



## BIM viewer

### Planon Software Suite

Version: L105

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# 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](mailto: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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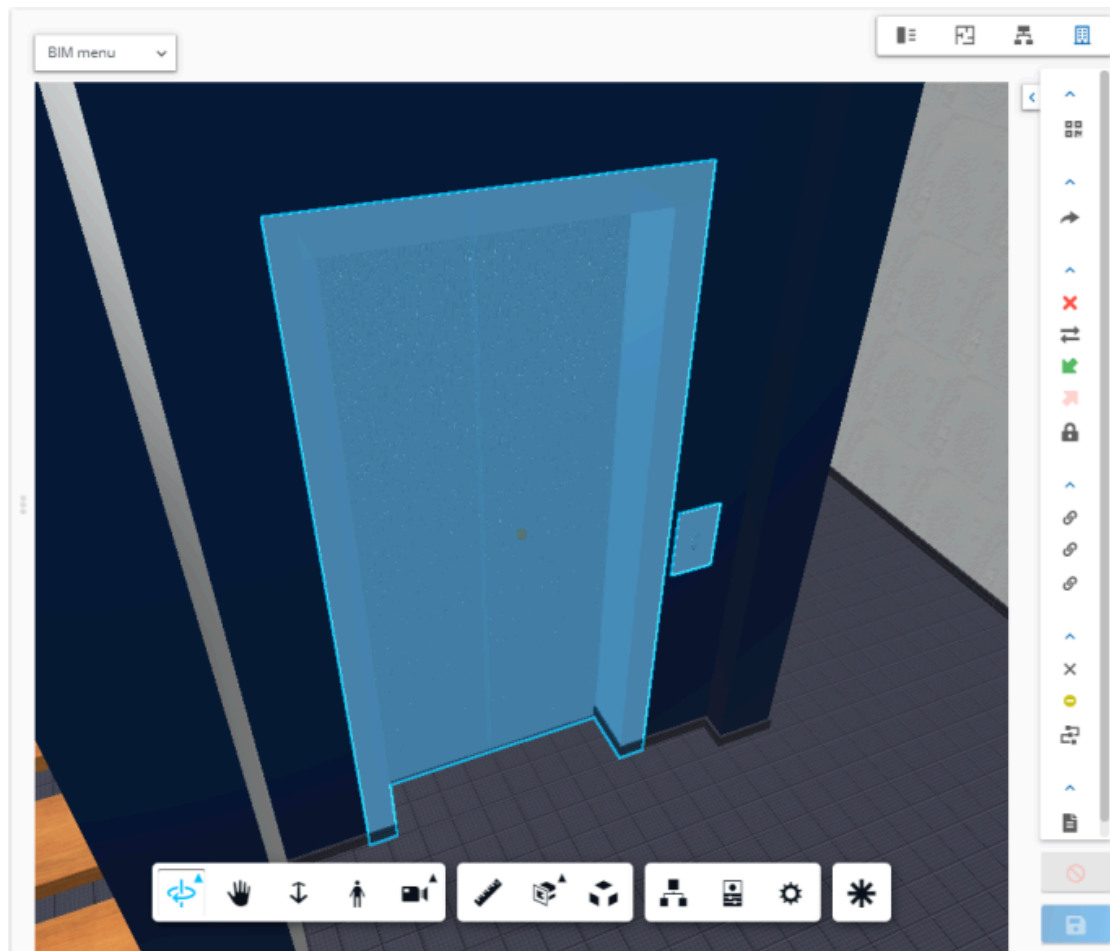
# BIM viewer

BIM viewer is a visual component that enables users to view 3D BIM models inside the Planon data panel.

BIM viewer is available in:

- Assets
- Spaces

When viewing your BIM models in BIM viewer, you can perform all kinds of actions, highlight elements and perform analyses.



BIM models are 3-dimensional and consist of views that you can share.

## Revit to SVF

The BIM model format is a revit file, which needs to be converted into SVF/SVF2 in order for BIM viewer to be able to display it.





For more information, see [Conversion](#).





Check out the video on [Configuring BIM viewer](#) on our Planon Software channel.


## BIM controls






There are a number of controls available to manipulate your BIM model in BIM viewer. The following table explains what the various icons do.



Tool	Function	How to use	Tips
	Orbit	Click the left mouse button, drag to rotate. The <b>Free Orbit</b> option, enables you to freely rotate and tilt the model in any direction.	
	Pan	Drag to move the model to a different part of the viewer.	
	Zoom	Move the cursor over the model, scroll the mouse wheel forward for zoom out and backward to zoom in.	You can use the <b>Zoom</b> option after selecting other options like <b>First person</b> , or <b>Measure</b> . You can also use the <b>Zoom</b> option before you use <b>Measure</b> .
	First person	Use the <b>First person</b> tool if you want to navigate	

Tool	Function	How to use	Tips
	Camera Interactions	<p>through a model as if you were actually inside the model.</p> <p>Select and drag.</p>	
	Section Analysis	<p>Select the type of section analysis you want to use. You can select:</p> <ul style="list-style-type: none"> <li>• <b>Add Box</b> to section a specific area.</li> <li>• <b>Add X Plane</b> to section along the X axis.</li> <li>• <b>Add Y Plane</b> to section along the Y axis.</li> <li>• <b>Add Z Plane</b> to</li> </ul>	



Tool	Function	How to use	Tips
	Measure	<p>section along the Z axis.</p> <p>Drag the desired manipulators until the model is sectioned the way you want it. When done, click the <b>Section Analysis</b> button again to turn off sectioning.</p> <p>Click at the point from which you want to measure. Click the point to which you want to measure. The measurement is displayed in the model itself. You can edit the <b>Angle</b>, and <b>Calibrate</b> and <b>Delete</b> the measurement. In <b>Measure settings</b>, you can change the <b>Unit type</b>, <b>Precision</b> and also</p>	Zoom in if needed before you measure.

Tool	Function	How to use	Tips
	Explode Model	<p><b>Isolate</b> the measurement.</p> <p>Drag the slider forward to separate and see the individual parts that make the 3D building model. Drag the slider back to bring the model together.</p>	<p>After using the explode option, you can rotate and zoom to get a closer look at the parts.</p>
	Model browser	<p>Select the model browser. Enter the name of the part that you want to look at in the search bar.</p>	<p>After you use the model browser to find a part, you can select sections of that part. Click the <b>Properties</b> option to view the properties of your selection.</p>
	Properties	<p>Click to view the properties of a selected part within the building.</p>	<p>Use the Model Browser to select a part and click Properties.</p>
	Settings	<p>Click this button to open the viewer settings.</p>	
	Isolate	<p>Select a part of the building and isolate it by clicking this button. The</p>	

Tool	Function	How to use	Tips
	Viewpoints	Click to open the Viewpoints dialog which you can use to view or create viewpoints.	rest of the design will be grayed out.
	Model type selector	Click to open a dialog in which you can see or select a specific model type.	

## BIM system BO links

**BIM system BO links** is used to hold the BIM information of converted revit files.

**BIM system BO links** uses the concept of [External BO links](#), which establishes a link between two parties. Both parties can identify the elements they share base on their unique external ID.

In the case of BIM viewer, this mechanism is used to store the external IDs of converted assets, spaces, floors, and building elements.

### Conversion

After conversion of revit to SVF, the resulting data is presented as an XML file. When importing this data into Planon using BIM Exchange, the data in the XML is stored and displayed in the **BIM system BO links** TSI.

This TSI consists of two major steps, **BIM systems** and **BIM system BO links**.

### BIM systems

This identifies the various BIM systems that are listed in Planon (uniquely identified by their external ID). For more information, see [BIM systems - fields](#)

## BIM system BO links

Here, each element is listed, uniquely identified by its [external ID](#) (a.k.a. [GUID](#)). The advantage of having a central location for storing this kind of data is that it enables you to easily filter the data. Also, it will now be possible to identify and view multiple elements in a single CAD drawing.

If required, you can delete a BIM system BO link or link it to a different BIM system.

## Importing BIM GUIDs via surveys

To view elements correctly in BIM viewer, it required that the BIM GUIDs of elements are linked in BIM systems.

It has been made possible for new and existing customers to use the functionality of processing survey data in order to import the BIM GUIDs of elements into [BIM Systems](#). This works for new and for surveys that have already been processed. **Precondition**

- **BIM System BO links** is added to the navigation panel.
- The feature switch '[Discontinue support for BIM-GUID field on the 'Assets' and 'Spaces' business objects](#)' has been enabled.
- The survey's property is linked to a BIM system
  - The property's BIM model is visible in Assets.
  - This BIM model must be linked to BIM systems.
  - Go to **BIM models** (make sure that **BIM system** is added to the layout) and link the model to a BIM system.

### Configuration

1. Go to TSIs > Core BIM import/export definitions and set it Under construction.
2. On the BIM import/export definition level, add the Surveys - BIM import definitions step (BIMImportDefinitionSurveyStep).
3. on BIM import / export logs level, add the Survey logs - BIM import step (BimImportSurveyLog).
4. The the BO to Completed, log out and log in.

**You are now ready to import the BIM GUIDs of elements that are available in surveys.**

### Creating a survey for BIM import definitions

1. Go to BIM import/export definitions > Surveys - BIM import definitions >
2. Click **Add** on the action panel.

3. In the data panel, complete the relevant fields to create a survey for a BIM import definition.
4. In the **Survey** field, only the processed surveys are shown in the picklist. Select the appropriate survey and click **Save**.



When **processing survey data**, now the survey elements (containing the BIM GUIDs) will be shown in **Assets**.

#### Importing BIM GUIDs via surveys

1. Go to BIM import/export definitions > Surveys - BIM import definitions
2. Select the survey for whose elements you want to import BIM GUIDs and click **Run BIM import** on the action panel.

The BIM GUIDs of survey elements will now be added to **BIM systems**.

3. (Optional) Check the log on the **BIM import/export logs** step: this lists the results of the import.

To verify this, go to **Assets** and select your property. On **Assets** level you will see the imported assets. These imported assets together contain the number of elements that have been imported via the survey and that were mentioned in the import log.



These assets have not been generated via **Surveys - BIM import definitions**. These assets were already generated via processing survey data earlier.

Go to **BIM systems** to verify it. Select your property and go to **BIM system BO links** level and notice that the elements and their GUIDs have been added.

#### Undoing a survey import

If you have made a mistake or would like to roll back your changes, you can undo your import.

1. Go to BIM import/export definitions > Surveys - BIM import definitions **step**.
2. Select your survey and click **Undo import BIM links of survey**.
3. (Optional) Check the log on the **BIM import/export logs** step. This lists the results of the undo action.
4. Go to **BIM systems** to verify it. Select your property and go to **BIM system BO links** level and notice that the elements and their GUIDs have been removed.

## BIM models

For viewing BIM models in the BIM viewer ( **Assets** or **Spaces & Workspaces** ), these models need to be made available to the Planon application.

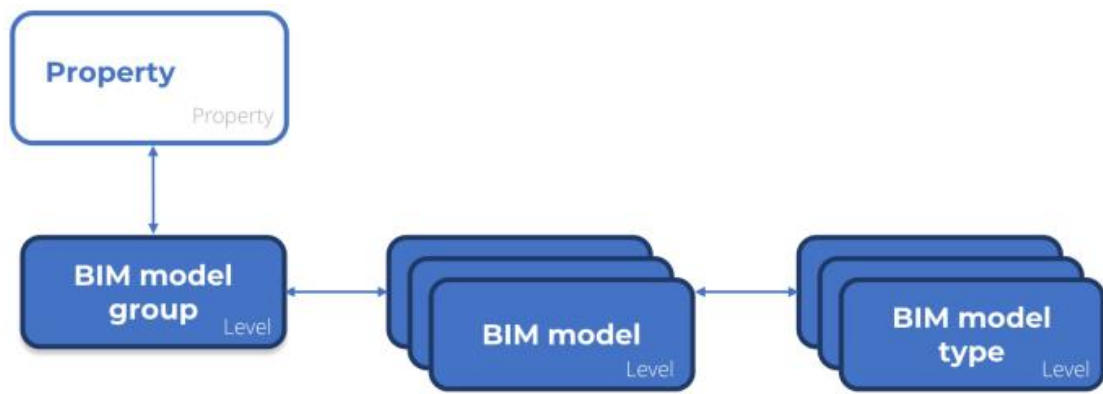
This requires setting up a BIM model structure containing three levels:

1. [BIM model groups](#)
2. [BIM models](#)
3. [BIM model types](#)

You can set up this structure in [Supporting data](#).

## BIM model groups

A BIM model group is basically a *container* that allows you to link multiple BIM models to a property.



Linking multiple BIM models to a property enables you to display multiple BIM models in BIM viewer simultaneously ( Assets , Spaces & Workspaces ).

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Field	Description
Code	Enter a code for your BIM model group.
Name	Enter a name for your BIM model group. The name is used to identify and select the BIM model group when linking it to a BIM model.
Property	Select the property for your current BIM model group. The BIM model group - property link must be unique.

---

## BIM models

For viewing BIM models in the BIM viewer ( Assets or Spaces & Workspaces ), these models need to be made available to the Planon application.


## Conversion

BIM viewer can display models that have an *svf* extension, to which, typically, BIM models need to be converted.

### Conversion options

You can do one of the following:


- Link your model in the Autodesk Cloud (automatic conversion).
- Create/update your BIM models in a WebDAV folder and publish your model to the Autodesk cloud.

 For publishing your model to Autodesk cloud, you need a Platform app, which you can download from the [Planon Marketplace](#). The **Planon Connect for Forge** app (Connect4Forge) publishes your model to Autodesk cloud when the model in your WebDAV location is changed (saved). The model is subsequently converted by Autodesk cloud and will result in a new **Conversion result**.

## BIM models

The following table shows the fields and the descriptions that are available on the **BIM models** step.

Field	Description
Code	Enter a unique code.
Name	Enter a name to identify the model.
BIM system	Select the BIM system for which you are defining a BIM model.
Source model	<p>This field holds a link to the Revit-based model, which is the source for the models to be displayed using BIM viewer.</p> <p>By default, this field accepts files with extension <i>.rvt</i>. If you want to upload a model with a different extension, you must enter this extension in the <b>BIM source model - allowed file types</b> field (System Settings &gt; <a href="#">File locations</a>)</p>
Conversion result	<p>This field will contain a link to a file with the extension <i>json</i>, which is stored in the same folder as the <b>Source model</b>.</p> <p><b>Conversion result</b> will hold the result of the conversion process when it is done. In order to trigger the conversion,</p>

Field	Description
	<p>you need to install the <b>Planon Connect for Forge</b> app (Connect4Forge).</p> <p>The <b>Conversion result</b> body contains a <i>connection string</i> with information about the region, file format (SVF or SVF2) and a URL per converted file. You must copy this string and paste it in the <a href="#">Autodesk cloud reference path</a>.</p> <div style="border: 1px solid blue; padding: 5px; margin: 10px 0;"> <p> When sharing URLs via mail or chat or any other means of communication, invisible characters (zero-width space) may be added that invalidate the URL. When receiving a URL in such a way, pasting it in a text editor will remove these invisible characters.</p> </div>
BIM region	<p>Select the region for storing your BIM model. Typically, select the region that is closest to you.</p> <p><b>Region &amp; GDPR Compliance</b></p> <p>The General Data Protection Regulation (GDPR) is a set of rules that protect the digital privacy of the citizens of the European Union (EU). Businesses and organizations who serve users in Europe are legally required to comply with GDPR.</p> <p>Accordingly, Forge serves users in Europe, Middle East, and Africa (EMEA) from a dedicated data center, in compliance with GDPR regulations. The EMEA data center is physically separated from the US data center.</p> <p>For more information, see the <a href="#">Autodesk website</a>.</p>
Conversion update	<p>Displays the status of the conversion of the model by Autodesk.</p>

## BIM model type categories

On this step, you can specify the various categories that you want to work with for distinguishing or labeling your BIM models.

Anything is possible, here are some examples of categories; *Electrical*, *Mechanical*, *Architectural*, and so on.

Field	Description
Code	<p>Specify a code for your BIM model type category.</p> <p>The code is used to identify and select a category for a BIM model type.</p>





Field	Description
Name	Specify a name for your BIM model type category.

## BIM model types

By subdividing a BIM model into various BIM model types you can distinguish between classifications, such as Mechanical, Electrical and so on.

For more information about the required data, see the following table:

Field	Description
Code	Enter a unique code.
Name	Enter a name to identify the model.
BIM model	Displays the BIM model for which you are creating a new type.
BIM model type category	Select the BIM model type category (electrical, mechanical, ...) for the selected BIM model. You can specify a BIM model type category on <b>BIM models &gt; BIM model type categories</b> step.
Path reference BIM model	Specify the WebDAV file reference to the BIM model (in <i>svf</i> format).
Autodesk cloud reference	Enter the Autodesk cloud file reference from the <a href="#">Conversion result</a> .
	<div style="border: 1px solid #00a0e3; padding: 5px;"> <p> If both the BIM model reference and the Autodesk cloud reference contain a value, the latter takes precedence.</p> <p> When sharing URLs via mail or chat or any other means of communication, invisible characters (zero-width space) may be added that invalidate the URL. When receiving a URL in such a way, pasting it in a text editor will remove these invisible characters.</p> <ul style="list-style-type: none"> <li>Please ensure that the <code>.json</code> file type is specified in the <b>Document file types</b> field (<b>System settings &gt; File locations</b>). If this is not the case, the <code>.json</code> file cannot be downloaded from the Autodesk server.</li> </ul> </div>
Start date	Enter or select a start date for the BIM model type.
End date	Enter or select an end date for the BIM model type.
Offset	Specify the BIM model's coordinates if you want to display multiple BIM models in BIM viewer.

Field	Description
	<p>The coordinates specify the distance from the origin along the x, y, and z-axes, respectively.</p> <p>The coordinates should be specified in JSON format:</p> <pre>{x: 100, y: 200, z: 0}</pre>

## Configuring a BIM model

Precondition: Your 3-D model is available at the right location on the WebDAV server or Autodesk Cloud. Now, you can organize and maintain the available BIM models as required in Supporting data > BIM models.

- On the **BIM model groups** level, you create a group for your property.
- On the **BIM models** level, you can add BIM models to your property and specify **BIM model type categories**.
- On the **BIM model types** level, you can add BIM model types to your BIM model.

### Procedure

1. Go to Supporting data > BIM models > BIM model groups.
2. On the action panel, click Add.
3. Enter a Code and a Name for the BIM model group and link it to a **Property**. Click Save to apply your changes.
4. Go to **BIM models** and add a BIM model.

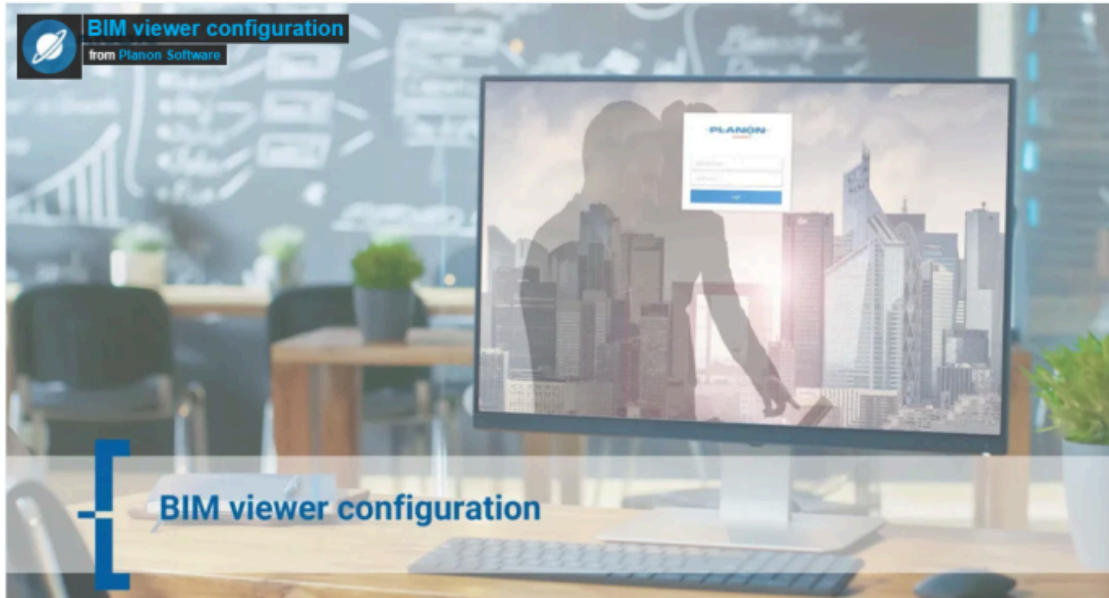
**At this level, you can also specify BIM model type categories (Electrical, Mechanical, ...).**

5. Go to BIM model types and add your BIM model types.
6. From the BIM model dialog, specify the:
  - a. BIM model
  - b. BIM model type category
  - c. WebDAV or Autodesk reference
  - d. Start date
7. Click Save.

The BIM model is ready for use in BIM Viewer.

## BIM viewer configuration

To view a short video on how to configure BIM viewer, please check out the following item on our [Planon software](#) channel.



This video contains the following subjects:

- Linking a BIM model group to a property
- Linking a BIM model group to a BIM model and a BIM system
  - BIM systems
  - BIM system BO links
  - Existing customers: using BIM systems
- BIM model type categories
- BIM model types
- Using Autodesk cloud
  - Creating an Autodesk account
  - Creating an External data storage
  - Configuring BIM viewer settings
- Result

# BIM viewer in Assets

The BIM (Building Information Modelling) viewer provides 3D modeling representation of the assets and building elements in a building. On selecting an asset or building element, you can clearly see its position and its relation to other assets / building elements in the building.

The BIM viewer also provides interaction with Planon elements. For example, selecting an asset in the element list will highlight the linked asset in the BIM viewer and vice-versa.

## Understanding BIM viewer

If a BIM model has been configured for a property, a 3D model can be displayed for assets on the **Assets** selection level (in the **BIM viewer** view). You can zoom in and out to get a proper view of a selected asset.

You can also zoom in on the complete building to find other assets and building elements. If you select an asset in the model it will be highlighted in the elements list or vice-versa.




- You can only view the BIM model in the BIM viewer if the model is linked to a property.
- If there are multiple BIM models linked to a property, you can use BIM model selector to select the model you want to display.

- For more information on configuring a BIM model, see [Configuring BIM Viewer for AppSuite](#).

## Linking BIM objects to assets

You can view a BIM model in Assets . The assets in the elements list can be linked to the assets in the BIM viewer.

You can do this by using [BIM Exchange](#) or they can be linked manually. When the links are created, you can click on the BIM model to select an asset. If you click an asset in the list the linked asset is highlighted in the model.

 This procedure only works if the improved feature **Discontinue support for BIM-GUID** field on the **Assets** and **Spaces** business objects has not yet been enabled.

### Procedure

1. In the Assets TSI, select a property (that is linked to a BIM model).
2. Go to Assets and select BIM viewer.

#### The BIM model is displayed.

3. At the top left click the BIM menu.
4. Select the Link BIM objects option.
5. On the model, select an 'asset' to which you want to link an asset in the element list.

For information on working with the BIM model, see [Understanding BIM viewer](#).

The **Assets** dialog is displayed, listing all the simple assets in the selected property.

6. Select an asset to which you want to link the BIM asset and click OK.

## Configuring BIM Viewer for AppSuite

Before you can configure the BIM settings for Planon AppSuite, make sure you meet the following preconditions:

- You have configured the **BIM Exchange** functionality in Planon Web Client. This means that Planon data on buildings / assets is linked a BIM 3D-model.
- You have exported the BIM GUIDs from Revit to Planon. BIM GUIDs enable end users to make selections and retrieve information in BIM Viewer.

 See the **BIM - Installation and Configuration Guide**, **BIM Requirements** and **BIM Exchange** user documentation for more information.



AppSuite can only display BIM models that are configured in Planon ProCenter . AppSuite does **not** support BIM models in SVF2 format.

In most Planon AppSuite modules, where relevant, end users can use the BIM Viewer feature to view 3D-models of buildings and their assets. In Planon ProCenter, BIM Viewer is available as a special view on the **Assets** selection level.

If your Planon environments meet the above pre-conditions, you can start preparing your Revit files for conversion to a 3D-model that can be displayed in the Planon AppSuite or in Planon ProCenter > Assets . See [Converting your files into a 3D-model](#).

## Converting your files into a 3D-model

Prepare your Revit source files for conversion on the [Autodesk Platform Services](#) website.

After creating an account and signing in, you can watch tutorials and buy tokens to perform the actual conversion.

### Procedure

1. Create an Autodesk user account and sign in.



For more information, see Step 1 in [Creating an app](#).

2. Watch any tutorials (Autodesk) you may think relevant.
3. Buy the required amount of credits for you conversion.
4. Perform the actual conversion as specified on the site.

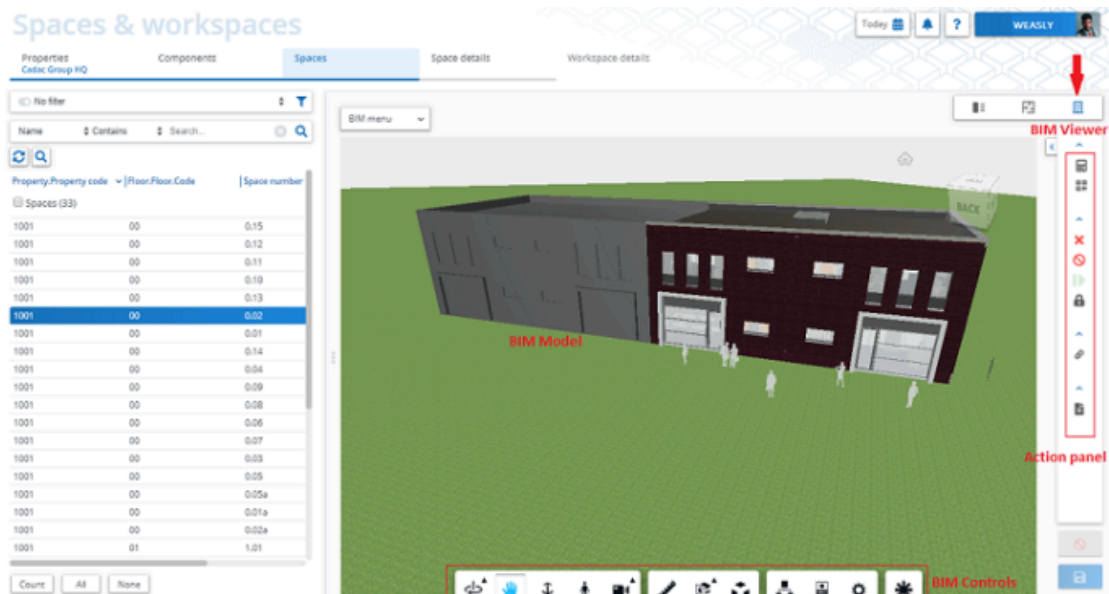
**Your source files are converted to a folder structure containing the 3D-model. The .SVF file in that folder is crucial, as this file is used by the app to access and load the other files.**

5. Copy this folder structure to the WebDAV server.

**You can now add the model to the Supporting data > BIM models TSI in Planon. See [Configuring a BIM model](#).**

# BIM viewer in Spaces & Workspaces

The BIM (Building Information Modelling) viewer provides a 3D-representation of spaces, assets and building elements in a property. On selecting a space you will see the space's position in relation to other elements in the property.



Selecting a space in the Planon elements list will highlight the linked space in the BIM viewer and vice-versa. The action panel is also available in the BIM viewer. Here, you can perform the same actions that are available when the data view is selected, such as ending / resuming a space, deleting a space, calculating the surface area etc. For more information on linking a space to a BIM object, see [Linking BIM objects to spaces](#).

## Modifying workspace details or occupancy data from the Workspaces selection level

At the **Workspaces** selection step, you can modify workspace details, such as the department, cost center and tariff group or you can modify occupancy data, such as the required area, occupancy rate and working days.

### Procedure

1. Go to Space details > Workspaces (in Data view or CAD Integrator).
2. Select the workspace(s) whose details you want to modify (use Action on selection to select multiple workspaces).

3. On the action panel, click Modify workspace.

**The Enter values dialog box is displayed.**

4. In the Modification date field, select the date on which the modification is to become effective. By default, the reference date is selected. Use the date picker to select a different date.
5. Select either Modify workspace details or Modify occupancy data.
6. Click OK.

**The Modify workspace details or Modify occupancy dialog box appears.**

7. Modify the required Workspace details or Occupancies field(s) and click OK to save your changes.

**The workspace detail field(s) or occupancy fields is (are) now modified for the selected workspace(s).**



For this feature to work correctly, it is necessary that the **Split** action is available on the **Workspaces details** selection step and **Occupancies** selection step because these actions will create a split internally and the existing values will be replaced with the modified values. If the split action is not available, you will get an error message. In that case, ask your Planon system administrator to make the **Split** action available on the **Workspaces** layout.

## Linking BIM objects to spaces

You can view a BIM model in Spaces & Workspaces . However, the spaces in the elements list are not automatically linked to the BIM objects in the BIM viewer.

You must first manually link spaces to BIM objects. When the links are created, you can click on the BIM model to select a space. If you click a space in the list the space is selected in the model.

### Procedure

1. In the Spaces & Workspaces TSI, select a property (that is linked to a BIM model).
2. Go to Spaces and select BIM viewer.

**The BIM model is displayed.**

3. At the top left click the BIM menu.
4. Select the Link BIM objects option.
5. On the model, select a 'space object' to which you want to link a space.

**For information on working with the BIM model, see [Understanding BIM viewer](#).**

**The Spaces dialog is displayed, listing all the spaces in the selected property.**



6. Select a space to which you want to link the BIM object and click OK.

**The space and BIM object are now linked.**

# Autodesk cloud

Autodesk cloud offers the ability to connect to BIM models in the cloud.

As part of their cloud solution, Autodesk offers **Model derivative** which enables you to *translate* 2D and 3D views from over 70 file formats into the svf format, so that they can be rendered on a web page in a viewer.

Planon enables you to view svf files stored in Autodesk cloud in BIM viewer. In addition, you can create and maintain BIM models locally in a WebDAV location and synchronize these with Autodesk cloud.




Check out the video on [Configuring BIM viewer](#) on our Planon Software channel.

## BIM viewer settings

Here you can make settings for BIM viewer.

The settings specified here will be generically applied to BIM viewer. BIM viewer is available in Assets and in Spaces & Workspaces .

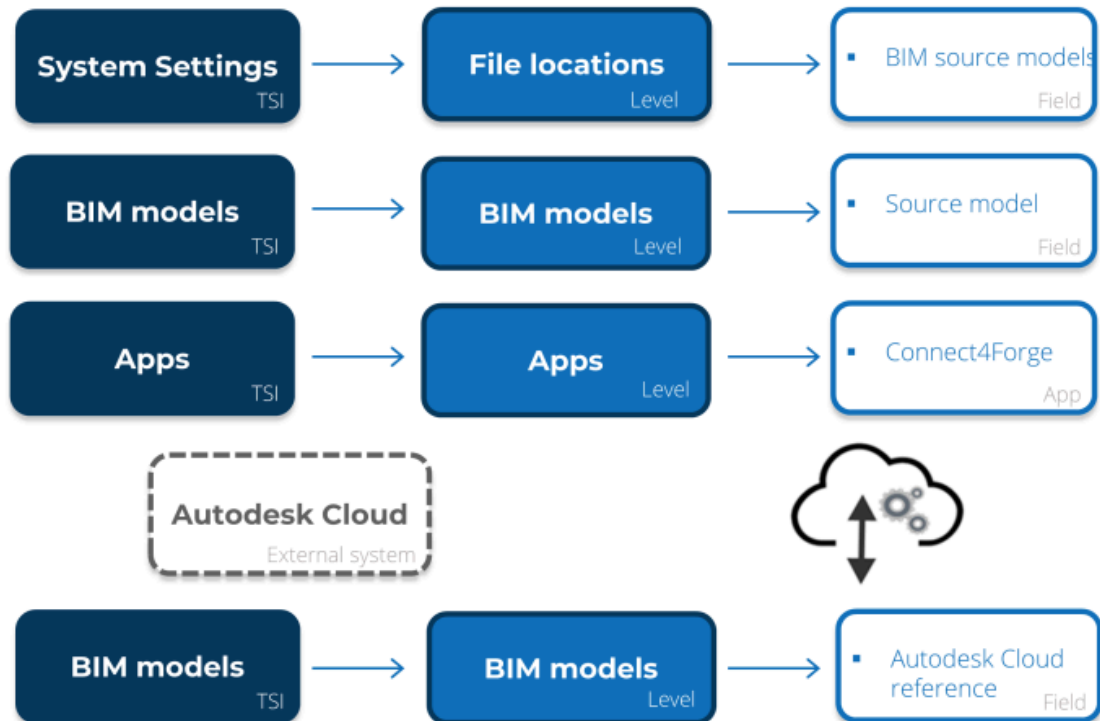
Field	Description
Autodesk credentials	Select the external data storage record that holds the Autodesk cloud credentials. This will allow you to authenticate the connection to Autodesk cloud.
Max. no. of BIM model types	Select the number of BIM model types you want to load for Assets or/and Spaces & Workspaces in the BIM viewer. The default value is 3, but you can change this value, within a range of 1 to 20.
	Setting a value above 3 may result in slower loading times, reduced responsiveness, and occasionally even crashes of the application. Proceed with caution and only increase this limit if you have a high-performance computing environment.
Asset model type category	Indicate the preferred BIM model type for assets to be loaded in BIM viewer.
	With this setting, you can speed up loading the preferred models. You can load a

Field	Description
	maximum of 20 models. If you leave the field empty or enter an incorrect value, only one model will be displayed.
Space model type category	Indicate the preferred BIM model type for spaces to be loaded in BIM viewer.
	 With this setting, you can speed up loading the desired models. You can load a maximum of 20 models. If you leave the field empty or enter an incorrect value, only one model will be displayed.

## Creating/updating BIM models for viewing in Autodesk cloud

You can maintain your BIM models in a WebDAV folder and *synchronize* with the Autodesk cloud so that your BIM model changes are reflected when using BIM viewer.

To use this feature, some configuration is required.



Your BIM models are linked to the Autodesk cloud via BIM models > Source model field. Autodesk needs to know the actual location of the source model so that changes can be processed.



To synchronize your BIM model changes to Autodesk cloud, you require the **Planon Connect for Forge** app (Connect4Forge). Make sure this app is installed in the **Apps TSI**.

### Procedure

1. Go to System Settings > File locations > BIM source models. Here you must enter the WebDAV location of the BIM source models.

**Upon saving your changes to your BIM source model, the Planon Connect for Forge app (Connect4Forge) will be initiated and will synchronize your BIM source model with Autodesk cloud.**

Autodesk cloud will convert your BIM model (Revit) into a format that is readable by BIM viewer (svf).

The converted model will be shared with the Planon application as a JSON file. The file is available via the BIM models > Conversion result field.

2. Go to BIM models and open the file that is available in the Conversion result field.

**This JSON file contains the result of the conversion. It will list the converted files as URLs.**

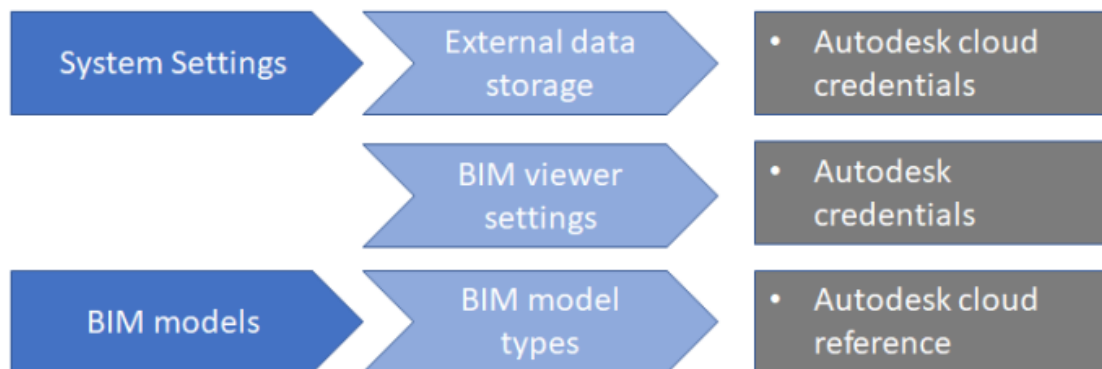
3. Copy the URL, go to the BIM model types level and paste the URL in the Autodesk cloud reference field.

**You can now view your updated BIM model in BIM viewer.**

## Viewing Autodesk cloud files in BIM viewer

You can directly connect to files in Autodesk cloud.

To use this feature, some configuration is required.



### Procedure

1. Fill out the Autodesk account credentials in System Settings > External data storage.

This establishes a connection between the Planon application and Autodesk cloud (where your converted svf files are stored).

You get these credentials when you create an account at Autodesk Platform Services.

Here, you must also register the **Planon Connect for Forge** app (Connect4Forge).

For more information, see [Create an app](#).

2. In System Settings > BIM viewer settings, link to the Autodesk external data storage.

This will allow BIM viewer to access the files using the credentials of your external data storage.

3. Go to Supporting data > BIM models > BIM model types where must specify the drawing reference in the Autodesk cloud reference field.


When you go to Spaces & Workspaces , you will be able to view the svf drawings of the property that is linked to your BIM model.

## Troubleshooting

This section provides a means of verifying or ruling out some configuration issues.

---

Settings	Description
<b>User extensions enabled</b>	Ensure that this setting is enabled. You can find this setting in <b>General settings</b> (System settings ). See also: <a href="#">General settings fields</a> .
<b>BIM viewer settings</b>	Make sure that the <b>BIM viewer settings</b> are correct and complete. This is where you specify the: <ul style="list-style-type: none"><li>• <b>Autodesk credentials</b></li></ul> This setting is required for properly arranging a connection. See also: <a href="#">BIM viewer settings</a> .
<b>Conversion history</b>	Make sure to add this field to the <b>BIM model</b> layout. The <b>Conversion history</b> field is a log field that displays conversion details and also lists issues. This information can be useful in detecting and resolving problems.

Settings	Description
	<p>Keep in mind that a conversion takes time. If the <b>Conversion history</b> field lists the message <i>'File sent to Autodesk'</i>, the processing is started on the Autodesk side.</p> <p>Only if the message <i>'File success and complete'</i> appears, is the conversion actually done and a complete JSON will be available.</p>
	<p> If you open the JSON file before getting this message, it will be incomplete.</p>
<b>Connect for Forge</b>	<p>Note that the <b>Connect for Forge</b> app will only be triggered if a change in the source files is detected.</p> <p>To ensure that the app is triggered, you could change the name of a Revit file.</p> <p>Keep monitoring the <b>Conversion history</b> field for details about the conversion.</p>
<b>Conversion result</b>	<p>If the conversion is completed, a json file will be made available containing a connection string.</p> <p>Make sure to copy this string (per converted file) in the <b>Autodesk cloud reference</b> field (<a href="#">BIM model types</a>).</p> <p>Please ensure that the .json file type is specified in the <b>Document file types</b> field (<b>System settings</b> &gt; <a href="#">File locations</a>). If this is not the case, the json file cannot be downloaded from the Autodesk server.</p>
<b>Autodesk credits</b>	<p>Autodesk charges customer for converting files to SVF/SVF2.</p> <p>Make sure you have enough credits to complete your conversion.</p> <p>For more information, see <a href="#">Pricing</a> on the Autodesk website.</p>

# Displaying multiple BIM models

By linking a [BIM model group](#) to a property and to multiple BIM models, it is possible to display multiple BIM models in BIM viewer.

You can then display various model categories in one view, or display different floors in one view.



For displaying multiple models, you must enable the improved feature "Discontinue support for BIM-GUID field on the 'Assets' and 'Spaces' business objects".

## Configuration

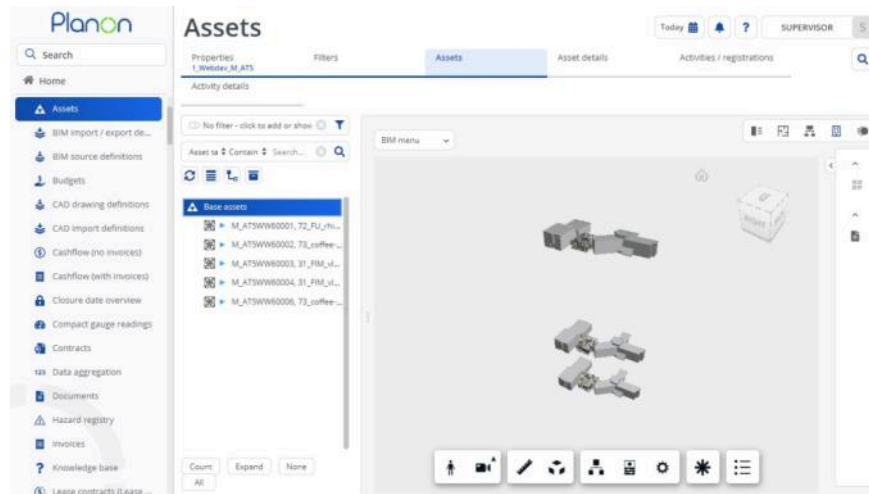
1. In **BIM models**, specify a **BIM model group** and link it to a property.
2. Go to **BIM models** level/step and add the BIM models for your BIM model group.
3. Go to **BIM model type categories** step and specify the various categories.
4. Go to **BIM model types** level and specify the BIM model types and offset for your BIM models.
5. Go to **BIM view settings** and specify the preferred model type category for assets/spaces.

## BIM viewer

To display multiple BIM models in BIM viewer, proceed as follows:

Note that this works similarly for **Spaces & Workspaces**.

1. Go to **Assets > Properties** level and select your property.
2. Go to **Assets** level, select BIM viewer and wait for the models to appear.



## Note

- It is possible to simultaneously display a maximum of 20 models in the BIM viewer. For more information, see [BIM viewer settings](#).
- When opening the **BIM model selector** in BIM viewer, the models that are loaded will be highlighted.
- If you click an asset that is only linked to a one model, only that model will be shown (and the asset will be highlighted).




# Show linked BIM models

In BIM viewer, the **Model type selector**  shows the BIM model types that are available for the selected property.

This does not necessarily show the BIM model types of a BIM model to which the selected asset or space is linked, but **all** BIM model types available for the property!

When linking an asset or a space to a BIM model, the information (data) is stored in the BIM system (in **BIM system BO links**). Each BIM model is linked to a BIM system.

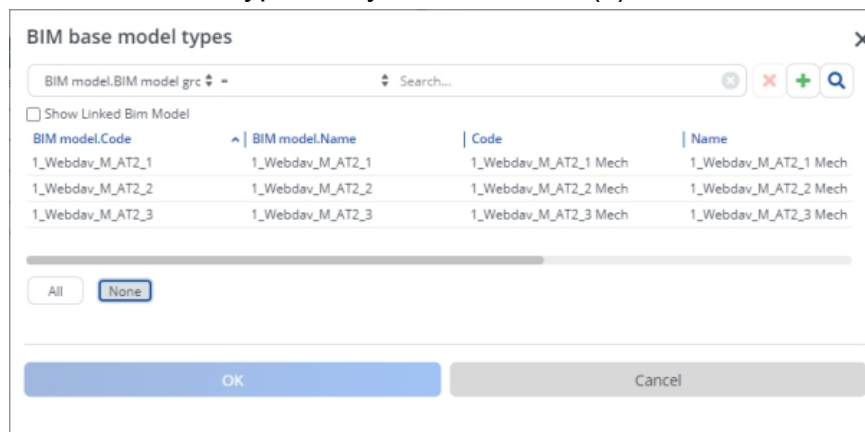
It is possible to show the BIM model(s) to which an asset or space is linked. To do so, proceed as follows.

 This feature works for both Assets and Spaces & Workspaces . Here, Assets is used as an example.

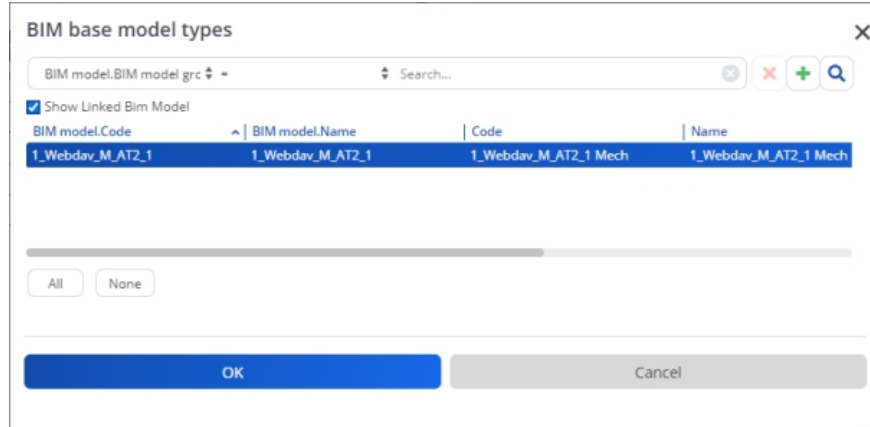
## Procedure

1. Go to **Assets > Properties** and select your property.  
All BIM models are linked to a property.
2. Go to **Assets** level and select an asset and open the BIM viewer.
3. After the BIM models have loaded, click the **Model type selector** in the toolbar.

The BIM model types for your BIM model(s) are shown:



4. To show only the *linked* BIM models, select the **Show linked BIM model** check box.



Now, only the BIM model(s) to which your asset is linked will be shown in the dialog.

- When you click **OK**, only the BIM model(s) to which your asset is linked will be shown in BIM viewer.



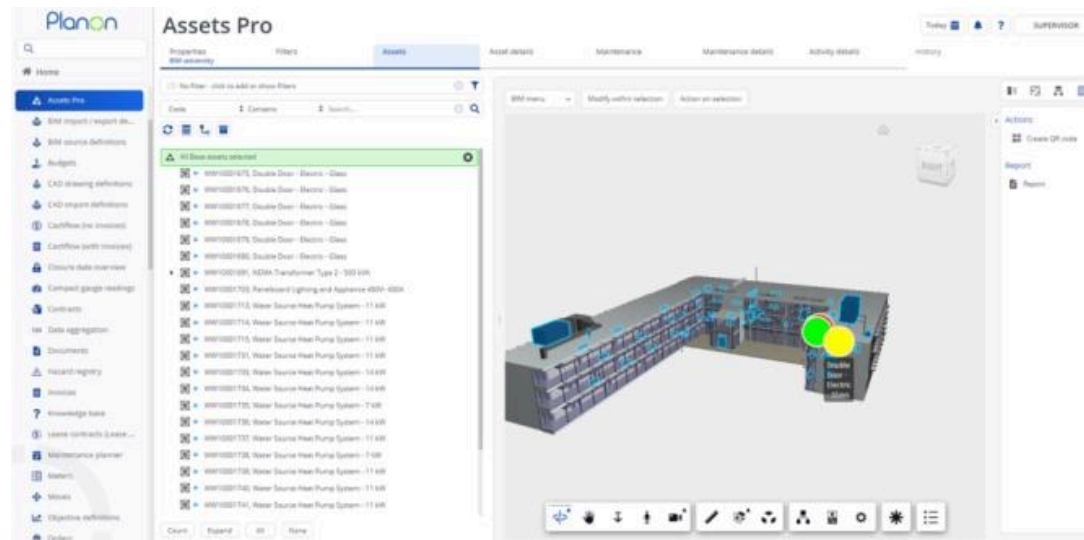
- You can also use this procedure to find out if an asset is linked to a BIM model.
- If you do this for multiple assets/spaces, you will get to see those BIM models to which both assets/spaces are linked.
- This feature only works if the [improved feature Discontinue support for BIM-GUID field on the 'Assets' and 'Spaces' business objects](#) is enabled.
- Using the filter box overrides the selection.

# BIM viewer overlays

An overlay is a layer on top of a BIM model; it remains completely separate from the model and is used only as a reference.

In the Planon application, you can use an overlay to highlight or mark specific data.

The overlay functionality is available for **Assets** and **Spaces & Workspaces**.



You can use an overlay, for example, to

- Quickly get an overview of an asset's status by configuring *traffic light* colors representing specific statuses.
- Visually identify an asset or space in a BIM model.
- Show/identify asset groups by color
- ...

**i** An overlay is a static view based on a data only report. To refresh the data, you need to regenerate the report and reload the overlay. To ensure performance and stability, a query identifies the linked assets/spaces in the model before running the report, including only those in the report and sending their data to BIM viewer.

## Configuring overlays

An overlay provides a static view; its data is populated by running a data only report.

You can create your own data only report, which enables you to specify the data to be displayed.



For information see [data-only reports](#) or [working with expressions](#) (Reports).

## Procedure

1. Go to **Assets** and click **Report** in the action panel.
2. Create a data only report containing two fields:

You can use any field, as long as you configure them as **Color** and **OverlayDisplayText** as

### a. Color

This field specifies the color to be displayed for an asset.

- In the data only report, specify the **Alternative column** text as **Color**.
- Select the **Group by this column** check box.
- You can either use a real field (for *static display*), or create an expression for populating the **Color** field (for *dynamic display*)

**Static display** = the color always remains the same. Here you configure an existing field in the data panel:

Asset tag #00FF00

**Dynamic display** = the color shown depends on the expression condition:

Expression

```
( if (BaseAsset.ItemGroupRef.GroupCode = "03") then "#990000" else
( if (BaseAsset.ItemGroupRef.GroupCode = "08") then "#990000" else
( if (BaseAsset.ItemGroupRef.GroupCode = "01") then "#CC0000" else
( if (BaseAsset.ItemGroupRef.GroupCode = "10") then "#FF0000" else
```

Check Delete

```
(if (Base assets:'Asset group','Classification group' = "03") then "#990000" else (if (Base assets:'Asset group','Classification group' = "08") then "#990000" else (if (Base assets:'Asset group','Classification group' = "01") then "#CC0000" else (if (Base assets:'Asset group','Classification group' = "10") then "#FF0000" else (if (Base assets:'Asset group','Classification group' = "02") then "#FF6666" else (if (Base assets:'Asset group','Classification group' = "71") then "#F6F6F6")))))))
```

- When specifying a color value, use hex color codes as shown here.

### b. OverlayDisplayText

This field is used to specify the text to be displayed as a tooltip for the overlay marker.

- You can use any field, it's value will be displayed as a tooltip when you hover your mouse over the overlay marker.
- When configuring the data only report, make sure to specify the **Alternative column** text as **OverlayDisplayText**.

3. Save your report and click **Preview & Print** to verify the result.

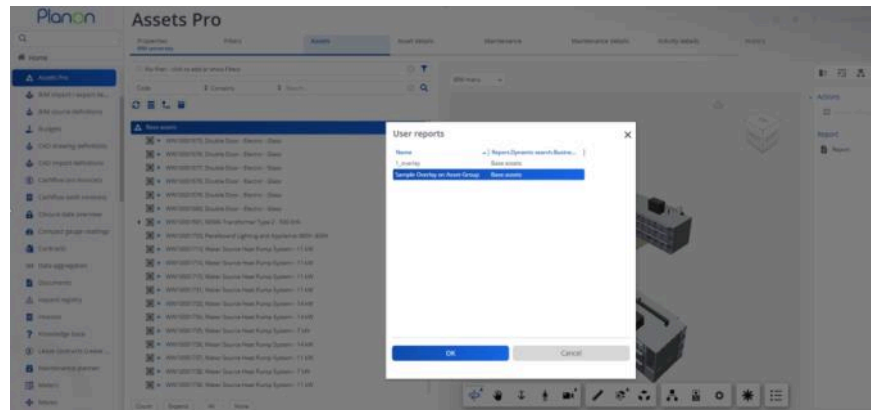
You will now be able to select your report in the **BIM menu**: see [Working with overlays](#).



If the **Color** field is empty for this asset/space, an overlay marker will not be created.

## Working with overlays

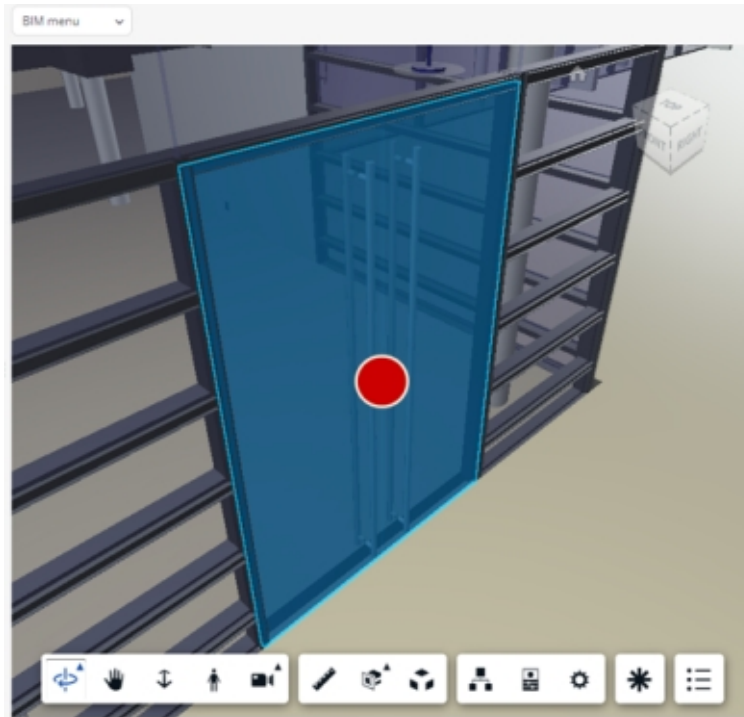
1. In BIM viewer, if you open the **BIM menu** and choose **Apply overlay**, a dialog box listing the available overlay reports will appear.



2. Select the overlay (data only report) you want to display and click **OK**.  
The BIM viewer is populated with the overlay based on the actual data that is retrieved from the application.  
If you want to refresh the data, update this overlay - to refresh the data - you need to regenerate the report and select the overlay again.

## Specifics

- Clicking on an overlay marker selects the object/area associated with the flag.



- Hovering over the overlay marker displays the tooltip information representing the contents of the data only report's **OverlayDisplayText** field.
- If you want to hide the overlay, simply choose **Remove overlay** from the **BIM menu**.
- BIM viewer *remembers* the last used overlay. For easy and convenient access to BIM overlays, users can select **Repeat last used overlay** from the BIM menu.
  - If no overlay can be found, the option **Repeat last used overlay** will be disabled.
  - If the overlay is found, the option is enabled and will be appended by the name of the overlay.

# Viewpoints

A viewpoint is a link to a specific perspective or aspect of a building or project that is represented in the BIM model.

By clicking a viewpoint, you can quickly go to a *self-specified* point of interest in your BIM model. It acts as a quick access point to an area of interest to the user.


- You can create, update or delete viewpoints.
- You can have as many as 5 viewpoints per BIM model type.
- Viewpoints are stored in the user's browser's cache.
- When changing the [offset](#) of BIM model types, viewpoints are readjusted accordingly.

## Creating a viewpoint

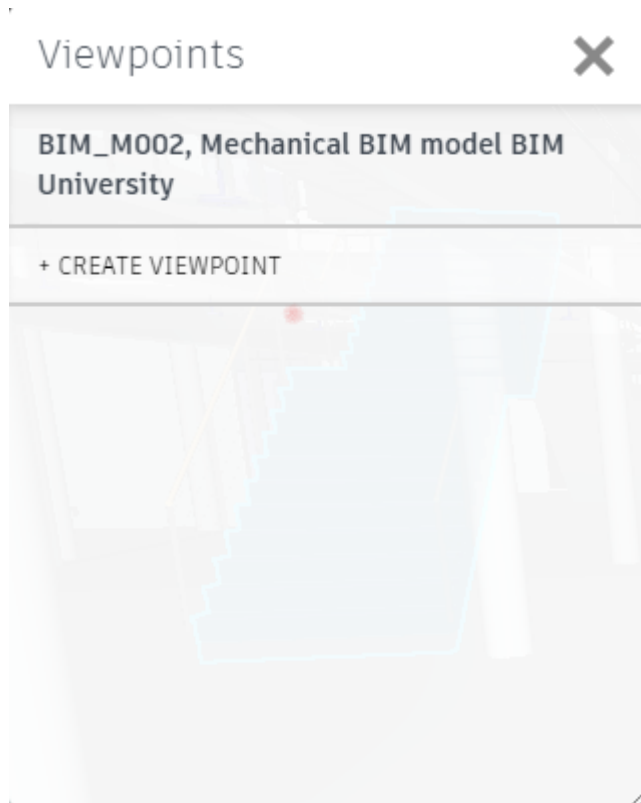
Users can create viewpoints per BIM model type.

### Procedure

1. Open BIM viewer and open a desired BIM model type.
2. Navigate to a point of interest and keep that in focus.
- 3.

Click  (**Viewpoints** ) on the BIM toolbar at the bottom.

**The Viewpoints dialog appears in the top left corner of the BIM viewer.**



4. Click **Create viewpoint**, to store a marker for the location.
5. Enter a name for your viewpoint and click **Save viewpoint**.

**When you open the BIM model again, opening the Viewpoints dialog and clicking your viewpoint allows you to quickly jump to this location inside your BIM model type.**


**By clicking the three elipsis points behind your viewpoint, you can:**

- Rename your viewpoint.
- Update your viewpoint (anchor it to a different location).
- Delete your viewpoint if it is no longer relevant.



# Multiple views

You can display 2D or 3D drawings on the corresponding levels in Assets and in Spaces & Workspaces . To simplify navigation inside these models and provide the ability to compare models, it is possible to display these views in a separate window.

-  • The pop-out windows will only respond to actions performed in the parent TSI.
- To benefit most of this feature, we recommend using multiple monitors.

When using this feature, it is therefore possible to display three views simultaneously:

- Data view
- CAD Integrator
- BIM Viewer

## Limitations


- You cannot copy the URL of a pop-out window to another browser (tab or window).
- Viewers shown in the data panel will immediately display the appropriate BIM model or CAD drawing. In pop-outs, a BIM model or CAD drawing will not update until the user has selected an item in the element list.
- When closing, the pop-out will not transfer the exact status of the viewer. The user may have to repeat certain actions in the data panel viewer.
- Dialogs such as warnings will not be shown in the pop-out, but will be shown in the data panel.
- CAD Integrator pop-out
  - Cannot save drawings to PDF.
  - Cannot be used to rotate assets.

## Synchronization

When displaying multiple pop-outs, the views that are displayed remain synchronized.

- Selecting a space in the elements list (data view) will highlight that space in the CAD Integrator and/or BIM viewer view.

- Selecting a space in the CAD Integrator view will highlight that space in the BIM viewer pop-out and select the space in the elements list (data view).
- Selecting a space in the BIM viewer pop-out will highlight the space in the CAD Integrator pop-out and select that space in the elements list (data view). If required, a new floor plan will be loaded in the CAD Integrator pop-out.

 When switching to a different navigation level in the TSI shown in the workspace frame, the synchronization behavior is temporarily deactivated. In other words, the viewers shown in the pop-outs will not respond to selection changes in the elements list. Synchronization will reactivate once the user returns to the navigation level in which the pop-out windows were initially created.

## Specifics

Assets can exist on multiple floors. Selecting an asset in the element list of the CAD Integrator view may result in the appearance of the **Floor selection** dialog and this is now expanded to cover all views available on the **Assets** step.

## Displaying multiple views simultaneously

In CAD Viewer and BIM Viewer it is possible to display multiple views simultaneously. Because it can be daunting to navigate inside a 3D model, being able to display multiple views simultaneously will greatly benefit customers in doing their work. The feature will make it possible to display and compare views side-by-side.

How does it work?

### Procedure

This feature is available in Assets and in Spaces & Workspaces - the procedure for both is similar. For now, this example will focus on CAD Integrator.

1. Go to **Assets > Assets** and select an item in the elements list.

**By default, the data view will be displayed.**

2. In the view options, select **CAD Integrator** and select a floor drawing.

**The corresponding CAD drawing will be displayed.**

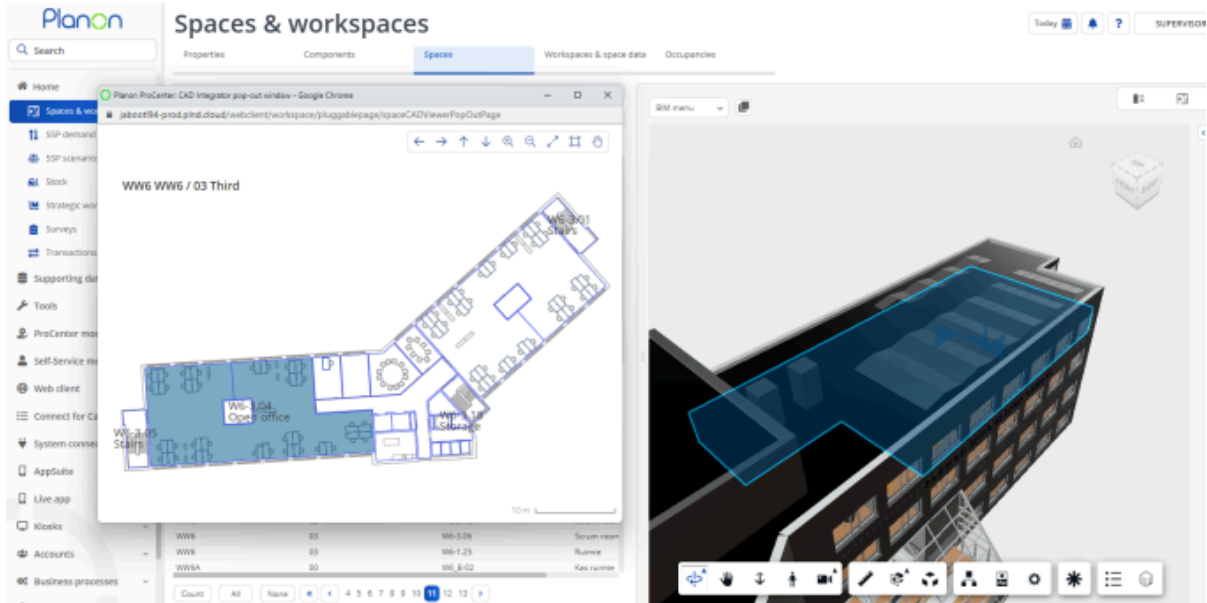
3. To display the data view and the CAD drawing simultaneously, next to

the **CAD Integrator** menu, click the pop-out button: .

**The CAD drawing will appear in a new window.**

A message in the data panel will be shown: *'The CAD viewer is currently being shown in a pop-out window'*.

4. In the view options, click **Data panel** and/or **BIM Viewer** to display another view that will be shown in parallel.



These views will remain synchronized. When changing a selection in one view, this will be synchronized with the other view(s) currently displayed.

By doing so, you will be able to compare multiple views (preferably using multiple monitors).

# Field descriptions

The following section(s) describe(s) the fields, their purpose and meaning.

## BIM model fields

Field	Description
Code	Enter a unique code.
Name	Enter a name to identify the model.
BIM system	Select the BIM system for which you are defining a BIM model.
Source model	<p>This field holds a link to the Revit-based model, which is the source for the models to be displayed using BIM viewer.</p> <p>By default, this field accepts files with extension <code>.rvt</code>. If you want to upload a model with a different extension, you must enter this extension in the <b>BIM source model - allowed file types</b> field (System Settings &gt; <a href="#">File locations</a>)</p>
Conversion result	<p>This field will contain a link to a file with the extension <code>json</code>, which is stored in the same folder as the <b>Source model</b>.</p> <p><b>Conversion result</b> will hold the result of the conversion process when it is done. In order to trigger the conversion, you need to install the <b>Planon Connect for Forge</b> app (Connect4Forge).</p> <p>The <b>Conversion result</b> body contains a <i>connection string</i> with information about the region, file format (SVF or SVF2) and a URL per converted file. You must copy this string and paste it in the <a href="#">Autodesk cloud reference path</a>.</p>





When sharing URLs via mail or chat or any other means of communication,

Field	Description
	<p>invisible characters (zero-width space) may be added that invalidate the URL. When receiving a URL in such a way, pasting it in a text editor will remove these invisible characters.</p> <ul style="list-style-type: none"> <li>Please ensure that the .json file type is specified in the <b>Document file types</b> field (<b>System settings</b> &gt; <a href="#">File locations</a>). If this is not the case, the json file cannot be downloaded from the Autodesk server.</li> </ul>
BIM region	<p>Select the region for storing your BIM model. Typically, select the region that is closest to you.</p> <p><b>Region &amp; GDPR Compliance</b></p> <p>The General Data Protection Regulation (GDPR) is a set of rules that protect the digital privacy of the citizens of the European Union (EU). Businesses and organizations who serve users in Europe are legally required to comply with GDPR.</p> <p>Accordingly, Forge serves users in Europe, Middle East, and Africa (EMEA) from a dedicated data center, in compliance with GDPR regulations. The EMEA data center is physically separated from the US data center.</p> <p>For more information, see the <a href="#">Autodesk website</a>.</p>
Conversion update	<p>Displays the status of the conversion of the model by Autodesk.</p>


## BIM model type fields

Field	Description
Code	Enter a unique code.
Name	Enter a name to identify the model.
BIM model	The BIM model for which you are creating a new type.

Field	Description
Path reference BIM model	Specify the WebDAV file reference to the BIM model (in <i>svf</i> format).
Autodesk cloud reference	Enter the Autodesk cloud file reference from the <a href="#">Conversion result</a> .
	<div style="border: 1px solid #00a0e3; padding: 5px;"> <p> If both the BIM model reference and the Autodesk cloud reference contain a value, the latter takes precedence.</p> <p> When sharing URLs via mail or chat or any other means of communication, invisible characters (zero-width space) may be added that invalidate the URL. When receiving a URL in such a way, pasting it in a text editor will remove these invisible characters.</p> <ul style="list-style-type: none"> <li>Please ensure that the .json file type is specified in the <b>Document file types</b> field (<b>System settings</b> &gt; <a href="#">File locations</a>). If this is not the case, the json file cannot be downloaded from the Autodesk server.</li> </ul> </div>
Start date	Enter a start date for the BIM model type.

## File locations fields

The **File locations** fields that are specific to BIM viewer.

Field	Description
BIM models	Specify the WebDAV path to the BIM models.
	<div style="border: 1px solid #00a0e3; padding: 5px;"> <p> Keep the number of subfolders to a minimum as this may affect performance.</p> </div>
BIM source models	Specify the WebDAV path to the BIM source model (for synchronization with Autodesk cloud).

## BIM systems - fields

The BIM systems BO lists all the BIM system for which Planon has received information.

---

<b>Field</b>	<b>Description</b>
Code	The code given to BIM system in Planon.
Name	The name of the BIM system in Planon.
External ID	The ID that uniquely identifies the (external) BIM system. This ID is taken from the root node of the XML holding the imported BIM data.
External code	The code given to the BIM system by the external system (e.g. Autodesk).

---

## BIM system BO links - fields

The BIM system BO links stores the links information of BIM systems.

---

<b>Field</b>	<b>Description</b>
BIM system	Displays the code and name of the BIM system in Planon.
External ID	Displays the ID that uniquely identifies the element that is selected in the elements list.
External code	Displays the code of the element in the external system.
Internal business object definition	Displays the Planon business object to which this element belongs.
Internal business object system code	Displays the system code of the Planon business object.

---

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