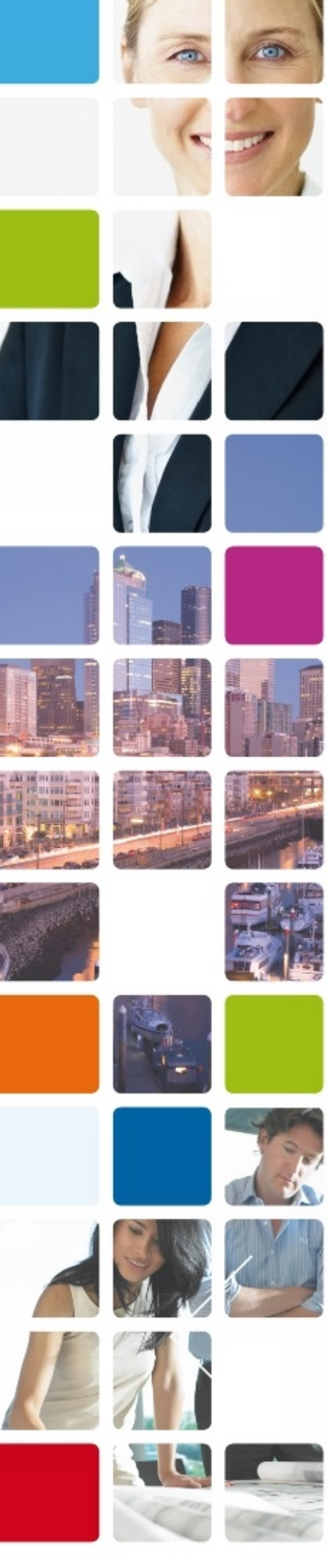

PLANON UNIVERSE

Essentials Edition

Version: 1.0

CAD Import

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About CAD Import

CAD Import in Essentials Edition allows you to import AutoCAD drawing information as well as the drawing data designed using different types of StabiCAD polylines into Essentials Edition .

Using CAD Import, you can:

- Import the drawing data of floors, spaces, assets, persons, 'Rent to', 'Rent from' units and flexible workspaces from either a single or multiple drawings.
- Update drawing data.
- Create .orj files that can be viewed in the CAD Integrator.

For an overview on importing, maintaining and re-importing the updated drawings in Essentials Edition and Connect for AutoCAD, refer to the Roundtrip of AutoCAD drawings part of the document.

Interaction with other TSIs

CAD Import interacts with the following TSIs:

- Spaces & Workspaces
- Technical assets
- Personnel
- Alerts
- System settings

  In Essentials Edition , users can automatically perform actions based on a schedule. You can schedule import actions and inform users via a report sent by mail.

CAD drawing requirements for CAD Import

The specifications in the following sections apply to importing AutoCAD drawings using CAD import.

General

- Planon only supports drawings with a building size less than 3,000 x 3,000 m (~ 10,000 x 10,000 ft). If parts of the drawing are outside of this area, they will be filtered out during CAD import. This is also true for block definitions with an origin outside this area.
- Only drawings saved in compatible AutoCAD versions and in .dwg format can be imported into Planon ProCenter. For information on which AutoCAD versions are supported by which Planon ProCenter version, refer to the Planon Supported Configurations document.
- The versions of Planon ProCenter (CAD Import) and the metadata version of the Connect for AutoCAD plug-in must be compatible in order to work together.
- The AutoCAD drawings should be present on a network share or the WebDAV location that can be addressed by both the server on which Planon ProCenter is located and the server on which the CAD Workbench is located.
- The drawings must contain their information in ***entities***, such as polylines, blocks, block attributes, single/multi line text objects, or Connect for AutoCAD. These entities can exist in multiple layers or be present in drawings attached as Xref.

> Each layer in an AutoCAD drawing can contain entities. Each entity will have impact on the size and complexity of the drawing. With regard to CAD Integrator, the following applies: the less entities, the better it is. A drawing with more than 15,000 entities may lead to serious performance problems and possibly to an unworkable situation in CAD Integrator. Therefore, we recommend to restrict the number of entities to a maximum of 15,000.

- XREF drawings must be located in the same folder or subfolder as the main drawing referring to them. See CAD import XREF support for examples.
- Only data stored in the “Model space layout” can be imported.

> The following layer names are no longer supported:
>
> - PLANON (used by Planon ProCenter Windows Client)
> - Layers starting with: 'Planon mapping.....'

- Entities on frozen layers (which as a result are not visible in AutoCAD) are imported and will be converted into the CAD Integrator drawing (ORJ).
- The drawings must contain information of a single floor of a property.
- A polyline can represent a Space, Floor, or 'Fixed workspace'. It is recommended that you draw closed polylines in a such way that a single polyline is not used in two objects at the same time. For example,

a single polyline should not be used to draw the boundary of both Space-1 and Space-2. Each space should have its own polylines.

- A drawing may only contain one net floor polyline and/or one gross floor polyline. Note: the net polyline should always fall within or coincide with the gross polyline. For non-StabiCAD drawings these floor polylines should be on different layers as well.
- It is not recommended to import old drawings while more recent drawings have already been imported as this may, in some cases, lead to different data. For instance, if during an import, a space is ended because its polyline is no longer in the drawing, importing the same drawing on an earlier date will not end the space on the earlier import date.
- There must be only one single space usage per space.
- If a block is explicitly made invisible in the AutoCAD drawing, the block is not imported into Planon ProCenter.
- The AUDIT command in AutoCAD is not supported, as the AUDIT command can corrupt the drawing. To clean the drawing, use the PURGE command.

Additional requirements for AutoCAD drawings created using StabiCAD

The following conditions must be fulfilled additionally, to import the StabiCAD drawings into the Planon ProCenter:

- Only the drawings saved in compatible StabiCAD versions are supported. For information on which StabiCAD versions are supported by which Planon ProCenter version, refer to the **Planon Supported Configurations** document.
- In contrast to the regular AutoCAD drawings, space and floor polylines are allowed to be on the same layer.

CAD import XREF support

Case	XREF	Supported in Cloud?	Supported on premise?	Comment
1	./foldername/Xref.dwg	yes	yes	Planon can browse down in the file tree.
2	./Xref.dwg	yes	yes	Planon can browse in the same folder.
3	C:/Planon/cadinbox/ foldername/Xref.dwg	no	yes	Planon can handle the full path on premise.
4	../foldername/Xref.dwg	no	no	Planon cannot browse up in the file tree.

Per drawing, Planon only supports XREFs that belong to the same floor.

Planon displays XREF layers as follows: XREFdrawingname|Layername. XREF blocks are displayed as follows: XREFdrawingname|Blockname. For each, the maximum combined name size is 255 characters.

Space entities (gross & net)

- Space entities must be of the space polyline type ”LWPOLYLINE” or of the type "CIRCLE" or "ELLIPSE".
- Space polylines can be located in several layers. The specified layers are treated as a logical unit of polylines.
- Space polylines may be located in XREF drawings.

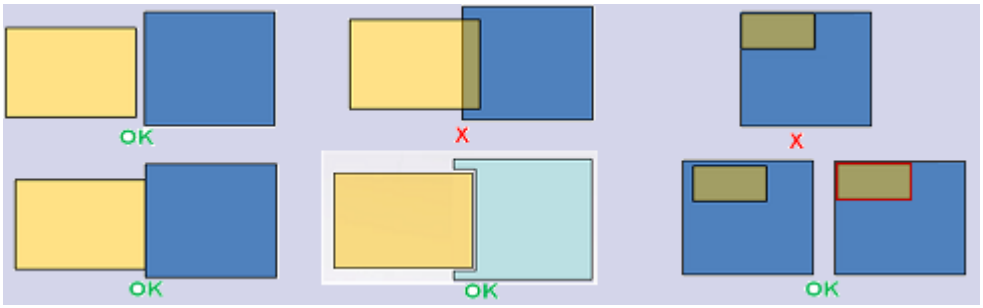
The XREF drawings do not work correctly in combination with Connect for AutoCAD because the polylines must be stored in the main drawing.

- Space polylines can be closed during the CAD Import.

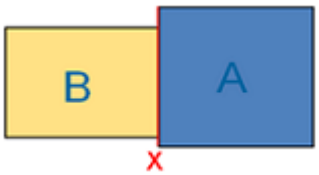
  If you are using Connect for AutoCAD, you must close the polylines in AutoCAD in order to be able to perform space mapping.
- The use of *Net polylines* is mandatory when using *Gross polylines*. You should have at least one net polyline. The idea behind allowing gross polylines is to import the gross surface and perimeter data on a space / floor directly from the drawing. Space selection and space mapping will take place on the net polylines.
- The *Gross polylines* of a space must be stored in a different layer than its *Net polylines*. Note: the net polyline should always fall within / coincide with the gross polyline.

Space polylines must be stored in a different layer than Floor and Fixed workspace polylines.

- Only if you are dealing with Stabicad drawings, can the polylines be located in the same layer. CAD Import will recognize the type of polyline itself.
- Gross polylines from Stabicad cannot be imported using CAD Import.
- In a drawing, polylines should not overlap. Touching polylines are allowed.



- A polyline of Space A (red one), cannot be used to "close" Space B.
  Also, Space B needs its own 4 polylines (in this example).



- Enclosed polylines can be stored on a different layer as their surrounding polyline. The whole set of specified (enclosed) polylines layers will be treated as one logical unit.
- Enclosed polylines can be treated as:

1 Space

The Enclosed polyline will be treated as a **Space** (a Space Code must exist or must be created) whereas the area of the Enclosed polyline will be subtracted from the surrounding Space.

x1 Hole

The Enclosed polyline will be treated as a **Hole** and the area of the Enclosed polyline will be subtracted from the Surrounding Space. This is true only if no Space norm is applied.

The subtraction of the area also depends on the applied Space norm as specified in the drawing definition.

x2 Construction data should be on the same level as x1 Hole

The Enclosed polyline will be treated as **constructional data** and the area of the Enclosed polyline will not be subtracted from the Surrounding Space. This is true only if no Space norm is applied.

The subtraction of the area also depends on the applied Space norm as specified in the drawing definition.

- Spaces should only contain one space usage.

If a space has more than one space usage (in the Planon database) on the import date, only the space size will be imported. This implies that Planon will only update the space usage if the net area of the space usage is identical to the net area of the space size.

Also, the Connect for AutoCAD plug-in can only deal with one space usage per space at a time.

Space code

- Can have a maximum length of 15 characters.
- Must be unique within a floor.
- Can be stored in a single line TEXT object in a specific layer.

  That layer may not contain other single line TEXT objects (like Space name).

  The insert point of the TEXT object must be inside the Space polyline.

Drawing definition (TAB: Details Step: Field mapping)

In the **Source** field, select option: 1 – Drawing.

In the **CAD-layer** field, select the layer that contains the TEXT objects.

- 2011.A (onwards): The Space code can be stored as an attribute of a static BLOCK.
- 2013 (onwards): The Space code can be stored in a Multi line TEXT object.

  The Multi line TEXT object that contains the Space code must have the same structure for each space.

  On the layer that contains the Multi line TEXT objects per Space, do not store Multi line TEXT objects for other business objects.

  The insert point of the (Multi line) TEXT objects or BLOCKS must be inside the Space polyline.

  The insert point of a BLOCK attribute can be outside the Space polyline.
- Each block (containing the Space code) must have the same structure (attributes).

  Drawing definition (TAB: Details Step: Field mapping)

In the **Source** field, select option: 1 – Drawing.

In the **CAD layer** field, select the layer that contains the blocks.

In the **CAD block** field, select the block name containing the Space code.

In the **CAD attribute** field, select the attribute of the block containing the Space code.

- 2013 (onwards): The Space code can be stored in the XDATA of a polyline.

However, a few third party applications write lot more information than the Space code in the XDATA of a polyline.

- 2013 (onwards): The Space code can be stored in AEC Space objects.

  When Spaces are drawn with AEC Space objects, these objects can also contain data and can be read directly by CAD import.

- For drawings created with Stabicad, the space code/name may also present in the StabiCAD part of the XDATA.
- For drawings using Connect for AutoCAD, the space code/name may also be present in the Connect part of the Data dictionary.
- You cannot combine the storage of the Space codes in TEXT objects and/or in BLOCK objects and/or in XDATA and/or the DATA DICTIONARY (PlugIn) in 1 drawing.

  Choose one or the other method (per drawing definition.)

- All Space codes must be located on 1 layer.

  The exception to this rule are Stabicad drawings. In this type of drawing the Space code may be located on several layers.
  Planon figures out in which layer(s) they are stored.
  The user must choose the **Stabicad** option.

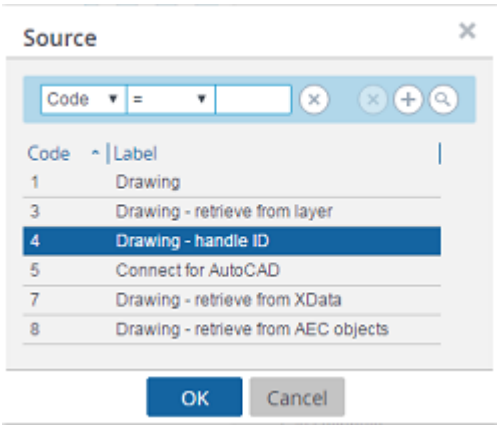
- Space codes can be generated by Planon with &CODEGEN(####,T) in FieldDefiner.
  In that case, you do not specify anything for the Space code in the drawing definition.
- Space codes can be generated by CAD Import by choosing a layer that does not contain a TEXT object and filling in the &CODEGEN(####,T) macro in the field: CAD default value.
- Space codes can be generated by CAD Import by choosing the option **Drawing – retrieve from layer** in the **Source** field.

  The Space code will be generated from the polyline layer name:
  first 10 characters of Space polyline layer name + _####

  If polylines are located on several layers, you'll see several layer names used in the Space code.

  By default the layers of the Net Space polylines will be used (if available, otherwise the layer(s) of the Gross Space polylines will be used).

- Space code can be generated by CAD-import by selecting the **Drawing – handle ID** option.



The Space code will be equal to the handle ID of the Space polyline of the AutoCAD drawing.

By default the handle numbers of the Net Space polylines will be used
(if available, otherwise the handle IDs of the Gross Space polylines will be used).

- The Space code can be generated by applying the code generator on the **CAD Import** > **CAD Drawing Definitions** > **CAD business objects** level.

  Example:

  ?-##, 1: Generates the following codes for the 1st floor, such as: 1-01, 1-02, 1-03.

  ??_###, 1: Generates the following codes for the 1st floor, such as: 01_001, 01_002, 01_003.

  F??_S###, 1: Generates the following codes for the 1st floor, such as: F01_S001, F01_S002, F01_S003.

Floor entities (gross & net)

- See: Space entities (gross & net)
- Different:

  Enclosed polylines are not supported.

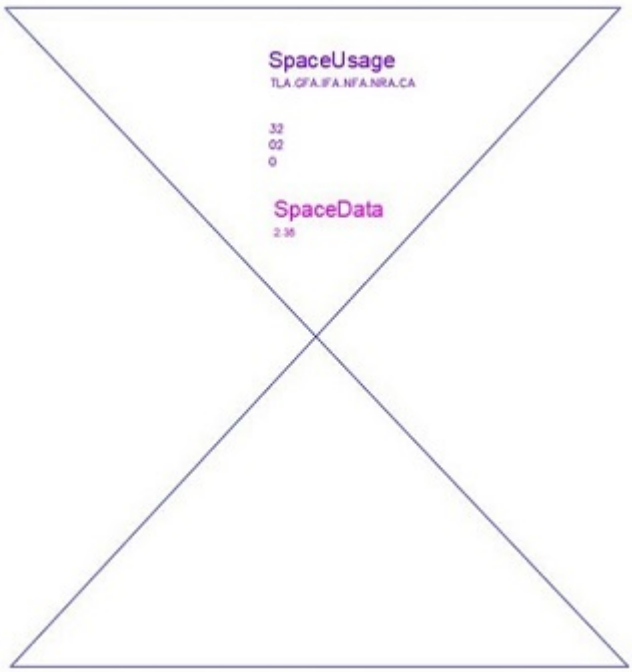
Store the Gross and Net Floor polylines on different layers from the 'Space-' and 'Fixed workspaces' polylines.

You do not need a Floor Code, because it is retrieved from the drawing-floor mapping table or from the file name.

Crossing polylines

In a CAD drawing, the polylines of different spaces / workspaces may cross one another. This crossing can also take place within a space / workspace. You can identify such faults by performing a CAD verification in the **CAD Import definitions**. The **Import log details** of faulty drawings will list the different types of crossing polylines as follows:

- **Self-crossing polylines**: Overlapping polylines in the same space / workspace. For example, in a CAD drawing, a Self-crossing polyline looks like this:



- **Overlapping polylines**: Overlapping polylines between two or more spaces / workspaces. For example, in a CAD drawing, Overlapping polylines looks as follows:

To view the crossing polylines in the **Import log details**, open the AutoCAD drawing and use the EOS CAD tools to identify them with the AutoCAD Handle ID. For more information, see Eos CAD tools.

Assets

- Assets must be represented by a static BLOCK-entity (“BLOCK REFERENCE”).

- Release 2011.A (and higher): assets can also be represented by a static BLOCK.
- The scaling factor of blocks on supported drawings must be *1*.
- In order to locate an asset in a space (to populate the **Space** field in the **Asset location**), the insert point of the block must be inside the space polyline.

  Only if these conditions are met, it is possible to fill in / change the **Asset location** during the import.

Asset code

In CAD Import, it is possible to generate asset codes, based on BLOCK name or LAYER name.

The asset code:

- can have a maximum length of 100 characters
- must be unique across all assets in all buildings
- can be stored as an attribute of the asset block

The insert point of the block must be inside the space polyline, in order to have the **Space** field populated on the **Asset location**.
If the insert point is outside any space polyline, the **Space** on the **Asset location** will remain empty.

Although the options listed below can be used for all fields you can map via the **Source** field in Field mapping, we use the **Asset code** field in the following examples to demonstrate asset code generation.

Procedure

- Go to **CAD drawing definitions** > **Details** > **Field mapping**
  - In the **Source** field, select the **1 – Drawing** option.
  - In the **CAD layer** field, select the layer containing the asset blocks.
  - In the **CAD block** field, select the block name containing the asset.
  - In the **CAD attribute** field, select the attribute of the block containing the asset.

You can also generate asset codes for a CAD Import based on the following options:

- **2 - Drawing - retrieve from block**

  The asset code is generated from the block name:
  it uses the maximum field length of the field as specified in Field Definer, with a maximum of the first 90 characters of the block name + _####.

- **3 - Drawing – retrieve from layer**

  The asset code is generated from the name of the layer in which the block is located:
  It uses the maximum field length of the field as specified in Field Definer, with a maximum of the first 90 characters of the layer name + _####.
  If blocks are located on different layers, the name of the layer in which the block is located, will be used.

- **4 - Drawing – handle ID**

  The asset code is identical to the handle ID of the BLOCK in the AutoCAD drawing.
- **5 - Connect for AutoCAD**

  The asset code is retrieved from a drawing that is updated via Connect for AutoCAD.
- **7 - Drawing - retrieve from XData**

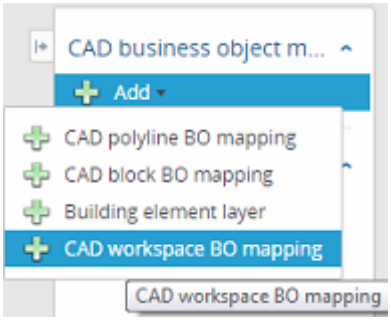
  The asset code is read from the XDATA stored in the asset blocks.

Fixed workspaces

The CAD linked fixed workspaces are single polyline objects, ellipses or circles. These workspaces are located inside spaces in a CAD drawing.

Workspace polylines must fully be inside the space polylines and should not overlap.

In **CAD Business Object mappings**, select the special type of polyline: *CAD workspace BO mapping*.



This will make it clear that these are *workspaces* and not spaces. Inside each fixed workspace, you can store a *workspace code* which can be saved in a TEXT, MTEXT or BLOCK, or can be generated automatically with the CODEGEN macro (see previous chapters). The code of the fixed workspace must be unique within a single space and can have a maximum length of 20 characters. The insert point of the fixed workspace determines to which space the fixed workspace belongs. This can change in time and will also be stored in time in the Planon database (Workspace details). Occupants of fixed workspaces can only be imported via Planon Enterprise Talk.

Workspaces are implemented only for AutoCAD, not for Stabicad.

CAD Import - Concepts

The following sections describe the concepts available in **CAD Import** and how they interact with each other.

CAD drawing definition

A CAD drawing definition defines the relation between the data in Planon ProCenter and the information in the AutoCAD drawing.

The CAD drawing definition allows you to define the entities in the drawing, so you can map them onto the Planon ProCenter business objects. For example, drawing entities such as polylines and blocks can be mapped onto CAD business objects such as floors, spaces, flexible workspaces, assets, persons, 'Rent to' and 'Rent from' units in Planon ProCenter.

Typically, a drawing definition is based on a single drawing. However, it can be used to import multiple drawings provided that the data structure is the same in all the drawings that are going to be imported.

CAD import definition

A CAD import definition defines parameters for what to import from an AutoCAD drawing into Planon ProCenter.

The CAD import definition describes the information you want to import, such as the location of the drawings to be imported, structure of the input folder, creation of .orj files from the .dwg drawings, importing of assets and persons as move lines, specifying a global drawing definition, resume or end spaces and so on.
You can import either a single or multiple drawings at a time.

CAD business object

CAD business objects are elements such as floors, spaces, persons and assets, that are present in a CAD drawing. You can also define the construction data which is used in the ORJ conversion.

CAD business objects enable you to define the business objects in a drawing definition. You can assign both system-defined and the user-defined business objects as CAD business objects.

Block (AutoCAD)

A graphical depiction / symbol in AutoCAD that represents a person or asset in Planon ProCenter.

In addition to using ***static blocks*** for representing assets and persons, Planon ProCenter's CAD Import supports ***dynamic blocks*** (AutoCAD) only on Google Chrome. Dynamic blocks allow you to create flexible parameters and actions. However, static is preferred.

- A block name must not be longer than 50 characters, otherwise the import for this specific record will fail. The scaling factor and unit factor of blocks on supported drawings must be **one**.
- Planon does not support *anonymous* blocks. If these blocks are 'exploded' Planon cannot guarantee that **CAD Integrator** will continue to perform well.

Example

A table can be created as one block that can take the place of all related blocks (for tables) with varying dimensions in a drawing.

Layer (AutoCAD)

Can be used to group entities (polylines, blocks) based on their purpose.

Polyline (AutoCAD)

Represents either the net area or the gross area of floors, spaces, flexible workspaces, 'Rent to' or 'Rent from' units.

Attribute (AutoCAD)

A label or a tag that displays data related to a block. For example, the asset number or the department of a space.

MText objects (AutoCAD)

Planon supports MText objects without styling, if used for the following purposes:

- *Field mapping*. Enter relevant values in the **Start line** and **End line** fields at **CAD drawing definitions** > **Details** > **Field mapping**. See Field mapping fields for more information.
- *Display MText in the CAD Integrator constructional drawing* . Map the MText layer as constructional data in the building element layer at **CAD drawing definitions** > **Details** > **CAD business object mapping**.

MText with styling may work, but this is not guaranteed by Planon.

For *field mapping* to work properly with MText, the MText objects must comply with the following requirements:

- the MText must be left aligned,
- the MText box must be wide enough to fit the entire line that needs to be mapped to a Planon field. Field names that run over multiple lines cannot be mapped correctly.

AEC-objects and MV-blocks (AutoCAD)

A CAD drawing may contain AEC-objects such as doors, walls and windows. It may also include MV-blocks (multi-view blocks), which are architectural objects that can have different representations in different view directions.

AEC-doors, AEC-walls, AEC-windows and MV-blocks can be imported as constructional data via CAD Import, provided that you have placed them in a drawing layer that is mapped as constructional layer.

Since AEC-objects and MV-Blocks are complex, importing them as constructional data may negatively affect the performance of CAD Integrator. It is recommended to only import AEC-doors, -walls, -windows and MV-blocks that are absolutely required.

CAD business object mapping

Mapping of the Planon ProCenter business objects (assets, persons, spaces, floors) with the entities (polylines and blocks) of an AutoCAD drawing.

The CAD business object mapping is done to import data of an AutoCAD drawing into Planon ProCenter. There are types of mappings are available:

- **CAD polyline BO mapping**: applies to floors and spaces. You can map the net or gross polylines of an AutoCAD drawing with the floors and spaces of Planon ProCenter.
- **CAD block BO mapping**: applies to assets and persons. You can map the blocks in an AutoCAD drawing with the assets or persons of Planon ProCenter.
- **CAD layer mapping**: applies to construction data such as pillars and staircases. During import, the elements on the layer will not be imported as business objects, but are converted either as CAD Integrator Constructional drawing or CAD Integrator FM drawing.

Field mapping

The mapping of the ***fields*** of business objects onto the ***attributes*** of polylines and blocks in a layer of an AutoCAD drawing.

The field mapping allows you to retrieve data from:

- The blocks, attributes, text objects and the handle IDs of a drawing.
- The Connect for AutoCAD data present in the polylines/blocks.
- The Stabiplan drawing data in the extended data of a polyline.

For *field mapping* to work properly with MText, the MText objects must comply with the following requirements:

- the MText must be left aligned,
- the MText box must be wide enough to fit the entire line that needs to be mapped to a Planon field. Field names that run over multiple lines cannot be mapped correctly.

Stabicad

A tool that makes drawing easier and facilitates AutoCAD drawing maintenance.

This tool provides features to draw floors and spaces along with their electro-technical installations such as electrical wiring, plumbing and so on. It also performs calculations based upon the branch specific standards such as NEN 2580.

Stabicad supports only one type of polyline, while AutoCAD supports two types - net and gross polylines.

Import logs

The general information about the import. The import logs display the general information about the import of drawings.

The import logs can be verified by the user to view the information about the file name of a drawing, the property and the floor of the drawing to which it applies, the number of drawings imported, start and end date-time of the import. In case a workspace couldn't be ended by the CAD Import, the import log will indicate this to the user. The import log data is read-only and can be printed. An import log in the element list can be deleted.

Import log details

The detailed information about the import. The import log details display information about every individual drawing that has been imported.

The import log details can be viewed in three levels, low, medium and high.

The **Low** level displays information on the number of business objects that have been imported along with the errors/warnings that may arise during import.

The **Medium** level, additionally, displays information about the import of the individual business objects. It displays detailed information such as a list of business objects which are imported, rejected, accepted or unchanged in a table format and the date on which the imported data becomes effective. You can view the ended/resumed business objects.

The **High** level, displays information on the imported fields of a business object.
The import log data is read-only and can be printed. An import log in the element list can be deleted.

Working with CAD drawing definitions

In Planon ProCenter, you can import data from an AutoCAD drawing (.dwg format), by mapping Planon ProCenter business objects and fields with the entities (polylines, blocks, attributes and text) that are present in the layers of the AutoCAD drawing.

In order to import a CAD drawing, a **CAD drawing definition** must be defined first, and then the import parameters must be defined in the **CAD import definition**.

Adding a CAD drawing definition

The drawing definition defines the relation between the Planon ProCenter data and the information in the AutoCAD drawing.

Procedure

1. Go to **CAD drawing definitions** > **CAD drawing definitions**.
2. On the action panel, click **Add**.
3. In the data section, complete the relevant fields. For a description of these fields, refer to CAD drawing definition fields.
4. Click **Save**.

   You have now added a CAD drawing definition in Planon ProCenter. You can proceed adding the business objects that you want to import.

When you start creating the CAD drawing definition, the status is set to **Under construction** automatically.
Set the status to **Completed** after you complete the steps to create a drawing definition together with the business object mappings and field mappings.
If there are any errors, solve these first.

Creating history automatically

CAD Import offers the possibility to store information about drawings and build the history.
If you have more than 20 drawings, use the following settings in the **Output options** tab to build a structured history of your drawings.

Adding CAD business objects

You must specify the business objects to be imported from the CAD drawing into Planon ProCenter. Besides the business objects in Planon ProCenter, you can also specify construction data such as pillars, holes and other constructional elements that need to be imported into CAD Integrator FM drawings or constructional drawings.

Procedure

1. Go to **CAD drawing definitions** > **CAD business objects**.
2. On the action panel, click **Add [CAD linked ...]**.

Adding CAD linked floors

1. Select **CAD linked floors**.
2. Enter a description for the CAD linked floors.
3. Click **Save**.

Adding CAD linked spaces

1. Select **CAD linked spaces**.
2. Complete the relevant fields in the data section. For a description of these fields, refer to CAD linked spaces fields.
3. Click **Save**.

Adding CAD linked fixed workspaces

1. Select **CAD linked fixed workspace**.
2. In the **Description** field, enter a description for the CAD linked fixed workspace.
3. In the **User-defined business object** field, select the user defined workspace.

Workspace should be added as a user-defined business object to the base CAD linked business object.

Click **Save**.

Adding CAD linked assets

1. Select **CAD linked assets**.
2. Complete the relevant fields in the data section. For a description of these fields, refer to CAD linked assets fields.
3. Click **Save**.

Adding CAD linked persons

1. Select CAD linked persons.
2. Complete the relevant fields in the data section. For a description of these fields, refer to CAD linked persons fields.
3. Click **Save**.

Adding CAD linked construction data

1. Select **CAD linked construction data**.
2. Complete the relevant fields in the data section.
3. Enter a description for the CAD linked construction data.
4. Click **Save**.

You have now added the business objects.

Mapping CAD business objects

At **CAD business object mapping**, you can select the layer(s) in the drawing that contain(s) the polylines/ blocks for the business object (like floors, spaces, assets,...) that you selected on the second level.

You can also define the colors which should be used to display the object in CAD integrator. By default, the AutoCAD color is applied.

Procedure

1. Go to **CAD drawing definitions** > **Details**.
2. On the action panel:
   - Click **CAD polyline BO mapping**, if you are mapping a business object whose information comes from a polyline. For example, a floor, a space.
   - Complete the relevant fields in the data section. For a description of these fields, refer to CAD business object mapping fields - polylines.
3. Click **Save**.

   or

   - Click **CAD block BO mapping**, if you are mapping a business object whose information comes from a block. For example, asset, person.
   - Complete the relevant fields in the data section. For a description of these fields, refer to CAD business object mapping fields - blocks.
4. Click **Save**,

   or

   - Click **Building element layer**, to convert the elements of a layer as construction data. For example, pillars, hole, staircase and so on.
   - Complete the relevant fields in the data section. For a description of these fields, refer to CAD business object mapping fields - layers.
5. Click **Save**.

Mapping fields

If you want to import data from a drawing into Planon, such as space numbers and descriptions, you need to determine where this information can be found in the drawing. At the **Field mapping** selection level you can access drawing information and select the Planon field that should be filled with this information.

Procedure

1. Go to **CAD drawing definitions** > **Details** > **Field mapping**.
2. On the action panel, click **Add**.
3. In the data section, complete the relevant fields. For a description of these fields, refer to Field mapping fields.

Click **Save**. The business object fields are mapped with the entities of the CAD drawing. Repeat the steps with all the business objects you have added to the drawing definition.

Ensure that you enter correct values for the fields **XData application name**, **Group code**, and **Occurrence**. If you enter an incorrect value, error message will not be displayed and data will not be imported.

If you want to use an auto-generated value from Planon ProCenter (via a default setting in Field Definer), the field mapping on this field should be removed.

If you want to import the area and perimeter of a polyline that is stored explicitly in the drawing (for example, in the attribute of a block), instead of a value which is calculated from the area and perimeter of the polyline, the field mapping should be done on these fields.

Correcting the unit of length in a drawing

If you initially imported a drawing having an incorrect unit of length, the drawing might appear small in **CAD Integrator**.

Take the following steps to correct the drawing:

1. Delete the ORJ file from the WebDAV folder.
2. Clear your browser's local storage location.
3. Change the **Unit of length in drawing** in the CAD drawing definition. For more information, see Adding a CAD drawing definition.
4. Reimport the CAD drawing.
5. Refresh the browser.

The size of the drawing will now be corrected.

Working with CAD import definitions

In Planon ProCenter, you can create a CAD import definition which defines the various parameters for importing the Planon data such as floors, spaces and persons from CAD drawings.

The import definition defines, for instance, the location where the drawings to be imported are found, which business objects (floors, spaces, assets etc.) have to be imported, the date the changes will be active, file handling of the .dwg files etc.

Drawings used in a test environment should not be used in a production environment. Importing the same drawing in production would result in incorrect data, because different spaces, persons, assets and fixed workspaces are updated. Also, do not import old drawings if more recent drawings have already been imported, because this may lead to discrepancy in data.
For instance, if a space is ended during an import because its polyline is no longer in the drawing, importing the same drawing on an earlier date will not end the space on the earlier import date.

For more details see:

- Adding a CAD import definition

Adding a CAD import definition

The actual import is determined by an import definition that refers to the drawing definition. The CAD import definition determines the *what*, *where* and *when*of the import.

- *What* elements to import: spaces, assets, personnel, rentable units.
- *What* drawing to use.
- *Where* the drawings to be imported are located.
- *When* the imported data should take effect.

Procedure

1. Go to **CAD import definitions**.
2. On the action panel, click **Add**.
3. In the data section, complete the relevant fields to create an import definition.

Only the fields that are primary to run a CAD import are described in CAD import definition fields. For more information about specifying the rest of the fields, refer to the CAD Import settings

4. Click **Save**. You have now created a CAD import definition.

You can create a mail merge report for a specific action on the **CAD import definition**>**Report** action menu. The mail merge report can be used as a reply of a scheduled action.

For more information on scheduling import actions, refer to the *Alerts* documentation.

During import, the data is written back to the AutoCAD drawing. The modification date of the imported drawing still remains with the original modification date. This facilitates to filter the drawings to be imported based upon their modification date.
If the AutoCAD drawing is on a WebDAV server, the modification date of the AutoCAD drawing is changed during the import by the WebDAV server.

Mapping a CAD drawing to a floor

To map a drawing to a floor of a property.

Procedure

1. Go to **CAD Import definitions**, and select **Mapping.**
2. On the action menu, click **Add**.
3. In the data section, complete the relevant fields. For a description of these fields, refer to Mapping CAD drawing to floor - fields.
4. Click **Save**.

You have now mapped a drawing to a floor.

Performing CAD drawing verification

For a successful CAD Import, a CAD drawing must meet various conditions. Typically, an import of complicated drawings or multiple drawings can produce errors. In such cases, it is difficult to find which drawing at which layer is giving the error. The majority of failed imports are due to Crossing polylines or overlapping Space entities (gross & net). These errors can be avoided by verifying a drawing before importing. CAD verification functionality enables you to inspect the entire drawing and locate where the faults are.

Procedure

1. Go to **CAD import definitions** > **CAD import definitions**.
2. Select the CAD import definition you want to verify.
3. On the action panel, click **Perform CAD verification**.

   The process starts running in the background.
4. After completion, go to the **Import logs** step to see the verification results.

The event logs of the CAD verification are preceded with the text '[VERIFICATION]'. Any faulty drawings are preceded with an error ( ) icon. For detailed information of the fault, go to the **Import log details** step.

- To understand the different crossing polylines listed in the **Import log details**, see Crossing polylines
- To view the crossing polylines listed in the **Import log details**, open the AutoCAD drawing and use the EOS CAD tools to identify them with the AutoCAD Handle ID. For more information, see Eos CAD tools.

CAD Import settings

Import location settings

Field	Description
Include subfolders	Select **Yes** to import drawings which are located in the subfolders of the **Input Location** folder as well.
Overwrite output files (Y/N)	Select **Yes** to overwrite the existing files of the output folder. When the imported file is copied into the output folder, it may be possible that the file is already present in the output folder. In that case, this setting defines whether or not the existing file should be overwritten.
Delete input files	Select **Yes** to delete all the imported files in the input folder after import. **No** is selected by default. If you select **Yes**, in **Delete input files** you cannot store the AutoCAD drawing in the **Inbox AutoCAD drawing** field of the Floor attributes of Space Management.

CAD Integrator settings

Field	Description
Update CAD Integrator FM drawing?	Select **Yes** to update the existing .orj file during the import. A prerequisite is that the **Create CAD Integrator file** option is set to **Yes**. If you move text boxes or assets in CAD Integrator, these locations will keep their old position after the import. Select **No** to always generate a new .orj file. Text positions and manually moved assets in CAD Integrator will be located in the center of the space or location of the AutoCAD drawing.

Output folder

Field	Description
Add month to output folder	When you enable this option a folder is created with the month and year in YYYYMM format in the output location.

Field	Description
	It is added as a subfolder directly under the output location or directly under the (optionally) added history folder.
Add date to output folder	When you enable this option, a folder is created with the date of import definition in YYYYMMDD format in the output location. It is added as a subfolder directly under the output location or directly under the (optionally) added history folder. **No** is selected by default.
Add file as folder to output subfolders	When you enable this option, a subfolder with the name of the drawing is created in the output location. **No** is selected by default.
Add month to output subfolders	When you enable this option, a subfolder is created with the year and month in YYYYMM format in the output location. It is added as a subfolder under every subfolder in the output location. **No** is selected by default. When all the Boolean options are enabled, the hierarchy of the folders/ subfolders is as follows: Outputlocation/HistoryFolder*/AddMonthToOutputFolder/ AddDateToOutputFolder/.... OutputSubFolders/HistoryFolder/.... / AddFileasFolderToOutputSubfolders/ ....AddMonthToOutputSubfolders/ AddDateToOutputSubfolders/ Drawing.dwg. HistoryFolder* is added in case of AddMonthToOutPutFolder or AddDateToOutPutFolder is selected.
Add date to output subfolders	When you enable this option, a folder is created with the date of import definition in YYYYMMDD format in the output location. It is added as a subfolder under every subfolder in the output location. **No** is selected by default.
History folder	Specify a name to automatically create a history folder in which all the imported drawings are saved. This is especially important if your input folder is same as the output folder. Drawings in any history folder are automatically excluded during the import.
Overwrite output files (Y/N)	Select **Yes** to overwrite the existing files of the output folder. When the imported file is copied into the output folder, it may be possible that the file is already present in the output folder. In that case, this setting defines whether or not the existing file should be overwritten.

Import spaces

Field	Description
Threshold new space dimensions	Specify a value. If the difference between the net or gross area of the database and drawing is above this threshold value, then a new space size/usage unit linked to a floor instance is created on the effective

Field	Description
	date of the import. Otherwise, a new space size/usage instance is created on the effective date of the import.
New space size / usage after data change?	Select **Yes** to create a new space dimensions / space usage record on the effective date of the import, after any data change on space dimensions / space usage. A data change is typically caused by the import of one of the mapped fields in the **Drawing definition**. Select **No** to update the existing space dimensions / usage. If the data change causes the new space dimensions to exceed the set threshold value, this setting is not taken into account. In that case, new space dimensions and usage records are created, regardless of this setting.
End spaces	Select **Yes** to end spaces that are no longer present in the drawing on the effective date of import.
Resume spaces	Select **Yes** to resume spaces that are ended in the database, but are visible again in the drawing.
Resume workspaces	Select **Yes** to automatically resume the ended workspaces of a resumed space. This field can only be enabled if you have selected **Yes** in **Resume spaces**.
Space code wildcard filter	Specify a code to filter spaces from an imported drawing. Planon ProCenter imports only those spaces whose space code matches with the code specified in this field. The following wildcards are supported: ?: any single character *:either 0 or more characters

Import assets

Field	Description
Remove simple assets	Select **Yes** to remove simple assets that are no longer in the drawing. Note that the asset is not deleted, but the space in its location assignment is cleared.

Import fixed workspaces

Field	Description
End fixed workspaces	Select **Yes** to end fixed workspaces that are no longer present in the drawing on the effective date of import, but are present in Planon ProCenter.
Resume fixed workspaces	Select **Yes** to resume fixed workspaces that are ended in the database, but are visible in the drawing. The end date gets cleared for the resumed fixed workspaces.
New workspace details after change	Select **Yes** to create a new workspace detail record when updates for the workspace are found. (for example, different department, cost center, space, etc). Select **NO** to overwrite the existing Workspace Detail of the updated Workspace.
Workspace code wildcard filter	Specify a workspace code to filter the workspaces to import. CAD Import imports workspaces whose workspace code matches with the workspace code specified in this field. This field accepts the following wildcards: ***** = none or multiple characters For example: **ab*c** matches: abc, abbc, abbbc, abdc. But does not match: ac **?** = any single character (but not none) For example: **ab?c** matches: abbc, abdc. But does not match: ac, abc, abbbc
Workspace update area	Select **Yes** to update the area of the fixed workspaces in case this differs from the area in Planon

Import persons

Field	Description
File name wildcard filter	Specify a file name to filter the drawings in the input folder to import. Planon ProCenter imports files whose file name matches with the file name specified in this field. This field accepts the following wildcards: ***** = none or multiple characters For example: **ab*c** matches: abc, abbc, abbbc, abdc. But does not match: ac **?** = any single character (but not none) For example: **ab?c** matches: abbc, abdc. But does not match: ac, abc, abbbc **+** = None or multiple characters preceding the wildcard. For example: **ab+c** matches: abc, abbc, abbbc. But does not match: ac, abdc.
Start date for import file	Specify a date to filter the files in the input folder to import.

Field	Description
End date for import file	Specify an end date to stop filtering files of the input folder to import.

Space filter

Field	Description
Space code wildcard filter	Specify a code to filter spaces from an imported drawing. Planon ProCenter imports only those spaces whose space code matches with the code specified in this field. This field accepts the following wildcards: ?: any single character *:either none or multiple characters.

Property code retrieval settings

Field	Description
Property code – start of range	The position of the 1st character of the property code, in case the property/floor should be retrieved from the character position in the AutoCAD file name.
Property code – end of range	The position of the last character of the property code, in case the property/floor should be retrieved from the character position in the AutoCAD file name.
Property code from separator	Specify the separator used before the property code in the file name. For example, in USA_OBJ371-02.dwg, the '_' is the separator. If this field is empty, it means the file name starts with the property code itself.
Property code from # separator occurrences	Specify the number of occurrences of the separator before the property code in the file name. For example, in USA_OBJ371-02.dwg, the number of occurrences of the separator '_' is one. If this field is empty, it means that the file name starts with the property code.
Property code up to separator	Specify the separator used at the end of the property code in the file name. For example, USA_OBJ371-02.dwg, the '-' is the separator. If this field is empty, it means that the file name (without .dwg extension) ends with the property code.
Property code up to # separator occurrences	Specify the number of occurrences of the separator at the end of the property code in the file name. For example, in USA_OBJ371-02.dwg, the number of occurrences of the separator '-' is one.

Floor code retrieval settings

Field	Description
Floor code – start of range	The position of the 1st character of the floor code, in case the property/ floor should be retrieved from the character position in the AutoCAD file name.
Floor code – end of range	The position of the last character of the floor code in case the property/ floor should be retrieved from the character position in the AutoCAD file name.
Floor code from separator	Specifies the separator used before the floor code in the file name. For example, in USA_OBJ371-02.dwg, the '-' is the separator. If this field is empty, it means the file name starts with the floor code itself.
Floor code from # separator occurrences	Specifies the number of occurrences of the separator before the floor code in the file name. For example, in USA_OBJ371-02.dwg, the number of occurrences of the separator '-' is one. If this field is empty, it means the file name starts with the floor code.
Floor code up to separator	Specifies the separator used at the end of the floor code in the file name. For example, USA_OBJ371-02.dwg, no need to specify this field as there is no separator after the floor code. If this field is empty, the file name (without .dwg extension) ends with the floor code.
Floor code up to # separator occurrences	Specifies the number of occurrences of the separator at the end of the floor code. For example, USA_OBJ371-02.dwg, there is no need to specify this field as there is no separator after the floor code.
Modification date-time	Displays the date on which the drawing has been modified. If drawings are on a WebDAV server, it is not possible to modify the set modification date, nor to import the drawings based on the date on which the drawings are modified.

Running a CAD import

To run the CAD import and import the drawing data from one or more AutoCAD drawings into Planon ProCenter as defined in the import definition.

Procedure

1. Go to **CAD Import definitions,** select **CAD import definitions**.
2. On the action panel, click **Run CAD import**.
   All the AutoCAD drawings in the input folder are imported as per the settings specified in the import definition.
   The floors, spaces, assets and persons are created or updated in Planon ProCenter with the data from the drawings as defined in the drawing definition.

> Business objects such as spaces / assets / persons that exist with *duplicate codes* cannot be imported. Importing the data of invisible and frozen layers/blocks/attributes of an AutoCAD drawing is possible. Conversion of invisible / frozen blocks /attributes into the CAD Integrator drawings is possible, whereas conversion is not possible with layers.
> For example, if *Space1* and *Space2* exist on layers A and B and layer B is invisible / frozen, the data of both spaces is available in Planon ProCenter. Whereas, after converting the layers into the CAD Integrator drawings, you can only see layer A and its space, but not B, due to the invisible / frozen setting. While importing drawings from an input folder, any error that may arise during import of a drawing is not going to stop the import of any other drawings. Similarly, when importing a drawing, any error on importing a business object will not stop the import of any other business object from the drawing. After importing the AutoCAD drawing data, the data will be written back to the AutoCAD drawing files.

3. After a successful import, Planon ProCenter does the following:
   - Updates the existing data of floors, spaces, assets and persons.

> Persons and assets are not updated directly, if you import them as move lines.

   - Creates new floors, spaces, assets and persons, if they do not exist.
   - Displays basic information regarding the import of drawings on the **Import logs** selection level.
   - Displays detailed information regarding the import of drawings on the **Import log details** selection level.

> In Planon ProCenter, system codes are assigned to imported spaces, floors, persons and assets of an AutoCAD drawing. These system codes are written back to the AutoCAD drawing. As a result, the spaces, floors, and assets in Planon ProCenter are automatically linked with the polylines and blocks of the AutoCAD drawing. The data used by Connect for AutoCAD is also written back to the AutoCAD drawing.

For an overview on importing, maintaining and re-importing the updated drawings in Planon ProCenter and Connect for AutoCAD, refer to Roundtrip of AutoCAD drawings part of the document.

Download logs

In addition to viewing the logs in the application, you can also download the logs as a formatted PDF.

This feature is available for:

- **Enterprise Talk / SDI Configuration** > **Business object definitions** > **Import document logs**
- **Data Onboarding** > **Logs**
- **CAD Import** > **Import logs**

1. Go to the appropriate level (see earlier) and select the log(s) that you want to view.

   If you select multiple logs, these will be combined in a single PDF.
2. Click **Download logs**. Your PDF will be downloaded and you can view it in your browser or by using a PDF viewer.

The **Download logs** action only properly works for CSV and Excel imports and not so much for XML.

Roundtrip of AutoCAD drawings

This section describes the roundtrip of the AutoCAD drawings between the CAD Import and Connect for AutoCAD. It gives you an overview of importing, maintaining and re-importing the updated drawing in Planon ProCenter and Connect for AutoCAD consecutively.

Procedure

1. In Planon ProCenter, create a drawing definition by defining the structure of the drawings in **CAD Import** > **CAD drawing definition.**
   For more information on defining the structure of a drawing, refer to CAD drawing definitions.
2. Define various parameters for the actual import of the AutoCAD drawings in the **CAD Import definition**.
   For more information on defining parameters, refer to CAD import definitions.
3. Run the initial import and check the log for import information.
4. In Connect for AutoCAD, load the Planon ProCenter data of a drawing.

> For more information on how to load drawing information in AutoCAD, refer to the *Connect for AutoCAD* documentation.

5. Update the AutoCAD drawing in Connect for AutoCAD.
   For example, create a new space, modify the existing space or change the location of a person and so on, in the AutoCAD drawing.

> For more information on how to work with the drawings in AutoCAD, refer to the *Connect for AutoCAD* documentation.

6. Re-import the updated drawing, in Planon ProCenter, if required, by creating a new drawing and import definition.
   The information updated in Connect for AutoCAD is modified/updated accordingly in Planon ProCenter.
   For a pictorial representation of the roundtrip of the AutoCAD drawings, see the following flowchart:

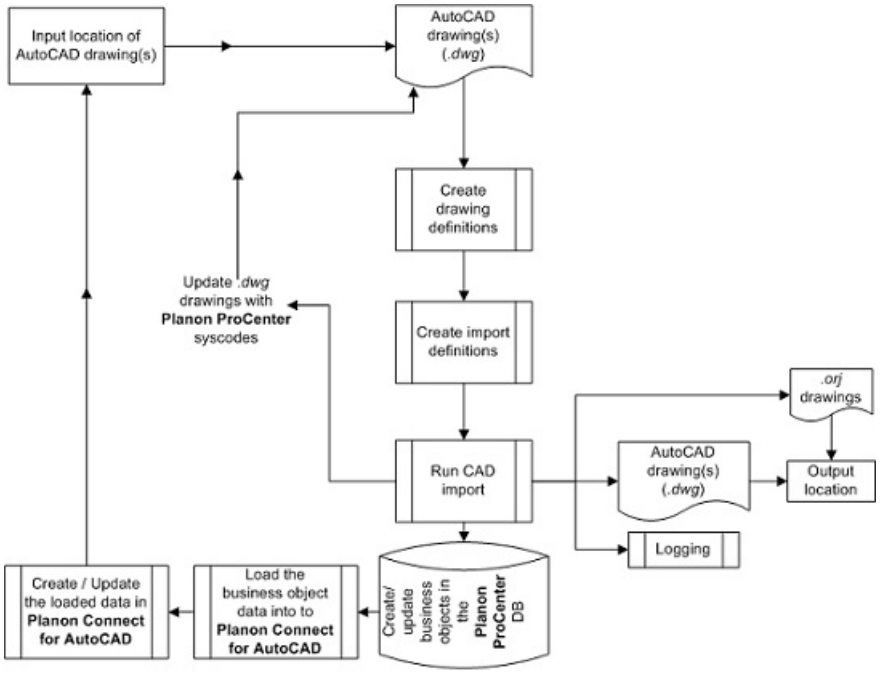


Fig. Roundtrip process between Planon ProCenter and Planon Connect for AutoCAD

Additional CAD Import information

Enclosed polylines

The following describes how the enclosed polylines affect the surrounding area and what impact they have on the FM and constructional drawing during .orj conversion.

Value	Impact on the surrounding area	ORJ conversion drawing (FM \Constructional drawing)
Space	Area is subtracted from the surrounding area.	Saved in FM drawing, as space polyline
Hole	Area is subtracted from the surrounding area.	Saved in FM drawing, as holes
Construction element	No affect on the surrounding area	Saved in Constructional drawing

Stabicad

In Stabicad, the information on floor/space polylines is stored in the extended entity data (XData) of the related polyline.

The following list includes typical characteristics of Stabicad drawings:

- It is only possible to store the code and name of a space or a floor in the drawing.

> If Stabicad is selected as a source of the field mapping on any other field, no data will be imported.

- Both net and floor polylines are generally present on the same layer.
- The concept of net and gross polylines is not supported. During import, all the polylines are interpreted as net polylines.
- In Stabicad drawings, enclosed polylines are identified by the type of the line as defined in the XData. This means that for Stabicad drawings the enclosed polyline interpretation as defined in the business object mapping is overruled by the type of the polyline as defined in Stabicad.

  There are four types of enclosed polylines present in Stabicad. The type of polyline used to create a drawing interprets the surrounding area of the space or floor polyline. The impact on the surrounding area is described as follows:

Type of polyline	Impact on the surrounding area
Hole	**Enclosed area** >= **4**m^2: subtracts from the gross internal area of the surrounding floor polyline.

Type of polyline	Impact on the surrounding area
	Enclosed area >= **4**m²: subtracts from the net area of the surrounding space polyline.
Construction	No impact on the gross internal area of surrounding floor polyline. **Enclosed area**>= **0.5**m²: subtracts from the net area of surrounding space polyline.
Construction polyline less than 1.5 meter	No impact on the gross internal area of surrounding floor polyline. Always subtracts from the net area of the surrounding space polyline.
Enclosed space	No impact on the gross internal area of the surrounding floor polyline. Always subtracts from the net area of surrounding space polyline.

While creating the .orj files, the enclosed polylines that are interpreted as holes appear in the FM .orj drawing, whereas the enclosed polylines, which do not affect the surrounding floor/space polyline area are treated as construction data and appear in the constructional .orj drawing.

You can import Stabicad 8 drawings with enclosed room entities. The enclosed room entities represent holes in a floor or a space. The holes are identified for a floor or a space if they are present on the layer specified and inside the floor or the space.

The area for a hole is calculated as: Area of polyline Floor/Space - Enclosed Area.

Eos CAD tools

The Eos CAD tools can be used for multiple purposes:

1. To remove Planon metadata from an AutoCAD drawing (.dwg file).
   During a CAD import Planon writes information back to all objects that are imported. In some situations (for example an import in which a drawing was linked to the wrong floor), you may want to remove information that CAD import has written to the AutoCAD drawing. In such cases you can use the Eos CAD tools.
2. To find entities by Handle-ID.
   During a CAD import Planon creates a log file in which the Handle-IDs of the imported objects are reported (the Handle-ID is the unique code of an object in AutoCAD). If you want to find one of these objects in your drawing, you can fill in the Handle-ID of this object as reported in the CAD import log and this function will focus your AutoCAD drawing on this object. Refer to Finding an AutoCAD object using the Handle ID for instructions.

A zip file containing the Eos CAD tool dlls and a *read me* text with installation instructions are available in Planon Software website > **Customer portal** > **Downloads** > **EosCADTools** folder.

Removing metadata after import

After importing a drawing using CAD Import in Planon ProCenter, the drawing contains metadata (XData + Extended dictionary data). You can remove the metadata on a drawing for only one BO type at a time or for all the BO types at the same time.

Procedure

1. Open AutoCAD.
2. Right-click the drawing area, and select **Planon Tools** > **Remove Planon data**.
3. In the **CleanUpUtility** dialog box, select the BO type for which you want to remove the metadata from the drawing. Alternatively, you can also select **Clean all** or **All** to remove the data for all the BOs in one go.
4. Click **OK**.
5. Save the AutoCAD drawing to permanently remove the metadata.

Finding an AutoCAD object using the Handle ID

When you import a drawing into Planon ProCenter, import logs are created. The log files list the Handle IDs of the AutoCAD objects that have been imported or missed. With the Handle ID, you can find the AutoCAD object using the **Planon Tools**. Refer to Eos CAD tools for more information on installling the tools.

Procedure

1. Open AutoCAD.
2. Right-click the drawing area, and select **Planon Tools** > **Find entity by handle**.
3. In the **Find entity** dialog box, enter the hexadecimal Handle ID in the **Handle** box.
4. Click **Find**.
5. The relevant object of the drawing is displayed.

CAD Import – Field Descriptions

CAD drawing definition fields

Field	Description
CAD drawing	Specify the path of the AutoCAD drawing. The entities of the drawing are mapped with the elements in Planon ProCenter.
Code	Enter a code for the drawing definition.
Description	Enter a description for the drawing definition.
Unit of length in drawing	Specify the unit in which the drawing length is measured. The available values are Millimeters (MM), Centimeters (CM), Meters (M), Inches (IN) and Feet (FT).
StabiCAD drawing	Select **Yes** if the drawing definition is used for importing drawings that are made using StabiCAD. **No** is selected by default.
Area measurement standard	Select the standard to calculate the area of spaces in which the enclosed hole/constructional polylines are present. The standard is used only to calculate the area of the surrounding space polyline. Note that the standard is not applicable to the surrounding rent to unit/rent from unit polylines. If the field is empty, no standard is applied. For more information on how to calculate the surrounding space area which is enclosing a hole/constructional elements, refer to the Space Norms part in *Basic Data*.
Apply construction threshold to enclosed polylines	Select **Yes** to apply the construction threshold, specified in the **Area measurement standard** field, to the enclosed spaces. This setting is required to consider the enclosed spaces of a layer as constructional elements. If the area of the enclosed space is less than the threshold, the space is treated as a constructional element. By default, **No** is selected in the field. The field is displayed as read-only, if no **Area measurement standard** is specified. For more information on how to interpret the enclosed polyline area, refer to the **Area measurement standards** part in *Basic Data*.

CAD linked spaces fields

Field	Description
Description	Enter a description for the CAD linked spaces.
Generate space code per floor	Enter a macro to generate a code for a space of a floor. Note: the macro should be entered in a single line. Note: A macro can be used in combination with a field mapping to generate a space code. For example, a field mapping is created for a space to retrieve the space code from a layer of a drawing. If no space code exists for a space, the code is generated using the macro specified in the field. This field accepts the following macros: ? Indicates the code of a floor. The number of question marks indicates the number of digits of a floor code to display. # Represents the code of the space. The numbers of hashes represent the number of digits in which the space code should be displayed. - and _ can be used to separate the floor and space codes for clarity and are not mandatory to use. , is used as a separator and is not allowed to use in a macro. For example, ?-## matches with the codes of the first floor as 1-01, 1-02, 1-03 and so on. ?## matches with the codes of the first floor as 101,102 and so on. F??_S### matches with codes of the first floor as F01_S001, F01_S002 and so on. For more information about field mapping, see Mapping fields.

CAD linked assets fields

Field	Description
Simple?	Select **Yes**, to import a simple asset. If you select **No**, the asset is imported as a non-simple asset. If you define a block in the drawing as a multiple asset, then all similar blocks having the same block definition are

Field	Description
	imported as one single non-simple asset, having location assignments in every space the block is present.
Description	Enter a description for the CAD linked asset.
User-defined business object definition	Specify the user-defined business object definition. This deletes the existing field mappings which are no more valid for the selected user-defined business object.

CAD linked persons fields

Field	Description
Description	Enter a description for the CAD linked persons.
User-defined business object definition	Specify the user-defined business object definition. This deletes the existing field mappings which are no more valid for the selected user-defined business object.

CAD business object mapping fields - polylines

Field	Description
Polyline classification	Select Net or Gross polyline.
Enclosed polylines	Select the manner in which enclosed polylines are to be interpreted during import. For more information about how the enclosed polylines affect the surrounding area, refer to Enclosed polylines. If you import a floor or space polyline, the area of enclosed polylines defined as space or hole, is deducted from the gross/net area of the surrounding polyline. Construction data is considered as a part of the surrounding floor and space; hence it is not deducted from the total area. You can calculate the area of an enclosed polyline present on the same layer or different layers of an AutoCAD drawing. In StabiCAD, the type of the polyline that has been used to construct a drawing defines the impact on the area of the surrounding floor or space polyline. Hence, for space and floor polylines of the Stabiplan drawing the enclosed polyline interpretation is not valid.

Field	Description
	For more information on the types of StabiCAD polylines and their interpretation while calculating the area, refer to StabiCAD.
Convert to CAD Integrator drawing	Select Yes, if the polylines representing the business object should be converted into the CAD Integrator FM drawing during import.
CAD Integrator color	Indicates the color the polyline will obtain in the CAD Integrator drawing. The default color of the CAD layer that you selected for the business object is shown. You can also assign a color of your choice from the palette.
CAD layer	In the CAD layer dialog box, select a CAD layer on which the polyline representing the business object is present.

CAD business object mapping fields - blocks

Field	Description
CAD block	In the CAD block dialog, select a CAD block definition representing the business object. If no CAD block is selected, all blocks, regardless of their block definition, are seen as business objects.
	For importing non-simple assets, the CAD block should be defined.
Convert to CAD Integrator drawing	Select Yes, if the blocks representing the business object should be converted into the CAD Integrator FM drawing during import.
CAD layer	In the CAD layer dialog, select a CAD layer on which the CAD blocks representing the business objects are present.
CAD Integrator color	Indicates the color the block will obtain in the CAD Integrator drawing. The default color of the CAD layer that you selected for the business object is shown. You can also assign a color of your choice from the palette. All the blocks are converted into the selected color, irrespective of the individual color of the blocks in the .dwg drawing.

CAD business object mapping fields - layers

Field	Description
Destination CAD Integrator drawing	Select a destination CAD Integrator drawing from the list, either FM or Constructional drawing.
CAD layer	Specify a CAD layer to identify its elements such as blocks, polylines and text objects as construction elements.
CAD Integrator color	Indicates the color the constructional elements will obtain in the CAD Integrator drawing. Default the color of the CAD layer you select to convert the elements as construction data is shown. You can also assign a color of your choice from the palette. All the elements of the CAD Integrator drawing are converted into the selected color, irrespective of the individual color of the elements in the .dwg drawing.

Field mapping fields

Field	Description
Field	Specify the field you want to map with the entities of the AutoCAD drawing. These fields depend on the business object you select below.
Business object	Specify the business object to which the field belongs.
Source	Specify a source location from where information for the field mapping should be retrieved. You can retrieve information from one of the following sources: **Drawing**: retrieves the field value from the layer or block within the drawing. For example, data present as text within the involved polyline or as attribute of a block. **Drawing-retrieve from block**: retrieves the field value from the name of the block definition as defined in the business object mapping. **Drawing-retrieve from layer**: retrieves the field value from the name of the layer as defined in the business object mapping. **Connect for AutoCAD**: retrieves the field value from Connect for AutoCAD. **Drawing-handle ID**: retrieves the field value from the handle ID of the polylines and blocks in the drawing. **StabiCAD**: retrieves the field value from the StabiCAD repository. The repository stores the code and name of a floor and space. **Drawing-retrieve from XData**: retrieves the field value from the XData of a drawing. **Drawing-retrieve from AEC objects**: retrieves the field value from the AEC objects of a drawing.
CAD attribute	Specify the attribute of a block which contains field information.
CAD block	Specify the block, whose attribute contains the field value.

Field	Description
CAD layer	Specify the layer that contains the field value.
Start line (DB: BEGINLINE)	In case you read your data from an MTEXT object, use this field to specify the start line of the MTEXT object containing the information that you want to read in. For *field mapping* to work properly with MText, the MText objects must comply with the following requirements: • the MText must be left aligned, • the MText box must be wide enough to fit the entire line that needs to be mapped to a Planon field. Field names that run over multiple lines cannot be mapped correctly.
End line (DB: ENDLINE)	In case you read your data from a MTEXT object, use this field to specify the last line of the MTEXT object containing the information that you want to read in.
Default value	Specify a value that should be used in case a new business object (Space, Person and so on) is imported, and no value for the field can be retrieved from the drawing. To enable this field, you must first save the **Field mapping** once. A default value is only applied the first time a new record is inserted. During an update the default value is not applied.
XData application name	Specify the name of the application in which the drawing is made. This field is available only if you select **Drawing-retrieve from XData** in the **Source** field.
Group code	Specify the group code that contains data to be imported. The range of group codes for XData is from 1000 to 1071. Only the following group codes are supported: 1001 (Registered Application Name) 1000 (ASCII string) 1005 (Handle ID) 1040 (Real number) 1070 (16-bit integer) 1071 (32-bit signed long integer) This field is available only if you select **Drawing-retrieve from XData** in the **Source** field.
Occurrence	Specify the occurrence of the group code to be imported. For example, if you want to import the fourth occurrence, enter 4 in this field. You must enter an integer greater than zero. This field is available only if you select **Drawing-retrieve from XData** in the **Source** field.
AEC property set	Select an AEC property set of the drawing.

Field	Description
	This field is available only if you select **Drawing-retrieve from AEC objects** in the **Source** field.
AEC property	Select an AEC property to be imported. Only the following property types are supported: Manual (Text/Real/Integer/Boolean/Auto Increment - Integer/ Auto Increment - Character/List) Automatic Location Material The values in the **AEC property** pick list depends on the property set you select in the **AEC property set** field. If you do not select a property set in the **AEC property set** field, all properties of a drawing are displayed in the **AEC property** pick list. This field is available only if you select **Drawing-retrieve from AEC objects** in the **Source** field.

CAD import definition fields

Field	Description
Code	Enter a code for the import definition.
Import assets	Select one of the following options to import assets: **No**: does not import assets. **Yes**: imports assets into Planon ProCenter. **Yes, as move lines**: imports assets as move lines. An asset move line is created, if the data retrieved from the asset block in the drawing is different from the asset data in the database. In this case the data from the drawing is entered in the corresponding field of the move line. This can either be 'To' field or designated 'Derive and restore' free field. If no corresponding field is present in the move line, the changed data is entered in the comment field. If a non-simple asset is imported as a move line, the difference in the number of blocks in the space compared to the number of items in the location assignment is updated. The start time of the move request is set to 9:00 on the effective date of the import. In case this date-time is not within working hours on the company calendar, no move request can be created. If the non-simple assets are removed from the space in the drawing, the corresponding number of blocks are reduced from the quantity in the location assignment of the assets.

Field	Description
	Likewise, if the non-simple assets are inserted in the space, the corresponding number of blocks are added to the quantity in the location assignment of the assets.
Import non-closed polylines (Y/N)	If you select **Yes**, the non-closed polyline is imported into Planon ProCenter whereby the polyline is closed temporarily in order to calculate its area and perimeter. **Yes** is selected by default.
Import fixed workspaces	Select **Yes**, to import fixed workspaces from the drawing. For more information on the related fields, refer to Import fixed workspaces.
Import persons	Select one of the following options to import a person: **No**: does not import persons. **Yes**: imports the person into Planon ProCenter. **Yes, as move lines**: imports persons as move lines. A person move line is created, if the data retrieved from the person block in the drawing is different from the person data in the database. In this case the data from the drawing is entered in the corresponding field of the move line. This can either be 'To' field or designated 'Derive and restore' free field. If no corresponding field is present in the move line, the changed data is entered in the comment field. The begin time of the move request is set to 9:00 on the effective date of the import. In case this date-time is not within working hours on the company calendar, no move request can be created. For more information on the fields related to import persons, refer to Import persons.
Import spaces	Select **Yes**, to import spaces from the drawing. Floors are imported by default. For more information on the fields related to Import spaces, refer to Import spaces.
File location of drawings	Select the input folder in which the CAD drawings to be imported are located. You can import multiple drawings at a time from a specified input folder. For more information about Property and Floor code, refer to Property code retrieval settings.
File locations for output	Specify a location for the output folder. All imported drawings are copied to output location. The input and output locations can be the same.

Field	Description
	If you have specified a file location for CAD Import in System Settings, the path reference must be relative.
	For more information on Import file location settings, refer to Import location settings.
Effective on	Defines which date should be used as effective date for the data to be imported. That is, it determines the start date for a new space size, space usage or floor attribute that is created after the import. You can select one of the following options: **Start date of floor** **Date in import definition**
Property-floor retrieval	Select an option to map the property and floor from the drawing. You can do the retrieval in one of the following ways: **Drawing-floor mapping**: allows you to import an AutoCAD drawing using property and floor code information as defined in the **Mapping between drawing and floor** step. **Drawing-floor mapping or separator position in AutoCAD file name**: allows you to import an AutoCAD drawing based on the separators and their occurrences in the file name. For example, USA_OBJ371-02.dwg. The following fields are enabled when this option is selected: Floor code from separator Floor code from # separator occurrences Floor code up to separator Floor code up to # separator occurrences Property code from separator Property code from # separator occurrences Property code up to separator Property code up to # separator occurrences
	For more information on Property code retrieval settings, refer to Property code retrieval settings.
	Drawing floor mapping or character position in AutoCAD file name: allows you to import an AutoCAD drawing based on the characters in the file name. For example, USA_OBJ371-02.dwg. The following fields are enabled when this option is selected:

Field	Description
	Floor code – start of range Floor code – end of range Property code – start of range Property code – end of range For more information on Import file location settings, refer to Floor code retrieval settings.
Global drawing definition	Specify a global drawing definition, if you want to import several similar drawings that share similar parameters. The global drawing definition is used, if no specific drawing definition is present for the drawing to be imported.
Create CAD Integrator file	Click **Yes** to create a CAD Integrator (.orj) file. The .orj file is created even when no CAD drawing entity is selected for import. The .orj file includes all the CAD drawing entities such as floors, spaces, assets, persons during the import, if indicated in the drawing definition. On creating persons and assets in the .orj file, the color of the blocks in the AutoCAD drawing is ignored. These blocks obtain the color of the layer as defined in the business object mapping. Note that you must specify the **Output location for CAD Integrator files** field to save the .orj files.
Output location for CAD Integrator files	Specify an output location for the .orj files of the FM and Constructional drawings; these are generated from the .dwg drawing during the import. The .orj files can be viewed using the CAD Integrator in Planon, whereby it is not required for the user to have AutoCAD. If you have specified a file location for CAD Import in System Settings, the path reference must be relative.
Creation output folder structure CAD Integrator	Select **Yes** to create the CAD Integrator FM and constructional .orj drawings within the same output folder structure as is created for the imported .dwg drawings.

Mapping CAD drawing to floor - fields

Field	Description
CAD drawing	Specify the AutoCAD drawing that corresponds to the selected property and floor. If the drawing floor mappings use a folder structure instead of a file name to distinguish drawings of various properties and floors, the identifying path of the file has to be added to the file name: for example, if the ground floor drawing of every property is called as FloorMap.dwg and each property has its own folder, for example: **Drawing**: \\<share>\Input\Nijmegen\0\FloorMap.dwg **Drawing**: http://nl-devs12:58070/webdav/wijchen/0/FloorMap.dwg **Drawing**: \\<share>\Input\0\FloorMap.dwg While specifying the path of folders they should be separated by a “/” in the **CAD drawing** field. During the retrieval of property and floor “/” is treated as “\”.
Floor code	Specify a code of a floor to which the drawing applies.
Property	Specify a property to which the drawing belongs.

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