

ERP-994 System Interface - Asset Performance Management (APM) Integration with S/4HANA EAM

Status	Approved
Owner	YILMAZTURK-ext, Gokhan
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Jira Request ID	 ERP-584 - Jira project doesn't exist or you don't have permission to view it.
Jira Development ID	 ERP-994 - Jira project doesn't exist or you don't have permission to view it.

High- Level Specification

Implementing System	SAP S/4HANA, SAP APM
Invoked by/Invokes	
Business Process Reference	7.03.02 - Monitor Asset Performance

Functional Overview

The purpose of this document is to define the functional and configuration requirements to integrate SAP S/4HANA Private Cloud Edition (2025) with SAP Asset Performance Management (APM) on SAP BTP for SyWay Project. SAP APM provides advanced reliability engineering tools (RCM, FMEA, Maintenance Strategy Optimization). For these tools to function, a seamless synchronization of Master Data (Technical Objects) and Transactional Data (Maintenance Orders/Notifications) is required between the S/4HANA core and the APM cloud tenants.

Scope and Objectives

The scope includes the end-to-end connectivity and data synchronization framework:

- Master Data Sync: Synchronization of Equipment, Functional Locations, and Classes/Characteristics.
- Transactional Data Sync: Integration of Maintenance Orders and Notifications for reliability analysis.
- Embedded IoT: Enabling the flow of sensor data/indicator values that are entered manually into Measuring Points in forms of Measurement Documents from S/4HANA to APM. Time Series Data ingestion for Sensors that are created as Local Indicators will be part of a different integration process documented in the following Functional Specification [ERP-1446](#).
- UI Integration: Configuring the "Performance" tab in S/4HANA Asset Master via the APM side-panel.

Process Flow Diagram

Step	Description	Comment
1	Data Extraction	The S/4HANA system identifies relevant technical objects based on "Scope Filters" defined in the configuration.
2	Synchronization	Data is pushed/pulled via OData services through the SAP Cloud Connector to the APM Tenant on BTP
3	Feedback Loop	Maintenance recommendations generated in APM are sent back to S/4HANA to create or update Maintenance Plans/Orders

Assumptions

- Each SAP APM tenant connects to one SAP ERP logical system.
- Communication Systems and Arrangements are handled in the APM Configuration Workbook, not this FS.

Dependencies

- The SAP Cloud Connector is already installed and paired with the BTP Subaccount.
- A destination is needed to be created in the BTP pointing to S/4HANA. Details can be found in the following [link](#).
- **Integration with Cloud Integration Automation Service (CIAS):** Instead of manually setting up and onboarding SAP APM, it's also possible to subscribe to a free service Cloud Integration Automation Service in BTP, which helps to simplify the onboarding process through a guided approach.

Security, Integrity and Controls

- **S/4HANA Service User:** A technical user (System type) with authorizations for the SAP_COM_0573 scenario (which basically includes all the EAM-relevant roles/profiles). It should also have the authorization objects documented in the following [link](#).
- **BTP Roles:** Reliability Engineers require APM_Reliability_Engineer and APM_Template_Admin roles in the BTP Subaccount.

Configuration Requirements

Asset Data Synchronization

- **Technical Objects:** The system must support the replication of **Equipment** and **Functional Locations**.
- **Classes and Characteristics:** APM requires the technical attributes to perform health assessments. Standard S/4HANA Classification (Class Type 002/003) must be synchronized.

Maintenance Work Integration

- **History:** Last 2 years of Maintenance Order and Notification history should be initially synchronized for Reliability Centered Maintenance (RCM) analysis.
- **Delta Sync:** Any new Notification (IW21) or Order (IW31) created in S/4HANA should be updated in APM in near real-time.

Special Requirements

SAP BTP Destination for Rules

To enable the value help for selecting alerts and notifications in the Condition tab of the Manage Rules app, another destination for rules needs to be configured in the tenant.

Prerequisites

You have:

- Created the service instances and service keys for SAP Asset Performance Management. For more information, refer to [Create Service Instances](#).
- Generated the service instance. For more information, refer to [Creating Service Instances in Cloud Foundry](#).
- Generated the service keys. For more information, refer to [Creating Service Keys in Cloud Foundry](#).

Context

You create a destination named `RULES_EIOT_DESIGNTIME` in the subscribing subaccount by providing the connection details to SAP Asset Performance Management Rules Service.

Procedure

1. Create a new destination of type HTTP.
2. Enter the name of the destination as `RULES_EIOT_DESIGNTIME`.
3. Enter the URL of the Rules API and replace the landscape in the URL.

URL: <https://rules-eiot-designtime-live.cfapps.{landscape}.hana.ondemand.com>

Replace {landscape} with your data center such as eu10, eu20, us10, or us20.

4. Enter the following details:
 - a. Select Internet from the Proxy Type drop-down.
 - b. Select OAuth2ClientCredentials from the Authentication drop-down.
 - c. Enter Client ID/Client Secret. The service key that needs to be generated from the SAP Asset Performance Management service instance.
 - d. Choose Dedicated Token Service URL type. Enter the Token Service URL.

URL: {"url" from APM service key credentials}/oauth/token

5. Click Save to save the destination.

Design Rationale

API Use

Following key components must be activated for the integration;

Component	Requirement
OData v2 Services	<ul style="list-style-type: none"> • API_EQUIPMENT • API_FUNCTIONALLOCATION • API_CLFN_CLASS_SRV • API_CLFN_CHARACTERISTIC_SRV • API_MAINTNOTIFICATION • API_MAINTENANCEORDER • API_MAINTENANCEPLAN
OData v4 Service Groups	<ul style="list-style-type: none"> • API_MEASURINGPOINT • API_MEASUREMENTDOCUMENT • API_MAINTENANCETASKLIST • CDI_CDS • API_CATALOGPROFILE
Configure Enterprise Event Enablement framework	<p>SAP Event Mesh is a fully managed cloud service enabling real-time and asynchronous communication between applications through events. Follow the sequence below to set up the Enterprise Event Enablement:</p> <ul style="list-style-type: none"> • Create Channel using Service Key to Event Mesh service running inBTP. Provide the following details: Name, Description and Key. • Activate Event Discovery Service. • Maintain Outbound Event Topics. • Maintain Event Service. • For Measuring Document Sync, select the following channels: <ul style="list-style-type: none"> ◦ sap/s4/beh/measurementdocument/v1/MeasurementDocument/Created/v1 ◦ sap/s4/beh/measurementdocument/v1/MeasurementDocument/Changed/v1 • For Rules characteristics and attributes trigger, select the following channels: <ul style="list-style-type: none"> ◦ sap/s4/beh/equipment/v1/Equipment/Changed/v1 ◦ sap/s4/beh/functionallocation/v1/FunctionalLocation/Changed/v1
OAuth 2.0	

Interface Alert & Monitoring

This interface can be monitored from SAP APM using the app "Integration Monitor", for checking both Master Data & Configuration Data Synchronizations.

User Interface Requirements

- The APM Assessment UI must be embedded within the S/4HANA Fiori "Manage Technical Objects" app.
- Users should be able to trigger an RCM or FMEA assessment directly from the S/4HANA Equipment screen.
- Following steps needs to be done for configuring APM UIs in S/4HANA;

Step	Details
SAP Note Implementation	SAP Notes mentioned below needs to be implemented.
Activation of Function Switch	Asset Central Integration Features needs to be switched on in the following SPRO node; Plant Maintenance and Customer Service -> System Enhancements and Data Transfer -> Activate Functions for Enterprise Asset Management
Configuration of APM Tabs in Technical Objects	In order to display APM Tabs in Functional Location and Equipment, Table View: "V_TITOBSub" needs to be maintained. Following link explains the details: https://help.sap.com/docs/SAP_APM/e260612a886a4e0f8d2e6bed2a648c5d/f661f15f6bf749f188f5756680244084.html

OAuth 2.0	Setup in S/4HANA (Transaction OA2C_CONFIG) using the Client ID and Secret from the BTP Service Key. Following links explains the details; <ul style="list-style-type: none"> • Authorizations • Upload Certificates • Create RFC Destination • OAuth 2.0 Config Setup • Define Server Properties
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Performance Consideration

- **Deletion:** If an Equipment is marked for deletion in S/4HANA, its status in APM should update to "Inactive."
- **Conflict Resolution:** S/4HANA remains the "System of Record" for Master Data. Changes made in APM do not overwrite S/4HANA Master Data fields directly (except via specific Recommendation workflows).

Error Handling

Testing

How to Test

Test Conditions and Expected Results

ID	Condition	Expected Results

Test Considerations/Dependencies

Development Details

Package

Package Name	Parent Package

Other Development Objects

Object Type	Object Name	Purpose/High Level Logic	Design Rationale Reference

Appendix

See also

File **Modified**

No files shared here yet.

Change log


- Following SAP Notes are not needed with latest S/4HANA 2025 anymore. Therefore, they are removed from this documentation.

SAP Note Number	Component	Description
3536844 blocked URL	APM-APL	Display of FMEA, RCM Assessments and Indicator Data in Technical Object screens.
2706498 blocked URL	PM-EQM-EQ	Asset Performance Management Tab for Equipment Master
2700012 blocked URL	PM-EQM-FL	Asset Performance Management Tab for Functional Location
3428432 blocked URL	APM-APL	Display Asset Performance data in Technical Object screens

Version	Published	Changed By	Comment
CURRENT (v. 7)	Apr 20, 2026 09:08	YILMAZTURK-ext, Gokhan	
v. 6	Feb 20, 2026 10:32	YILMAZTURK-ext, Gokhan	
v. 5	Feb 18, 2026 11:48	YILMAZTURK-ext, Gokhan	
v. 4	Feb 17, 2026 20:31	YILMAZTURK-ext, Gokhan	
v. 3	Feb 17, 2026 18:04	YILMAZTURK-ext, Gokhan	
v. 2	Feb 17, 2026 17:59	YILMAZTURK-ext, Gokhan	
v. 1	Feb 17, 2026 16:57	YILMAZTURK-ext, Gokhan	

Workflow history

This view shows the 5 most recent entries. The complete workflow log is available from the 'Document Activity' menu item.

May 04, 2026	Actor	Type	Activity	Version
Approved	LEIGHTON-ext, Dean	State	changed state to Approved at 8:48 am	v7
Lead Approval	LEIGHTON-ext, Dean	State	gave <i>POD Lead Review</i> approval at 8:48 am	
Apr 22, 2026				
	WEINERT-ext, Patrick	State	changed expiry date to '29 Apr, 2026 08:25 am' at 8:25 am	
		State	changed state to Lead Approval at 8:25 am	v7
Tech Review	WEINERT-ext, Patrick	State	gave <i>Tech Review</i> approval at 8:25 am	
Apr 20, 2026				
	 YILMAZTURK-ext, Gokhan	Edit	updated the page at 9:08 am	