

SAP BUSINESS TECHNOLOGY PLATFORM | EXTERNAL

## Setup Guide

# Plan Activity Prices Approval using SAP Workflow Management or SAP Build Process Automation

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# Overview

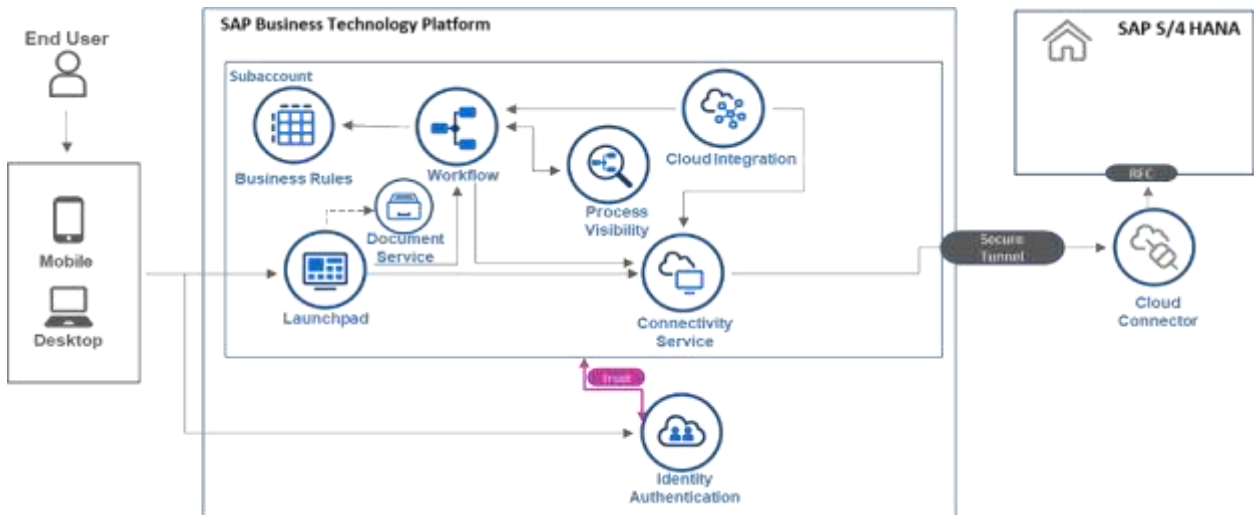
This document provides information about setting up the SAP Business Technology Platform account to consume the workflow content package **Plan Activity Prices Approval**. The main audience of this document are technical IT/system administrators.

This use case deals with updating the Planned activity / Capacity and Price(fixed) and Variable, etc. as per a specific cost center and an activity type. Controller will initiate the approval process in BTP from start UI - Plan activity prices. Data can be entered through manual input or from excel upload

## Features

- Plug and Play with SAP S/4HANA without additional development.
- 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/4HANA from SAP Workflow Management or SAP Build Process Automation
- Out-of-the-box visibility into key process performance indicators.

## Solution Diagram



## Required SAP BTP Services

The workflow content package **Plan Activity Prices Approval** is intended to be used for SAP S/4HANA and requires the following services in SAP BTP:

- SAP Build Process Automation or SAP Workflow Management to orchestrate the process.
- SAP Integration Suite for data activities with SAP S/4HANA
- SAP Connectivity service (cloud connector) to establish access to SAP S/4HANA.
- SAP Launchpad service to access the apps that are involved in the process.
- SAP Business Application Studio to modify/deploy the SAPUI5 applications.
- SAP BTP, Cloud Foundry runtime.
- SAP Cloud Identity Services (Optional)

# Setup and Configuration

**Plan Activity Prices Approval** 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	OAuth2ClientCredentials
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 SMTP Mail Destination

Configure email destination to automatically send email notification to the involved parties. For more information on configuring the destination, see [configure SMTP mail destination](#).

### 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>.

The image shows two screenshots of the SAP Destination Configuration wizard. The top screenshot is the 'Service Instance' tab, showing the following configuration:

- Service Instance: sap\_processautomation
- Name: process\_automation\_service\_destination
- Description: Call SAP Process Automation APIs using a service route

The bottom screenshot is the 'Additional Properties' tab, showing the following configuration:

- Name: process\_automation\_service\_destination
- Type: HTTP
- Description: Call SAP Process Automation APIs using a s...
- URL: https://sap.com/DUMMY\_URL
- Proxy Type: Internet
- Authentication: OAuth2ClientCredentials
- Use mTLS for token retrieval:
- Client ID: sb-...19...
- Client Secret: \*\*\*\*\*
- Token Service URL Type: Dedicated
- Token Service URL: https://...
- Token Service User:
- Token Service Password:

The 'Additional Properties' section on the right includes:

- endpoints: {"api":"https://..."} (with a dropdown arrow)
- html5-apps-...: {"app\_host\_id":"..."} (with a dropdown arrow)
- saasregistry...: true (with a dropdown arrow)
- sap.cloud.s...: com.sap.spa.process... (with a dropdown arrow)
- sap.cloud.s...: spa (with a dropdown arrow)
- Use default JDK truststore

## Configure OAuth2UserTokenExchange Destination

Configure a destination with the following parameters:

Name	sap_process_automation_workflow_useraction
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2UserTokenExchange
URL	<"endpoints"."api">
Client ID	<"uaa"."clientis">

Client Secret	<"uaa":"clientsecret">
Token Service URL	<"uaa":"url">/oauth/token
Additional Properties:	Name: bpmprocessvisibility.triggerWorkflow Value: user

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](#).

## Configure SAP Workflow Management

**Plan Activity Prices Approval** content package requires SAP Build Process Automation or SAP Workflow Management subscription or a CPEA contract. Follow the setup and configuration section of SAP Workflow Management.

<https://help.sap.com/viewer/6f55baaf330443bd8132d071581bbae6/Cloud/en-US/d7910e2bf7f64afc9d0eb21b0cc9e84d.html>

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 OAuth2ClientCredentials 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).

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

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\_START
- WORKFLOW\_INSTANCE\_UPDATE\_CONTEXT
- WORKFLOW\_INSTANCE\_GET
- MESSAGE\_SEND

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](#).

### Configure OAuth2ClientCredentials 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 with the configuration as mentioned in the following help document:

[https://help.sap.com/viewer/6f55baaf330443bd8132d071581bbae6/Cloud/en-US/543b5dbd77d940b4b1f972298b559911.html?q=WM\\_BUSINESSRULES](https://help.sap.com/viewer/6f55baaf330443bd8132d071581bbae6/Cloud/en-US/543b5dbd77d940b4b1f972298b559911.html?q=WM_BUSINESSRULES)

**Configure OAuth2 Client Credentials Workflow Destination (Service**



## Instance)

Similarly, create new Destination to call Workflow Service APIs using a Service route from SAP UI5 Component. For more details, follow the official help document:

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

## 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 (supported only for Neo environment) or OAuth2ClientCredentials.

### 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>

### Additional Properties to Destination

Additionally, add the following properties in the destination for cloud integration.

WebIDEEEnabled	true
WebIDESystem	CPI
WebIDEUsage	odata_gen

### Destination with Basic Authentication (Applicable for Neo environment only)

Name	CPI
Type	HTTP
Proxy Type	Internet
User	<USER ID>
Password	<PASSWORD>
Authentication	BasicAuthentication
URL	<runtime.url>

Additional properties will remain the same between authentication methods.

## Configure APIs in SAP S/4HANA

Following APIs are needed to be configured in SAP S/4HANA to use the content package.

### OData Services:

/sap/opu/odata/sap/API\_CONTROLLINGAREA\_SRV  
/sap/opu/odata/sap/API\_COSTCENTER\_SRV  
/sap/opu/odata/sap/FCO\_MANAGE\_ACTIVITY\_TYPE\_SRV  
/sap/opu/odata/sap/ZWF\_CDS\_DIST\_KEY\_CDS  
/sap/opu/odata/sap/ZWF\_CDS\_CO\_VERSION\_CDS

### Steps to Register OData Services in SAP Gateway

1. Go to t-code "/IWFND/MAINT\_SERVICE"
2. Click on "Add Service"
3. Select the required System Alias (Select LOCAL as system alias in case of Embedded Deployment of Gateway)
4. Enter Technical Service Name as "API\_CONTROLLINGAREA\_SRV" and click on "Get Services"
5. Select "API\_CONTROLLINGAREA\_SRV" and click on "Add Selected Services"
6. Enter the required package and click on OK
7. Repeat steps 1-6 for all the OData services mentioned in previous section

### List of BAPI/RFC which need to be available in SAP S/4HANA

BAPI\_COSTACTPLN\_POSTACTOUTPUT – To post activity type price planning  
BAPI\_USER\_GET\_DETAIL – To get email-id of cost center owner  
BAPI\_TRANSACTION\_COMMIT – To commit post operation for activity type price planning  
BAPI\_TRANSACTION\_ROLLBACK – To rollback post operation for activity type price planning  
ZWF\_FM\_HR\_MASTER\_GET\_APPR\_MULT – To get approver details

Note: Steps to implement custom ABAP objects is mentioned in the Appendix.

### List of SAP Notes to be implemented in SAP S/4HANA

**3008593** - BAPI\_COSTACTPLN\_POSTACTOUTPUT: Manual plan quantity field not populated

**3164091** - BAPI\_COSTACTPLN\_POSTACTOUTPUT: "Planned quantity set manually" indicator is missing in the interface

## Configure RFC Destination

Configure a RFC destination to connect with SAP S/4HANA on-premise. Below is a destination configuration for *SAP S/4HANA on-premise*.

Note: This destination is required by Cloud Integration (Suite).

Name	<RFC_DESTINATION_NAME>
------	------------------------

Type	RFC
Proxy Type	OnPremise
User	<ONPREMISE_USER>
Password	<ONPREMISE_PASSWORD>
Repository User	<ONPREMISE_USER>
Repository Password	<ONPREMISE_PASSWORD>

Additional Properties	jco.client.ashost: <host>
Additional Properties	jco.client.client:<client number>
Additional Properties	jco.client.lang: <language>
Additional Properties	jco.client.sysnr:<system number >

## Configure Cloud Connector

For SAP S/4HANA on-premise landscape, configure cloud connector to enable secure tunnel to SAP BTP tenant. Please refer the help documentation to [configure Cloud Connector](#).

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

Resources	Protocol	Backend-Type
/sap/opu/odata/sap/API_COSTCENTER_SRV	OData	ABAP System
/sap/opu/odata/sap/API_CONTROLLINGAREA_SRV	OData	ABAP System
sap/opu/odata/sap/FCO_MANAGE_ACTIVITY_TYPE_SRV	OData	ABAP System
/sap/opu/odata/sap/ZWF_CDS_DIST_KEY_CDS	OData	ABAP System
/sap/opu/odata/sap/ZWF_CDS_CO_VERSION_CDS	OData	ABAP System
BAPI_USER_GET_DETAIL	RFC	ABAP System
BAPI_COSTACTPLN_POSTACTOUTPUT	RFC	ABAP System
BAPI_TRANSACTION_COMMIT	RFC	ABAP System
BAPI_TRANSACTION_ROLLBACK	RFC	ABAP System
ZWF_FM_HR_MASTER_GET_APPR_MULT	RFC	ABAP System

## Import, configure and deploy cloud 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 S/4HANA Integration with SAP Build Process Automation for Plan Activity Prices Approval

Note: If Approver Determination Strategy is selected as “External Service” in workflow configurations, then a CPI iFlow Get Approvers for Plan Activity Prices Approval with the below mentioned endpoint, input and output details will be called to get the required approver details. In case there is a need for implementation of custom CPI iFlow then the same needs to have the below mentioned endpoint, input and output structure.

API Attributes	Values
Path	/http/getApproverspapawfm
HTTP Method	POST
Payload sent by workflow (sample data)	<pre>{   "d": {     "positions": [       {         "companyCode": "4001",         "positionID": "50000508"       }     ]   } }</pre>
Response Payload from integration flow	<p><b>RESPONSE STATUS, Ex 200 OK</b></p> <pre>{   "d": {     "status": "Success",     "message": "Data fetched successfully",     "approvers": [       {         "userID": "ABC",         "emailID": "abc@abc.com",         "name": "ABC ABC",         "companyCode": "4001",         "positionID": "50000508"       }     ]   } }</pre>

	}
Payload Type	Application / JSON

## Add Workflow start UI in Fiori Launchpad Site

Configure Fiori Launch Pad site to access Workflow Monitoring applications, My Inbox, Process Visibility Workspace and Start UI application to create approval requests.

Please refer help documentation

[how to configure a start ui tiles on Central Fiori Launchpad.](#)

### Deploy Custom UIs and Workflow module

The project consists of the following:

- **ChangeActivitytypeplanning** HTML5 module – serves as the Workflow Start User Interface application for creation of **Change Activity type/price planning requests**

### Configure Change Activity type/price planning tile on Central Fiori Launchpad Site

- Open SAP Launchpad site manager application.
- Select Content Manager and Content Explorer
- Search **com.sap.activitypricestartui** and select SAP UI5 component.
- Click Add to My Content button to include the UI5 component.
- Select My Content tab and Search Everyone.
- Click Everyone from the result and navigate to the details.
- Click Edit button to enable all users to access the new Start UI tile.
- Click New button and Select Group to create a new group.
- Add a Title for eg: Asset Price under PROPERTIES.
- Click + button and Save button.

## Appendix

Perform the below mentioned steps for implementation of custom ABAP objects

To get the list of F4 Help Values from SAP S/4HANA, we are going to create a Custom CDS Views.

### Creating CDS (using ABAP Development Toolkit)

Pre-requisite:

1. Eclipse must be installed along with ADT plugins.

2. Developer access and authorizations should be available in SAP S/4 HANA to create CDS views

#### Steps:

1. Open Eclipse in ABAP perspective
2. Go to Files -> New -> ABAP Project
3. Select the system in which you want to create the CDS view
4. Enter the system connection details and credentials
5. Right click on project and the go to New -> Other and select "Data Definition" (Name of CDS will be "ZWF\_CDS\_DIST\_KEY\_CDS")
6. Copy paste the attached code for "ZWF\_CDS\_DIST\_KEY\_CDS" from **SAP NOTE 3159133** in code editor
7. Click on Save
8. Click on Activate
9. Repeat steps 1 to 8 for following CDS views
  - a. ZWF\_CDS\_CO\_VERSION\_CDS

### Register OData Services in SAP Gateway

#### Steps:

1. Go to t-code "/IWFND/MAINT\_SERVICE"
  2. Click on "Add Service"
  3. Select the required System Alias
  4. Enter Technical Service Name as "ZWF\_CDS\_DIST\_KEY\_CDS" and click on "Get Services"
  5. Select "ZWF\_CDS\_DIST\_KEY\_CDS" and click on "Add Selected Services"
  6. Enter the required package and click on OK
- Repeat steps 1 to 6 for Technical Services listed below
- ZWF\_CDS\_CO\_VERSION\_CDS

### Creating Function Group

#### Steps:

1. Go to t-code "SE37"
2. In Menu, select Go to -> Function Groups -> Create Group
3. Enter Function Group name as "ZWF\_FG\_BTP\_UTIL" and enter a meaningful Short Text (Select the required package name to save this object)
4. Go to t-code "SE80"
5. Select "Function Group" from dropdown
6. Enter "ZWF\_FG\_BTP\_UTIL" as the name of function group and click on Display button
7. Click on Save
8. Right click on the Function Group "ZWF\_FG\_BTP\_UTIL" on the left side panel and "Click on Activate" (Click OK button on the pop-up which shows list of inactive objects)

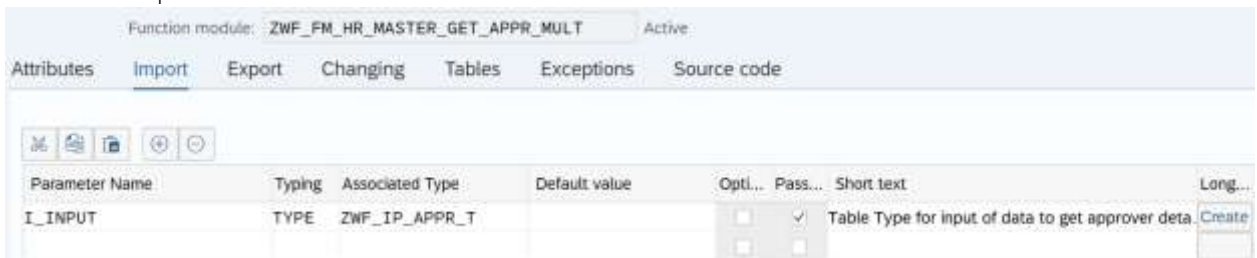
### Creating Function Modules

#### 1) ZWF\_FM\_HR\_MASTER\_GET\_APPR\_MULT

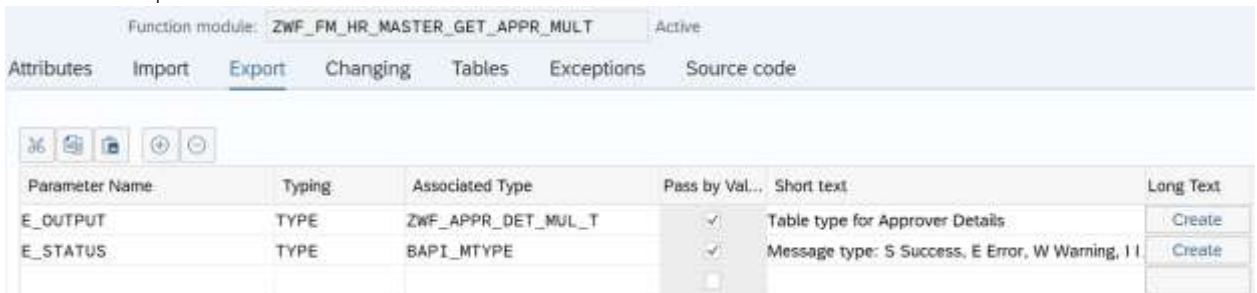
#### Steps:

1. Go to t-code "SE37"
2. Click on "Create" button
3. Enter "ZWF\_FM\_HR\_MASTER\_GET\_APPR\_MULT" as name of Function Module
4. Enter "ZWF\_FG\_UTIL\_BTPWF" as Function Group

5. Enter a meaningful short text
6. Click on “Save” (Click on OK in successive pop-ups)
7. Go to “Import” tab and enter the below mentioned entries



8. Go to “Export” tab and create the below entries



9. Go to “Source Code” tab and paste the attached code for “ZWF\_FM\_HR\_MASTER\_GET\_APPR\_MULT” from SAP NOTE 3159133
10. Go to “Attributes” tab and select radio button for “Remote-Enabled”
11. Click on “Save”
12. Click on “Activate” (Click OK button on the pop-up which shows list of inactive objects)

Note: The details of required “Associated Type” (Table Type) used in the Tables tab are mentioned below:

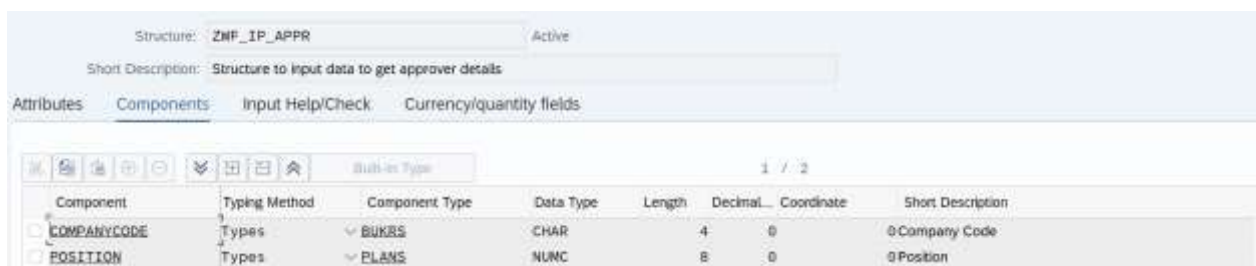




Table Type:  Active

Short text:

Attributes **Line Type** Initialization and Access Primary Key Secondary Key

Line Type:  ...

Built-in type

Data Type:

No. of Characters:  Decimal Places:

Structure:  Active

Short Description:

Attributes **Components** Input Help/Check Currency/quantity fields

1 / 5

Component	Typing Method	Component Type	Data Type	Length	Decimal...	Coordinate	Short Description
<input type="checkbox"/> USER_ID	Types	▼ SYSID	CHAR	30	0		0Communication Identification/Number
<input type="checkbox"/> ENAME	Types	▼ ENNAM	CHAR	40	0		0Formatted Name of Employee or Applicant
<input type="checkbox"/> EMAIL_ID	Types	▼ COMM_ID_LONG	CHAR	241	0		0Communication: Long Identification/Number
<input type="checkbox"/> BUKRS	Types	▼ BUKRS	CHAR	4	0		0Company Code
<input type="checkbox"/> PLANS	Types	▼ PLANS	NUMC	8	0		0Position