Integration Guide **PUBLIC**

SAP Predictive Maintenance and Service, on-premise edition

Document Version: 1.0 – 2018-07-13

Integration Guide for SAP Predictive Maintenance and Service, on-premise edition FP06

Typographic Conventions

Type Style	Description
Example	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Textual cross-references to other documents.
Example	Emphasized words or expressions.
`EXAMPLE`	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
`Example`	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
`Example`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example>`	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
`EXAMPLE`	Keys on the keyboard, for example, `F2` or `ENTER`.

Document History

Version	Date	Change
1.0	2017-12-18	Initial version
1.1	2018-07-13	Current version

Contents

1 About

Purpose

This integration guide is the starting point for the technical implementation of SAP Predictive Maintenance and Service (PdMS), on-premise edition. This document describes the integration of SAP Predictive Maintenance and Service, on-premise edition with SAP Enterprise Asset Management (EAM).

2 Integration of SAP Predictive Maintenance and Service, on-premise edition with SAP Enterprise Asset Management (EAM)

This section describes the concept of how the SAP Predictive Maintenance and Service, on-premise edition is integrated with SAP Enterprise Asset Management (SAP EAM). You can find cross-scenario implementation information as well as scenario-specific information in this guide.

> **Note**
>
> The central starting point for SAP Predictive Maintenance and Service, on-premise edition is the installation guide, which you can find on the SAP Help Portal page of SAP Predictive Maintenance and Service, on-premise edition at https://help.sap.com/viewer/p/SAP_Predictive_Maintenance_and_Service.

This integration guide consists of the following SAP Predictive Maintenance and Service, on-premise edition sections:

- Link SAP EAM object to the model of SAP Predictive Maintenance and Service, on-premise edition
- Display model information of SAP Predictive Maintenance and Service, on-premise edition in EAM side panel
- Equipment creation and synchronization for EAM objects
- Transfer EAM work orders associated with equipment to SAP Predictive Maintenance and Service, on-premise edition
- Synchronization of notification between EAM and SAP Predictive Maintenance and Service, on-premise edition

The integration details that is presented here serves as an example of how you can integrate SAP EAM with SAP Predictive Maintenance and Service, on-premise edition. The scenarios are only intended as examples and do not necessarily run the way they are described here in your customer-specific system landscape. Ensure that you check your requirements and systems to determine how this can be used productively at your site. Furthermore, we recommend that you test these scenarios thoroughly in your test systems to ensure they are complete and free of errors before going live.

This integration guide primarily discusses the overall technical implementation of SAP Predictive Maintenance and Service, on-premise edition and its associated components. However, additional software dependencies might exist without being mentioned explicitly in this document.

2.1 Prerequisites

2.1.1 Prerequisites for Integration between SAP Predictive Maintenance and Service, on-premise edition and SAP EAM

Component	Description
SAP ERP Central Component	• ERP EHP 6 and above • Not applicable for S/4 HANA releases
Roles in SAP Predictive Maintenance and Service, on-premise edition	The following predefined role templates are available: • AssetCoreAdmin • AssetCoreExpert • AssetCoreReader

2.1.2 Important SAP Notes

You must read the following SAP Notes as it contains the most recent information as well as any necessary corrections.

Make sure that you have the up-to-date version of each SAP Note, which you can find on the SAP Service Marketplace at https://support.sap.com/en/my-support/knowledge-base.html

SAP Note Number	Component	Title
2382303	CA-AIN-PM	AIN-EAM Integration Overview
2327152	CA-AIN-PM	Linking of EAM objects to AIN Models
2366582, 2417919	CA-AIN-PM	Display of AIN model information in EAM side panel
2405095	CA-AIN-PM	Common objects for AIN-EAM Release 2.0
2413805	CA-AIN-PM	AIN Equipment Creation and Synchronization for EAM Objects
2422598	CA-AIN-PM	Document Creation and Synchronization

SAP Note Number	Component	Title
2405074	CA-AIN-PM	AIN Announcement Processing in EAM
2382489	CA-AIN-PM	AIN Authentication Client Certificates
2526795	CA-AIN-PM	Preparatory note for AIN-EAM Integration Release 3.0
2487706	CA-AIN-PM	AIN Authentication-OAuth 2.0
2488386	CA-AIN-PM	Common objects for AIN-EAM Release 3.0
2487705	CA-AIN-PM	Replicate Work orders from EAM to AIN
2485457	CA-AIN-PM	AIN Equipment Creation and Synchronization for EAM Objects- Background Mode
2552580	CA-AIN-PM	Common objects for AIN-EAM Release 4.0 - Batch 1
2552577	CA-AIN-PM	Document Creation and Synchronization - Version 2
2568695	CA-AIN-PM	Common objects for AIN-EAM Release 4.0 - Batch 2
2553257	CA-AIN-PM	AIN Equipment Creation and Synchronization for EAM Objects - Version 2
2568696	CA-AIN-PM	Replicate Notifications from EAM to AIN
2578680	CA-AIN-PM	Common objects for AIN-EAM Integration Notes 2600287 & 2601111
2601111	CA-AIN-PM	Document Creation and Synchronization - Same Document Type for Model and Equipment Documents
2600287	CA-AIN-PM	AIN Equipment Creation and Synchronization for EAM objects- Propose Equipment Functionality
2621471	CA-AIN-PM	Pulling AIN Notifications
2592547	CA-AIN-PM	Delivery Class changes - AIN-EAM Integration tables

2.2 Authentication Between SAP ERP and SAP Predictive Maintenance and Service, on-premise edition

You can use the basic authentication for communicating between SAP ERP systems and SAP Predictive Maintenance and Service, on-premise edition.

This setup involves two major steps:

1. Uploading Root CA of the PDMS Server Certificate in the ERP system

2. Maintaining PDMS System Information in ERP

2.2.1 Authorizations in SAP ERP

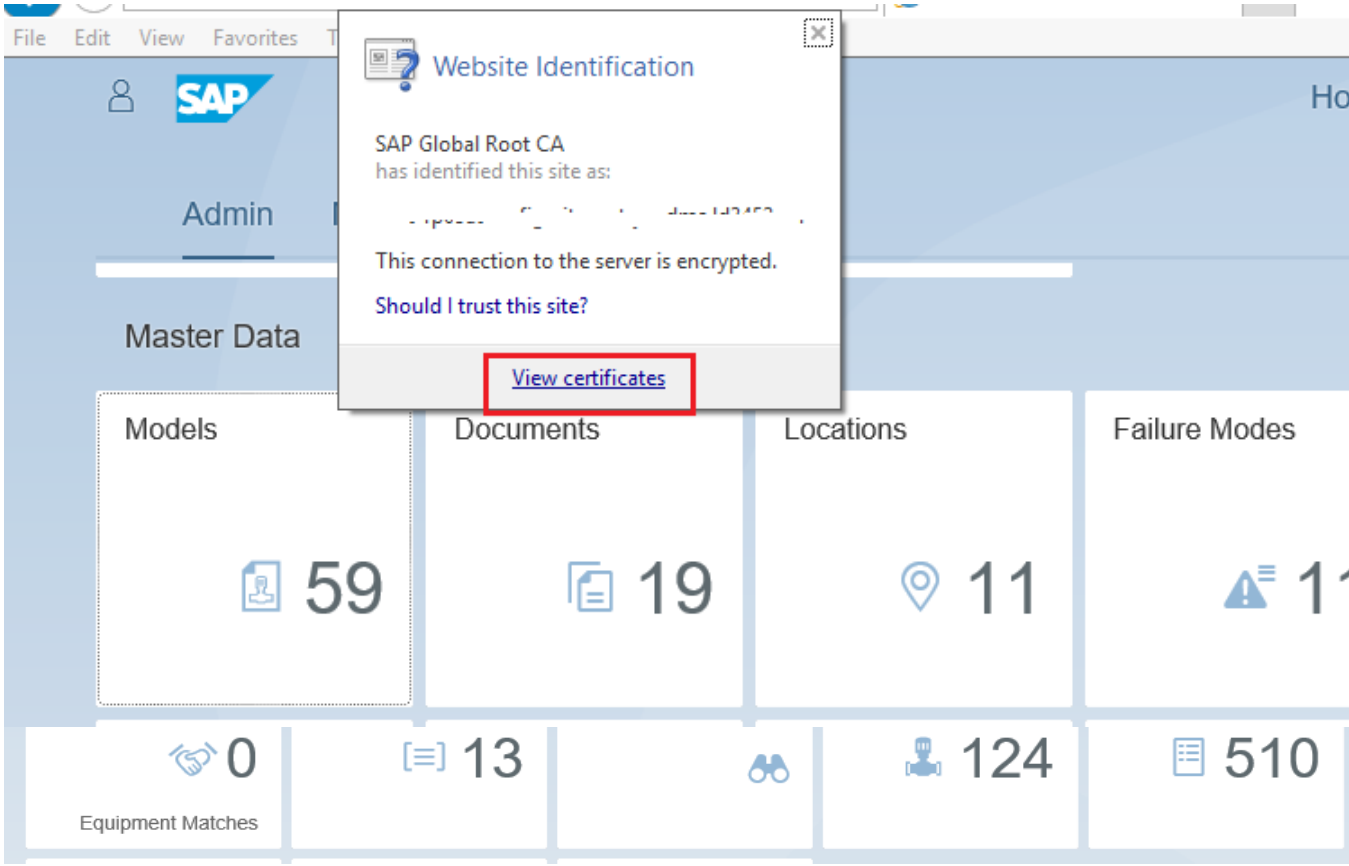
You must have authorization for the following transactions to perform the following activities on SAP ERP.

- STRUST (To upload a certificate)
- SM59 (To create a RFC destination)

2.2.2 Upload Root CA of the PDMS Server Certificate in ERP system

To upload the root CA of the server certificate of SAP Predictive Maintenance and Service, on-premise edition in the ERP system, follow these steps:

1. Import the root CA of the server certificate of SAP Predictive Maintenance and Service, on-premise edition

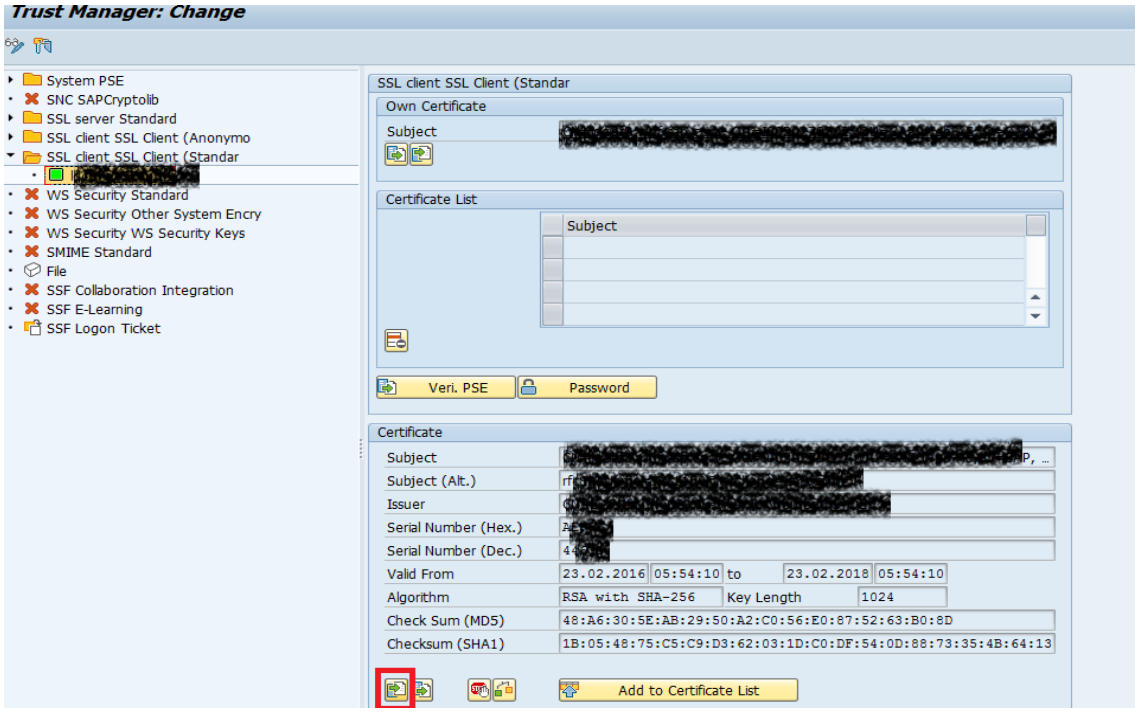


from the browser by launching any of the applications of SAP Predictive Maintenance and Service, on-premise edition.

   - Click *View Certificate* -> Navigate to the *Certificate Path* tab -> Choose the Root certificate -> Again click *View Certificate* -> Navigate to the *Details* tab-> Click *Copy to File to Export*.

- The Certificate can be downloaded in Base-64 encoded X.509 format.

2. The root CA certificate of SAP Predictive Maintenance and Service, on-premise edition can be uploaded into ERP system via transaction code STRUST.
    1. Choose the PSE (SSL client) which will be used for SSL handshake between ERP and PDMS.
    2. Import the above downloaded root certificate into the selected PSE.



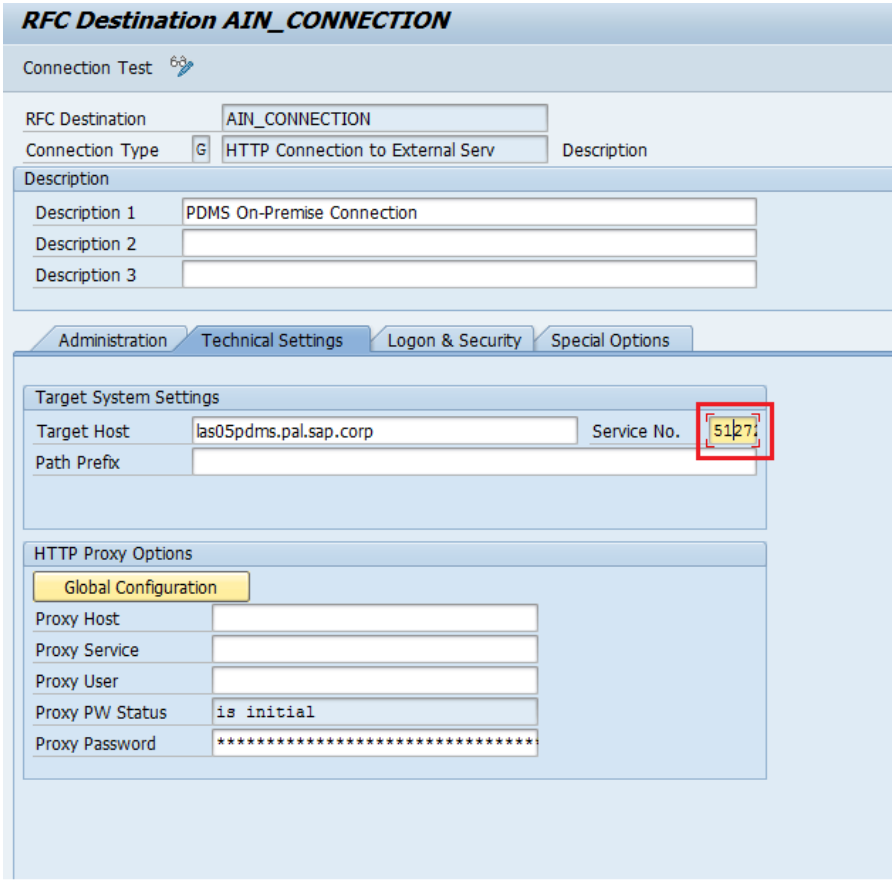
    3. Add the imported certificate to the list.
    4. Save the PSE changes.

2.2.3 Maintaining PDMS System Information in SAP ERP

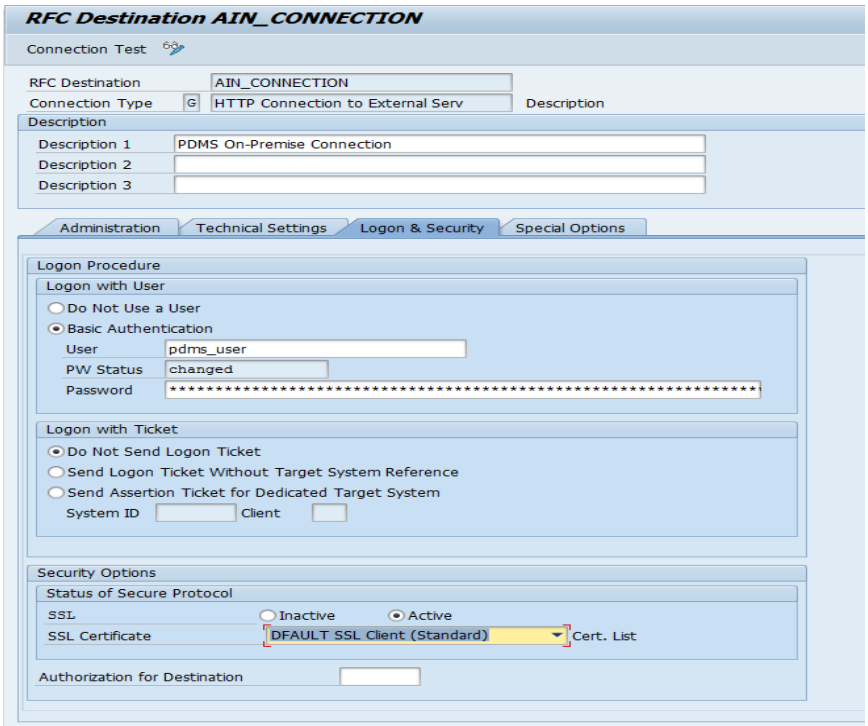
To maintain the system information of SAP Predictive Maintenance and Service, on-premise edition:

1. Create a new RFC destination via transaction code SM59 using the following details:
    - Name: AIN_CONNECTION
    - Connection type: G (HTTP Connection to External Server)
    - Target host: System URL of SAP Predictive Maintenance and Service, on-premise edition

    Note:
    - Provide the port number of the SAP Predictive Maintenance and Service, on-premise system as the *Service No.* in RFC destination.
    - Path prefix should be left as empty.



2. Under **Logon Procedure**, choose Basic Authentication and provide PdMS credentials.



Then, under **Security** Options, set SSL to Active and choose the relevant SSL certificate from the certificate list.

3. General/Global Configuration Settings:

   The following general settings must be defined in SAP ERP system for basic authentication between SAP ERP system and SAP Predictive Maintenance and Service, on-premise edition system:

   Transaction code: SM30

   Table/View Name: AIN_V_GEN_CONFIG

Config Name	Value/Description
AIN_RFC_NAME	AIN_CONNECTION (RFC name as configured for the SAP PDMS destination system).
AIN_PATH_PREFIX	/int
AIN_ERP_SYSTEM_NAME	ERP system name as defined in the PDMS Applications Setting, Systems section. Used to define the External ID for of PDMS object.

2.3 Assumptions and Implementation Considerations

2.3.1 Authorization in SAP EAM

The code delivered by SAP does not check any authorizations. It is the sole responsibility of the customer or partner to have their own authorizations assigned to the program.

> Note
>
> You will find information on specific prerequisites and roles in the relevant sections.

2.4 Link SAP EAM Object to Model of SAP Predictive Maintenance and Service, on-premise edition

2.4.1 Master Data Prerequisites

You must create classes and characteristics to be able to display details for the models of SAP Predictive Maintenance and Service, on-premise edition linked to SAP EAM objects.

> Note
>
> If classification is already being used, then the ability to have multiple classes per EAM object must be allowed. For more information, refer to IMG node *Cross-Application Components* --> *Classification System* → *Classes* --> *Maintain Object Types and Class Types.* The checkbox *Multiple classification* must be checked.

2.4.1.1 Characteristics and Classes

- Create a characteristic group for SAP_AIN and assign them to classes
- Define a class for both class types *002 Equipment* and *003 Functional Location.*

> Note
>
> See SAP Note **2327152**

2.4.2 Link EAM Objects to Models of SAP Predictive Maintenance and Service, on-premise edition

1. Execute program AIN_MODEL_MAPPER. This can be done from the transaction AIN_MAPPER or alternatively via SE38/SA38.

   The program allows mapping of either equipment or functional locations.
2. If choosing equipment (or functional locations) then the list of objects to be mapped should be limited using the selection options of:

- *Equipment Number /(Functional location)*
- *Maintenance plant*
- *Valid from Date*

3. The checkbox *Skip AIN Linked Objects* means that the program will exclude any object that already has a mapping to an SAP Predictive Maintenance and Service, on-premise edition model.

4. The checkbox *Match based on Construction Type* means that the program will also select potential matches based on the construction type material.

- By default, the *Construction material type* is **HERS** but other material types, for example, a customer-specific type can be used.

The program attempts to determine potential SAP Predictive Maintenance and Service, on-premise edition model matches for the EAM objects in SAP Predictive Maintenance and Service, on-premise edition and then allows the user to select the best match and to create the link between the EAM object and the SAP Predictive Maintenance and Service, on-premise edition model (by adding classification details to the EAM object).

2.4.2.1 Matching Logic

This program will utilize the following two matching methods:

- Match on construction type
- Match on EAM object manufacturer and model number

2.4.2.1.1 Match on Construction Type

If the checkbox *Match based on Construction Type* is selected, then the program will attempt to find a matching model in SAP Predictive Maintenance and Service, on-premise edition based on the manufacturer part number and the vendor name from the construction material.

2.4.2.1.2 Match on EAM Object Manufacturer and Model No.

In this matching process, the manufacturer and model number from the EAM object is used. If there are no model details, then no attempt to match will occur. However, if the model is provided but the manufacturer is not, then an attempt to find a matching SAP Predictive Maintenance and Service, on-premise edition model will occur.

2.4.2.2 Edit or Delete a Link Between EAM Object and SAP Predictive Maintenance and Service, on-premise edition Model

The link can only be deleted by using the mapping program, since the classification information is used only to show the user to which SAP Predictive Maintenance and Service, on-premise edition object the object is mapped.

Alternatively, if the mapping needs to be changed, the program can be run again, a different match chosen and a new link created. This will remove the existing match and classification details.

> **Note**
>
> If the link is deleted, it will also remove the link to the relevant document management system record for the model.

2.5 Display SAP Predictive Maintenance and Service, on-premise edition Model Information in SAP EAM Side Panel

The side panel can be used to display additional context-sensitive information for existing transactions in a separate screen area without modifying the corresponding transaction.

The delivered side panel will display information for linked SAP Predictive Maintenance and Service, on-premise edition models.

Please refer to the below note for the implementation of this functionality.

- SAP Note **2382489**
- **SAP Note 2417919**

Note: NetWeaver business client (NWBC) is required to view the side panel.

See also:

- http://scn.sap.com/community/erp/blog/2013/02/25/side-panel-for-sap-business-suite
- http://scn.sap.com/community/netweaver-business-client/blog/2013/11/21/nwbc-side-panel-demo-combining-a-sap-gui-transaction-with-an-html5-based-fpm-chart-guibb

2.5.1 Authorization in SAP Predictive Maintenance and Service, on-premise edition

The authentication user (RFC user) should have model read access in SAP Predictive Maintenance and Service, on-premise edition so that the user can access the model search API from EAM.

2.5.2 Authorization in SAP EAM

The SAP EAM user should have the role *AIN_MODEL_DETAILS* (or equivalent) to view the side panel content from the NetWeaver business client (NWBC).

2.5.3 View SAP Predictive Maintenance and Service, on-premise edition Model Information in SAP EAM Side Panel

The SAP Predictive Maintenance and Service, on-premise edition model side panel can be displayed in the following objects using the following:

Function	Transaction ID
Change equipment	**IE02**
Display equipment	**IE03**
Change functional location	**IL02**
Display functional location	**IL03**
Change Service notification	**IW52**
Display Service notification	**IW53**
Change PM notification	**IW22**
Display PM notification	**IW23**
Change work order	**IW32**
Display work order	**IW33**

Note

For visual enterprise (.vds) files the *Visual Enterprise Viewer* needs to be installed. The *Visual Enterprise Viewer* is available from the SAP Store.

2.6 Equipment Creation and Synchronization for EAM Objects

The SAP EAM Equipment or Functional location that needs to be synchronized to SAP Predictive Maintenance and Service, on-premise edition can be performed using this application.

2.6.1 Setup and Configurations

2.6.1.1 Global Configuration Settings

The following SAP Predictive Maintenance and Service, on-premise edition integration general settings must be defined for the equipment creation or synchronization functions.

Execute transaction **SM30** and *Table/View Name* **AIN_V_GEN_CONFIG**

Setting	Value or Description
AIN_FLP_URL	AIN Fiori Launchpad URL
AIN_ERP_SYSTEM_NAME	ERP system name as defined in the AIN Applications Setting, Systems section. Used to define the External ID for an AIN equipment record.
AIN_LEAN_EQUIPMENT	Value – "X" or "Blank" If set ("X") then the user has the option of creating lean equipment records in AIN (Equipment records with no model). If not set (Blank) then user will not get this option.
AIN_SYNC_HIERARCHY	Value – "X" or "blank" Defines whether the AIN Equipment Component Hierarchy is to be synchronized with EAM.
AIN_HIERARCHY_MASTER	Value – "EAM" or "AIN" Defines whether the EAM or AIN is the master system for the synchronization of the component hierarchy.
AIN_EQUI_SOURCEBPROLE	Defines the source business partner role of the equipment Possible values are: 1 - For my operations 2 - For Service 3 - For Customer From plant maintenance integration perspective, it's always treated as "For my operations".
AIN_EQUI_LIFECYCLE	Defines whether the AIN equipment is actual or planned. Possible Values are 1 - Planned 2 - Actual From plant maintenance integration perspective, it's always treated as Actual equipment.

2.6.1.2 Mapping Configuration

The mapping configuration defines the mapping between the SAP Predictive Maintenance and Service, on-premise edition equipment records and SAP EAM technical objects (Equipment and Functional Locations) for the SAP Predictive Maintenance and Service, on-premise edition Equipment header information and the SAP Predictive Maintenance and Service, on-premise edition Equipment attributes (for both Model and Equipment templates).

To execute this, use view cluster **AIN_VC_TMPL_MAP** via transaction code **AIN_EQUI_CONFIG**.

2.6.1.2.1 Equipment Header Mapping

The equipment header mapping can be done using the maintenance view "AIN_V_EQ_HDR_MAP."

Transaction code: SM30

Table/View Name: AIN_V_EQ_HDR_MAP

You use this for:

- Mapping of the SAP Predictive Maintenance and Service, on-premise edition Equipment object header fields to EAM object fields.
- Separate mapping for EAM equipment and EAM functional location object.

Master system for the mapping fields can be defined. This determines the flow of the value during synchronization.

- Overwrite AIN => Yes. EAM acts as Master and the value flow is from EAM to SAP Predictive Maintenance and Service, on-premise edition.
- Overwrite EAM => Yes. SAP Predictive Maintenance and Service, on-premise edition acts as Master and the value flow is from SAP Predictive Maintenance and Service, on-premise edition to EAM.

The Equipment Header mapping is a mandatory configuration to create SAP Predictive Maintenance and Service, on-premise edition Equipment and below is the default Mapping configuration considering EAM as master. This can be changed by the operator accordingly.

Object Type	AIN Field Name	EAM Structure Name	EAM Field Name	Overwrite EAM	Overwrite AIN
Equipment	BUILDDATE	BAPI_ITOB	ACQDATE	No	Yes
Equipment	DESCRIPTION-SHORT	BAPI_ITOB	DESCRIPT	No	Yes
Equipment	INTERNALID	BAPI_ITOB_PARMS	EQUIPMENT	No	Yes
Equipment	SERIALNUMBER	BAPI_ITOB	MANSERNO	No	Yes
Functional Location	BUILDDATE	BAPI_ITOB	ACQDATE	No	Yes

Object Type	AIN Field Name	EAM Structure Name	EAM Field Name	Overwrite EAM	Overwrite AIN
Functional Location	DESCRIPTION-SHORT	BAPI_ITOB	DESCRIPT	No	Yes
Functional Location	INTERNALID	BAPI_ITOB_PARMS	FUNCLOC_INT	No	Yes
Functional Location	SERIALNUMBER	BAPI_ITOB	MANSERNO	No	Yes

The Equipment create public API from SAP Predictive Maintenance and Service, on-premise edition is used to create an SAP Predictive Maintenance and Service, on-premise edition equipment from EAM and the payload fields of the API should be mapped with the corresponding EAM BAPI structure fields.

The mapping is to the fields of the structures are as follows:

- BAPI_ITOB_PARMS, BAPI_ITOB and BAPI_ITOB_EQ_ONLY for Equipment
- BAPI_ITOB_PARMS, BAPI_ITOB and BAPI_ITOB_FL_ONLY for Functional Locations.

  For more details of the fields supported please see the details of these structures.
- The BAPI's BAPI_EQUI_GETDETAIL and BAPI_FUNCLOC_GETDETAIL are used to fetch the EAM object information and the above-mentioned structures are part of these BAPI's.

Note:

Serial number is mandatory for creation of equipment in SAP Predictive Maintenance and Service, on-premise edition from EAM objects. Mapping to the SAP Predictive Maintenance and Service, on-premise edition *Serial No*. field is required and entry in the *EAM object* field is mandatory.

2.6.1.2.2 Model Templates

This section is used for mapping of SAP Predictive Maintenance and Service, on-premise edition model templates to:

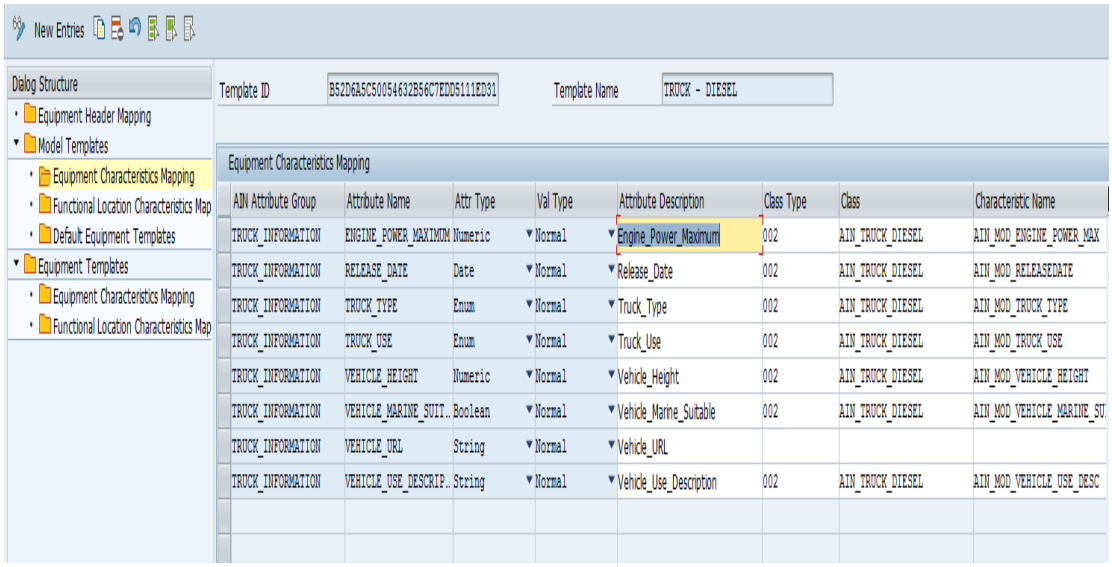
- EAM Equipment Characteristics
- EAM Functional Location characteristics
- Providing a default SAP Predictive Maintenance and Service, on-premise edition equipment template for an SAP Predictive Maintenance and Service, on-premise edition model template.

The SAP Predictive Maintenance and Service, on-premise edition model templates can be imported using the program **AIN_TEMPLATES_PULL** (using transaction **SE38**). Alternatively, you can manually enter the entries for the template.

Equipment Characteristics Mapping

You use this for mapping of model template attributes to EAM equipment characteristics. Once the template is imported, you can define the mapping for the SAP Predictive Maintenance and Service, on-premise edition attribute to the relevant EAM class and characteristic.

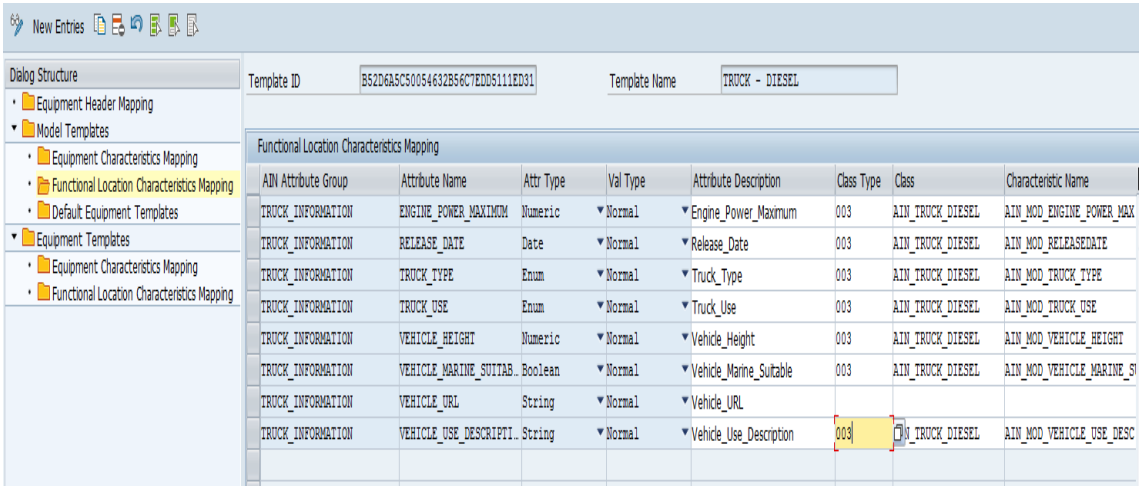
For more details on the considerations and limitations on the mapping of SAP Predictive Maintenance and Service, on-premise edition attributes to EAM characteristics, see the SAP Predictive Maintenance and Service, on-premise edition Attributes and EAM Characteristics Mapping section.



The mapping of a characteristic will cause the value in EAM to be overwritten from the model in SAP Predictive Maintenance and Service, on-premise edition.

Functional Location Characteristics Mapping

You use this for mapping model template attributes to EAM functional location characteristics. Once the template is imported, the user can define the mapping for the SAP Predictive Maintenance and Service, on-premise edition attribute to the relevant EAM classification and characteristics.

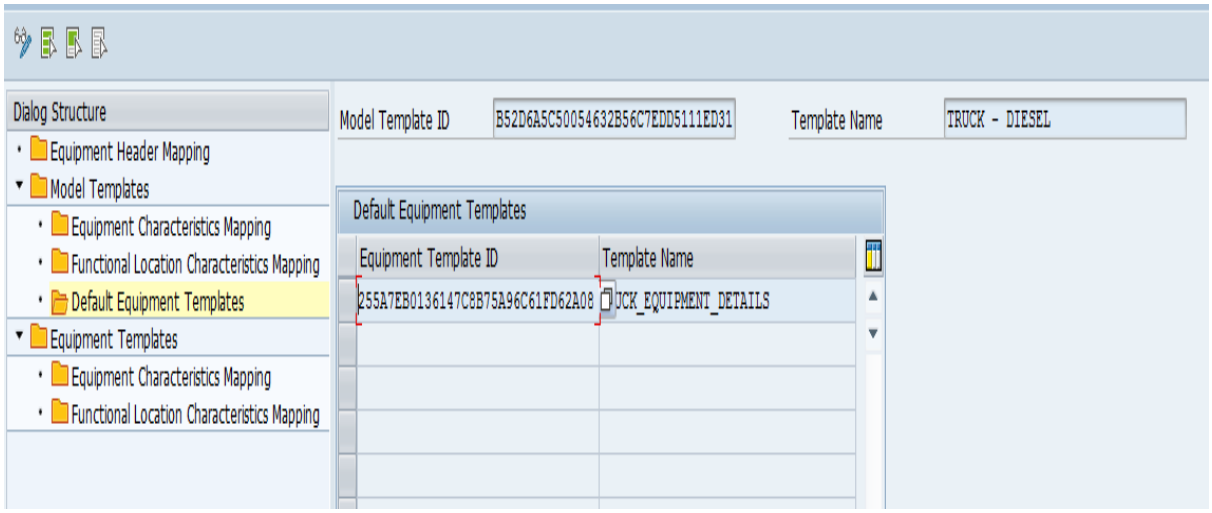


The mapping of a characteristic will cause the value in EAM to be overwritten from the model in SAP Predictive Maintenance and Service, on-premise edition.

Default Equipment Template

This configuration allows the user to define a default SAP Predictive Maintenance and Service, on-premise edition equipment template for an SAP Predictive Maintenance and Service, on-premise edition model template. If no default equipment template is mapped, then, the user will need to select the relevant Equipment Template in SAP Predictive Maintenance and Service, on-premise edition for the copied Equipment records.

The value help for the Equipment Template will display all SAP Predictive Maintenance and Service, on-premise edition Equipment Templates, for which there has been a successful import.



2.6.1.2.3 Equipment Templates

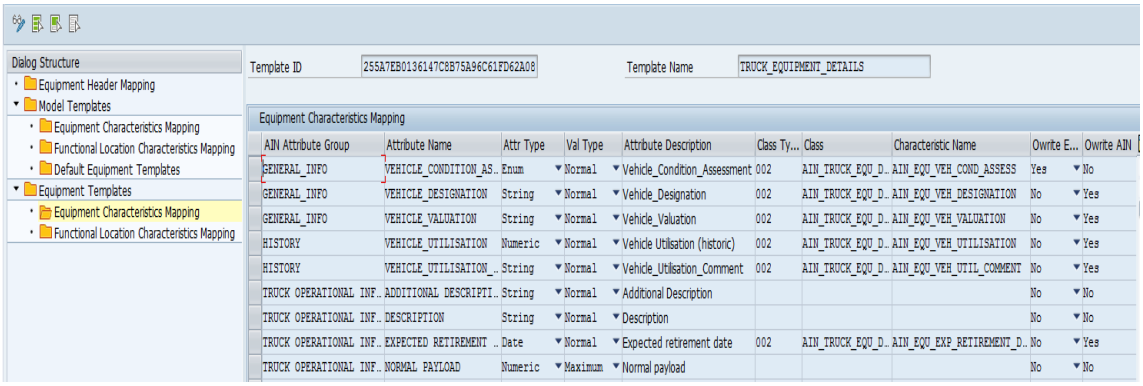
You use this for mapping of SAP Predictive Maintenance and Service, on-premise edition equipment templates to:

- EAM Equipment Characteristics
- EAM Functional Location characteristics

The SAP Predictive Maintenance and Service, on-premise edition equipment templates can be imported using the program “AIN_TEMPLATES_PULL” (using transaction SE38). Alternatively, the entries for the template can be manually entered.

Equipment Characteristics Mapping

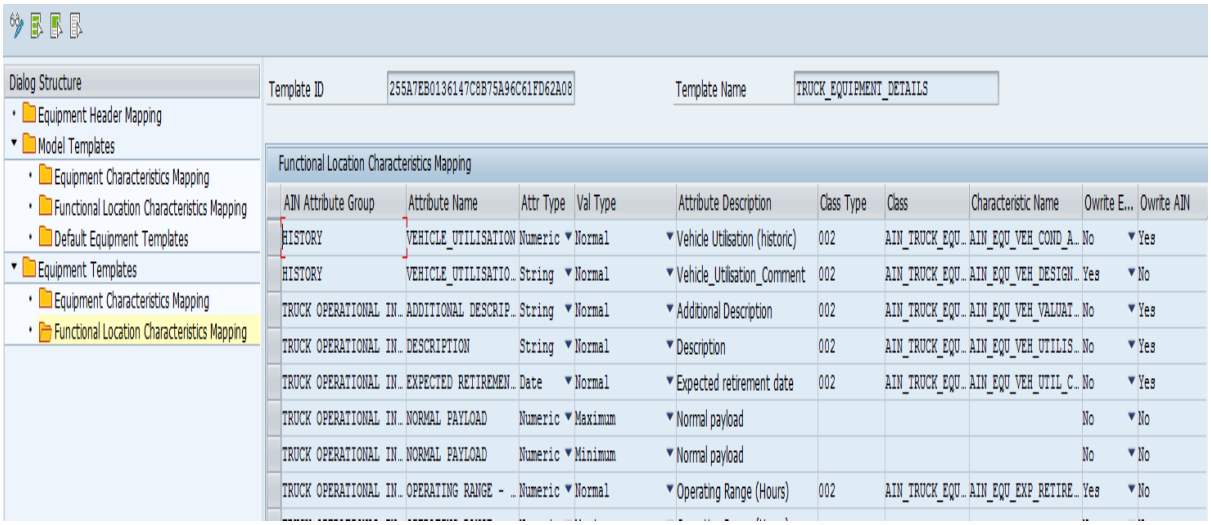
You use this for mapping SAP Predictive Maintenance and Service, on-premise edition equipment template attributes to EAM equipment characteristics. Once the template is imported, the User can define the mapping for the SAP Predictive Maintenance and Service, on-premise edition attribute to the relevant EAM class and characteristic.



The user can define whether the SAP Predictive Maintenance and Service, on-premise edition or the EAM system is the master. If the SAP Predictive Maintenance and Service, on-premise edition system is to be the master, then the setting “Owrite EAM” should be used or if the EAM system is to be the master, then the “Owrite AIN” should be used. This can be defined at each attribute independently. This means for some attribute values, the SAP Predictive Maintenance and Service, on-premise edition system can be the master and for others the EAM system can be the master.

Functional Location Characteristics Mapping

You use this for mapping SAP Predictive Maintenance and Service, on-premise edition Equipment template attributes to EAM functional location characteristics. Once the template is imported, the user can define the mapping for the SAP Predictive Maintenance and Service, on-premise edition attribute to the relevant EAM classification and characteristics.

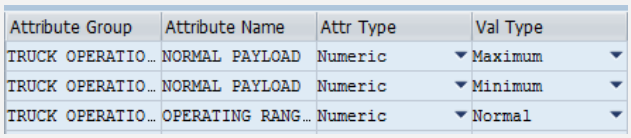


The user can define whether the SAP Predictive Maintenance and Service, on-premise edition or the EAM system is the master. If the SAP Predictive Maintenance and Service, on-premise edition system is to be the master, then the setting “Owrite EAM” should be used or if the EAM system is to be the master, then the “Owrite AIN” should be used. This can be defined at each attribute independently (i.e. For some attribute values, the SAP Predictive Maintenance and Service, on-premise edition system can be the master and for others the EAM system can be the master).

2.6.1.3 Managing Differences Between the Two Systems

It is required to understand the differences between the mapping of SAP Predictive Maintenance and Service, on-premise edition attributes to EAM Characteristics. The below table explains how these differences are handled.

SAP Predictive Maintenance and Service, on-premise edition Attribute Type	Supported (Yes/No)	Comment
Boolean	Yes	Must be mapped to “characteristic with data type “Character format” with values “True” and “False”
Date	Yes	Supported.
Enum	Yes	With SAP Predictive Maintenance and Service, on-premise edition Enum attributes, the values in the SAP Predictive Maintenance and Service, on-premise edition

SAP Predictive Maintenance and Service, on-premise edition Attribute Type	Supported (Yes/No)	Comment
		attribute must also be in the EAM characteristic with the same characteristic value. Multiple values are supported if the EAM characteristic is also defined as allowing multiple values.
Numeric	Yes	For numeric attributes the ISO code is used in matching UOM at time of copying values between SAP Predictive Maintenance and Service, on-premise edition/EAM. For the SAP Predictive Maintenance and Service, on-premise edition numeric values that store multiple values such as: Min/Max or Min/Max/Normal “x at y”  The mapping in EAM is to multiple characteristics (One per “value” to be stored. Example, Min/Max would require two characteristics). The “value type” field in the mapping is used to identify the specific SAP Predictive Maintenance and Service, on-premise edition value as shown below.

ECC Characteristic Type	Supported (Yes/No)	Comment
Currency	Yes	Must be mapped to an SAP Predictive Maintenance and Service, on-premise edition string attribute type (will be stored without the currency). The ISO currency code is used in matching currency at time of copying values between SAP Predictive Maintenance and Service, on-premise edition /EAM.
Character	Yes	In SAP Predictive Maintenance and Service, on-premise edition string is 256 characters, in ECC Characteristics have a maximum of 30 characters.

ECC Characteristic Type	Supported (Yes/No)	Comment
		Hence the first 30 characters only will be supported in ECC.
Date	Yes	Supported
Time	No	Not supported as no equivalent SAP Predictive Maintenance and Service, on-premise edition attribute type.
Numeric	Yes	For numeric attributes the ISO code is used in matching UoM at time of copying values between SAP Predictive Maintenance and Service, on-premise edition/EAM.
Custom	No	Custom data types for characteristics are not supported.

Note

ISO Codes should be maintained for the UoMs and currency codes in ERP system. Values are case sensitive.

2.6.2 Master Data Prerequisites

In addition to the creation of the necessary program elements, there are some prerequisite classes and characteristics that must be created. These are used to store details of the linked SAP Predictive Maintenance and Service, on-premise edition model against the EAM objects. The following class and characteristics must be defined:

2.6.2.1 Characteristics

Characteristic	Description	Valid from	Data Type	Number of characters	Value Assignment	Case Sensitive
SAP_AIN_01	AIN: Model	01.04.2016	Character format	30	Single Value	Yes
SAP_AIN_02	AIN: Manufacturer	01.04.2016	Character format	30	Single Value	Yes

Characteristic	Description	Valid from	Data Type	Number of characters	Value Assignment	Case Sensitive
SAP_AIN_03	AIN: Equipment	01.04.2016	Character format	30	Single Value	Yes

Note

We recommend that a characteristic group of “SAP_AIN” be created and allocated to the characteristics to assist with management of the SAP Predictive Maintenance and Service, on-premise edition characteristics.

2.6.2.2 Classes

For both class types **`002 Equipment`** and **`003 Functional Location`** a class must be defined as shown below.

Class name	Description	Valid from	Same Classification
ZSAP_AIN	SAP AIN class for linking EAM to AIN	01.04.2016	Do not check

For the class the flowing characteristics must be assigned:

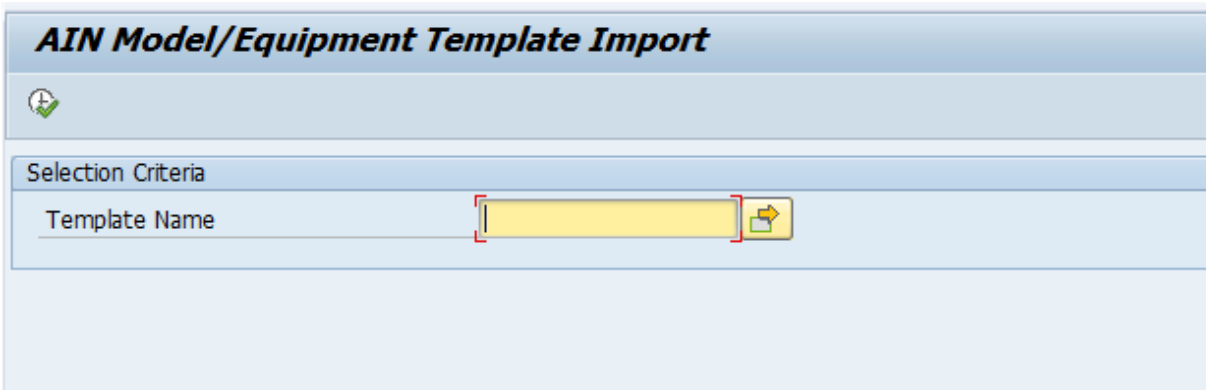
Characteristic	Description
SAP_AIN_01	PDMS: Model
SAP_AIN_02	PDMS: Manufacturer
SAP_AIN_03	PDMS: Equipment

Note

We recommend that a class group of “SAP_AIN” be created and allocated to the classes to assist with management of the SAP Predictive Maintenance and Service, on-premise edition classes.

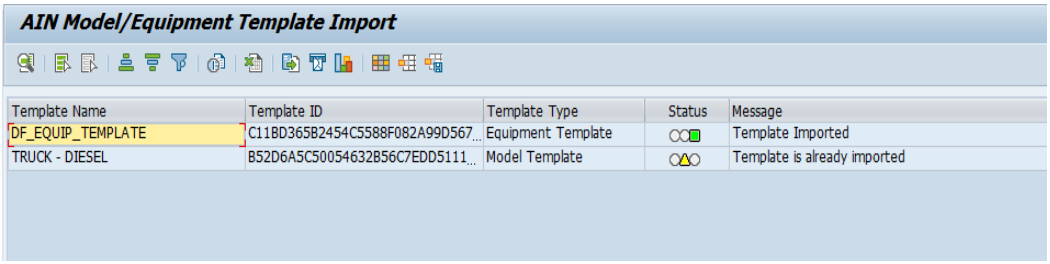
2.6.3 Import of SAP Predictive Maintenance and Service, on-premise edition Model or Equipment Templates

Execute program **AIN_TEMPLATES_PULL** sing the transaction **SE38** or **SA38**. The program can be used to import the model and equipment templates from SAP Predictive Maintenance and Service, on-premise edition to the EAM. The selection screen is shown below.



The complete template attribute information gets imported from SAP Predictive Maintenance and Service, on-premise edition and the mapping entries for Equipment and Functional location gets created. You can map the SAP Predictive Maintenance and Service, on-premise edition attribute and the EAM Characteristics for EAM Equipment and Functional Location individually using the configuration transaction **AIN_EQUI_CONFIG**. The mapping will be done during the creation and synchronization of SAP Predictive Maintenance and Service, on-premise edition Equipment.

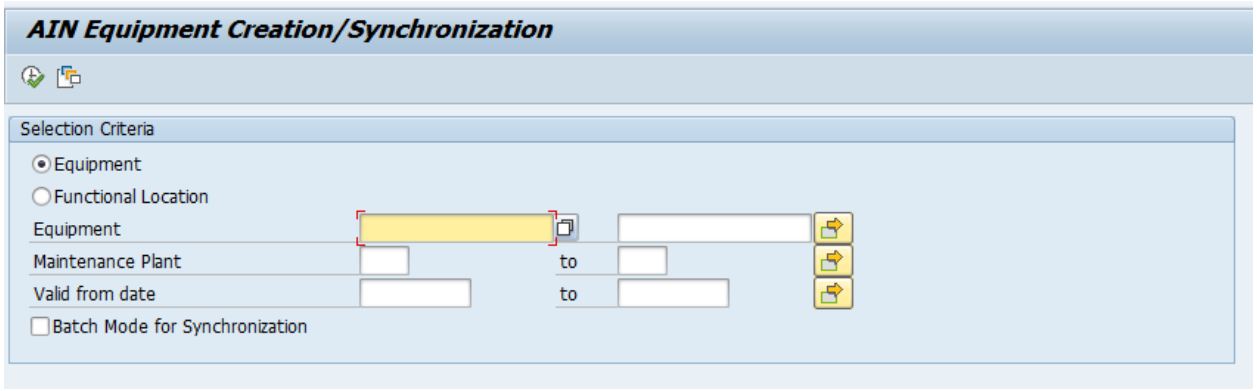
In execution, the program uses the SAP Predictive Maintenance and Service, on-premise edition API's to import the template information. As a result, the following import log screen will be presented to the user.



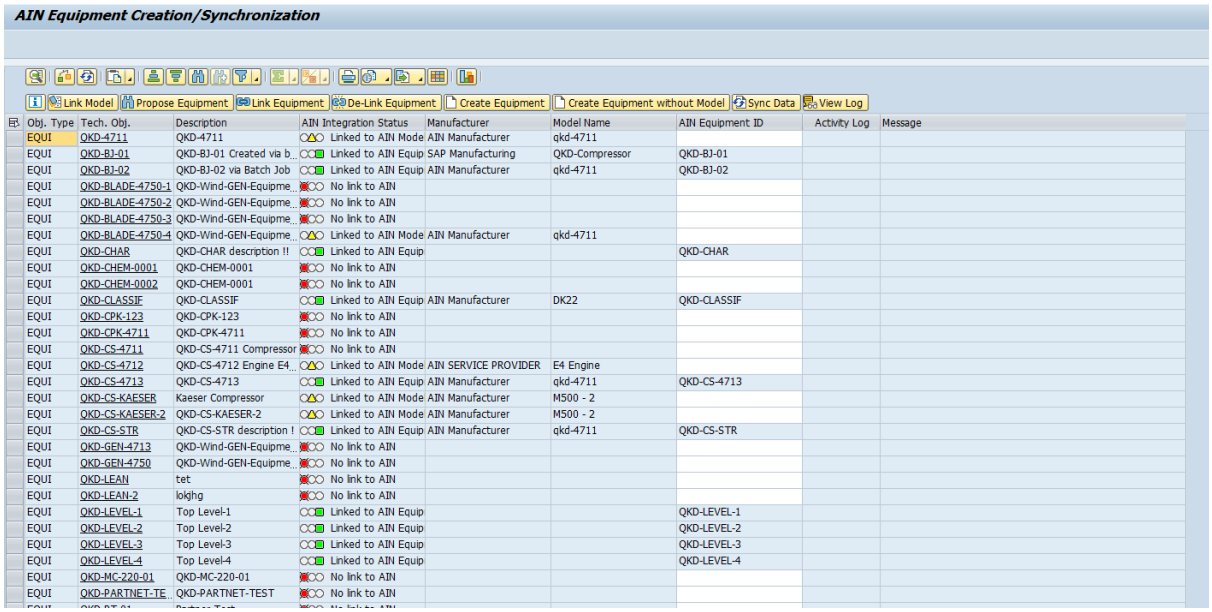
2.6.4 Equipment Creation and Synchronization

Execute the program **AIN_EQUIPMENT_MAPPER** using transaction **AIN_EQUI_SYNC**. Alternatively, you can use transaction **SE38** or **SA38**.

You use this program to create and synchronize the SAP Predictive Maintenance and Service, on-premise edition Equipment based on EAM Equipment or Functional Location. The selection screen is shown below.



The program is designed to be run online and you can select either Equipment or Functional location. Both technical objects are always created as “Equipment” in SAP Predictive Maintenance and Service, on-premise edition. The following screen is displayed once the selection screen is executed.



Obj. Type	Tech. Obj.	Description	AIN Integration Status	Manufacturer	Model Name	AIN Equipment ID	Activity Log	Message
EQUI	QKD-4711	QKD-4711	Linked to AIN Mode	AIN Manufacturer	qkd-4711			
EQUI	QKD-BJ-01	QKD-BJ-01 Created via b	Linked to AIN Equip	SAP Manufacturing	QKD-Compressor	QKD-BJ-01		
EQUI	QKD-BJ-02	QKD-BJ-02 via Batch Job	Linked to AIN Equip	AIN Manufacturer	qkd-4711	QKD-BJ-02		
EQUI	QKD-BLADE-4750-1	QKD-Wind-GEN-Equipme	No link to AIN					
EQUI	QKD-BLADE-4750-2	QKD-Wind-GEN-Equipme	No link to AIN					
EQUI	QKD-BLADE-4750-3	QKD-Wind-GEN-Equipme	No link to AIN					
EQUI	QKD-BLADE-4750-4	QKD-Wind-GEN-Equipme	Linked to AIN Mode	AIN Manufacturer	qkd-4711			
EQUI	QKD-CHAR	QKD-CHAR description !!	Linked to AIN Equip			QKD-CHAR		
EQUI	QKD-CHEM-0001	QKD-CHEM-0001	No link to AIN					
EQUI	QKD-CHEM-0002	QKD-CHEM-0001	No link to AIN					
EQUI	QKD-CLASSIF	QKD-CLASSIF	Linked to AIN Equip	AIN Manufacturer	DK22	QKD-CLASSIF		
EQUI	QKD-CPK-123	QKD-CPK-123	No link to AIN					
EQUI	QKD-CPK-4711	QKD-CPK-4711	No link to AIN					
EQUI	QKD-CS-4711	QKD-CS-4711 Compressor	No link to AIN					
EQUI	QKD-CS-4712	QKD-CS-4712 Engine E4	Linked to AIN Mode	AIN SERVICE PROVIDER	E4 Engine			
EQUI	QKD-CS-4713	QKD-CS-4713	Linked to AIN Equip	AIN Manufacturer	qkd-4711	QKD-CS-4713		
EQUI	QKD-CS-KAESER	Kaeser Compressor	Linked to AIN Mode	AIN Manufacturer	M500 - 2			
EQUI	QKD-CS-KAESER-2	QKD-CS-KAESER-2	Linked to AIN Mode	AIN Manufacturer	M500 - 2			
EQUI	QKD-CS-STR	QKD-CS-STR description !	Linked to AIN Equip	AIN Manufacturer	qkd-4711	QKD-CS-STR		
EQUI	QKD-GEN-4713	QKD-Wind-GEN-Equipme	No link to AIN					
EQUI	QKD-GEN-4750	QKD-Wind-GEN-Equipme	No link to AIN					
EQUI	QKD-LEAN	tet	No link to AIN					
EQUI	QKD-LEAN-2	lokjhg	No link to AIN					
EQUI	QKD-LEVEL-1	Top Level-1	Linked to AIN Equip			QKD-LEVEL-1		
EQUI	QKD-LEVEL-2	Top Level-2	Linked to AIN Equip			QKD-LEVEL-2		
EQUI	QKD-LEVEL-3	Top Level-3	Linked to AIN Equip			QKD-LEVEL-3		
EQUI	QKD-LEVEL-4	Top Level-4	Linked to AIN Equip			QKD-LEVEL-4		
EQUI	QKD-MC-220-01	QKD-MC-220-01	No link to AIN					
EQUI	QKD-PARTNET-TE	QKD-PARTNET-TEST	No link to AIN					

Below are options or buttons available in the Equipment Creation and Synchronization program.

Link Model

The *Link Model* button can be used to link the selected EAM technical object (Equipment or Functional location) to an SAP Predictive Maintenance and Service, on-premise edition Model.

Propose Equipment:

Propose Equipment does a search in SAP Predictive Maintenance and Service, on-premise edition to find out relevant/matching Equipment based on the selected search field and the results are proposed as “AIN Equipment ID”.

Currently, search can be performed based on one of the below fields of SAP Predictive Maintenance and Service, on-premise edition.

- Internal ID
- Serial Number

The search functionality looks for a 100% match based on the mapping configuration. The mapping between the fields of EAM and SAP Predictive Maintenance and Service, on-premise edition will be picked from the Equipment Header Mapping configuration.

Link Equipment

The *Link Equipment* button can be used to link the selected EAM technical object to an existing SAP Predictive Maintenance and Service, on-premise edition Equipment.

The following activities takes place during the linking process:

- SAP Predictive Maintenance and Service, on-premise edition Equipment ID will be updated in the classification of the EAM technical object.
- EAM technical object ID will be set as External ID of the SAP Predictive Maintenance and Service, on-premise edition Equipment.
- SAP Predictive Maintenance and Service, on-premise edition model attributes will be copied to EAM technical object characteristics based on the Model template mapping configuration.
- EAM technical object characteristics will be copied to/from the SAP Predictive Maintenance and Service, on-premise edition Equipment attributes based on the Equipment template mapping configuration.

Delink Equipment

The *Delink Equipment* button can be used to remove the link between the EAM technical object with an already transferred or linked SAP Predictive Maintenance and Service, on-premise edition Equipment.

The following activities will happen during the delinking process:

- SAP Predictive Maintenance and Service, on-premise edition Equipment ID will be removed from the classification of the EAM technical object.
- External ID of the SAP Predictive Maintenance and Service, on-premise edition Equipment holding EAM technical object will be removed.

Create Equipment

The *Create Equipment* button can be used to create the equivalent SAP Predictive Maintenance and Service, on-premise edition Equipment from the selected EAM technical objects. This will use the Equipment header mapping and Template mapping configurations to identify the source for the data during creation process.

The following activities takes place during the creation process:

- SAP Predictive Maintenance and Service, on-premise edition Equipment is created based on the EAM technical object considering all the configurations.
- EAM technical object ID is set as External ID of the SAP Predictive Maintenance and Service, on-premise edition Equipment.
- SAP Predictive Maintenance and Service, on-premise edition model attributes are copied to EAM technical object characteristics based on the model template mapping configuration.
- EAM technical object characteristics are copied to the SAP Predictive Maintenance and Service, on-premise edition equipment attributes based on the equipment template mapping configuration.
- Lean Equipment (equipment without link to model) creation is supported. The SAP Predictive Maintenance and Service, on-premise edition Equipment is set to *Published*. The logging is enabled for the Equipment create action.

Synchronize Data

The *Sync data* button can be used to synchronize the data between the two systems for already linked / created Equipment based on the various mapping configurations. This button will also synchronize the Equipment hierarchy between the two systems, if the global configuration allows this.

The following activities takes place during the synchronization process:

- Equipment header information will be updated from SAP Predictive Maintenance and Service, on-premise edition to EAM or EAM to SAP Predictive Maintenance and Service, on-premise edition based on the header mapping configurations.
- SAP Predictive Maintenance and Service, on-premise edition model attribute changes will be updated to EAM technical object characteristics based on the Model template mapping configuration.
- Equipment specific characteristics/attributes will be updated from SAP Predictive Maintenance and Service, on-premise edition to EAM or EAM to SAP Predictive Maintenance and Service, on-premise edition based on the Equipment template mapping configuration.
- Equipment Hierarchy gets synchronized from SAP Predictive Maintenance and Service, on-premise edition to EAM or EAM to SAP Predictive Maintenance and Service, on-premise edition based on the global configuration setting.

The SAP Predictive Maintenance and Service, on-premise edition Equipment should be in *Published* state to run the synchronization process. The data between the two systems are compared and the update will happen only if change identified. A new revision of SAP Predictive Maintenance and Service, on-premise edition Equipment created to update changes from EAM. The logging is enabled for the Equipment synchronization action.

View Log

The *View Log* button can be used to view the log of the Equipment creation and synchronization action. The SLG1 log is fetched for the selected EAM technical object **AIN_INT** and sub-object: **EQUI**

2.7 Replicate Work Orders from SAP EAM to SA Predictive Maintenance and Service, on-premise edition system

2.7.1 Value Mapping Configuration:

The SAP ERP on-premise system comes with more customizable/configurable data whereas the SAP Predictive Maintenance and Service, on-premise edition system comes with the predefined value set. Hence a value mapping is required between SAP ERP and SAP Predictive Maintenance and Service, on-premise edition system values. The following are customizable fields which requires value mapping:

- Order Type
- Priority
- Status

Predefined value set in the SAP Predictive Maintenance and Service, on-premise edition system for the above fields:

SAP ERP Customizable Field Name	Field Description	SAP Predictive Maintenance and Service, on-premise edition Value	Description
ORDERTYPE	Order Type	1	Breakdown
		2	Inspections
		3	Installation
		4	Planned
		5	Disposal
		6	Operations
PRIORITY	Priority	5	Low
		10	Medium
		15	High
		20	Very High
		25	Emergency

STATUS	Status	NEW	New
		PBD	Published
		CPT	Completed
		CSD	Closed

The value mapping can be done using the maintenance view AIN_V_VALUE_MAP.

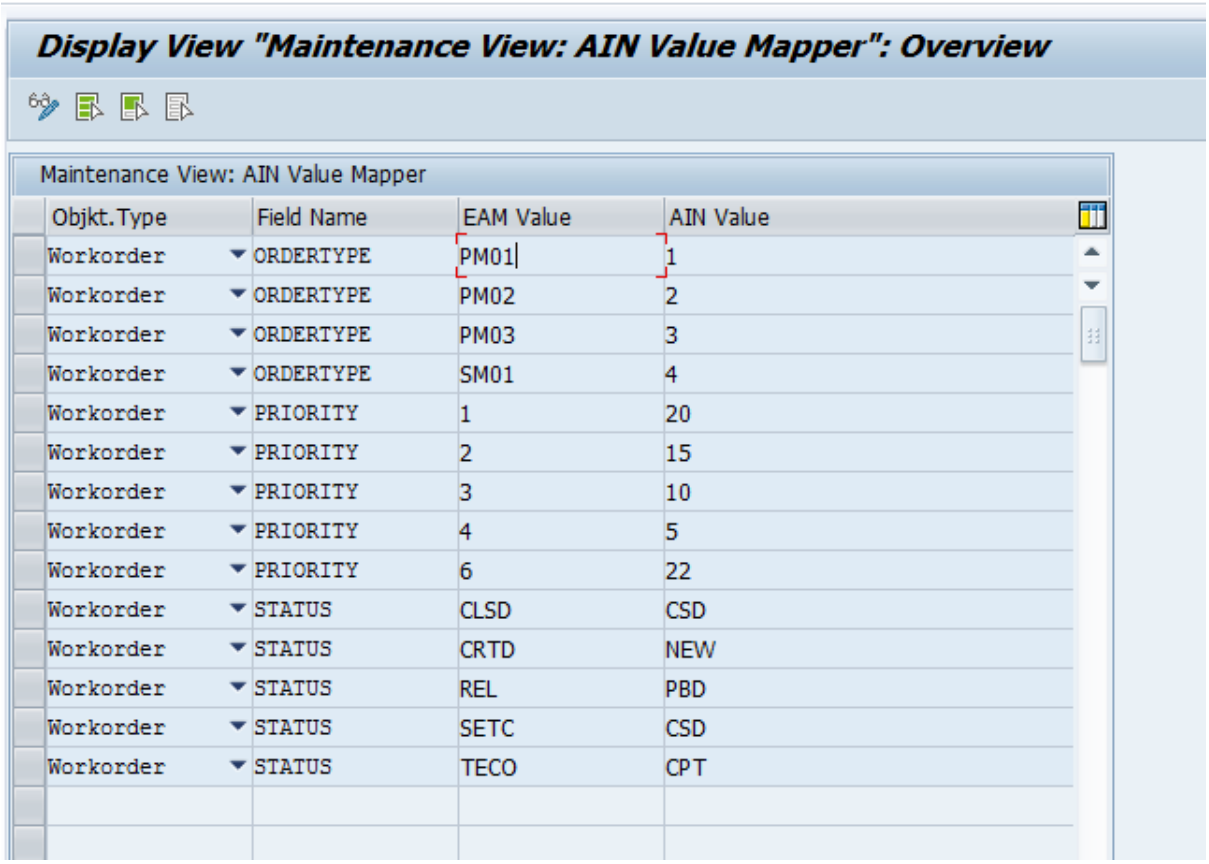
The object type should be selected as Work order and the field name can be one of the field listed above.

The SAP EAM values are customer specific and it can be mapped to one of the above listed SAP Predictive Maintenance and Service, on-premise edition value.

Transaction code: SM30

Table/View Name: AIN_V_VALUE_MAP

An example for the value mapping configuration table is shown below for reference.

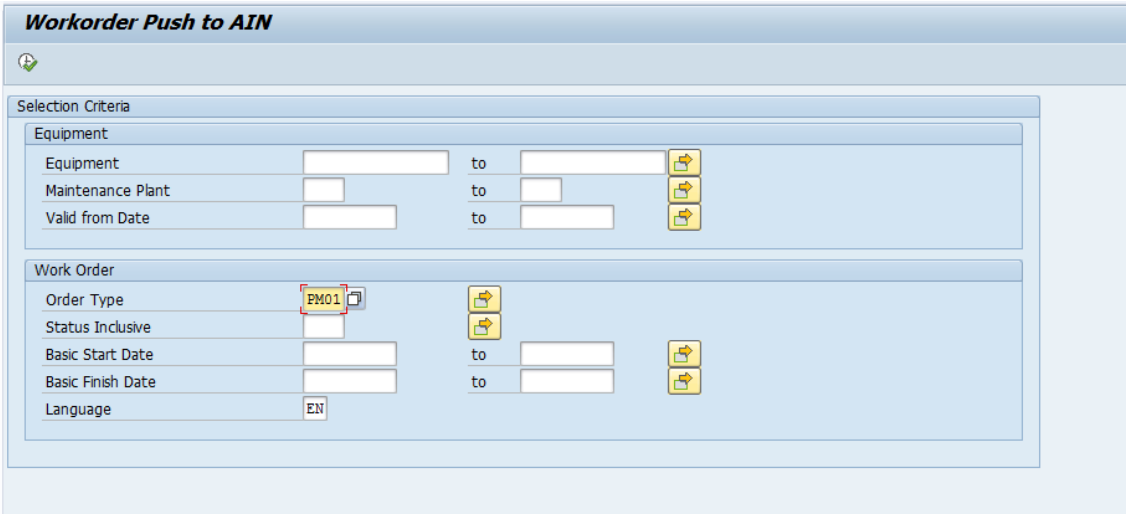


2.7.2 Replicate Work orders

The program to push the work orders from SAP ERP to SAP Predictive Maintenance and Service, on-premise edition can be executed using the transaction AIN_ORDER_POST (or using SE38, program AIN_WORKORDER_POST).

The work orders having reference to equipment as reference object will be pushed to SAP Predictive Maintenance and Service, on-premise edition based on the selection filter. Also, the reference object equipment should have an equivalent SAP Predictive Maintenance and Service, on-premise edition equipment so that the work orders can be assigned accordingly.

1. In your SAP EAM system, use the transaction **AIN_ORDER_POST** to open the **Selection Criteria** for **Workorder Push to AIN**

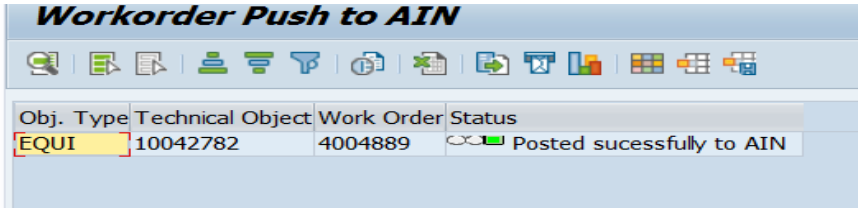


The selection criteria have got two filter sections:

- Equipment
- Work Order

2. Select/Provide the appropriate inputs and execute the report to push the work orders into SAP Predictive Maintenance and Service, on-premise edition.

   The following log will display the relevant posting status of the work orders.



The Equipment objects are fetched based on the selection options and then the associated work orders of the Equipment are fetched based on the work order filter.

The SAP Predictive Maintenance and Service, on-premise edition API's are used to post and update work orders in SAP Predictive Maintenance and Service, on-premise edition. The work order information like work order number, description, long text, priority, status, order type, start and finish date, time consumed are pushed from SAP EAM to SAP Predictive Maintenance and Service, on-premise edition.

Execution of the Program in Background

The program can be scheduled as a batch job and it is recommended to run in background.

2.8 Replicate Notifications from SAP EAM to SAP Predictive Maintenance and Service, on-premise System

2.8.1 Value Mapping Configuration:

The SAP ERP on-premise system comes with more customizable/configurable data whereas the SAP Predictive Maintenance and Service, on-premise edition system comes with the predefined value set. Hence a value mapping is required between SAP ERP and SAP Predictive Maintenance and Service, on-premise edition system values. The following are customizable fields which requires value mapping:

- Notification Type
- Priority
- Status

Predefined value set in the SAP Predictive Maintenance and Service, on-premise edition system for the above fields:

SAP ERP Customizable Field Name	Field Description	SAP Predictive Maintenance and Service, on-premise edition Value	Description
NOTITYPE	Notification Type	M1	Maintenance
		M2	Breakdown
PRIORITY	Priority	5	Low
		10	Medium
		15	High
		20	Very High
		25	Emergency
STATUS	Status	NEW	New

		PBD	Published
		CPT	Completed

The value mapping can be done using the maintenance view AIN_V_VALUE_MAP.

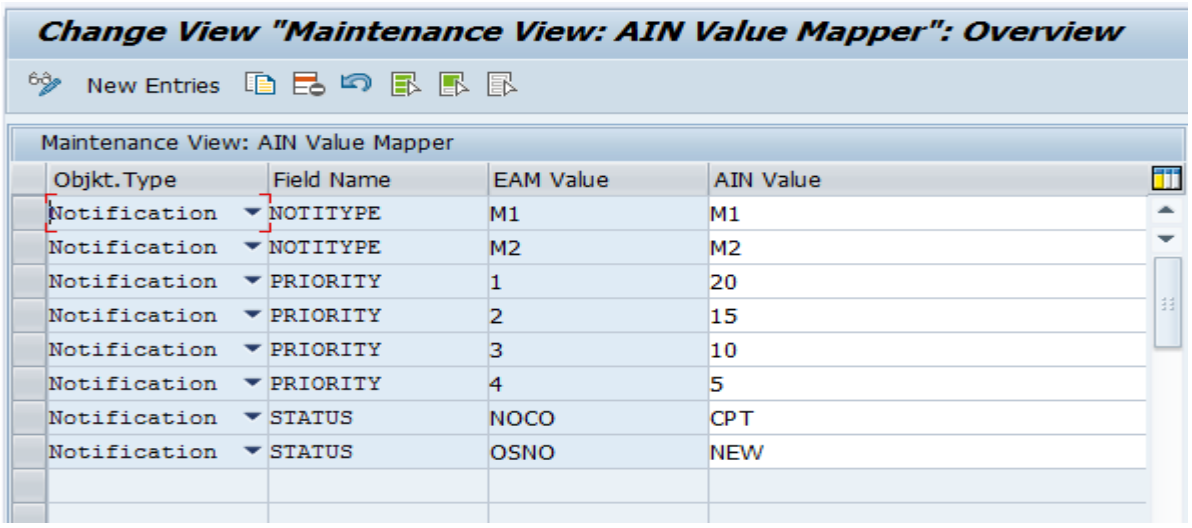
The object type should be selected as Notification and the field name can be one of the field listed above.

The SAP EAM values are customer specific and it can be mapped to one of the above listed SAP Predictive Maintenance and Service, on-premise edition value.

Transaction code: SM30

Table/View Name: AIN_V_VALUE_MAP

An example for the value mapping configuration table is shown below for reference.

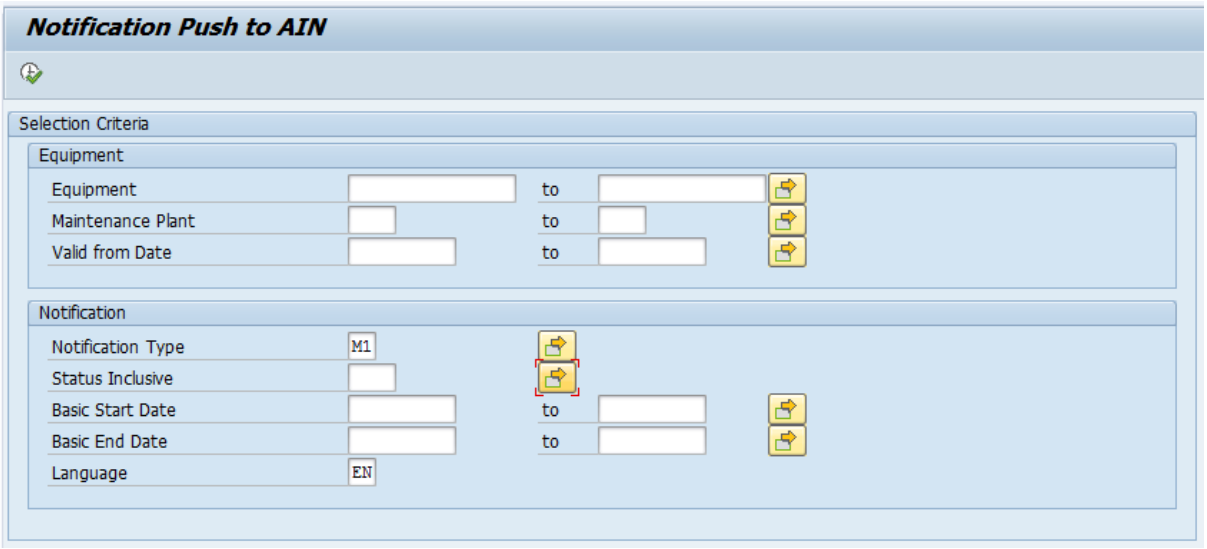


2.8.2 Replicate Notifications from SAP ERP to SAP Predictive Maintenance and Service, On-premise edition

The program to push the notifications from SAP ERP to SAP Predictive Maintenance and Service, on-premise edition can be executed using the transaction AIN_NOTI_POST (or using SE38, program AIN_NOTIFICATION_POST).

The notifications having reference to equipment as reference object will be pushed to SAP Predictive Maintenance and Service, on-premise edition based on the selection filter. Also, the reference object equipment should have an equivalent SAP Predictive Maintenance and Service, on-premise edition equipment so that the notifications can be assigned accordingly.

1. In your SAP EAM system, use the transaction **AIN_NOTI_POST** to open the **Selection Criteria** for **Notification Push to AIN**

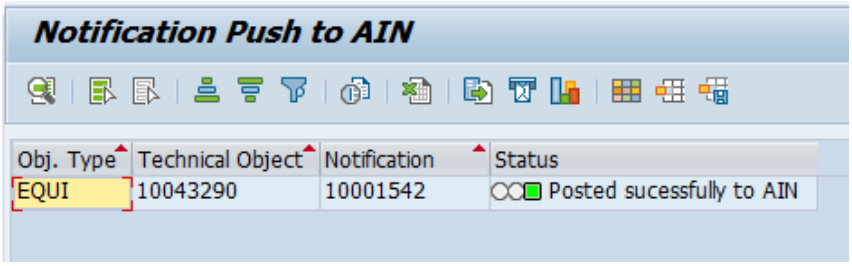


The selection criteria have got two filter sections:

- Equipment
- Notification

2. Select/Provide the appropriate inputs and execute the report to push the notifications into SAP Predictive Maintenance and Service, on-premise edition.

   The following log will display the relevant posting status of the notifications.



The Equipment objects are fetched based on the selection options and then the associated notifications of the Equipment are fetched based on the notification filter.

The SAP Predictive Maintenance and Service, on-premise edition API's are used to post and update notifications in SAP Predictive Maintenance and Service, on-premise edition. The notification information like notification number, description, long text, priority, status, notification type, start and finish date, malfunction start and end date are pushed from SAP EAM to SAP Predictive Maintenance and Service, on-premise edition.

Execution of the Program in Background

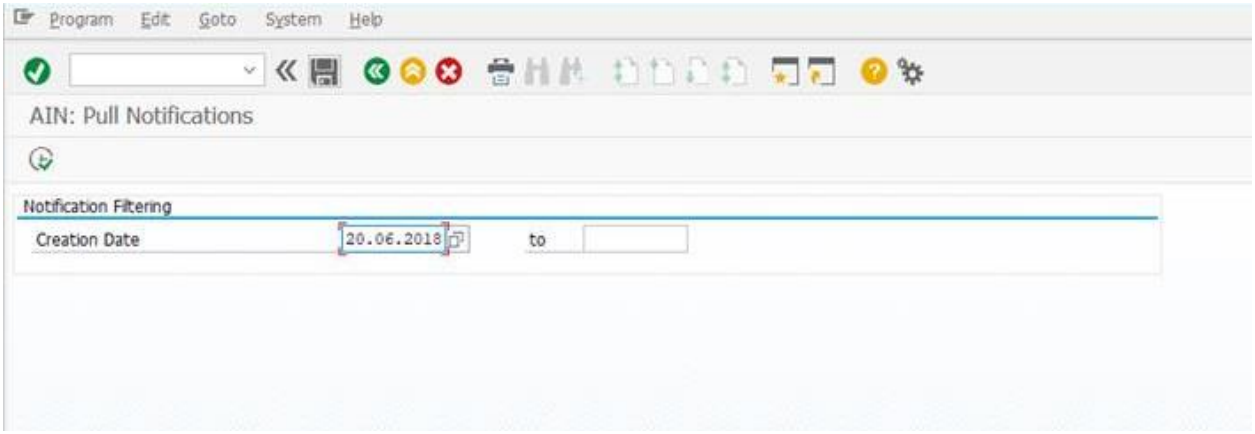
The program can be scheduled as a batch job and it is recommended to run in background.

2.8.3 Replicate Notifications from SAP Predictive Maintenance and Service, On-premise edition to SAP ERP

The program to pull the notifications from SAP Predictive Maintenance and Service, on-premise edition to SAP ERP can be executed using the transaction AIN_NOTI_PULL (or using SE38, program AIN_NOTIFICATION_PULL).

The equipment specific notifications will be pulled from SAP Predictive Maintenance and Service, on-premise edition based on the creation date. In addition, the reference object equipment should have an equivalent SAP Predictive Maintenance and Service, on-premise edition equipment so that the notifications can be created in ERP accordingly.

1. In your SAP EAM system, use the transaction **AIN_NOTI_PULL** to open the **Selection Criteria** for **Notification Pull to AIN**

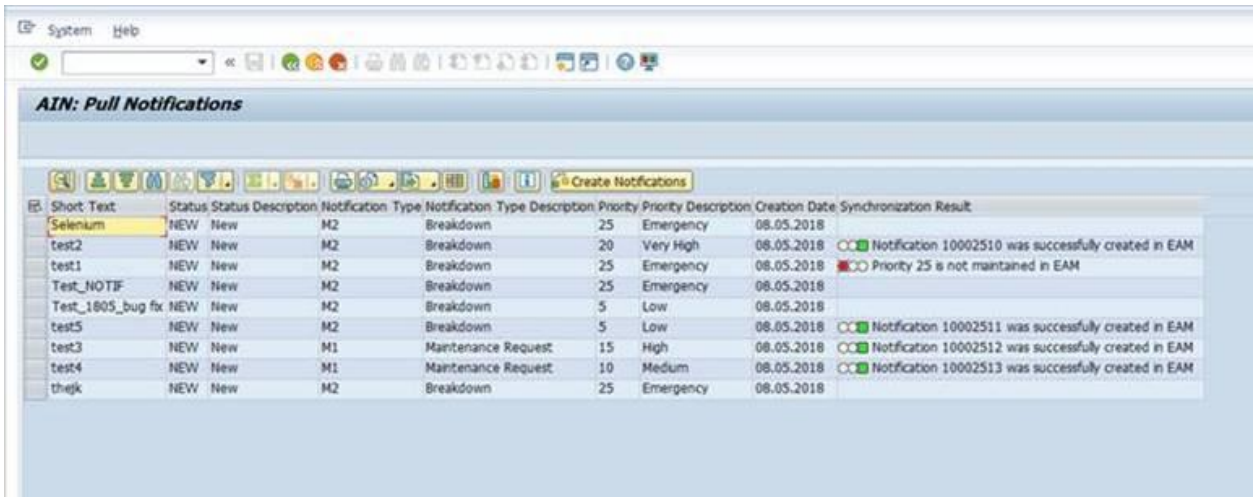


The selection criteria has got one filter section:

- Creation Date

1. Select/Provide the appropriate inputs and execute the report to pull the notifications from SAP Predictive Maintenance and Service, on-premise edition to SAP ERP.

The following log will display the notifications and its details.



The associated notifications of the Equipment are fetched based on the Creation Date.

Create Notifications

The *Create Notifications* button can be used to create the equivalent SAP EAM notification from the selected SAP PDMS Notification. This will use the value mapping configurations to identify the source for the data during the creation process.

The following activities takes place during the creation process:

- SAP EAM notification is created based on the SAP Predictive Maintenance and Service, on-premise edition notification considering all the configurations.
- EAM Notification ID is set as external ID of the SAP Predictive Maintenance and Service, on-premise edition notification.

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Material Number: