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.

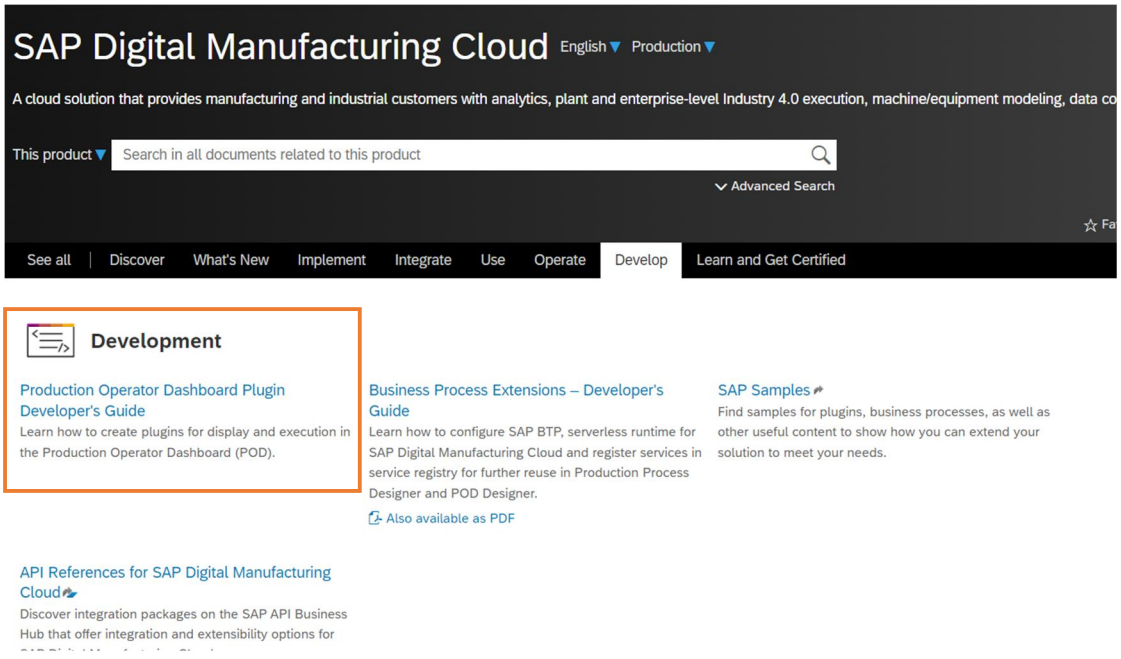
SAP Business Application Studio is used as a development environment for developing a Multi-Target Application which includes a HTML5 Module containing the plugin Components for use in POD Designer and the POD.

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 for more technical details that will help with POD Plugin implementations.



Prerequisites

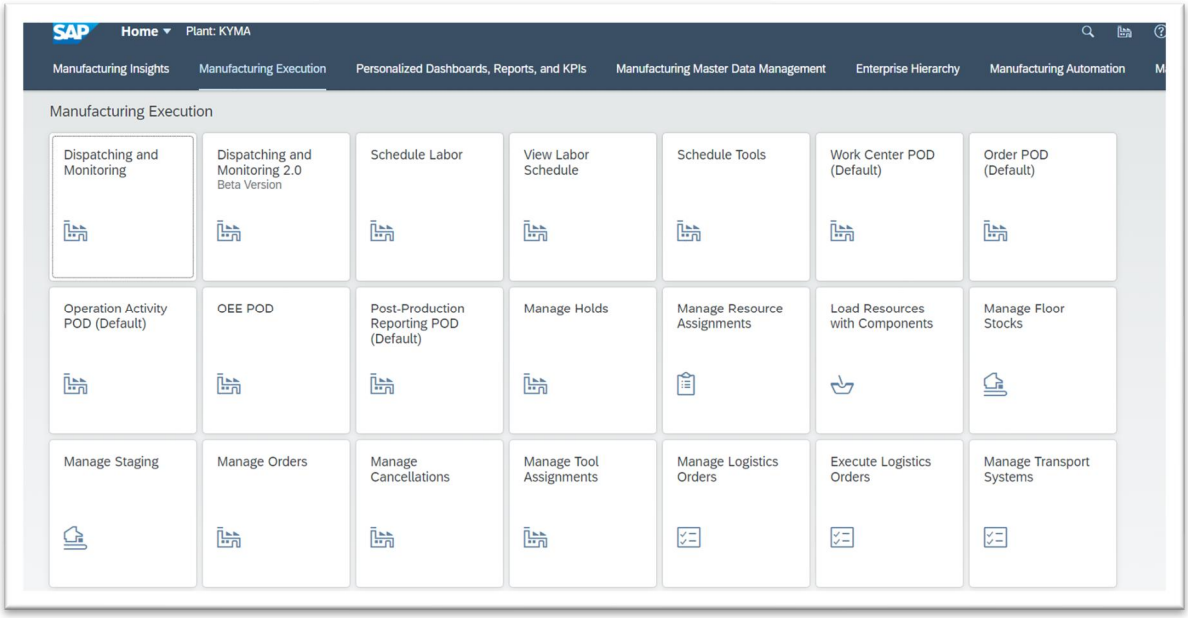
If you plan to follow the installation and configuration steps and deploy the project by yourself, you have to do some preparations:

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

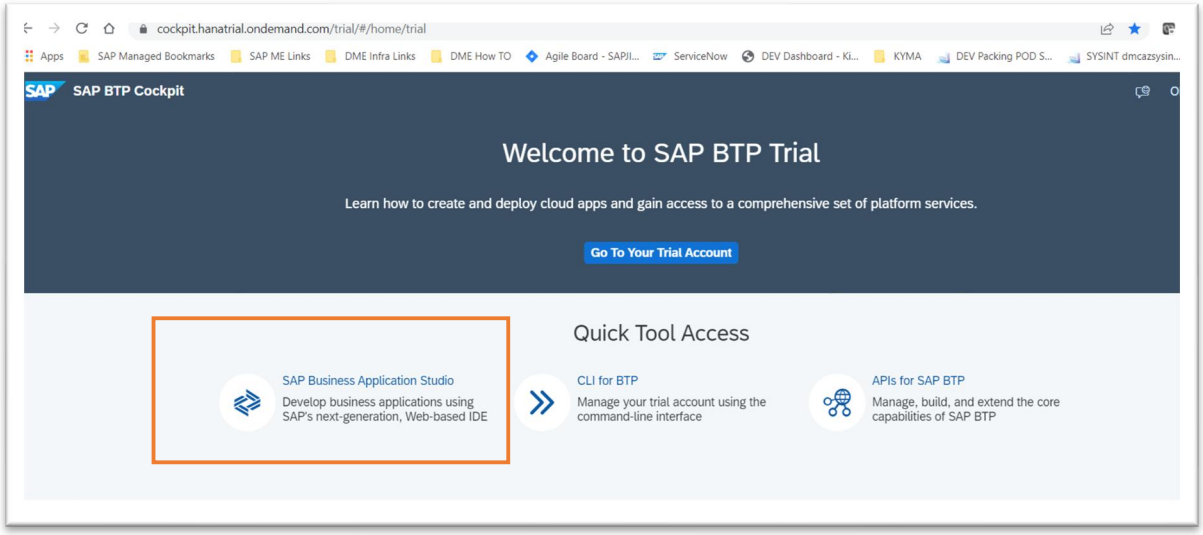
Choose the Code button and choose one of the options to download the code locally or simply run the following command within your CLI at your desired folder location:

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

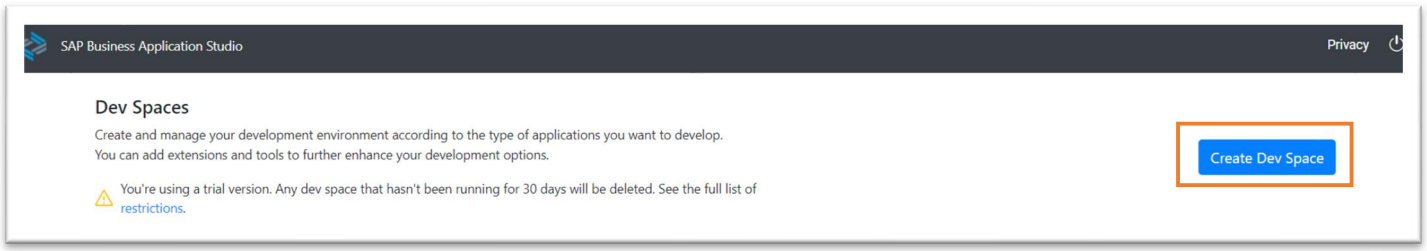
5. Open the DMC_UIExtensions/ViewPodPluginTemplate_and_Example directory in your desired editor, it contains two folders:
   - documentation for installation and configuration guide
   - project for the implementation part

Installation Steps

1. Open SAP Business Application Studio.



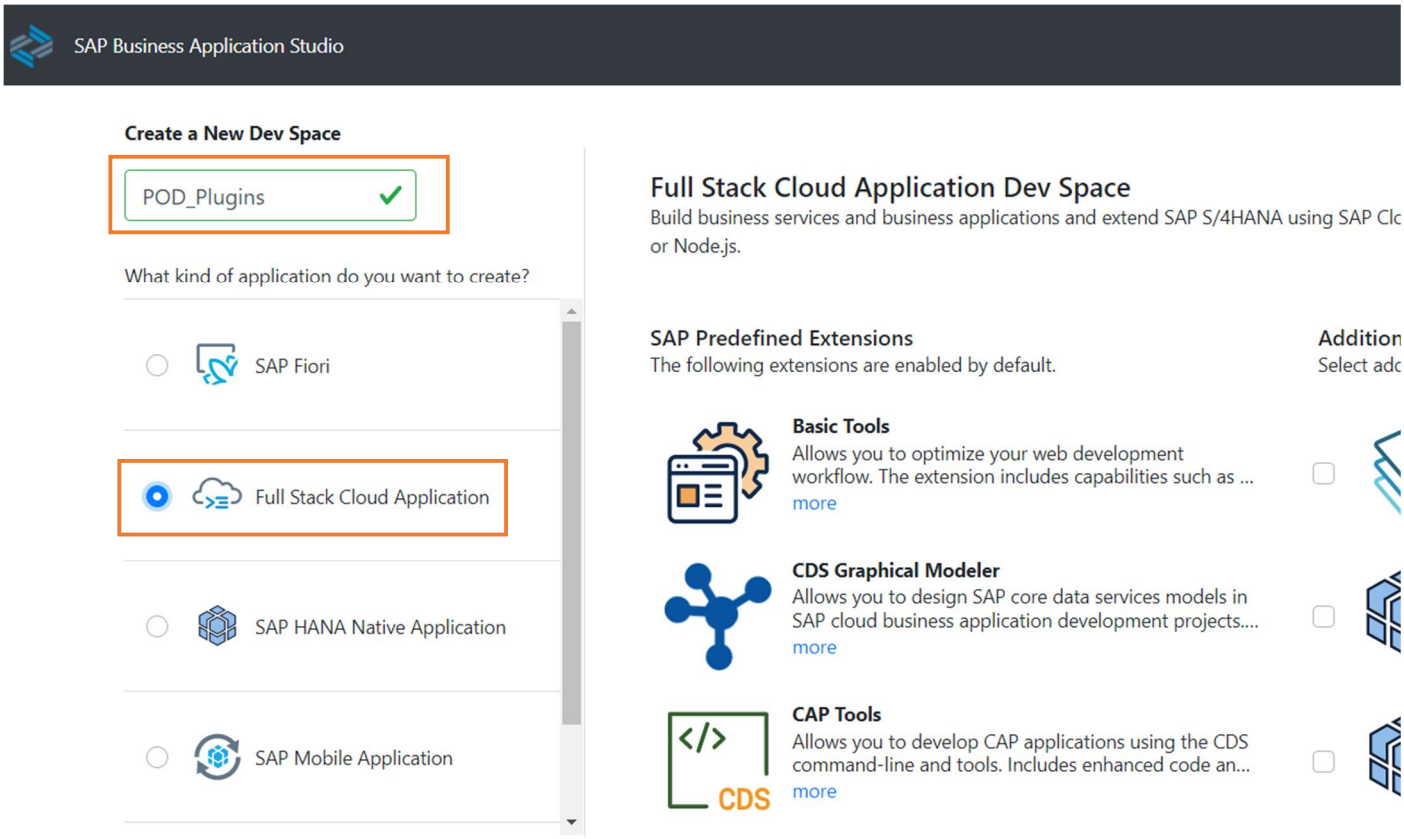
2. Choose Create Dev Space.



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.

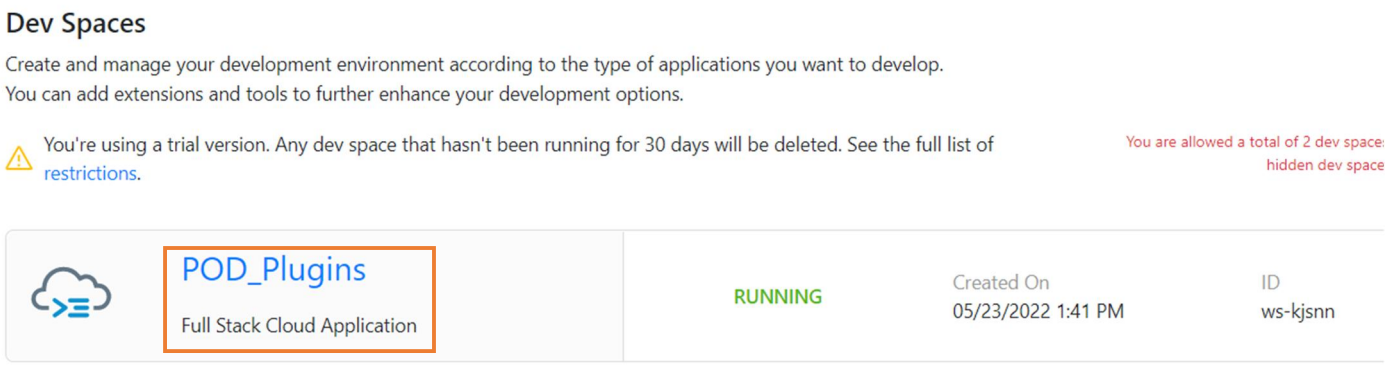
   By selecting Full Stack Cloud Application your dev space comes with several extensions out-of-the-box that you need to develop applications.
   - Choose Create Dev Space.

   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.

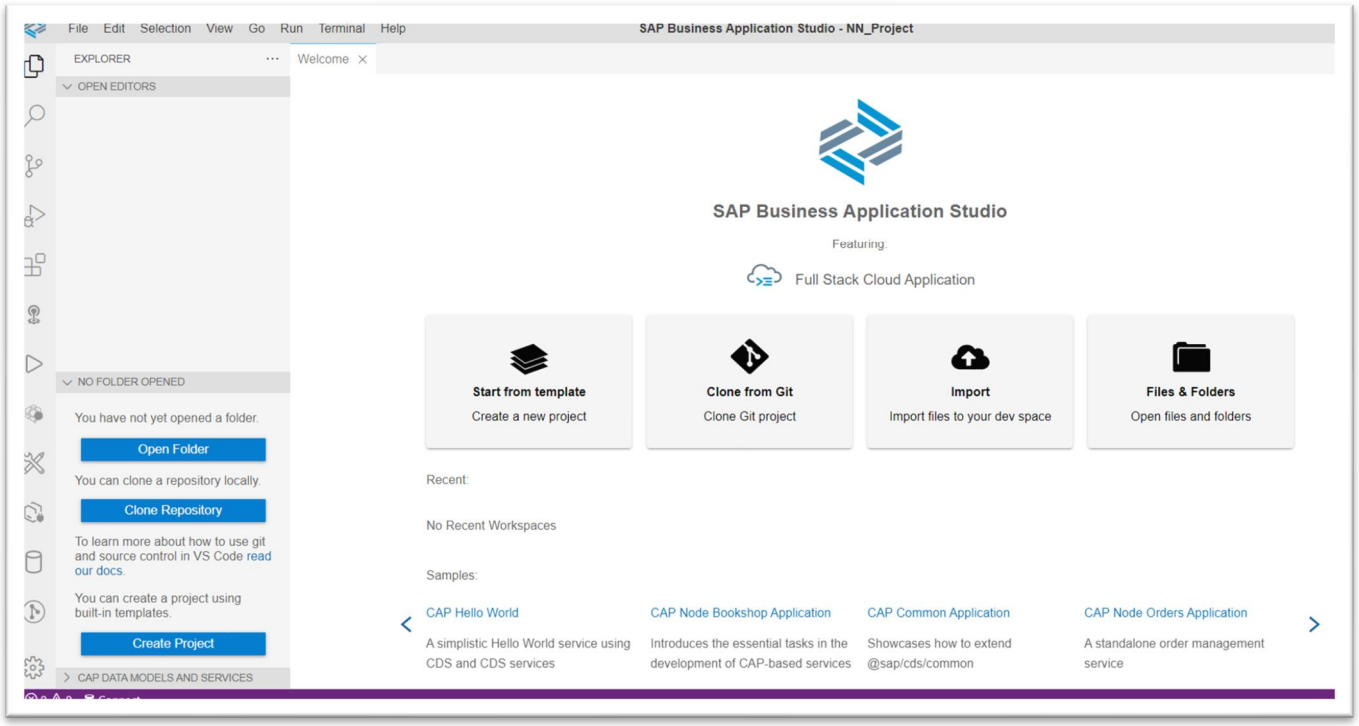


Please NOTE: In the SAP BTP trial you are limited to only two Dev Spaces and only one can be active at a time.

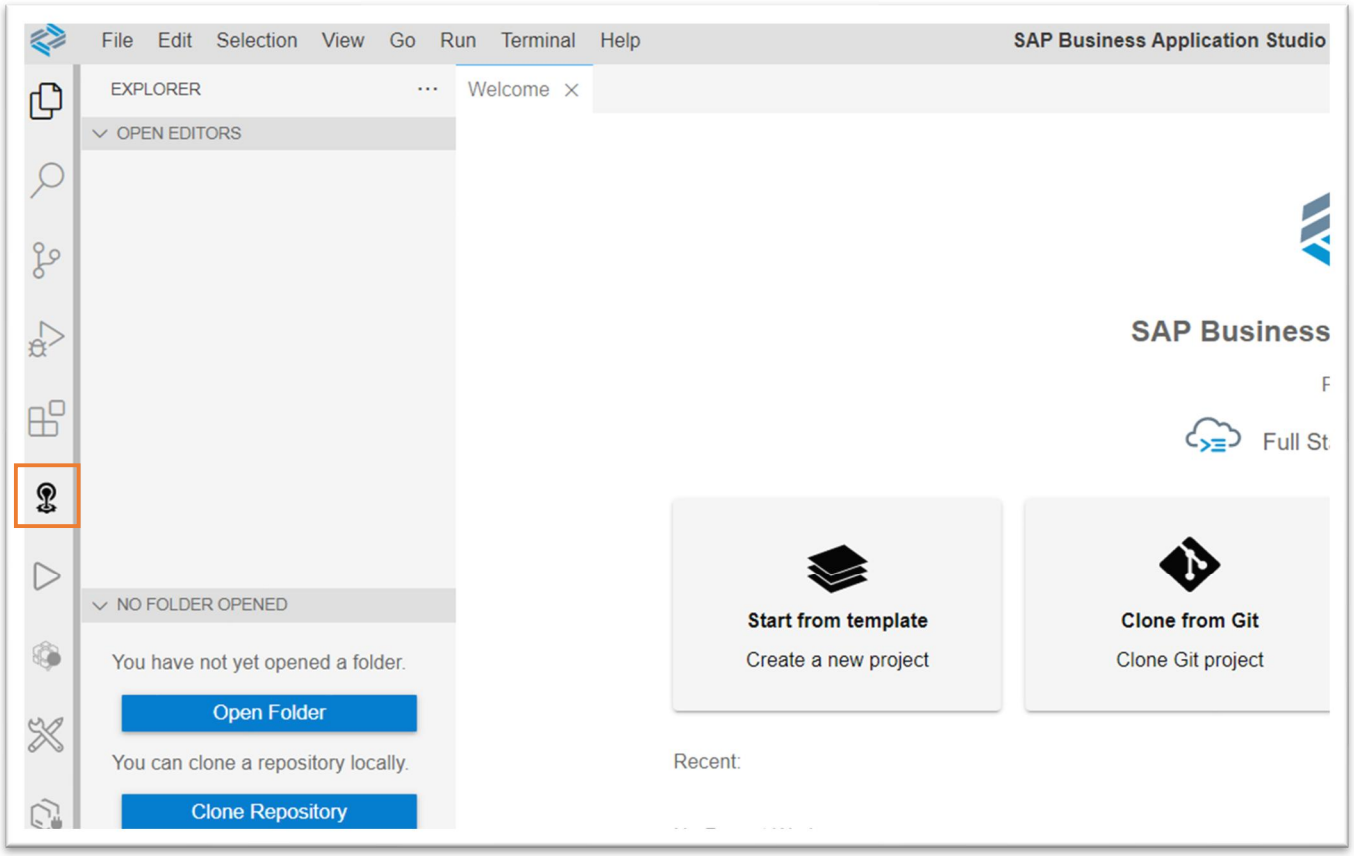
4. Once the Dev Space reaches the green status of RUNNING, you can click on the name of the Dev Space and it will load into the editor within your browser.



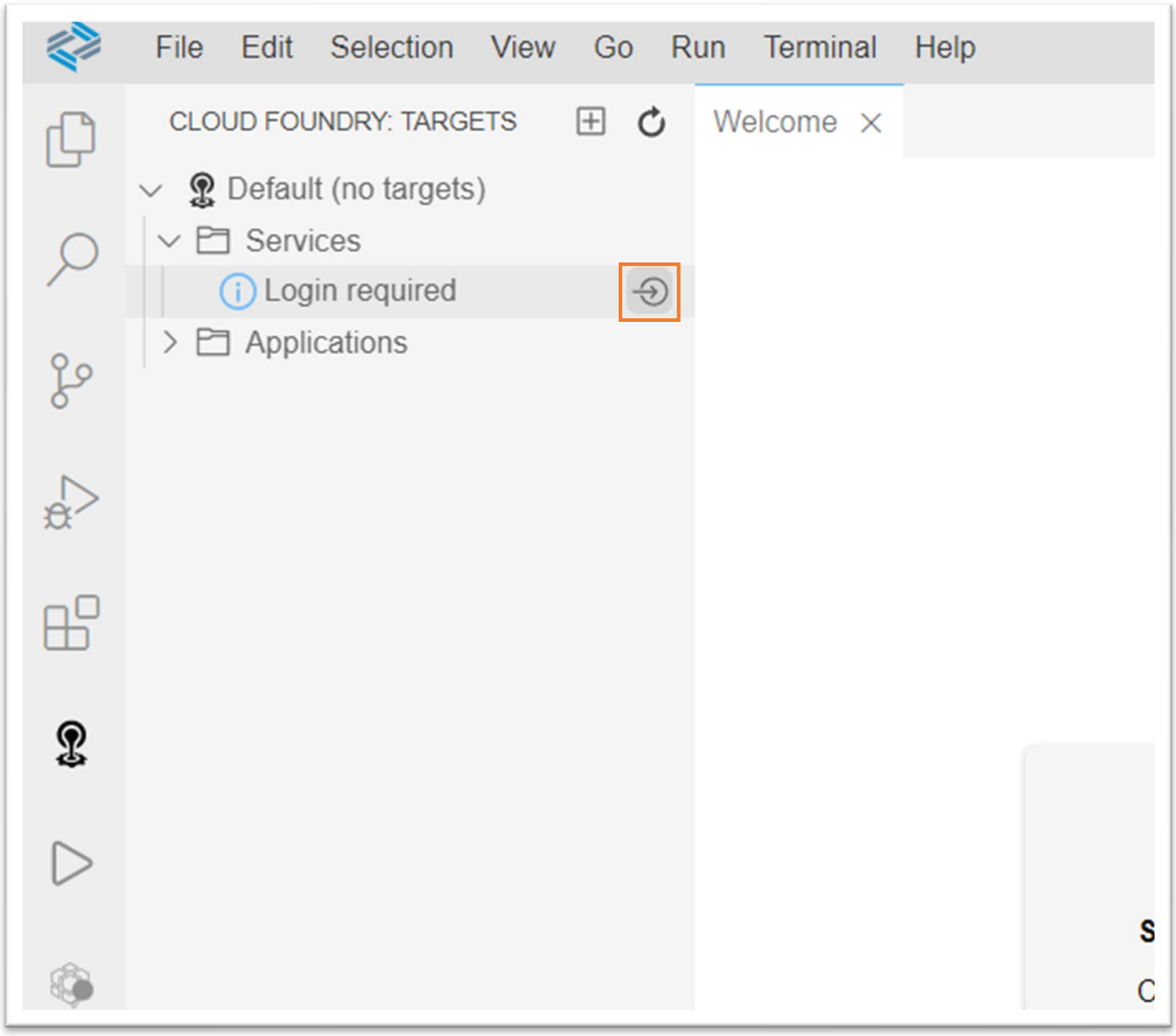
5. You'll be redirected to your newly created SAP Business Application Studio Dev Space. Recommend you bookmark this URL so it's easier for you to access this dev space of your SAP Business Application Studio in the future.



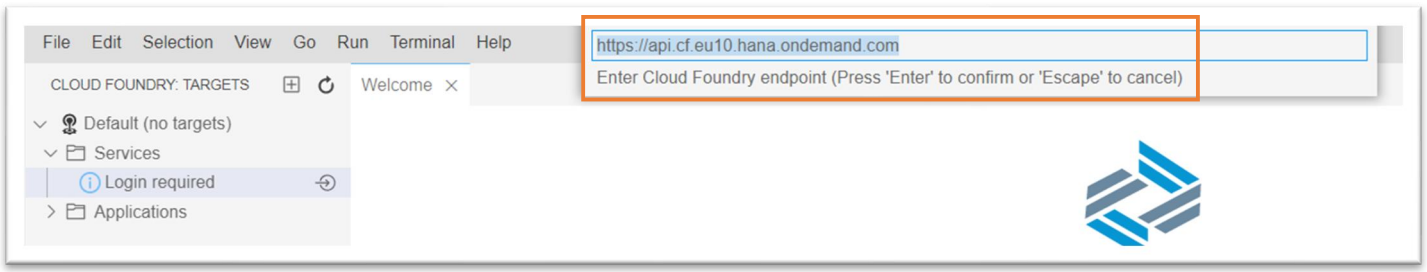
6. On the left side of the Business Application Studio click on the Cloud Foundry targets icon



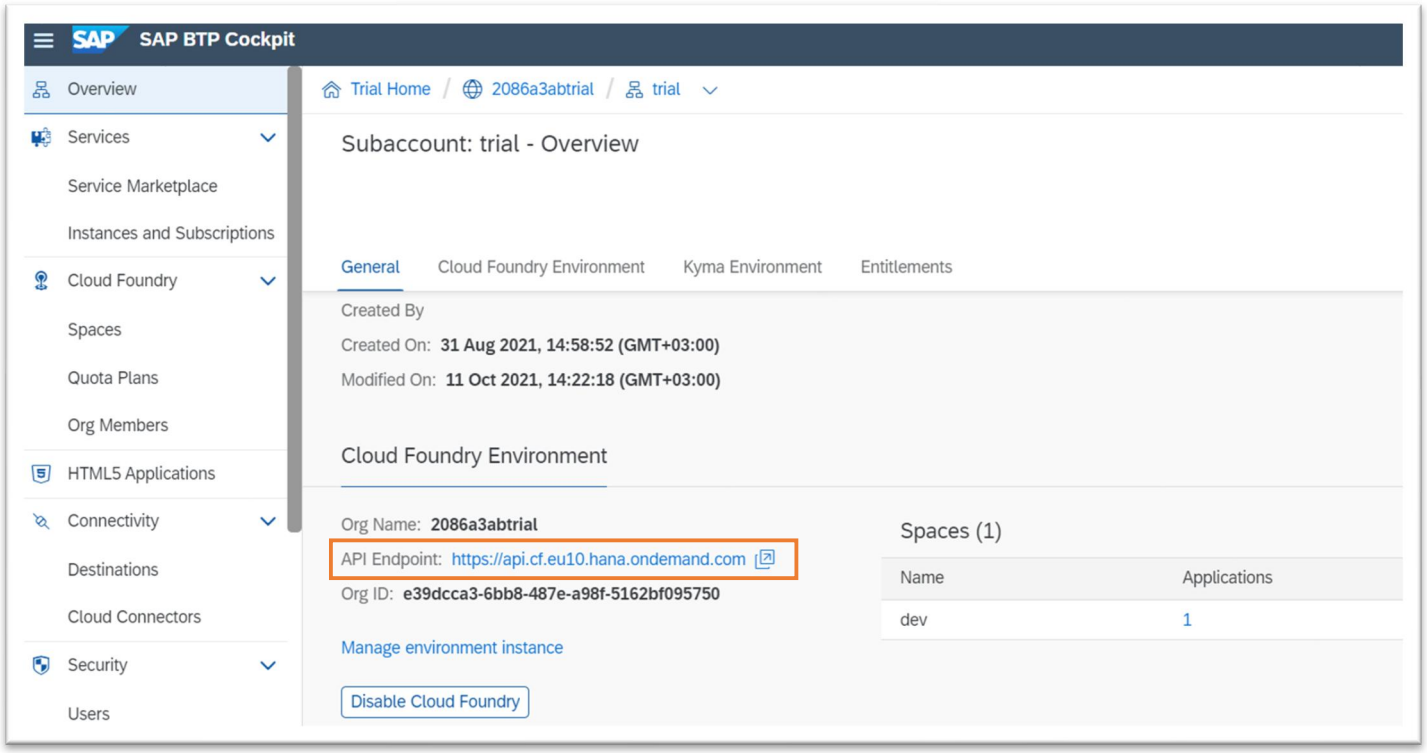
7. In the Cloud Foundry Targets window, you can expand either Service or Applications and then click on the Logon icon to continue the configuration process



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

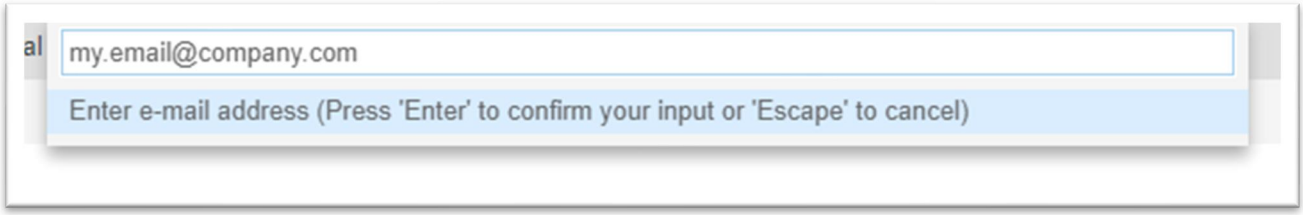


The default value proposed is likely the correct value, but if you need to confirm; the value can be found in the SAP BTP cockpit at the Subaccount level.

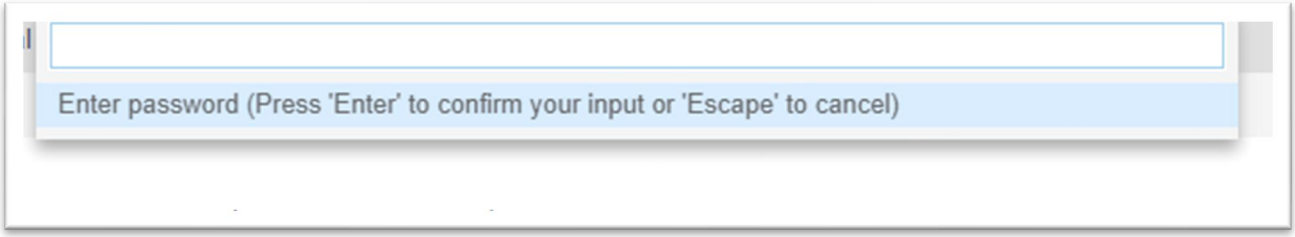


Press Enter to confirm your input of the Cloud Foundry endpoint.

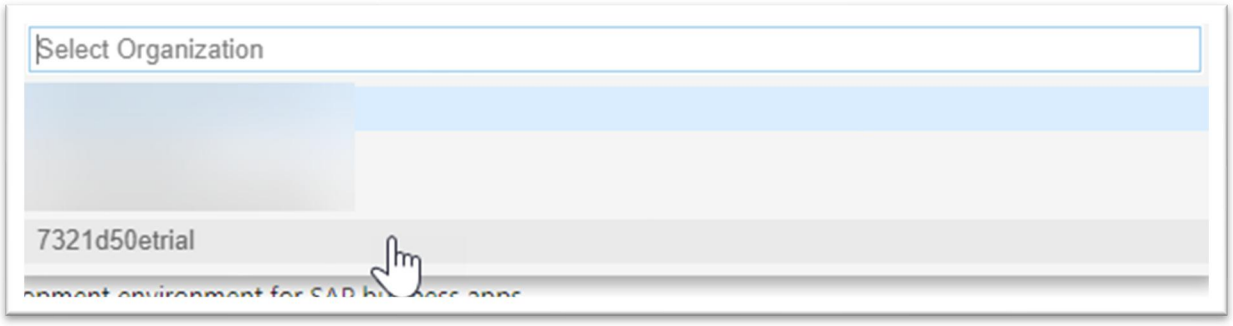
9. The next input field will ask you for the email address you used to create your SAP BTP trial account



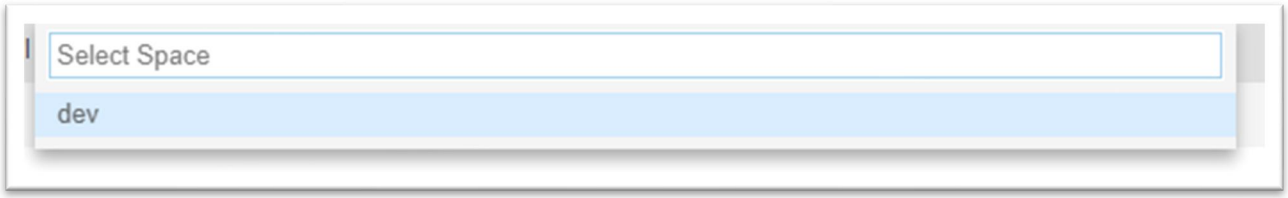
10. The next input will ask you for your SAP BTP trial account password



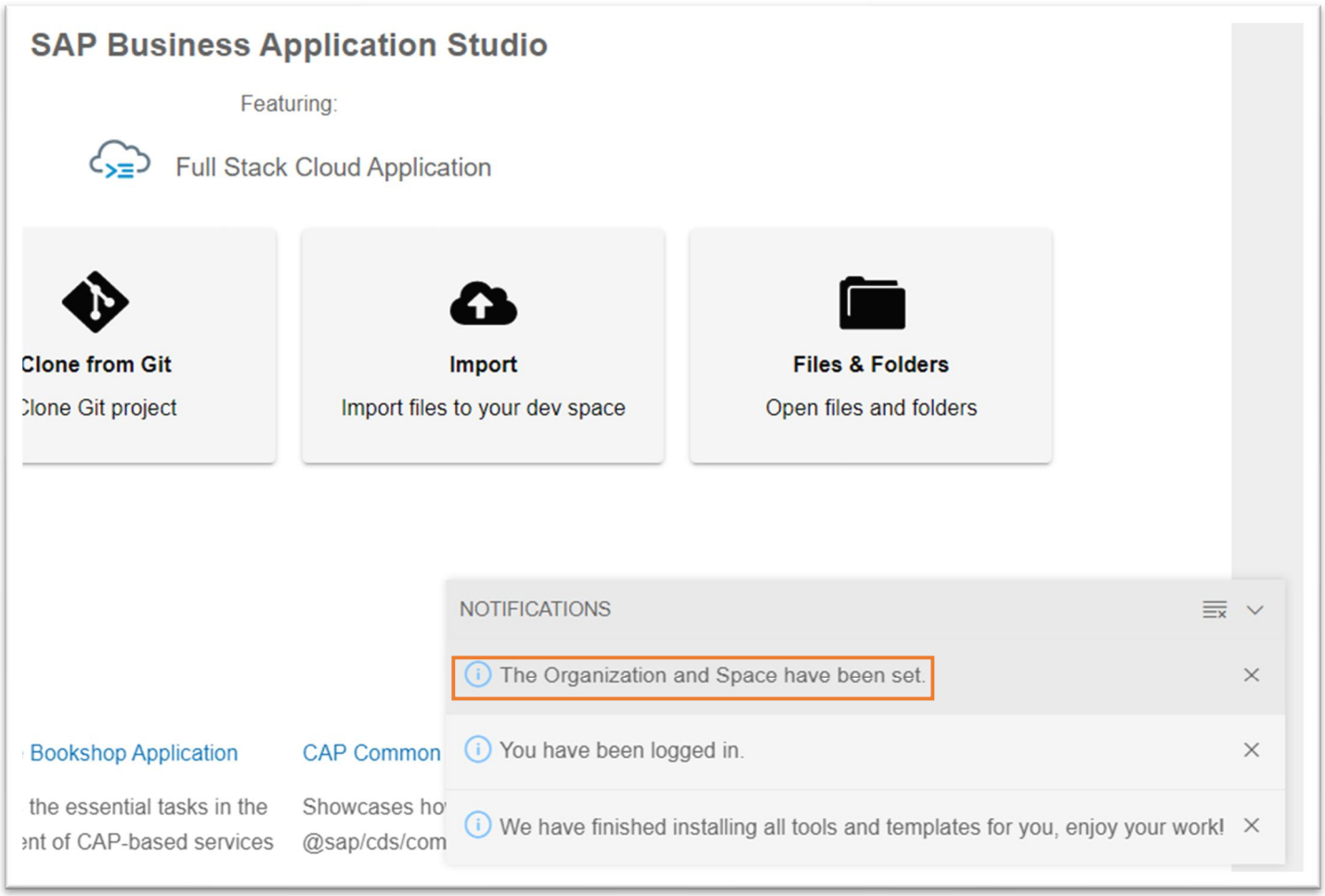
11. The next input will ask you for your Organization. In most situations, you will have a single choice. But like the API endpoint earlier, if you need to confirm the correct value it will be displayed in the top navigation of the SAP BTP cockpit



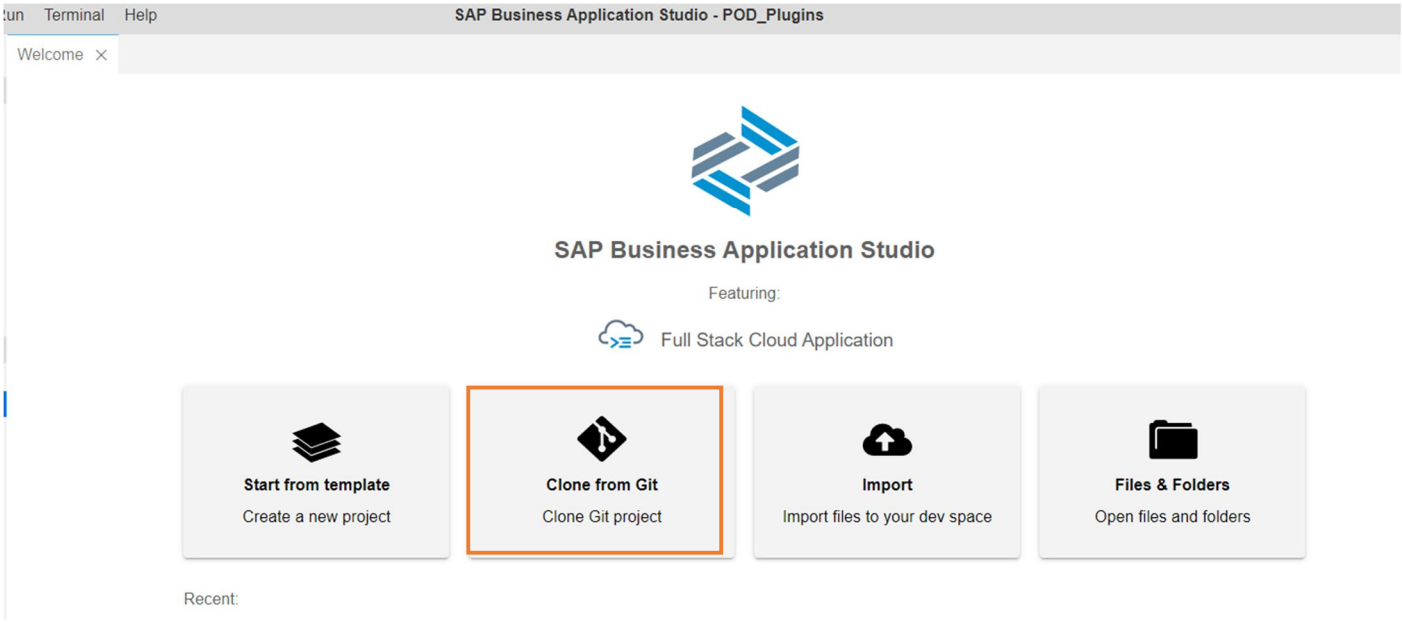
12. The final input will ask you for your Space. If you choose the endpoint API and Organization correctly, then you should have a single option of dev



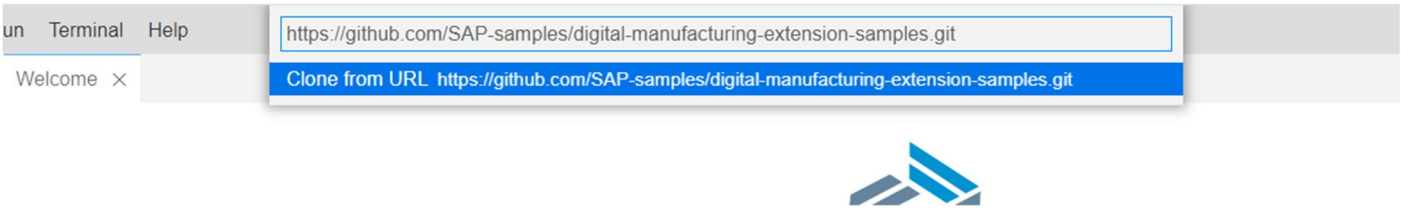
13. Upon completion of all the inputs, you should see that the Organization and Space have been set.



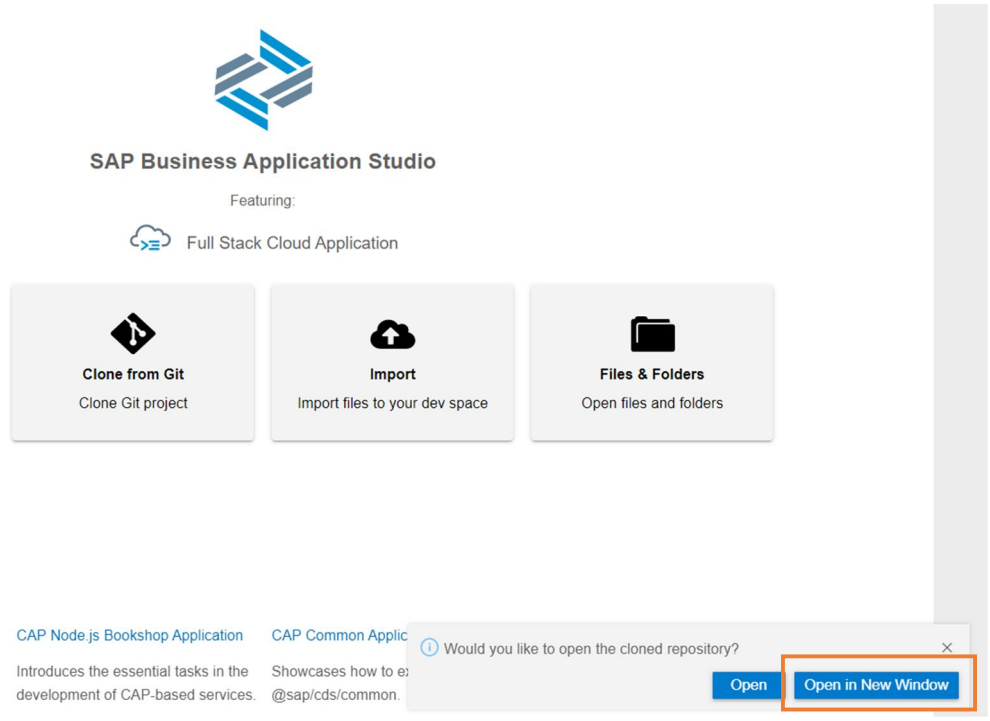
14. The next step is to add project with a POD View Plugin example and POD View Plugin Template to workspace. From the SAP Business Application Studio Welcome page, click Clone from Git



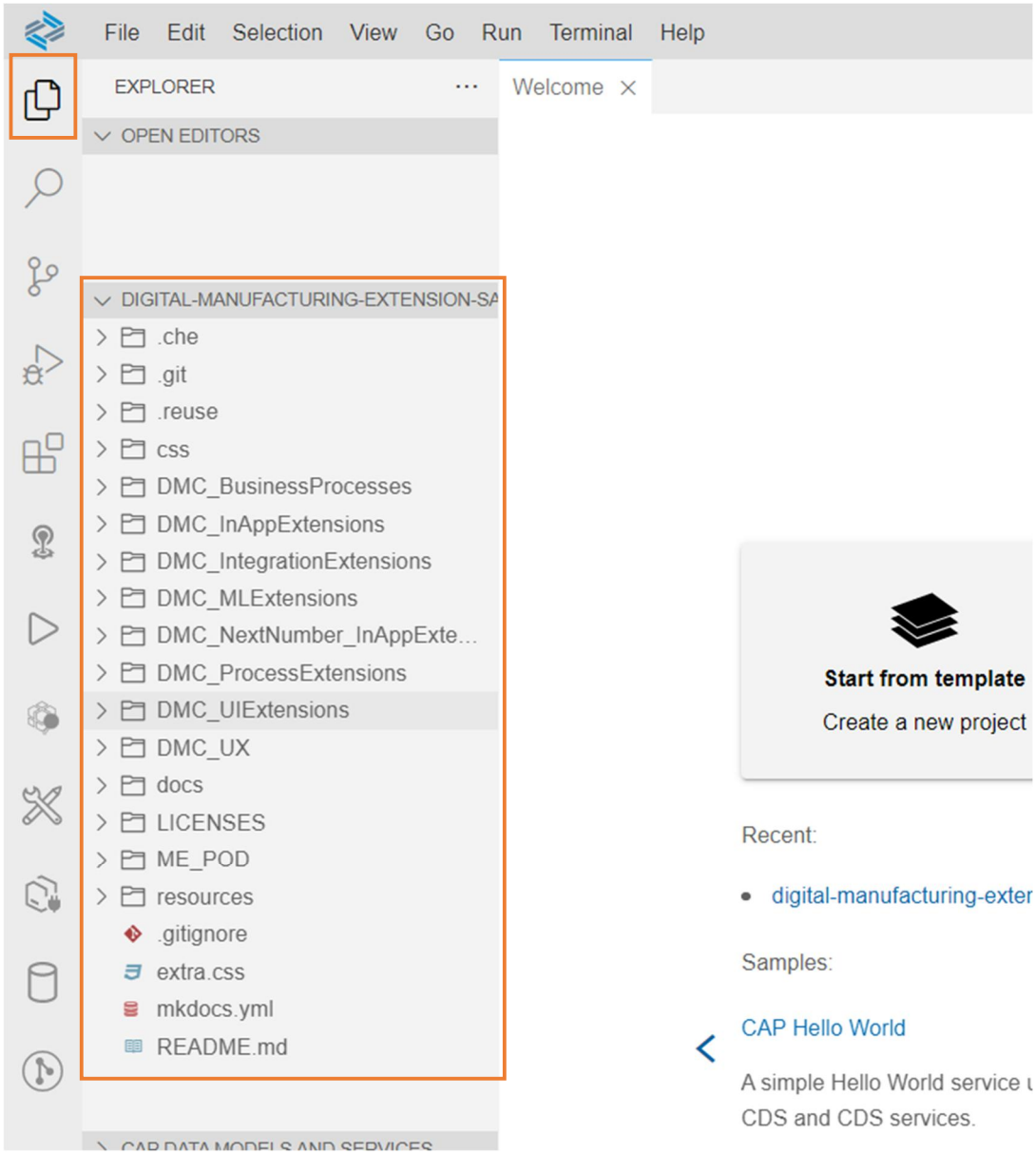
15. Specify URL in input field: https://github.com/SAP-samples/digital-manufacturing-extension-samples.git



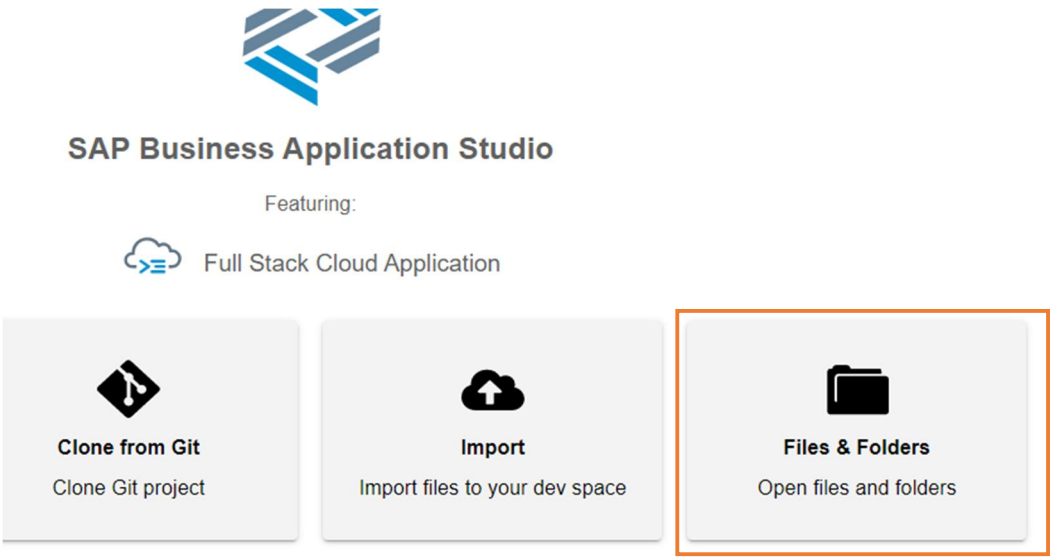
Expected result that repository was successfully cloned, and you should choose Open in New Window



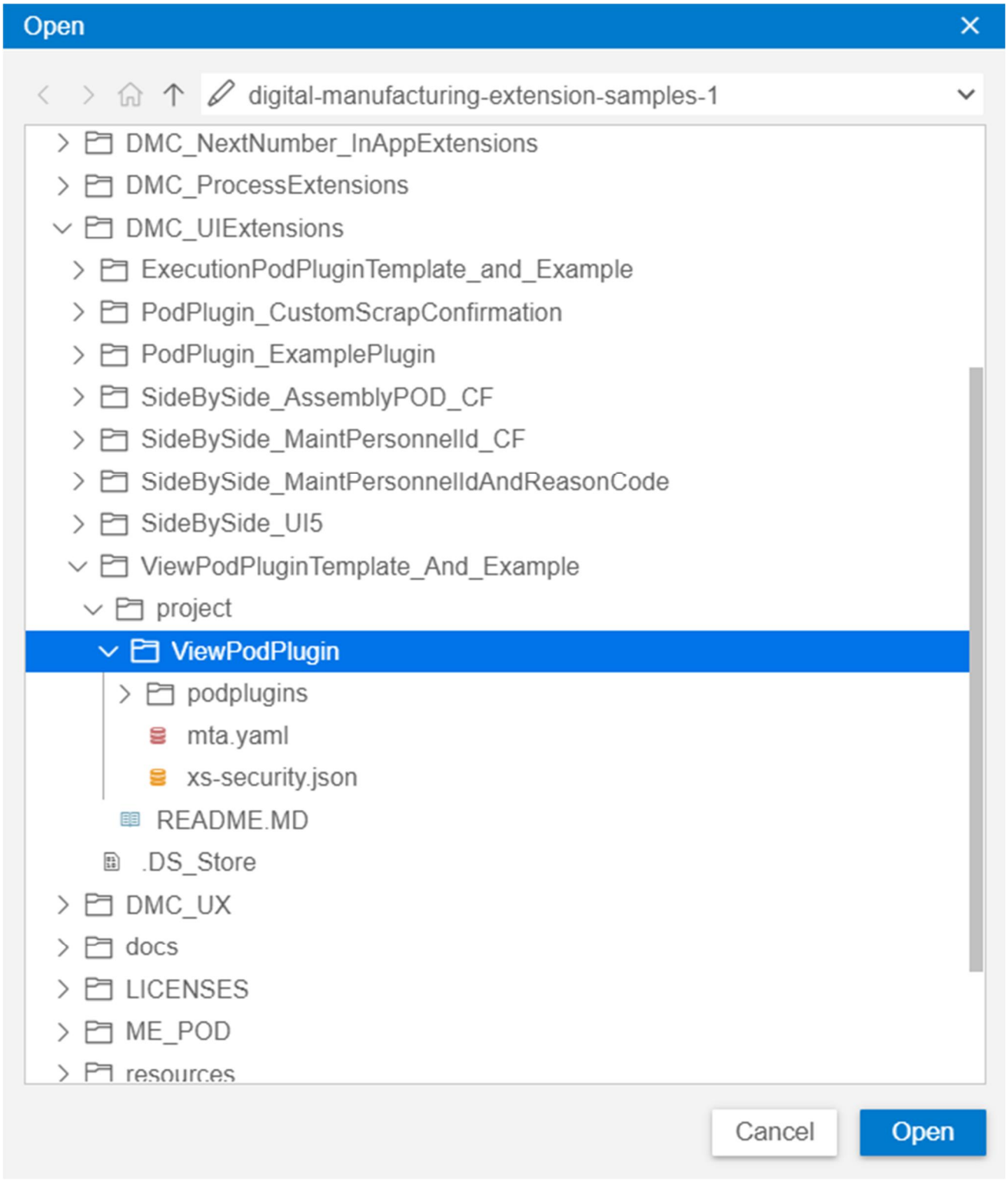
Explorer view shows project with content as below



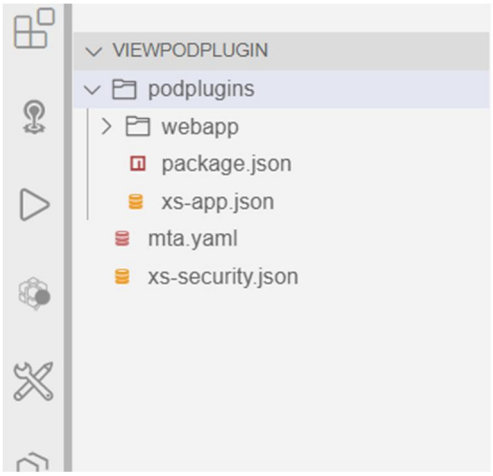
16. We should switch to needed project by choosing Files & Folders in Welcome screen



17. Navigate to the path DMC_UIExtensions\ViewPodPluginTemplate_And_Example\project\, choose ViewPodPlugin folder and click Open button



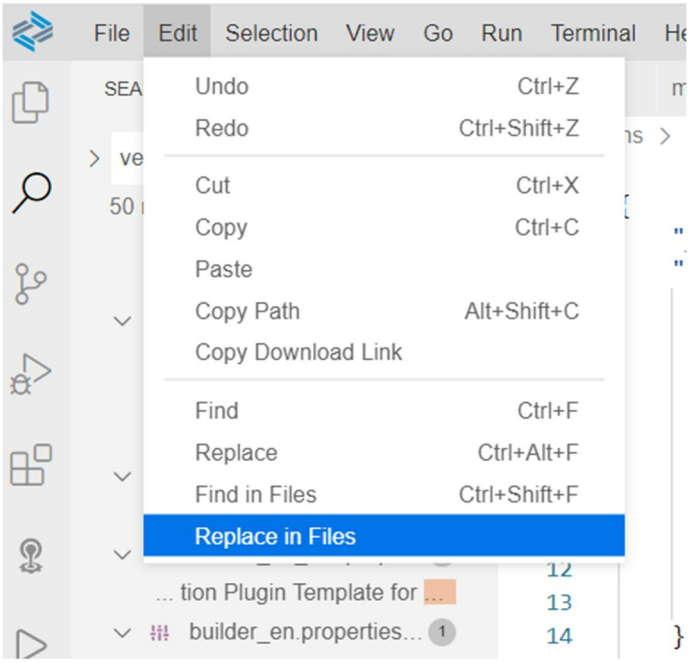
You will get such project structure



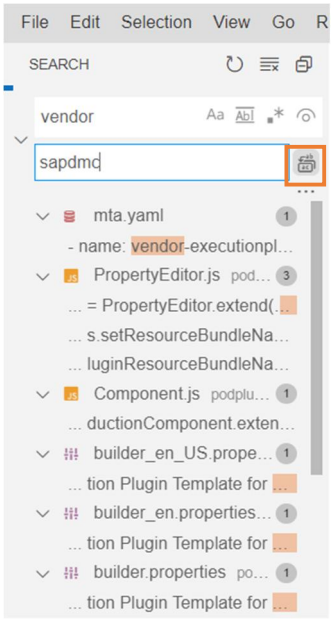
18. We should replace “vendor” word in project to actual vendor name value

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.

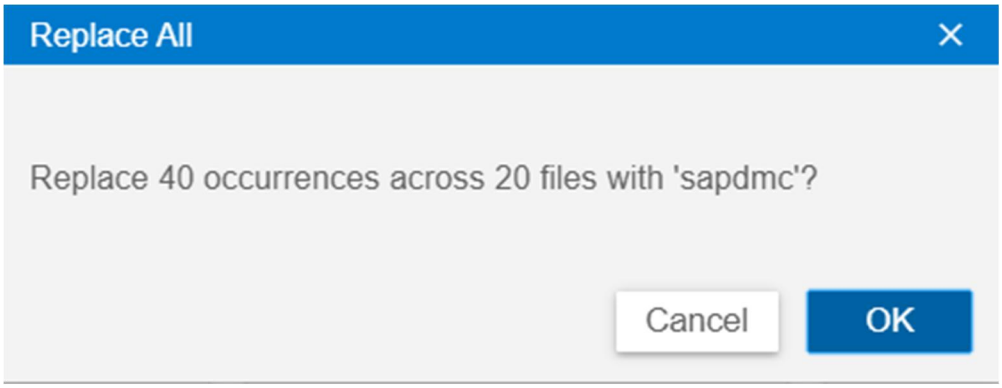
Choose Edit à Replace in Files from menu



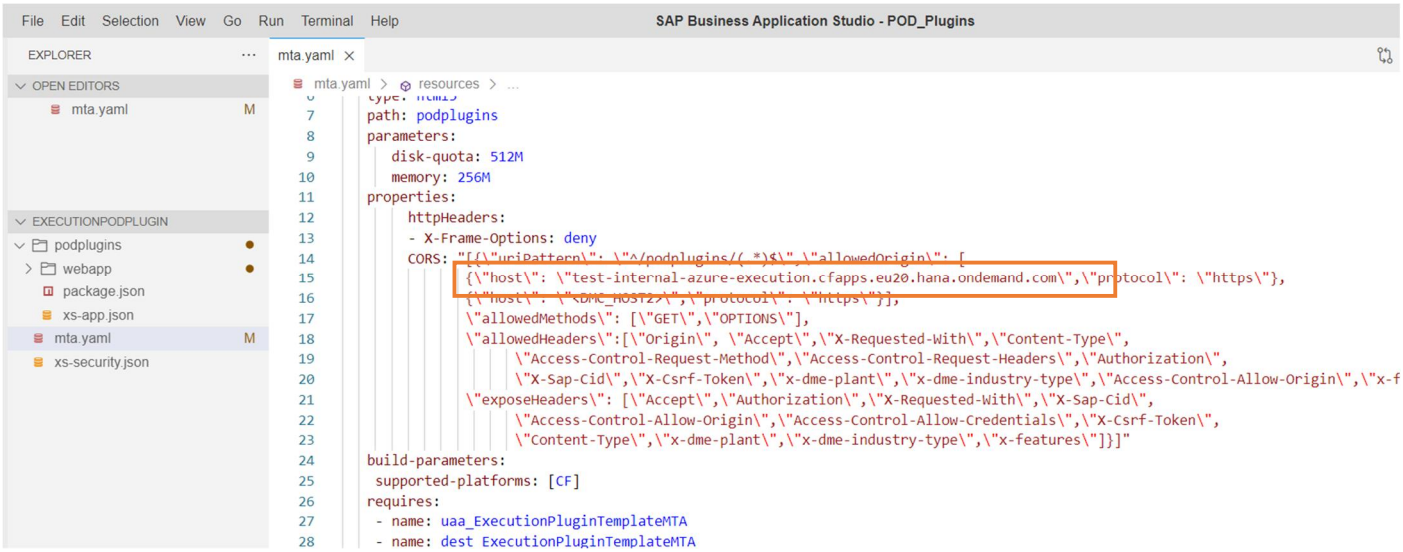
And replace vendor to your actual vendor name value. In this document we used sapdmc for vendor name. Choose Replace All icon.



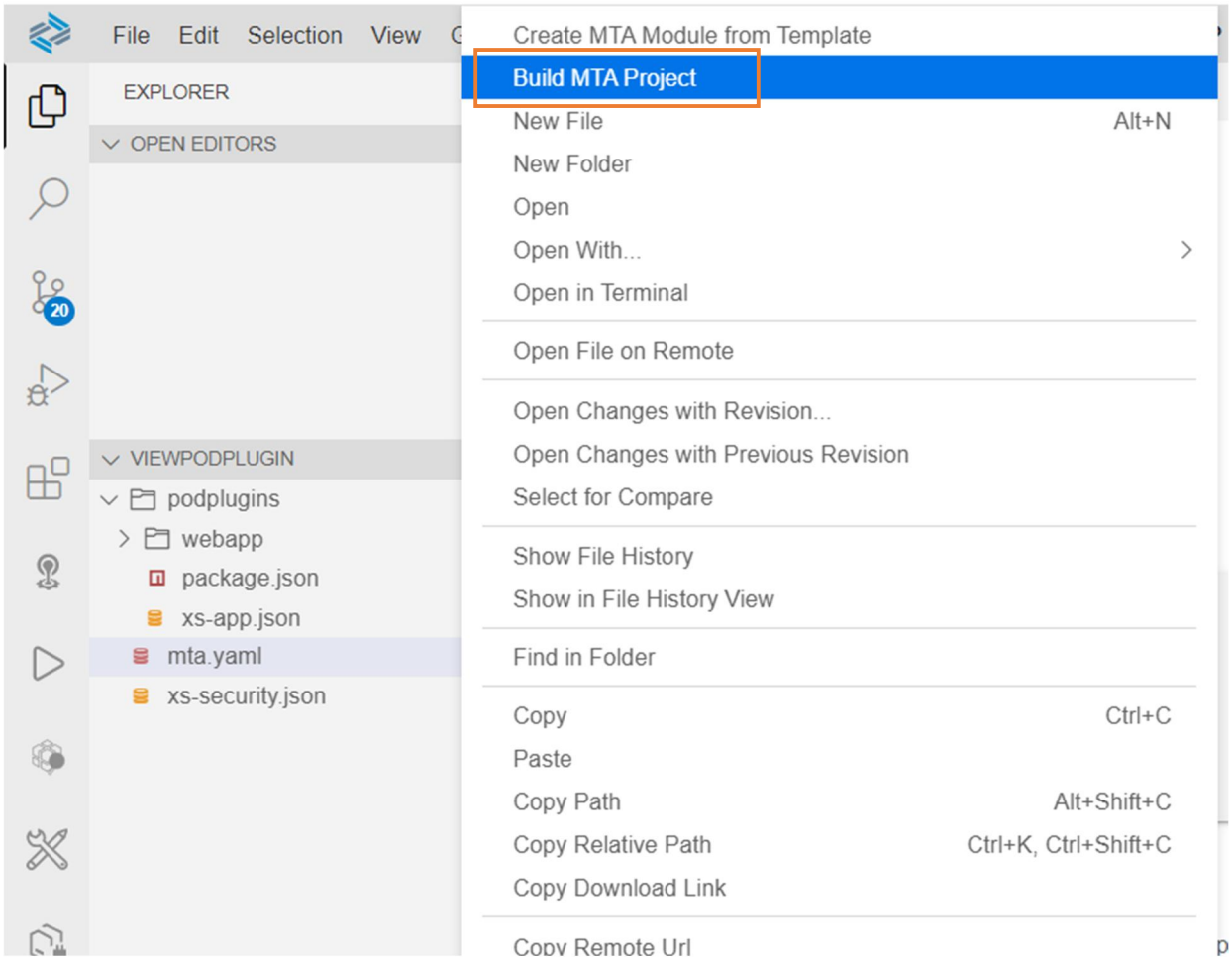
It should replace occurrences in all files. Choose OK.



19. Open mta.yaml file and replace <DMC_HOST1> with the host name where POD is located, for example

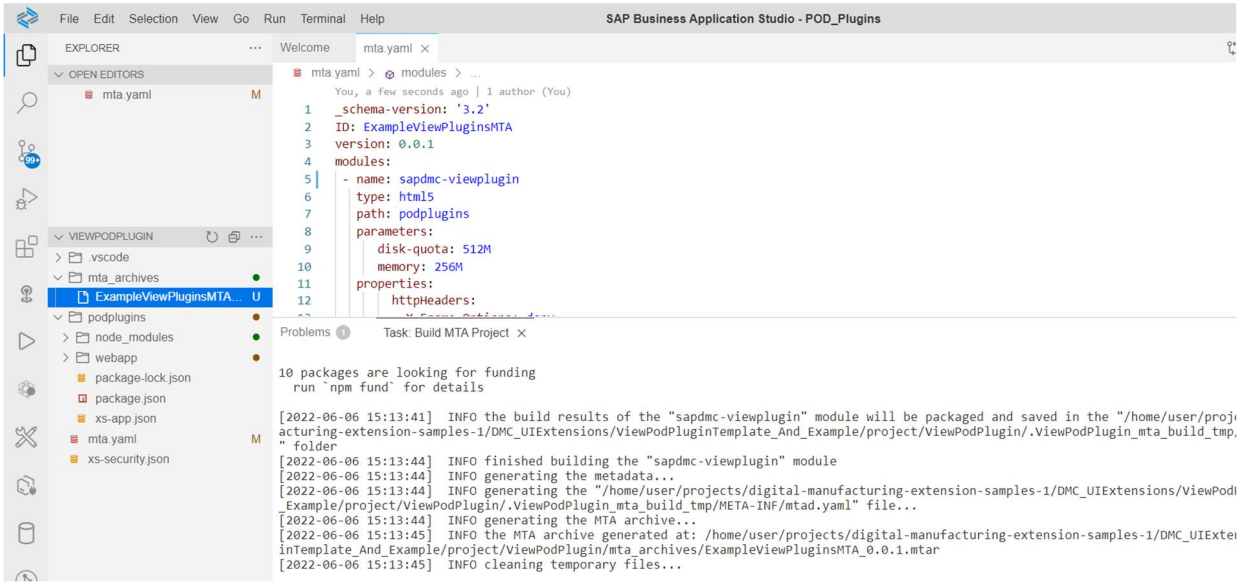


20. Right-click the mta.yaml file and choose Build MTA Project.

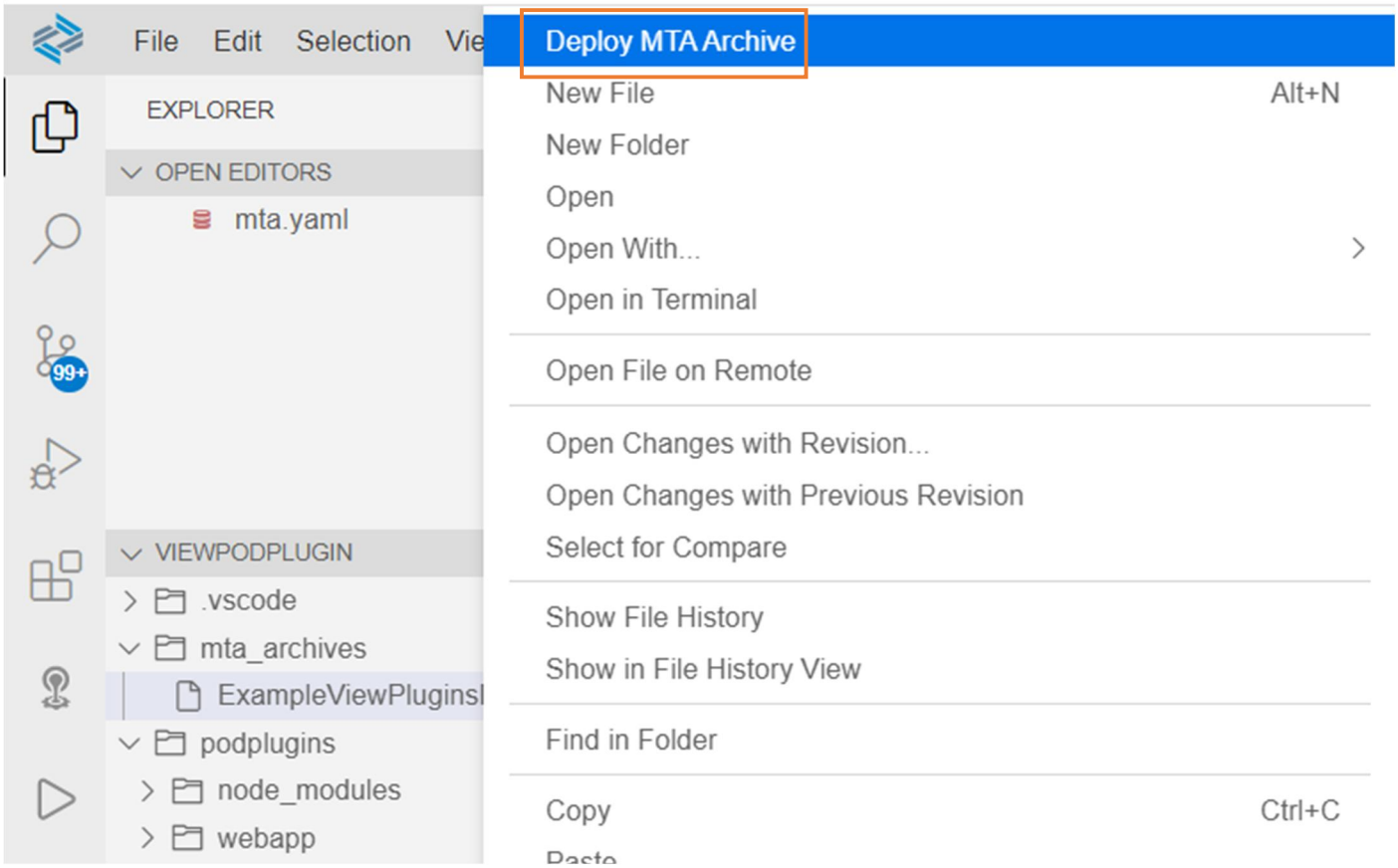


As a result of this step two new folders are created:

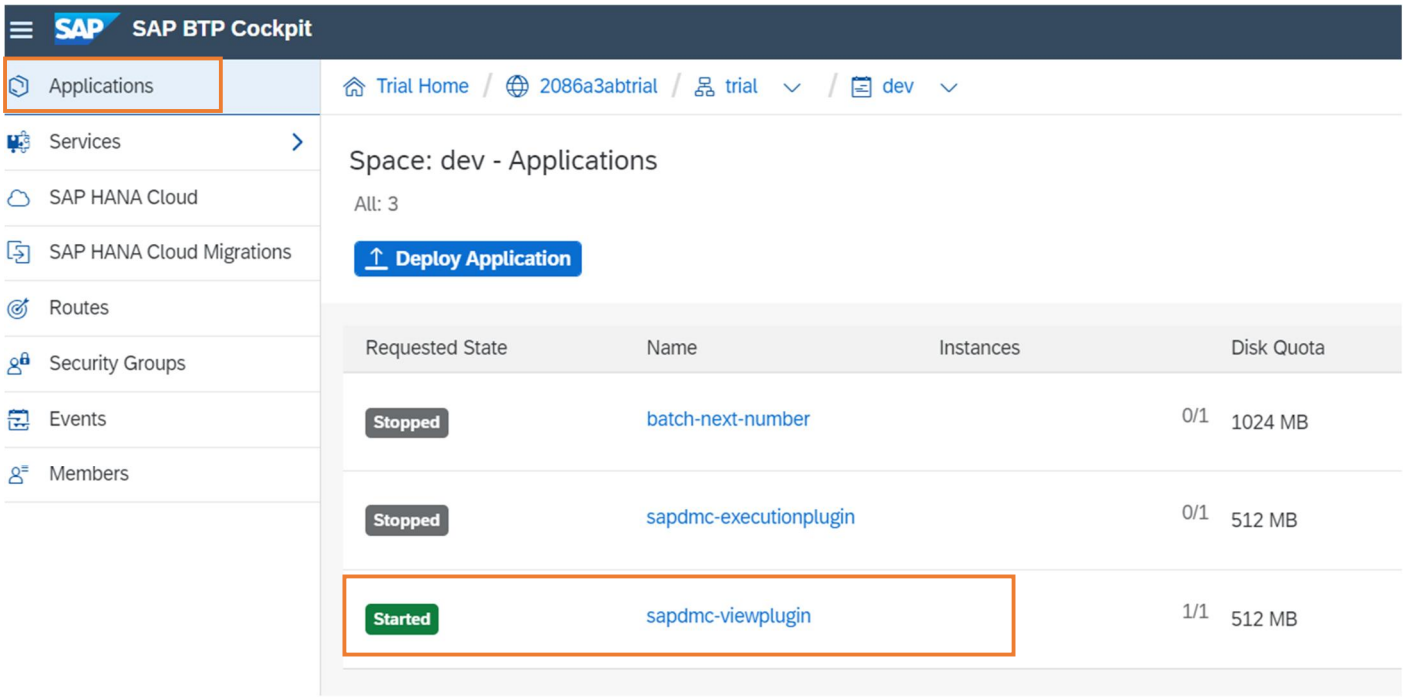
- mta_archives folder is created containing the new generated ExampleViewPluginsMTA_0.0.1.mtar file
- node_modules folder is created with all required dependencies



21. Right-click on the generated ExampleViewPluginsMTA_0.0.1.mtar file and choose Deploy MTA Archive.

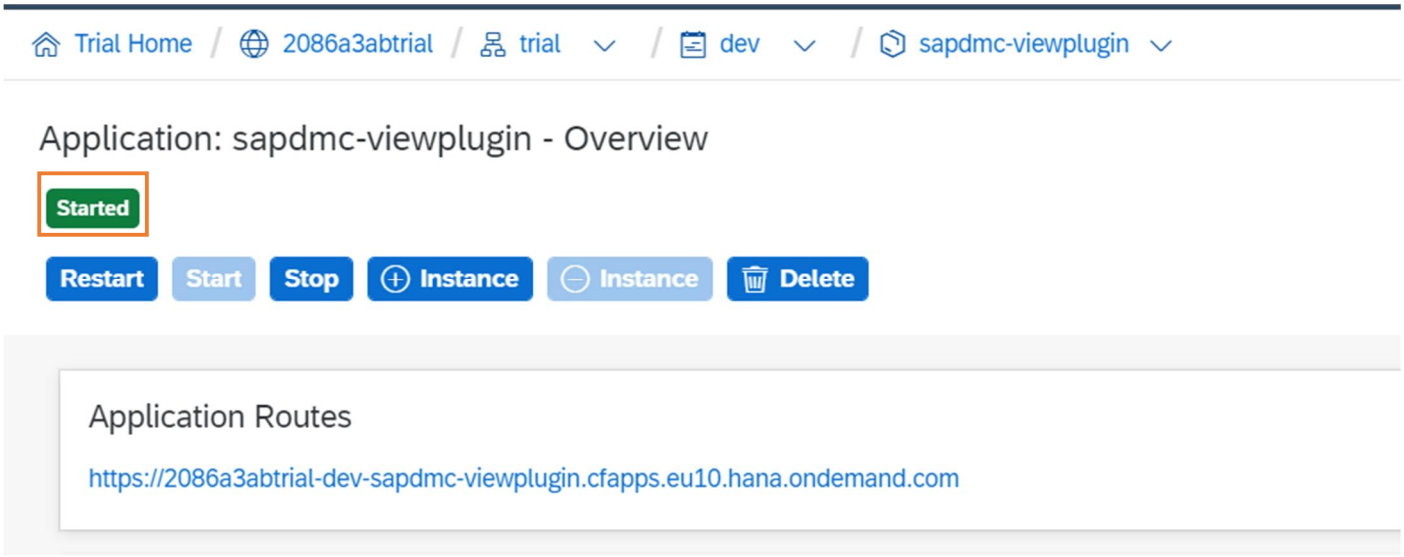


After deployment is done, your application should be available in your Cloud Foundry space. To access your application, go to your space in the SAP Cloud Platform cockpit and select Applications from the side menu.



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

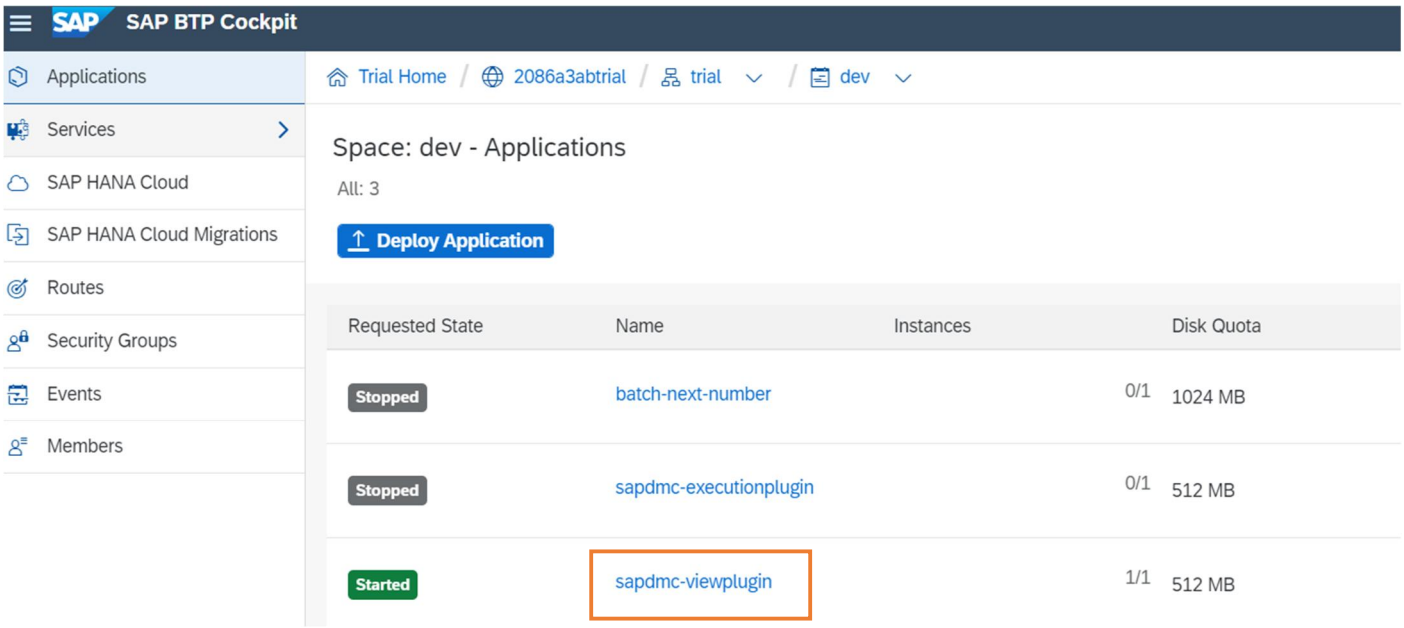
The application should have Started status.



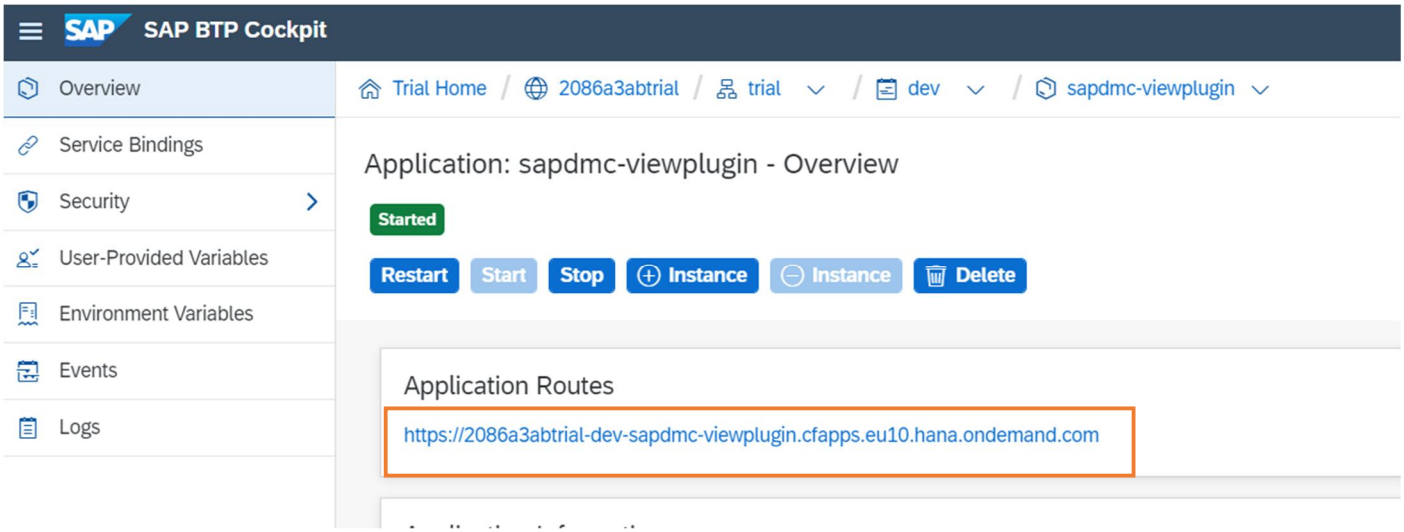
Installation steps are completed! Go to the Configuration Steps section!

Configuration Steps

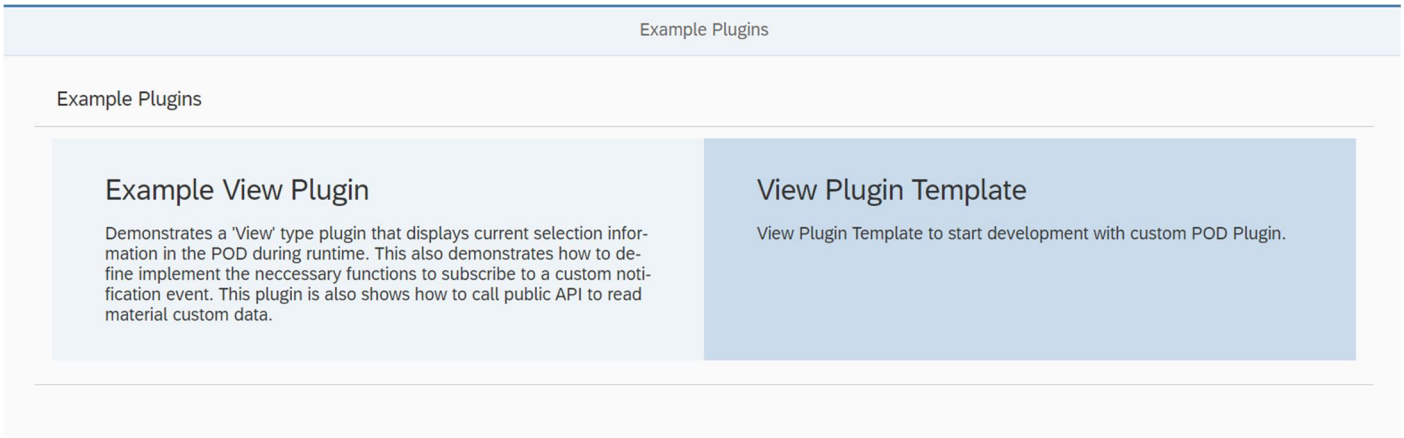
1. Go to your space in the SAP Cloud Platform cockpit and select Applications from the side menu
2. Choose the sapdmc-viewplugin application



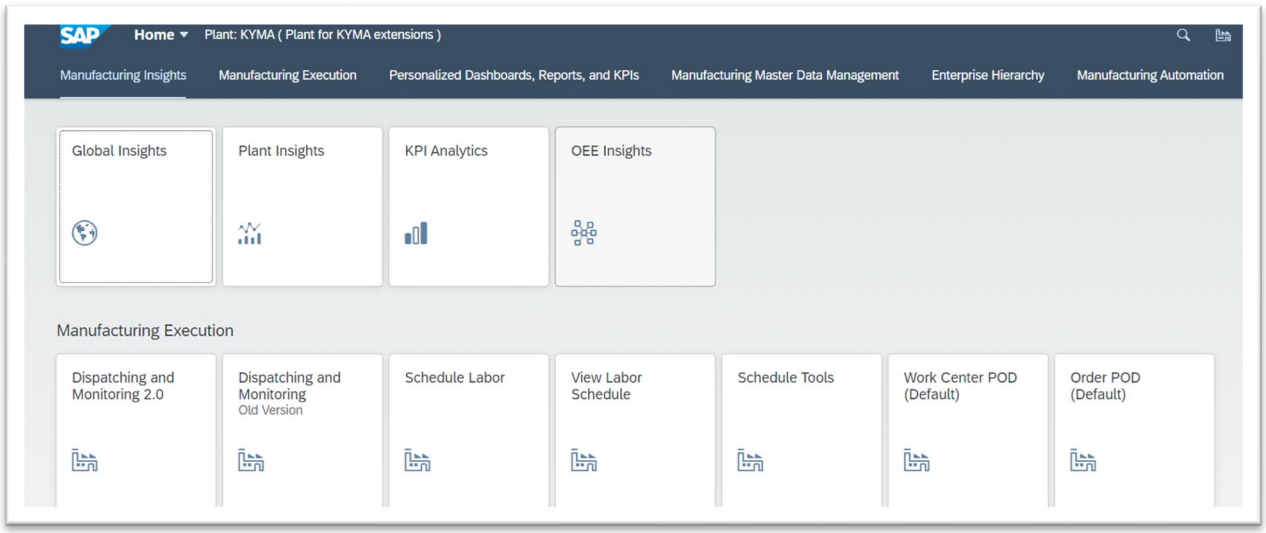
3. Click on Application Routes URL to verify that the application was deployed



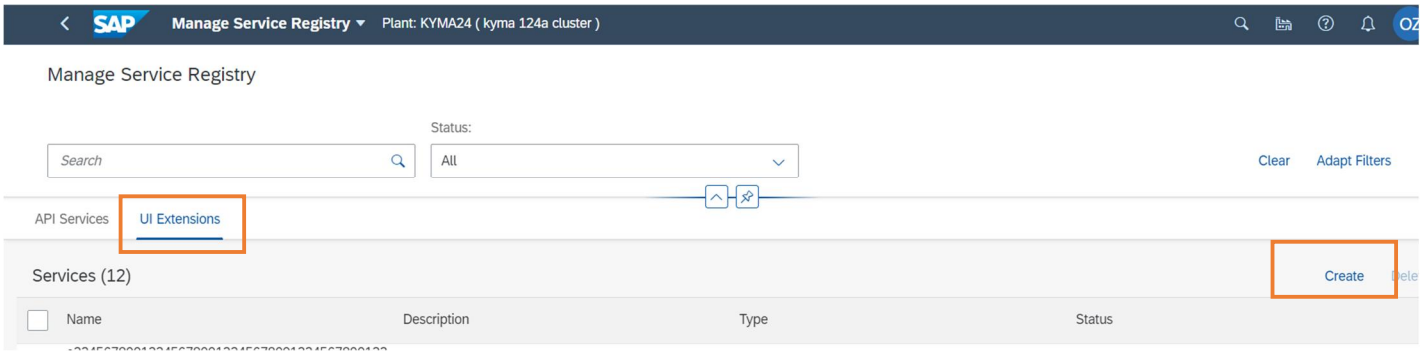
Here is the result of successful deployment to Cloud Foundry.



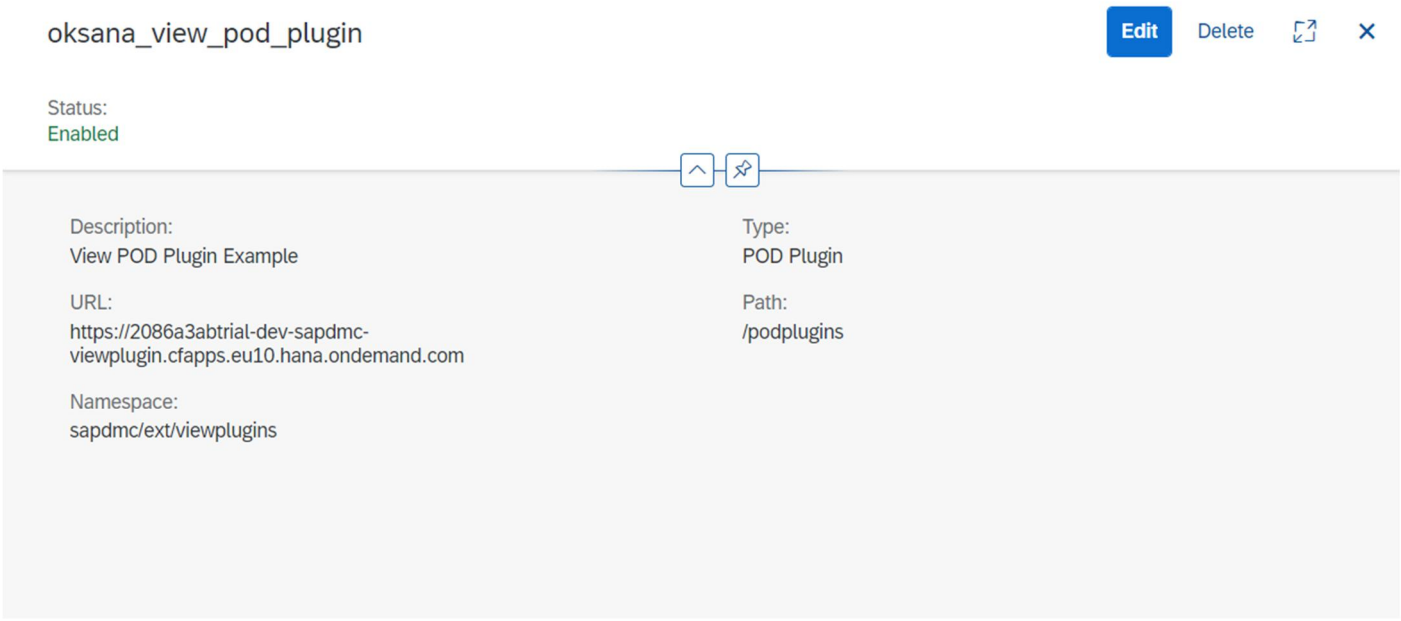
4. Copy application route URL as it will be used in Manage Service Registry application in next steps
5. Login to DMC



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



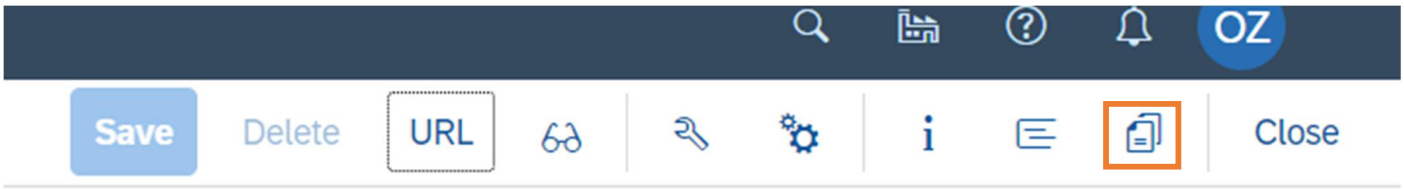
8. Define new UI Extension with the following settings as below



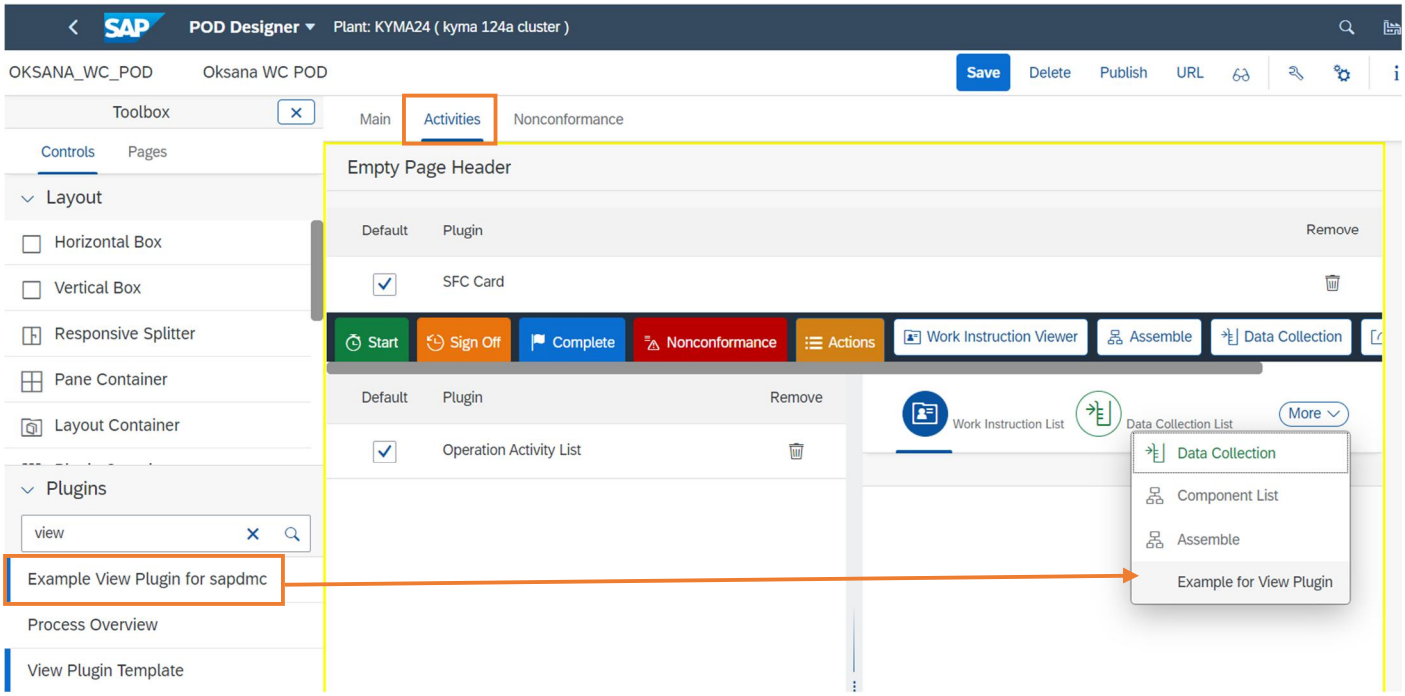
For URL field: use application route URL from “Application Routes” in BTP Cockpit
For Path field: /podplugins
For Namespace: vendor/ext/viewplugins

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

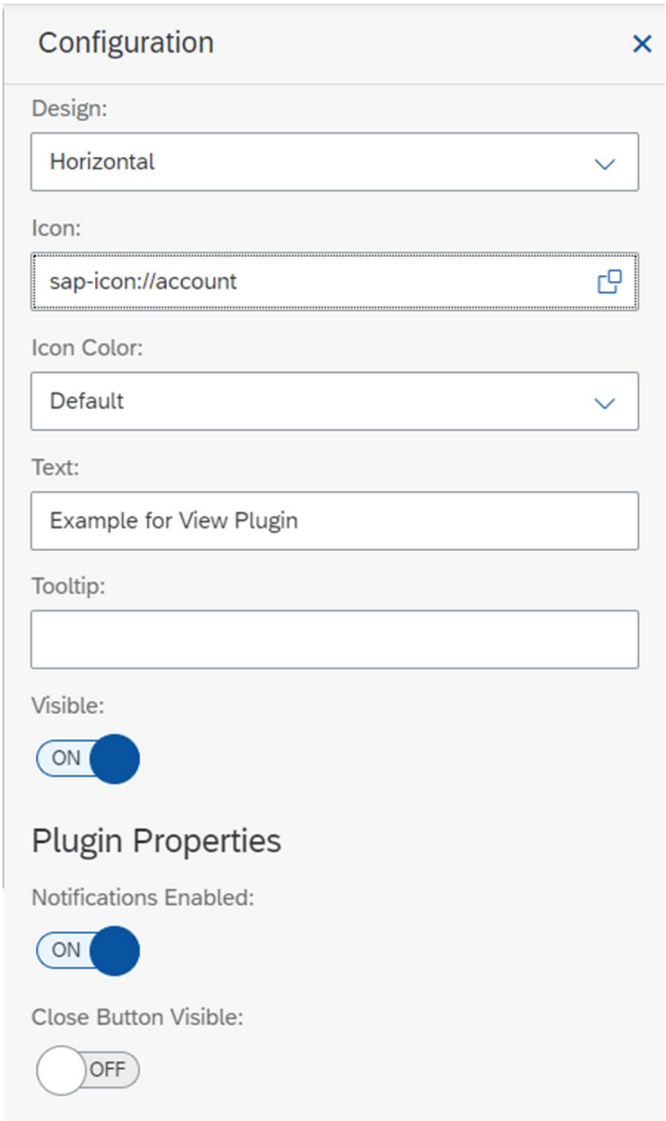
9. Choose Create button and verify that the service was created with correct settings
10. Open POD Designer application and choose DEFAULT_WC_POD POD name
11. Create a copy of the POD



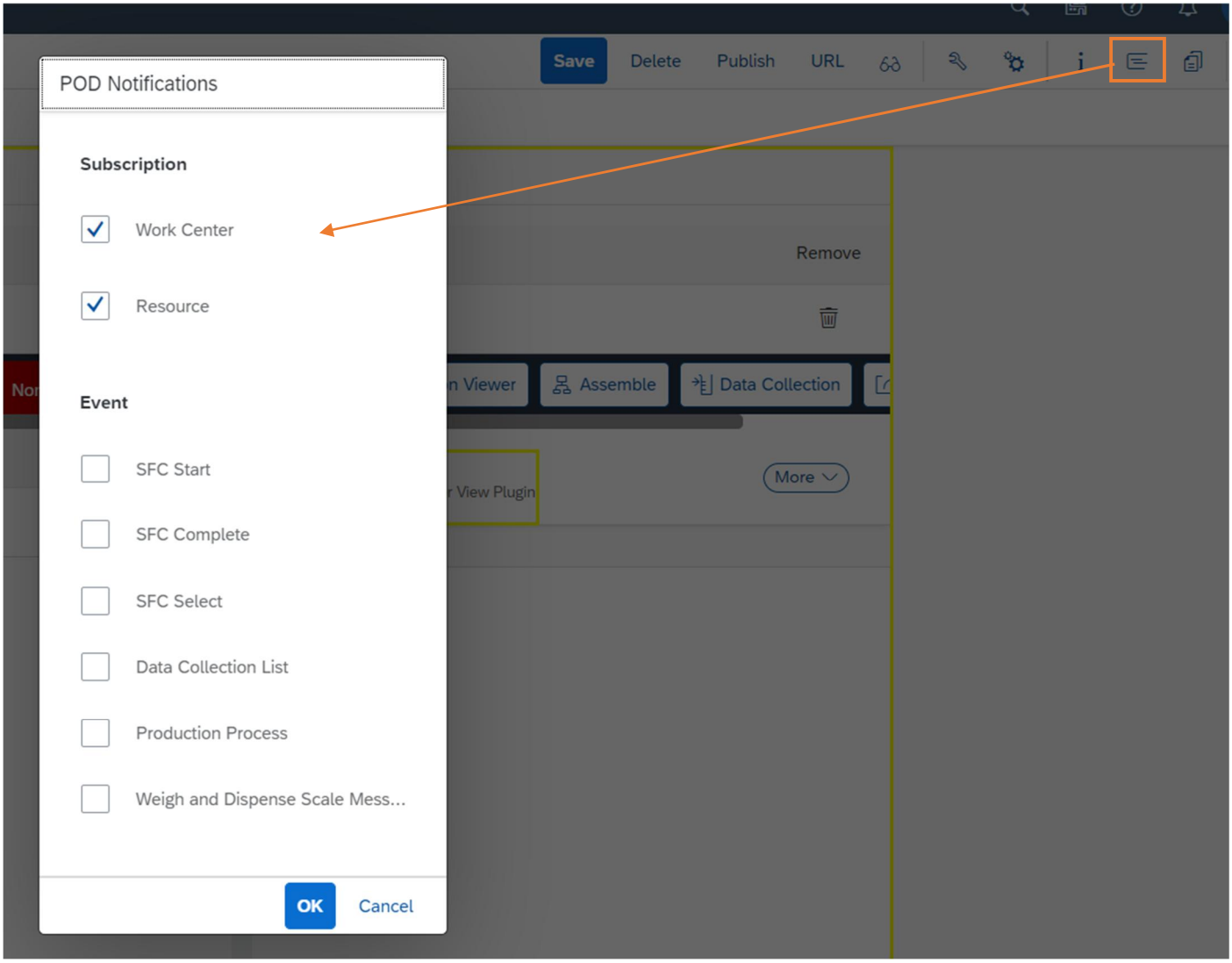
12. Drag and drop Example View Plugin for vendor to Activities panel. Click right-mouse button on Example for View Plugin plugin and choose “Configuration” option



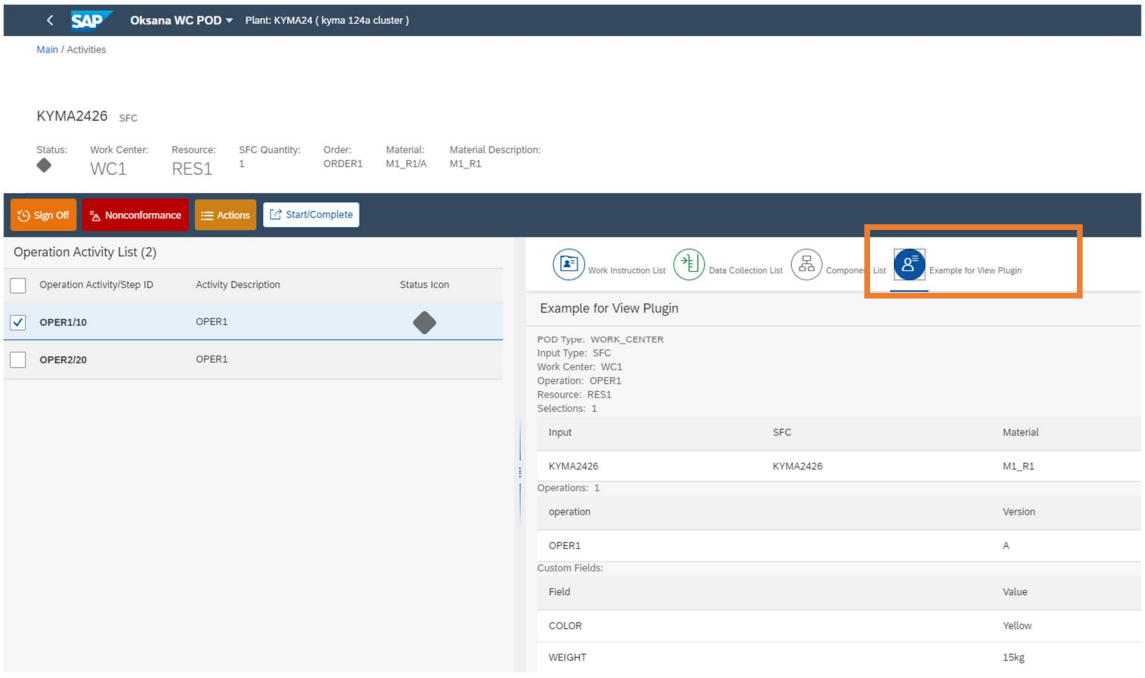
13. Define Design, text, icon and can enable or disable Notifications and Close Button Visible settings.



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.



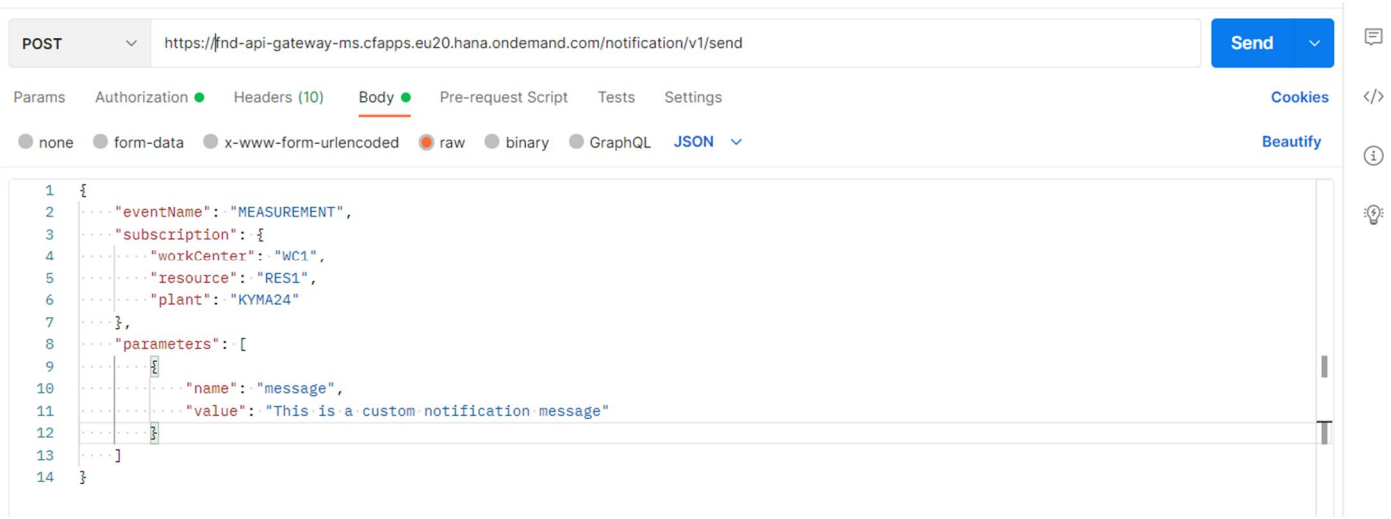
If material has custom fields defined, then you will see them in Custom Fields table. This data was retrieved by using Public API call /material/v1/materials

Custom Fields:

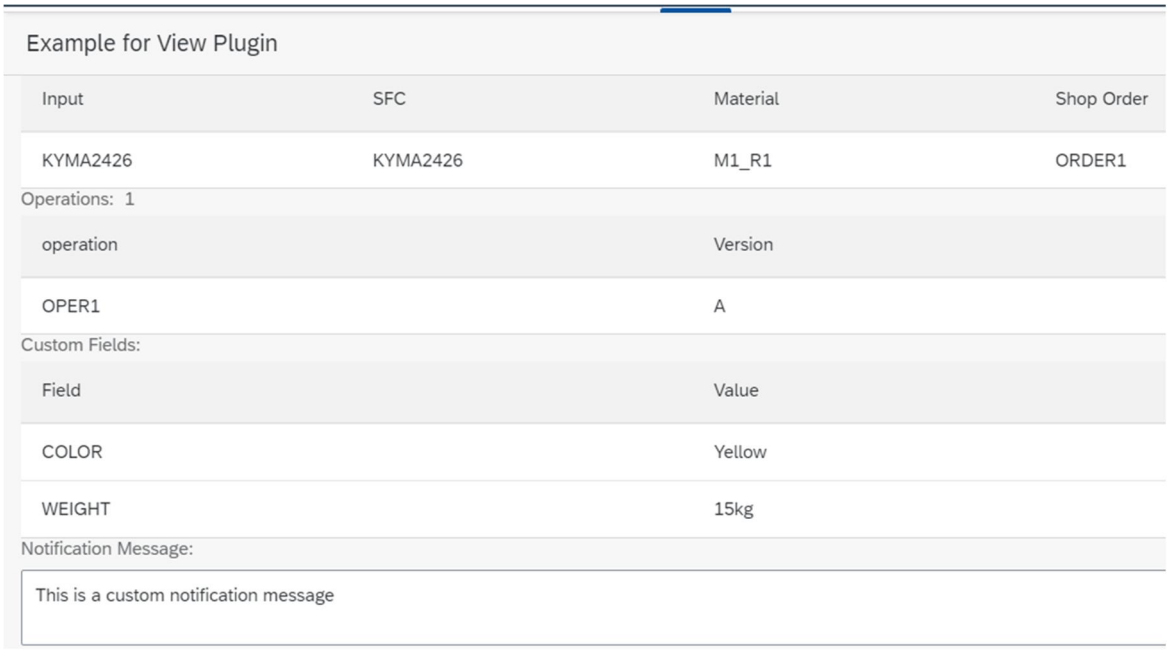
Field	Value
COLOR	Yellow
WEIGHT	15kg

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



And it is displayed in Notification Message area.



Configuration Steps are completed!