PUBLIC

Recommended Settings for the Integration with IoT Platform from Alibaba Cloud

SAP Warehouse Insights

THE BEST RUN SAP

DOCUMENT HISTORY

Document Version	Description
1.0	First official release of this guide

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BUSINESS SCENARIO

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

For more detailed information about setting up and using IoT Platform from Alibaba Cloud, see IoT Platform.

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 the real-time location 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

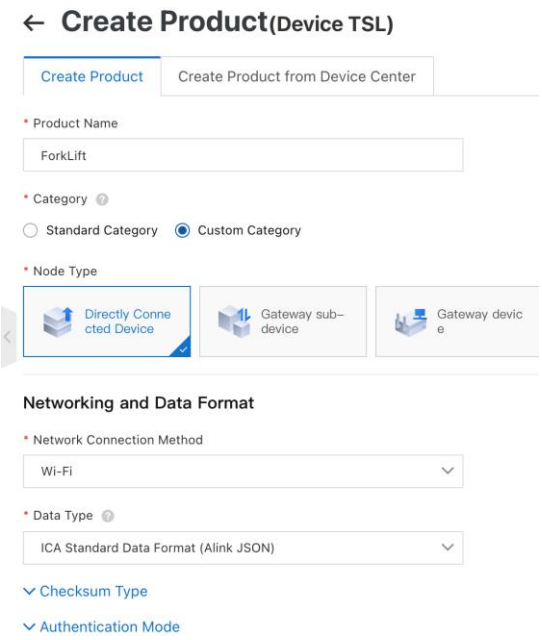
You have set up an Alibaba Cloud IoT instance.

RECOMMENDED SETTINGS

Setting up IoT Platform from Alibaba Cloud

1. Define a Product under *Devices -> Products*.
   1.1. Create a product.

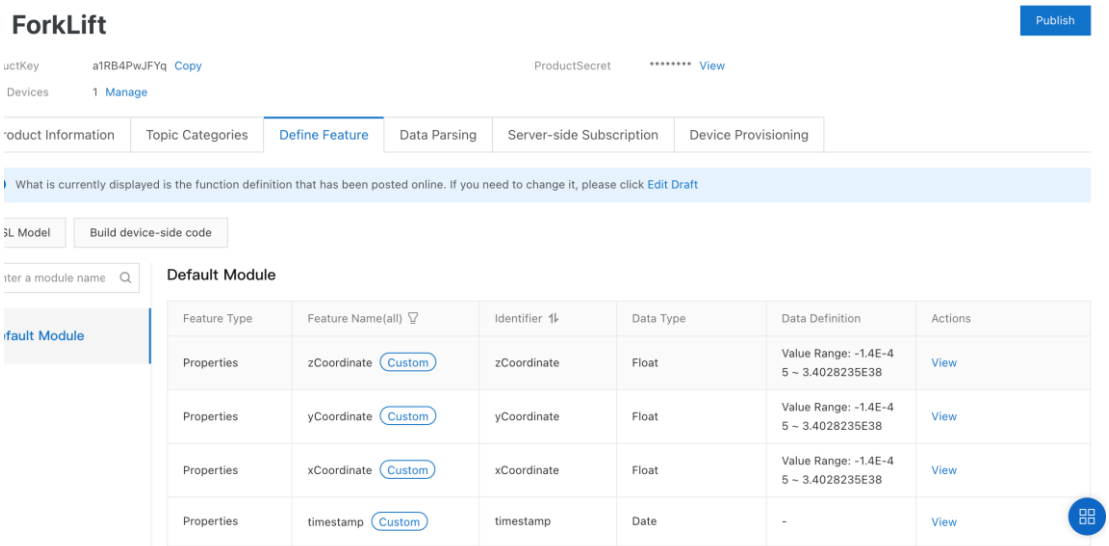
        To create a product, enter a name in the *Product Name* field. For *Category*, choose *Custom Category*.



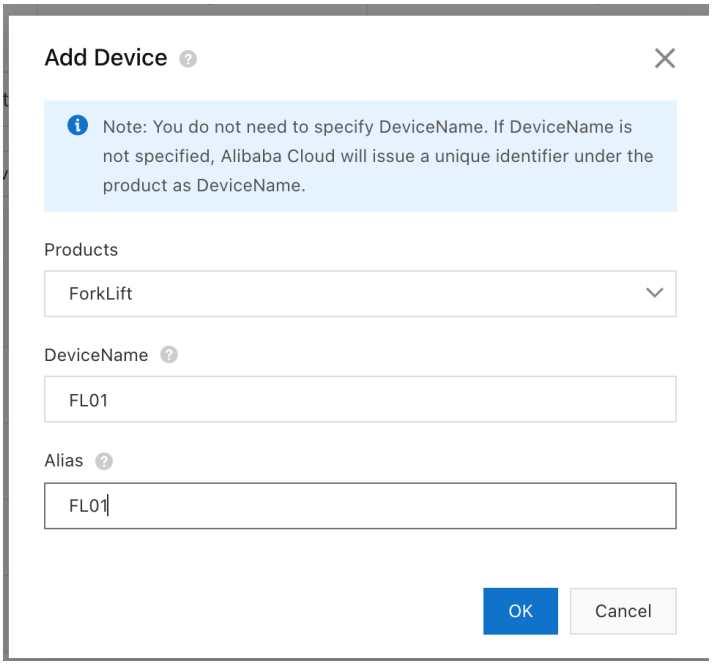
1.2. Define features for the product.

Add the following four properties exactly as indicated below:

Name	Data Type
xCoordinate	Float
yCoordinate	Float
zCoordinate	Float
timestamp	Date



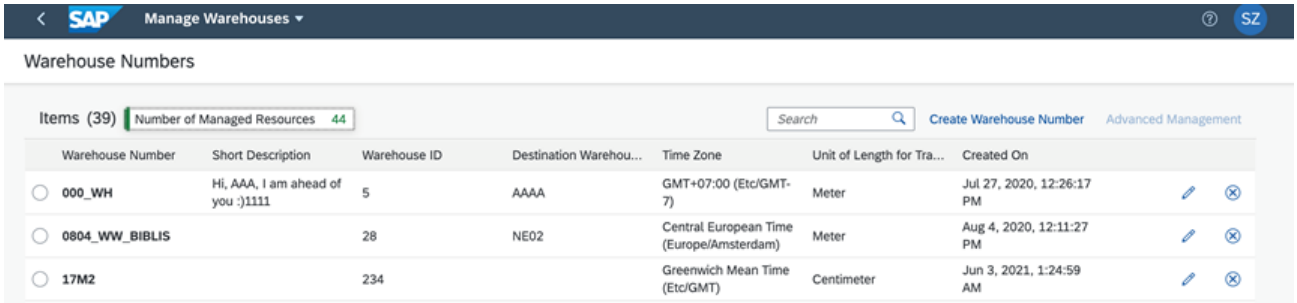
2. Define a device under *Devices -> Devices*.
   2.1. Add a device for the product that you defined.

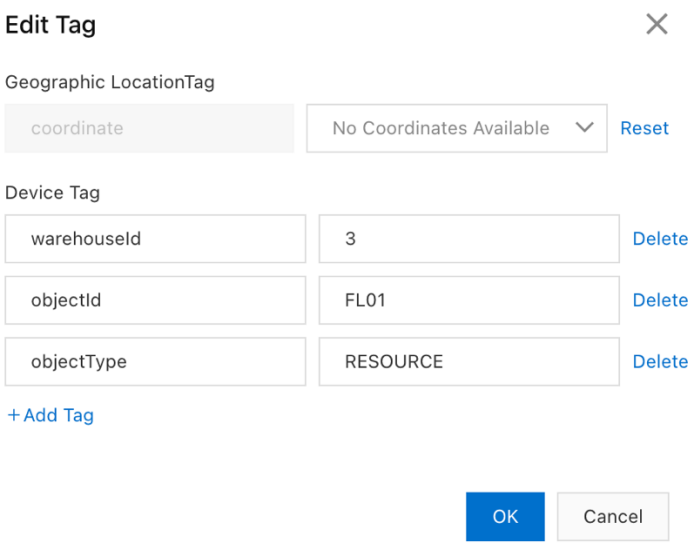


   2.2. Define device tags for each device.

Enter the following values for the 3 required tags:

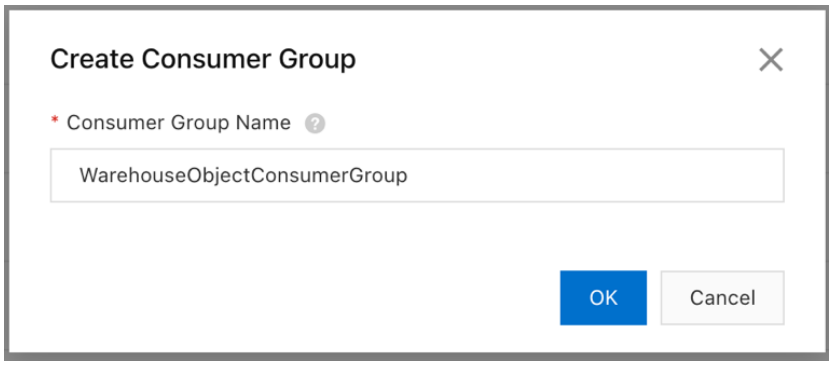
- objectType: “RESOURCE”
- objectID: Resource ID from EWM
- warehouseId: you can find the warehouse ID in the *Warehouse Numbers* table in *Configure Your Solution -> Manage Warehouses*





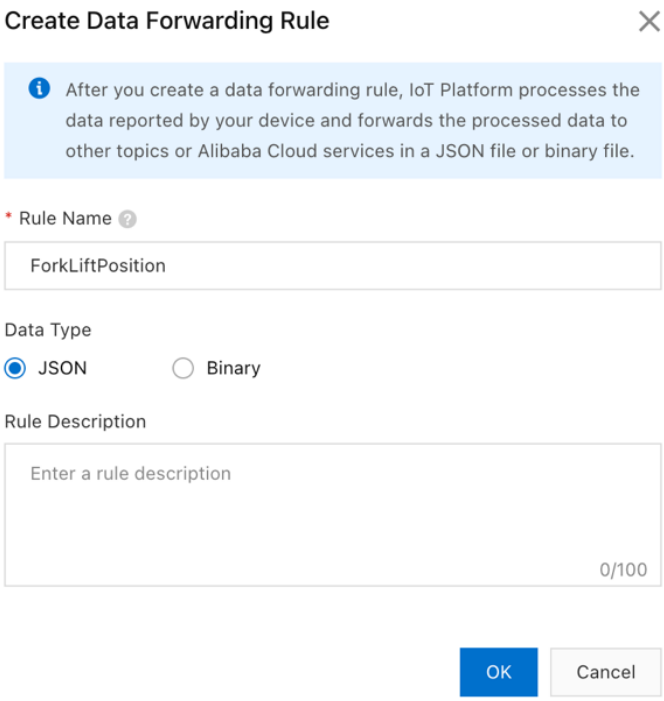
3. Define a Data Forwarding Rule under *Rules -> Data Forwarding*.

3.1. Create a consumer group by entering a name.

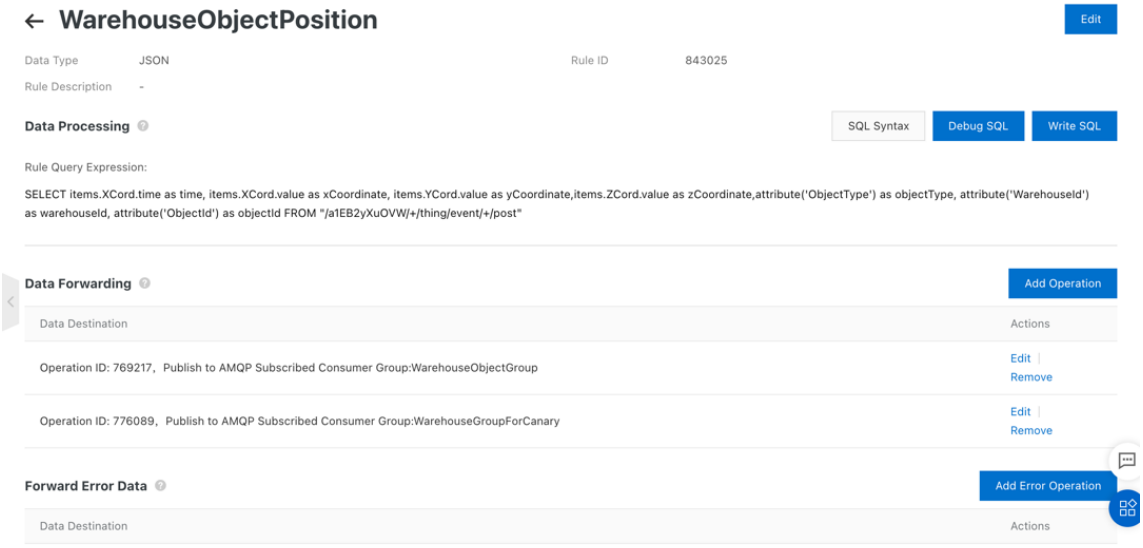


3.2. Define a data forwarding rule.

3.2.1. Go to *Rules -> Data Forwarding* and choose *Create Rule*. Enter a *Rule Name* and choose *JSON* under *Data Type*.



3.2.2 Define details in the data forwarding rule.



3.2.2.1 Choose *Write SQL*.

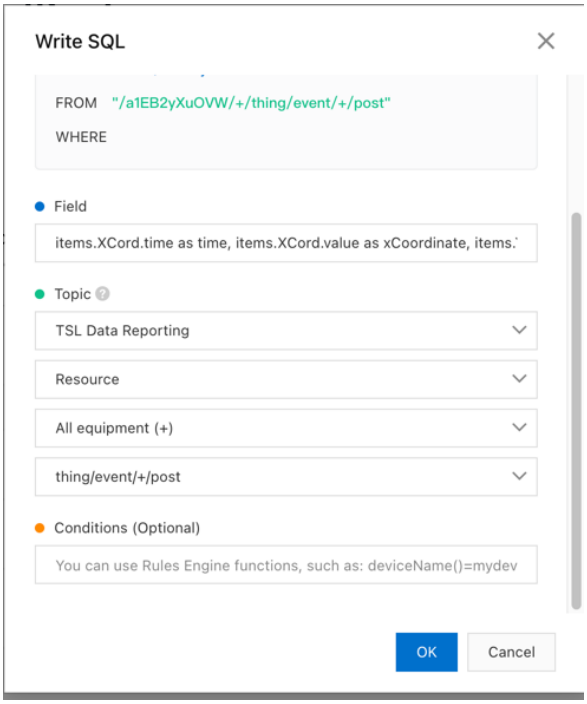
For *Field*, enter the following:

```
items.timestamp.value as time,
items.xCoordinate.value as xCoordinate,
items.yCoordinate.value as yCoordinate,
```

items.zCoordinate.value as zCoordinate,
attribute('objectType') as objectType,
attribute('warehouseId') as warehouseId,
attribute('objectId') as objectId

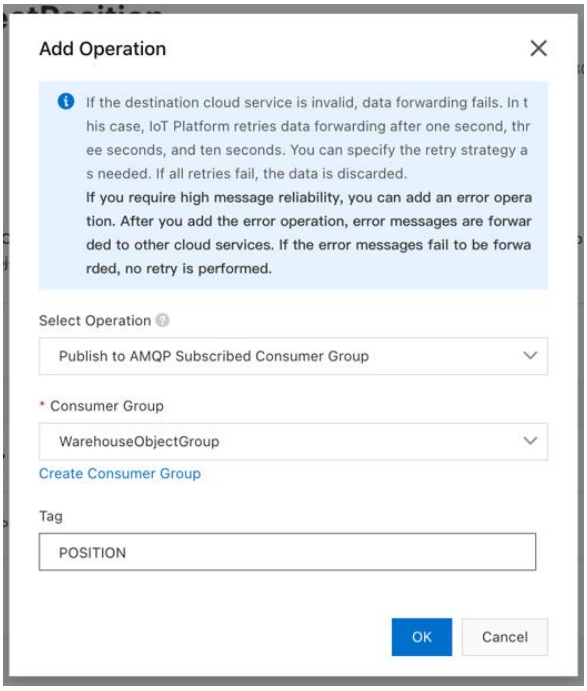
In the drop-down lists for *Topic*, choose the following values one by one:

TSL Data Reporting
The Product Name (defined in Step 1.1)
All equipment(+)
thing/event/+/post



3.2.2.2 Choose *Add Operation*.

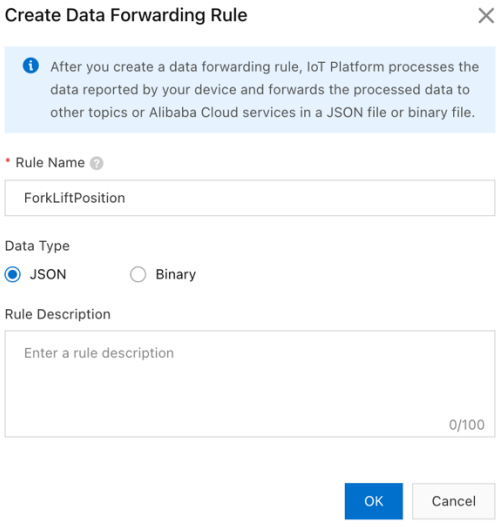
- For *Select Operation*, choose *Publish to AMQP Subscribed Consumer Group*.
- For *Consumer Group*, choose the consumer group that you created in step 3.1.
- For *Tag*, enter "*POSITION*".



3.3. Define a data forwarding rule for status messages.

3.3.1. Create a data forwarding rule for status messages.

Go to *Rules -> Data Forwarding* and choose *Create Role*.
Enter a *Rule Name* and choose *JSON* under *Data Type*.



3.3.2 Define details in the data forwarding rule.

3.3.2.1 Choose *Write SQL*.

For *Field*, enter the following:

```
utcLastTime as time,
status,
attribute('objectType') as objectType,
```

attribute('warehouseId') as warehouseId,
attribute('objectId') as objectId

In the drop-down lists for *Topic*, choose the following:

Device Status Change Notification
The Product Name (defined in Step 1.1)
All equipment(+)

3.3.2.2 Choose *Add Operation*.

- For *Select Operation*, choose *Publish to AMQP Subscribed Consumer Group.*
- For *Consumer Group*, choose the consumer group that you created in step 3.1.
- For *Tag*, enter “STATUS”.

For more information, see the help page of Alibaba Cloud on https://www.alibabacloud.com/help/doc-detail/68677.htm

Destination Settings in SAP BTP

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 it is a mandatory property for the destination.
Proxy Type	Choose “Internet”
Authentication	Choose “BasicAuthentication”
User	Enter the accessKey (*)
Password	Enter the accessSecret (*)

*Note: For the properties marked with (*), see Connect an AMQP client to IoT Platform from Alibaba Cloud.

2. Add the following additional properties.

Property	Value/Description
consumerGroupId	Enter the consumerGroupId (*)
iotHost	Enter the host (*)
iotInstanceId	Enter the iotInstanceId (*). (Only necessary when you use a purchased instance.)

iotService	Enter “ALI_IOT“

*Note: For the properties marked with (*), see Connect an AMQP client to IoT Platform from Alibaba Cloud.

Your destination configuration should look like this:

Message Format Definition

The format of the messages sent to SAP Warehouse Insights is JSON.

1. Position
   Enter the following for the position messages:

```
{
  "time": 1621410553378,     //UTC
  "xCoordinate": 3.5,
  "yCoordinate": 4.5,
  "zCoordinate": 5.5,
  "warehouseId":"WH01",
  "objectType": “RESOURCE”,
  "objectId":"RSRC01"
}
```

Property Name	Type	Description	Sample value
time	Long	The time that the device sends out the data (in Unix time, represented as milliseconds since January 1, 1970)	1621410553378
xCoordinate	Float	The value of the x-coordinate of the device	
yCoordinate	Float	The value of the y-coordinate of the device	
zCoordinate	Float	The value of the z-coordinate of the device	

warehouseId	String	The warehouseId in SAP Warehouse Insights (See “Configure Your Solution” -> “Manage Warehouses” -> “Warehouse Number” table)	1
objectType	String	The object type	RESOURCE
objectId	String	The resource ID in EWM	RSRC01

2. Status
   Enter the following for the status messages:

```
{
  "time": "2018-08-31T07:32:28.195Z",   //UTC
  "status": "online" or “offline”,
  "warehouseNumber":"WH01",
  "objectType": “RESOURCE”,
  "objectId":"RSRC01"
}
```

Property Name	**Type**	**Description**	**Sample value**
time	String	The time that the device sends out the data (in ISO-8601 format)	"2018-08-31T07:32:28.195Z"
status	String	The device status	“online” or “offline”
warehouseId	String	The warehouse ID in SAP Warehouse Insights (See “Configure Your Solution” -> “Manage Warehouses” -> “Warehouse Number” table)	1
objectType	String	The object type	RESOURCE
objectId	String	The resource ID in EWM	RSRC01

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