

Advanced Reports

Plugin for BIM Vision

The plugin creates advanced reports and exports them in excel format. It enables grouping, summing or listing any of the properties included in the IFC model.

User Interface

For running the plugin click on „Advanced Reports“ in the *Plugins* tab.

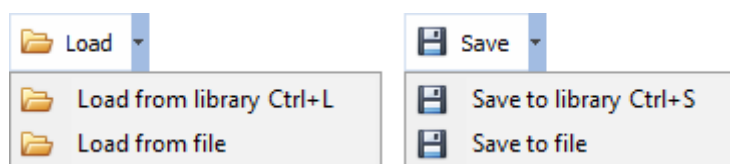


The main window of the application turns up. In the upper part of the window there is a template panel for the management of the templates.



The template consists of settings, which define how the report should look like and which objects and columns will be exported. To save the template to the library the name in the field must be entered and the button *Save* has to be clicked. When you want to load the saved template you click on *Load* button.

On the right sides of the buttons there are small arrows which, when clicked, give additional options for loading and saving.



In the bottom part there are three tabs: **Objects**, **Columns** and **Preview**.

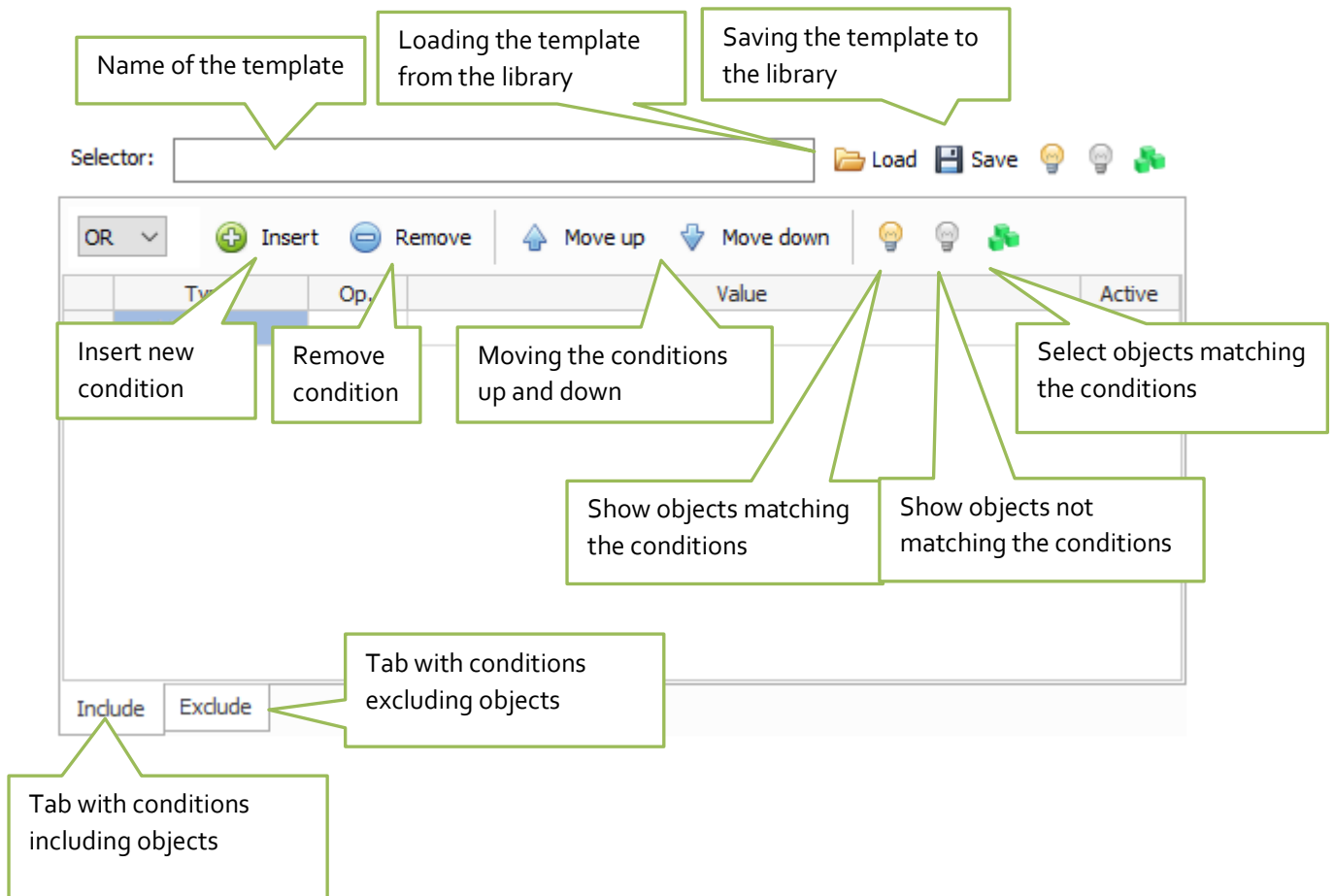
Objects Tab

In this tab we select from the BIM model those objects, which will be included in the export process. There are 4 options:

All Active Selected Custom selector

- **All** – all objects are exported from the model
- **Active** – only these objects are selected which have set the tag Active
- **Selected** – only selected objects (in BIM Vision they are highlighted by green colour)
- **Custom selector** – enables to select objects using detailed criteria

When having Custom Selector the panel for additional criteria appears.



Creating own selectors

An own selector is a set of conditions. The objects are selected by a selector, when the conditions match. For example:

AND ▾

	Type	Op.	
	IFC type	=	IfcWallStandardCase
	Property		
	Name	=	IsExternal
	Value	=	yes
	+ add		

The selector above searches for all objects, which have the type IfcWallStandardCase and have the property IsExternal equal „yes“.

OR ▾

	Type	Op.	
	IFC type	Match	*wall*
	IFC type	Match	*window*
	IFC type	Match	*door*
	+ add		

This selector finds the objects, which have in the IFC type field the text „wall“, or „window“, or „door“. So in this case all walls, windows or doors will be selected of both types IfcWall and IfcWallStandardCase.

Adding a new condition to the selector we define its Type, Operator, Value and Tag (if it is Active).

The conditions can have following types:

- **Type IFC** – selects objects based on IFC type
- **Property** – selects objects based on current properties
- **Name** – selects objects based on name
- **Material** – selects objects based on materials
- **Description** – selects objects based on description

There are also two special operators for creating complex conditions:

- **OR** – the whole condition is matched when at least one condition is matched
- **AND** – the whole condition is matched when all conditions are matched

The operator defines how to compare values of the given type of the condition. For example the operator = checks if the values are equal, operator < checks if the value in the object is less than given in the field, and operator **Match** gives the information if the value is included in the field of the object.

The Active tag allows to exclude the condition so the selector will not take it into account when processing.

Example of a complex selector:

	Type	Op.	
<input type="checkbox"/> AND			
IFC type	=		IfcBeam
<input type="checkbox"/> Property			
Name	=		NetArea
Value	>		1.5
<input type="checkbox"/> AND			
Name	Match		*door*
<input type="checkbox"/> Property			
Name	=		HandicapAccessible
Value	Any		
+ add			

The above selector selects the objects, which are of the type IfcBeam, and consists of the property NetArea with the value greater than 1,5, or objects, which the name includes the text „door” and includes the property HandicapAccessible with any value.

Columns Tab

On the column tab we define which data will be exported for selected objects. Adding a column we define the name of the property with the values which will be exported for particular objects. Additionally as an option the name of property set can be given.

The objects can be grouped according to the selected columns and when the column is with numeric values can be summed. The number of columns with selected grouping should be not greater than 7.

Properties that do not appear in the current model are marked with grey color.

The screenshot shows the Columns Tab interface with the following callouts:

- Add many columns.** (points to the '+' Add button)
- Remove column** (points to the '-' Remove button)
- Move column up and down** (points to the Move up and Move down buttons)
- Skip the column in merging** (points to the 'Skip in merging' column header)
- Name of the property set** (points to the 'Property set' column)
- Name of the property for given column** (points to the 'Property name' column)
- Group by column** (points to the 'Group by' column)
- Sum by column** (points to the 'Sum by' column)
- Empty row enables to add new columns** (points to the '+ add' row)

Property name	Property set	Group by	Sum by	Skip in merging
IfcEntity	Element Specific	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	Element Specific	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GrossArea		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GrossVolume		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+ add				

Clicking on **Add** button, or doubleclick on empty row opens the window for property selection (description in the next section), where you can add new columns. The property change in column can be done also by doubleclick.

Property Selection window

In this window the property list from current loaded BIM model is displayed. In the three columns of the table the following values are displayed: property name, property set and sample value.

The screenshot shows the 'Add columns' dialog box with the following table:

<input type="checkbox"/>	Property name ↑	Property set	Sample value	Unit
<input checked="" type="checkbox"/>	Author	File Header	Architect	
<input type="checkbox"/>	Authorisation	File Header	The authorising person	
<input type="checkbox"/>	Bottom Elevation	Location	-1	
<input type="checkbox"/>	Bounding Box		7,3176914694611	
<input type="checkbox"/>	Bounding Box		18	m
<input type="checkbox"/>	Bounding Box		16	m
<input type="checkbox"/>	Building	Location	FZK-Haus	
<input type="checkbox"/>	BuildingHeightLimit	Pset_SiteCommon	9	m
<input type="checkbox"/>	BuildingID	Pset_BuildingCommon	5678	
<input type="checkbox"/>	BuildingPermitId	Pset_ProjectCommon	1234	
<input type="checkbox"/>	Children Have Geometry			
<input type="checkbox"/>	ConstructionMode			
<input type="checkbox"/>	CrossSectionArea			m2
<input type="checkbox"/>	Description	Element Specific	Ebenes Gelaende	
<input type="checkbox"/>	Description	File Header	ArchiCAD 11.00 Release 1 ...	

At the bottom of the dialog, there are checkboxes for 'Use property sets' (checked) and 'Show only available properties' (unchecked), along with 'OK' and 'Cancel' buttons.

When the window of property selection has been called by clicking the button **Add** (and not the doubleclick in the row of the table), then additional column appears enabling the selection of many properties.

Preview Tab

In the tab Preview, in the central part it can be seen how the resulted report will be displayed. On the right side there is a panel with options enabling formatting.

The screenshot displays the Preview Tab interface. At the top, there are three buttons: "Save to file", "Auto select", and "Options for view table management". Below these buttons is a table with the following structure:

Number	IfcEntity (Element Specific)	(Element Sp
1	IfcWallStandardCase	
1.1	IfcWallStandardCase	
1.1.1	IfcWallStandardCase	Wand-Int-ERI
1.1.2	IfcWallStandardCase	Wand-Int-ERI
1.1.3	IfcWallStandardCase	Wand-Int-ERI
1.1.4	IfcWallStandardCase	Wand-Int-ERI
1.1.5	IfcWallStandardCase	Wand-Int-ERI
1.2	IfcWallStandardCase	
1.2.1	IfcWallStandardCase	Wand-Ext-ERI

On the right side, there is a panel titled "Additional options:" with the following settings:

- Merge identical rows
- Add column "Object Count"
- Summary on top
- Spacing between groups
- Use colours

The "Theme:" dropdown menu is set to "Green".

Callouts in the image point to various elements:

- "Save report to file" points to the "Save to file" button.
- "Mark objects on the model from current record" points to the "Auto select" button.
- "Options for view table management" points to the "Options for view table management" button.
- "Hide panel with options" points to a button in the top right corner.
- "Formatting options" points to the "Additional options:" panel.
- "Report preview" points to the table.

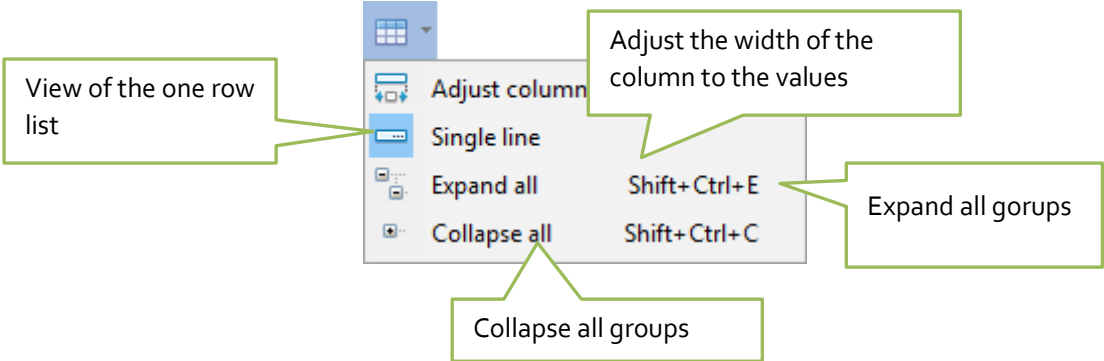
Additional formatting options:

- **Merge identical rows** – merges rows with the same values (description of the option in the next paragraph)
- **Add column "Count"** – adds a column with number of objects in groups
- **Summary on top** – displays the summary on top, so on the same level as group
- **Spacing between groups** – inserts empty rows between groups for better reading
- **Use colours** – enables group colouring according to the depth level
- **Theme** – selection of theme (5 versions available)

Switching ON the option **Auto Select** causes the interaction between the model and the record in the table. Clicking on the record in the table highlights the appropriate element on the 3D model in the BIMVision.

The button **Save to file** saves the report to the file. By pointing the file name and generation of excel sheet the file is opened in the default application.

By clicking the button of view table management the menu with following options is displayed :



Merge identical rows

If many objects in all exported columns have the same values, they can be combined into one row. The "Merge identical rows" option is used for this. In the "Object Count" column, the number of combined objects is displayed. Below you can see an example of a report with no merge option.

	Number	IsExternal	IfcEntity (Element Specific)	Σ GrossVolume (BaseQuantities) ↓ [m3]	Object Count
	=			64,883416	13
	= 1	yes		50,469974	8
	1.1	yes	IfcWallStandardCase	9,477	
	1.2	yes	IfcWallStandardCase	9,477	
	1.3	yes	IfcWallStandardCase	7,857	
	1.4	yes	IfcWallStandardCase	7,857	
	1.5	yes	IfcWallStandardCase	5,84461	
	1.6	yes	IfcWallStandardCase	5,84461	
	1.7	yes	IfcWallStandardCase	2,056377	
	1.8	yes	IfcWallStandardCase	2,056377	
	= 2	no		14,413442	5
	2.1	no	IfcWallStandardCase	4,266	
	2.2	no	IfcWallStandardCase	3,33624	
	2.3	no	IfcWallStandardCase	2,49624	
	2.4	no	IfcWallStandardCase	2,226	
	2.5	no	IfcWallStandardCase	2,088962	

After choosing the option "Merge identical rows" the identical rows have been merged (as below).

	Number	IsExternal	(Element Specific)	Σ GrossVolume (BaseQuantities) ↓	Object Count
	=			64,883416	13
	= 1	yes		50,469974	8
	1.1	yes	IfcWallStandardCase	18,954	2
	1.2	yes	IfcWallStandardCase	15,714	2
	1.3	yes	IfcWallStandardCase	11,689221	2
	1.4	yes	IfcWallStandardCase	4,112754	2
	= 2	no		14,413442	5
	2.1	no	IfcWallStandardCase	6,811202	3
	2.2	no	IfcWallStandardCase	4,266	1
	2.3	no	IfcWallStandardCase	3,33624	1

These rows have been combined, as indicated by the number of objects equal to 2

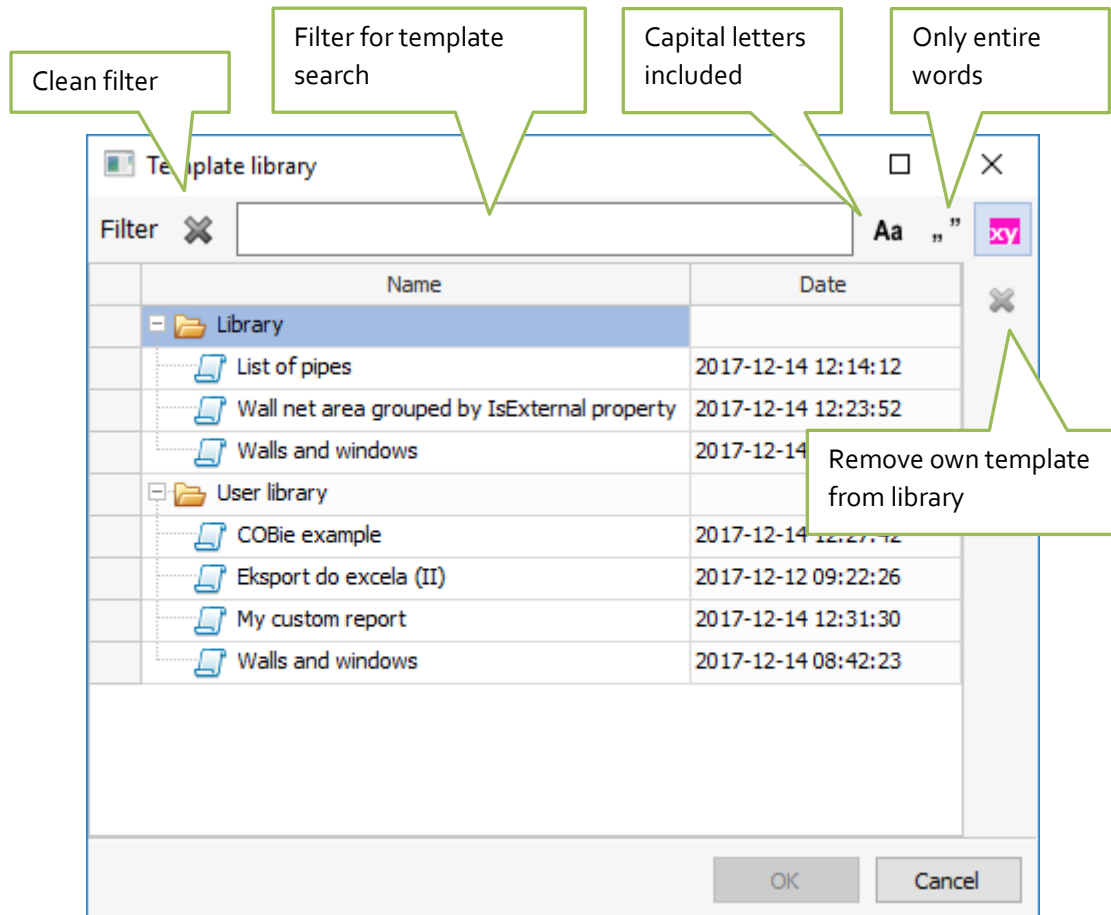
Additionally, if the column has an aggregation set, it is possible to omit it when merging (Skip in merging). Then this column is not taken into account when checking whether the lines are identical. The example below:

	Number	IsExternal	IfcEntity (Element Specific)	Σ GrossVolume (BaseQuantities) ↓ [m3]	Object Count
	=			64,883416	13
	= 1	yes		50,469974	8
	1.1	yes	IfcWallStandardCase	50,469974	8
	= 2	no		14,413442	5
	2.1	no	IfcWallStandardCase	14,413442	5

Rows have been combined, and the values from the GrossVolume column have been added up.

Library window

The library allows to save report settings for using them in the future search. It consists of two parts. In the first one there are some templates provided with the program and in the second user templates.



The user templates are in the folders:

- %appdata%\Datacomp\AdvancedReports\ExporterLibrary – library of report templates
- %appdata%\Datacomp\AdvancedReports\SelectorLibrary – library of selectors

Limitations for Demo Version

In the demo the saving is blocked. On the preview report, only 10 first elements in each group are seen. When there are more elements the record with the red script „demo version” is displayed.

Release notes

1.2

- Materials have been added
- Unit for property has been added
- Properties that are not present in the current project are marked with a gray color in the column selection list.

1.1

- In the column selection dialog, the properties already used in the report are highlighted with a blue background color.
- In the column selection dialog, an option to narrow the list of properties to currently selected objects has been added.

Copyright and contacts

In case of any questions or suggestions please contact under the email address: contact@bimvision.eu, in subject please enter the text „Plugin Advanced Reports”. More plugins: store.bimvision.eu

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