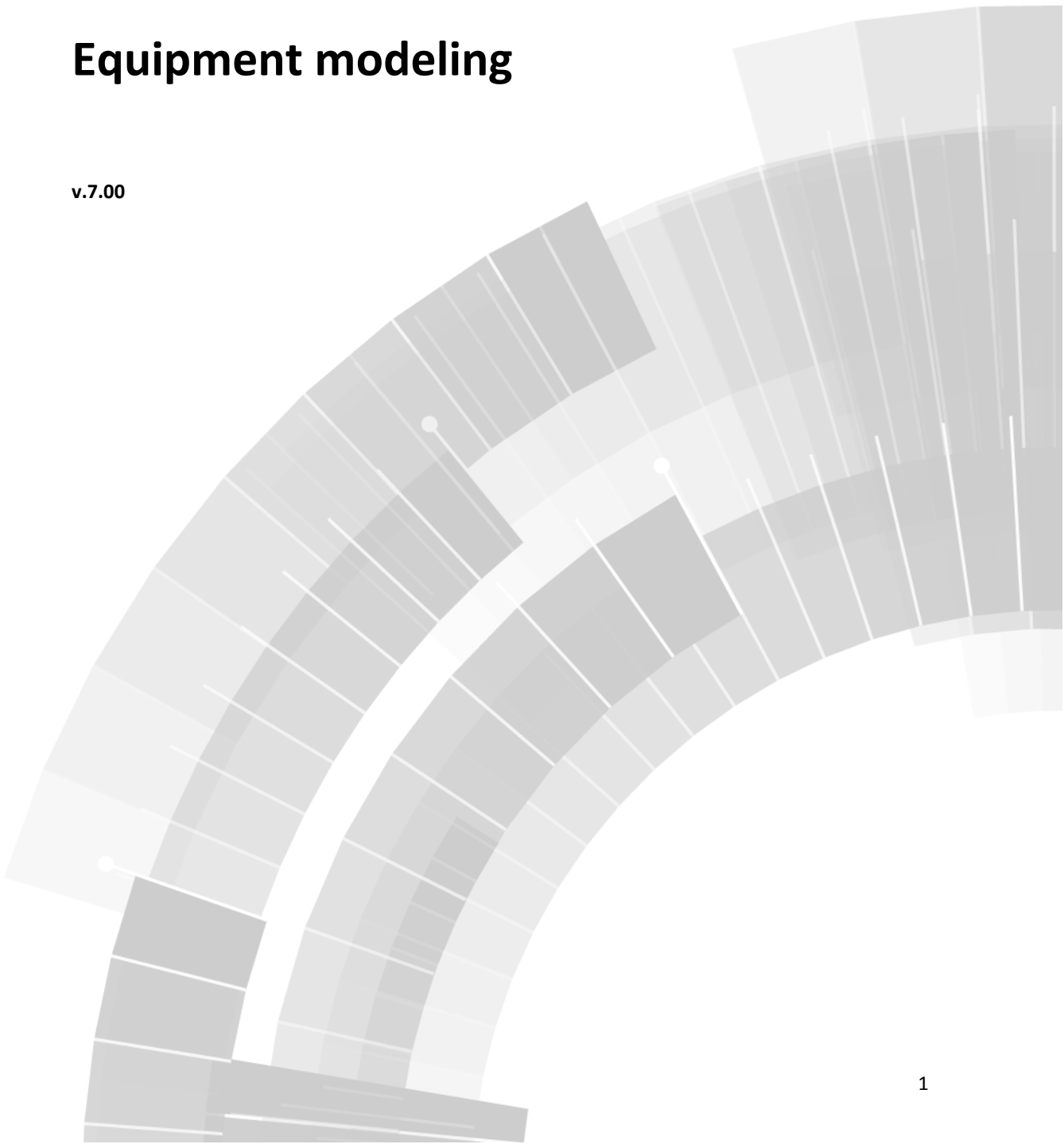


# zenon manual

## Equipment modeling

v.7.00





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# 1. Welcome to COPA-DATA help

## **GENERAL HELP**

If you miss any information in this help chapter or have any suggestions for additions, please feel free to contact us via e-mail: [documentation@copadata.com](mailto:documentation@copadata.com) (<mailto:documentation@copadata.com>).

## **PROJECT SUPPORT**

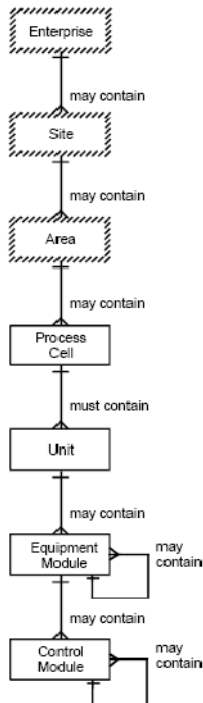
If you have concrete questions relating to your project, please feel free to contact the support team via e-mail: [support@copadata.com](mailto:support@copadata.com) (<mailto:support@copadata.com>)

## **LICENSES AND MODULES**

If you realize that you need additional licenses or modules, please feel free to contact the sales team via e-mail: [sales@copadata.com](mailto:sales@copadata.com) (<mailto:sales@copadata.com>)

## 2. Equipment modeling

Equipment modeling recreates the structure of equipment in the editor. According to standard ISA S88 and S95, you can depict all levels of a company with zenon:



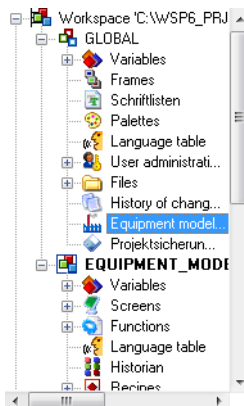
The upper three levels (Enterprise, Site, Area) enable details from the lower levels to be classified correctly and to be linked with each other. The lower levels refer to specific equipment which is compiled for process control and process monitoring.

### License information

*Part of the standard license of the Editor and Runtime.*

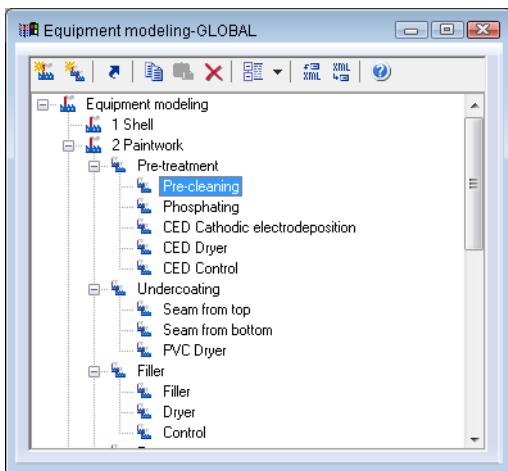
## EQUIPMENT MODELING IN ZENON

With zenon, you can display the overall model and create any desired machines, buildings or processes. Data can be grouped and filtered during run time and in the editor. The equipment modeling module can only be found in the project tree under `GLOBAL PROJECT`. This means that you have to create a global project and then have to integrate it into the workspace in order to use equipment modeling.



## EQUIPMENT MODELING WINDOW

The equipment models can be opened in a window of their own:



- ▶ To do this, select the `open new window ...` command in the equipment modeling context menu in the project manager
- ▶ a new window with the equipment models is opened by default in the lower area of the editor
- ▶ Like all windows, you can place this window where you like in the editor

- ▶ If you also keep the detailed equipment modeling view open, the contents of both windows are synchronized, so that you can make changes in both.

### 3. Create equipment model

You can create as many equipment models as you like and group these according to certain criteria. First you create the model, and then you create groups.

#### TO CREATE A NEW MODEL:

- ▶ In the context menu for the node for analogue modeling in the global project, select the **New equipment model** command  
or, in the Tool bar (on page 10), reselect the symbol for **New equipment model**
- ▶ In the detail view, a new node with the default name ModellX is created (X stands for the serial numbering)
- ▶ change the name to suit your requirements. To do this, press the **F2** key on the name when highlighted or triple-click on the name field

#### TO CREATE A NEW GROUP:

- ▶ In the context menu of a model or an upper-level grouping, select the **New equipment group** command  
or press the **'insert'** key  
or, in the Toolbar (on page 10), select the symbol for **New equipment group**
- ▶ In the model structure, a new group with the default name GruppeX is created (X stands for the serial numbering)
- ▶ adapt the name to your needs: The name field is already in edit mode straight after being created. You can subsequently press the **F2** key with the name highlighted or click on the name field three times
- ▶ you can have as many groups and sub-groups as you like

## 3.1 Edit equipment model

Groups can be resorted, copied, moved and deleted within a model and throughout all models:

### SELECTION

Equipment models and equipment groups can also be selected via multi-select if the elements are:

- ▶ on the same level
- ▶ within the same model
- ▶ and within the same superior group

The selection is carried out with `Ctrl+left mouse button` clicked:

**Note::** With `Shift+mouse click` you can make a selection of several elements on different levels. The editing possibilities in the context menu and in the tool bar are however deactivated.

### DELETE

- ▶ highlight the desired node
- ▶ select 'Delete' in the context menu or in the tool bar, or press the 'delete' key
- ▶ the node and all its sub-groups are deleted

### MOVE VIA DRAG&DROP

- ▶ highlight the desired node
- ▶ hold down the left mouse button
- ▶ move the node to the desired area and release the mouse button

### SORT VIA DRAG&DROP

- ▶ highlight the desired node
- ▶ hold down the 'control' key and move the node to the desired position with the left mouse button



- ▶ a horizontal line shows the area where you can insert the node

## COPY AND PASTE

- ▶ highlight the desired node
- ▶ select 'Copy' in the context menu or in the tool bar, or press 'control' and 'C' together
- ▶ highlight the desired target-node
- ▶ select 'Insert' in the context menu or in the tool bar, or press 'control' and 'V' together
- ▶ the node being copied is inserted
  - sub-nodes are not copied together with the node
  - the group name cannot already be present on the same level as the target group

## RENAME

To rename models or groups:

1. highlight the model/group
2. press key **F2** or perform a triple click on the model/group

After a renaming:

- ▶ the models are sorted alphabetical again
- ▶ groups remain in the created structure

### **Attention**

*The actions delete, resort, move, rename and insert cannot be undone.*

## 3.2 Project Manager context menu

Command	Function
New equipment model	creates a new equipment model with the default name, <b>Model1X</b> (X stands for a serial number)
Open in new window	opens a new window in the editor that contains the equipment model
Help	opens this help page

## 3.3 Detail view of toolbar and context menu

### TOOLBAR AND CONTEXT MENU



Symbol	Function
New equipment group	creates a new equipment model group with the default name, <b>Model1X</b> (X stands for a serial number)
New equipment model	creates a new equipment model with a default name, <b>Model1X</b> (X stands for a serial number)
Linked elements	opens the dialog to display linked elements.
Copy	copies the selected group together with the sub-groups
Paste	inserts the copied groups in another group or another model. If a group with the same name already exists, the inserted group receives the prefix <i>Copy of</i> .
Delete	deletes the selected group with all sub-groups
Expand/reduce nodes	Opens the drop-down list list to expand or reduce nodes.
▶ Expand all	Expands all nodes.
▶ Reduce all	Reduces all nodes.
▶ Expand selection	Expands the highlighted nodes.

▶ <b>Reduce selection</b>	Reduces the highlighted nodes.
<b>Export XML all</b>	Exports all entries as an XML file.
<b>Import XML</b>	Imports from an XML file.
<b>Help</b>	opens this help page

## 4. Link models with elements and objects

Each equipment group can be linked to any desired zenon elements and objects and subsequently filtered. You have several options for linking a group with an element:

- ▶ Via the element's `Equipment groups` property:
- ▶ copy and paste the element into the desired group of the model
- ▶ Drag & drop the equipment group to the element's property `Equipment groups`
- ▶ Drag & drop the element to the equipment group

### EQUIPMENT GROUPS PROPERTY

To link by means of an element's property:

1. select the element
2. click on the property `Equipment groups` in the node `General`
3. the Dialog to allocate elements to equipment groups (on page 13) opens
4. allocate the desired equipment groups (for details, see the sub-chapter on Equipment modeling dialog (on page 13))

 **Info****No inheritance**

*If they are selected for linking or created newly at the configuration of e.g. data types, drivers, functions, variables or equipment models via property `Equipment groups`, they are only used for filtering and are not inherited.*

*For example: An equipment model selected in a data type is not inherited to variables based on this data type.*

**COPY AND PASTE**

To link using copy and paste:

1. select the element
2. copy the element (Copy command or press the ctrl+C keys together)
3. highlight the equipment group you wish to change.
4. paste the element (Paste command or press the ctrl+V keys)

**DRAG&DROP OF THE EQUIPMENT GROUP**

To link the equipment group to the element by drag&drop

1. select the equipment groups
2. with the left mouse button pressed, drag this to the property `Equipment groups` in the element's node `General`

**DRAG&DROP OF THE ELEMENT**

To link the element to the equipment group by drag&drop:

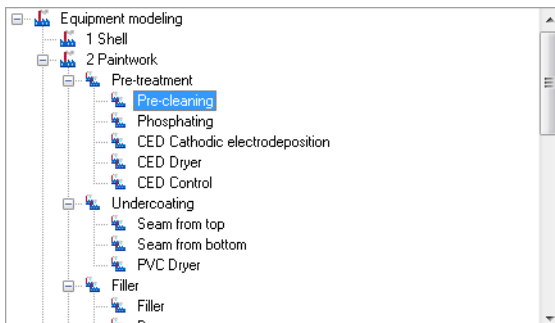
1. select the element in the project manager detail view
2. with the left mouse button pressed, drag it to the desired equipment group

### Info

*At drag&drop of structure variables: Only activated variables are taken into account. Inactive elements are not linked. For closed structure trees check whether all desired variables are active.*

## 4.1 Equipment modeling dialog

In the dialog, you can also allocate an element to a desired equipment group. The dialog opens if you select **General** the property **Equipment groups** in the node element properties:



Property	Description
Toolbar	See chapter tool bar and context menu detail view (on page 10).
Add	Adds selected groups and levels to the selection.
Remove	Deletes selected elements from the selection.
OK	Accepts settings in all tabs and closes dialog.
Cancel	No element is selected.
Help	Opens online help.

### ADD GROUPS

- ▶ select the desired equipment model
- ▶ select an equipment group or level, elements on the same hierarchical level can be selected at the same time via multiselect (hold the **ctrl** key)

- ▶ add this to the list with the **Add** button in the lower area of the dialog
- ▶ Subgroups are not automatically added
- ▶ it is possible to link as many groups as you want

## DELETE GROUPS

- ▶ Select the elements you wish to delete in the lower area of the dialog
- ▶ click the **Delete** button

**Note:** Changes in a tree element remain in tact regardless of whether button **Cancel** was clicked or not. **Cancel** only means that no element was selected.

## FILTER FOR EQUIPMENT GROUPS IN SCREEN SWITCHING

At the screen switch to a screen of type AML, CEL or RGM and at function **Suppress groups/classes/areas/equipment** (Message Control) you can filter for equipment groups in the filter dialog. You can find instructions at the description of the corresponding dialogs:

- ▶ AML Equipment modeling
- ▶ CEL Equipment modeling
- ▶ RGM Equipment modeling
- ▶ Message Control suppress groups/classes/areas/equipment

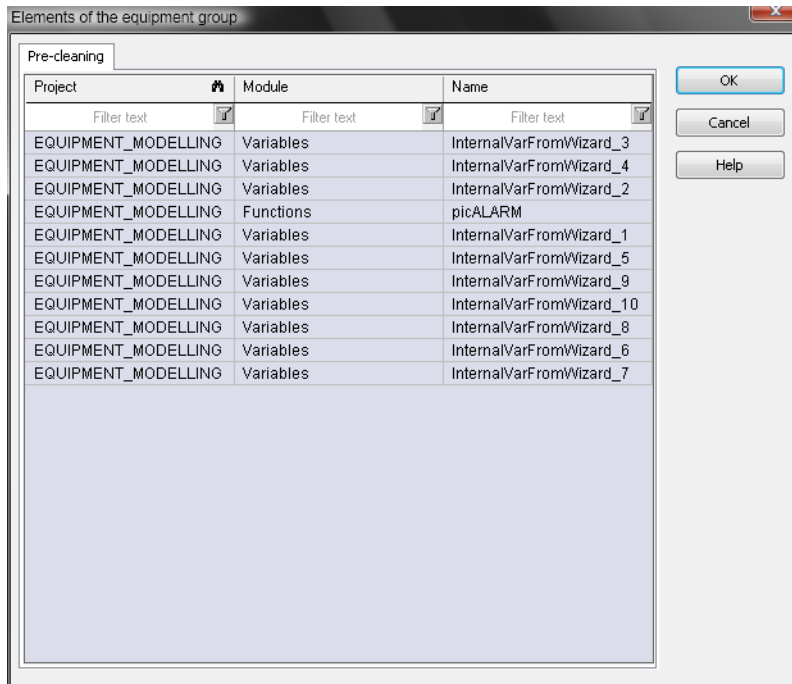
## 4.2 List of linked elements

All elements that are linked to the equipment group can be displayed as a list for each equipment group. You can go directly to the linked element via the context menu.

1. In the equipment group desired, select
2. In the context menu, select the command **Linked elements...**

(For details, see the sub-chapter on Linked elements context menu (on page 15))

### 3. the list of linked elements is opened



In the context menu, you can

- ▶ go directly to the element
- ▶ delete the element from the list; the element then loses its link to this equipment group

#### 4.2.1 Elements linked to the context menu

In the dialog for linked elements, individual elements can be opened or deleted from the list in the editor by means of the context menu:

Command	Description
<b>Go to linked element</b>	goes to the element in the editor, the list remains open
<b>Remove selected elements</b>	deletes the selected element from the list, the connection to this equipment group is broken
<b>Help</b>	opens this help page

## 5. Filter in detail view

It is possible to filter according to equipment groups in Project manager detail view. If these are not yet displayed, select **Filter selection** in the context menu and add **Equipment groups**. To filter:

- ▶ click on the filter symbol in the **Equipment groups** column header
- ▶ the Selection dialog (on page 13) for equipment groups is opened
- ▶ add the desired filter criteria to the list
- ▶ only elements linked to the selected equipment groups are displayed in the detail view

To reset the filter:

- ▶ click on the filter symbol in the **Equipment groups** column header
- ▶ the Selection dialog (on page 13) for equipment groups is opened
- ▶ remove the filter criteria from the list

## 6. Filtering during runtime

. In order to filter in the Runtime create function screen switch (on page 17) to the desired screen and define the filter in tab **Equipment modeling**. In the Runtime the data is displayed in accordance with the defined filter. To change the filter during runtime, the **Filter** button must be present in the dialog mask:

- ▶ click the **Filter** button
- ▶ select the **Equipment modeling** tab in the filter dialog
- ▶ select the model and equipment group
- ▶ confirm this with **OK**.

### IT IS POSSIBLE TO FILTER EQUIPMENT GROUPS DURING RUNTIME FOR:

- ▶ Recipegroup Manager:

Recipegroups are only offered in the drop-down list if they are included in the filter. If new recipegroups are created, these can be connected to existing equipment groups. This newly-



created data can be restored again from the runtime files in the editor. In doing so, the linked equipment groups are also restored.

▶ AML:

Alarms are only displayed if their variables are linked to the equipment groups.

▶ CEL:

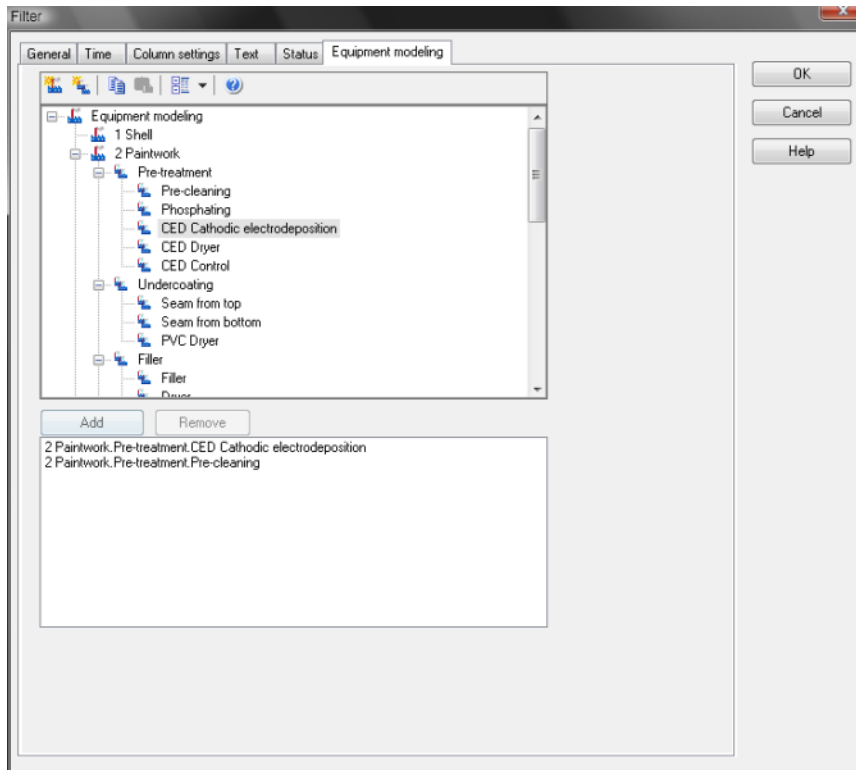
Entries are only displayed if their variables are linked to the equipment groups.

## 6.1 Create function screen switch

To create function screen switch and to filter on equipment groups:

1. create a picture switch function.
2. select the desired picture
3. click on the equipment modeling tab in the dialog filter
4. select the model and equipment group

5. confirm this with **OK**.



Element	Description
<b>Equipment model</b>	provides models and groups for selection
<b>Add</b>	adds selected groups to the filter list
<b>Remove</b>	removes selected groups from the filter list