Attributes

Planon Software Suite

Version: L105

Planon
Building Connections

About this Document

Intended Audience

This document is intended for *Planon Software Suite* users.

Contacting us

If you have any comments or questions regarding this document, please send them to: support@planonsoftware.com.

Document Conventions

Bold
Names of menus, options, tabs, fields and buttons are displayed in bold type.

Italic text
Application names are displayed in italics.

CAPITALS
Names of keys are displayed in upper case.

Special symbols

	Text preceded by this symbol references additional information or a tip.
	Text preceded by this symbol is intended to alert users about consequences if they carry out a particular action in Planon.

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Purpose

Customers may have a vast range of different assets, from air conditioning units to chairs. These assets have distinctive characteristics that you can capture and extend by using attributes. You can manage attributes without requiring extensive configuration.

Requirements

Because this functionality requires advanced database features, you need to comply with the following requirements:

- Your database must match either of the following versions (or later):
  - MSSQL 2016
  - Oracle 12.1.0.2
- You must purchase a license for the use of Attributes. The type of license determines what volume of attributes you can use. You you can either purchase a license for unlimited use or a limited volume license.

  For assets, you need an unlimited license (solution license G00124).

  For other functionality (Fleet management, ...), you need a limited license (volume license G00125).
- In **Improved Features**, you must activate the 'Enable advanced database features for Attributes' feature switch.

Attributes or free fields?

Attributes are meant to be used by customers who need to maintain many types of assets. But why not simply use free fields?

By using attributes, customers can configure the information they need to store without having to maintain a great number of user-defined business objects (including layouts and configuring fields).

Use attributes if...	Use free fields if ...
The information is static.	The information can be dynamic (changes). You want to use a field type to refer to other fields (reference fields). You need to apply authorization, status transitions, business rules on the field.

Concepts

Attributes features the following concepts:

- Attribute
- Attribute set
- Attribute definition

Attributes' functionality is supported on a number of components on Planon Self-Service (forms):
- Details block
- Info block
- Row expander

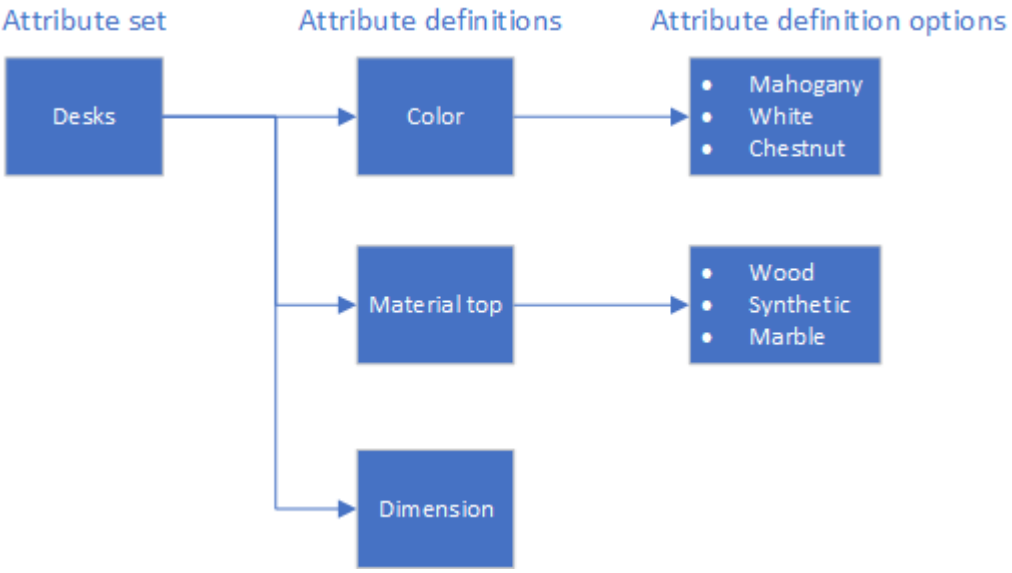
Attribute

An attribute specifies any kind of data that a customer needs to register for an item that is maintained in Planon. This could be a physical property (such as a color or a dimension), or metadata (such as an item's service date).

In Planon, attributes are free-definable and are available to assets and building elements. In order to use attributes, you must specify an attribute structure composed of:

- Attribute sets
- Attribute definitions
- Attribute definition options (only for an attribute definition of type **Drop-down**)

Graphically, this hierarchical structure can be represented as follows:



- An attribute set can include as many as 100 attributes.
- A single select attribute can have as many as 500 options.

Restrictions

The following restrictions apply:

- Multiline text definitions cannot exceed 2000 characters (allowed: 100-2000).

You can specify the number of characters in the field: multiline/single line definitions > **Maximum length**. Make sure this field is added to the layout.

- Single line text definition cannot exceed 250 characters (allowed: 1-250).

You can specify the number of characters in the field: multiline/single line definitions > **Maximum length**. Make sure this field is added to the layout.

- You can increase but not decrease the value if the definition in use.
- The total set of attribute definitions cannot exceed 7500 bytes.

Attribute set

Attribute sets are 'umbrella' components that group attributes, for example for a certain type of asset.

You can attach a maximum of 3 attribute sets to assets / standard assets.

If you decide that is necessary to attach more than 1 attribute set to an asset, it is mandatory to configure and link *user-defined* attribute sets. See Creating a user-defined attribute set and its subtopics in the WebHelp for configuration information. When your organization uses attribute sets for very *diverse* purposes, an additional advantage of

user-defined attribute sets is that these provide a functional split between all the types of attributes sets used in your configuration.

Also see Configuring attributes, Attaching / detaching attributes to assets.

Currently, the use of attribute sets is limited to the **Base assets** and **Decision rules** business objects.

Attribute definition

An attribute definition specifies an attribute. Attribute definitions can be one of multiple types:

- Time
- Single-line text
- Multiline text

Due to reasons of performance, you can only add a maximum of three attribute definitions of type **Multiline text** per attribute set.

- Decimal
- Date-time
- Date
- Drop-down
- Integer

You can link an attribute definition to multiple attribute sets.

Working with Attributes

Here you can find information on how to configure and use attributes.

Configuring attributes

Before you can add attributes to your assets and building elements, you need to configure a structure of attribute sets and attribute definitions in Planon.

1. On the Attribute sets level, click Add and fill out the Code and Name in the data panel.

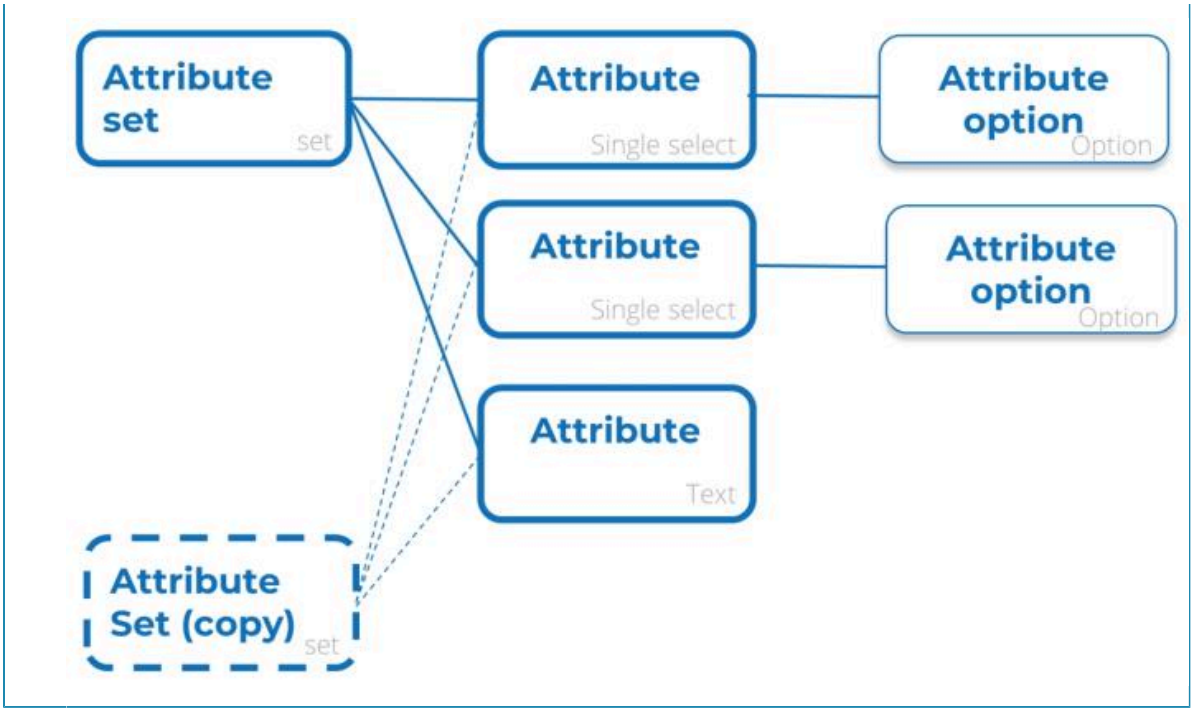
For all three business objects (attribute set, attribute definitions, attribute options), the **Code** field can only contain the characters a-z (case-insensitive) and 0-9 and cannot start with a digit.

2. Go to the Attribute definitions level and click Add to add an attribute definition.
3. On the action panel, link attribute definitions to attribute sets, or vice versa.

   On the Attribute sets level, the specifics of the linked attribute definition are displayed. On the Attribute definitions level, the linked attribute sets are displayed.

- You can use the **Show unlinked attribute definitions** button on the **Attribute definitions** level, to check for attribute definitions that are not yet linked to an attribute set.

- Attribute definitions that are already in use and have data attached can be unlinked from the attribute set, or deleted. The system will check if the attribute definition has data for any of the business objects for which it is configured. If so, a warning message is displayed. If you confirm that you want to proceed with deleting / unlinking, the attribute will be removed from all business objects for which it was used.
- By clicking **Copy** on the **Attribute sets** level, you can (deep) copy attribute sets. If you do, you must specify a new unique code for the copy. The copied attribute set is initially linked to the same definitions & options as its source, but you can edit the links as required:



Attribute options

When adding a drop-down attribute definition, you can further specify its options.

1. On the Attribute definitions level, create a new attribute definition of type Drop-down.
2. Select the newly created attribute definition and go to the Attribute definition options level.
3. Add the options you require for this attribute definition and click Save.
   - If you select two attribute definitions at once, then go to **Attribute definition options** and proceed to add options, you must select the definition for which you are adding options.
   - You can add as many as 500 options to your attribute definition.

After specifying your options, you can proceed to attach your attribute definition to an asset or building element. The configured options can then be selected on that asset or building element.

Attaching / detaching attributes to assets

After configuring the attribute set, you can continue to link these to assets or building elements. You can also unlink attribute sets.

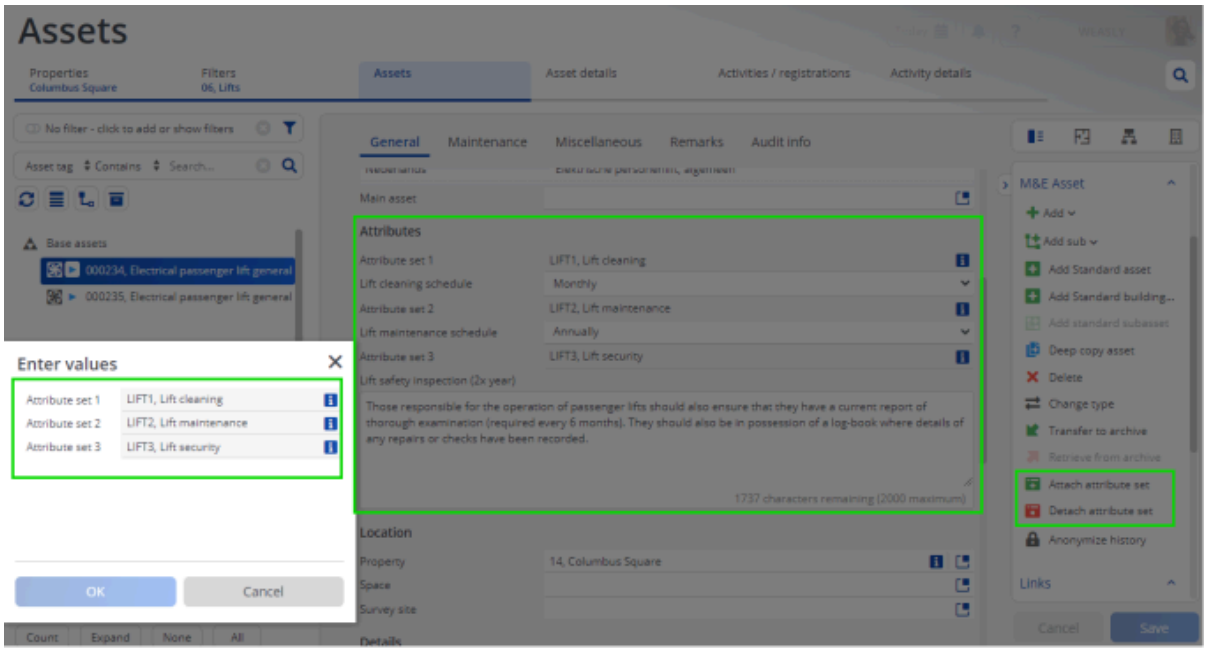
In Assets , you can link an attribute set to building elements or to assets.

1. Select the asset/building element to which you want to link attributes and click Attach attribute set on the action panel.

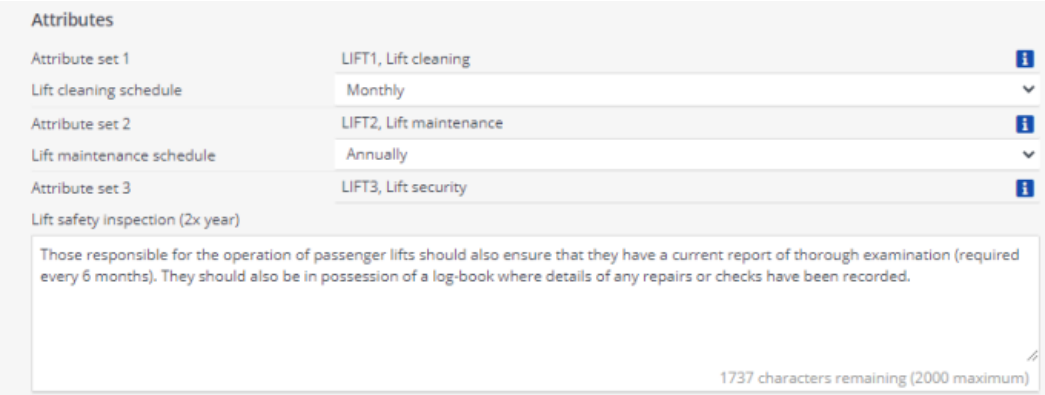
You can link a maximum of three attribute sets to (standard) assets / building elements.

If you decide that is necessary to attach more than 1 attribute set to an asset, it is mandatory to configure and link *user-defined* attribute sets. See Creating a user-defined attribute set and its subtopics in the WebHelp for configuration information. When your organization uses attribute sets for very *diverse* purposes, an additional advantage of user-defined attribute sets is that these provide a functional split between all the types of attributes sets used in your configuration.

You might have to add the **Attribute set [1-3]** field(s) and **Attribute [1-3]** field(s) to the appropriate BaseAsset layouts in your configuration. In Field definer and Layouts , attributes and attribute sets appear as numbered fields: **Attributes** (1-3) and **Attribute sets** (reference fields, 1-3).



After linking an attribute set, the characteristics specified in the attribute definition are displayed on the elements panel. In this example two drop-down type attribute sets and one multiline type are attached.



To unlink an attribute set, simply click **Detach attribute set** on the action panel.
- If the attributes are still empty, simply **Proceed**.
- If the attributes contain a value, a warning message will appear, prompting you to confirm the change. Click **Proceed**.

2. Click OK to save your changes.

Making attributes standard available

You can make attributes default available to assets or building elements by linking an attribute set to a standard asset or standard building element.

1. Go to Maintenance libraries > Standard assets and click Add > Standard assets / building elements.
2. Create a standard asset / building element and link an attribute set to it.

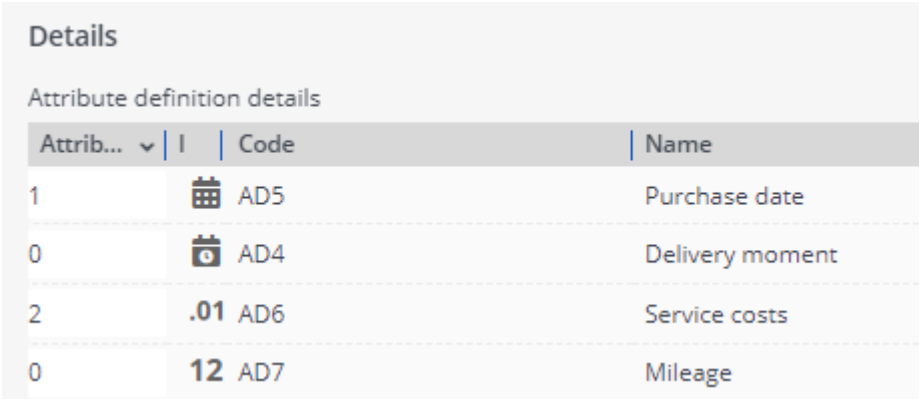
   By doing so, you make the attributes available for whomever creates a new asset based on the standard asset / building element. In Assets, when you click Add standard asset or Add standard building element, these attributes will be displayed.

Sorting attributes

When adding attributes to an attribute set, the default order is the order in which they are added to the set.

On the **Attributes set** level, the **Details** section displays a list with all attributes that are part of the attribute set.

You can determine the sort order of attributes by specifying the order in the first column:



You can change the value of these fields to rearrange the order of the attributes. If the order is changed, the **Cancel** and **Save** buttons become active so that the new order can be canceled or stored and the list will be refreshed to show the new order. When canceled, the original sort order will be restored.

When retrieving attributes, they will be ordered by sequence number and within a sequence alphabetically.

Example

Attribute	Sequence
AD5	1
AD4	
AD6	2
AD7	

The attributes are displayed in the following order:

1. AD5
2. AD6
3. AD4
4. AD7

Business objects

Sorting of attributes is available on the following business objects:

- **Assets**

- **Decision rules**
- **Business events**

User-defined attribute sets

It is possible to create user-defined attribute sets for business objects. This feature provides greater flexibility and allows you to specify up to three attribute sets and their related attributes.

To start off, you must create user-defined attribute sets in **Field definer** .

> You can convert existing attribute sets that are based on system business objects to the new user-defined business object by changing their type - be aware that this is irreversible!

Once configured, you can apply the new attribute sets in **Assets** or in **Decision rules**.

Procedure

In this procedure, **Assets** is used as an example.

1. Go to **Field definer** , select **Base assets**, set it **Under construction** and go to **Details** level > **Fields**.
2. Set the **Attribute set 1-3** field to **In use** and link it to an **Attribute set type**.

   You can do this for all three **Attribute set** fields.
   Once specified for **Base assets**, you can fine-tune this for the user-defined assets. At this point, you can indicate which attribute set applies, but you cannot *change* the attribute set type here.
   You are now ready to use user-defined attribute sets in **Assets** .

> On the elements panel (**Assets**) you can define a user filter to find relevant attribute sets. Keep in mind that - for reasons of performance - you can only filter on fields within a single attribute set.

Creating a user-defined attribute set

Proceed as follows to create a user-defined attribute set.

Procedure

1. Go to **Field definer** and select the **Attributes sets** business object.
2. Set the business object under construction.
3. On the action panel, click **Add user-defined**.
4. Provide a **Name** and **Description** and complete the required fields.

5. Click **Save**.

   You will now be able to fill out a translation at the bottom.

6. Click **Save** again and go to the **Details** level.
7. Specify a user status transition.

> If not available, you must first configure any relevant statuses on the main **Attribute sets** node.

8. On the action panel, click **Add user status transition**.

Make sure to create at least one user transition whose From status is *empty* - this is the initial status. Fill in a To status and click Save.

9. Go back to the **Business objects** level and select **Completed** when you are done.
10. Log off and log on - you can now add user-defined attribute sets and link them to attribute definitions. For more information, see: Attaching / detaching attributes to assets.

Changing the attribute set type

By enabling user-defined attribute sets, you can add and use more attribute sets than before. You can also change the type of system attribute sets to user defined attribute sets.

> Once you have changed the type of an attribute set, you cannot switch back.

Procedure

1. First, you make the action available on the layout. Go to **Layouts** and select **Attribute sets**.
2. Go to **Layouts** level and set the layout **Under construction**.
3. Under **Actions**, add **Change type** to the layout.
4. Save the changes and click **Completed**.
5. Log out and log in to the application.

   The Change type action is now available for use.

6. Go to **Attributes**, select the system attribute set that you want to change and click **Change type** in the action panel.

   The Change type dialog is displayed.

7. Select a new user-defined attribute set and click **OK**.

You can click Change type again, but you cannot revert to a system attribute set.

Reporting on attributes

In **Assets**, you can also create a report on attributes.

You can either create a report on:

- The whole **Attribute** field (see Creating a report on all attributes).
- Individual attribute entries (see Reporting on a single attribute).

Creating a report on all attributes

In **Assets**, you can make a report on all attributes.

Prerequisite

Make sure you have preconfigured a report containing the **Attributes** field.

1. Go to Assets and select a number of assets in the elements list on which you want to create a report.
2. Click Report

   The Reporting window opens.
3. Select the report you configured previously (under Print options, make sure that you select Print only selected elements.
4. Click Preview & print.

   Your report including all attributes is shown on the screen.

Reporting on a single attribute

In **Assets**, you can create a report on a single attribute.

Creating reports including single attributes requires a little bit more configuration.

1. Create a report and add an expression.
2. Add a function. In the Functions list, three new entries are available:
   - attributeDateTime
   - attributeNumber
   - attributeString

   The data type of the attribute included in the report determines which of these functions you must select:
   - attributeDateTime can be used for attributes of the type Date, Time or DateTime.
   - attributeNumber can be used for attributes of the type Integer or Decimal.

- attributeString can be used for attributes of the type Single-line text, Multiline text and drop-down.

  When you add such a function, in the **Expression** panel at the bottom, the function is added including the **Attributes** field.

3. You can then add the individual attributes, for example: attributeString('Base assets'.Attributes, "color")

The code of the attribute is case insensitive (in this example: "color" could be "Color").

4. Save your report and click Preview & print.

   Your report including the individual attribute is shown on the screen. For more information on using expressions, see Reports.

Searching for attributes

In **Assets**, you can create a filter to search for assets with specific attributes.

1. Select a number of assets in the elements list.
2. In the Filter bar, click Add filter.
3. In the filter list, select Attributes.
4. In the other filter fields, select a relevant attribute field, operator and filter value for the search.

You can also use *macros* when setting a filter to search for attributes. This functionality is similar to the macro functionality used in regular fields. You can use the macro feature if you want to filter assets in the **Assets** TSI based on attributes, or if you want to define decision rules in the **Decision rules** TSI based on an asset's attribute criteria.

The Assets elements list is filtered on the selected attribute values.

Transferring data and configuration

When you want to transfer data or configuration from or into Planon, take into account the following remarks.

Enterprise Talk

Data can be exported from or imported into Planon by using Enterprise Talk. For assets and building elements, all attributes are stored in the database in a single JSON string. To import data into this record, the Enterprise Talk definition needs to include the **Attributes** field.

See also:

- Enterprise Talk - Export.
- Enterprise Talk - Import

Configuration Transfer

A new step is introduced in Configuration Transfer called **Attribute sets**. On this step you can select all or a subset of the attribute sets (their linked attribute definitions are automatically included).

For more information, see Enterprise Talk or Configuration Transfer.

Enterprise Talk - Export

This topic lists an excerpt of an export file including attributes.

When you export the **Attributes** field, all values will be exported.

- All data in between the **<Attributes>** tag is interpreted as Attributes data.
- The **<Version>** tag contains the version of the Attributes structure. This number is required to make sure the data within the **<Attributes>** tag is compliant with the implementation.
- The **<AttributeDefinitionSetCode>** tag contains the link to the attribute set.
- The **<Values>** tag contains the individual attributes.
- The **type** property inside the <Values> tag contains the system type of the attribute.

Example

```
<Attributes>
  <Version type="string">1.0.0</Version>
  <AttributeDefinitionSetCode type="string">01</AttributeDefinitionSetCode>
  <Values>
    <serviceDate type="date">2018-03-31</serviceDate>
    <precision type="decimal">1.33</precision>
    <purchaseDateTime type="datetime">2018-03-31T14:59:00+02:00</purchaseDateTime>
    <score type="integer">1</score>
    <alarmTime type="time">13:30:00</alarmTime>
  </Values>
</Attributes>
```

Enterprise Talk - Import

This topic lists an excerpt of an import file including attributes.

- All data in between the **<Attributes>** tag is interpreted as Attributes data.
- The **<Version>** tag contains the version of the Attributes structure. This number is required to make sure the data within the **<Attributes>** tag is compliant with the implementation.
- The **<AttributeDefinitionSetCode>** tag contains the link to the attribute set.
- The **<Values>** tag contains the individual attributes.
- The **type** property inside the <Values> tag contains the system type of the attribute.

Your Enterprise Talk import definition must include the **Attributes** field, as shown in the following example:

Example

```
<Attributes>
  <Version type="string">1.0.0</Version>
  <AttributeDefinitionSetCode type="string">01</AttributeDefinitionSetCode>
  <Values>
    <serviceDate type="date">2018-03-31</serviceDate>
    <precision type="decimal">1.33</precision>
    <purchaseDateTime type="datetime">2018-03-31T14:59:00+02:00</purchaseDateTime>
    <score type="integer">1</score>
    <alarmTime type="time">13:30:00</alarmTime>
  </Values>
</Attributes>
```

The type property is currently not used during import, but might be used in the future for data validation. Currently, you do not need to specify it in the import file.

In the following two cases, an error is displayed:

- If an attribute definition name cannot be found.

- If the combination of attribute definition name / attribute set code cannot be found.

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