

## Requirements

This document guides through the steps to be executed to implement the View POD Plugin example and template. Plugins to be deployed to SAP BTP Cloud Foundry to extend standard POD functionality with custom POD Plugins functionality.

SAP Business Application Studio is used as a development environment for developing a Multi-Target Application which includes a HTML5 Module containing the plugin Components for use in POD Designer and the POD.

For setting up SAP Business Application Studio in an Enterprise Account refer to [Getting Started](#) topic of the SAP Business Application Studio Administrator Guide.

Project details:

- The “Example for View Plugin” (podplugins/webapp/exampleViewPlugin) demonstrates a 'View' type plugin that displays current selection information in the POD during runtime. This also demonstrates how to define and implement the necessary functions to subscribe to a custom notification event. This plugin also shows how to call public API to read material custom data.
- The “View Plugin Template” (podplugins/webapp/viewPluginTemplate) demonstrates a template that can be copy-pasted and adjusted as needed for the custom View POD Plugin.

See the Production Operator Dashboard (POD) Plugin Developer's Guide at link [https://help.sap.com/docs/SAP\\_DIGITAL\\_MANUFACTURING\\_CLOUD?task=develop\\_task](https://help.sap.com/docs/SAP_DIGITAL_MANUFACTURING_CLOUD?task=develop_task) for more technical details that will help with POD Plugin implementations.

The screenshot shows the SAP Digital Manufacturing Cloud help page. The header includes the product name, language (English), and version (Production). Below the header is a search bar and a navigation menu with tabs: See all, Discover, What's New, Implement, Integrate, Use, Operate, Develop (selected), and Learn and Get Certified. The main content area is titled 'Development' and contains three sections: 'Production Operator Dashboard Plugin Developer's Guide' (highlighted with an orange box), 'Business Process Extensions – Developer's Guide', and 'SAP Samples'. The 'Production Operator Dashboard Plugin Developer's Guide' section includes a description and a link to the PDF. The 'Business Process Extensions – Developer's Guide' section includes a description and a link to the PDF. The 'SAP Samples' section includes a description and a link to the samples.

**SAP Digital Manufacturing Cloud** English ▼ Production ▼

A cloud solution that provides manufacturing and industrial customers with analytics, plant and enterprise-level Industry 4.0 execution, machine/equipment modeling, data co

This product ▼ Search in all documents related to this product

Advanced Search

☆ Fa

See all | Discover | What's New | Implement | Integrate | Use | Operate | **Develop** | Learn and Get Certified

**Development**

**Production Operator Dashboard Plugin Developer's Guide**

Learn how to create plugins for display and execution in the Production Operator Dashboard (POD).

**Business Process Extensions – Developer's Guide**

Learn how to configure SAP BTP, serverless runtime for SAP Digital Manufacturing Cloud and register services in service registry for further reuse in Production Process Designer and POD Designer.

[Also available as PDF](#)

**SAP Samples**

Find samples for plugins, business processes, as well as other useful content to show how you can extend your solution to meet your needs.

**API References for SAP Digital Manufacturing Cloud**

Discover integration packages on the SAP API Business Hub that offer integration and extensibility options for

## Prerequisites

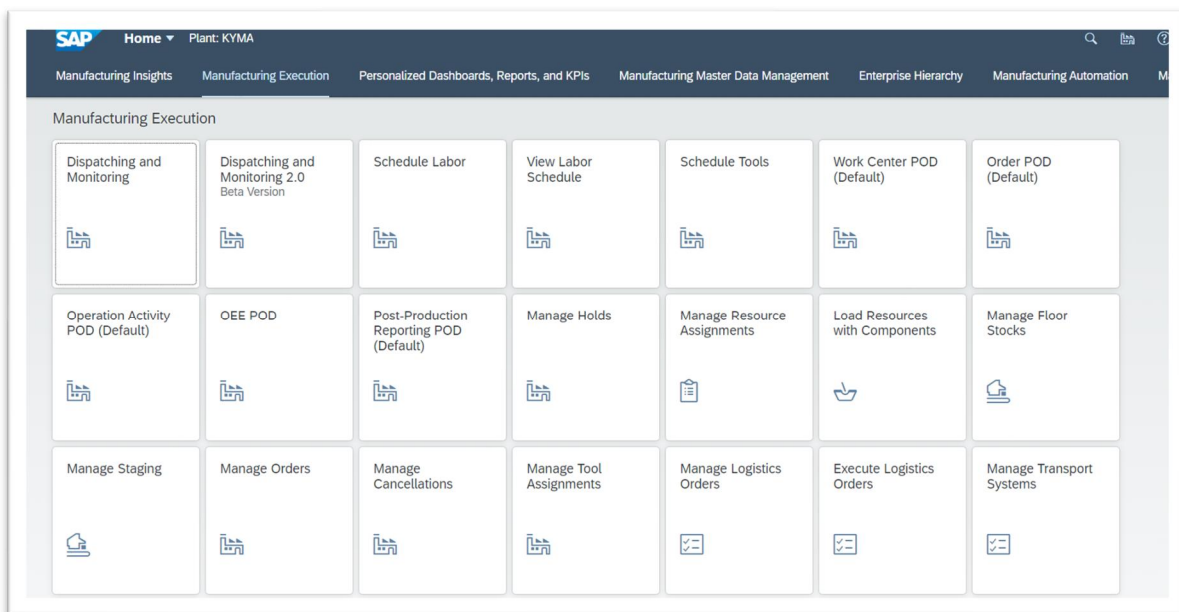
If you plan to follow the installation and configuration steps and deploy the project by yourself, you have to do some preparations:

1. Get a free account on SAP BTP Trial  
Follow the steps from this tutorial: <https://developers.sap.com/tutorials/hcp-create-trial-account.html>

2. Set up SAP Business Application Studio for development

Follow the steps from this tutorial: <https://developers.sap.com/tutorials/appstudio-onboarding.html>

3. Request access to DME and applications, such as:
  - Manage Service Registry
  - POD Designer
  - Work Center POD



4. Clone the Git repository

In your browser, go to <https://github.com/SAP-samples/digital-manufacturing-extension-samples>

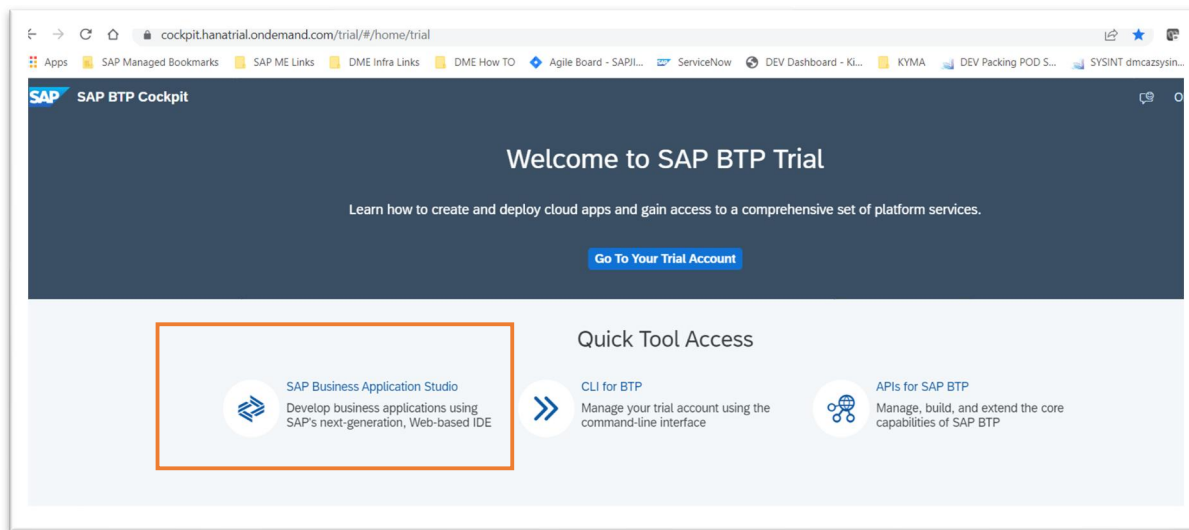
Choose the Code button and choose one of the options to download the code locally or simply run the following command within your CLI at your desired folder location:

`git clone https://github.com/SAP-samples/digital-manufacturing-extension-samples`

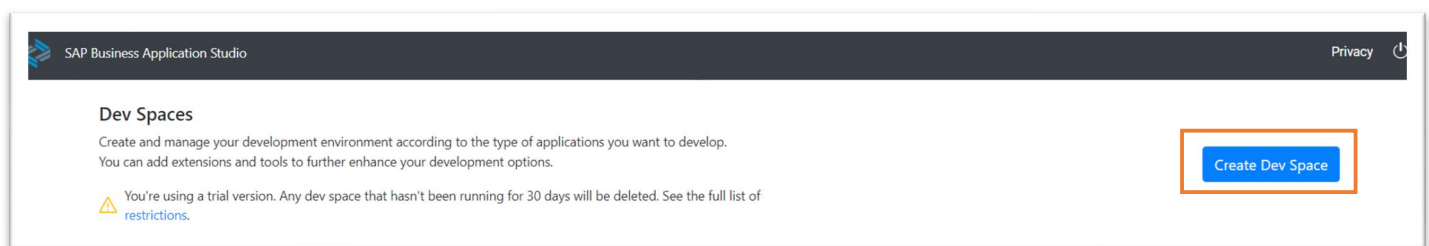
5. Open the DMC\_UIExtensions/ViewPodPluginTemplate\_and\_Example directory in your desired editor, it contains two folders:
  - documentation for installation and configuration guide
  - project for the implementation part

# Installation Steps

## 1. Open SAP Business Application Studio.



## 2. Choose Create Dev Space.



## 3. At the "Create New Dev Space" screen execute the following steps:

- Enter the POD\_Plugins name for your dev space.
- Choose Full Stack Cloud Application as the application type.

By selecting Full Stack Cloud Application your dev space comes with several extensions out-of-the-box that you need to develop applications.

- Choose Create Dev Space.

The Dev Space will then begin starting and the process will take a minute or so as your cloud environment is being created. You see that the status for your dev space will change from **STARTING** to **RUNNING**.

### Create a New Dev Space

POD\_Plugins ✓

What kind of application do you want to create?

☐ SAP Fiori

☒ Full Stack Cloud Application

☐ SAP HANA Native Application

☐ SAP Mobile Application

### Full Stack Cloud Application Dev Space

Build business services and business applications and extend SAP S/4HANA using SAP Cloud or Node.js.

#### SAP Predefined Extensions

The following extensions are enabled by default.

Addition  
Select add



#### Basic Tools

Allows you to optimize your web development workflow. The extension includes capabilities such as ... [more](#)

☐



#### CDS Graphical Modeler

Allows you to design SAP core data services models in SAP cloud business application development projects.... [more](#)

☐



#### CAP Tools

Allows you to develop CAP applications using the CDS command-line and tools. Includes enhanced code an... [more](#)

☐

Please NOTE: In the SAP BTP trial you are limited to only two Dev Spaces and only one can be active at a time.


- Once the Dev Space reaches the green status of **RUNNING**, you can click on the name of the Dev Space and it will load into the editor within your browser.

### Dev Spaces

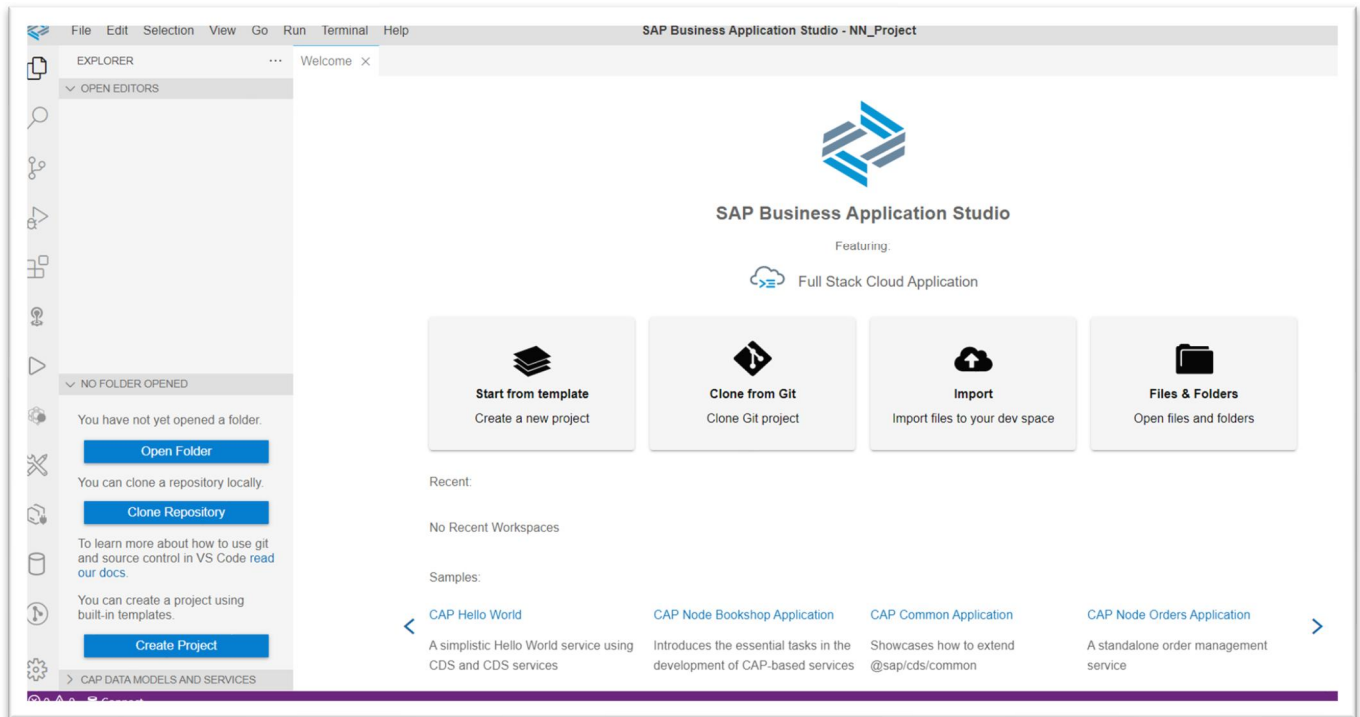
Create and manage your development environment according to the type of applications you want to develop. You can add extensions and tools to further enhance your development options.

You're using a trial version. Any dev space that hasn't been running for 30 days will be deleted. See the full list of [restrictions](#).

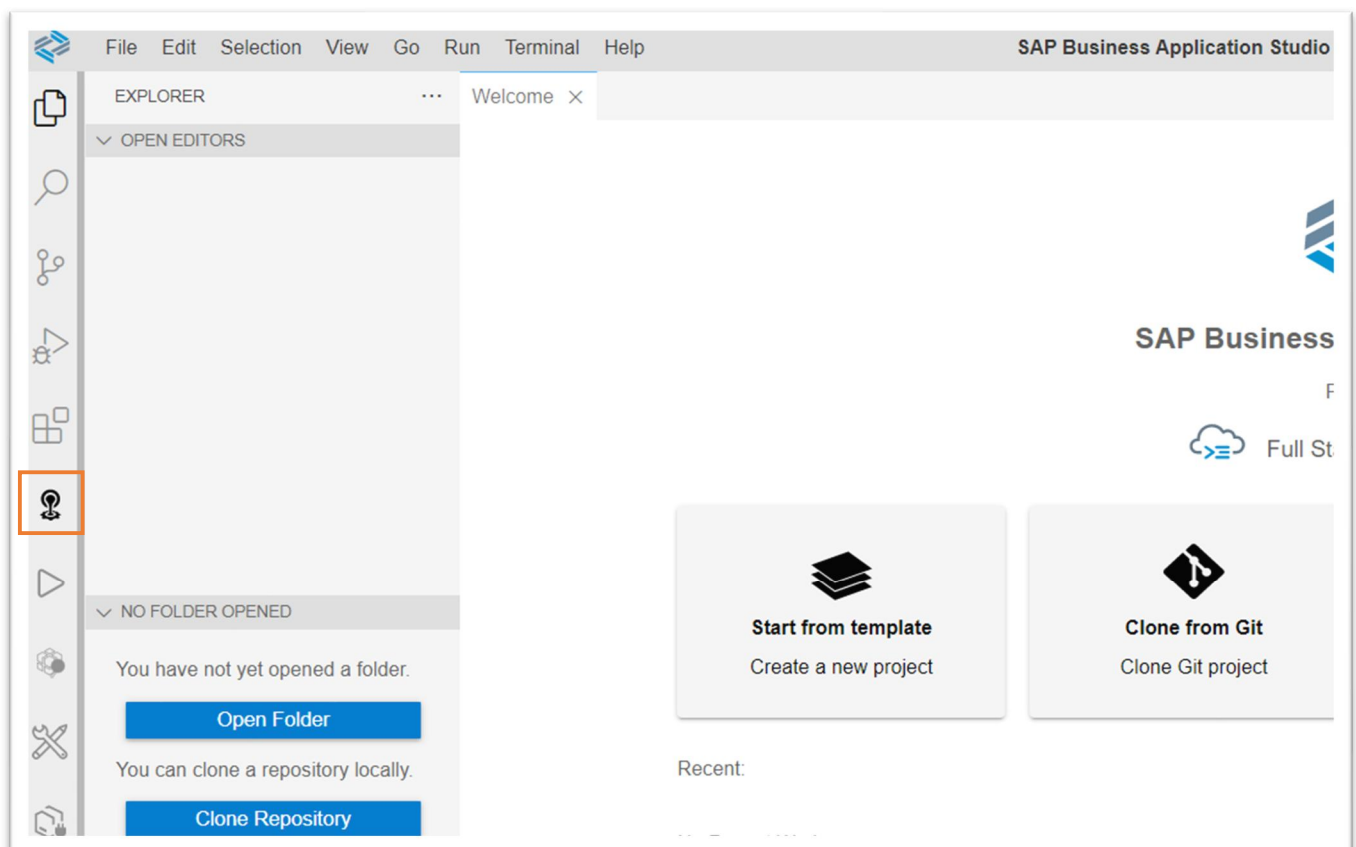
You are allowed a total of 2 dev space: hidden dev space

 <div> <b>POD_Plugins</b>  Full Stack Cloud Application </div>	<b>RUNNING</b>	Created On 05/23/2022 1:41 PM	ID ws-kjsnn
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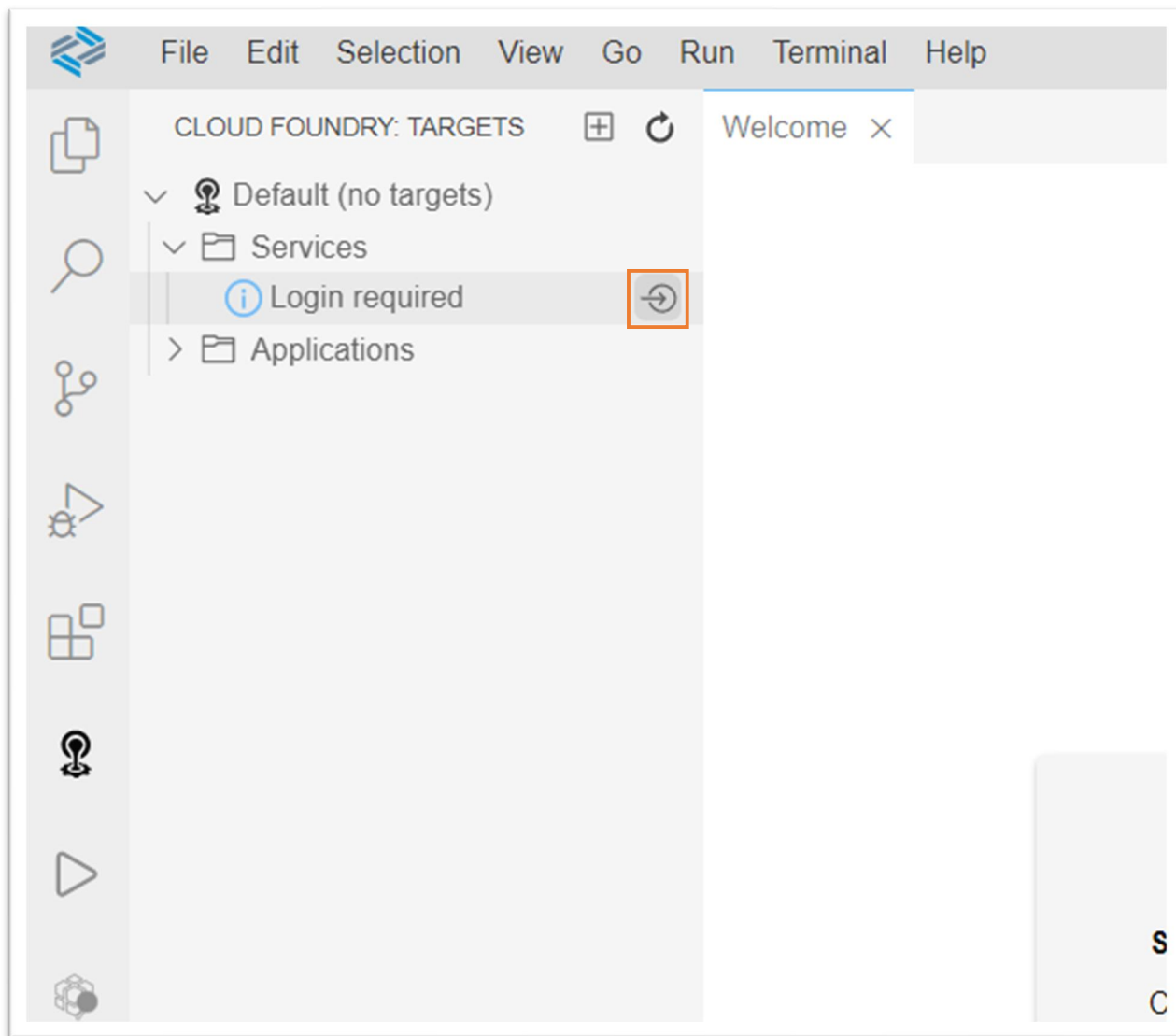
- You'll be redirected to your newly created SAP Business Application Studio Dev Space. Recommend you bookmark this URL so it's easier for you to access this dev space of your SAP Business Application Studio in the future.



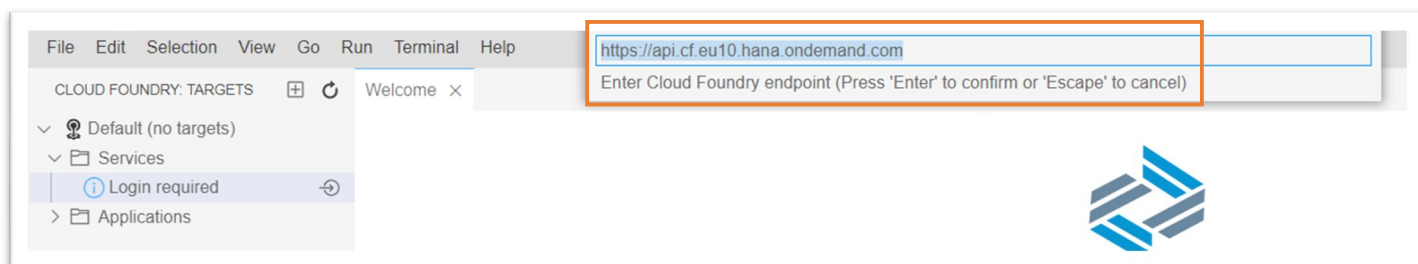
6. On the left side of the Business Application Studio click on the Cloud Foundry targets icon



7. In the Cloud Foundry Targets window, you can expand either Service or Applications and then click on the Logon icon to continue the configuration process



8. The command window will then open at the top of the SAP Business Application Studio. The first input will prompt you for the Cloud Foundry endpoint



The default value proposed is likely the correct value, but if you need to confirm; the value can be found in the SAP BTP cockpit at the Subaccount level.

The screenshot shows the SAP BTP Cockpit interface. The left sidebar contains a navigation menu with categories: Overview, Services, Cloud Foundry, HTML5 Applications, Connectivity, and Security. The main content area is titled 'Subaccount: trial - Overview' and has tabs for General, Cloud Foundry Environment, Kyma Environment, and Entitlements. The 'General' tab is active, displaying metadata: Created By, Created On: 31 Aug 2021, 14:58:52 (GMT+03:00), and Modified On: 11 Oct 2021, 14:22:18 (GMT+03:00). Below this is the 'Cloud Foundry Environment' section, which shows the Org Name: 2086a3abtrial, API Endpoint: https://api.cf.eu10.hana.ondemand.com (highlighted with an orange box), and Org ID: e39dcca3-6bb8-487e-a98f-5162bf095750. There are links for 'Manage environment instance' and 'Disable Cloud Foundry'. To the right, a 'Spaces (1)' table lists a space named 'dev' with 1 application.

Name	Applications
dev	1

Press Enter to confirm your input of the Cloud Foundry endpoint.

9. The next input field will ask you for the email address you used to create your SAP BTP trial account

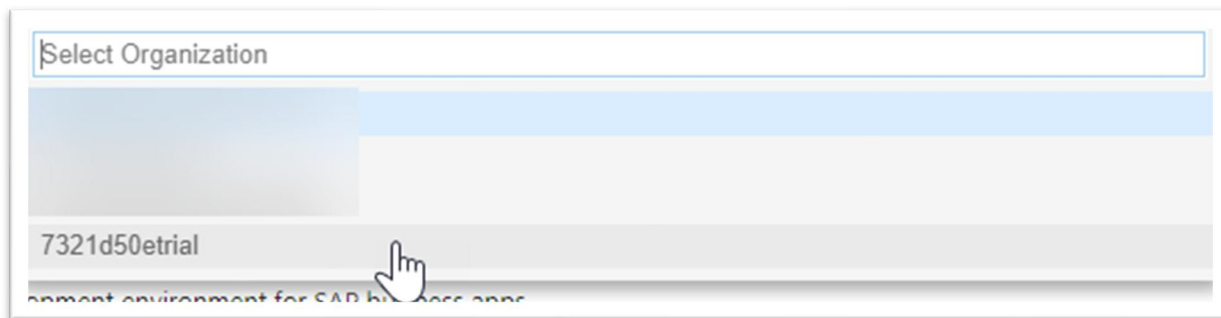
The screenshot shows a text input field with the placeholder text 'my.email@company.com'. Below the input field is a blue banner with the text 'Enter e-mail address (Press 'Enter' to confirm your input or 'Escape' to cancel)'.

10. The next input will ask you for your SAP BTP trial account password

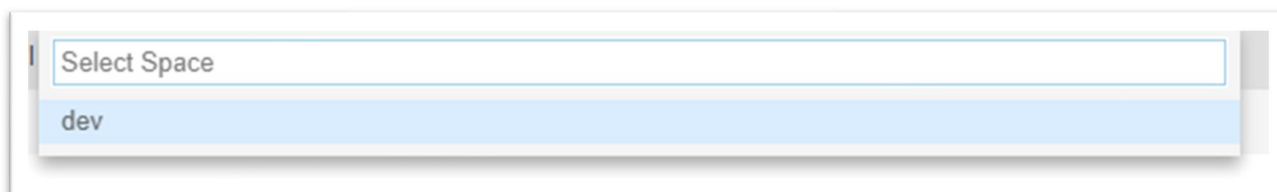
The screenshot shows a text input field for a password. Below the input field is a blue banner with the text 'Enter password (Press 'Enter' to confirm your input or 'Escape' to cancel)'.

11. The next input will ask you for your Organization. In most situations, you will have a single choice. But like the API endpoint earlier, if you need to confirm the correct value it will be displayed in the top navigation of the SAP BTP cockpit

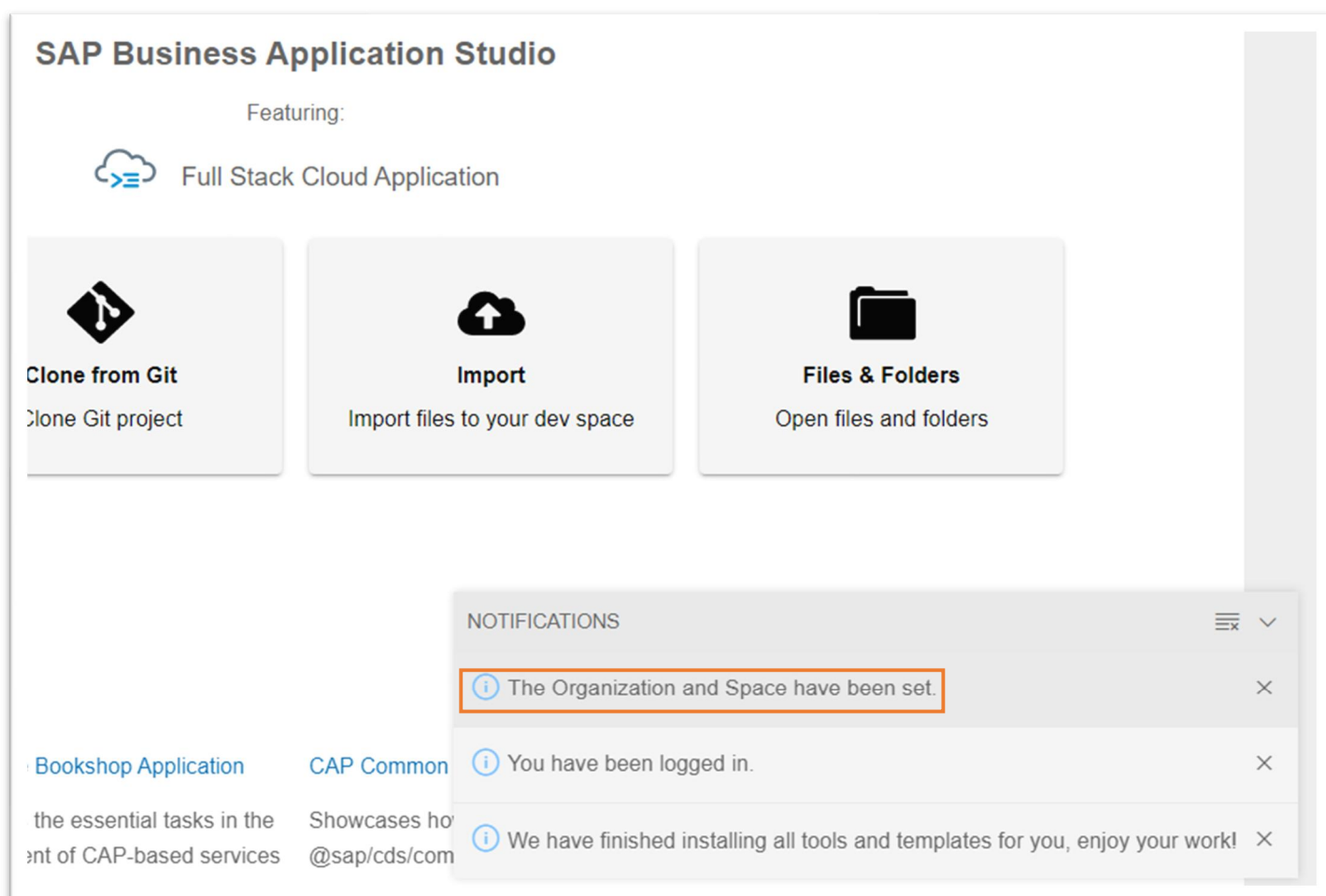




12. The final input will ask you for your Space. If you choose the endpoint API and Organization correctly, then you should have a single option of dev

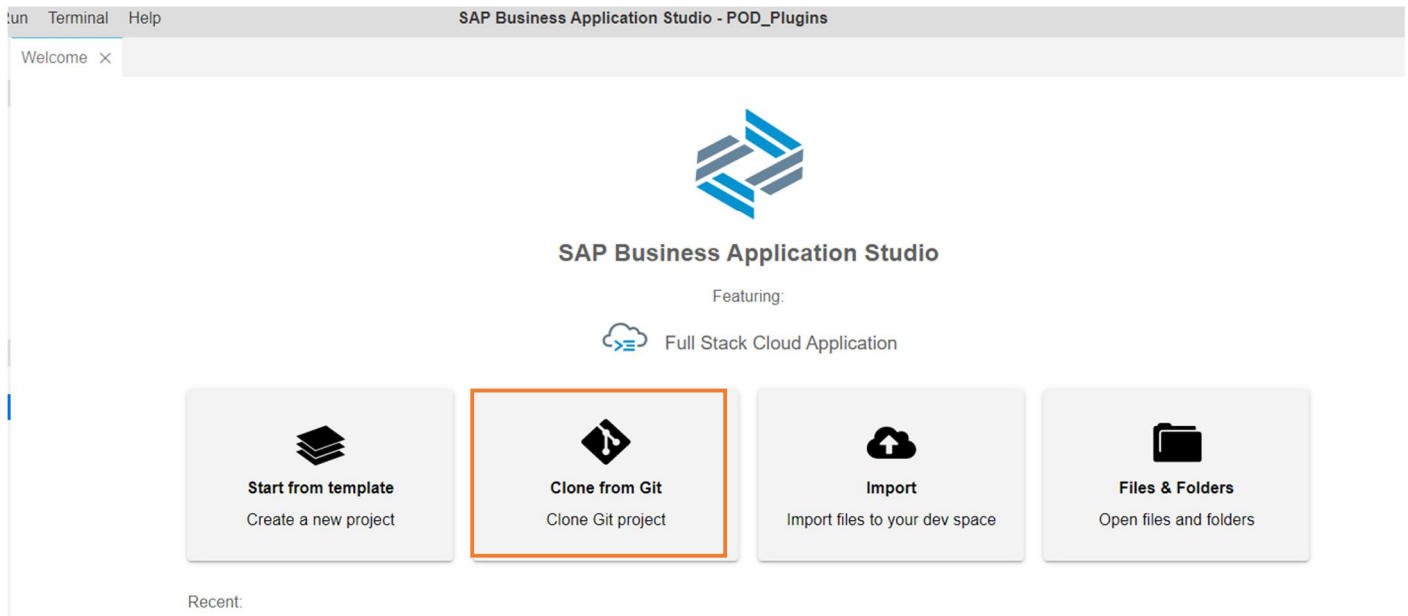


13. Upon completion of all the inputs, you should see that the Organization and Space have been set.

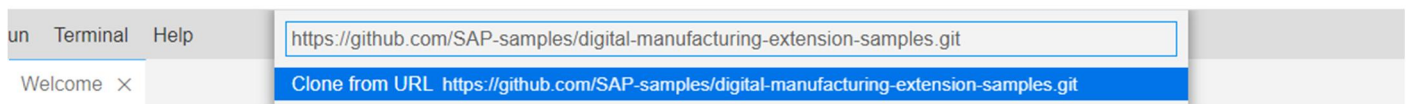


14. The next step is to add project with a POD View Plugin example and POD View Plugin Template to workspace. From the SAP Business Application Studio Welcome page, click Clone from Git

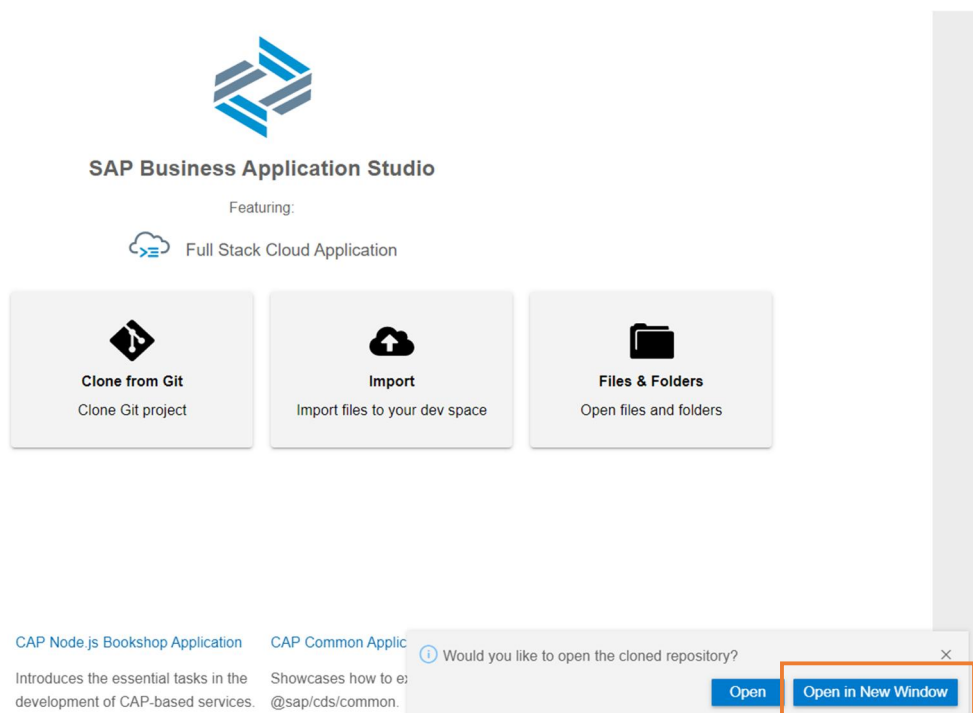




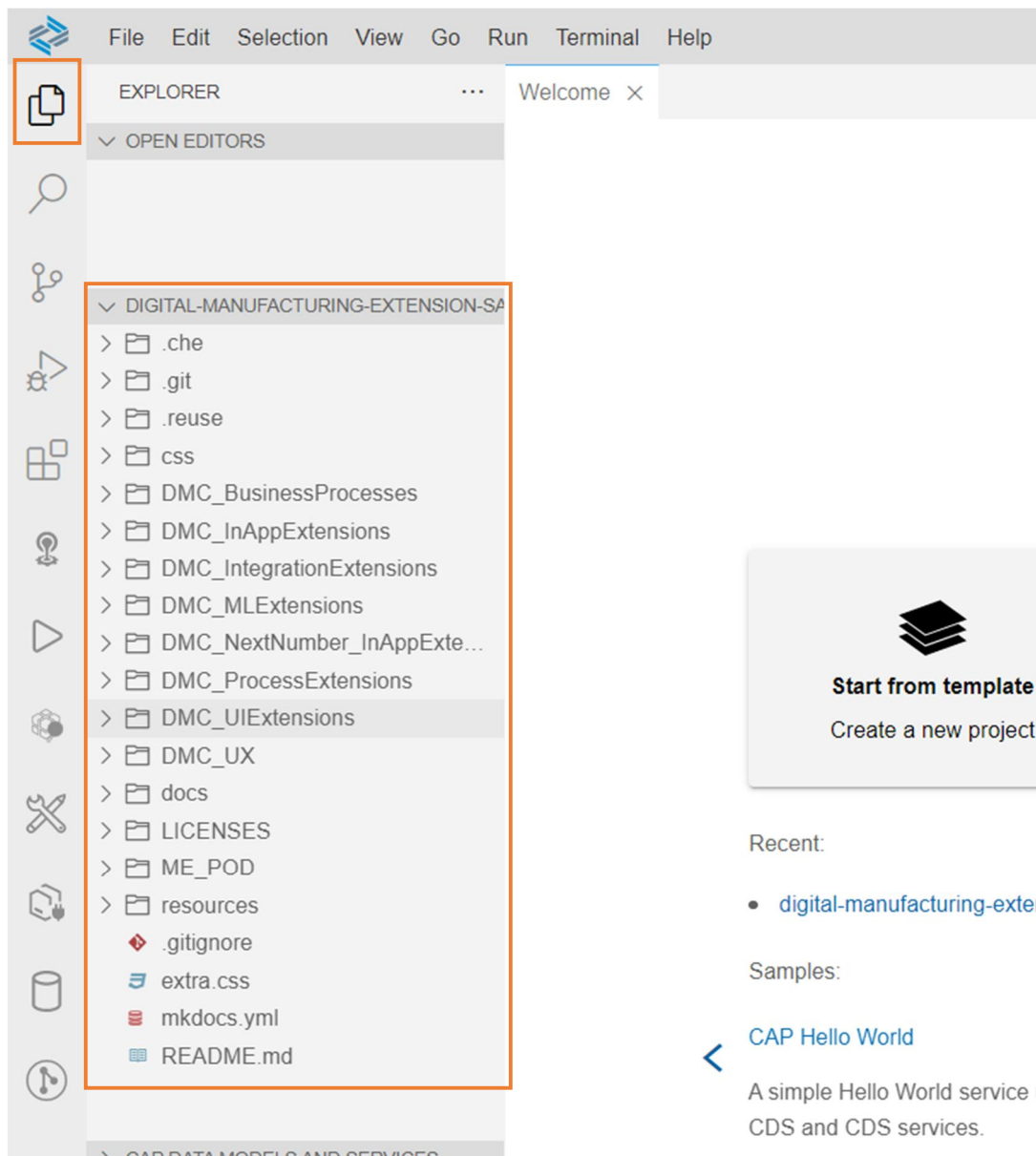
15. Specify URL in input field: <https://github.com/SAP-samples/digital-manufacturing-extension-samples.git>



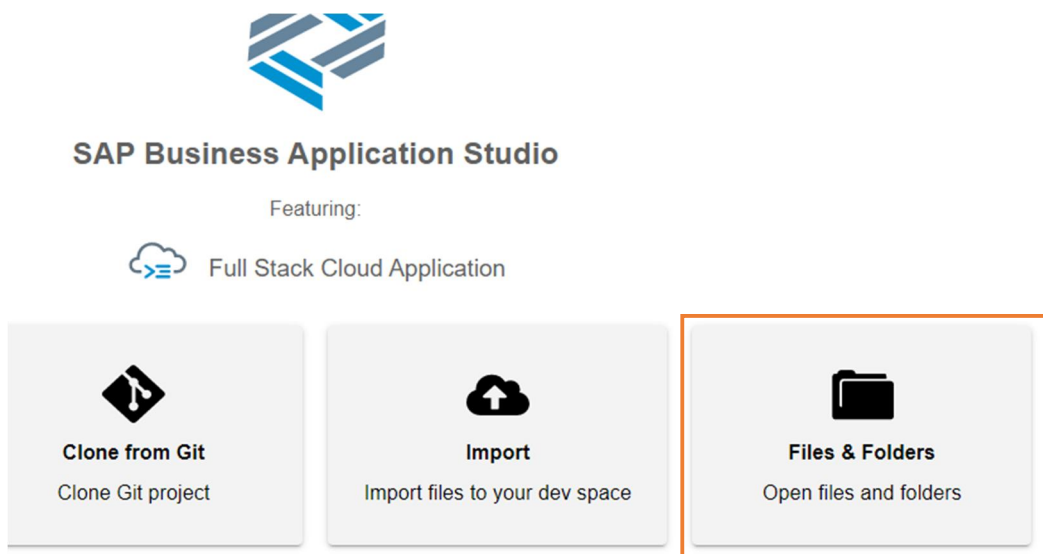
Expected result that repository was successfully cloned, and you should choose Open in New Window



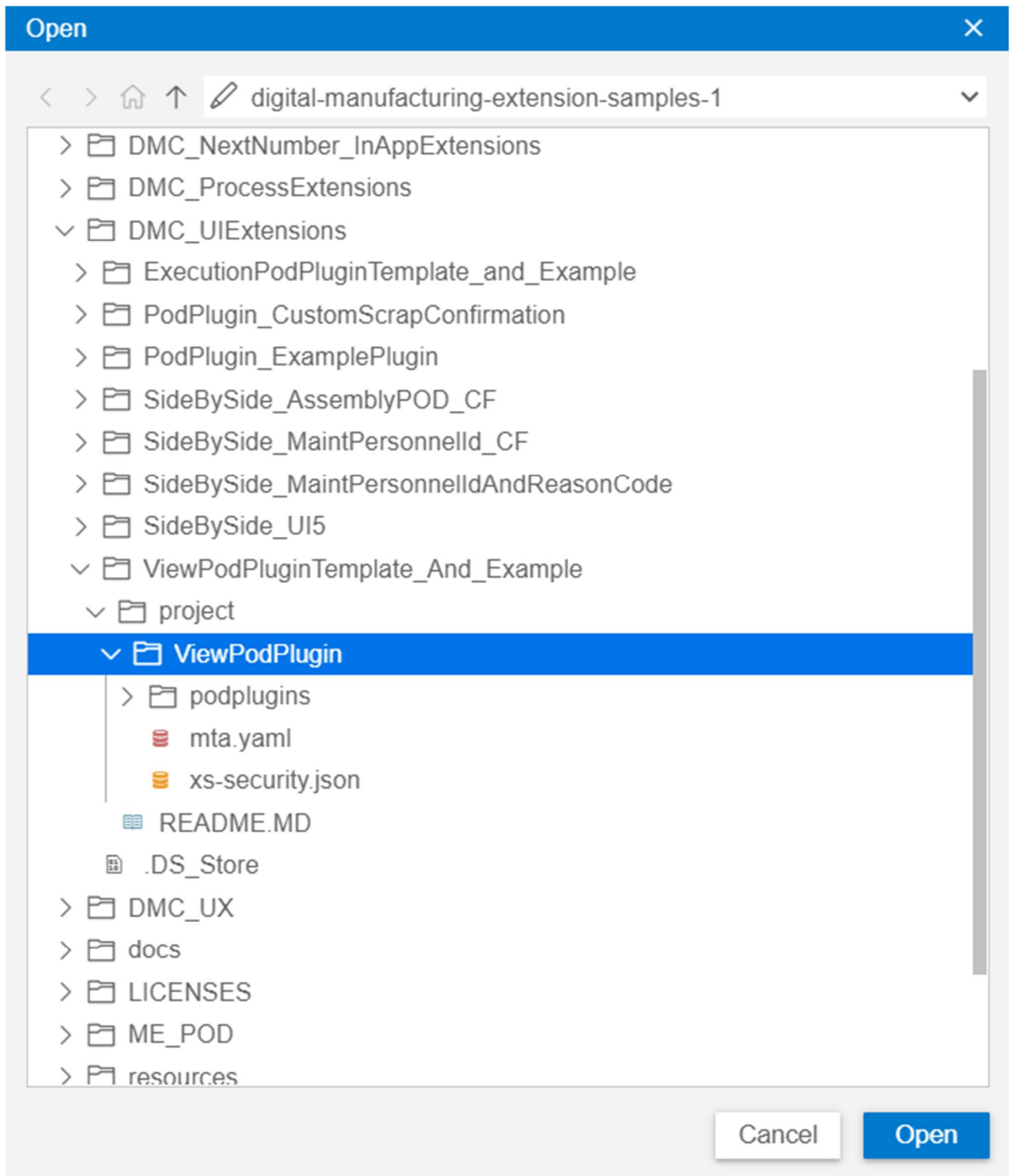
Explorer view shows project with content as below



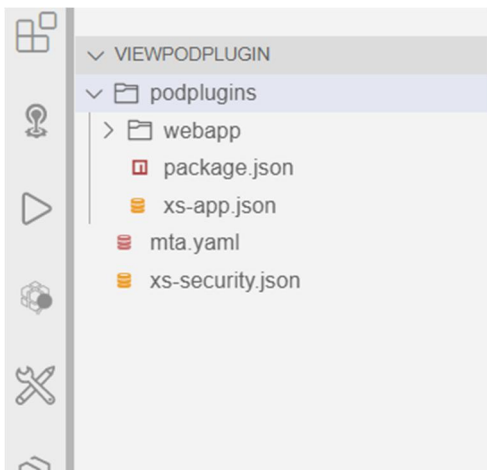
16. We should switch to needed project by choosing Files & Folders in Welcome screen



17. Navigate to the path DMC\_UIExtensions\ViewPodPluginTemplate\_And\_Example\project\, choose ViewPodPlugin folder and click Open button



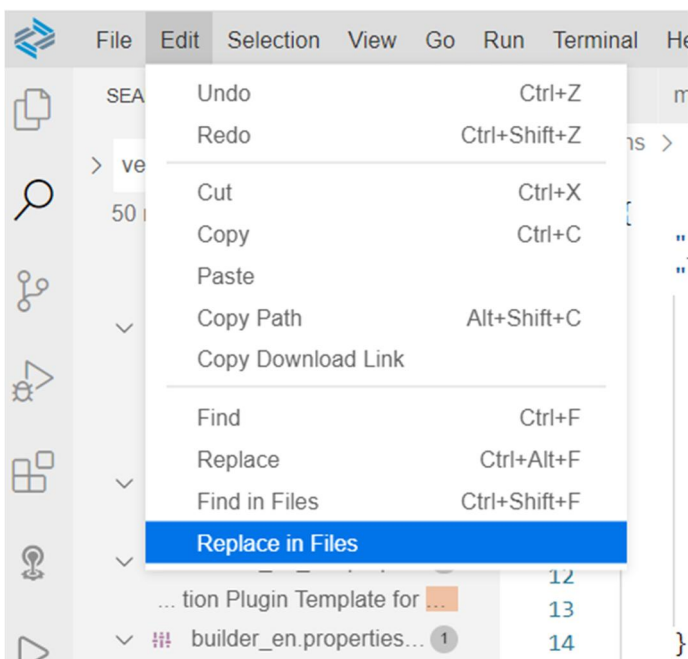
You will get such project structure



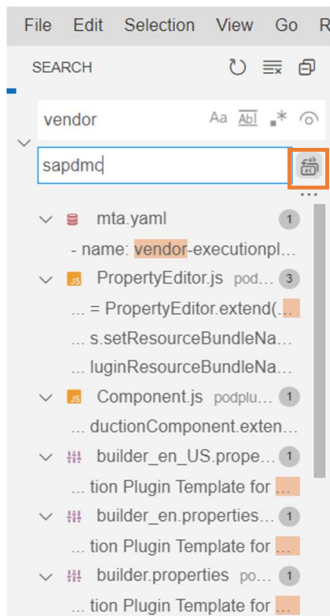
18. We should replace “vendor” word in project to actual vendor name value

Information: Vendor is a namespace qualifier, this ensures that artifacts such as Java classes and the archives in which they are packaged are globally unique.

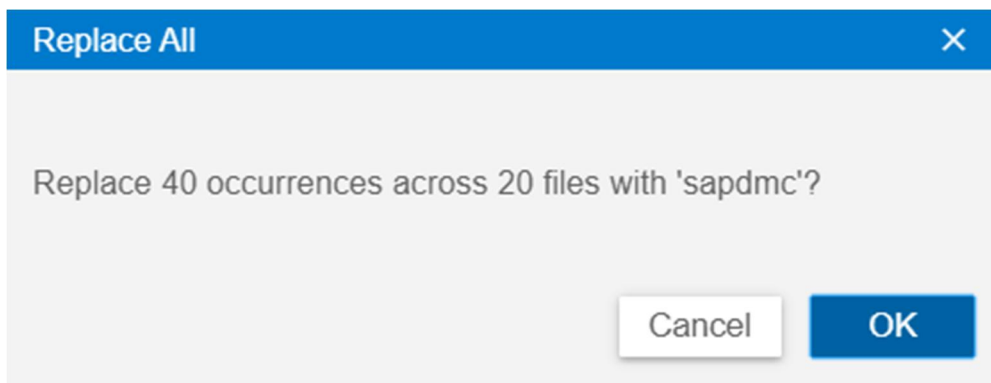
Choose Edit à Replace in Files from menu



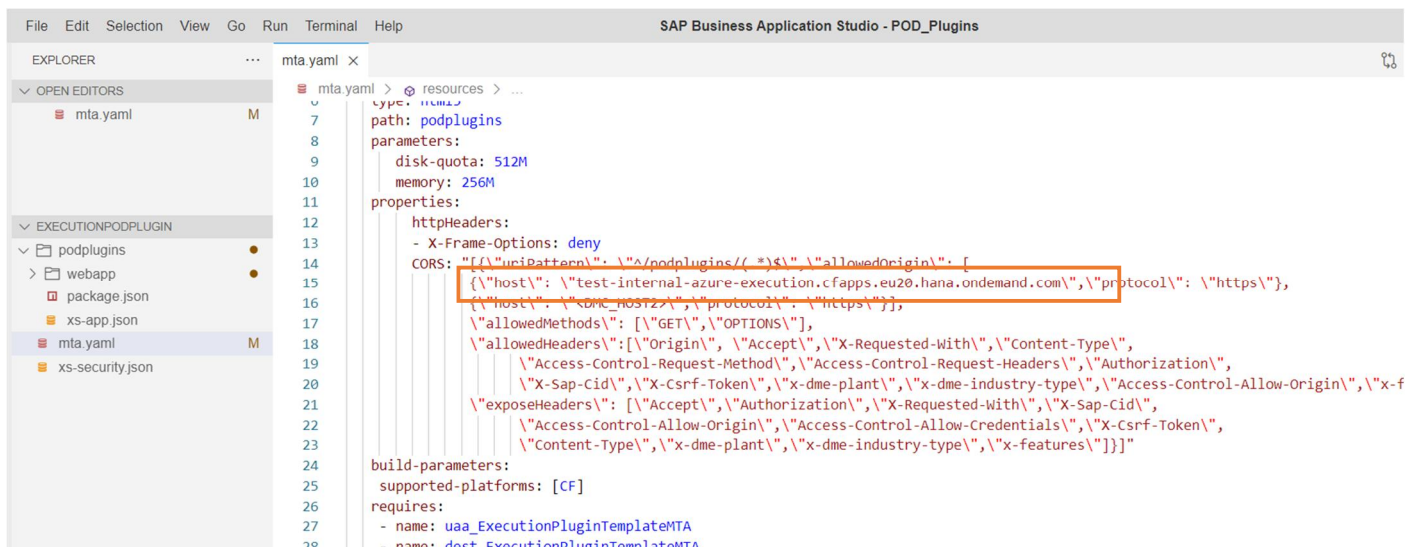
And replace vendor to your actual vendor name value. In this document we used sapdmc for vendor name. Choose Replace All icon.



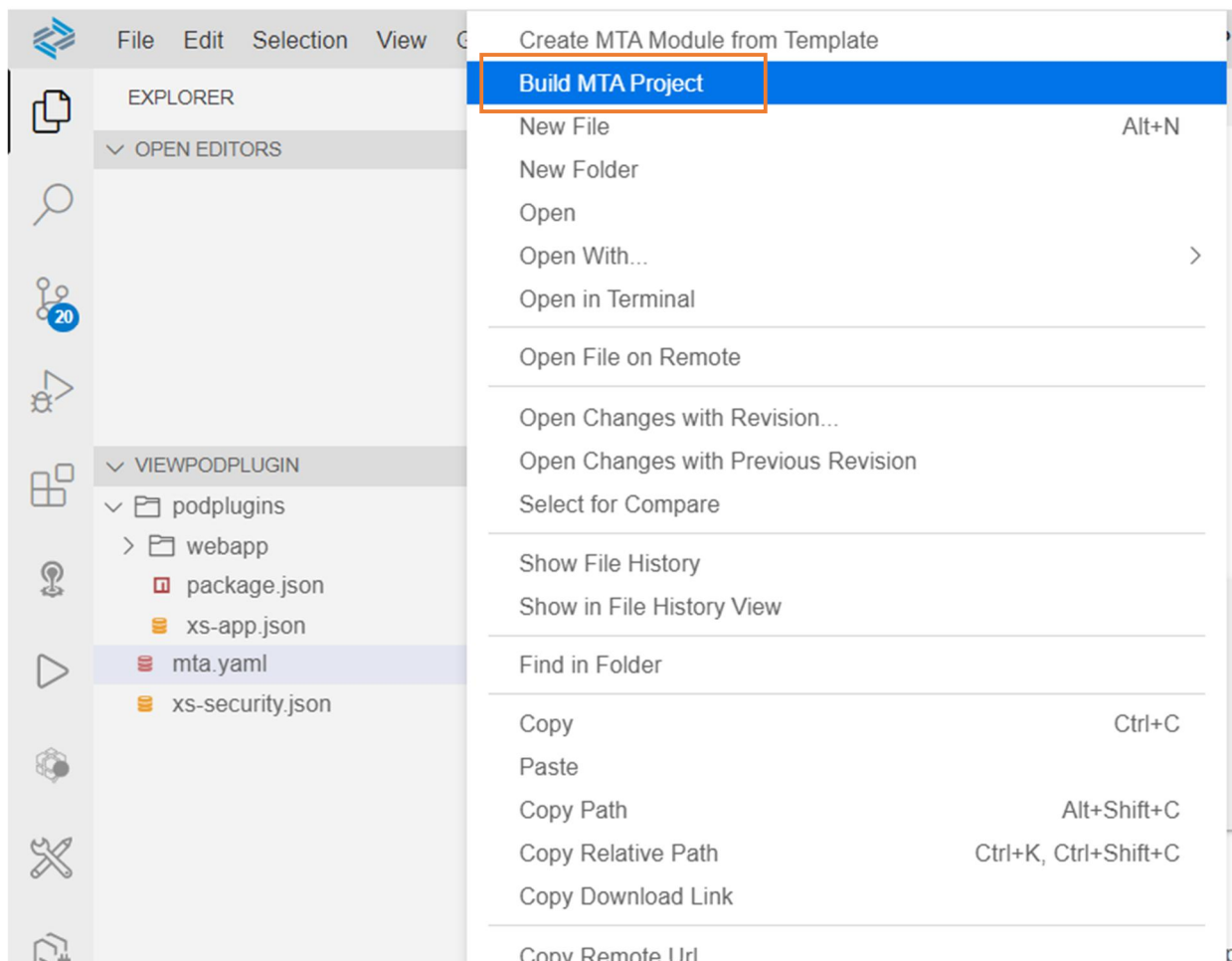
It should replace occurrences in all files. Choose OK.



19. Open mta.yaml file and replace <DMC\_HOST1> with the host name where POD is located, for example

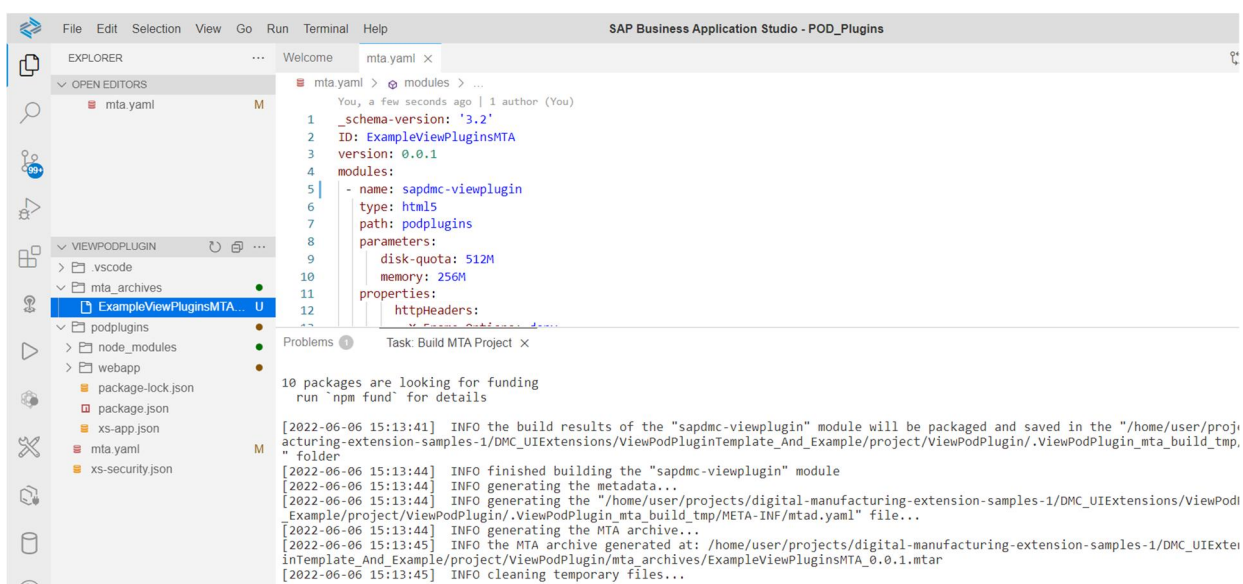


20. Right-click the mta.yaml file and choose Build MTA Project.

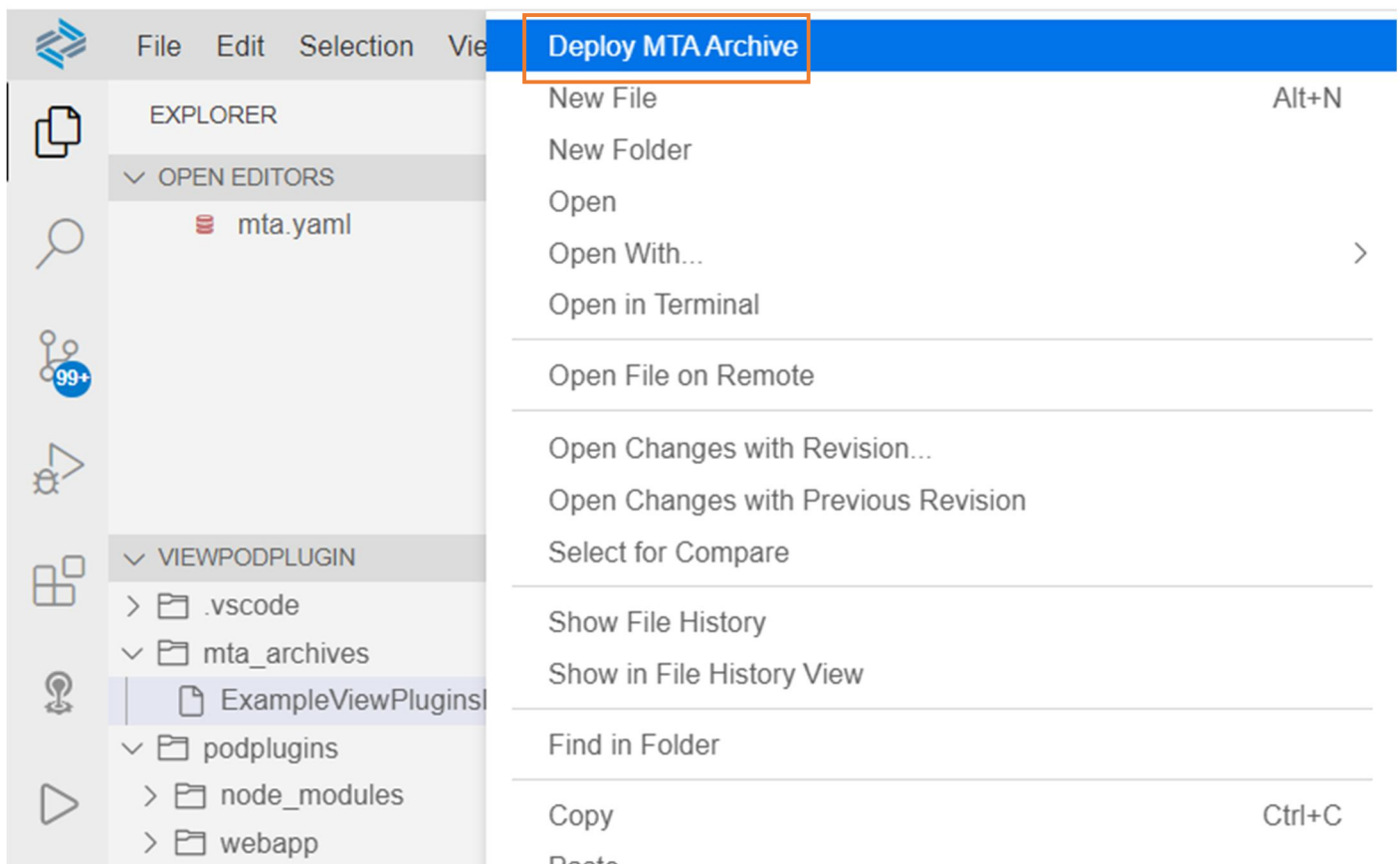


As a result of this step two new folders are created:

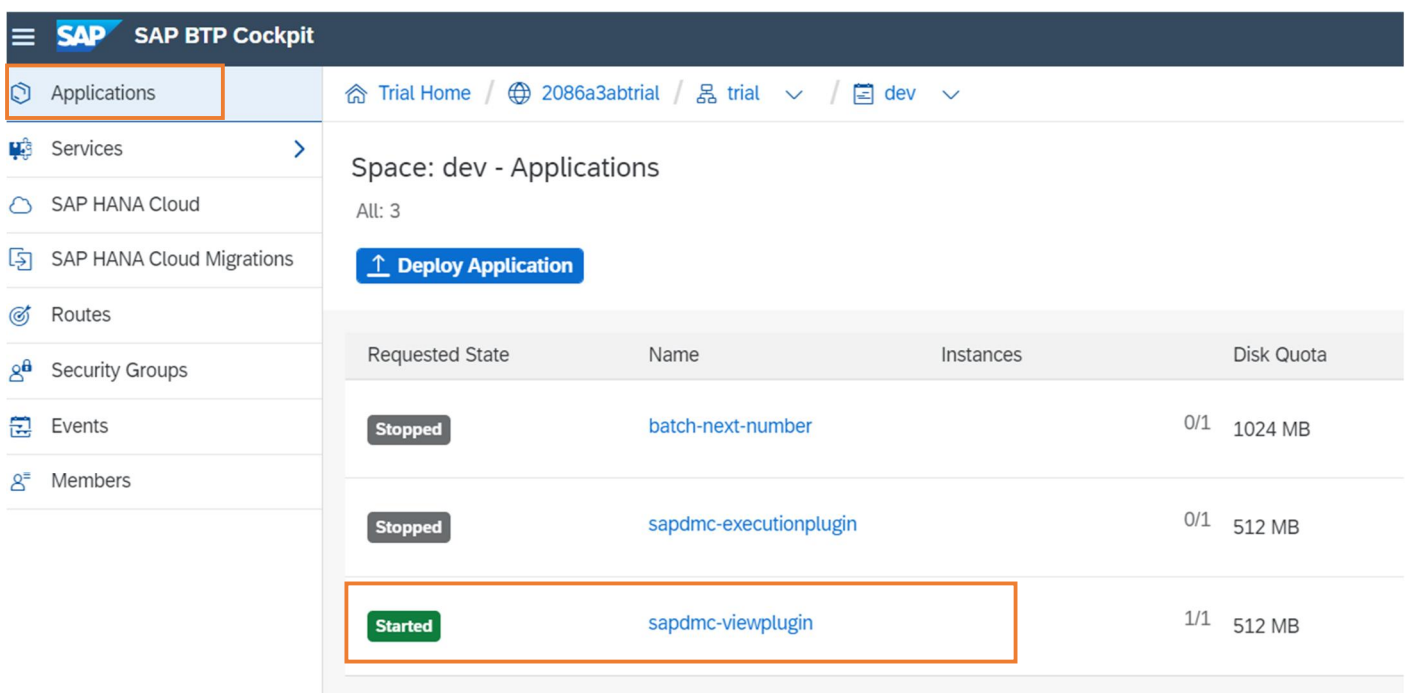
- mta\_archives folder is created containing the new generated ExampleViewPluginsMTA\_0.0.1.mtar file
- node\_modules folder is created with all required dependencies



21. Right-click on the generated ExampleViewPluginsMTA\_0.0.1.mtar file and choose Deploy MTA Archive.



After deployment is done, your application should be available in your Cloud Foundry space. To access your application, go to your space in the SAP Cloud Platform cockpit and select Applications from the side menu.



22. Choose a sapdmc-viewplugin application to see details and status.

The application should have **Started** status.



## Application: sapdmc-viewplugin - Overview

Started

Restart

Start

Stop

+ Instance

- Instance

Delete

### Application Routes

<https://2086a3abtrial-dev-sapdmc-viewplugin.cfapps.eu10.hana.ondemand.com>

Installation steps are completed! Go to the Configuration Steps section!

## Configuration Steps

1. Go to your space in the SAP Cloud Platform cockpit and select Applications from the side menu
2. Choose the sapdmc-viewplugin application

SAP BTP Cockpit

Applications

Services

SAP HANA Cloud

SAP HANA Cloud Migrations

Routes

Security Groups

Events

Members

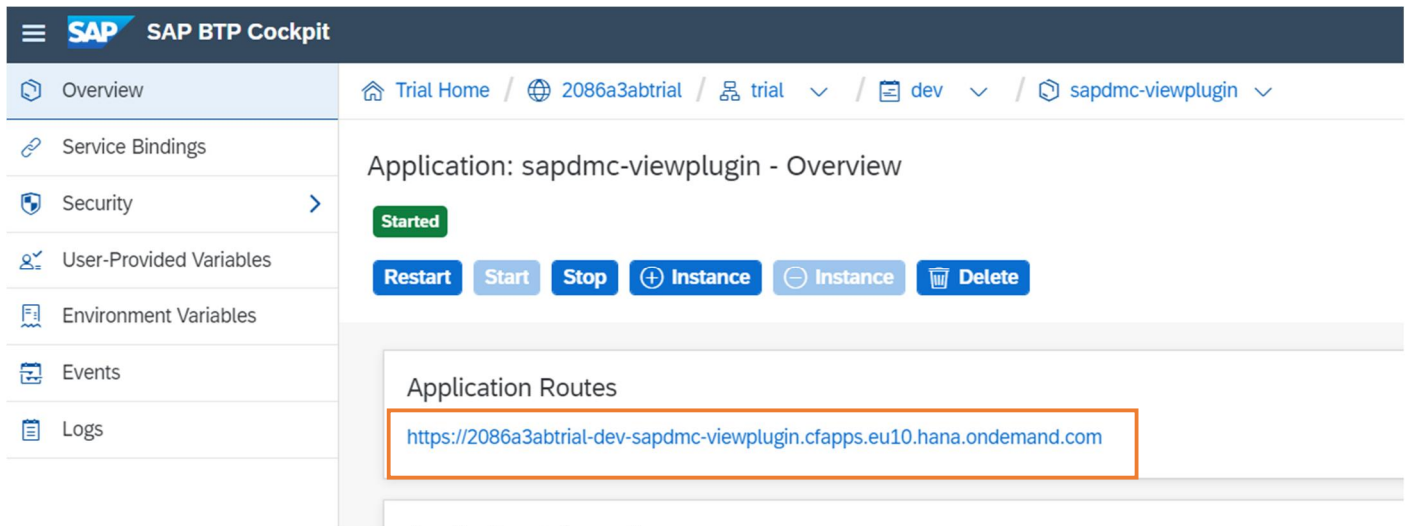
Space: dev - Applications

All: 3

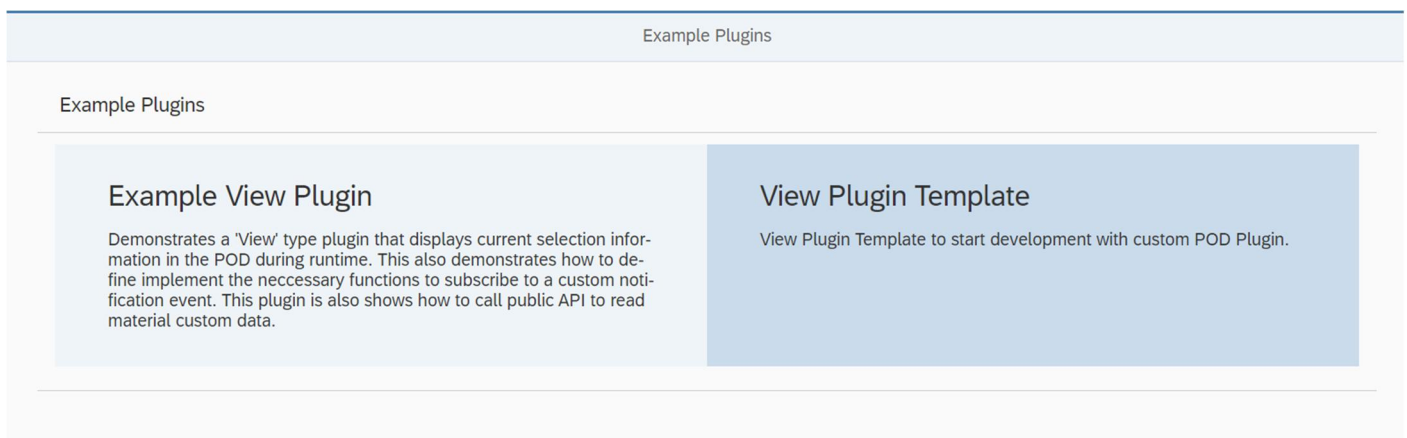
Deploy Application

Requested State	Name	Instances	Disk Quota
Stopped	batch-next-number	0/1	1024 MB
Stopped	sapdmc-executionplugin	0/1	512 MB
Started	sapdmc-viewplugin	1/1	512 MB

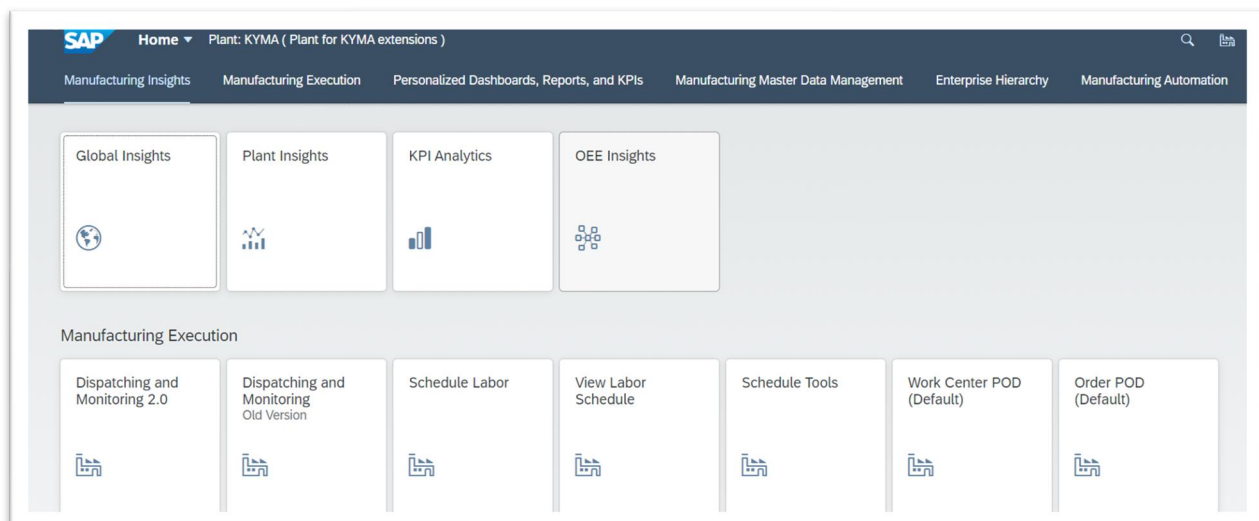
3. Click on Application Routes URL to verify that the application was deployed



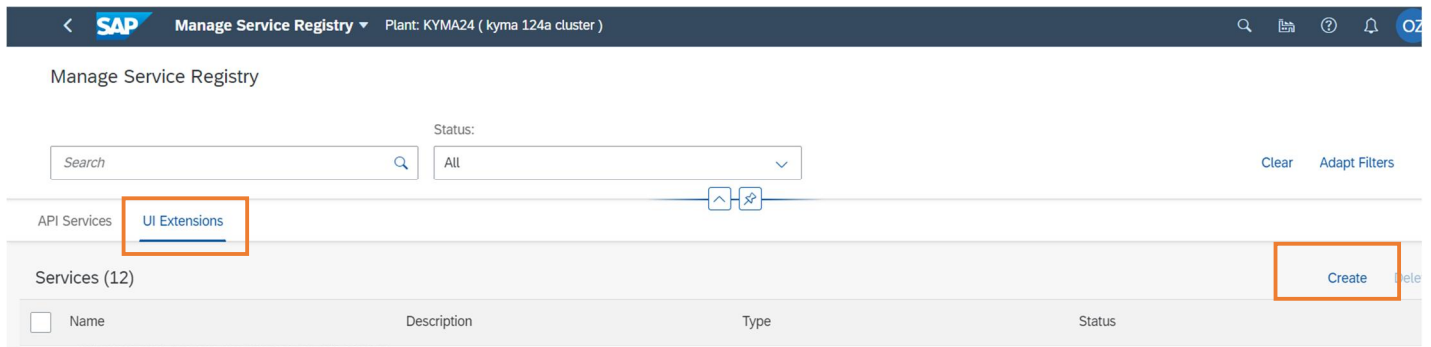
Here is the result of successful deployment to Cloud Foundry.



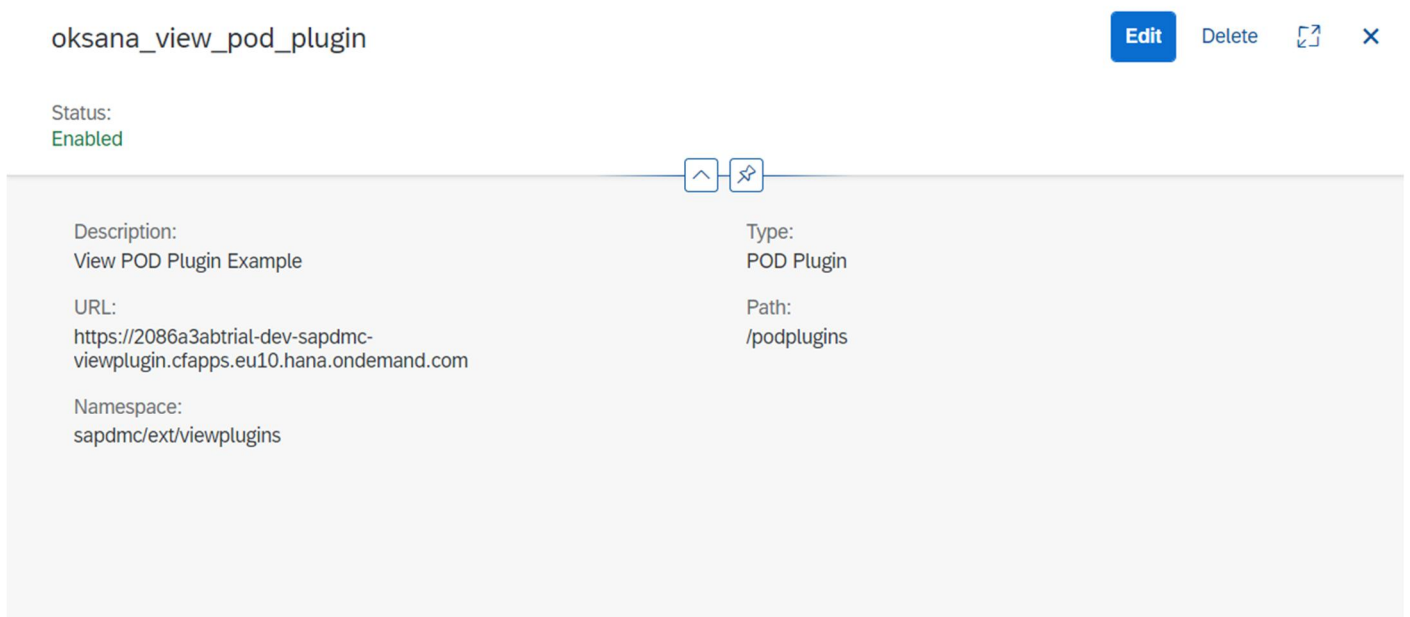
4. Copy application route URL as it will be used in Manage Service Registry application in next steps
5. Login to DMC



6. Open the Manage Service Registry application
7. Select UI Extensions tab and choose Create button



8. Define new UI Extension with the following settings as below



For URL field: use application route URL from "Application Routes" in BTP Cockpit

For Path field: /podplugins

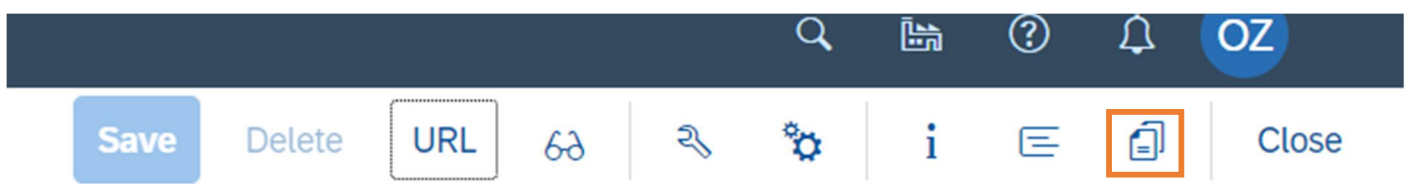
For Namespace: **vendor**/ext/viewplugins

**Note: replace "vendor" for Namespace definition with vendor value you used to "find and replace all" in SAP Business Application Studio**

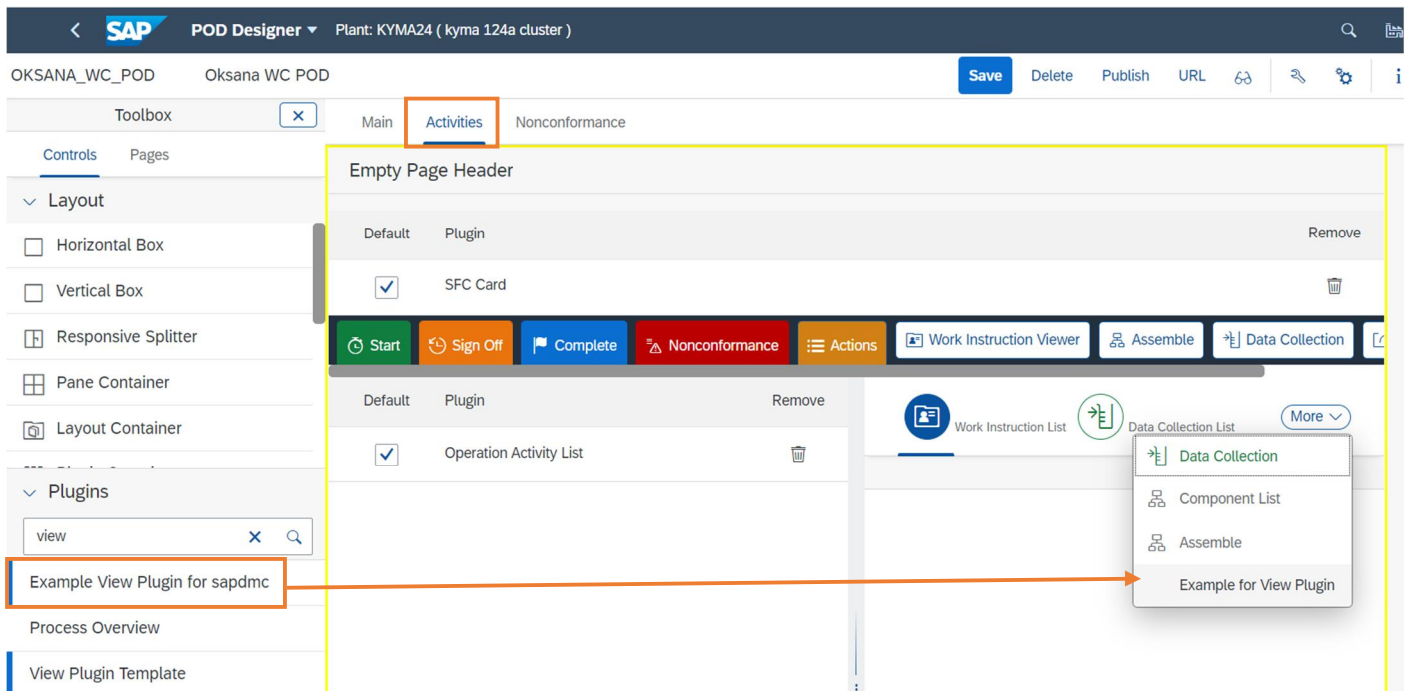
9. Choose Create button and verify that the service was created with correct settings

10. Open POD Designer application and choose DEFAULT\_WC\_POD POD name

11. Create a copy of the POD



12. Drag and drop Example View Plugin for vendor to Activities panel. Click right-mouse button on Example for View Plugin plugin and choose "Configuration" option



13. Define Design, text, icon and can enable or disable Notifications and Close Button Visible settings.

Configuration

Design:

Horizontal

Icon:

sap-icon://account

Icon Color:

Default

Text:

Example for View Plugin

Tooltip:

Visible:

ON

Plugin Properties

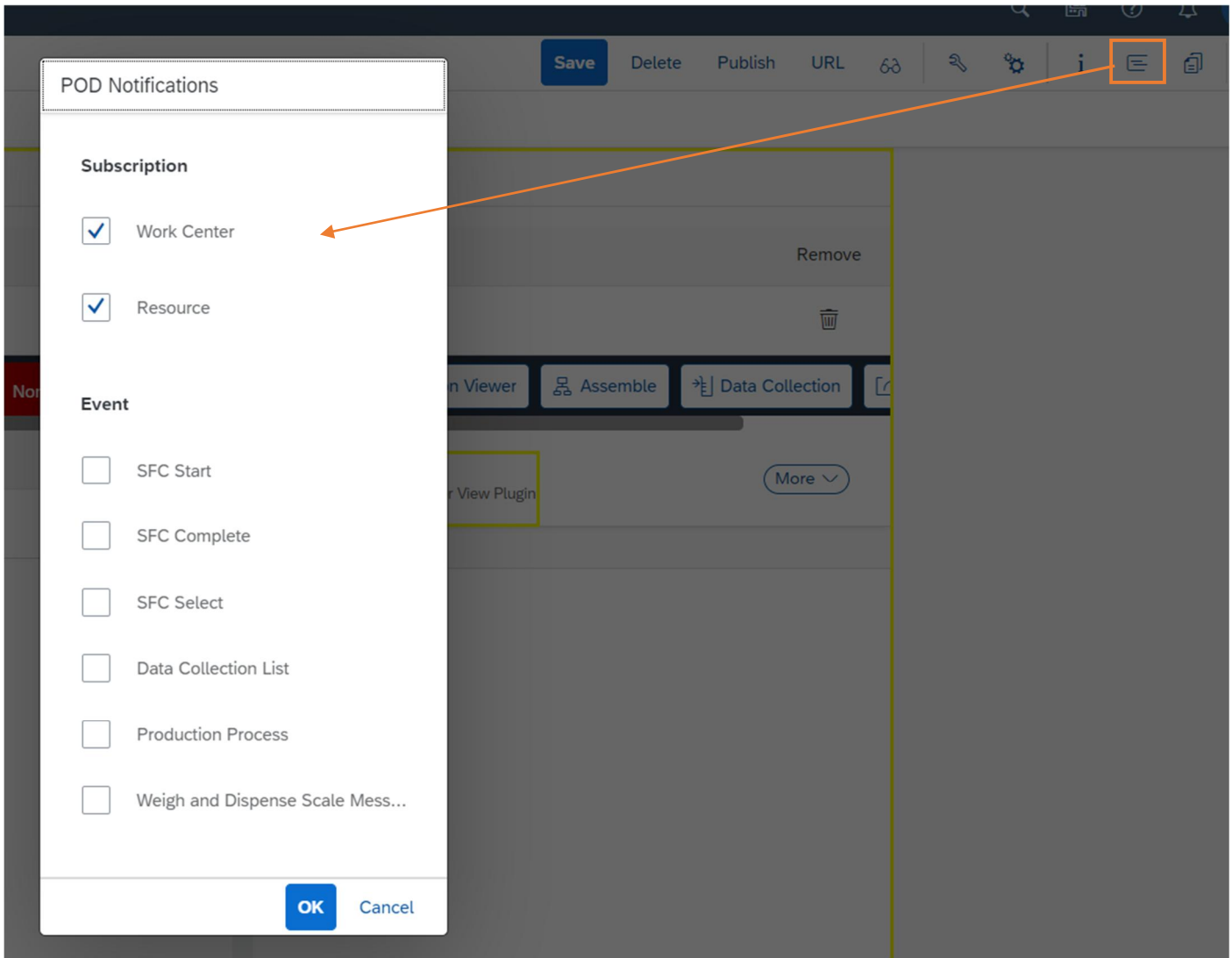
Notifications Enabled:

ON

Close Button Visible:

OFF

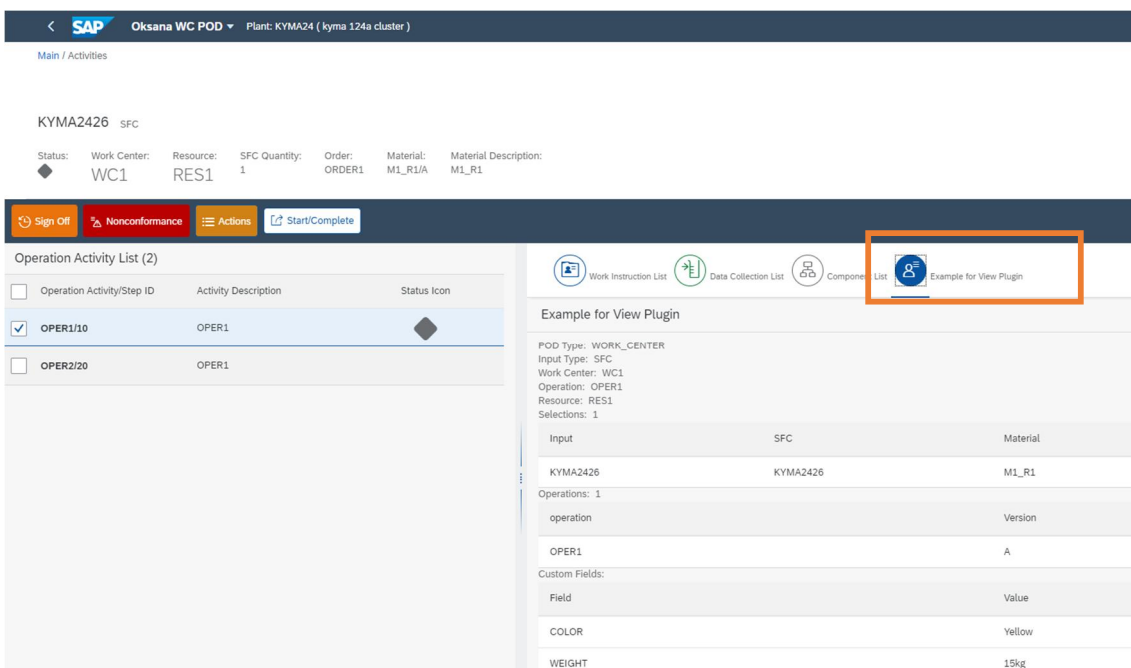
14. Click on Configure Notification button to add subscription to Work Center and Resource.



15. Save new POD configuration

16. Open POD with URL that you just configured

17. Choose new SFC and process to activities screen. Open Example for View Plugin activity.



If material has custom fields defined, then you will see them in Custom Fields table. This data was retrieved by using Public API call [/material/v1/materials](#)

Custom Fields:	
Field	Value
COLOR	Yellow
WEIGHT	15kg

When notifications are enabled, can send notification to custom POD Plugin by using [notification/v1/send](#)

Here is example from Postman tool, we send custom notification message to workCenter, resource and plant

POST

https://fnd-api-gateway-ms.cfapps.eu20.hana.ondemand.com/notification/v1/send

Send

Params

Authorization

Headers (10)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

```
1 {
2   "eventName": "MEASUREMENT",
3   "subscription": {
4     "workCenter": "WC1",
5     "resource": "RES1",
6     "plant": "KYMA24"
7   },
8   "parameters": [
9     {
10      "name": "message",
11      "value": "This is a custom notification message"
12    }
13  ]
14 }
```

Cookies

Beautify

And it is displayed in Notification Message area.

Example for View Plugin			
Input	SFC	Material	Shop Order
KYMA2426	KYMA2426	M1_R1	ORDER1
Operations: 1			
operation		Version	
OPER1		A	
Custom Fields:			
Field		Value	
COLOR		Yellow	
WEIGHT		15kg	
Notification Message:			
This is a custom notification message			

Configuration Steps are completed!