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Setting Up Proposal of Material Group (2XV)



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1 Purpose

This document describes additional configuration steps that have to be carried out by customers in order to activate the machine learning scenario – Propose Material Group. As these configuration steps are customer-specific, they cannot be delivered by SAP, and must be carried out by the customer.

When a new Purchase Order Item is created, Machine Learning API on SCP would be invoked and Machine Learning algorithms use Purchase order data in the system and send material group proposals to S/4HANA which can be chosen in Purchasing documents.

2 Preparation

2.1 Prerequisites

During the activities described in this guide, you are also required to enter or provide system-specific information. To ensure a smooth and efficient integration to SAP S/4HANA, we recommend that you have the information listed in the following table at hand before starting the integration process:

Required	Information Required
SAP S/4HANA On-Premise system	System details such as System ID, Username, and Password
SCP Leonardo System	System details such as host name, URLs, URIs, User, and Password

Initial settings required to leverage Machine Learning Integration with S/4 in order to use the functionality Proposal of Material Group.

Two major settings are required for this topic:

- Configuration in Settings at SCP
- Configuration in S/4HANA On-Premise edition

3 Configuration in SAP Cloud Platform

3.1 Subscribe to Procurement Assistant Application

Use

Before you get the OAuth access credentials, the *s4-intelligent-insights-procurement* business service should be enabled as a service in the SCP account of the customer.

Any issue with SCP, please raise ticket to component CA-ML-PA.

i Note

You can skip this step if instance of service s4-intelligent-insights-procurement is already created in SCP.

Procedure

1. Find Procurement Assistant in the SCP marketplace (The current name is intg-pa and will be modified in future).

		SAP Cloud	I Platform Cockpit		0 🖬	
Applications					Search	1
Service Marketplace Service Instances User-Provided Services 8AP HANA ~	App Managed hana managed-hana Creates service instances at Inutrime of: SAP HANA database	Application Autoscaler autoscaler Autoscaler Automatically increase or decrease Automatically increase or decrease based on a policy you define.	application-logs application-logs speciation-logs Stream logs of bound applications to central application logging stack	Carditiog sudfilog Broker for Audit Log Service.	Authorization & Trust Managem xxuua Manage application authorizations and trust to identity previders.	
Database Systems Tenant Databases Service Requests III Portal III Routes	Connectivity connectivity Exabilities a secure and reliable connectivity between cloud apyetems.	destination destination (BETA) Provides a secure and relative access to destination configurations	♥ fa-storage fa-storage ↓ ↓ ↓ ↓ (BETA) NFS volume services	₩ hana Pana SAP HANA database	HTML5 Application Repository Intm5-apps-repo BETA Enables storage of HTML5 applications and provides runtime applications.	
g# Security Groups 현 Events 옷' Members	W Intg-pa Imp pa Provisions XSUAA CAuth Client to access the Intg-pa service implementations	Job Scheduler Jobscheduler Jobscheduler Betal Allows you to define and manage your jobs that run on one- time or recurring schedules		LPS Service Ips-service Service for integrating with LPS Service	metering metering for the Resource consumption service based on c1-abacus	
★ Favorites ⑦ Useful Links	mi-foundation mi-foundation mi-foundation access the mi-foundation service insplementations	MongoDB mongotb Size JSON-like documents in a document-oriented database.	ObjectStore objectatore Part Highly available, distributed and eventually consistent objectatore.	 ♥ portal-services portal-services Cashy create SAP Flort launchpad business also for angloyees, customers and partners. 	PostgrenSQL postgrensQ Relational database with an object- onewhold model.	

2. Create a new instance of the service. Instance plan must be standard.

	SAP Cloud Platform Cockpit					8 (
📢 Overview	🙈 Home [Europe (Rot) - Canary] / 🌐 Europe (Frankfurt) - Canary 🗸 / 🔯 mi-foundation / 🏯 ML_Business_Networks / 🖾 S4H_PROC_ASSIST 🗸 / 📢 intlg-pa 🗸					
m Instances	题 Service: intg-pa - Instances				☆ (
	All: 0					
	New Instance	Sea	arch			
	Name Plan L	ast Operation	Act	ions		
	No instances					

3. In the instance page you will see a tab called *Service Keys* on the left. Click on it and then choose *Create Service Key*.

Referencing Apps	🗇 Home [Europe (Rot) - Canary] / 🌐 Europe (Frankfurt) - Canary 🗸 / 🔯 ml-Joundation / 🏯 ML_Business_Networks / 🖻 S4H_PROC_ASSIST 🗸	/ 🙀 intg-pa $ \sim $ / छ test3 $ \sim $
🔍 Service Keys	Service Instance: test3 - Service Keys	A 🖲 🛈
	AII: 0	
	① Create Service Key	Search
	No service keys	

4. When Service Keys are successfully created, you will see something like below.

test3-key	⊗		
	{	"clientid": "sb-9a2d5a42-f687-480c-8eaa-4654f084d7ablb1071 procurementassistantlb1071", "appname": "9a2d5a42-f687-480c-8eaa-4654f084d7ablb1071 procurementassistantlb1071", "identityzone": "ml-us", "clientsecret": "DK74GGDhFJ08nXQIUSX3X32RHw=", "serviceurls": { "PROCUREMENT_ASSISTANT": "https://procasst.cfapps.sap.hana.ondemand.com" }, "url": "https://ml-us.authentication.sap.hana.ondemand.com"	

Example:

'≡ Source Code "clientid": "sb-f15543bb-8df0-439e-a2c9-fea98f941b5c!b1071| procurementassistant!b1072", "appname": "f15543bb-8df0-439e-a2c9-fea98f941b5c!b1071|procurementassistant! b1072", "identityzone": "ml-us", "identityzoneid": "6b3b02w3-516a-4818-8f4b-068807dab612", "clientsecret": "Jo741XgNdE74H7I9ZVfKETMjIwA=", "serviceurls": { "PROCUREMENT ASSISTANT": "https://procasst.cfapps.sap.hana.ondemand.com" },
"url": "https://ml-us.authentication.sap.hana.ondemand.com"

4 Configuration in SAP S/4HANA On-Premise

4.1 Communication Configurations

Purpose

The authentication between SAP S/4HANA On-Premise and the machine learning services for Contract Proposal on SCP can occur through OAuth 2.0 client.

You can perform the following steps to set up the authentication:

- Configure OAuth Client
- Request OAuth 2.0 Access token

Prerequisites

Before doing the configuration in SAP S/4HANA On-Premise, you need to have the following authorizations:

- SM59 (To create a RFC destination)
- OA2C_CONFIG (To configure OAuth 2.0 Client)

i Note

OAuth 2.0 is not applicable for SAP ERP EHP 6 release.

4.1.1 Configure RFC Destination

Use

In the step, you create RFC Destination for HTTP connection to SCP.

$\mathbf{i}\,\mathsf{Note}$

You can skip this step if RFC Destination ML_CAT_MAT_GRP_PROPOSAL is already created in the system as part of catalog item proposal use case.

Procedure

- 1. Log on to the S/4HANA system and execute transaction SM59.
- 2. Choose Create.
- 3. On the *RFC Destination* screen, enter the following entries:

Field Name	Value
RFC Destination	ML_CAT_MAT_GRP_PROPOSAL
Connection Type	G (HTTP Connection to External Server)
Description 1	Catalog Item and Material Group Proposal

4. On the Technical Settings tab, enter the following entries:

Field Name	Value
Host	uri (without the prefix "https://") generated in step Sub- scribe to Procurement Assistant Application [page 5]
Port	443
Path Prefix	/ра

5. On the Logon and Security Tab, enter the following entries:

Field Name	Value
SSL	Active
SSL Certificate	ANONYM SSL Client (Anonymous)

6. Choose Save.

4.1.2 RFC Destinations for Material Group Proposals

Use

In the step, you configure RFC Destinations for Material Group Proposals.

i Note

You can skip this step if RFC Destination ML_CAT_MAT_GRP_PROPOSAL is already configured in the system as part of catalog item proposal use case.

Procedure

- 1. Log on to the S/4HANA system and execute transaction SM30.
- 2. Enter *Table/View*: **MMPUR_MLFND_CNF** and choose *maintain*. Choose *New Entries* and make the following entries.

Outbound Service ID	Active	RFC Destination
Catalog Item and Material Group Pro- posal	Check	ML_CAT_MAT_GRP_PROPOSAL

3. Choose Save.

4.1.3 Activate Machine Learning Scenario in SPRO

Procedure

1. Access the transaction using the following navigation path:

Transaction Code	SPRO
IMG Menu	Material Management Purchasing Purchase requisition Self-Service

2. On the Change View "Machine Learning Scenario Configuration": Details screen, choose New entries.

3. Choose Scenario 02 Propose Material Group, make the following entries: Threshold Hits: Here you specify the number of times a free text must have been used in purchasing documents created in the past before machine learning provides a proposal. For example, if you specify 5 as the threshold for Proposal of Material Group, a material group is proposed only for free texts that have been used at least five times in past purchasing documents.

Training Data Period – Last: Here you specify the time period (number of past months) to be used as a basis for the machine learning analysis.

Supplier Ranking Limit: If a free-text item is procured from multiple suppliers, you can specify here that you want a material group to be proposed along with the most commonly used suppliers (for example, top 5 or top 10) of that free-text item.

4.1.4 Create and Configure New OAuth 2.0 Client

We also need to create a new OAuth 2.0 client and configure the authentication URLs.

Prerequisite

Import the trusted root certificate of the OAuth 2.0 token endpoint.

- 1. Open the url : https://ml-us.authentication.sap.hana.ondemand.com Press F12 and choose the *security* tab.
 - View Certificate > Click on details > Copy to File > Save File >
- 2. Download the trusted root certificate from the token endpoint.
- 3. With your browser (for example, Chrome) navigate to the token endpoint. For example, https://ml-us.authentication.sap.hana.ondemand.com/oauth/token
- 4. Select the trusted root certificate, for example DigiCert Global Root CA.
- 5. Export it into a file.
- 6. Go to transaction STRUST in S/4HANA system.
- 7. Choose SSL client Anonymous.
- 8. In the *Certificate* section, choose *Import*.
- 9. Import the certificate file saved in the first step.
- 10. The certificate information will be displayed.
- 11. Choose *Display <-> Change* to switch to change mode.
- 12. In the Certificate section, choose Add to certificate list.
- 13. ChooseSave.
 - The user should have these authorizations:
 - Admin:
 - S_TCODE:TCODE=OA2C_CONFIG;
 - S_OA2C_ADM:ACTVT=*;
 - S_OA2C_USE:PROFILE=*;ACTVT=*;
 - Users:
 - S_OA2C_USE:PROFILE=*;ACTVT=*;

Procedure

- 1. Start the transaction OA2C_CONFIG.
- 2. A new window will open in the default browser.
- 3. Choose *Create* and a new dialog box will open.
- 4. Choose the OAuth 2.0 Client Profile as **S4ML_FREETEXT** and enter the Configuration Name as any.
- 5. Enter the oAuth 2.0 Client ID as provided by the SCP (clientid), for example **sb-forexample**.
- 6. Choose OK.

7. In *Details > Administration* section, make the following entries:

Field	Value
Client Secret	clientsecret generated in stepSubscribe to Procurement Assistant Application [page 5]
Authorization Endpoint	url generated in step Subscribe to Procurement Assistant Application [page 5] plus / oauth/authorize, for example, https://ml-us.authentication.sap.hana.onde-mand.com/oauth/authorize
Token Endpoint	url generated in step Subscribe to Procurement Assistant Application [page 5] plus / oauth/token, for example, https://ml-us.authentication.sap.hana.ondemand.com/ oauth/token

8. In Access Settings section, choose the following entries:

Field	Value
Client Authentication	Basic
Resource Access Authentication	Header field
Selected Grant Type	Client Credentials

9. Save your configuration.

4.2 **RFC Destinations for Material Group Proposal**

Use

In the step, you configure RFC Destinations for Material Group Proposal.

Procedure

- 1. Log on to the S/4HANA system and execute transaction ${\tt SM30}.$
- 2. Enter the table name **MMPUR_MLFND_CNF** and choose *Maintain*.
- 3. On the *Change View "Procure Machine Learning Configuration": Overview* screen, choose *New Entries* and make the following entries.

Outbound Service ID	Active	RFC Destination
Catalog Item and Material Group Pro- posal	check	The RFC destination created in the step Configure RFC Destination [page 7]

4. Choose Save.

4.3 Schedule Job to Export Purchase Order data to SCP

Use

In the step, you schedule periodic background job for upload of training data for materials without contract.

Procedure

- 1. Log on to your SAP S/4HANA system Web UI with the user you received.
- 2. Choose Schedule Export of Purchase Orders under Purchasing Configuration.
- 3. Choose New.
- 4. Under Job Template, choose Training data for Free Text.
- 5. Set *Start Immediately* in Scheduling Options according to your requirements. You can choose *Define Recurrence Pattern* if you want to schedule Job frequency.
- 6. Enter Company Code.
- 7. Enter Plant.
- 8. Choose Schedule.
- 9. Monitor the background job on the Application Jobs page.

4.4 Schedule Job to Update Training Job's Status

Use

This job/program updates the status of training job executed in S/4HANA to train the model in SCP.

Procedure

- 1. Start the transaction SM36.
- 2. Enter the Job Name, for example **SAP MM REDUCE FTXT ML JOB STATUS** and make the following entries:

Field	Value
Job Class	В
Target Server	<specify application="" be="" executed="" job="" needs="" on="" server="" the="" to="" which=""></specify>

3. Choose Step and make the following entries:

Field	Value
Program	MM_REDUCE_FTXT_ML_JOB_STATUS
Variant	<enter as="" blank.="" created="" have="" if="" it="" leave="" name.="" not="" per="" requirement,="" the="" then="" variant="" you="" your=""></enter>

4. Choose Save.

- 5. Go back to the job definition screen, choose *Start condition* to enter the start date, end date, frequency and so on. If you do not specify start condition, then job will always remain in scheduled status. A job in scheduled status will never run.
 - Choose *Date/Time* for periodic jobs.
 - Define the start date/time and end date/time. The job will be released only once it meets its scheduled start date/time.
 - Press Periodic values.
 - Choose Hourly/Daily/Weekly period to define the frequency of the job as per your requirement.
 - Choose Save.
 - Choose Save.
- 6. Choose Save.

5 Appendix

5.1 Ticket Component

Enter the ACH component in which the customer should create a ticket in case of issues during configuration.

Implementation Step	Component	Comment

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