SAP BUSINESS TECHNOLOGY PLATFORM | EXTERNAL

Setup Guide

Capital Expenditure Approval Process with SAP Workflow Management or SAP Build Process Automation

THE BEST RUN

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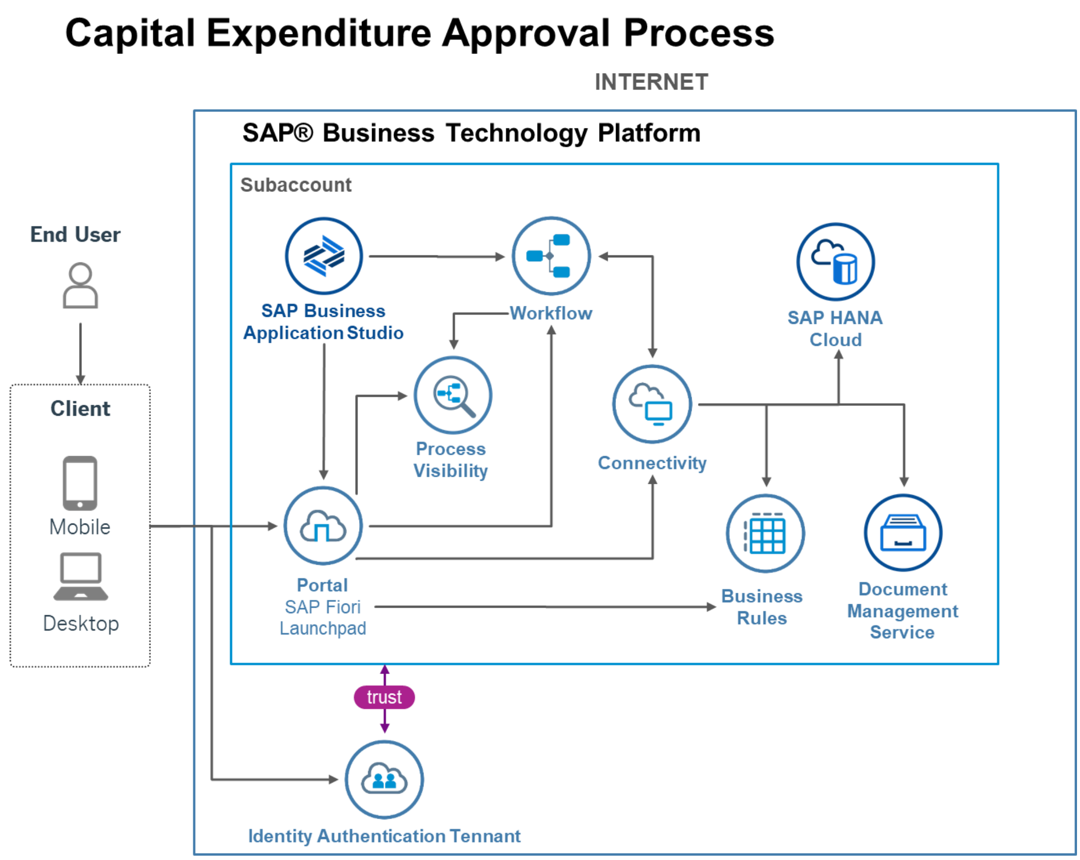
Overview

This document provides information about what needs to be configured to make the Live Process content package Capital Expenditure Approval (CAPEX) Process run. The main audience of this document are IT administrators, consultants and developers. The document describes what needs to be done to make the solution run.

The live process content package enables customers to accelerate the digitalization of their capital investment approval process in a transparent way and provide flexibility to meet business requirements. It includes processes, decisions and visibility scenario content enabling customers to flexibly configure process variants in a low-code to no-code approach.



The CAPEX process enables customers to automate capital expenditure request approvals and provide automation across all steps. A request is created by the user and depending on the amount of investment and other related attributes, number of approval steps are determined. The following steps are included as a part of this CAPEX process:

- Business user creates a Capital Expenditure Approval Process request
- Approvers are determined using decisions
- Approvers are notified via email
- Approvers have three decision options (Approve, Reject, Request Rework), and based on the decision, the next approval step will be created or requested for a rework or the approval request will be terminated.

- Acceptance from all Approvers will send a notification to the requestor and complete the process.

Required SAP Business Technology Platform Services

The following SAP Business Technology Platform Services are required to consume the content package Capital Expenditure Approval Process:

- SAP BTP Cloud Foundry Runtime
- SAP Business Application Studio / Web IDE
- SAP Workflow management or SAP Build Process Automation
- SAP Cloud Portal Service / SAP Launchpad Service
- SAP Document Management Service, Integration option
- SAP HANA Cloud
- SAP Identity Authentication Service (optional)

Setup and Configuration

The Capital Expenditure Approval 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.

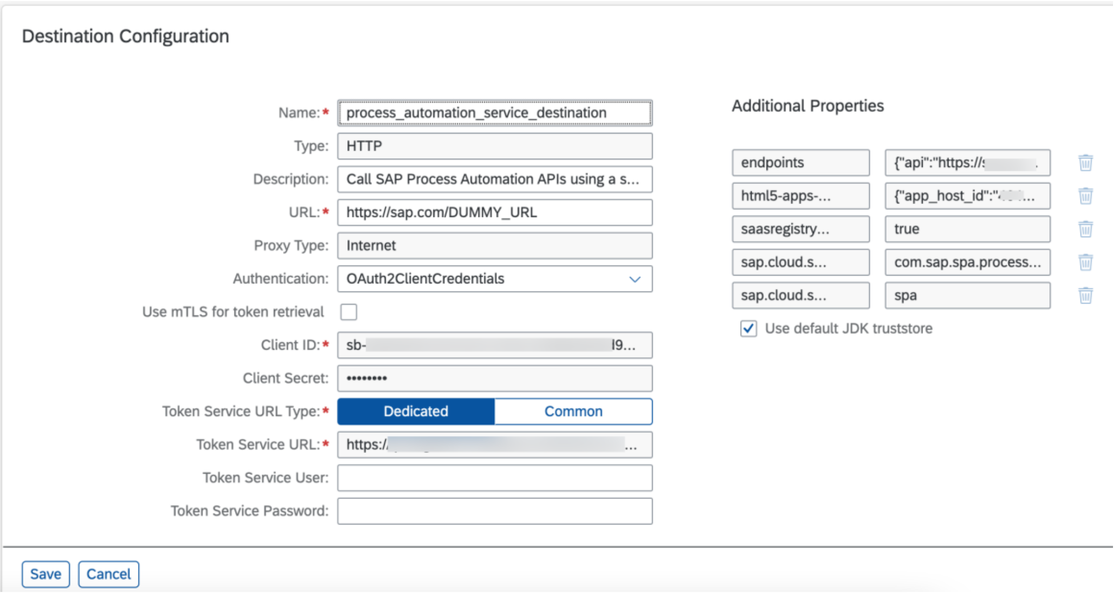
Configure OAuth2ClientCredentials SAP Build Process Automation Destination

(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.

- Click New Destination.
- Select **Service Instance** as **sap_processautomation**
- Enter Name as **process_automation_service_destination** and Description as Call SAP Process Automation using APIs using a service route.
- Click Next button.
- Enter details as shown below and click Save button



Configure SAP Workflow Management

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

Configure Workflow Email Destination

Configure workflow email destination. For more information on configuring destination, see configure workflow email destination.

Configure OAuth2ClientCredentials Workflow Destination

Configure a destination with the following parameters:

Name	Workflow
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2ClientCredentias
URL	https://api.workflow.<region-host>.hana.ondemand.com/workflow-service/rest
Client ID	
Client Secret	
Token Service URL	<"uaa":"url">/oauth/token
Additional Properties:	Name: bpmprocessvisibility.triggerWorkflow Value: system

Please refer help documentation how to get URL, Clientn 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 OAuth2UserTokenExchange Workflow Destination

Configure a destination with the following parameters:

Name	WorkflowActions
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2UserTokenExchange
URL	https://api.workflow.<region-host>.hana.ondemand.com/workflow-service/rest
Client ID	
Client Secret	

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

Please refer help documentation how to get URL, Clientn 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 Business Rules Destination

Configure a Business Rules destination with the following parameters:

Name	BusinessRules
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2ClientCredentias
Client ID	
Client Secret	
URL	{rule_runtime_url}/rules-service
Token Service URL	<"uaa":"url">/oauth/token

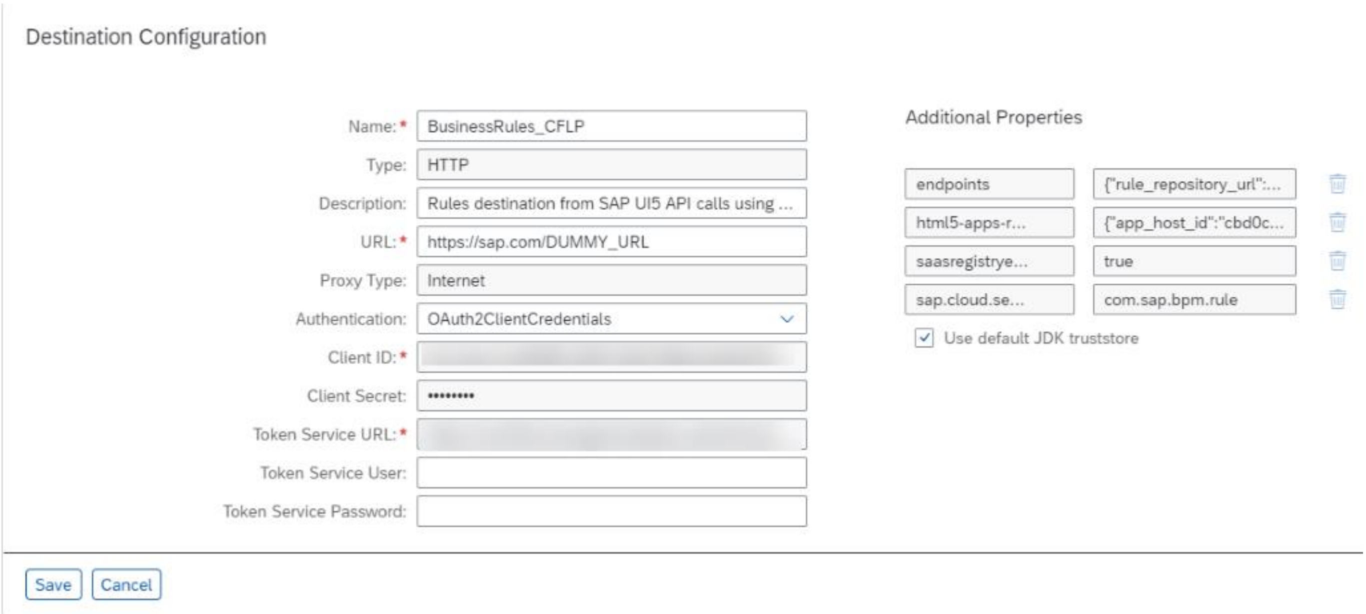
Please refer help documentation how to get URL, Clientn ID , Client Secret and Token Service URL

For more information refer to how to create a HTTP destination and how to access business rules APIs using OAuth 2.0 Authentication (client credentials)

Configure OAuth2ClientCredentials Business Rules Destination (Service Instance)

Create new Destination to call Business Rules Service APIs using a Service route from SAP UI5 Component.

- Click New Destination.
- Select Service Instance as Destination Configuration.
- Select Service Instance as BusinessRules.
- Enter Name as BusinessRules_CFLP and click Next button.
- Click Save button.



Configure OAuth2ClientCredentials Workflow Destination (Service Instance)

Create new Destination to call Workflow Service APIs using a Service route from SAP UI5 Component.

- Click New Destination.
- Select Service Instance as Destination Configuration.
- Select Service Instance as Workflow.
- Enter Name as Workflow_CFLP and click Next button.

Configure Document Management Service Repository

To create and configure root Document Management Service repository please follow the steps described in Initial Setup for Document Management, Integration Option and Connect to Document Management, Repository Option Using API (incl. Prerequisites).

Save generated Repository ID from the response.

Configure Document Management Service Destination

Configure a Document Management Service destination with the following parameters:

Name	bpmworkflowruntime_attachments
Type	HTTP
Proxy Type	Internet
Authentication	OAuth2UserTokenExchange
URL	<"endpoints":"ecmservice":"url">/browser/<Repository_ID>/root/

Token Service URL	<"uaa":"url">/oauth/token
Token Service URL Type	Dedicated

Populate Client ID and Client Secret with the values from the Service Key created on the previous step (see Create Service Keys Using the Cockpit).

For more information refer to Create HTTP Destinations and OAuth User Token Exchange Authentication.

Make sure that the users which are going to use the application have "SDM_Admin" or "SDM_User" roles assigned to them.

Create SAP HANA Cloud instance

Refer to the guide for Creating SAP HANA Cloud Instances.

Deploy Visibility Action Workflow module

Use Public SAP github to download the project. Extract the following projects under the VisibilityActionWorkflow folder. Please follow readme.md file in SAP git hub.

This project contains workflows as Process Visibility actions such as system action triggering automatic notifications when a process is failed, suspended, critical or at risk and user action to enable Process Administrators to restart a capital expenditure approval request.

Deploy Custom UI5 uis, Fiori Launch Pad and Cloud Application Programming modules

Import the project zip file from SAP samples git hub.

Use Public SAP github to download the project. Extract the following projects under the User Interface folder. Please follow readme.md file in SAP git hub.

This project contains custom HTML5 applications as well as Fiori Launch Pad modules and Cloud Application Programming model modules, which are required for capital expenditure request creation and approval process.

Access your SAP BTP Cockpit and assign CapexDataModelViewer and CapexDataModelAdmin roles to the relevant users to enable them to manage / view data in HANA.

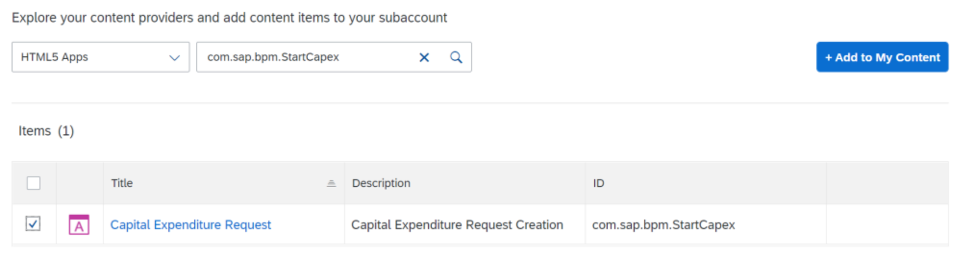
Please note that during deployment of the project the following resources will be processed:

- Destination service with the name Destination (will be created, if not existent);
- Workflow Management service with the name WorkflowMgmt (will be created, if not existent);
- Process Visibility service with the name ProcessVisibility (will be created, if not existent);
- Workflow service with the name Workflow (you should have created the service instance with this name);
- Business Rules service with the name BusinessRules (will be created, if not existent);

If you have previously created these service instances with the different names and would like to reuse them in this project, please modify mta.yaml file accordingly.

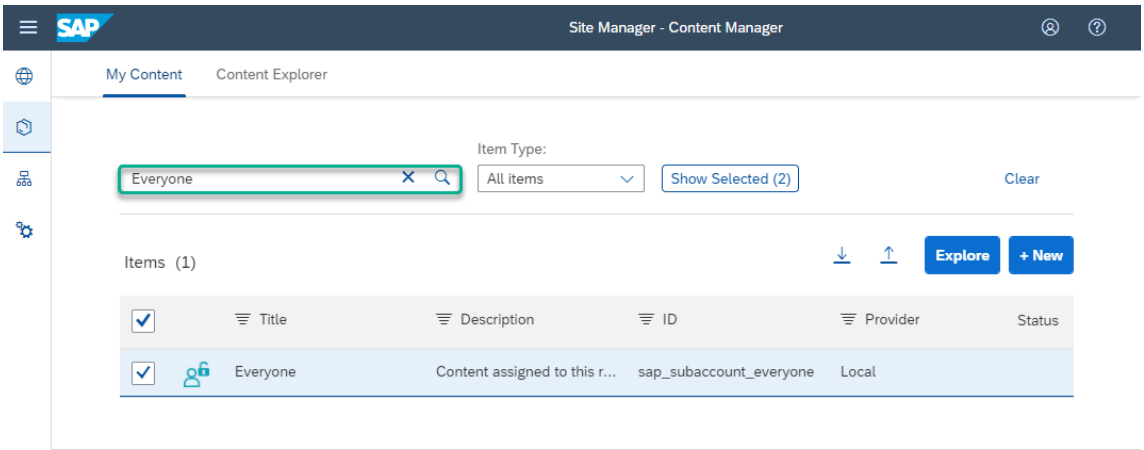
Add Workflow start UI in Fiori Launchpad Site

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

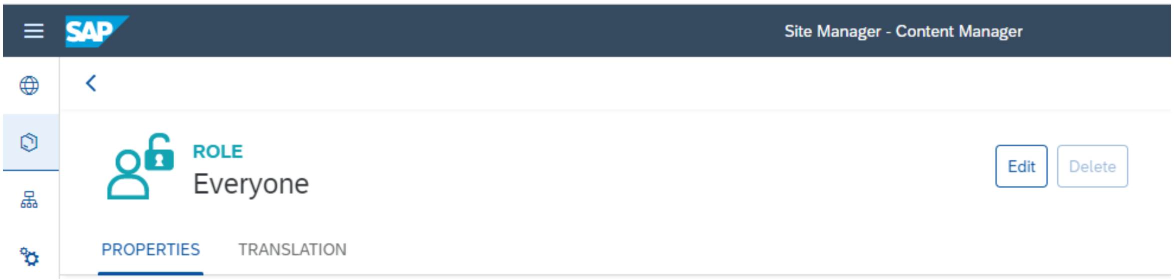


- Select My Content tab and Search Everyone.

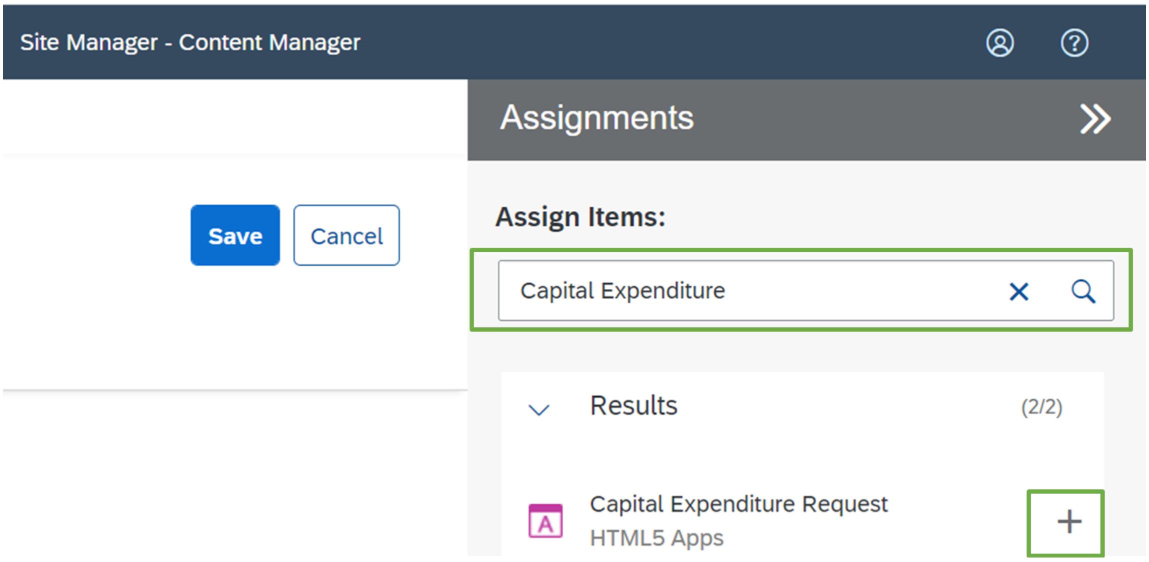
- Click **Everyone** from the result and navigate to the details.



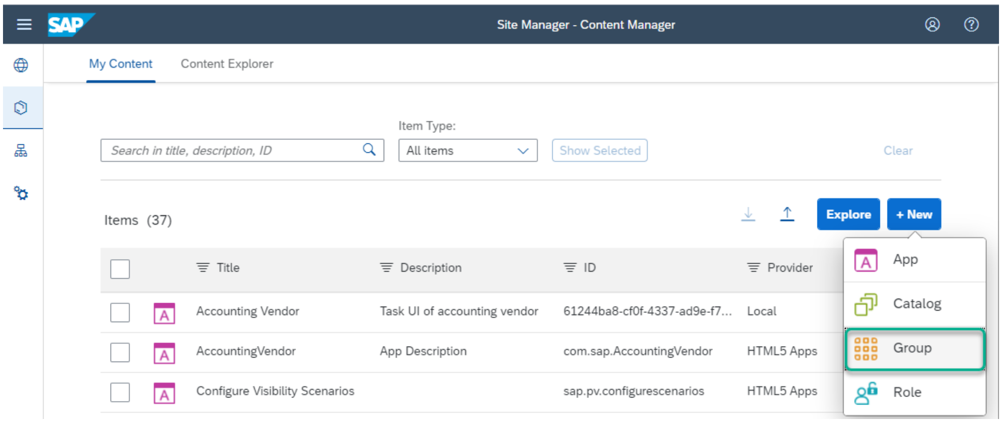
- Click Edit button to enable all users to access the new Start UI tile.



- Search for Capital Expenditure and select Capital Expenditure Request.
- Click the **+** button and Save the changes.



- Click **New** button and Select **Group** to create a new group.



- Add a **Title** for eg: Capital Expenditure Approval Request under **PROPERTIES**.
- Search Document and Select Document Centric Approval Request.
- Click **+** button next to **Capital Expenditure Request** (HTML5 Apps) under Results and **Save** button.

Manage Investment Details Master Data

You can manage investment details master data by utilizing SAP UI5 applications that were deployed in the previous step. The url to access the deployed Fiori Launch Pad is available under Applications in your cloud foundry space. These applications enable you to:

1. Manage Countries;
2. Manage Currencies;
3. Manage Investment Types;
4. Manage Divisions (Business Units).

For this, access the FLP and select one of the tiles like Manage Countries, Manage Currencies, Manage Investment Types, Manage Divisions etc in “Manage Master Data” section.

After the application has opened, click on “Create” button.

Populate fields with the relevant data and select “Save”

You can also edit or delete records of the table.

How to start the Process Variant

An activated CAPEX process variant can be used to create a new CAPEX request. It is possible to start a new CAPEX request using a deployed SAP UI5 application or from a remote application using Workflow APIs. This content package provides SAP UI5 based CAPEX start UI application enable business users to create new CAPEX approval requests.

Use Start UI provided with the content package

Refer to End User Guide on how to start the workflow (Using the Capital Expenditure Approval workflow > Creating Capital Expenditure Request).

Create and use your own Start UI

To start the workflow for a given variant, three steps are necessary:

- Determine Workflow Definition Id;
- Define Start Payload (Initial Context);
- Create your own Start UI;
- Start the workflow by calling API from your application.

Determine Workflow Definition Id

This can also be seen in the “Monitor Workflows – Workflow Definitions” application:

Define Start Payload (Initial Context)

The predefined Custom UIs and Business Rules in this package expect a specific workflow context. This context is given to the workflow instance upon starting. Following is the format defined for the Capital Expenditure Approval Process, along with example values:

```
{
    "RequestId": "IAP-2020-173",
    "Title": "App Creation",
    "Requester": {
        "FirstName": "John",
        "LastName": "Doe",
        "Email": "John.Doe@example.com",
        "UserId": "jdoe",
        "Comments": "Please Approve"
    },
    "Investment": {
        "TotalCost": 50000,
        "Type": "Software",
        "TypeCode": "SW",
```

```
        "CAPEX": 40000,
        "OPEX": 2000,
        "Currency": "EUR",
        "CurrencyCode": "EUR",
        "ROI": 15,
        "IRR": 5,
        "Country": "Germany",
        "CountryCode": "DE",
        "BusinessUnit": "Business Process Management",
        "BusinessUnitCode": "BPM",
        "Description": "Provide a fresh experience for our customers by providing new apps for our services"
    },
    "Sustainability": {
        "EnergyEfficiency": 10,
        "CO2Efficiency": 20,
        "EnergyCostSavings": 15,
        "WaterSavings": 10
    },
    "Attachments": [
        {
            "objectId": "peTEKH-XYNIauSJR9BDIktM1xthdXbAC2e25qJe7uCo",
            "name": "Picture.jpg"
        },
        {
            "objectId": "G-j2YIgohzQ2ZxQ2bQ5V50sh6-KYmnFYvG9NfDOr2XI",
            "name": "Document.docx"
        }
    ],
    "isTesting": false
}
```

Table 1 shows the technical description of the fields (see also Error! Reference source not found. for a business description)

Table 1. Special Start Payload fields

FIELD	COMMENT
`RequestId`	This should be unique for each workflow instance.
`Title`	The title is shown in User Tasks and Email notifications.
`Requester.Email`	This email address is used for sending notifications to the requester.
`Requester.UserId`	The user Id of the requester.
`Investment.*` `Sustainability.*`	Investment and sustainability related data.

`Attachments*`	Contains unique ID and full name of the document.. When starting the workflow from API ,set value as [].
`isTesting`	If this is 'true' on workflow start, the testing mode is activated. This results in approval notifications and tasks being send to the process initiator instead of the approver as defined in the Business Rule. Ensure that it is 'false' for productive systems.

Create you own Start UI

Refer to how to create a Start UI.

Start the workflow

Call the API endpoint from your application. See the API Reference for "Workflow Instances" – "Start a new Instance" by issuing a REST POST call to the `/v1/workflow-instances` endpoint.