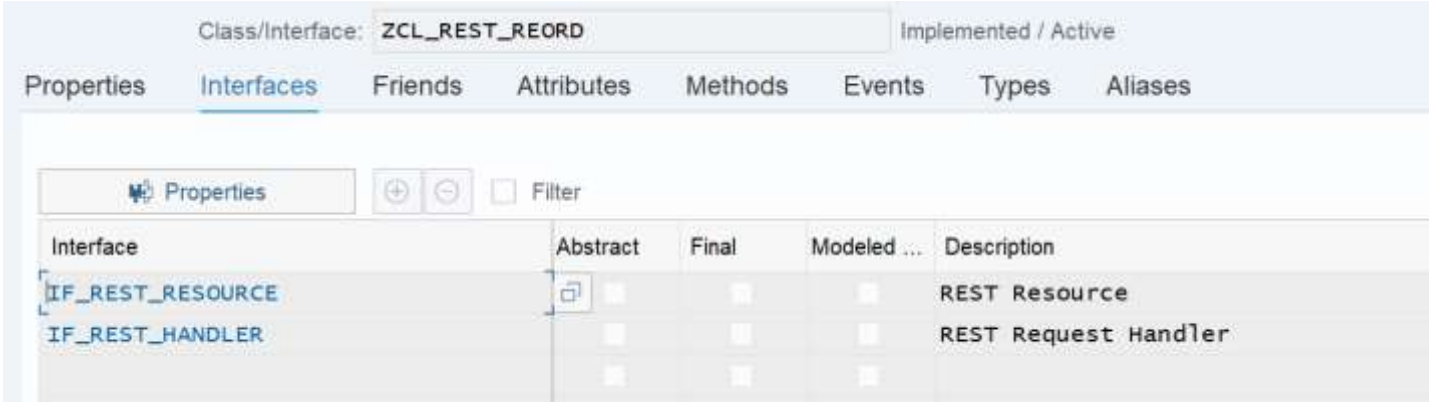


Attached is the logic to implement

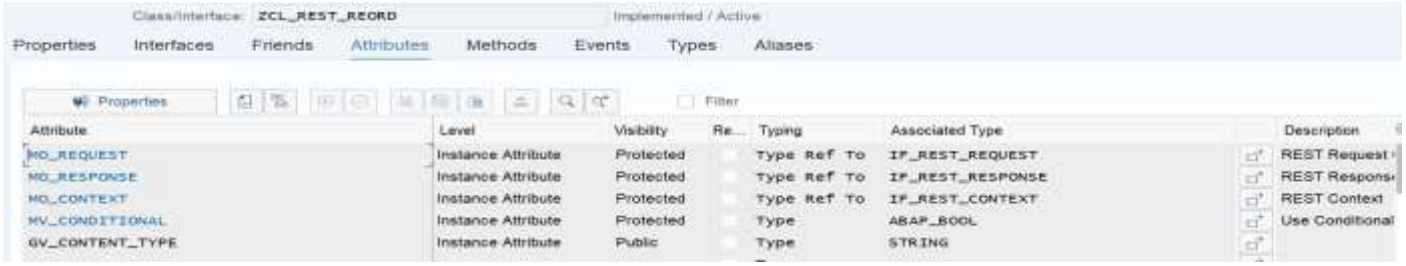
ZCL_REST_REORD

Steps to be followed to create classes: Go to SE24 -> Give object type name as ZCL_REST_REORD

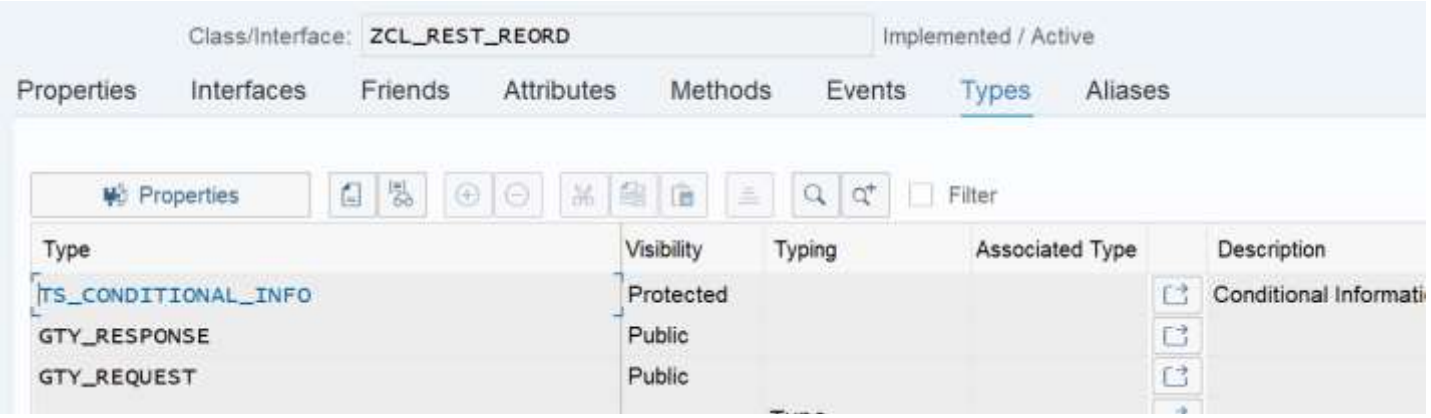
-> Click on create button-> add interface names IF_REST_RESOURCE, IF_REST_HANDLER in interface tab



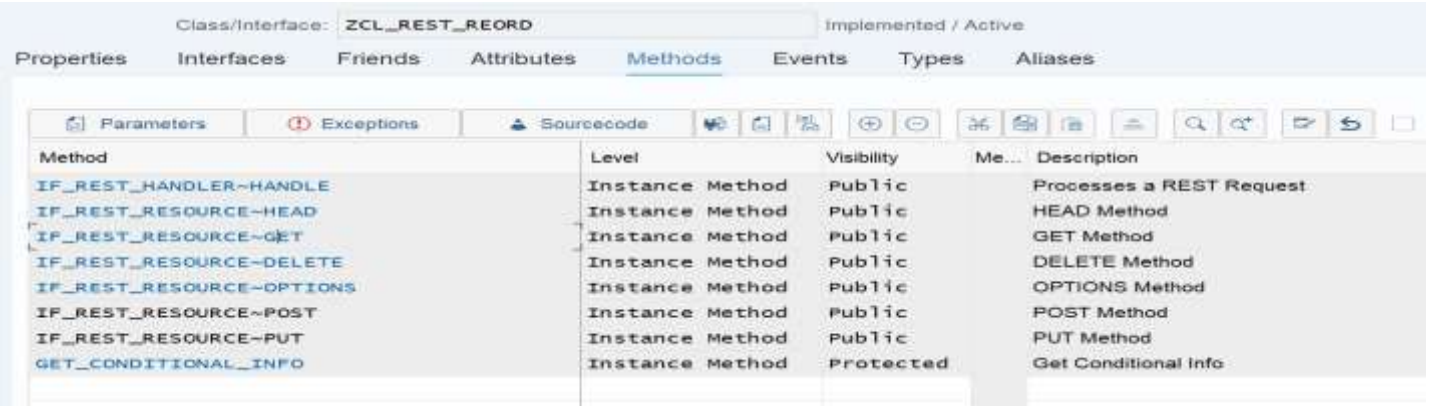
Add attribute GV_CONTENT_TYPE in attribute section



Add type declaration as per below

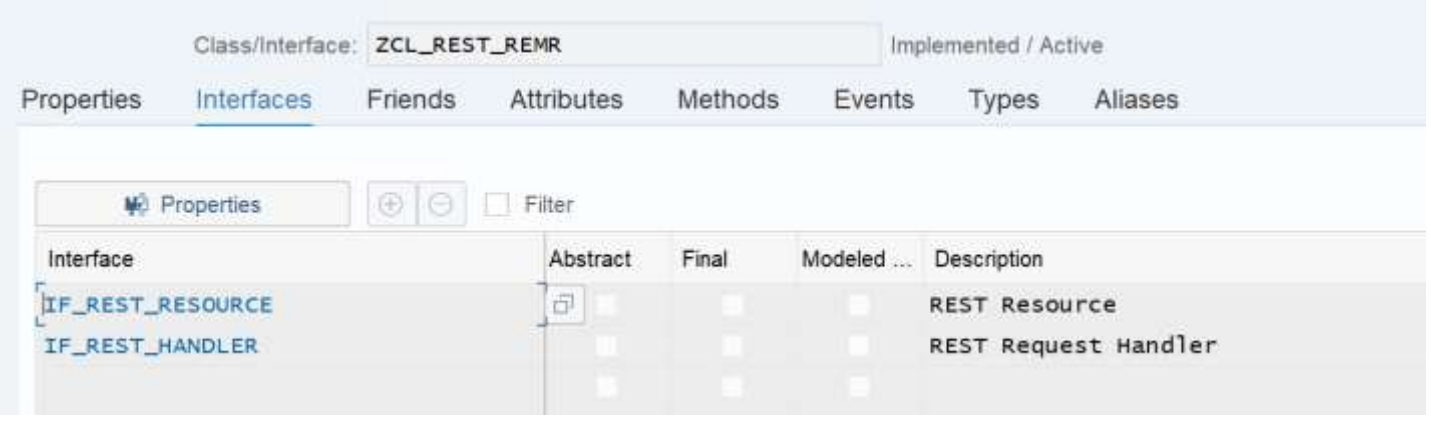


Implement the methods as per below screen shot

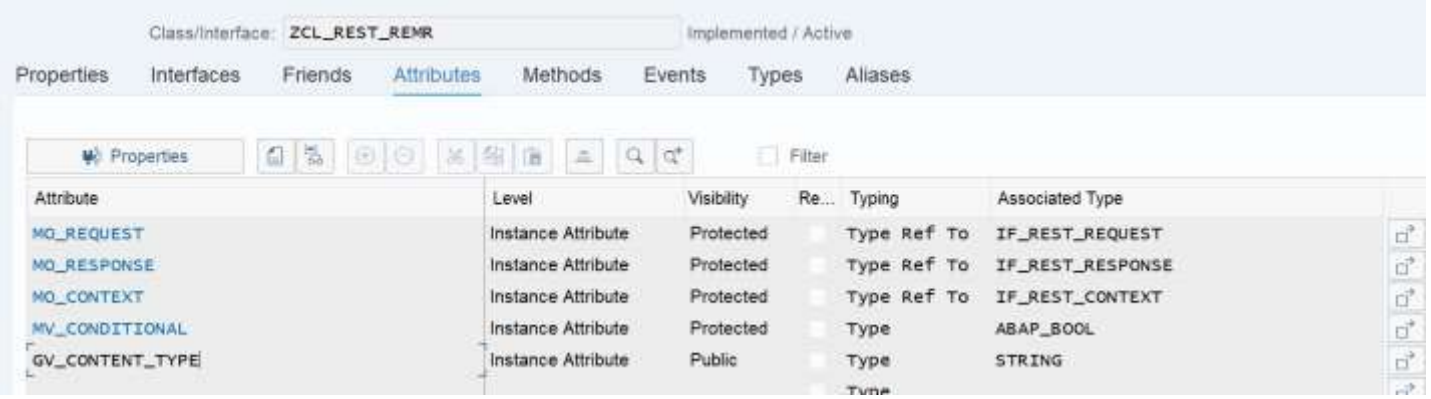


ZCL_REST_REMR

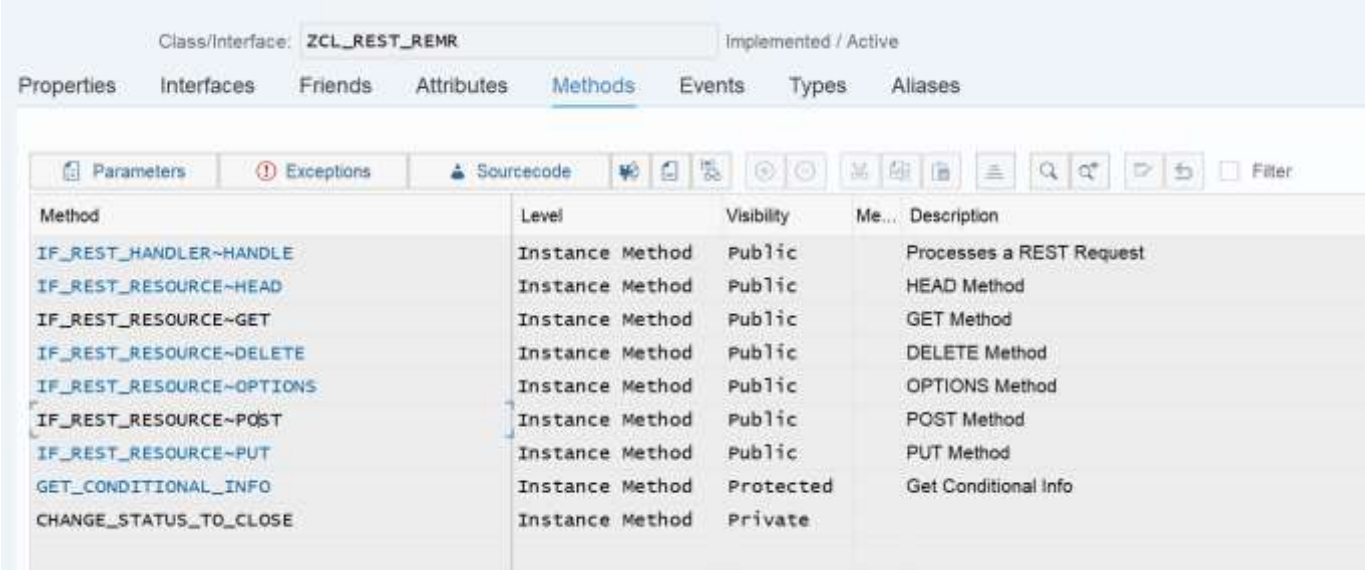
Steps to be followed to create classes: Go to SE24 -> Give object type name as ZCL_REST_REORD -> Click on create button-> add interface names IF_REST_RESOURCE, IF_REST_HANDLER in interface tab



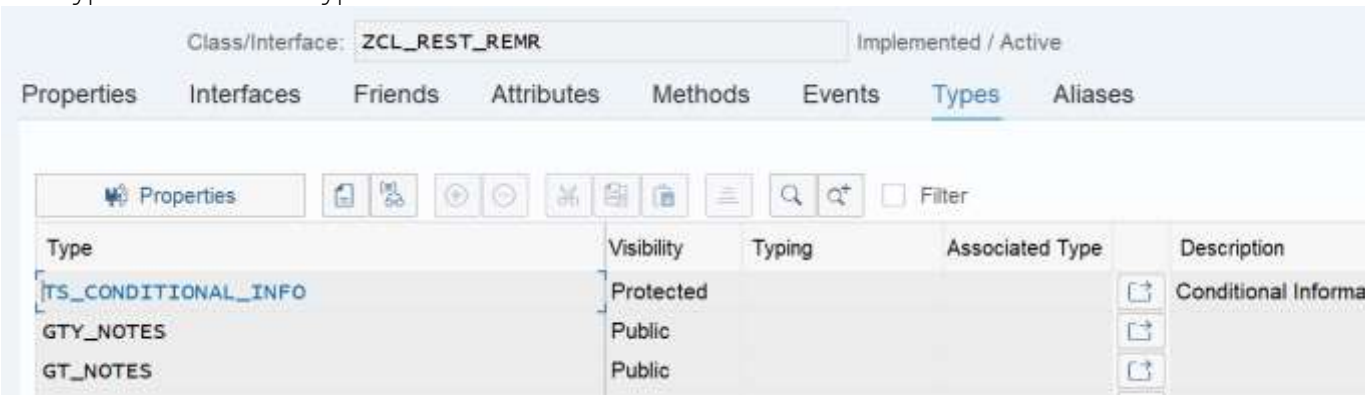
Add GV_CONTENT_TYPE variable in attribute section



Implements the logic for methods



Add type declaration in types tab

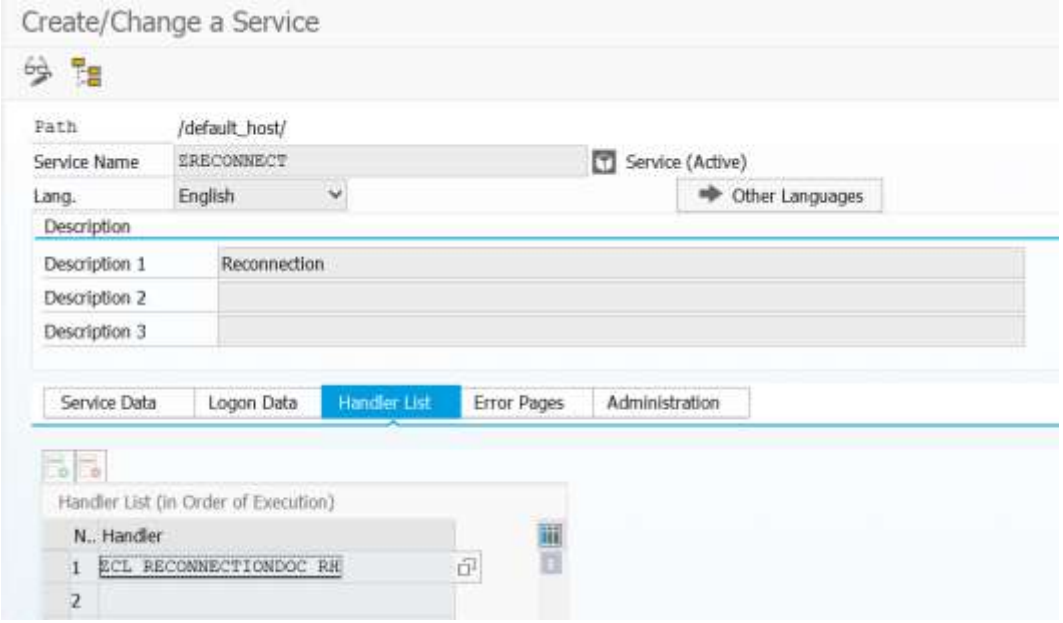


Attached is the logic to implement methods respectively.

Create OData Service

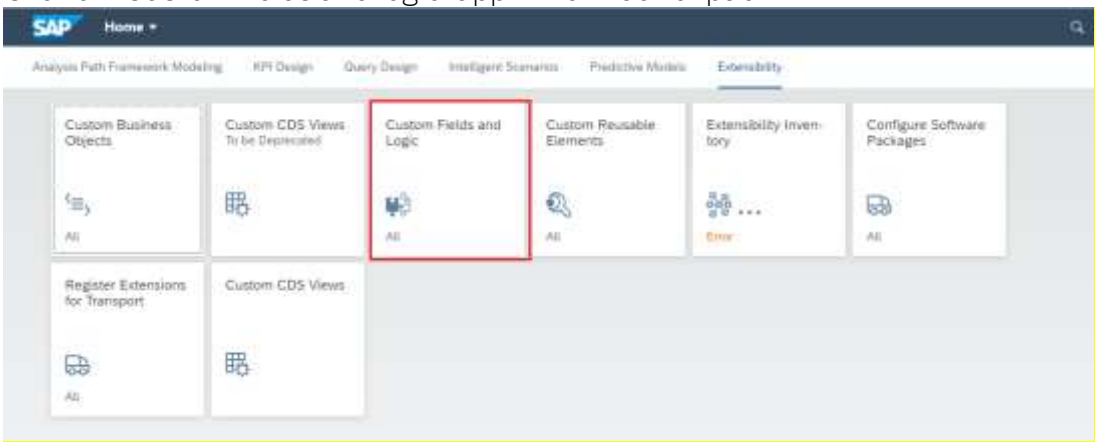
1. SICF Node should be enhanced to have a new Node "ZRECONNECT" as shown below

2. The Node ZRECONNECT should have the class ZCL_RECONNECTIONDOC_RH in the "Handler List" as shown below.



Create Custom fields in OData service API_SERVICE_REQUEST

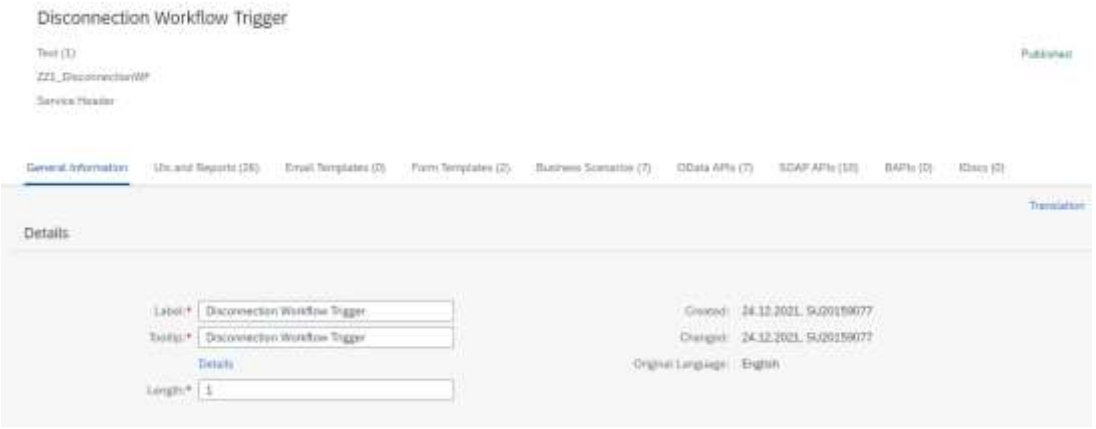
1. Click on "Custom fields and logic" app in Fiori Launchpad.



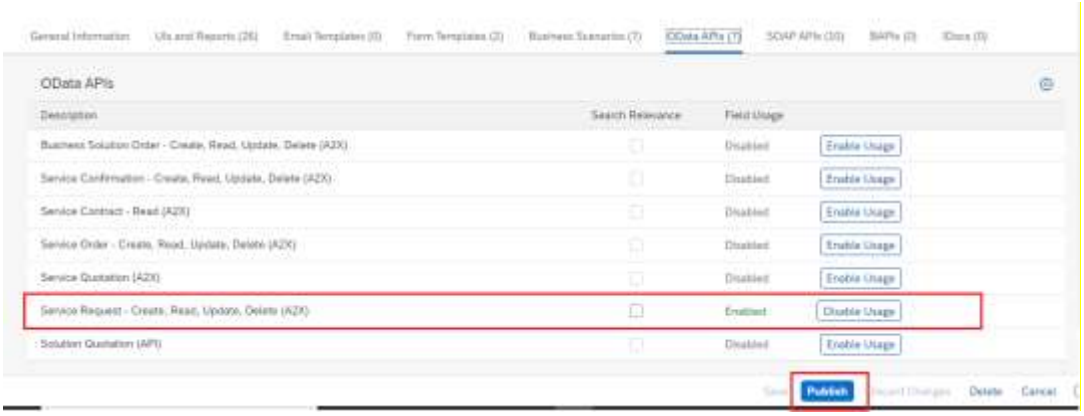
2. Click create option to create the following two fields to be added to the ODATA Service .

Date element	Domain	Length	Description
ZZ1_DISCONNECTIONWF	ZZ1_DISCONNECTIONWF	1	Disconnection Workflow Trigger
ZZ1_INST_1	ZZ1_INST_1	NUMC10	inst_1

a. Enter details as follows for creation of new field ZZ1_DisconnectionWF in the OData API



b. In OData APIs tab, click the Enable Usage button.



c. Click Publish button.

3. Repeat steps(a, b, c) for the field ZZ1_inst_1.

Register OData Services in SAP Gateway:

1. Go to transaction /IWFND/MAINT_SERVICE.
2. Click on 'Add Service'.
3. Select the required System Alias.
4. Click 'Get Services'.
5. Select the OData service API_SERVICE_REQUEST and click on 'Add Selected Services'.
6. Enter the required package and click on OK.