



Integration Guide | PUBLIC

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Integrating Plant Data

Integrating SAP IBP for Supply Chain 2402 with SAP S/4HANA Cloud Using SAP Cloud Integration

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Document History

The following table provides an overview of the most important changes.

Version	Date	Description
1.0	2024-02-16	Initial version

1 Introduction

Using the integration flow, you can integrate data from SAP S/4HANA Cloud, as part of the solution SAP S/4HANA Cloud Public Edition to SAP Integrated Business Planning for Supply Chain (SAP IBP). Using this data, you can perform demand forecasting in SAP IBP, then integrate the results back to SAP S/4HANA Cloud as planned independent requirements.

Data integration between SAP IBP and SAP S/4HANA Cloud using the integration flows in the *SAP IBP - Integration with SAP S/4HANA Cloud* package is available with SAP IBP 2402 and higher.

Using the *Integrate Plants from SAP S4HANA Cloud to SAP IBP* integration flow, you can integrate plant data from SAP S/4HANA Cloud to SAP IBP. Plant data is collected using an OData API. For more information about the API, see the API reference at the SAP Business Accelerator Hub at https://api.sap.com/cdsviews/_PLANT.

2 Prerequisites

We recommend that you have configured frequently used parameters using the *Define Default Values for Data Integration Between SAP IBP and SAP S4HANA Cloud* integration flow.

3 Configuring the Integration Flow

3.1 Configuring the Authentication

The integration flow connects to both the SAP S/4HANA Cloud and the SAP IBP system. Connections, including the authentication method, must be created and configured at different places depending on the respective system. Once the connections are created for both directions, you need to configure them in the integration flow under ► [Configure](#) ► [Receiver](#) ►.

Authentication Methods for the Connection to SAP IBP

You can only choose basic authentication when connecting to SAP IBP. You can configure the authentication method during the configuration of the destination. You can set the name of the destination using the `Destination for SAP IBP` parameter of the integration flow.

For more information, see [Setting Up the Integration](#).

Authentication Methods for the Connection to SAP S/4HANA Cloud

The following authentication methods are available when connecting to SAP S/4HANA Cloud:

- Basic authentication
- Client certificate (X.509 certificate)

You can select the authentication method in the integration flow under ► [Configure](#) ► [Receiver](#) ► [Authentication](#) ►. Although there are more options displayed in the list, only basic authentication and client certificate authentication are supported.

The default authentication method is client certificate.

Setting Up the Client Certificate Authentication Method

As a prerequisite of using a client certificate, add and deploy the required key pair to the keystore. You can do so in SAP Integration Suite using the [Keystore](#) tile in the [Manage Security](#) section under [Monitoring Artifacts](#). For more information, see <https://help.sap.com/docs/cloud-integration/sap-cloud-integration/managing-keystore-entries>.

If you select authentication using a client certificate when configuring the integration flow, you need to enter the private key alias.

Setting Up the Basic Authentication Method

As a prerequisite of using basic authentication, create and deploy the user credentials type of security material. You can do so in SAP Integration Suite using the [Security Material](#) tile in the [Manage Security](#) section under [Monitoring Artifacts](#). For more information, see <https://help.sap.com/docs/cloud-integration/sap-cloud-integration/managing-security-material>.

If you select basic authentication when configuring the integration flow, you need to enter the credential name.

3.2 Data Mapping

The following default data mapping is available in the integration flow:

Property in OData Entity	Field in SAP IBP	Further Hints
Plant	LOCID	
P	LOCTYPE	The property in the OData entity is fixed as P.
PlantName	LOCDESCR	The property is available from the <code>Product</code> entity through the ▶ ProductDescription ▶ ProductDescription_Type ▶ ProductDescription navigation.

3.3 Defining Additional Parameters

Under [▶ Configure](#) [▶ More](#) [▶](#), you can find the following parameters that you can use to configure the integration flow:

Parameter Name	Default Value	How to Configure the Parameter?
Attributes in SAP IBP	LOCID, LOCIDDISPLAY, LOCTYPE, LOCDESCR, LOCREGION	Define the fields of the <code>Location</code> master data in SAP IBP into which you want to integrate data.
Batch Name	Plant: \${header.SAP_MplCorrelationId}	Define the name of the data batch. This name also identifies the upload job in the Data Integration Jobs app.
Destination for SAP IBP	-keep default-	Enter the name of the target SAP IBP system into which you want to integrate plant data.

Parameter Name	Default Value	How to Configure the Parameter?
Field Extensions		Optionally, you can define complex mappings for certain columns. For more information, see Working with Field Extensions [page 8] .
Host for SAP S/4HANA Cloud	-keep default-	Define the base URL of the SAP S/4HANA Cloud API
Master Data Prefix	-keep default-	Optionally, define a three-character-long prefix to be used in SAP IBP.
Planning Area	-keep default-	Define the planning area in SAP IBP to which you want data to be integrated.
Planning Area Version	-keep default-	Define the version of the target planning area in SAP IBP.
Plant Filter	-keep default-	Optionally, define filtering for plant data.

To use the values defined in the [Define Default Values for Data Integration Between SAP IBP and SAP S4HANA Cloud](#) integration flow, use the `-keep default-` value for the relevant parameters. This is also the default value of all parameters for which you can maintain a reusable default value in the [Define Default Values for Data Integration Between SAP IBP and SAP S4HANA Cloud](#) integration flow.

3.4 Working with Field Extensions

With field extensions, you can specify additional attributes to integrate data from and change data mapping.

In general, the required syntax of the value of the `Field Extensions` parameter is the following:

Sample Code

```
<FIELDNAME value = 'DESIRED VALUE' skip="DESIRED VALUE" nil = "DESIRED VALUE" >
```

Note

The `FIELDNAME` must be a field that is listed in the `Attributes in SAP IBP` parameter.

The `DESIRED VALUE` can be defined as a constant value, such as `"0"` or `"TEXT"`. If you use a constant value, all the rows are filled with this value for the given field. The entered values of `skip` and `nil` are evaluated as either true or false. The value entered after `skip` is skipped, and the value entered after `nil` is nullified. Note that using the `skip` and `nil` parameters is optional, and that instead of skipping a constant value, you can skip mapping itself.

You can also define the `DESIRED VALUE` as a function mixed with an XPath expression. This way, you can select specific values from the data set or define a logic using exact values.

❁ Example

Using the following code, you can define `CUSTOMFIELD` to be `CustomfieldXXX` where `XXX` is the ID of the corresponding row in the data set:

```
<CUSTOMFIELD value = "concat('Customfield',./ID)">
```

❁ Example

Using the following code, you can skip the field for a certain ID value:

```
<CUSTOMFIELD value = "./DESIRED4FIELD" skip = "ID='ID value'">
```

You can define an evaluation like the above for any of the fields and with different logical functions. Operations such as `FIELD != ''` also work.

📌 Note

The value of the `DESIRED4FIELD` can be any of the fields that are requested from SAP S/4HANA Cloud. In the CDS view, you can check which fields are included in the request. You cannot extend the list of the fields in the request, however, you can cycle through the values of the data set using an XPath expression.

In general, the data structure of an XPath expression looks as follows:

↗ Sample Code

```
<item>
  <field1>value1a</field1>
  <field2>value1b</field2>
</item>
<item>
  <field1>value2a</field1>
  <field2>value2b</field2>
</item>
...
```

Based on the above sample, to select `value1a` and `value2a`, use `./field1`, and to select `value1b` and `value2b`, use `./field2`.

Note that the structure of the data can be different at this stage, therefore, it is recommended to always check the structure of the data set before executing the XPath selection.

📌 Note

Although the integration flow validates the syntax of the field extension XML, you need to make sure that its content is defined according to your business needs.

Extending Plant Data

❁ Example

↔ Sample Code

```
<LOCIDDISPLAY  
value="concat('Plant: ',Plant)" skip="not(Plant=('1020','1000','1010'))"  
nil="Plant='1010'"/>  
<LOCBUPAID  
value="concat('BuPa of plant ',./Plant)"/>  
<LOCREGION value="if(./Plant='1010')then concat('region of ',./Plant)  
else 'other region'"/>
```

The above code makes the following modifications:

- Excludes plants with the IDs 1020, 1000, and 1010 from the integration.
- If the plant ID is 1010, it is replaced with null.
- If the location business partner ID (LOCBUPAID) becomes BuPa of plant <plant ID>.
- The region of the plant with the ID 1010 becomes region of 1010, while the region values of all other plants become other region.

In this case, the following output is generated based on the parameter value:

```
<LOCID>1000</LOCID>  
<LOCIDDISPLAY>Plant: 1000</LOCIDDISPLAY>  
<LOCBUPAID>BuPa of Plant 1000</LOCBUDPAID>  
<LOCREGION>other region</LOCREGION>  
<LOCID>1010</LOCID>  
<LOCIDDISPLAY></LOCIDDISPLAY>  
<LOCBUPAID>BuPa of Plant 1010</LOCBUDPAID>  
<LOCREGION>region of 1010</LOCREGION>  
<LOCID>1020</LOCID>  
<LOCIDDISPLAY>Plant: 1020</LOCIDDISPLAY>  
<LOCBUPAID>BuPa of Plant 1020</LOCBUDPAID>  
<LOCREGION>other region</LOCREGION>  
<LOCID>1030</LOCID>  
<LOCBUPAID>BuPa of Plant 1030</LOCBUDPAID>  
<LOCREGION>other region</LOCREGION>
```

3.5 Scheduling the Integration Flow

You can schedule the execution of the integration flow under [Configure > Timer](#).

By default, the start of the integration is scheduled for 2100-01-01 to prevent unnecessary integration jobs during the initial deployment. After you've finalized the configuration of the integration flow, you can manually set the timer according to your needs.

You can select *Run Once* to start integration directly. You can also schedule the job for a future date or make it recurring. For more information about scheduling, see <https://help.sap.com/docs/cloud-integration/sap-cloud-integration/define-timer-start-event>.

4 Troubleshooting

The following examples of errors and their possible solutions might help you troubleshoot your integration process:

- **Integration fails after succesful batch creation**

↔ Output Code

```
org.apache.camel.RuntimeCamelException:
com.sap.gateway.core.ip.component.exceptions.OData4Exception: <base
URL>/sap/opu/odata4/sap/cdi_cds/cdi_cds/sap/i_plant/0001/, cause:
java.net.SocketTimeoutException: Read timed out (local port <port number>
to address <IP address> (<GUID>), remote port <port number> to address <IP
address>)
```

To resolve this issue, try again later or check your SAP S/4HANA system for issues.

- **The certificate in use has expired**

↔ Output Code

```
org.apache.camel.RuntimeCamelException:
com.sap.gateway.core.ip.component.exceptions.OData4Exception: Received
fatal alert: certificate_expired, cause:
javax.net.ssl.SSLHandshakeException: Received fatal alert:
certificate_expired
```

To resolve this issue, renew the certificate.

- **Fields are missing from the Attributes in SAP IBP parameter which are included in the Field Extensions parameter**

↔ Output Code

```
javax.script.ScriptException: java.lang.Exception: java.lang.Exception:
Fields are missing from the Attributes in SAP IBP parameter which
are included in the Field Extensions parameter. Missing fields:
[GEOLONGITUDE]@ line 56 in Validations.groovy, cause: java.lang.Exception:
Fields are missing from the Attributes in SAP IBP parameter which are
included in the Field Extensions parameter. Missing fields: [GEOLONGITUDE]
```



To resolve the issue, align the value of the Attributes in SAP IBP parameter with the mapping defined in the Field Extensions parameter.

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