



INTERNAL

Recommended Settings for the Integration with SAP IoT

SAP Warehouse Insights

DOCUMENT HISTORY

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BUSINESS SCENARIO

This guide targets at the audience that wants to set up the integration of SAP Warehouse Insights with SAP IoT. It provides a step-by-step procedure, containing all the values that have to be entered in SAP IoT in order to obtain a successful integration with SAP Warehouse Insights.

For more detailed information about setting up and using SAP IoT, see [SAP Internet of Things](#).

BACKGROUND INFORMATION

SAP Warehouse Insights is a product for the optimization of warehouse operations and resource utilization.

You can use SAP Warehouse Insights to achieve the following purposes:

- To optimize the assignment of warehouse orders to resources to minimize empty travel distances
- To analyze KPIs of warehouse operations, such as workload and travel distances of resources
- To visualize the warehouse layout and resource travel paths
- To define and update storage bin coordinates
- To visualize real-time data of resources
- To view the execution data of resources

You can integrate SAP Warehouse Insights with SAP Extended Warehouse Management (EWM) as a standalone product, decentralized EWM based on SAP S/4HANA or EWM as a part of SAP S/4HANA. To be brief on the product names, SAP EWM is used for references to these deployments in this guide.

PREREQUISITES

- You have set up your SAP IoT tenant on SAP Business Technology Platform.
- You have subscribed to SAP Warehouse Insights from a data center from which the Thing Model feature of SAP IoT is available. For more information see [Feature Availability](#).

RECOMMENDED SETTINGS

Setting up an SAP IoT Device Model

1. Add the following properties in the capability of your IoT device model.

Name	Type
xCoordinate	float
yCoordinate	float
zCoordinate	float
time	date

For more information about the configuration of device models, see [About SAP IoT Device Connectivity](#).

2. Create a package in the SAP IoT Application.

Go to the *SAP IoT* Fiori launchpad. Open the *Packages* tile and create a package, for example, com.sap.wi.

3. Open the *Thing Properties Catalog* tile and create 2 thing property sets.

3.1 *WarehouseObjectProperty* for the basic data

Add the following properties exactly as indicated below:

- objectId
- objectType
- warehouseId



The screenshot shows the configuration page for 'WarehouseObjectProperty' under 'Basic Data'. At the top, there is a 'Sensitivity Level' dropdown set to 'None'. Below this is a 'Properties (4)' table with a search bar and a plus icon. The table lists four properties: 'time' (Timestamp), 'xCoordinate' (Float), 'yCoordinate' (Float), and 'zCoordinate' (Float). Each row has edit and delete icons. The 'time' property is highlighted in blue.



Name	Description	Unit of Measure	Type	Length
time			Timestamp	
xCoordinate			Float	
yCoordinate			Float	
zCoordinate			Float	



3.2 *WarehouseObjectPosition* for the measured values









Add the following properties exactly as indicated below:

Name	Type
xCoordinate	Float
yCoordinate	Float
zCoordinate	Float
time	Timestamp

 **WarehouseObjectPosition**
 Measured Values
 Enter a description 

Sensitivity Level: 
 None 

Measured Values (4) Search  + 


Name	Description	Unit of Measure	Type	Length
time			Timestamp	 
xCoordinate			Float	 
yCoordinate			Float	 
zCoordinate			Float	 


4. Create a thing type.

4.1 In the *Basic Data* tab, add the thing property set that you created in step 3.1 (WarehouseObjectProperty).

Note: Copy the full package name (iot.mysapiot.com.sap.wi) from the dialog to reuse it for the destination configuration.

Select Property Set

Search 

Package:  Property Set:



Property Sets (2)



Property Set	Description	Package
<input type="checkbox"/> DefaultImagePropertySet	Default IOT property set type for thing type images	iot.mysapiot.com.sap.wi
<input type="checkbox"/> WarehouseObjectProperty		iot.mysapiot.com.sap.wi

OK Cancel


 **Resource**
 Enter description 

Basic Data (5) Measured Values (0) Calculated Values (0) Images (0) Connectivity (0)




Search  + 




Property Sets / ...	Description	Default Value	Unit of Measure	Type	Length	Sensitivity Level	
WarehouseObjectProperty 				WarehouseObjectProperty		None	
time		<input type="text" value="value"/>		Timestamp			
xCoordinate		<input type="text" value="value"/>		Float			
yCoordinate		<input type="text" value="value"/>		Float			
zCoordinate		<input type="text" value="value"/>		Float			

4.2 In the *Measured Values* tab, add the thing property set that you created in step 3.2 (*WarehouseObjectPosition*).

Resource
Enter description 


Basic Data (4) **Measured Values (5)** Calculated Values (0) Images (0) Connectivity (1)

Property Sets / Pro...	Description	Unit Of Measure	Type	Length	Sensitivity Level	
 WarehouseObjectPosition 			WarehouseObjectPosition		None	
time			Timestamp			
xCoordinate			Float			
yCoordinate			Float			
zCoordinate			Float			

4.3 In the *Connectivity* tab, create the mapping between the properties of *WarehouseObjectPosition* and the device model.



New Mapping










Mapping Name: Sensor Types: 

Mapping Description:

Provider:

Thing Type:

Show  

Property Sets or Properties or Tar...	Mapped	Device Property	Capability	Sensor Type
 WarehouseObjectPosition				
time	←	<input type="text" value="time"/> 	cf0942a3-021b-45d4-a4fd-3ac0a...	24c988a3-9ea0-401e-ae0e-f20d4... 
xCoordinate	←	<input type="text" value="xcord"/> 	cf0942a3-021b-45d4-a4fd-3ac0a...	24c988a3-9ea0-401e-ae0e-f20d4... 
yCoordinate	←	<input type="text" value="ycord"/> 	cf0942a3-021b-45d4-a4fd-3ac0a...	24c988a3-9ea0-401e-ae0e-f20d4... 
zCoordinate	←	<input type="text" value="zcord"/> 	cf0942a3-021b-45d4-a4fd-3ac0a...	24c988a3-9ea0-401e-ae0e-f20d4... 

5. Create things with the thing type that you created in step 4.

Enter the following values in the properties of WarehouseObjectProperty.

The screenshot shows the configuration page for a resource named 'RSRC01'. The 'Thing Type' is set to 'Resource'. The 'Authorization Group' is 'TENANT_ROOT_iot-integrat...'. The 'Location' fields for 'Latitude' and 'Longitude' are empty. Below these fields is a table of properties for the 'WarehouseObjectProperty'.

Property Sets / Pr...	Description	Value	Unit of Measure	Type	Length	Sensitivity Level
WarehouseObjectProperty				WarehouseObjectProperty		None
objectId		RSRC01		String	127	
objectType		RESOURCE		String	127	
warehouseId		2		String	127	

- objectId: Resource ID from EWM
- objectType: "RESOURCE"
- warehouseId: warehouse ID of the warehouse number in SAP Warehouse Insights.

Note: You can find the warehouse ID in the *Warehouse Numbers* table in *Configure Your Solution -> Manage Warehouses*.

The screenshot shows the 'Manage Warehouses' page in SAP, specifically the 'Warehouse Numbers' section. It displays a table with 39 items and 44 managed resources. The table columns are Warehouse Number, Short Description, Warehouse ID, Destination Warehouse..., Time Zone, Unit of Length for Tra..., and Created On.

Warehouse Number	Short Description	Warehouse ID	Destination Warehouse...	Time Zone	Unit of Length for Tra...	Created On
000_WH	Hi, AAA, I am ahead of you :)1111	5	AAAA	GMT+07:00 (Etc/GMT-7)	Meter	Jul 27, 2020, 12:26:17 PM
0804_WW_BIBLIS		28	NE02	Central European Time (Europe/Amsterdam)	Meter	Aug 4, 2020, 12:11:27 PM
17M2		234		Greenwich Mean Time (Etc/GMT)	Centimeter	Jun 3, 2021, 1:24:59 AM

Configuring a Destination

1. Create a new destination and fill in the properties.

Name	Enter a name
Type	Choose "HTTP"

URL	Enter any string starting with http:// or https://. The field will not be used for the IoT integration, but is a mandatory property for the destination.
Proxy Type	Choose "Internet"
Authentication	Choose "BasicAuthentication"
User	uaa - clientid (*)
Password	uaa - clientsecret(*)

***Note:** You can find the 4 values related to "uaa" in the service-key information of the IoT service of the SAP IoT tenant below.:

```

"uaa": {
  "clientid": "sb-70205719-8de5-4f47-b785-be252bdb19ec!b85826|iotae_service!b5",
  "clientsecret": "Qx0WpVeB7f0l05HQLxoxPj07QCE=",
  "url": "https://iot-integration.authentication.eu10.hana.ondemand.com",
  "identityzone": "iot-integration",
  "identityzoneid": "edc1100d-5fa6-4f82-91e6-c7798bd4db43",
  "tenantid": "edc1100d-5fa6-4f82-91e6-c7798bd4db43",
  "tenantmode": "dedicated",
  "sbaseUrl": "https://internal-xsuaa.authentication.eu10.hana.ondemand.com",
  "apiurl": "https://api.authentication.eu10.hana.ondemand.com",
  "verificationkey": "-----BEGIN PUBLIC KEY-----MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEApDTP+qFTfwXCWuFBI
  "xsappname": "70205719-8de5-4f47-b785-be252bdb19ec!b85826|iotae_service!b5",
  "subaccountid": "edc1100d-5fa6-4f82-91e6-c7798bd4db43",
  "uaadomain": "authentication.eu10.hana.ondemand.com",
  "zoneid": "edc1100d-5fa6-4f82-91e6-c7798bd4db43"
}

```

For more information, see [Retrieving ClientID and Client Secret.](#)

2. Add the following additional properties.

Property	Value/Description
tenantId	uaa – tenantid (*)
thingsPropertyUrl	<p>Fill in the URL to call the thing properties of multiple things. This URL consists of two parts, the server part and the request part.</p> <ol style="list-style-type: none"> For the server part, choose the value "appiot-composite-things" from the service-key of the IoT service instance, for example https://appiot-composite-things.cfapps.eu10.hana.ondemand.com For the request part, copy the full name of the package that you created in step 4.1 (for example <code>iot.mysapiot.com.sap.wi</code>) and place it into the following string: <code>/Composite/Things/PropertySet/<package_name>:WarehouseObjectProperty/WarehouseObjectProperty</code> <p>Put the URL together by putting the request part after the server part. The URL will look like this: https://appiot-composite-things.cfapps.eu10.hana.ondemand.com/Composite/Things/PropertySet/iot.mysapiot.com.sap.wi:WarehouseObjectProperty/WarehouseObjectProperty</p>

uaaUrl	url (*)
iotService	SAP_IOT

For more information, see [Read Things for Property Set of a Property Set Type](#).

3. Your destination configuration should look like this:

Destination Configuration

Name: *	<input type="text" value="sap-iot"/>	Additional Properties
Type:	<input type="text" value="HTTP"/>	iotService
Description:	<input type="text"/>	SAP_IOT
URL: *	<input type="text" value="http://iot.com"/>	tenantId
Proxy Type:	<input type="text" value="Internet"/>	edc1100d-5fa6-4f82-....
Authentication:	<input type="text" value="BasicAuthentication"/>	thingsPrope...
User: *	<input type="text" value="sb-70205719-8de5-4f47-b785-be252bd..."/>	https://applot-compo...
Password:	<input type="password" value="*****"/>	uaaUrl
		https://iot-integration...

Requesting Integration with SAP IoT in ServiceNow

Before the SAP IoT service can transfer data to SAP Warehouse Insights, you have to create a case in ServiceNow to request the integration with SAP IoT. The SAP Warehouse Insights operations team will then perform the required additional steps.

1. Open your SAP IoT subaccount in the SAP BTP cockpit.
Copy the following information:

Subaccount Details:	Subaccount ID Subdomain
Cloud Foundry:	Org Name Org ID

Home [Europe (Rot)] / EWM [REDACTED] / OT [REDACTED]

Subaccount: US20_IOT - Overview

[Delete Subaccount](#)

Subaccount Details

Subaccount ID: a0b[REDACTED]
8b697b574435

Tenant ID: a0b[REDACTED]
8b697b574435

Subdomain: iot[REDACTED]

Cloud Foundry

Org Name: EWM_[REDACTED]

API Endpoint: <https://api.cf.us20.hana.ondemand.com>

Org ID: c32c22[REDACTED]la177122cf

2. Create a case in ServiceNow.

Component: SCM-WI-OPS

Example description:

Request to set up the integration from the SAP IoT tenant for SAP Warehouse Insights. The SAP IoT tenant information is as follows:

Landscape	“eu10” or “us20”, for example
Subaccount ID	enter the value you copied in the previous step
Subdomain	enter the value you copied in the previous step
Org Name	enter the value you copied in the previous step
Org ID	enter the value you copied in the previous step

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