



Configuration Guide | PUBLIC
2026-05-12

Configuring SAP Intelligent Product Recommendation

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1 Introduction to SAP Intelligent Product Recommendation

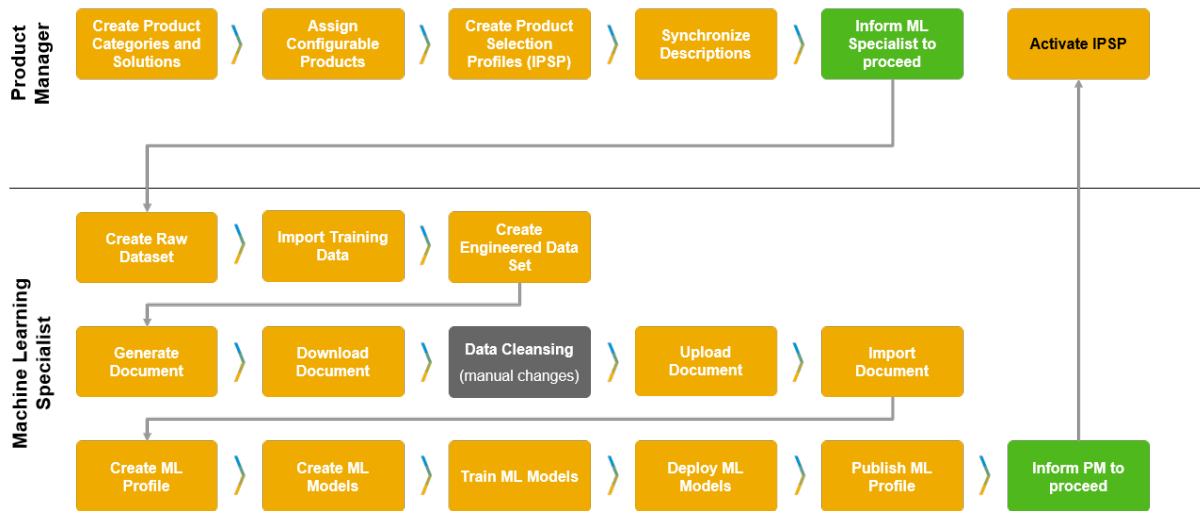
SAP Intelligent Product Recommendation is a cloud application that uses machine learning and rules to streamline the product selection and configuration process for complex configurable products. The combination of trained machine learning models and rules recommend products and default configurations based upon the customer's specific needs. You can embed SAP Intelligent Product Recommendation in configure, price, quote (CPQ), or e-commerce business processes. SAP Intelligent Product Recommendation supports single-level configurable products.

This application is built on SAP BTP with integration to SAP S/4HANA as important sources of sales transactional data.

The benefits for manufacturers are:

- Improve margin, increased revenue by reducing time and effort to create quote, reducing training costs, fewer lost orders.
- Increase revenue by getting new sales representatives selling sooner by reducing required level of training
- Reduce customer lead time, improve on-time delivery by reducing variability in ordering and allowing more standardization of components.
- Increase image and value of IT function, get closer to the business, reduced dependence on few key resources, support Digital Transformation initiative.
- Allow manufacturers to increase revenue by expanding/scaling into additional global markets that were previously ignored because of experience prerequisites for sales team.

SAP Intelligent Product Recommendation Configuration Flow



- https://help.sap.com/docs/SAP_INTELLIGENT_PRODUCT_RECOMMENDATION/7e21c4f1857e4ee99699a4e7a9c9702a/1b4088a216724a95a0857210d1b8f337.html?state=DRAFT [https://help.sap.com/docs/SAP_INTELLIGENT_PRODUCT_RECOMMENDATION/7e21c4f1857e4ee99699a4e7a9c9702a/1b4088a216724a95a0857210d1b8f337.html?state=DRAFT]
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Next task: [Preparing Data for Ingestion and Transformation \[page 8\]](#)

2 Preparing Data for Ingestion and Transformation

Follow the steps to prepare your data by defining your requirements, and removing any unnecessary information.

1. [Creating Product Categories and Solutions \[page 8\]](#)
Product categories and solutions are the building blocks in SAP Intelligent Product Recommendation.
2. [Assigning Products to Solutions \[page 9\]](#)
The assignment of products to solutions helps in determining the best technical configuration for a product recommendation.
3. [Creating Product Selection Profiles for Product Categories \[page 10\]](#)
You can define the relationship between customer needs or requirements and the technical specifications of products using the Intelligent Product Selection Profile (IPSP).
4. [Synchronizing Descriptions of Attributes and Configurable Products \[page 13\]](#)
Synchronize descriptions of attributes and configurable products that are associated with the IPSPs with the source systems so that these descriptions and names can be displayed in the runtime application in different languages.
5. [Informing Machine Learning Specialist about IPSP Activation \[page 14\]](#)
Let your machine learning specialist know about your IPSP that needs to be activated.

Previous: [Introduction to SAP Intelligent Product Recommendation \[page 4\]](#)

Next task: [Preparing Data for Machine Learning \[page 15\]](#)

2.1 Creating Product Categories and Solutions

Product categories and solutions are the building blocks in SAP Intelligent Product Recommendation.

Context

Product categories, solutions, and the configurable products assigned to these solutions help in determining the needs attributes that are used by the runtime application. A guided selling expert uses the runtime application to check and decide on the best product that matches their business requirements. Product categories contain the functional needs of a desired product, and solutions contain the technical configuration for the same.

❁ Example

Take the example of a sales quote for an industrial pump that is generated by SAP CPQ. The purchaser knows their functional requirements, such as, characteristics of the pumped medium, the liquid's name,

concentration, density, and viscosity, as well as duty point characteristics, like the desired flow rate, head pressure, operating temperature, etc.

SAP Intelligent Product Recommendation decides the ideal technical setup for the pump based on the requirements, like the housing specifications, mechanical sealing, and motor.

Procedure

1. Launch the Manage Product Categories application.
2. Choose *Create*.
3. In the flexible column that opens, enter a product category.
4. (Optional) Choose *Create* in the *Descriptions* section to maintain a product category description in the required language.

Note

The application displays the product category description in the header section in the log on language.

If you have not provided characteristic descriptions in the supported languages by IPR, English will be the default display language and the descriptions will be displayed in English in the user interface and API.

5. Choose *Create* in the *Solutions* section to create a solution for the selected product category.
6. In the last column that opens, enter a solution name.
7. Choose *Apply*.

Task overview: [Preparing Data for Ingestion and Transformation \[page 8\]](#)

Next: [Assigning Products to Solutions \[page 9\]](#)

2.2 Assigning Products to Solutions

The assignment of products to solutions helps in determining the best technical configuration for a product recommendation.

1. Launch the *Manage Product Categories* application.
2. Select the required product category, and choose *> navigation arrow right* to open the details page.
3. In the details page, choose *Edit*.
4. In the *Solutions* section, select the required solution to assign the product.
5. In the last panel, choose *Create* in the *Product Assignment* section.
6. In the new field that is created, choose *value help* to open the *Product* dialog box.
7. In the *Product* dialog box, select the required product from the list.
8. In the last panel, choose *Apply*.

9. In the details page, choose [Save](#).

Note

You can assign the same product to multiple Product Categories to support broader recommendation scenarios. However, within a single Product Category, a product can only be assigned to one Solution. Assigning the same product to multiple Solutions within the same category will result in a validation error.

Parent topic: [Preparing Data for Ingestion and Transformation \[page 8\]](#)

Previous task: [Creating Product Categories and Solutions \[page 8\]](#)

Next task: [Creating Product Selection Profiles for Product Categories \[page 10\]](#)

2.3 Creating Product Selection Profiles for Product Categories

You can define the relationship between customer needs or requirements and the technical specifications of products using the Intelligent Product Selection Profile (IPSP).

Context


You can define the needs attributes and technical configuration using the classification system characteristics that are fetched from SAP S/4HANA. The products that are to be configured based on a specific set of demands must be related to the attributes of the needs.

Note

- Ensure that the description of an IPSP doesn't contain these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).
- If you want to edit an IPSP that is active, choosing [Edit](#) allows you to edit only the fields in the [Commercial Attributes Settings for Runtime Application](#) section.
- You can add a sequence number to an attribute to define its order of display in the runtime application.

Procedure

1. Launch the Manage Intelligent Product Selection Profiles application.
2. Choose [Create](#).
3. In the flexible column that opens, enter an IPSP name.

4. Choose  [value help](#) to select a product category in the *Product Category* field.
5. In the *Needs Attributes* section, choose [Create](#) to build a product selection profile from scratch.
 - a. Selecting any existing attribute in the *Needs Attributes* list opens up the extended needs view, which displays additional information about the selected attribute.



In the *Additional Information* section, enter the following information.

Field Name	Description
Synonyms	Provide alternative names or expressions for the attribute.
Detailed Description of Attribute	Enter a detailed explanation of what the attribute represents.
Context	A set of tags that provide contextual categorization.
Default Value	Specify a Default Value for the attribute.
Extraction Guidelines	This field enables you to define templates for extracting attribute values. These guidelines help the LLM (Large language model) to identify and extract meaningful data consistently and accurately.

The system creates an entry for you to assign the required attributes.

Note

You can create multiple attributes for a product selection profile.

6. In the new entry that is created, perform the following steps.
 - a. Choose  [value help](#) in the first field to select a characteristic from the *Characteristic* dialog that gets assigned as an attribute to the product selection profile.
 - b. In the next field, choose  [navigation-down-arrow](#) to select an attribute type for the assigned attribute.
 - c. In the third field, enter a unit of measurement for the attribute.


Note

- You can define minimum and maximum values for numeric attributes to ensure valid user input. The system will check these values during user input and displays an error message if the input is outside the defined range. Invalid entries are blocked from submission and are also validated before being sent to the backend or machine learning model.
- When the attribute type is set to Standard, the attribute will be displayed as a Dropdown in the runtime application. When the attribute type is set to Extended, the attribute will be displayed as a Value Help field, supporting more than 200 selectable values.

7. To add attributes from an existing product selection profile, choose [Add from Reference](#) and perform the following steps.

Note




To add attributes from reference of another product selection profile, you must already have an existing product selection profile with the same product category.

- a. In the *Add from Reference* dialog, choose  *value help* in the *IPSP* field.
 - b. Select an existing product selection profile in the *IPSP* dialog that opens, and choose *OK*.
 - a. Choose *Add from Reference*.
8. In the *Product Attributes* section, choose *Create* to build a configuration profile from scratch.

The system creates an entry for you to assign the solutions to the product attribute.




Note

You can create multiple solutions for a product attribute.

9. In the new entry that is created, perform the following steps.
- a. Choose  *value help* in the first field to select a solution from the *Solution* dialog that gets assigned to the configuration profile.
 - a. Choose  *value help* in the second field to select a characteristic from the *Characteristic* dialog that gets assigned as an attribute to the configuration profile.
 - b. In the third field, choose  *navigation-down-arrow* to select an attribute type for the assigned attribute.
 - c. In the last field, enter a unit of measurement for the attribute.
10. To add attributes from an existing product selection profile, choose *Add from Reference* and perform the following steps

Note

To add attributes from reference of another product selection profile, you must already have an existing product selection profile with the same product category.

- a. In the *Add from Reference* dialog, choose  *value help* in the *IPSP* field.
 - b. Select an existing product selection profile in the *IPSP* dialog that opens, and choose *OK*.
 - c. Choose  *value help* in the *Solution* field.
 - d. Select an existing solution in the *Select: Solution* dialog that opens, and choose *OK*.
 - a. Choose *Add from Reference*.
11. If you want to use any of the product attributes to determine the lead time, and price predictions of recommended products, then select the checkbox in the *Determines Commercial Attributes* column of the attribute.
12. To convert the price estimates to alternative currencies, you can add alternate currencies in the *Commercial Attributes Settings for Runtime Application*. To do this perform the following steps.
- a. Click *Edit* to edit the currency details.
 - b. Choose  *value help* in the *Alternative Currencies* field.
 - c. Select the alternative currencies in which you want the conversions to take place for the runtime application and click *Ok*.
 - d. Click *Save*.
- Product selection profile will be saved with the alternative currencies.
13. If you want to add your own custom data to a product attribute, then select the checkbox in the **Additional Product Attribute** column of the attribute. This allows you to include additional information that may not be covered by standard product attributes, helping refine recommendations and enhance decision-making.

Note

In case of a SAP S/4HANA scenario, once you select the **Additional Product Attribute** checkbox, while preparing the data for ML you need to create an **Engineered Dataset**. The columns for the **Additional Product Attribute** will remain empty and you can manually enter the data for these attributes.

14. Choose *Create*.

Task overview: [Preparing Data for Ingestion and Transformation \[page 8\]](#)

Previous: [Assigning Products to Solutions \[page 9\]](#)

Next task: [Synchronizing Descriptions of Attributes and Configurable Products \[page 13\]](#)

2.4 Synchronizing Descriptions of Attributes and Configurable Products

Synchronize descriptions of attributes and configurable products that are associated with the IPSPs with the source systems so that these descriptions and names can be displayed in the runtime application in different languages.

Prerequisites

Your required product selection profile's *Description Sync Status* is *Not Started*.

Procedure

1. Launch the Manage Intelligent Product Selection Profiles application.
2. Choose *Go*.
3. Select the required IPSP from the *Profiles* table, and choose *Sync Descriptions*.

Note

You can also choose *Sync Descriptions* in the object page of the product selection profile.

4. Choose *Refresh* to see the latest status in the *Description Sync Status* column.

Task overview: [Preparing Data for Ingestion and Transformation \[page 8\]](#)

Previous task: [Creating Product Selection Profiles for Product Categories \[page 10\]](#)

Next task: [Informing Machine Learning Specialist about IPSP Activation \[page 14\]](#)

2.5 Informing Machine Learning Specialist about IPSP Activation

Let your machine learning specialist know about your IPSP that needs to be activated.

Context

Once you have created a product selection profile (IPSP), you must activate it to be used for machine learning training.

Note

You can activate a product selection profile (IPSP) only if your machine learning specialist has linked it to a machine learning profile, and published it.

Procedure

1. Contact your machine learning specialist with the details of your IPSP so that they can associate it with a machine learning profile, and publish it.
2. Check back with your machine specialist if you can activate your IPSP or not.

Task overview: [Preparing Data for Ingestion and Transformation \[page 8\]](#)

Previous task: [Synchronizing Descriptions of Attributes and Configurable Products \[page 13\]](#)

3 Preparing Data for Machine Learning

Follow the steps to prepare your data for machine learning trainings to get the best product recommendations.

1. [Creating Raw Datasets \[page 16\]](#)
Raw datasets act as containers for data that you import from various source systems. You can also use these raw datasets for reference when you create engineered datasets.
2. [Importing Data to Raw Dataset \[page 17\]](#)
Add data to a raw dataset by importing it from a source system.
3. [Creating Engineered Dataset \[page 18\]](#)
Use engineered datasets to modify your downloaded data and upload it back.
4. [Generating Document \[page 19\]](#)
Generating document lets you define parameters of the data that you require and make it available it as a document in SAP Intelligent Product Recommendation.
5. [Downloading Document to Local System \[page 20\]](#)
Downloading the generated document to your local system allows you to modify the contents of the document, and upload it back with the changes.
6. [Uploading Document \[page 20\]](#)
Uploading a document lets you transfer your modified or fresh data to SAP Intelligent Product Recommendation.
7. [Importing Document \[page 22\]](#)
Importing document makes your data available for machine learning trainings.
8. [Creating Material Variant Datasets \[page 22\]](#)
Use variant datasets to upload variants of configurable products.
9. [Generating Document \[page 23\]](#)
Generating document lets you define parameters of the data that you require and make it available it as a document in SAP Intelligent Product Recommendation.
10. [Uploading Material Variant Data \[page 24\]](#)
Uploading material variant document lets you transfer your data to SAP Intelligent Product Recommendation.
11. [Importing Document \[page 25\]](#)
Importing document makes your data available for machine learning trainings.
12. [Viewing Runtime Dataset \[page 26\]](#)
A runtime dataset contains information about a selected product and its configuration in the runtime application.

Previous task: [Preparing Data for Ingestion and Transformation \[page 8\]](#)

Next task: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

3.1 Creating Raw Datasets

Raw datasets act as containers for data that you import from various source systems. You can also use these raw datasets for reference when you create engineered datasets.

Context

Raw datasets contain raw or unclesed data. Based on your requirement, you can choose to use a raw dataset as is or, modify it and then use it for machine learning.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose **► Create ► Raw Dataset ▾**.
3. In the *Create Raw Dataset* dialog, enter the following information.

Field Name	Description
Dataset	Name of the dataset.
	Note Ensure that the dataset name doesn't contain these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).
Product Category	The product category for the dataset.
Solution	Solution for the dataset.

4. Choose *Create*.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Next task: [Importing Data to Raw Dataset \[page 17\]](#)

3.2 Importing Data to Raw Dataset

Add data to a raw dataset by importing it from a source system.

Context

Importing data from a source system helps in creating a dataset that is based on types and a time range.

📘 Note

SAP Intelligent Product Recommendation reads specific attributes such as, sales order, sales order item, and product ID from sales transactional data to support intelligent recommendations. The extracted data is provided to SAP Intelligent Product Recommendation in a compliant way. Consent management is not implemented for this scenario.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the raw dataset.
3. Choose *Import Data*.
4. In the *Import Data* dialog, enter the following information.

Field Name	Description
Source System	The system from which you want to pull in data.
Document Type	There are two types of document that you can select from: Order and Quotation.
Data Date Range	The time span for which the data is to be collected.
Pricing Procedure	Procedure to determine the prices of goods by taking the various condition types into account during processing of their sales documents.
Gross Price Condition Type	The condition technique that is used to determine gross prices of the goods from information stored in condition records.
COGS Price Condition Type	The condition technique that is used to determine direct costs of producing the goods from information stored in condition records.
Comment	Optional

5. Choose *Import Data*.

📘 Note

In an SAP S/4HANA scenario, when extracting data using a raw dataset, if a product mapping exists in Manage Products Mapping (MPM) application, the system will fetch the configurable product

data based on the mapping; otherwise, it will attempt to retrieve data for the assigned product in Manage Products Mapping application. In this case, an engineered dataset must be created to replace the mapped configurable products with the products assigned in the Manage Products Mapping application ensuring consistency for machine learning purposes.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Creating Raw Datasets \[page 16\]](#)

Next task: [Creating Engineered Dataset \[page 18\]](#)

3.3 Creating Engineered Dataset

Use engineered datasets to modify your downloaded data and upload it back.

Context

You can use engineered datasets to modify the downloaded data based on your requirements and upload it back. You can add to the existing data, remove from it, or perform a data cleansing on the whole data.

Note

While creating an engineered dataset, you need to ensure that the products listed in the engineering dataset are matching with the products in the Manage Product Categories application.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose **► Create ► Engineered Dataset ►**.
3. In the *Create Engineered Dataset* dialog, enter the following information.

Field Name	Description
Dataset	Name of the dataset.

Field Name	Description
	<div style="border: 1px solid #ccc; background-color: #f9f9f9; padding: 5px;"> <p>Note</p> <p>Ensure that the dataset name doesn't contain these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).</p> </div>
Product Category	The product category for the dataset.
IPSP	Product selection profile for the dataset.
Solution	Solution for the dataset.

4. Choose *Create*.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Importing Data to Raw Dataset \[page 17\]](#)

Next task: [Generating Document \[page 19\]](#)

3.4 Generating Document

Generating document lets you define parameters of the data that you require and make it available it as a document in SAP Intelligent Product Recommendation.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the engineered dataset.
3. In the *Document Staging Area* tab, choose *Generate Document*.
4. In the *Generate Document* dialog box, select the datasets that you want to use as references, and enter a document name.
5. Choose *Generate*.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Creating Engineered Dataset \[page 18\]](#)

Next task: [Downloading Document to Local System \[page 20\]](#)

3.5 Downloading Document to Local System

Downloading the generated document to your local system allows you to modify the contents of the document, and upload it back with the changes.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the engineered dataset.
3. In the *Document Staging Area* tab, choose [↓ Download to Local System](#) to download the document containing the required data to your local system.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Generating Document \[page 19\]](#)

Next task: [Uploading Document \[page 20\]](#)

3.6 Uploading Document

Uploading a document lets you transfer your modified or fresh data to SAP Intelligent Product Recommendation.

Prerequisites

- Ensure that you've renamed the document that you previously downloaded from the application.
- Make sure your document is virus-free.
- Ensure that the date is in the YYYYMMDD format.
- Ensure that the cell values of the file that you upload don't begin with these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).


Context

ⓘ Note

SAP Intelligent Product Recommendation reads specific attributes such as, sales order, sales order item, and product ID from sales transactional data to support intelligent recommendations. The extracted data

is provided to SAP Intelligent Product Recommendation in a compliant way. Consent management is not implemented for this scenario.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the engineered dataset.
3. In the *Document Staging Area* tab, choose *Upload Document*.
4. In the *Upload Document* dialog, choose  to search for the file that you want to upload.

Caution

Avoid closing your browser during the upload process.

5. Choose *Upload Document*.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Downloading Document to Local System \[page 20\]](#)

Next task: [Importing Document \[page 22\]](#)

3.6.1 Data Extraction from SAP ECC System

If you use SAP ERP Central Component (ECC) and don't have connectivity to other systems, you can still extract data from your SAP ECC system.

You can extract data from SAP ECC by running a report. Once the data is extracted to your application server, you can modify it before uploading, or upload it as is to the Manage Data Ingestion and Transformation application for machine learning trainings. For more information, refer to [Configuration](#) section. The **Report for SAP ECC Data Extraction** contains all the information that you need to download and run the report to extract data from SAP ECC.

→ Remember

- You need S-user ID to login, and download these reports.
- Read the **Sales Item Variant Configuration Extraction Report** document before you start with the extraction process.

3.6.2 Lead Time and Price Prediction Calculation

Manually provide and upload lead time and price prediction information for configurable products.

If you want to calculate the lead time and price predictions of configurable products in the runtime app, then you can manually provide the data in an engineered dataset. Choose [Generate Template](#), fill it up with the lead time, and pricing-related information, and choose [Upload Document](#) to upload this updated data in SAP IPR.

3.7 Importing Document

Importing document makes your data available for machine learning trainings.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the engineered dataset.
3. In the [Document Staging Area](#) tab, choose [↑ Import](#) to import the document containing the required data.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Uploading Document \[page 20\]](#)

Next task: [Creating Material Variant Datasets \[page 22\]](#)

3.8 Creating Material Variant Datasets

Use variant datasets to upload variants of configurable products.

Context

You can use material variant datasets to upload data which is used to search for material variants and their corresponding configurations.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose ► [Create](#) ► [Material Variant Dataset](#) ►.
3. In the [Create Material Variant Dataset](#) dialog, enter the following information.

Field Name	Description
Dataset	Name of the dataset.
Note Ensure that the dataset name doesn't contain these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).	
Product Category	The product category for the dataset.
IPSP	Product selection profile for the dataset.
Solution	Solution for the dataset.
Note You can have only one dataset for a solution of an IPSP.	

4. Choose [Create](#).

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Importing Document \[page 22\]](#)

Next task: [Generating Document \[page 23\]](#)

3.9 Generating Document

Generating document lets you define parameters of the data that you require and make it available it as a document in SAP Intelligent Product Recommendation.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose ► to go to the details page of the material variant dataset.
3. In the [Document Staging Area](#) tab, choose [Generate Document](#).

4. In the *Generate Document* dialog box, select the datasets that you want to use as references, and enter a document name.
5. Choose *Generate*.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Creating Material Variant Datasets \[page 22\]](#)

Next task: [Uploading Material Variant Data \[page 24\]](#)

3.10 Uploading Material Variant Data

Uploading material variant document lets you transfer your data to SAP Intelligent Product Recommendation.

Prerequisites


- Make sure your document is virus-free.
- Ensure that the date is in the YYYYMM format.
- Ensure that the cell values of the file that you upload don't begin with these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).

Context

📘 Note

SAP Intelligent Product Recommendation reads specific attributes such as, product ID and material variant ID from sales transactional data to support intelligent recommendations. The uploaded data is provided to SAP Intelligent Product Recommendation in a compliant way. Consent management is not implemented for this scenario.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the material variant dataset.
3. In the *Document Staging Area* tab, choose *Upload Document*.
4. In the *Upload Document* dialog, choose  to search for the file that you want to upload.

⚠ Caution

Avoid closing your browser during the upload process.

5. Choose *Upload Document*.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Generating Document \[page 23\]](#)

Next task: [Importing Document \[page 25\]](#)

3.11 Importing Document

Importing document makes your data available for machine learning trainings.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the material variant dataset.
3. In the *Document Staging Area* tab, choose ↑ *Import* to import the document containing the required data.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Uploading Material Variant Data \[page 24\]](#)

Next task: [Viewing Runtime Dataset \[page 26\]](#)

3.12 Viewing Runtime Dataset

A runtime dataset contains information about a selected product and its configuration in the runtime application.

Context

This is a third type of dataset that you can't create in the application, as its data is derived from the runtime application only. When a user in the runtime application selects and accepts a product, then all the details pertaining to it is stored in the runtime dataset.

Procedure

1. Launch the Manage Data Ingestion and Transformation application.
2. Choose > to go to the details page of the engineered dataset.
3. In the *Document Staging Area* tab, choose *Generate Document*.
4. In the *Generate Document* dialog box, select the runtime dataset, and enter a document name.
5. Choose *Generate*.

The system generates a document containing the runtime data.

6. Choose  *Download to Local System* to download the document.

Task overview: [Preparing Data for Machine Learning \[page 15\]](#)

Previous task: [Importing Document \[page 25\]](#)

4 Preparing Machine Learning Profiles for Recommendations

Follow these steps to create, train, and deploy ML models to check their predictive performances, and select the best match for your requirements.

1. [Creating Machine Learning Profiles \[page 27\]](#)
Machine learning (ML) profiles act as containers for machine learning models. You use these models for machine learning trainings.
2. [Creating Machine Learning Models \[page 28\]](#)
Machine learning models help you to specify the response you would like to record and establish constraints for the models to operate with.
3. [Training Machine Learning Models \[page 29\]](#)
Train your machine learning models to learn from patterns, and discover insights.
4. [Deploying Machine Learning Models \[page 31\]](#)
Deploy your machine learning models so that the predictions generated by them can be made available to the runtime application.
5. [Publishing Machine Learning Profiles \[page 31\]](#)
Make machine learning recommendations available in the runtime application by publishing them to help a guided selling expert choose the best product for their business requirements.
6. [Informing Product Manager About Published ML Profile \[page 32\]](#)
Let your product manager know about the machine learning profile being published so that they can activate the IPSP.

Previous task: [Preparing Data for Machine Learning \[page 15\]](#)

Next task: [Activating Product Selection Profiles \(IPSP\) for Product Recommendations \[page 33\]](#)

4.1 Creating Machine Learning Profiles

Machine learning (ML) profiles act as containers for machine learning models. You use these models for machine learning trainings.

Procedure

1. Launch the Manage Machine Learning Lifecycle application.
2. Choose *Create*.

3. In the *Create* dialog, enter the following information.

Field Name	Description
ML Profile	Name of the machine learning profile
Description	Description of the profile.
Product Category	Product category that needs to be associated with the ML profile.
IPSP	IPSP that needs to be associated with the ML profile. The IPSP contains the attributes, and characteristics of the desired product and its configuration.

Note

Ensure that the ML profile name and description don't contain these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).

Task overview: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

Next task: [Creating Machine Learning Models \[page 28\]](#)

4.2 Creating Machine Learning Models

Machine learning models help you to specify the response you would like to record and establish constraints for the models to operate with.

Context

ML models use algorithms to learn from. You can get useful insights and predictions using an ML model. Solution targets can have two types of ML models. They are:

- Configuration: This type of ML model helps in determining the best composition and make of the recommended products.
- Commerical Attribute: This type of ML model helps in determining the lead time, net price, gross price, and Cost of Goods Sold (COGS) of the recommended products.

Procedure

1. Launch the Manage Machine Learning Lifecycle application.
2. Choose > to go to the details page of your required machine learning profile.

The ML profile page opens, and you can see two targets in the *Determination Model Overviews*.

ⓘ Note

There can be only two types targets in a machine learning profile. One is a product category and the other is a solution.

3. Choose > to go to the details page of your required target.
4. In the details page that opens, choose *Create* and enter a name, and description of the ML model.

ⓘ Note

- Ensure that the ML profile name and description don't contain these characters: equal sign (=), plus sign (+), at sign (@), tab (0x09) and carriage return (0x0D).
- When you create an ML model for a solution target, you see *Type* field. Choose the required type from the *Type* dropdown list.

5. Select datasets that you require for the ML model in the *Dataset* dropdown list.

The system creates a new entry.

ⓘ Note

- You can create multiple machine learning models for a target.
- For a product category target, you can set a value to determine the number of products to be displayed in the runtime app in *Maximum Results to be Displayed*, and specify the threshold value in *Lower Threshold* in the *Product Display Configuration at Runtime* screen area.
- In case of a S/4HANA scenario, where *Additional Product Attributes* are used, ensure you use an *Engineered Dataset* for ML training.

Task overview: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

Previous task: [Creating Machine Learning Profiles \[page 27\]](#)

Next task: [Training Machine Learning Models \[page 29\]](#)

4.3 Training Machine Learning Models

Train your machine learning models to learn from patterns, and discover insights.

Procedure

1. Launch the Manage Machine Learning Lifecycle application.
2. Choose > to go to the details page of your required machine learning profile.
3. In the *Determination Model Overviews* table, choose > to go to the details page of your required target.

4. In the <target name> table, select your required machine learning model.

The ML model that you want to train must have *ML Model Status* as **Training File Generated, Ready for Training**.

5. Choose *Train*.

The status of the ML model changes to **Training**.

Task overview: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

Previous task: [Creating Machine Learning Models \[page 28\]](#)

Next task: [Deploying Machine Learning Models \[page 31\]](#)

4.3.1 The Best Machine Learning Models for Recommendations

Identify and deploy ML models that are best-suited for your product recommendations based on your requirements.

The two types of ML models supported by SAP Intelligent Product Recommendation along with the associated metrics are mentioned below.

You can decide on your choice of ML model to deploy based on these metrics.

Model Type	Supported Metrics
Configuration model	<div data-bbox="826 1294 1394 1438"><p>Note</p><p>All three metrics range from 0 to 1 with 1 being most accurate and 0 being least accurate.</p></div> <ul style="list-style-type: none">• Precision - ability of the model to assign only the relevant records to the correct attributes• Recall - ability of the model to find all the records belonging to the correct attributes• F1 Score - harmonic mean of precision and recall
Commercial Attribute model	<ul style="list-style-type: none">• Mean Absolute Error (MAE) - average absolute difference between the predicted values and the actual value. The lower the better.• Mean Absolute Percentage Error (MAPE) - average of the absolute percentage errors of the predictions. The lower the better.• Mean Squared Error (MSE) - average squared difference between the predicted values and the actual value. The lower the better.

4.4 Deploying Machine Learning Models

Deploy your machine learning models so that the predictions generated by them can be made available to the runtime application.

Procedure

1. Launch the Manage Machine Learning Lifecycle application.
2. Choose > to go to the details page of your required machine learning profile.
3. In the *Determination Model Overviews* table, choose > to go to the details page of your required target.
4. In the <target name> table, select your required machine learning model.

The ML model that you want to deploy must have *ML Model Status* as **Trained**.

5. Choose *Deploy*.

Note

The system can take some time to deploy the ML model. In such cases, select the ML model and choose *Refresh* to view the latest status.

The status of the ML model changes to **Deployed**.

Task overview: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

Previous task: [Training Machine Learning Models \[page 29\]](#)

Next task: [Publishing Machine Learning Profiles \[page 31\]](#)

4.5 Publishing Machine Learning Profiles

Make machine learning recommendations available in the runtime application by publishing them to help a guided selling expert choose the best product for their business requirements.

Procedure

1. Launch the Manage Machine Learning Lifecycle application.
2. In the *Machine Learning Profiles* table, select an ML profile that has deployed models.

ⓘ Note

The ML profile must have at least one deployed model for all the targets.

3. Choose *Publish*.

ⓘ Note

If you want to unpublish an ML profile, you must publish another ML profile with the same IPSP in its place.

Task overview: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

Previous task: [Deploying Machine Learning Models \[page 31\]](#)

Next task: [Informing Product Manager About Published ML Profile \[page 32\]](#)

4.6 Informing Product Manager About Published ML Profile

Let your product manager know about the machine learning profile being published so that they can activate the IPSP.

Procedure

Contact your product manager with the details of your machine learning profile that is linked to the required IPSP.

Task overview: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

Previous task: [Publishing Machine Learning Profiles \[page 31\]](#)

5 Activating Product Selection Profiles (IPSP) for Product Recommendations

Activate a product selection profile (IPSP) so that it can be used for recommending appropriate products in the runtime application.

Prerequisites

Ensure that your machine learning specialist has already associated your IPSP with a published machine learning profile.

Procedure

1. Launch the Manage Intelligent Product Selection Profiles application.
2. Choose *Go*.
3. Select the product selection profile that you want to activate from the table.
4. Choose *Activate*.

Previous task: [Preparing Machine Learning Profiles for Recommendations \[page 27\]](#)

Next: [Automating Tender Evaluation and Recommendation \[page 34\]](#)

5.1 Product Selection Profile (IPSP) Deactivation

You can deactivate an active IPSP. However, this deactivation also unpublishes the ML profile that is associated with the IPSP and undeploys its ML models.

To deactivate an IPSP, select it from the table and choose *Deactivate*.

6 Automating Tender Evaluation and Recommendation

The Tender Analysis Agent enables streamlining of the tender management process for companies by analysing relevant terms and conditions based on company specifications.

With the Tender Analysis Agent, you can:

- Evaluate tenders against predefined standards or expectations within the template.
- Ensure consistency and accuracy in identifying gaps, risks, or opportunities.
- Apply templates tailored to specific operational or strategic needs.

This framework enables you to address specific requirements of various contexts, including

- Markets: Tailoring templates to unique economic conditions or indicators.
- Countries/Regions: Accounting for local laws, customs, or regulations.
- Industries: Supporting sector-specific requirements, such as manufacturing, healthcare, or technology.
- Regulations: Aligning with legal or compliance frameworks, such as GDPR or trade restrictions.
- Single Customers: Catering to the unique preferences or standards of specific clients.

Follow the steps to prepare your data for analyzing the terms and conditions, and product categories for your tender document.

1. [Managing the Bidding Evaluation Criteria \[page 34\]](#)
Streamline the management of terms and conditions.
2. [Managing the Smart Bidding Template \[page 36\]](#)
Create templates and define the terms and conditions within the template.
3. [Analyzing Data for Comparison \[page 37\]](#)
Analyze and extract product requirements to identify matches and gaps and get product recommendations.

Previous task: [Activating Product Selection Profiles \(IPSP\) for Product Recommendations \[page 33\]](#)

Next: [Built-in Support for SAP Intelligent Product Recommendation \[page 40\]](#)

6.1 Managing the Bidding Evaluation Criteria

Prerequisites

Ensure that you have assigned the relevant role specified in .

Context

With this app, you can streamline the management of terms and conditions. The following features are available:

1. Add new terms and conditions.
You can create and define new entries including captions, definitions, categories, importance levels and apply relevant tags.
2. Modify existing terms and conditions.
You can update the caption for clarity or alignment, edit the descriptive text to reflect updated legal or operational requirements, adjust predefined or custom classifications for categorization, revise the priority level, and modify tags to obtain user-specific distinctions.
3. Delete terms and conditions.
You can delete entries that are not part of a collection. This ensures no disruption to active or referenced terms and conditions.

Procedure

1. Launch the **Manage Bidding Evaluation Criteria** application.
2. Choose **Create**.
3. On the **New Object** page, enter the following information:
 - a. Under **General Information**, enter the **Criterion Name**, **Description**, **Type**, and **Categories**. Choose from the dropdown list for predefined categories or create your own category.
 - b. Under **Evaluation Condition Description**, provide the conditions under which you would like the evaluation to be conducted.
4. Choose **Create** to add your criterion. The system creates a new entry for you.
5. To edit your entry, select it and choose **Edit**. Make changes as needed and choose **Save**. The system saves your entry with the updated data.
6. To delete your entry, select it and choose **Delete**. The system deletes your entry.

Next Steps

Task overview: [Automating Tender Evaluation and Recommendation \[page 34\]](#)

Next Task: [Managing the Smart Bidding Template \[page 36\]](#)

6.2 Managing the Smart Bidding Template

Prerequisites

- Ensure that you have been assigned the relevant role specified in .
- Ensure that the required product categories are mapped in the *Product Category Mapping* section.

Ensure that you have assigned the relevant role specified in .

Note

Ensure that the evaluation criteria maintained in the template is in the same language as the tender document. Conduct the analysis in one language only at any given time.

Context

With this app, you can create templates and define the terms and conditions within the template.

Procedure

1. Launch the **Manage Smart Bidding Template** application.
2. Choose **Create**.
3. On the **New Object** page, enter the following information:
 - a. Under **General Information**, enter a name for the template you wish to create.
 - b. Under **Description**, choose **Create** to maintain a description of the template in the required language.
 - c. Under **Evaluation Criteria Mapping**, choose **Create** and select from the dropdown to map the criterion you created in the **Manage Bidding Evaluation Criteria** app with your template.
4. Select **Create** to add your template. The system creates a new template for you.
5. To edit your template, select it and choose **Edit**. Make changes as needed and select **Save**. The system saves your entry with the updated data.
6. To delete your template, select it and choose **Delete**. The system deletes your template.

Next Steps

Task overview: [Automating Tender Evaluation and Recommendation \[page 34\]](#)

Previous: [Managing the Bidding Evaluation Criteria \[page 34\]](#)

Next Task: [Analyzing Data for Comparison \[page 37\]](#)

6.3 Analyzing Data for Comparison

Prerequisites

- Ensure that you have been assigned the relevant role specified in.
- You have an active subscription to AI units.
- Product categories are linked to an active Intelligent Product Selection Profile (IPSP), with a corresponding published Machine Learning Profile, including trained and deployed ML models. For more information, see [Creating Product Selection Profiles for Product Categories \[page 10\]](#).
- Language alignment requirements:
 - Ensure that the browser language matches the language of the incoming tenders:
 - For tenders in German, all settings, including the browser language, must be set to German.
 - For tenders in English, all settings, including the browser language, must be set to English.
Note that the browser language can be changed under ► [Settings](#) ► [Language and Region](#) ►.
 - Ensure that the product categories and the needs attributes in the [Creating Product Selection Profiles for Product Categories \[page 10\]](#) contain language-specific descriptions that match the tender document language.

🔗 Example

If the incoming tenders are in German, ensure that proper German descriptions are maintained for the product category as well as the needs attributes defined in the [Creating Product Selection Profiles for Product Categories \[page 10\]](#).

- In the [Managing the Smart Bidding Template \[page 36\]](#) app, add the product categories to be analyzed to the *Product Category Mapping* section.

📌 Note

- The application supports files up to **10 MB**.
- SAP has verified document processing for tender documents up to **50 pages**.

Context

The **AI Assisted Bidding** application analyzes tender documents to extract and organize product requirements, compares them against predefined tender templates to identify gaps and matches in terms and conditions, and provides intelligent product recommendations.

Using bidirectional comparison logic, the application identifies product categories, extracts key requirement attributes, and highlights matches or gaps in terms and conditions.

For more information, see [Managing the Smart Bidding Template \[page 36\]](#) and .

Features

- **Comparison of Tender Documents and Templates:** The application compares a tender document against a selected tender template that contains terms and conditions. The comparison is performed in both directions, identifying matches and gaps.
-
- **Processing of Complex Document Formats:** The application processes PDF files that contain mixed content such as text, tables, images, and technical drawings. Extracted information is standardized and mapped to the correct product categories defined in the tender template. Requirements that cannot be mapped are flagged for manual review.
- **Side-by-Side Tender Document Comparison View:** The application enables direct comparison of the tender document while performing the terms and conditions and product requirement analysis in the [View Details](#) screen. Relevant tender pages are displayed alongside the analysis view on a dual-pane interface, allowing easy cross-reference. Page numbers shown in the analysis results are hyperlinks that navigate directly to the corresponding page in the tender document.
- **Smart Bidding Template Preview Enhancement:** Adds hyperlinks to template names and related criteria, enabling navigation between apps and review template details, evaluation criteria, and product categories.

Procedure

1. Launch the **AI Assisted Bidding** application.
2. Choose **Create** to start a new bidding transaction. A bidding transaction involves all bid-related activities and information recorded during the bidding phase.
3. Enter the transaction name and description, then choose **Create**. Your entries appear under **General Information** on the details page.
4. Choose **Upload** to add the tender documents you want to analyse. After upload, a status message indicates whether the upload failed or whether the file is ready for analysis.
5. Select your document that is ready for analysis and choose **Analyse**.
6. In the [Bidding Transactions](#) dialog box, identify the bidding template you want to review. Choose the bidding template name, which is displayed as a hyperlink. The [Manage Smart Bidding Template](#) app opens, displaying the template details. The breadcrumb trail shows: AI Assisted Bidding / Manage Smart Bidding Template/Manage Bidding Evaluation Criteria.
7. To review evaluation criteria, choose the mapped criteria hyperlink. The respective object page opens. The breadcrumb trail shows: AI Assisted Bidding / Manage Smart Bidding Template / Manage Bidding Evaluation Criteria. To return to the template selection, use the breadcrumb navigation.
8. In the **Select Bidding Template** dialog box, select the tender template you want to use for comparison. Choose the category to analyse: **Requirements** or **Terms and Conditions**. The selected template serves as the basis for analysing the tender document.
9. Choose **Proceed with Analysis** to start the analysis of the tender document.
10. On the **Analysis Summary** tab, review the overall analysis status.

11. On the **View Details** tab, you can view the extracted product requirements, additional information for your defined categories, and the terms and conditions identified for the selected category. The bidirectional matching logic ensures identification of all matches and gaps by comparing terms and conditions between the tender document and the tender template.
12. On the *View Details* tab, use the side-by-side view and page number hyperlinks to validate analysis results for requirements and terms and conditions against the tender document.
13. On the **Analysis Summary** tab, choose **Show Products** to view the list of products identified from the tender document.

Next Steps

Task overview: [Automating Tender Evaluation and Recommendation \[page 34\]](#)

Previous: [Managing the Smart Bidding Template \[page 36\]](#)

7 Built-in Support for SAP Intelligent Product Recommendation

SAP Intelligent Product Recommendation leverages the capabilities of Built-In Support to provide embedded support with direct and context aware access to support knowledge base, and support channels such as, support incidents or expert chat, without the need to leave the application.

Previous: [Automating Tender Evaluation and Recommendation \[page 34\]](#)

Related Information



[Accessing Built-In Support Application](#)
[Report Issue to SAP](#)

Important Disclaimers and Legal Information

Hyperlinks

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