zenon manual

Tools

v.7.60

COPA·DATA
do it your way

Contents

1. Welcome to COPA-DATA help

ZENON VIDEO-TUTORIALS

You can find practical examples for project configuration with zenon in our YouTube channel (https://www.copadata.com/tutorial_menu). The tutorials are grouped according to topics and give an initial insight into working with different zenon modules. All tutorials are available in English.

GENERAL HELP

If you cannot find any information you require in this help chapter or can think of anything that you would like added, please send an email to documentation@copadata.com (mailto:documentation@copadata.com).

PROJECT SUPPORT

You can receive support for any real project you may have from our Support Team, who you can contact via email at support@copadata.com (mailto:support@copadata.com).

LICENSES AND MODULES

If you find that you need other modules or licenses, our staff will be happy to help you. Email sales@copadata.com (mailto:sales@copadata.com).

2. Tools

A range of tools support you for the management, analysis and configuration of zenon:

- ▶ 3D Integration (on page 9):
  In this zenon application, 3D CAD files can be linked to zenon project configurations in a

graphical user interface. The project configuration is displayed in zenon Runtime with a zenon WPF element.

Note: The engineering environment (**3D Configurator**) has to be licensed seperately.

▶ Diagnosis Viewer (on page 36): Allows zenon LOG files to be read and configured.

▶ GIS Integration (on page 92):
This tool allows objects to be designed with a geographic reference and to link these objects with zenon ALC information, variables and functions.
Display in the zenon Runtime visualizes ALC engineering with selectable Map providers.

▶ **Keyblock Runtime Start** (on page 88):
Starts zenon Runtime and at the same time blocks all Windows system keys.

▶ Online updating of the zenon Help (on page 78):
Allows online updating of zenon Help.

▶ **Project Translation Interface**:
Tool for the translation of zenon language files. Opens or saves data for the zenon **Language Translation Wizard**. With this, projects can be imported into or exported out of zenon.

▶ **Startup Tool** (on page 132):
Makes it possible to start the Editor and Runtime with certain parameters, to administer different zenon versions on one computer, to administer SQL instances and to define languages for Editor and Runtime.

▶ **System Information Collector** (on page 173):
Reads system information and zenon information, displays it in an output window and saves it as a ZIP file.

▶ **COPA-DATA PRP** (on page 181):
Allows the operation of a hardware-redundant zenon network via PRP communication.
Note: PRP communication requires a valid zenon license on the computer.

The following are available for zenon Logic:

▶ **zenon Logic Runtime Manager**: Administer all stand-alone/manual-start zenon Logic Runtime projects on your computer.
The documentation for this tool is part of the zenon Logic documentation.

3. 3D Integration
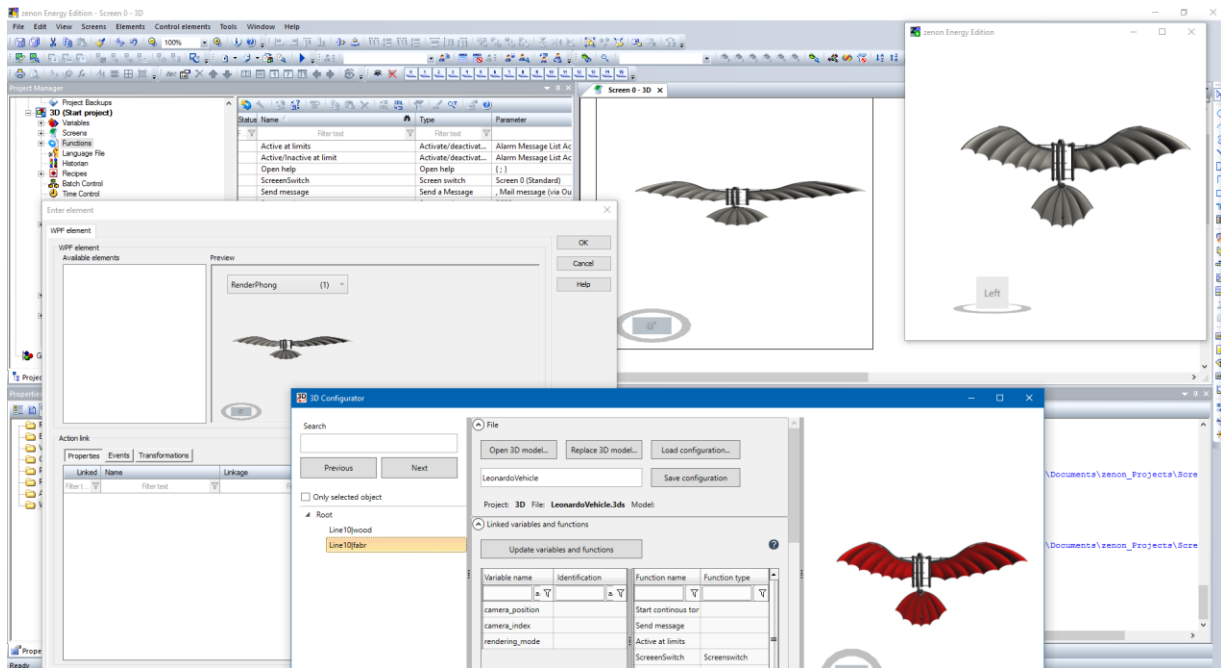
The **3D integration package** from zenon offers an easy and simple possibility to link 3D files from a CAD program to project configurations in zenon.

Included in the **3D integration package**:

▶ **3D Configurator**

3D files are loaded in this project configuration environment. The structure of a 3D model is transferred into the **3D Configurator** and visualized in a preview. In this structure, assembly groups or objects can be selected with the click of a mouse. The preview can be rotated and enlarged or reduced as desired using the mouse. Assembly groups or objects can also be selected in the preview directly, with the click of a mouse.

The selected assembly group or an individual object can be:

- Assigned to one or more variables.
  If a variable is linked, the visibility, flashing and color settings are taken from the variable.

- Assigned to one or more function(s).
  If a function is linked, the function is triggered by clicking on the object in Runtime. This is visualized in Runtime with a different mouse pointer.

- Be assigned to a variable in addition to a camera position.
  If a camera position is linked, the position is called up if the limit value of the linked variable is breached.

▶ **zenon WPF screen element**
Display of the 3D project configuration in Runtime in a zenon screen.

- Free navigation in the 3D model:
  The display can be moved, rotated, enlarged or reduced.

- Execution of functions in the 3D model:
  A configured function can be executed by clicking on an object or an assembly group.
  Example: Opening a linked online help or calling up an information window.

- Calling up the 3D model in a defined perspective:
  The 3D model with views of a configured position can be visualized by setting a value of a "camera variable".

- Visualization of a limit value breach:
  When a limit value is breached, an object or an assembly group can be shown in color or flashing in the 3D model.

- Objects or assembly groups can be switched to visible or invisible.

> 💡 **Information**
>
> All functionalities can also be executed by means of touch gestures.

3.1 Installation and licensing

INSTALLATION

The 3D **3D Configurator** project configuration tool is included with the standard installation of zenon.

Please note that the **3D Configurator** is only available for 64-bit operating systems. Project configuration in the zenon Editor and display in zenon Runtime is also possible with 32-bit operating systems.

> 💡 **Information**
>
> *Due to the computer performance required for 3D modeling, operation on 64-bit operating systems is strongly recommended.*

LICENSING

The engineering (= **3D Configurator**) environment has to be licensed.

The display in zenon Runtime is included in every zenon license. This includes also the specific **zenon WPF screen element** for engineering in the zenon Editor.

3.2 General

The 3D integration package includes:

▶ **3D Configurator**
  Tool for the linking of 3D models to zenon project configurations:

  • Functions

  • Variables

    Limit Values

    Reaction matrixes

▶ COPA-DATA WPF screen element
  The parameters for the attendant parameter file are set in the **3D Configurator** and automatically applied by clicking a button in the Editor configuration.

SUPPORTED 3D MODEL FILE FORMATS

The following file formats are supported by the **3D Configurator**:

▶ *.OBJ

▶ *3DS

▶ *.STL

▶ *.DWFX

▶ *.STEP

▶ *.STP
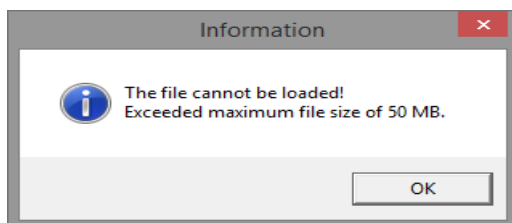
The maximum file size of a 3D model is limited to 50 MB for performance reasons. This is shown with a warning dialog when a larger file is loaded. The model is not loaded.

SUPPORTED FUNCTIONALITY

The display in zenon Runtime supports:

▶ Display of equipment or parts of equipment with freely-configurable camera positions.

▶ Execution of linked functions.

- ▶ Selection of the rendering mode for the display.

- ▶ Selection of the background color, light settings and light angle for display.

- ▶ Linking of numerical variables for the display options.

3D CONFIGURATOR - DISPLAY LANGUAGE

The **3D Configurator** starts with the language set for the zenon Editor.

3.3 Keyboard shortcut and mouse button assignment

The **3D Configurator** and Runtime display use the following keyboard shortcut and mouse button assignments:

Parameter	Description
CTRL+Q **CTRL+double click on mouse wheel**	Centers the 3D model to the preview and sets the zoom factor to 100%. Ensures that the file model that is loaded is completely visible in the preview. Sets to default in the preview.
CTRL+E **CTRL+double click**	Sets zoom level in the preview to 100%. Centers the 3D model in the preview; the rotation is retained. Ensures that the file model that is loaded is completely visible in the preview. Note: There is no centering if the preview is already at zoom stage 100%.
Mouse wheel forwards	Zooms into the preview = larger display.
Mouse wheel backwards	Reduces zoom stage of the preview.

Mouse wheel pressed + mouse movement (to the left, right, up, down)	Enlarges or reduces the zoom level of the preview:
	
	▸ Up or down
	    Large zoom stages
	
	▸ Left or right
	    Small zoom stages

Left mouse button pressed	Moves preview in mouse direction. The display of the mouse pointer switches during this time. The mouse pointer is displayed as the mobile phone symbol.
Right mouse button pressed	Rotates the view of the model by one rotation point in accordance with the mouse movement. The rotation point is visualized in the middle of the preview with a gray cross-hair. The display of the mouse pointer switches during this time. The mouse pointer is shown as a cross-hair.
CTRL + mouse button pressed	A selection tool is shown when the mouse button is pressed. The area selected as a result is shown in the preview, enlarged accordingly.
Del key	Deletes configured camera positions in the **3D Configurator**.

3.4 3D Configurator
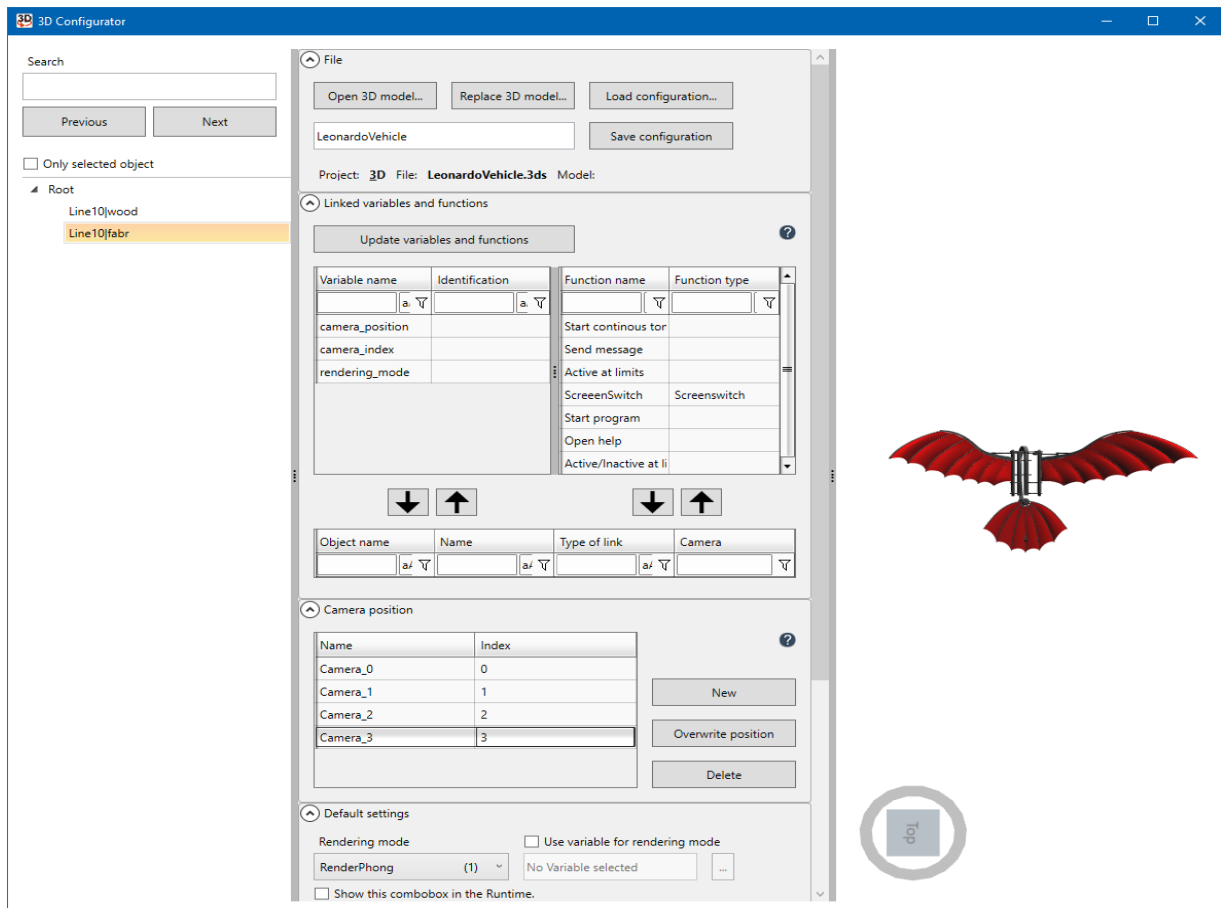
In this graphic user interface, variables and functions of an existing zenon project configuration are linked.

START

To start the **3D Configurator**:

1. Start the zenon Editor.
   Also ensure that a project is active in the Editor. If the Editor has not been started or no project is active, the **3D Configurator** does not work properly.

2. Open the **Startup-Tool**.

3. Click the **Tools** button.

4. In the **Avialable 64-bit applications** section, select the **3D Configurator** entry.

5. Click on the **Start** button.
   The 3D configurator starts in the language in which the Editor has also been started.

As an option, start the **3D Configurator** using your computer's Start menu with the `zen3DConfig.exe` entry.

⚠ **Attention**

Please note that the 3D configurator is only available for 64-bit operating systems.

APPLY 3D PROJECT CONFIGURATIONS

Project configurations that you carry out in the **3D Configurator** are applied in the current project in the zenon Editor by clicking on the **Save configuration** button.

If you close the **3D Configurator** and have not yet applied all project configuration in the Editor, this is visualized in a warning dialog.
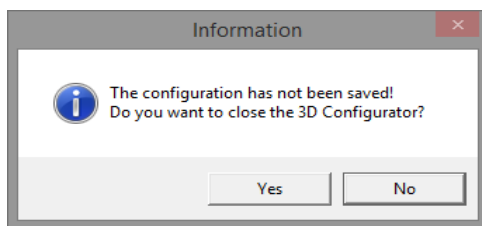
ZENON EDITOR

Ensure that you only start the **3D Configurator** if you have activated the correct project in the zenon Editor.

If the **3D Configurator** is started and the zenon Editor has not been started yet, this is shown in a dialog.
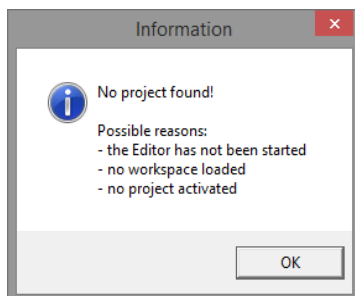
In this case, close the **3D Configurator** and start the Editor first.

3.4.1 User interface

The **3D Configurator**'s window can be freely scaled. The size of the areas can be moved with the mouse button held down.

The areas in the **Configuration** section can be opened or closed with the **up cursor** or **down cursor**.
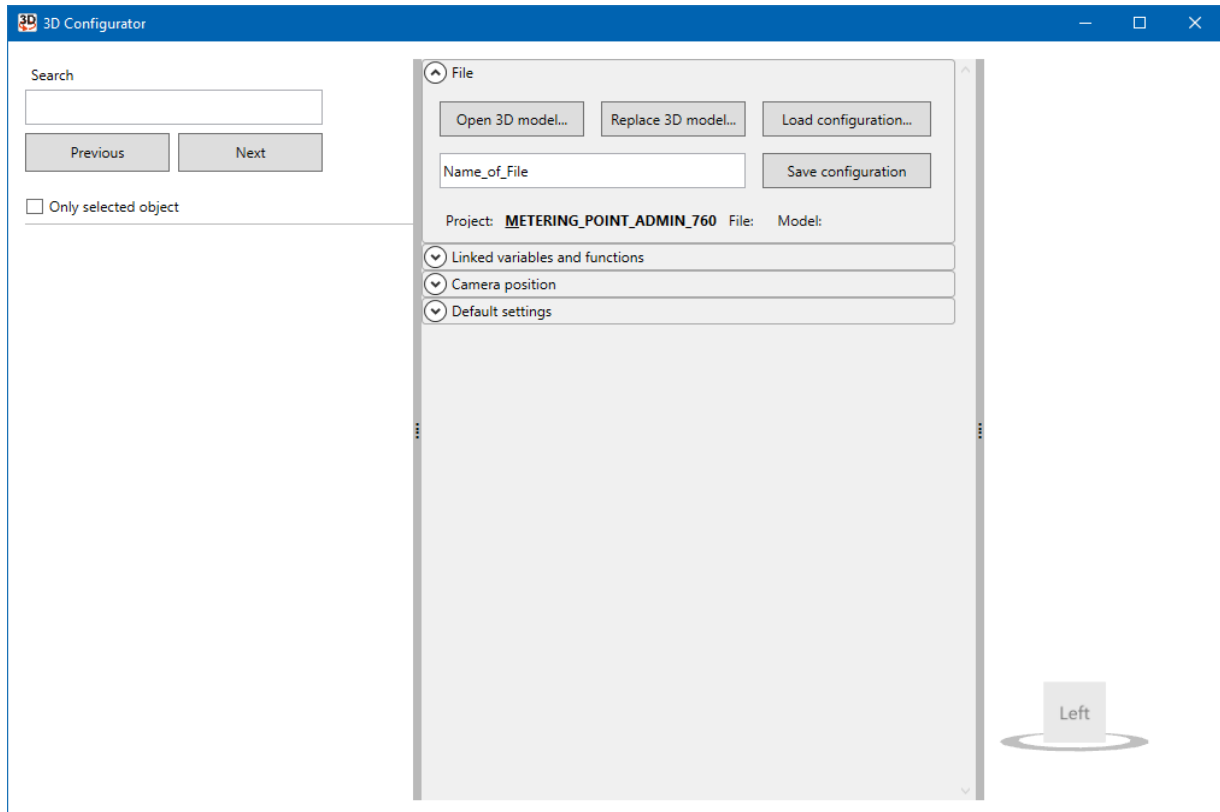
The user interface of the **3D Configurator** is divided into three areas:

  ▶ **3D file structure** (on page 17)
      Tree view of the loaded 3D model,

  ▶ **Configuration** (on page 18)

      • Link to zenon project.

      • Configuration of display options in Runtime.

  ▶ **Preview** (on page 29)
      Preview of the selected assembly area.
      In this area, the zoom level and view angle can also be amended.

3.4.2   3D file structure

The 3D file structure visualizes content of the loaded 3D models.
This content can also be filtered.

Parameter	Description
Search	Search field for entry of search terms for the naming of the existing objects in the loaded 3D model.
	The number of hits found is visualized with a number next to the search field.
	Note: if the entry does not match a valid hit, the search field is shown with a red background.
Previous	Jumps to the next hit and selects this hit.
Next	Jumps to the next hit and selects this entry.
Only selected object	Only the selected element is shown in the preview.
	Default: `Not activated`

💡 **Information**

When selecting a new level, the current view, zoom and direction are reset. The newly-selected element is shown as centered in the preview.

3.4.3   Configuration

The configuration area of the **3D Configurator** is divided into the following areas:

▶   **File** (on page 18)
   File administration and exchange of the project configuration between **3D Configurator** and zenon Editor.

▶   **Linked variables and functions** (on page 20)
   Variables and functions of a zenon project configuration and its linking to a 3D model.

▶   **Camera positions** (on page 22)
   Zoom level and view angle of 3D model content

▶   **Default settings** (on page 24)
   Settings for the display (Runtime and preview in **3D Configurator**)

▶   DWF attributes
   List of DWF attributes.
   This area only becomes visible if the element selected in the 3D file structure contains a corresponding DWF attribute.

File

Parameter	Description
Open 3D model...	Opens the file selection dialog to load a 3D model.
	This loading process can last longer depending on the scope of the 3D model. A progress bar is shown during this loading and interpretation process.
	Attention: If there is currently a 3D model open, all project configurations are rejected without requesting confirmation!
	You should therefore ensure that your 3D project configurations have already been saved.
Replace 3D model...	Replaces the currently-loaded 3D model with the selected file.
	Existing 3D project configurations are retained.
	Ensure that the new 3D model to be loaded contains the corresponding objects.
Load configuration...	Opens selection dialog to select an existing 3D project configuration of the zenon Editor.
	Applies existing project configuration from the active zenon project. The selection dialog is empty if there is not yet a 3D project configuration saved in the active project.
`[Name of the loaded 3D model]`	File name of the loaded 3D model.
	This is also the name of the configuration as it is applied in the zenon Editor - after clicking on the **Save configuration** button.
	The entry is validated. Possible characters correspond to the permitted characters for file names. If there is an incorrect character entered, this is shown with red error text in the tool. The **Save configuration** button is grayed out in the event of an error.
	Default: `[File name]` (if no 3D model is loaded)
Save configuration	Saves current 3D project configuration in the active project of the zenon Editor.
	Save location in the Editor:

	▸ Project nodes **Files** => `Graphics`:
	  - .cdwpf
	  XAML file for linking to the WPF screen element in the zenon Editor.

	▸ Project nodes **Files** `-> Other -> ThreeD` This folder is automatically created - if it has not already been created - when the **3D Configurator**

	is created for the active zenon project.
	Note: Please note the `Clean up 3D project configuration` section in the Project configuration in the zenon Editor (on page 33) chapter.

INFORMATION BAR

Parameter	Description
Project	Name of the project that is currently activated in zenon.
File	File name of the 3D model that is currently loaded.
Model	Not currently used.

Linked variables and functions

The linked variables and functions area visualizes project configurations of the zenon Editor.
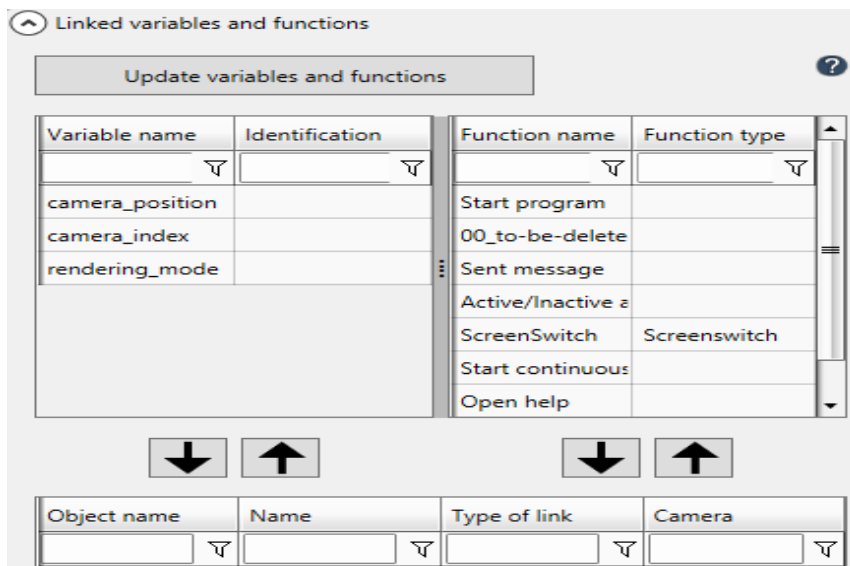
The display can be sorted and filtered.

Parameter	Description
Update variables and functions	Clicking on the button updates the displayed variables and functions with the current project configuration in the zenon Editor.
`[List of configured variables]`	List of the configured variables of the current zenon project. ▸ `Variable name:` Configured variable name in the zenon project. Corresponds to the **Name** variable property in the zenon Editor. ▸ `Identification:` Configured variable identification in the zenon project. Corresponds to the **Identification** variable property in the zenon Editor. Note: The list can be updated with the project configuration in the Editor by clicking on the **Update variables and functions** button.
`[List of configured functions]`	List of the configured functions from the current zenon project. ▸ `Function name` Configured function name in the zenon project. Corresponds to the **Name** function property in the zenon Editor. ▸ `Function type` Configured function type in the zenon project. Corresponds to the **Type** function property in the zenon Editor. Note: The list can be updated with the project configuration in the Editor by clicking on the **Update variables and functions** button.

ARROW KEYS

Variables or functions can be transferred to the object list or removed with the cursor keys. This is also possible by double clicking on the respective entry. The double-click functionality is applicable for both object lists as well as for the list of variables or functions.
Please note that there are separate cursor keys for variables and functions.

OBJECT LIST

The display of this list depends on the level selected in the **3D file structure** (on page 17):
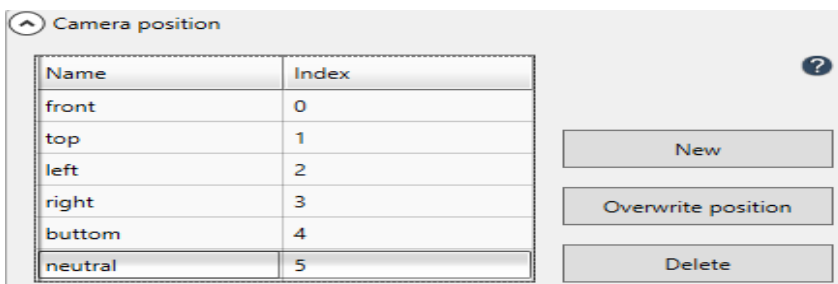
▶ Linkings must always be linked to a level.
  Please note: If no level has been selected in the 3D file structure, no linking is possible.

▶ Linking to the root node is not permitted.

▶ If the root node is selected in the 3D file structure, all linkings are shown in the object list, regardless of where they are linked in the file structure.

Click on the cursor key to transfer a variable or a function to the object list.

Parameter	Description
Object name	Name of the object in the 3D model. This corresponds to the level selected in the 3D file structure.
Name	Name of the variable or function to be linked.
Type of link	Type of list entry: ▶ `Variable` ▶ `Function`
Camera	Selection from drop-down list. The content of the drop-down list corresponds to the configured camera positions in the **camera positions** area. If no camera position has been assigned, this is shown with `No camera position`. **Note:** if the name of a camera position is amended, this is updated by clicking on the drop-down list.

Camera positions

The camera positions are set up regardless of the level selected in the **3D file structure** (on page 17).
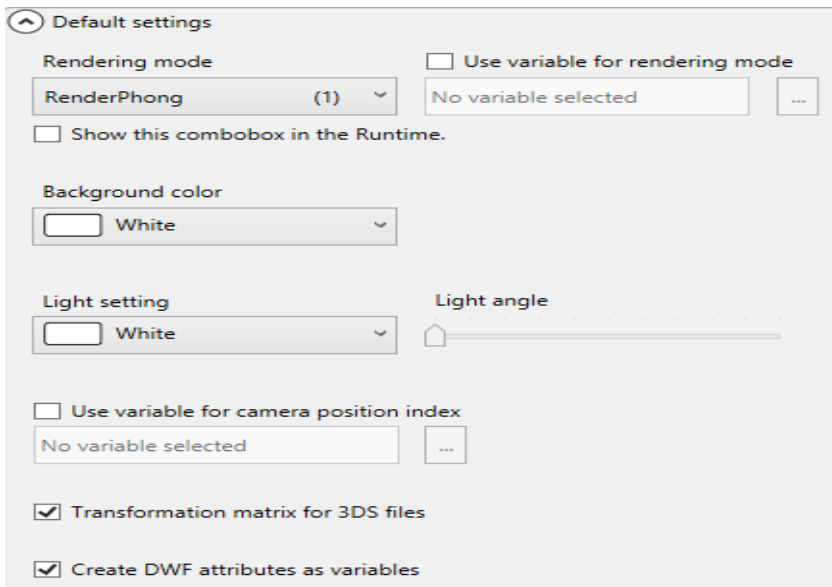
Parameter	Description

`[List of configured camera positions]`	List of configured camera positions]. The naming of the index and the camera position can be freely configured. Manual entry is validated and must be unique.
	The display can be sorted and filtered.
	
	▸ `Name`
	  Name of the camera position:
	  Default: `Camera_n`
	  n = consecutive number
	
	▸ `Index`
	  unique number of the camera position.
	  Negative camera indexes are not permitted.
	
	Please note the `Configure camera position` section in the Configuration in the 3D configurator (on page 30) chapter.

New	Creates a new entry in the `list of configured camera positions`. When clicking on the **New** button, the current orientation, including zoom level, is saved as seen in the preview.
Overwrite position	Overwrites the settings of the selected camera position with the current position, zoom level, etc. of the 3D model, as set up in the preview.
Delete	Deletes selected camera position from the `list of configured camera positions`.

Default settings

Area for the configuration of view options. The options selected in this area are visualized in real time in the preview window.

Parameter	Description
Rendering mode	Rendering mode for the display of the 3D model in <CD_PRODCUTNAME> Runtime. Please ensure, when selecting the rendering mode, that this is also supported by the loaded 3D file. Otherwise the model will not be shown. Select from drop-down list.
Use variable for rendering mode	Checkbox for selection of the rendering mode from a variable. Clicking on the **...** opens the dialog to select a numerical variable of the zenon Editor configuration. ▸ `Active:` Display is shown with the value of the linked variable. If the value of the variable is invalid or if the checkbox is active but no variable is linked, the configured rendering mode is applied. ▸ `Inactive:` Rendering mode is taken directly from the project configuration in the **3D Configurator** for the display. Note: You can get the numerical value from the numeric value in the brackets next to the mode in the drop-down list of the **Rendering mode** option.
[Selected variable]	Display of the name of the linked variable for rendering mode. Default: `No variable selected` (if no variable has been selected)
...	Opens dialog to select variables for the **rendering mode**.
Show this combobox in the Runtime.	Checkbox to select whether the **rendering mode** is offered for selection in Runtime. ▸ `Active:` Rendering mode can be selected in Runtime from a drop-down list. ▸ `Inactive:` No possibility to select rendering mode in Runtime.
Background color	Background color of the display of the 3D model. Select from drop-down list. Default: `White`
Light setting	Light color of the illumination of the 3D model.

	Selection from drop-down list Default: `White`
Light angle	Slider to configure the light angle for the **light settings**. Selection in clockwise direction (from left to right)
Use variable for camera position index	Checkbox for selection of the camera position from a variable. Clicking on the **...** opens the dialog to select a numerical variable of the zenon Editor configuration. ▸ `Active:` The camera position is defined with the value of the linked variable. If the value of the variable is invalid or if the checkbox is active but no variable is linked, the display is not amended. ▸ `Inactive:` Camera position is taken directly from the project configuration in the 3D configurator for the display. Note: You can find out the numerical value of the camera position from the corresponding entry in the `Index` column of the **Camera positions** option. Default: `No variable selected` (if no variable has been selected) Please note the `Configure camera position` section in the Configuration in the 3D configurator (on page 30) chapter.
Transformation matrix for 3DS files	Checkbox for improved display of 3DS files. This option is only applied for 3DS files. With all other file formats, this option has no effect. Deactivate this option for 3DS files if the display has been moved in the preview. ▸ `Active:` 3DS file is shown with internal transformation matrix. ▸ `Inactive:` 3DS transformation matrix is ignored. Default: `activated` Note: a change to the configuration of this option causes automatic reloading of the corresponding 3DS file in the **3D Configurator**. Properties that have already been configured in the tool are retained.
Create DWF attributes as variables	Checkbox to select whether attributes of a DWFX file are transferred to the project configuration in the zenon

Editor.

The respective DWF attributes are displayed in the **3D Configurator** in the DWF attributes field. This area only becomes visible if the element selected in the 3D file structure contains a corresponding DWF attribute.

Contents of the DWF attribute cannot be changed.

▸ `Active`:
  DWF attributes are transferred to the project configuration of the Editor.

▸ `Inactive`:
  DWF attributes are not taken into account. No variables are created.

Please note:

▸ This selection is applicable for the complete loaded 3D model.

▸ By clicking on the **Save configuration** button, an internal STRING data type variable is created in the zenon Editor for each attribute.

▸ The value of the attribute is written to the initial value of the variable.

▸ DWF attributes can only be transferred to the Editor project configuration when a 3D model is first loaded.

TRANSFORMATION MATRIX FOR 3DS FILES

This property is only applicable for the display of 3DS files.

Example:

Transformation matrix for 3DS files option `deactivated`:

Example:

Transformation matrix for 3DS files option `activated`:

DWF ATTRIBUTES

If the loaded 3D model contains DWF attributes, they are loaded in the **3D Configurator** in the Configuration area:

3.4.4   Preview

The loaded 3D model is shown for editing in the preview. The view can be orientated and scaled as desired with the mouse. This can also be carried out by means of touch operation instead of the mouse.

The selected element of a 3D model is shown highlighted in red. An element can be selected in the preview directly or in the structure tree of the 3D file structure.

> 💡 **Information**
>
> *If the Selected object only option is activated in the 3D file structure, only the selected object is shown in the preview.*

VIEWCUBE

The **ViewCube** tool is a permanently-visible 3D cube. It offers visual feedback on the current viewpoint of the model. The **ViewCube** can also be used for orientation in the preview.

DRAG THE VIEWCUBE OR CLICK ON IT

The **ViewCube** offers the following functionality:

▶   Display of the view in a three-dimensional area

▶   Orientation of the preview:

- Click on the surface
  (for example: View from above when clicking on the top of the **ViewCube**.)

- Click on an edge

- Click on a corner point

If you drag or click on the **ViewCube** tool, the view of the model is newly aligned by one rotation point. The view is then scaled back to 100% in the process. The rotation point is shown in the middle of the object that was last selected before the ViewCube tool was used.

ROTATION AND ZOOM POINT

The **rotation and zoom point** for the direction can be defined by means a mouse click.
The following is applicable in the process:

▸ If an assembly group is clicked on in the process, the location of the click is the rotation and zoom point.

▸ If a point outside an assembly group is clicked on in the preview, the center point of the preview is the rotation and zoom point.

3.4.5 Configuration in the 3D configurator

Carry out the following steps to link a 3D file to your zenon project configuration:

1. Start the zenon Editor.

2. Carry out the configuration in the Editor:
   - Variables
   - Functions
   - ...

3. Start the **3D Configurator**.

4. Load a 3D model in the **3D Configurator**:
   To do this, click on the **Open 3D model ...** button and select the 3D file.

5. Configure the camera positions:
   a) Select the desired assembly group.
   b) Select the angle and the zoom level in the preview.

c) In the **Camera positions** area, click on the **New** button.
A new entry is created for the camera positions option.

6. Select a level in the 3D file structure.
Note: The linkings are always connected to a level of the 3D file structure.
Please note: if no level is selected, no linkings can be configured.

7. Link a camera position to a function or a variable:

a) Select a variable in the **3D Configurator** in the `list of configured variables`.

b) Accept the selection by clicking on the **arrow downwards** button in the `object list`.

c) In the `Camera` entry in the object list, select a configured `camera position` in the drop-down list.

8. Configure additional linkings.

9. Save your 3D project configurations in the current <CD_PRODCUTNAME> Editor project:
To do this, click on the **Save configuration** button.
The project configurations of the **3D Configurator** are saved in the active zenon project.

CONFIGURE CAMERA POSITION

1. Configure camera positions in the **3D Configurator**:

a) Select the desired assembly group.

b) Select the angle and the zoom level in the preview.

c) In the **Camera positions** area, click on the **New** button.
A new entry is created for the camera positions option.

2. Link a variable for the camera index:

a) In the **Default settings** area, activate the **Use variable for index of the camera position**.

b) Click on the ... button.
The variable selection dialog is opened.

c) Select a numeric variable.

d) By entering the number of the `index of the camera position` for the linked variable, the 3D model can be visualized in Runtime with the configured view - including zoom level, orientation and positioning.

> ⚠ **Attention**
>
> *Please ensure that you assign different camera positions for each variable. If several camera positions are linked to a variable, it is always the last-configured position that is visualized in zenon Runtime. If this project configuration has the value "no camera position", there is no repositioning in Runtime.*

LOAD CONFIGURATION
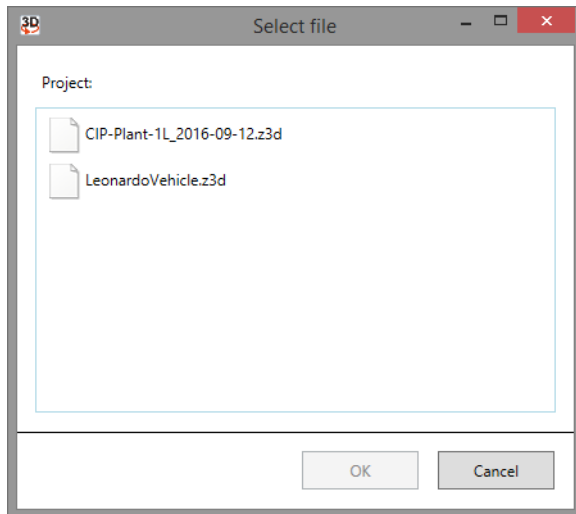
If you want to add to or correct pre-existing project configurations, carry out the following steps:

1. Start the zenon Editor.

2. Start the **3D Configurator**

3. In the **3D Configurator**, click on the **Load configuration ...** button
    The selection dialog of the 3D configurations already saved in the zenon project are opened.

4. Select a project configuration.
    The project configuration is loaded in the **3D Configurator**.

5. Carry out further configurations in the **3D Configurator**.

6. Save your project configurations by clicking on the **Save configuration** button.
    If a 3D configuration is already saved in the current zenon project, this is shown in a notice
    dialog.
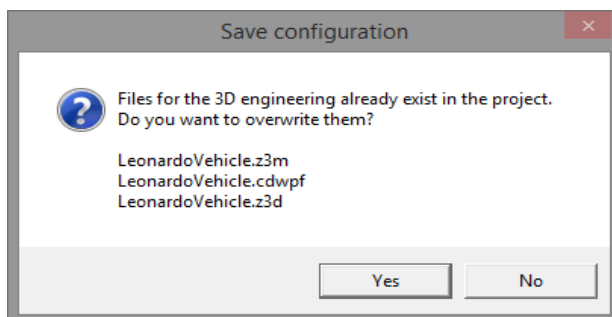
REPLACE 3D MODEL

Click on the **Replace 3D model...** button in the **3D Configurator** to add new file content to existing project configurations. Amended content is shown in a dialog.
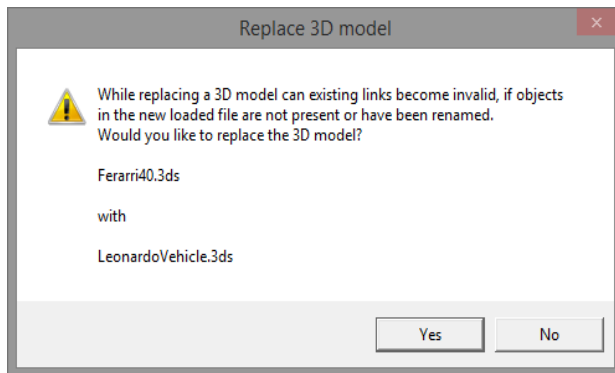
Please note that the newly-loaded file contains the same information for existing project configurations in the **3D Configurator**. Ensure in particular that, in the newly-loaded file, only additional information is contained and that the existing content is not changed. Especially deleted or renamed content of the newly-loaded 3D model can lead to incorrect project configurations (invalid linkings).

> ⚠ **Attention**
>
> Linkings that cannot be transferred are deleted from the configuration.

3.5   Engineering in the zenon Editor

Carry out the following steps in zenon to visualize a 3D configuration in zenon Runtime:

1. Start the zenon Editor.

2. Carry out the project configurations in the Editor.

3. Start the **3D Configurator**.

4. Configure the linkings and camera positions in the **3D Configurator**.

5. Transfer the 3D configuration of the **3D Configurator** to the Editor by clicking on the **Save configuration** button.
    The project configuration in the 3D configurator is saved in the current zenon project.

6. Configure a zenon screen.

CREATE A ZENON SCREEN

1. Create a new screen:

In the tool bar or the context menu of the **Screens**node, select the **New screen** command. An empty `Standard` screen is created.

2. Change the properties of the screen:

   a) Name the screen in the **Name** property.

   b) Select the desired screen type in the **Screen type** property.
   Note: 3D project configurations can be configured for each zenon screen type.

   c) Select the desired frame in the **Frame** property.

3. Configure the content of the screen:

   a) to do this, select the **WPF element** screen element.

   b) Place the **WPF screen element** on your screen.
   The file selection dialog to select a 3D project configuration is opened.

   c) Select the desired 3D configuration.
   Note: The parameters of the *.CDWPF file are set in the **3D Configurator** and transferred to the Editor configuration using the **Save configuration** button there.

   d) Ensure that the **WPF screen element** is placed in a corresponding size in the zenon screen.

   e) Place a corresponding screen element in the screen for the display and control of the display in Runtime.
   Example: **Numeric value** screen element for the entry of camera positions.

4. Create a screen switch function.

CLEAN UP 3D CONFIGURATION

3D configurations are not deleted automatically in the zenon Editor. The naming of the files corresponds to the respective 3D model that was loaded during project configuration in the **3D Configurator**.

Carry out the following steps to delete an existing 3D project configuration:

1. Close the **3D Configurator**.

2. Switch to the zenon Editor.

3. Delete the 3D project configuration files in the zenon Editor:

   a) Go to the Files node in the **Workspace**.

   b) Select the Graphics folder.

   c) Delete the .cdwpf file.
   This file represents the configuration file for the zenon WPF screen element.

   d) Switch to the `Others` folder.

   e) Switch to the `ThreeD` folder.

   f) Delete the .z3m file.
   This file represents the internal 3D model for display in zenon Runtime.

g) Delete the .png file.
This file represents the preview screen for the zenon Editor.

h) Delete the z3d file.
This file represents the configuration file of the **3D Configurator**. This file is loaded if you click on the **Load configuration...** button in the **3D Configurator**.

3.6 Display in Runtime

The following is applicable for display in Runtime:

▶ The **ViewCube** is automatically visualized in Runtime for 3D display.

▶ With linkings, in the mouse-over view, the display of the mouse pointer switches to the display of an arrow to display a cross.

▶ Free navigation in the 3D model:
The display can be moved, rotated, enlarged or reduced.

▶ Execution of functions in the 3D model:
A configured function can be executed by clicking on an object or an assembly group.
Example: Opening a linked online help or calling up an information window.

▶ Calling up the 3D model in a defined perspective:
The 3D model with views of a configured position can be visualized by setting a value of a "camera variable".

▶ Visualization of a limit value breach:
When a limit value is breached, an object or an assembly group can be shown in color or flashing in the 3D model.

▶ Objects or assembly groups can be switched to visible or invisible.

Linked objects assume the same properties for display in Runtime as the linked variables:

▶ Configurations of the **Limit Values** variable property group
In particular the configurations of the **Additional attributes** property group:

• **Limit value color**

• **Invisible**

• **Flashing**

• **Flash freq. [tenth sec]**
Note: You can find this property in the project properties,

• **Visibility**

• Function **Switch palette**

4. Diagnosis Viewer

All zenon modules such as Editor, Runtime, drivers, etc. as well as zenon Analyzer write messages to a joint log file. These can be read and configured with the Diagnosis Viewer program. It allows the reading of existing LOG files, online logging, saving of the current view, parameterizing the Diagnosis Viewer and the Diagnosis Server.

License information

Part of the standard license of the Editor and Runtime.

START THE DIAGNOSIS VIEWER

The Diagnosis Viewer is installed in the folder: `%Program Files (x86)%\Common Files\COPA-DATA\STARTUP`. Call it up under:

- ▶ Windows 8: Enter "**Diagnosis Viewer**" on the desktop for **Apps**
- ▶ Windows 7: *Start/All Programs/zenon/Version Independent Tools -> Diagnosis Viewer.*

The Diagnosis Viewer is only available in English.

USING IPV6

The Diagnosis Server also works with Diagnosis Clients which addresses via IPv6 addresses. For this the format of the log file has been adapted. The Diagnosis Viewer only reads the new format of the log files. If files from older zenon versions are opened (or vice versa), the IP address of the Diagnosis Client is not displayed correctly.

DRIVER ANALYSIS

zenon driver log all errors in the LOG files. LOG files are text files with a special structure.   The default folder for the LOG files is subfolder **LOG** in the folder **ProgramData**. For example:

%ProgramData%\COPA-DATA\LOG.

Attention: With the default settings, a driver only logs error information. With the Diagnosis Viewer you can enhance the diagnosis level for most of the drivers to "Debug" and "Deep Debug". With this the driver also logs all other important tasks and events.

In the Diagnosis Viewer you can also:

- ▶ Follow newly-created entries in real time
- ▶ customize the logging settings
- ▶ change the folder in which the LOG files are saved

Note:

1. The Diagnosis Viewer displays all entries in UTC (coordinated world time) and not in local time.

2. The Diagnosis Viewer does not display all columns of a LOG file per default. To display more columns activate property **Add all columns with entry** in the context menu of the column header.

3. If you only use **Error-Logging**, the problem description is in the column **Error text**. For other diagnosis level the description is in the column **General text**.

4. For communication problems many drivers also log error numbers which the PLC assigns to them. They are displayed in **Error text** or **Error code** or **Driver error parameter** (**1** and **2**). Hints on the meaning of error codes can be found in the driver documentation and the protocol/PLC description.

5. At the end of your test set back the diagnosis level from **Debug** or **Deep Debug**. At **Debug** and **Deep Debug** there are a great deal of data for logging which are saved to the hard drive and which can influence your system performance. They are still logged even after you close the Diagnosis Viewer.

⚠ **Attention**

In Windows CE errors are not logged per default due to performance reasons.

4.1 General

The zenon Diagnosis System logs error messages from zenon and zenon Analyzer. It consists of three parts:

▶ Diagnosis Server (on page 51): local or defined in zenon6.ini defined **zenLogSrv**

▶ Diagnosis Clients (on page 55): all modules, drivers, services, etc. which write messages

▶ Diagnosis Viewer (on page 57): Analysis program

VERSIONS

From version zenon 7.00 on the service **zenLogSrv** is used instead of the **zenSysSrv** for the diagnosis system. That means:

▶ Diagnosis systems up to version 6.51 and from version 7.00 are each compatible among themselves.

▶ The diagnosis mechanism of zenon 6.51 SP0 and zenon 7.00 SP0 are not compatible.

Compatibility	Diagnosis Server 6.51 SP0 and earlier	Diagnosis Server 7.00 SP0 and higher
Diagnosis Client 6.51 SP0 and earlier	`compatible`	**incompatible**
Diagnosis Viewer 6.51 SP0 and earlier	`compatible`	**incompatible**
Diagnosis Client 7.00 SP0 and higher	**incompatible**	`compatible`
Diagnosis Viewer 7.00 SP0 and higher	**incompatible**	`compatible`

With the Diagnosis Viewerversion 7.00 SP0 and higher you can open log files which were created by Diagnosis Server version 6.51 SP0 (or earlier). It does not work the other way round.

DEFAULT PORTS

▸ Version 7 and higher: `50780` (port of service **zenLogSrv**)

▸ up to 6.51: `1101` (port of service **zenSysSrv**)

If the port cannot be opened, the service closes itself.

> ⚠ **Attention**
>
> *If the port to which the Diagnosis Viewer should connect is closes, then it is tried to start the local Diagnosis Server. This makes sure that local logging is carried out if no Diagnosis Server is available in the network.*

MEMORY OCCUPANCY

Service **zenLogSrv** buffers log entries until they can be written in the LOG file. If the memory consumptions increases continuously by **zenLogSrv**, it is an indicator that the LOG file cannot be written.

4.2 Topology of the diagnosis system

The topology of the diagnosis system differs   for versions up to 6.51 SP0 and from 7.00 SP0 on.

TOPOLOGY BEFORE ZENON 7.00 SP0

The diagram displays all possible connections for which **zenSysSrv** is responsible. Each arrow represents a network connection between the applications. All applications connect to the **zenSysSrv** on port `1101`

regardless of whether Client and Server are on the same computer or communicate with each other via a network.
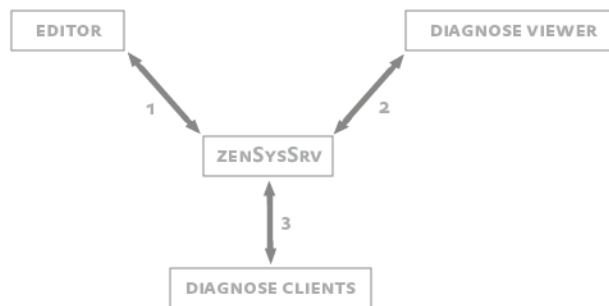
1. The Editor sends log entries, commands and data of the Remote Transport to **zenSysSrv**. **zenSysSrv** sends the configuration of the Diagnosis Client (Editor, Runtime, driver, zenon Web Server, zenon Web Client, etc.) and the Remote Transport data to the Editor.

2. The Diagnosis Viewer sends diagnosis commands, diagnosis configurations and log entries to **zenSysSrv**. **zenSysSrv** sends diagnosis data and the Diagnosis Clientconfiguration to the Diagnosis Viewer.

3. **zenSysSrv** sends the Diagnosis Client configuration to the Diagnosis Clients. The Diagnosis Clients send log entries to **zenSysSrv**.

zenSysSrv reacts correspondingly to each incoming message:

▸   Log entries are written in log files.

▸   Remote Transport commands (start Runtime, write/read back data, etc.) are executed.

▸   Diagnosis commands (set Server/Client configuration, start online logging, etc.) are executed.

TOPOLOGY AS OF ZENON 7.00 SP0

The diagram displays all possible connections for which **zenSysSrv** and **zenLogSrv** (as of version 7.00 SP0) are responsible. Each arrow represents a network connection between the applications. All applications connect to **zenLogSrv** on port 50780. The editor connects to **zenSysSrv** on port 1101. It is regardless of whether Client and Server are on the same computer or communicate with each other via a network.
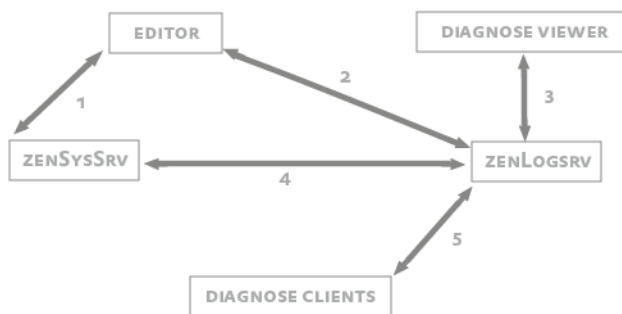
1. The Editor sends commands and data of the Remote Transport to **zenSysSrv**. **zenSysSrv** sends data of the Remote Transport to the Editor.

2. The Editors send log entries to **zenLogSrv**. **zenLogSrv** sends the Diagnosis Client configuration to the Editor.

3. The Diagnosis Viewer sends diagnosis commands, diagnosis configurations and log entries to **zenLogSrv**. **zenLogSrv** sends diagnosis data and the Diagnosis Client configuration to the Diagnosis Viewer.

4. The **zenSysSrv** sends LOG entries to **zenLogSrv**. **zenLogSrv** sends the configuration of the Diagnosis Clients to **zenSysSrv**.

5. **zenLogSrv** sends the configuration of the Diagnosis Clients to the Diagnosis Clients. Die Diagnosis Clients send log entries to **zenLogSrv**.

The **zenSysSrv** reacts to: incoming Remote Transport commands.
The **zenLogSrv** reacts to incoming diagnosis commands and log entries

EXAMPLE

IN an environment with a central Diagnosis Server the Runtime is started on a device. Based on the Runtime version the configuration is read from **zenon6.ini**. Versions before 7.00 SP0 read entry **LOG_CONFIG** from **[SYS_REMOTE]**, later versions read this entry from **[LOGGING_SYSTEM]**. This configuration is used to establish a diagnosis connection. (For details see Standard procedure (on page 41).) Each additional component loaded by the Runtime (driver, **zenNetSrv**, etc.) also establish a diagnosis connection.

4.3　Procedure

As default only error messages (errors) are sent from the Clients to the Diagnosis Server.

The Diagnosis Server saves the received messages in TXT files with a special structure (on page 74). The default folder for the LOG files is subfolder **LOG** in the folder **%ProgramData%**.　For example: **%ProgramData%\COPA-DATA\LOG**.
You can find further information in the installation and updates manual in the File structure chapter.

Note: Under Windows CE error messages are also not created per default due to resource issues.

In order to report not only error messages to the Diagnosis Server but also other information important for the diagnosis, the according settings have to be defined for the Client (on page 55).

You can also configure the behavior of the Server (on page 51).

CONFIGURATION

The configuration of the connection is done in zenon6.inI (on page 42) divided in:

- ▶ Diagnosis Clients
- ▶ Diagnosis Server
- ▶ Versions to make sure that the configuration of the versions does not affect each other

The configuration of the Diagnosis Viewer (on page 57) also enables you to configure settings for the connection:

- ▶ Settings of the server (on page 52)
- ▶ Connection setting for Diagnosis Server connection (on page 60)
- ▶ Diagnosis Client (on page 55)
- ▶ Diagnosis Viewer analysis program　(on page 57)

We recommend to do the configuration of the connection for Server and Client via zenon6.ini.

PROCEDURE

The Diagnosis Server is:

- ▶ a service at the PC.
  The service starts automatically when the operating system boots. The local service can only be started once.

- ▶ an application under CE.
  Under CE only one process can use the port. Additionally started processes terminate themselves as the port cannot be opened. If the local configuration of the Diagnosis Servers is

set under CE in such a way that only the user interface is displayed (INIT=2), several processes could emerge by the Diagnosis Clients trying to start the local Diagnosis Server

As soon as a Diagnosis Client gets active, the following steps are carried out:

1. The Diagnosis Client reads and uses the configuration from **zenon6.ini**. If no configuration is available in **zenon6.ini**, the default configuration (Diagnosis Server=`localhost:50780`) is used.

2. The Diagnosis Client attempts to establish a connection to the Diagnosis Server:

   Establishing successful:

   a) The diagnosis connection has been established and the log entries are sent.

   Establishing failed:

   b) The Diagnosis Client tries to start and use the local Diagnosis Server.
      On a PC it tries to start the service.
      Under CE it tries to create the process.

   c) The Diagnosis Client attempts to establish a connection to the local Diagnosis Server. If it succeeds, the diagnosis connection is established and the log entries are sent.

   If it fails, no log entries are created.

4.3.1   Entries in zenon6.ini

zenSysSrv and **zenLogSrv** are configured in zenon6.ini. At this it is differentiated between version 7.00 and up and versions 6.51 and earlier. With this you can configure old and new Diagnosis Clients and Diagnosis Server independent of each other on one device. For example, the LOG entries of old Diagnosis Clients are diverted, without the LOG entries of new clients being affected.

DIAGNOSIS SERVER BEFORE VERSION 7.00 SP0

INI entry	Description
[SYS_REMOTE]	Section in **zenon6.ini**. Contains parameters for `zenSysSrv` (Remote Transport and Diagnosis Server).
LOGDirectory=	Defines folder for the LOG files. If there is no entry, the LOG folder in the **%ProgramData%** folder is used by default. **Example:** **LOGDirectory=** `%ProgramData%\COPA-DATA\zenon760\LOG`
CONFIG=	Configuration string for the Diagnosis Server and **zenSysSrv** . Remote Transport and the diagnosis system use the same server configuration up to and including version 6.51 SP0. The string consists of the following parts: **DEVICE=**`[Device];HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]` ▸ DEVICE: Sets the communication type used. TCP/IP and serial are available. ▸ HOST: is set to the computer name of the Diagnosis Server. ▸ PORT: states the port to be used. ▸ TIMEOUT: Provides the timeout time for the connection is seconds. ▸ BAUD: provides the connection speed of a serial connection. PC configuration: ▸ DEVICE=TCP/IP ▸ HOST=localhost ▸ PORT=1101 ▸ TIMEOUT=10 CE configuration: ▸ DEVICE=COM1 ▸ BAUD=115200
LOGMinFreeDiskSpace=	Defines minimum memory (in MB) that must be available on the hard drive. LOG files are deleted before this value is gone below. Default: `1024`
LOGMaxUsedDiskSpace=	Defines the maximum memory on the hard drive in MB used for LOG files. LOG files are deleted if this value is exceeded. Default: `1024`
LOGMinUsedDiskSpace=	Defines memory on the hard drive (in MB) that is used even if there are no LOG files.

	Default: 5
LOGLogLifeTime=	Defines the lifecycle of the LOG files in seconds. Older LOG files are deleted.
	Default: 1209600 (corresponds to 14 days)
LOGImageCnt=	Defines the number of LOG entries, after which all incremental LOG files are written.
	▸ 0: inactive (default)
LOGLogUpdateTime=	Number of milliseconds, after which the LOG entries received are written to a LOG file.
	Default: 2000
LOGMaxBufferedRecs=	Defines the number of LOG entries that are buffered if they cannot be written to files.
	Default: 10240
LOGMaxLogFileSize=	Maximal size of a log file in bytes. If a log file reaches this size, it is closed and a new log file is created.
	Default: 5242880 (corresponds to 5 MB)
LOGCheckDiskTime=	Defines the interval in seconds, in which the memory occupied by LOG files is checked.
	Default: 60
INIT=	Action when starting the application with Windows CE:
	▸ 0: end immediately
	▸ 1 (or other value greater than 2): Open listening port in minimize to system tray
	▸ 2: only display surface
	Default: 1
	Note: As part of the separation of zenSysServ and zenLogServ for zenon 7.00, this default value was also changed for other versions. The default value was previously 2.

DIAGNOSIS SERVER FROM VERSION 7.00 SP0

INI entry	Description
[LOGGING_SYSTEM]	Section in **zenon6.ini**.
	Contains parameters for Diagnosis Server. Only affects **zenLogSrv** and has no effect on **zenSysSrv**.
LOGDirectory=	Defines the folder for the LOG files.
	If there is no entry, the following is used:
	▸ The path extracted from the Registry,

	z. B. **%ProgramData%\COPA-DATA\LOG**
	▸ the LOG folder in the **%ProgramData%** folder of the **zenLogSrv**, if no path is defined in the registry, e. g. **%ProgramData%\COPA-DATA\zenon760\LOG**

CONFIG=	Configuration string for the Diagnosis Server. The string consists of the following parts: **DEVICE**=`TCP/IP;HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]` ▸ `DEVICE`: Sets the communication type used and must always be set to `TCP/IP` ▸ `HOST`: is set to the computer name of the Diagnosis Server. ▸ `PORT`: states the port to be used. ▸ `TIMEOUT`: Provides the timeout time for the connection is seconds. Configuration: ▸ `DEVICE`=TCP/IP ▸ `HOST`=localhost ▸ `PORT`=**50780** ▸ `TIMEOUT`=**10**
LOGMinFreeDiskSpace=	Defines minimum memory (in MB) that must be available on the hard drive. LOG files are deleted before this value is gone below. Default: `1024`
LOGMaxUsedDiskSpace=	Defines the maximum memory on the hard drive in MB used for LOG files. LOG files are deleted if this value is exceeded. Default: `1024`
LOGMinUsedDiskSpace=	Defines memory on the hard drive (in MB) that is used even if there are no LOG files. Default: `5`
LOGLogLifeTime=	Defines the lifecycle of the LOG files in seconds. Older LOG files are deleted. Default: `1209600` (corresponds to 14 days)
LOGImageCnt=	Defines the number of LOG entries, after which all incremental LOG files are written. Default: `0`
LOGLogUpdateTime=	Number of milliseconds, after which the LOG entries received are written to a LOG file. Default: `2000`
LOGMaxBufferedRecs=	Defines the number of LOG entries that are buffered if they cannot be written to files. Default: `10240`
LOGMaxLogFileSize=	Maximal size of a log file in bytes. If a log file reaches this size, it is closed and a new log file is created. Default: `5242880` (corresponds to 5 MB)

LOGCheckDiskTime=	Defines the interval in seconds, in which the memory occupied by LOG files is checked. Default: `60`
INIT=	Action when starting the application with Windows CE: ▸ `0`: end immediately ▸ `1` (or other value greater than 2): Open listening port in minimize to system tray ▸ `2`: only display surface Default: `1`

DIAGNOSIS CLIENT BEFORE VERSION 7.00 SP0:

INI entry	Description
[SYS_REMOTE]	Section in **zenon6.ini**. Contains parameters for Diagnosis Client.
LOG_CONFIG=	A configuration string for the Diagnosis Client is stored here. The string consists of the following parts: **DEVICE**=`TCP/IP;HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]` ▸ `DEVICE`: Sets the communication type used and must always be set to `TCP/IP` ▸ `HOST`: is set to the computer name of the Diagnosis Server. ▸ `PORT`: states the port to be used. ▸ `TIMEOUT`: Provides the timeout time for the connection is seconds. <u>Configuration:</u> ▸ `DEVICE=TCP/IP` ▸ `HOST=localhost` ▸ `PORT=1101` ▸ `TIMEOUT=10`

DIAGNOSIS CLIENT FROM VERSION 7.00 SP0

INI entry	Description
[LOGGING_SYSTEM]	Section in **zenon6.ini**. Contains parameters for Diagnosis Client.

LOG_CONFIG=	A configuration string for the Diagnosis Client is stored here. The string consists of the following parts:
	DEVICE=`TCP/IP;HOST=[Hostname];PORT=[Port];TIMEOUT=[Timeout]`
	▸ `DEVICE`: Sets the communication type used and must always be set to `TCP/IP`
	▸ `HOST`: is set to the computer name of the Diagnosis Server.
	▸ `PORT`: states the port to be used.
	▸ `TIMEOUT`: Provides the timeout time for the connection is seconds.
	Configuration:
	▸ `DEVICE=TCP/IP`
	▸ `HOST=localhost`
	▸ `PORT=50780`
	▸ `TIMEOUT=10`

NOTE:

INIT UNDER CE

Under Windows CE we urgently recommend to not set entry **INIT**= (in section [LOGGING_SYSTEM] or [SYS_REMOTE]) to value `2`.

Reason: The value `2` means that both **SysSrvCE** and **LogSrvCE** only display the user interface and do not open the listening port.
If now a Diagnosis Client wants to establish a connection, it will fail. As in this case the Diagnosis Client start process **LogSrvCE** and the process does not open the port, each Diagnosis Client starts such a process. This leads to several parallel **LogSrvCE** processes and to a delay in starting the Diagnosis Clients as it waits for the timeout of the connection while establishing the diagnosis connection.

ZENLOGSRV ON A SYSTEM WITH DIFFERENT VERSIONS

If **zenLogSrv** is used on a system with different versions as a central local Diagnosis Server, the entry **LOG_CONFIG** in the **[SYS_REMOTE]** must be as follows:
DEVICE=`TCP/IP;HOST=localhost;PORT=5780;TIMEOUT=10`

Reason: Older clients then use **zenLogSrv** as the Diagnosis Server. New clients do this automatically. This service is switched on automatically on the PC when the system is started; it must be started manually with CE.

Attention: If the port cannot be reached, older clients start **zenSysSrv** and retry connecting to it.

4.3.2 Windows CE

Under Windows CE the Diagnosis Server is started as an application.

At the configuration (on page 42) of the connection consider the recommendation for parameter **INIT**:

Under Windows CE we urgently recommend to not set entry **INIT**= (in section [LOGGING_SYSTEM] or [SYS_REMOTE]) to value 2.

Reason: The value 2 means that both **SysSrvCE** and **LogSrvCE** only display the user interface and do not open the listening port.
If now a Diagnosis Client wants to establish a connection, it will fail. As in this case the Diagnosis Client start process **LogSrvCE** and the process does not open the port, each Diagnosis Client starts such a process. This leads to several parallel **LogSrvCE** processes and to a delay in starting the Diagnosis Clients as it waits for the timeout of the connection while establishing the diagnosis connection.

USER INTERFACE UNDER CE

TRANSPORT SERVICE (ZENSYSSRV)

Parameter	Description
Start	Opens the Listening port and enables **zenSysSrv** to receive Remote Transport commands.
Browse	Opens the dialog for browsing the file system.
Stop	Terminates the receiving of Remote Transport commands and closes the Listening port.
Configuration	Selection of an existing server configuration from drop-down list. New connections cannot be configured. See section Entries in zenon6.ini (on page 42) for the configuration of the connection. Available are: ▸ Configuration from **zenon6.ini** ▸ Default configuration for TCP/IP ▸ Default configuration for COM1 to COM4
Hide	Minimizes the user interface into the task bar.
Exit	Terminates the application and closes the Listening port if necessary.
X (button top right)	Minimizes the user interface into the task bar.

LOGGING SERVICE (ZENLOGSRV)

Parameter	Description
Start	Opens the Listening port and enables **zenLogSrv** to receive log entries.
Stop	Terminates the receiving of log entries and closes the Listening port.
Configuration	Selection of an existing configuration from drop-down list. New connections cannot be configured. See section Entries in zenon6.ini (on page 42) for the configuration of the connection. Available are: ▸ Configuration from zenon6.ini ▸ Default configuration for TCP/IP
Hide	Minimizes the user interface into the task bar.
Exit	Terminates the application and closes the Listening port if necessary.
X (button top right)	Minimizes the user interface into the task bar.

4.4 Diagnosis Server

The Diagnosis Server:

▸ Creates and manages log files.

▸ The Server is:

- implemented from zenon 7.00 on as zenLogSrv

- up until zenon 6.51 integrated in the zenSysSrv.

▸ The configuration of the server is read from the zenon6.ini (on page 42).

▸ The server writes the received log data into the log file.

▸ The saving location for the files has to be configured. Standard: `%ProgramData%\COPA-DATA\LOG\`

▸ Log files are named after the following fashion `LOG<YYMMTThhmmss>.txt`.

▸ The server is multi client able. Several evaluations can connect to the server simultaneously.

▸ It is possible to connect to the server online, to see the current logging messages.

▶ It is possible to connect to Diagnosis Server different than the local and to execute the same tasks (configuring server, configuring clients, online logging) as on the local server.

▶ The parameters of the current server (with which the Diagnosis Viewer is connected) can be modified. If a modification of another Diagnosis Server is needed, the server connection can be changed in the menu under *File – Connect to… .*

▶ The menu entry **Settings – Server configuration** is only available, if online logging is not used at the moment.

4.4.1   System integrity monitoring

At the start of the Runtime a monitoring thread with high priority is also started. The monitoring thread checks critical parameters every ten seconds and writes corresponding warnings or errors in module Supervisor of the Diagnosis Server.

The following parameters are monitored.

Parameters	Limit
Warning threshold for used handles	> 5000
Error threshold for used handles	> 9000
Warning threshold for used GDI objects	> 5000
Error threshold for used GDI objects	> 9000
Warning threshold for CPU use for the main thread	> 70 %
Error threshold for CPU use for the main thread	> 90 %
Warning threshold for total CPU use	> 70 %
Warning threshold for total CPU use	> 90 %
Warning threshold for free main memory	< 30 %
Error threshold for free main memory	< 10 %
Warning threshold for OnTimer in the main frame	> 1000 ms
Error threshold for OnTimer in the main frame	> 5000 ms

4.4.2   Settings of the server

The Diagnosis Server can be configured via entries in file zenon6.ini or via dialog **Server configuration** in the Diagnosis Client. We recommend to do the settings in file zenon6.ini.

CONFIGURATION VIA ZENON6.INI

See section Entries in zenon6.ini (on page 42).

CONFIGURATION VIA DIALOG

To configure the Diagnosis Server via the dialog:

1. start the Diagnosis Viewer

2. open entry *File Connect to... (on page 60).*

3. configure the desired Server
   (Take care of the correct port selection depending on the version!)

4. open entry *Settings -> Server configuration*

5. configure the events which should be logged

6. Close the dialog by clicking on **OK**.

Note: All changes are written to **zenon6.ini** when the dialog is confirmed.

Configuration of the events which should be logged by the Diagnosis Viewer:

Parameters	Description
Modules	Selection of the modules which you want to configure.
Messagelevel	Selection of the events which should be logged. Default: **Errors**
LOGImageCnt	Number of records, after which all incremental fields will be written. Default: `0` (not active)
LOGMinFreeDiskSpace	It is continuously checked, if less than the configured minimal free disk space is available. The oldest log files are deleted. Minimal free disk space in MB, before log files are deleted. Default: `1024 MB`
LOGMaxUsedDiskSpace	Maximal used disk space for the LOG file in MB. Default: `1024 MB`
LOGMinUsedDiskSpace	Minimal used disk space in MB independent whether LOGMinFreeDiskSpace is under-run. Default: `5 MB`
LOGLogUpdateTime	Time in ms, after which the received entries are saved. Default: `2000 ms`
LOGMaxBufferedRecs	The server buffers the contents of all incremental log fields for diverse applications, in order to be able to write images of them into the LOG file. With the start of a log file and after configurable number of log entries a complete image for all addresses is written into the log file. Received data are written to the log files. The entry is done via temporary buffer. It can be configured whether the data should be written immediately or delayed. Number of buffered entries if they cannot be saved. Default: `10240`
LOGMaxLogFileSize	The server writes the received log data into the log file. If this log file reaches the configured size, a new file is started. Maximal size of a single log file in bytes. Default: `5 MB`
LOGDirectory	Folder in which the log files are written. Default: `%ProgramData%\COPA-DATA\LOG\`
LOGLogLifeTime	It is continuously checked, if the lifetime of the log files is exceeded. The oldest log files are deleted. Number of seconds to keep the log files. Default: `14 days`
LOGCheckDiskTime	Time in sec, in which the used disk space id checked. Default: `60 s`
Message level for all modules	Settings are taken over for all modules.
Default values	Restore default settings.
Accept	Take over settings for this module.

Cancel	Discards changes and closes dialog.
OK	Applies changes and closes dialog.

4.5 Diagnosis Client

Each program that creates log entries is a Diagnosis Client. These log entries are sent to the Diagnosis Server via TCP/IP. Server computer and port are read - dependent on the used version - from the local `zenon6.ini` (on page 42) and contacted. If the connection fails the following procedure is carried out cyclically:

▶ If the Diagnosis Server cannot be reached, a attempt to reconnect is made every 500 ms.

▶ If no connection could be established after half the timeout time, the system tries to start the service **zenSysSrv** or **zenLogSrv**.

The settings are configured via entry **LOG_CONFIG=** in section `[SYS_REMOTE]` (up to 6.51) or **[LOGGING_SYSTEM]** (from 7.00).

CONFIGURATION OF DIAGNOSIS CLIENT

To configure the Diagnosis Client via the dialog:

1. Start the Diagnosis Viewer.

2. Open the entry **Settings** -> **Client configuration**
   (only available if logging is inactive)

3. Highlight a Client.

4. Click on **List of parameters**.

5. The dialog for configuration is opened.

6. Configure the Client.

7. Close the dialog by clicking on **OK**.

8. Repeat the procedure for other Clients if necessary

CLIENT LIST
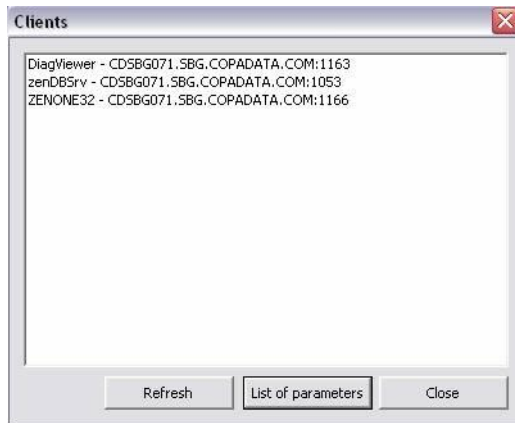
Parameter	Description
Clients	Lists all available Clients.
Refresh	Updates the list of the Clients.
List of parameters	Opens the dialog for configuring the selected Client.
Close	Closes the dialog.

CONFIGURE CLIENT
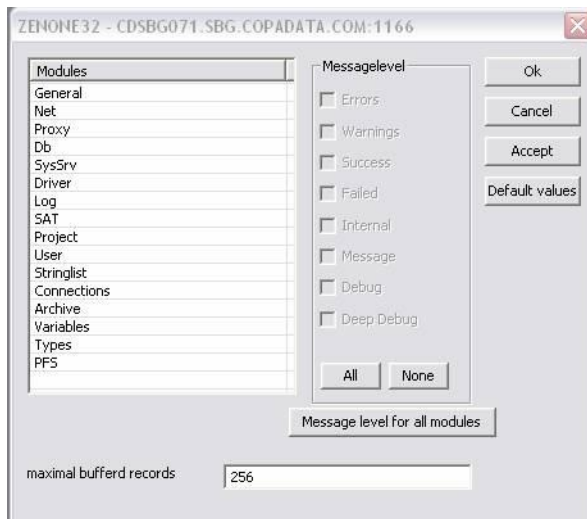
Modules that can be selected:

Module	Description
Modules	Selection of the modules which you want to configure.
	The list is made up of default modules and modules dependent on the respective client.
	▸ **General**: General messages
	▸ **Net**: Network messages
	▸ **Proxy**: Messages of the zenon Proxy
	▸ **Db**: Messages from **ZenDbSrv**
	▸ **SysSrv**: Messages from **ZenSysSrv**
	▸ **Driver**: Messages from a driver
	▸ **LOG**: Messages from logging
	▸ **SAT**: SICAM 230 specific messages
Messagelevel	Type of information which should be logged.
All	Selects all.
None	Deselects all.
Message Level for all Modules	Assigns highlighted message levels to all modules.
Max Buffered records	Number of records to be buffered if no connection to the `Diagnosis Server` is established. Default: `256`
OK	Applies all changes and closes dialog.
Cancel	Discards all changes and closes the dialog.
Accept	Applies all changes. The dialog remains open.
Default values	Enters the defaults.
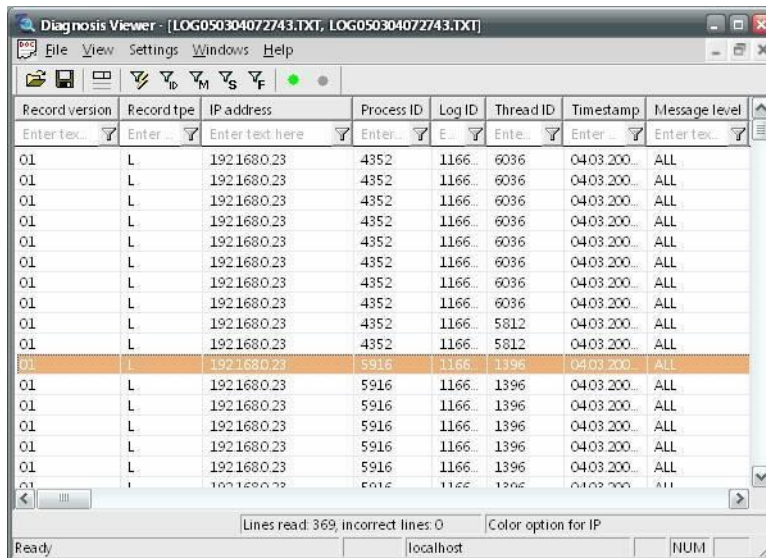
4.6 Diagnosis Viewer - Analysis Program

The Diagnosis Viewer is used to display the LOG data. It connects to the Diagnosis Server in order to display data online or read back historic log files. Log files contain not only the log data, additional information which is important for the analysis such as column headings are also saved in them.

To display a log file:

1. Select **File -> Open**.

2. the dialog for selecting a LOG file is opened with focus on the configured default folder

3. Select the desired file.

4. The LOG file is displayed

5. Double click an entry to open the detail view.

RECOGNIZING QUEUE OVERFLOW AT DRIVER

If messages of a driver are deleted because of queue overflow, the Diagnosis Client and the Diagnosis Server set a marker in the new entry when writing a new entry for all activated modules (on page 67) that older entries were deleted from the queue. The overflow recognitions contained in the opened log files are counted:

Parameter	Description
Column **Record version**	This column must be part of the column selection. It shows the version of the data record. Version $8x$ tags overflows.
Counter 82	8 refers to overflow, 2 refers to the concerned version of the data record.
Status line **queue overflows**	If status bar is active, the number of overflows is displayed there.

Note: Not all entries written in the log file are displayed. If a not displayed log data record is tagged with an overflow, it will be displayed at the next visualized data record of this client. If several not displayed entries in a row are tagged with an overflow, the counter in the status bar can deviate from the number of data records with overflow tags.

4.6.1   Global settings

The entries are in the English language.

Parameters	Description
File	Commands in menu File.
Open	Opens dialog for selecting a log file saved in TXT format. Each newly opened log file is displayed in its own window.
Open to active document	Each new log file is added to the active window.
Close	Closes the active window.
Save	Saves the log files of the active window.
Save as	Saves the current view of the active window (e.g. filter settings) to a file to be selected.
Remote Download	Only available, if a connection to a Remote Diagnosis Server exists. Enables the download of logging files of the Remote Server to the local log folder. A subdirectory with the name of the PC is created. Only file, which have changed or which are new, are available.
Connect to	Opens the dialog for the Connection selection (on page 52).
Online	Activates the online error view. If online logging is started, all incoming entries are displayed. The same filter dialog as for reading files can also be set here. Difference: If no log connection is selected, all incoming log entries will be displayed, otherwise only the ones from the selected clients. If the filter of the log connection is modified, all entries not fulfilling the filter criteria will be lost. (Logging file nevertheless is created and all entries are saved.) Displayed entries can be saved.
Offline	Deactivates the online error view. (Default)
Exit	Closes the Diagnosis Viewer.

Connection settings Diagnosis Server connection

The Diagnosis Viewer automatically connects to a selected default Server at the start. If no default server is defined, **localhost** is used as default server.
Recommendation: Set up the server configuration using the entries in **zenon6.ini** (on page 42).

SELECT DIAGNOSIS SERVER
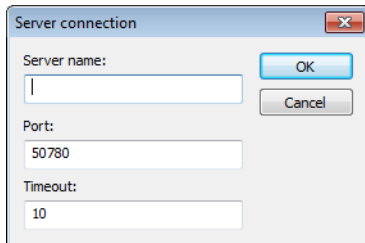
Click on **File -> Connect to...** to open the dialog to select a server:
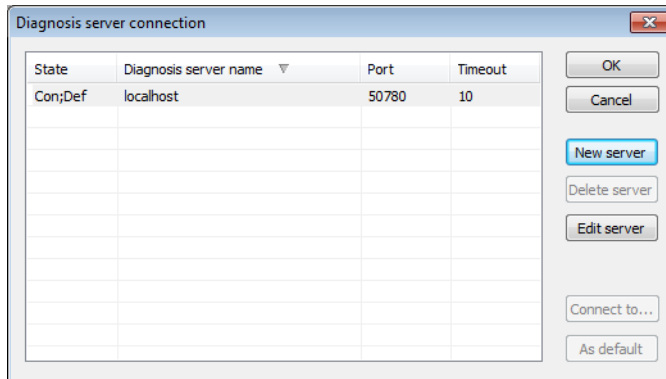
Parameter	Description
List Server	Lists all configured Servers and displays them: ▸ Status: Con: connected server Def: Default Server. This is shown on opening. ▸ Name ▸ Port ▸ Timeout
OK	Applies settings and closes the dialog.
Cancel	Discards settings and closes the dialog.
New Server	Opens the dialog for configuring a new Server.
Delete Server	Selected Server entry is deleted from the list.
Edit Server	Opens the dialog for configuring the selected Server.
Connect to	Establishes a connection to the selected Server.
As default	Selected server becomes default server.

CREATE AND EDIT DIAGNOSIS SERVER

Click on **New Server** or **Edit Server** in dialog **Diagnosis Server connection** to open the dialog for configuring the Server:

Parameter	Description
Server name	Name of the PC to which to connect. Each computer can only be entered as a server once. The following must run on the PC: ▸ up to version 6.51: **zenSysSrv** ▸ from version 7.00: **zenLogSrv**
Port	Port of the service on the target computer: ▸ up to version 6.51: `1101` ▸ from version 7.00 on: `50780`
Timeout	Time in seconds to wait for a response from the **Sysservice**. Default: `10 s`
OK	Applies settings and closes the dialog.
Cancel	Discards settings and closes the dialog.

Column settings

You can select the columns that are to be displayed in the menu under **Settings -> Column settings**. The selection is only applicable for the time period in which the file is opened. Column settings can however be saved as profiles.
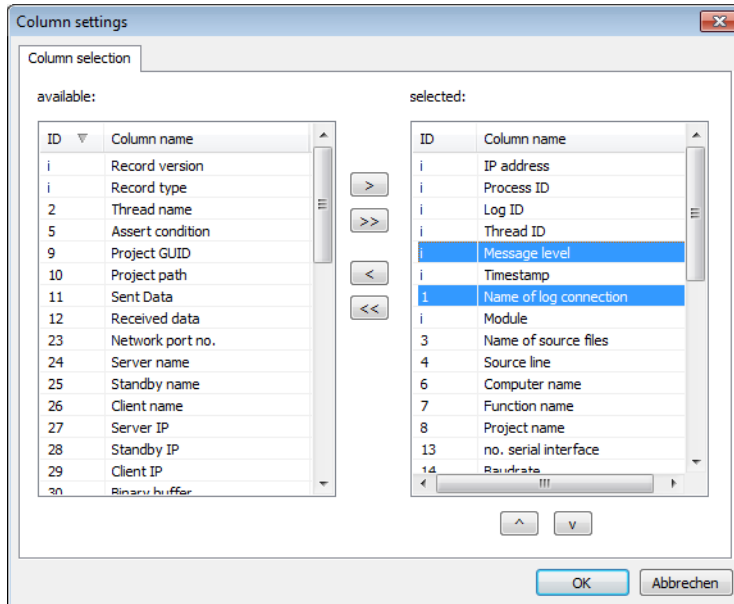
Parameters	Description
available	available columns
selected	Columns which are displayed
>	adds columns selected at "available" to "selected"
>>	adds all available columns at "available" to "selected"
<	removes selected columns from "selected"
<<	removes all available columns from "selected"
^	sorts selected entries one level higher (multi-select is possible)
v	sorts selected entries one level lower (multi-select is possible)
OK	Applies settings and closes the dialog.
Cancel	Discards settings and closes the dialog.

Columns can also be configured via the context menu:

Parameters	Description
Add all columns with entry	Adds all columns which contain entries.
Remove Column	Hides the selected column.
Remove all empty columns	Hides all columns which do not contain entries.
Column width automatic	The width of the selected column is automatically adjusted to the longest entry
All columns widths automatic	The width of all columns is automatically adjusted to the longest entry

Profiles

Column settings can be saved as profiles.

To save profiles:

1. Enter a name into the filed in the toolbar.

2. Click on the symbol with the disk.

To load profiles:

1. Select a saved profile from the drop-down list.

2. Click on the symbol with the disk.

The profiles are saved as a ***.lvs** file.

4.7 Possibilities of Filtering

To define filters open the corresponding filter dialog via the corresponding symbol or the tab of the filter.

SYMBOL BAR FILTER

To use the symbol bar, you must activate it in menu **View** via menu item **Icon bar**.

Symbol	Tool tip	Description
1	**Change pre-filter settings**	Opens dialog with five tabs for defining filters.
2	**Change pre-filter for IP-ProcessID-LogID**	Opens tab **IP address - Process No - Log ID (on page 66).**
3	**Change pre-filter for modules**	Opens tab **Modules** (on page 67).
4	**Change pre-filter for additional columns**	Opens tab **Additional columns** (on page 68).
5	**Change pre-filter for time interval**	Opens tab **Time interval** (on page 69).
6	**Change pre-filter for coloring**	Opens tab Colors (on page 70).

FILTER DIALOG
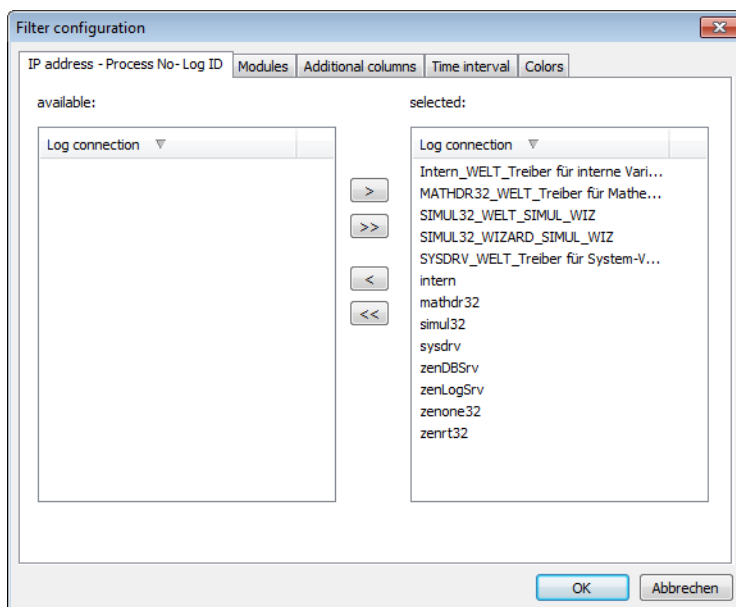
Tabs	Description
IP-ProcessID-LogID	Opens tab **IP address - Process No - Log ID** (on page 66) for configuring the connection which should be logged.
Modules	Opens tab **Modules** (on page 67) for the modules which should be logged.
Additional columns	Opens tab **Additional columns** (on page 68) for selecting additional columns which should be displayed.
Time interval	Opens tab **Time interval** (on page 69) for defining time filter.
Colors	Opens tab Colors (on page 70) for selecting the color-coding of information.

4.7.1   IP address - Process No - Log ID

Configuration of the connections and processes which should be displayed.
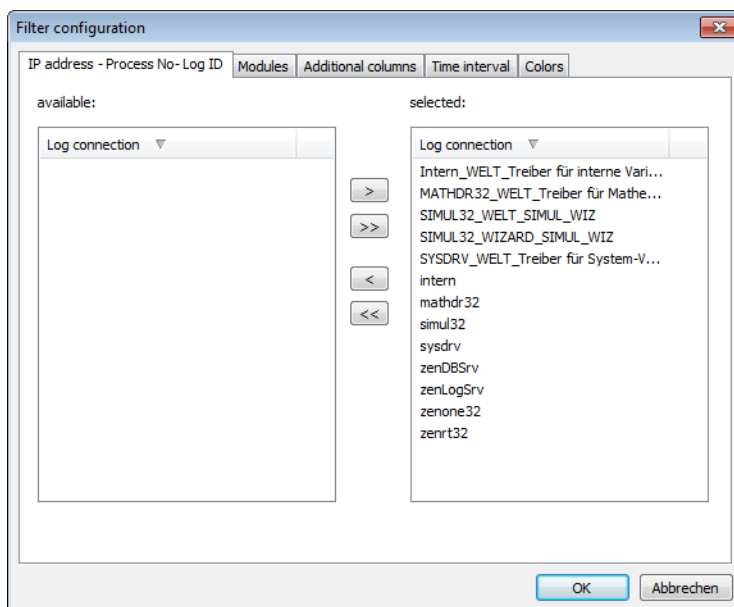
Parameters	Description
available	List of available connections.
selected	List of selected connections.
Pfeiltasten	Add selected (**>**) or all (**>>**) connections to list **selected** or removes them from the list (**<** or **<<**).
OK	Applies all changes on all tabs and closes the dialog.
Abbrechen	Discards all changes on all tabs and closes the dialog.

4.7.2   Modules

Selection of the modules which should be displayed.
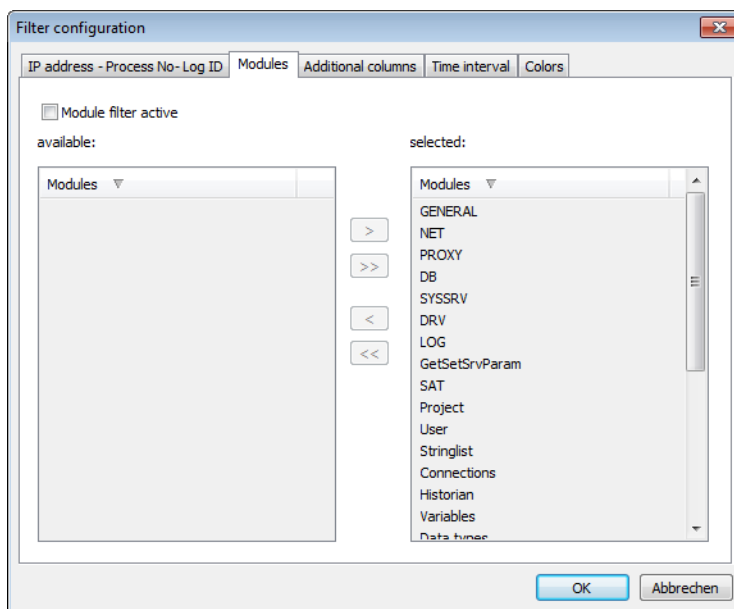
Parameters	Description
Module filter active	`Active:` It is filtered on modules. With this only LOG data records are displayed which are assigned to a selected module.
available	Available modules.
selected	Selected modules.
Cursor keys	Add selected (**>**) or all (**>>**) connections to list **selected** or removes them from the list (**<** or **<<**).
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

4.7.3   Additional columns
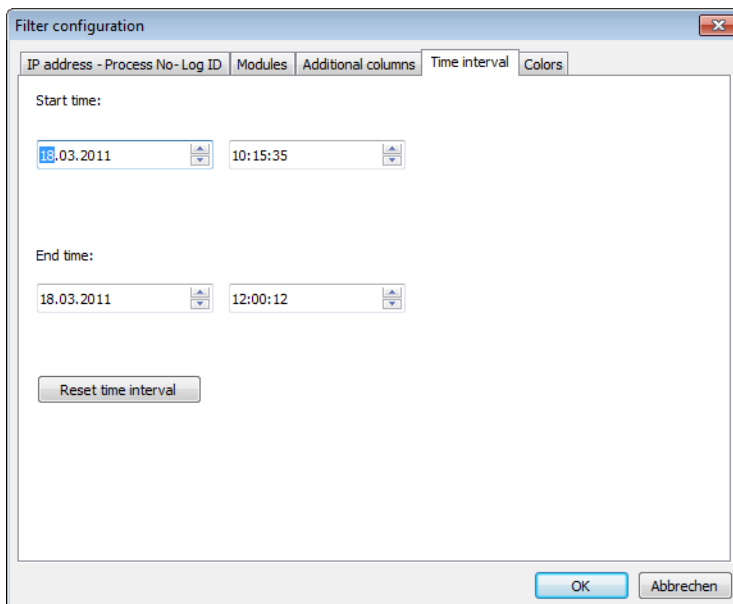
Selection of the columns which should be displayed additionally.
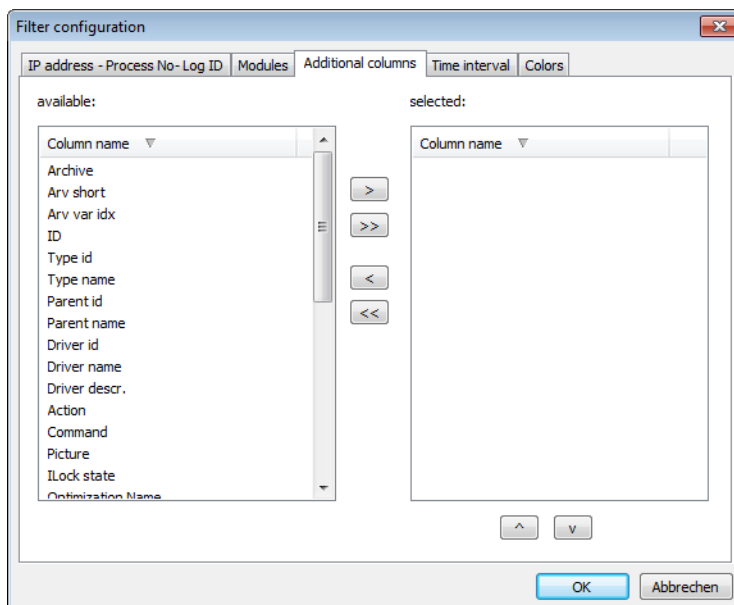
Parameters	Description
available	List of the available columns. All field definitions existing in the file are displayed.
selected	List of the selected columns.
Cursor keys	Add selected (**>**) or all (**>>**) connections to list **selected** or removes them from the list (**<** or **<<**).
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

4.7.4   Time interval

Configuration of the time filter for displaying the entries.

Parameter	Description
Start time:	Selection of the date and point in time from which entries should be displayed.
	Default: actual date
End time:	Selection of the date and point in time up to which entries should be displayed.
	Default: actual date
Reset time interval	Sets filter back to default.
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

4.7.5   Colors

Selection of the color display of the information.

Filter configuration

IP address - Process No- Log ID | Modules | Additional columns | Time interval | Colors

Color for:

- IP address
- Modules
- Log connection
- no colors

OK   Abbrechen
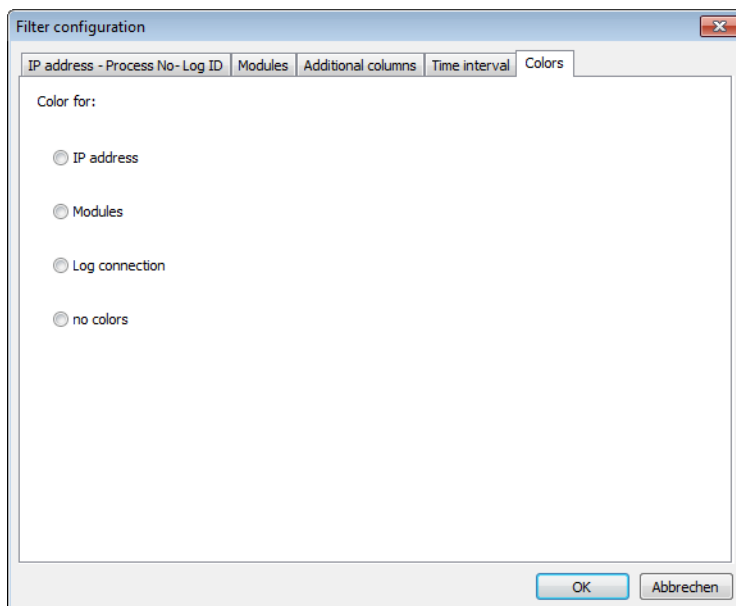
Parameters	Description
Colors for:	Selection of the color
IP address	`Active`: Different IP addresses are colored differently.
Modules	`Active`: Different modules are colored differently.
Log connection	`Active`: Different names of the log connection are colored differently.
no colors	`Active`: Entries are not colored.
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes on all tabs and closes the dialog.

4.8 Reading the log files

One or more log files can be opened in an analysis at the same time. A pre-filter (on page 64) has to be set to limit the display. This is possible with five property pages. This filter can be modifies later on. If the filter is set, only the entries fulfilling these filter criteria are displayed. The entries are listed chronologically.

FILTER COLUMNS

Another filter possibility is available with the filter columns. Filter criteria can be entered for each column in the input field below the column header. The fields support **Regular Expressions**, so that also complex filter criteria can be defined. The list can be sorted ascending or descending by clicking the column headers. Displayed entries can be saved. Fields to be displayed can be selected using the *Settings -> Column settings* menu entry.

DEFAULT FIELDS IN THE LOG FILE:

ID	Parameter	Description
i	IP address	IP address. These fields identify the clients and allow the message to be assigned.
i	Log ID	entry ID These fields identify the clients and allow the message to be assigned.
i	Message Level	Name of the message level for which the message was entered.
i	Module	Name of the module, which entered the message.
i	Process ID	ID of the project. These fields identify the clients and allow the message to be assigned.
i	Record type	Type of entry.
i	Record version	Version number of the entry.
i	Thread ID	ID of the thread, from which the message was entered.
i	Timestamp	Time of the message in UTC.

OPTIONAL FIELDS WITH FIX ID.

ID	Constant	Description
1	Name of log connection	Name of logging connection
2	Thread name	Name of the threads.
3	Name of source files	Name of the source file.
4	Source line	Source line
5	Assert condition	Assert condition
6	Computer name	Computer name
7	Function name	Function name
8	Project name	Project name
9	Project GUID	GUID of the project.
10	Project path	Project path
11	Sent Data	Sent data
12	Received data	Received data

13	no. serial interface	Number of the serial interface.
14	Baudrate	Baud rate
15	dtr setting	DTR setting.
16	rts setting	RTS setting.
17	Serial char. length	Serial character length
18	Parity	Parity
19	No. stopbits	Number of stop bits
20	CTS	CTS.
21	dsr	DSR.
22	dsr sensitivity	DSR sensitivity.
23	Network port no.	Port number in the network.
24	Server name	Server name.
25	Standby name	Name of standby server
26	Client name	Client name.
27	Server IP	IP address server.
28	Standby IP	IP address standby.
29	Client IP	IP address client.
30	Binary buffer	Binary buffer.
31	Pointer	Pointer
32	Class name	Class name
33	Error code	Error code:
34	DLL instance handle	DLL instance handle
35	DLL name	DLL name
36	Driver error parameter 1	Driver error parameter 1
37	Driver error parameter 2	Driver error parameter 2
38	Trace Message	Trace message
39	Errortext	Error text
40	Error file name	Name of error file.
41	Success condition	Condition for success
42	Value if successful	Value when successful
43	Net adress	Net address:

44	Datablock	Data block.
45	Offset	Offset:
46	Bit number	Bit number
47	Area in PLC	Area in the PLC.
48	Communication direction	Shows the direction of the communication in a string.
49	General text	General text
50	Main version no.	Number of main version.
51	Sub version no.	Number of sub-version.
52	Build no.	Build number.
53	Servicepack	Service Pack.
54	Hotfix no.	Hotfix number
55	Sending client	Client, which sent the command
56	Target client for command	Client that is the target of the command.
57	Database no.	Number of database.
58	Datapoint no.	Datapoint number (channel number)
59	Datapoint value	Value of datapoint
60	Datapoint status	Status of datapoint
61	Datapoint timestamp	Time stamp of datapoint in seconds
62	Duration in ms	Error wait time in milliseconds.
63	Number, counter	number, counter.

4.9   Structure of the LOG file

Log files are ANSI text files. The individual fields are separated using tab characters. **CR+LF** is used as an end character. This data can be opened in Notepad as a result.

Log file get the information sequentially, not sorted chronologically.

4.9.1   Message levels

Eight groups can be selected to divide the log messages. These are bit coded and can thus also be combined.

1	Error message
2	Warnings
4	Success messages
8	TRACE
16	ASSERT
32	LOG messages
64	Debug
128	Extended Debug

4.9.2   Search function

With **View/Find** the current window can be searched. All hits are marked.

4.10   Handling of errors and messages for the Diagnosis Viewer

ERROR

Error	Possible causes
The port cannot be opened.	▸ Another application uses the port. Check via "netstat". ▸ The ports for entries **[SYS_REMOTE] CONFIG** and **[LOGGING_SYSTEM] CONFIG** are identical. **zenLogSrv** and **zenSysSrv** then try to open the same port.
Diagnosis Clients do not start the zenLogSrv	▸ **zenAdminSrv** was ended. Without it the service cannot be started. ▸ **zenLogSrv** is not registered as a service at the PC. In this case enter the following in the command line: **zenLogSrv.exe –Service** ▸ Diagnosis Clients are not of version 7.00 SP0 or higher. The **zenLogSrv** is only supported from this version on. ▸ Under Windows CE: The individual components (Runtime, **SysSrvCE**, **LogSrvCE**) are located in different folders. They must be located in the same folder. Otherwise the components do not find one another.
Under CE many processes are created by SysSrvCE.exe or LogSrvCE.exe.	▸ One of the two entries in zenon6.ini **[SYS_REMOTE] INIT** or **[LOGGING_SYSTEM] INIT** has the value 2. As a result the application only displays the user interface and does not open the Listening port. Each Diagnosis Client then tries to start the process as it cannot connect to the Diagnosis Server.
Several processes crash. (Unhandled Exceptions of the Diagnosis Server at receiving log messages or configuration commands or of the Diagnosis Client and Diagnosis Viewer during booting or during receiving the configuration)	▸ The versions do not match. Diagnosis Clients, Diagnosis Server and Diagnosis Viewer must either all have version 7.00 SP0 or higher or all version 6.51 SP0 or earlier (see Compatibility (on page 37)).

LOG ENTRIES

Entry	Description

`SysSrv received not supported network message!`	**zenSysSrv** received a network telegram which is not supported. Example: Log entries.
`LogSrv received not supported network message!`	**zenLogSrv** received a network telegram which is not supported. Example: Remote Transport commands
`Could not open listening port. Server will be stopped.`	The **zenLogSrv** or the **zenSysSrv** could not open its Listening port. The error message is logged as follows: ▸ **zenLogSrv** and **zenSysSrv** on the PC: Entry in the Windows event display. ▸ **zenSysSrv** under CE: Message box for the user and log entry to the Diagnosis Server. ▸ **zenLogSrv** under CE: Message box for the user.

The following log entries are assigned to different systems. The first part of the messages states whether service or Client are effected:

▸ **SysSrv**: **zenSysSrv**

▸ **SysCli**: Client for **zenSysSrv**

▸ **LogSrv**: **zenLogSrv**

▸ **LogCli**: Diagnosis Client

Entry	Description
`[SysSrv/LogSrv/SysCli/LogCli] Info InitString [String]`	A network connection has been initialized with the displayed configuration string. Server opens ports and Clients connect to the Server.
`[SysSrv/LogSrv/SysCli/LogCli] WINSOCK ERROR`	An exception occurred during a network operation. The details are also displayed.
`[SysSrv/LogSrv] Accept Failed!`	An incoming connection from a Client could not be accepted.
`[SysSrv/LogSrv/SysCli/LogCli] Write Faild`	Not all data which should be sent could be sent. The number of the sent bytes and the number of the bytes which should be sent is displayed.
`[SysSrv/LogSrv] Client [String] in List Delete!`	The Client log off from the Server.
`[SysSrv/LogSrv] Client [String] in List Insert`	The Client log on to the Server.

5. Online updating of the zenon Help:

The **Documentation Download Tool** administers the updating of your online help including embedded help, dialog help, tooltips and the PDF product documentation from zenon and zenon Logic.

The updating is carried out online. An internet connection is necessary for this.

CONTENTS OF THE DOCUMENTATION UPDATE:

The **Documentation Download Tool** supports the updates of:

- ▶ zenon and zenon Logic product documentation
- ▶ Driver Documentation
- ▶ Tutorials
- ▶ Glossary

FILE FORMATS OF THE DOCUMENTATION UPDATE:

The **Documentation Download Tool** supports the updates of:

- ▶ Online help for zenon and zenon Logic (.chm)
- ▶ zenon product documentation (.pdf)

Note: The tool is only available in English

License information

Part of the standard license of the Editor and Runtime.

5.1 Installation

The **Documentation Download Tool** is automatically installed with zenon.

5.2 Starting the program

To start the **Documentation-Download-Tool**:

1. Go to the following folder: `%PROGRAMFILES(X86)%\Common Files\COPA-DATA\STARTUP`.

2. Start the program called **DokumentationDownloadTool.exe** by double-clicking on it.

   The program start dialog opens
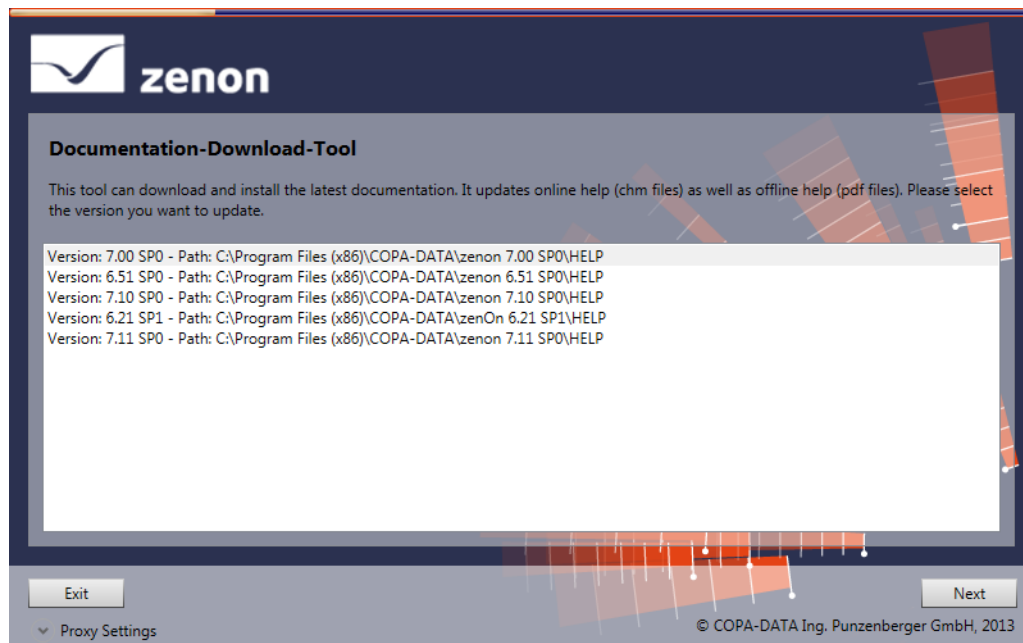
5.3   Navigation

It is possible to navigate through the individual dialogs by means of the navigation bar in the lower area of the dialog:
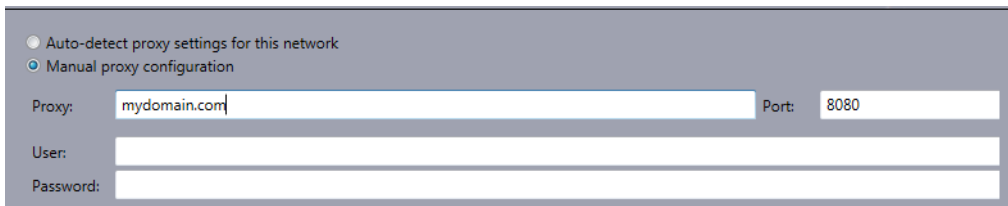
Button	Description
Exit	Closes the **Documentation Download Tool**
Back	Goes back one dialog in the tool process.
Next	Goes forward one dialog in the tool process.
Proxy Settings	Opens/closes expandable list for the configuration of the proxy settings (on page 80). Only active in the start dialog.

5.4 Proxy Settings

The proxy settings of your network can only be configured using the **Proxy Settings** entry.

To call this up, click on **Proxy Settings** in the start window of the tool. It is only possible to call this up in the start dialog. This property is not active in subsequent dialogs.

Parameters	Description
Auto-detect proxy settings for this network	The proxy settings of your system are used for communication with the internet. (Default: active)
Manual proxy configuration	Enables the proxy settings to be configured.
Proxy:	Address of the proxy server
Port:	Port of the proxy server (default: 8080)
User	User name on the proxy server (optional)
Password:	Password on the proxy server (optional)

💡 **Information**

The Documentation Download Tool notes these proxy settings. If you regularly change your password, you must also change the password in the proxy settings of the Documentation Download Tool.

5.4.1 Incorrect proxy settings
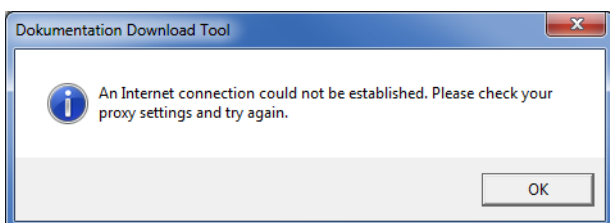
An error dialog appears with incorrect entries.

Confirm this error dialog with **OK** to automatically return to input of the **Proxy Settings**.

5.5 Selection of version

In this dialog, select the version of zenon to be updated.
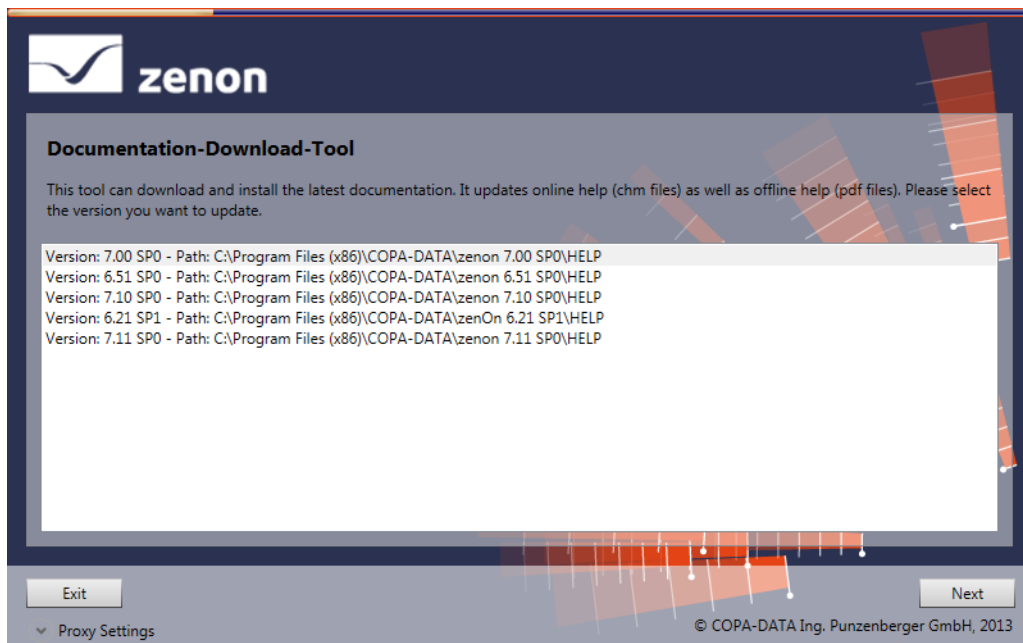
Parameters	Description
List of installed versions	Lists the versions of zenon installed on the computer.
	Select the version to be updated by simply clicking.
	Note: only one version of COPA-DATA can be updated each time. Multiple selection is not possible.
Exit	Closes the **Documentation Download Tool**
Next	Goes forward one dialog in the tool process.
Proxy Settings	Not active in this dialog.

5.6 Language dialog

In this dialog, you select the zenon language to be updated.

Parameters	Description
List of available languages	Lists the languages available for zenon:
	▸ English (ENGLISH)
	▸ French (FRENCH)
	▸ German (GERMAN)
	▸ Italian (ITALIAN)
	▸ Russian (RUSSIAN)
	▸ Spanish (SPANISH)
	Select the language to be updated by clicking on it.
	Note: only one version of COPA-DATA can be updated each time. Multiple selection is not possible.
Exit	Goes back one dialog in the tool process.
Back	Goes back one dialog in the tool process.
Next	Goes forward one dialog in the tool process.
Proxy Settings	Not active in this dialog.

5.6.1   No updates available

If online and offline help is up to date, a dialog appears:
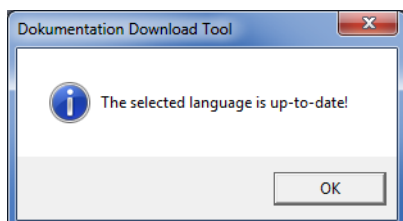
Clicking on the **OK** button reverts to the **Language** dialog.

5.6.2   Language-dependent content of zenon help

Available language content for zenon and   zenon Logic:

Language	Embedded help	Online/offline help	Online/offline driver documentation
English	English	English	English
French	French	English	English
German	German	German	German
Italian	Italian	Italian	English
Russian	Russian	English	English
Spanish	Spanish	English	English

5.7 Overview of available updates

Once the update conditions have been selected, a dialog with the available updates is displayed:

Parameters	Description
List of available Updates.	List of the documents that are available for the selected version of zenon. **Note:** the list is for information only. Selection is not possible.
Exit	Closes the **Documentation Download Tool**
Back	Goes back one dialog in the tool process.
Next	Goes forward one dialog in the tool process.
Proxy Settings	Not active in this dialog.

5.8 Status dialog

This dialog shows the progress when downloading the PDF or online help file to be updated.
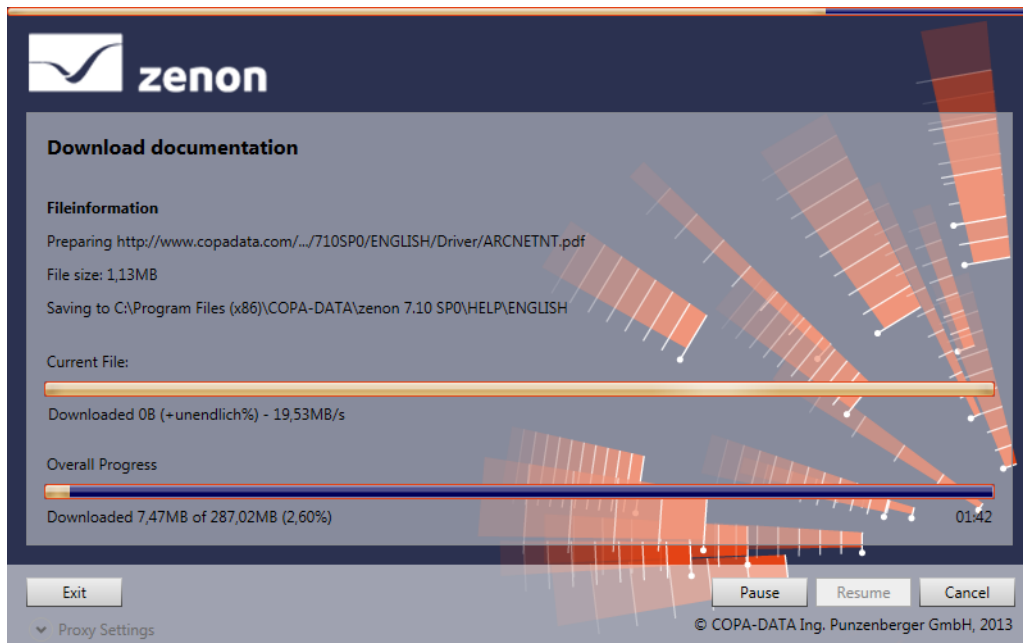
Parameters	Description
Fileinformation	Detailed information on the file that is currently being downloaded: ▸ File origin ▸ File size ▸ Save location on the local computer
Current File:	Status of the current file including current download speed
Overall Progress	Status of the complete update including percentage and remainder display
Exit	▸ Cancels the download that is currently in progress ▸ Closes the **Documentation Download Tool**
Pause	Pauses the current download
Resume	Resumes the download that was paused (by clicking on **Pause**). This button is only active if the **Pause** button has been pressed beforehand
Cancel	Cancels the current download
Proxy Setting	Not active in this dialog.

5.8.1   Download complete

The following dialog is shown once the download has been completed:
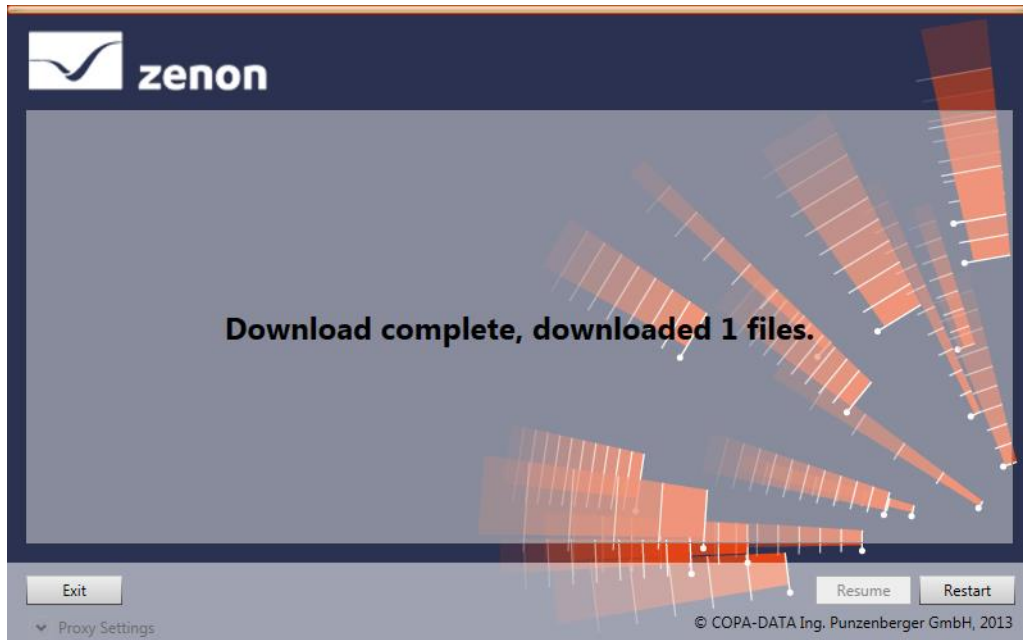
Parameters	Description
Exit	Closes the **Documentation Download Tool**
Resume	Not active in this dialog.
Restart	Reverts to the start dialog (on page 78) of the tool.
Proxy Settings	Not active in this dialog.

5.8.2 Cancel

The following dialog is displayed once the Cancel button has been clicked:
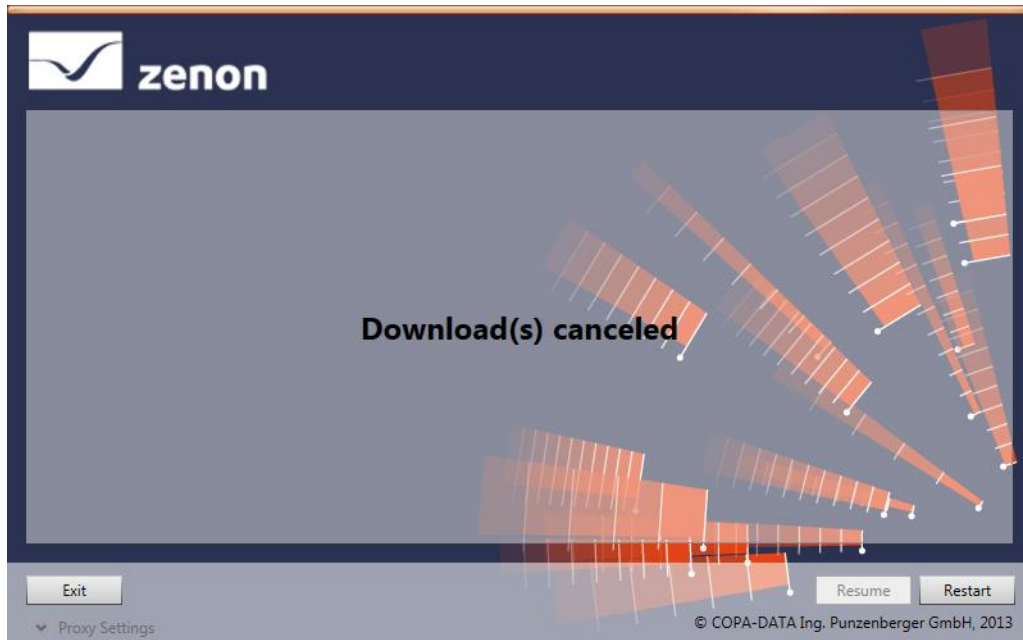
Parameters	Description
Exit	Closes the **Documentation Download Tool**
Resume	Not active in this dialog.
Restart	Reverts to the start dialog (on page 78) of the tool
Proxy Settings	Not active in this dialog.

6. Keyblock Runtime Start

Keyblock Runtime Start is a program with which zenon Runtime runs as a **Shell**. In doing so, zenon Runtime is started, but all **Windows** system tasks are blocked. Keyboard shortcuts such as **Windows** key or `Ctrl+Alt+Del` no longer have an effect. User can no longer access the operating system but only work on the zenon user interface.

The precondition for this is that the project properties are set **Runtime title** to `No title (full screen)`. Then zenon runs in full screen mode and the Runtime cannot be minimized.

Note also the information provided in the **Protect Runtime files** (on page 90) chapter**.**

Note: The blocking of the **Windows** key can be circumvented. You should therefore block the **Windows** key using the corresponding entry in the **Startup Tool** (on page 137)

> **License information**
>
> *Part of the standard license of the Editor and Runtime.*

6.1   Usage

To use **Keyblock Runtime Start**:

1. In the Windows start folder, under COPA-DATA, open the zenon **Tools**.

2. Select **Keyblock Runtime Start**.

3. The program is opened and automatically starts Runtime.

4. The program blocks all   access to the operating system:

   - locked shortcuts:

     ```
     Ctrl+Alt+Del
     Ctrl+Esc
     Alt+Tab
     Alt+Esc
     Alt+F4
     Windows key (except Windows + L)
     ```
     Notes:
     When locking the system keys, the normal operation of the scroll bars with the mouse in the Runtime is also blocked. This block can be circumvented with the context menu.
     If the system is blocked using the keyboard shortcut **Windows + L**, All **Windows** keyboard shortcuts are available again when signing in again. To prevent this, in the **Startup Tool** (on page 137) under **Application -> Options -> General**, deactivate the **Windows** key.

   - Hiding the Control Panel in the start menu

   - Locking the toolbar for operation

   - Prevents

     Changing passwords

     Closing Windows

     Logout

     Locking the computer

     User change

- Hiding all element in the task manager

> **Information**
>
> If **Keyblock Runtime Start** is started using the startup process of the operating system, then note the following:
>
> ▸ The Autostart folder is user specific:
>   If another user logs in, the program is not executed.
>
> ▸ Execution of the Autostart programs can be prevented by pressing the `Shift` key when the operating system is booting.

This locking cannot be bypassed during Runtime. When the Runtime is closed normally, the system restrictions are canceled. If the Runtime is to be operable without these limitations, Runtime must be started without the **Keyblock Runtime Start**.

> **Attention**
>
> Take care that you engineer a possibility to close the Runtime in your project. There is no possibility to end the Runtime regularly.
>
> ▸ It can only be ended by shutting the computer down using the hardware
>
> ▸ All system keys also remain blocked after restarting
>
> In order to make system keys accessible again after not being shut down properly (in the event of a power cut for example):
>
> ▸ start the Runtime again with the help of **Keyblock Runtime Start**
>
> ▸ end the Runtime regularly via a close button

6.2 Protect Runtime files

The access to the Runtime files can be strongly restricted and therefore well protected. At this only a single Windows user has read and write rights for the Runtime folder. All other Windows user do not have any rights in the Runtime folder including read rights. Operators in the Runtime log on as zenon user.

In order to limit access to the file system:

1. Only create a single Windows user (for instance: **zenon_ADMIN)** who is authorized to start zenon as well as to read and write in the zenon Runtime folder.

2. Disable access to the zenon Runtime folder for all other Windows users – including read authorizations!

3. Disable any remote access to the user **zenon_ADMIN**.

4. Block any software for remote maintenance or remote access such as zenon Remote Desktop.

5. Make sure that zenon can only be started if this user (**zenon_ADMIN)** is logged in.
Since other Windows users do not have read authorization Runtime will only start in the context of this user (**zenon_ADMIN)**.

6. Make sure that zenon runs as shell:

   a) For this purpose, create a zenon autostart with **Keyblock Runtime Start** (on page 89)

   b) activate the property **Lock system keys** in the group **Runtime settings** of project properties

   c) start zenon in full-screen mode: Set property **Runtime title** to `No title`

   d) also bear multi-screen systems in mind in the configuration

   e) disable Explorer start

   f) do not offer file selection dialogues
   (in this case no functions may be projected which require the user to select files in Runtime)

Access to the zenon file system is thus restricted.

7. GIS Integration

The **GIS Integration package** from <CD_PROUDCTNAME> offers an easy and simple possibility to draw objects with a geographic reference and to link these objects to zenon ALC information, variables and functions.
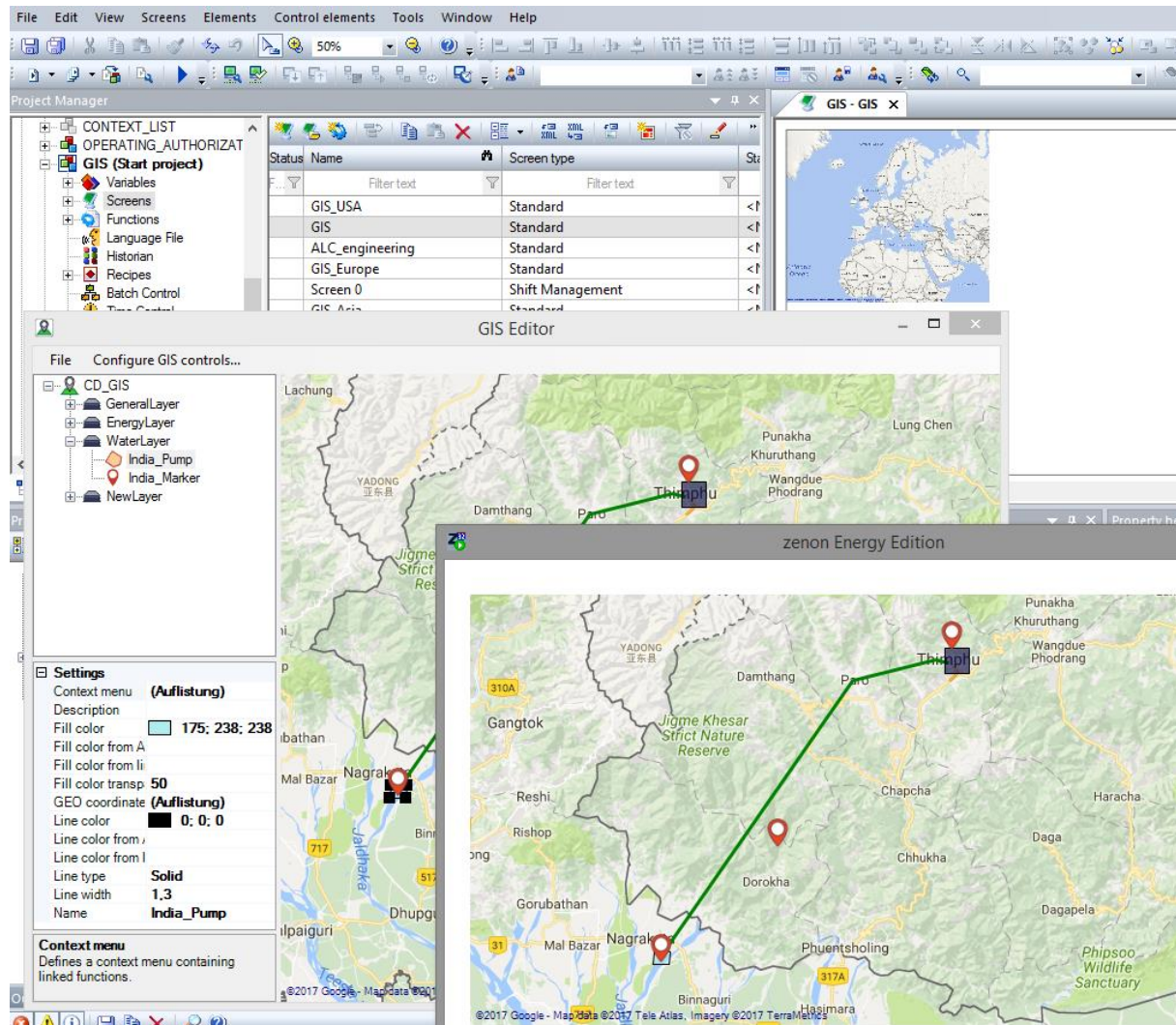
Display in the zenon Runtime visualizes ALC engineering with selectable **Map provider**.

Included in the GIS integration package:

▶   **GIS Editor**
     Tool for the configuration of a GEO-data-based ALC project configuration.
     The project configuration is implemented by means of the mouse and setting parameters of properties. The geographical relationship is visualized in a real-time view of selectable maps.
     Project configuration content is placed on a map directly.

▶ **GIS control**
As a result of the positioning of an **ActiveX element** for the project configuration in the zenon Editor, the project configurations in the **GIS Editor** are applied for display in Runtime.

7.1 GIS Editor

The **GIS Editor** is a tool for the configuration of a GEO-data-based ALC configuration.

The result is saved in a file. This file contains information for display in zenon Runtime.

For project configuration, lines (on page 102), areas (on page 106) and markers (on page 110) are supported.

These can:

▶ Be drawn or placed on a map.
There are different **Map provider**s available for display on a map.

▶ Set up in the **GIS Editor** directly.
Simple engineering of the elements by clicking on a mouse.

▶ Be linked to an existing configuration of the zenon Editor.
The following can be linked

- Variables

- Functions

- ALC information

> **License information**
>
> *Part of the standard license of the Editor and Runtime.*

7.1.1 Installing and calling up the GIS editor

The **GIS Editor** is automatically installed as part of the zenon standard installation.

For wizards to be displayed, the settings for VBA or VSTA must be set correctly in file ***zenon6.ini***:

[VBA]

EIN=1

[VSTA]

ON=1

If VSTA wizards are not displayed although the settings are correct, set entry **LOADED**= to 1 in area `[VSTA]`.

> ⚠ **Attention**
>
> *The GIS Editor only accepts backed-up project configurations from the zenon Editor.*
>
> *Ensure that your current project configuration - especially for opened zenon screens - has been saved.*

To start the wizard:

1. Click on *Tools -> Start Editor Wizards….*
    Or: Press the short cut `Alt+F12`

    The selection window with the available wizards opens.
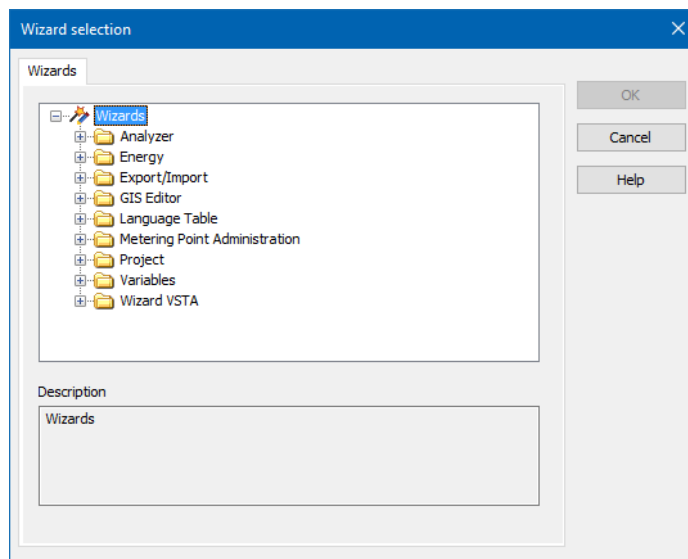
2. Navigate to node **GIS Editor**.

3.	Select **GIS Editor**.
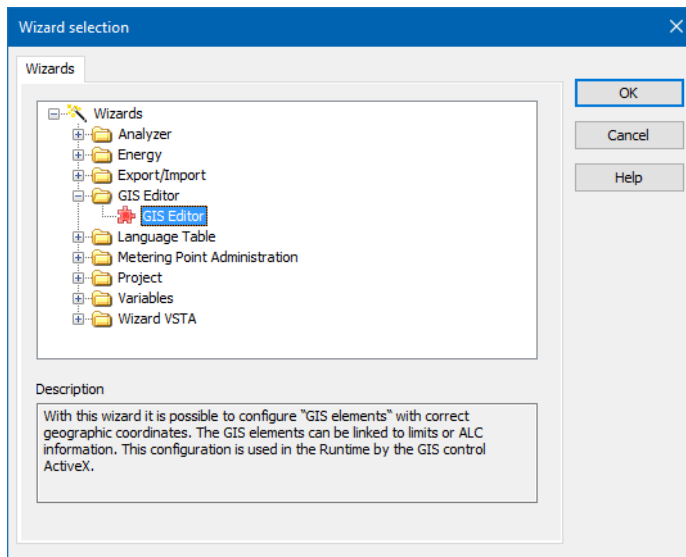
4.	Click on **OK.**

	The **GIS editor** is started.
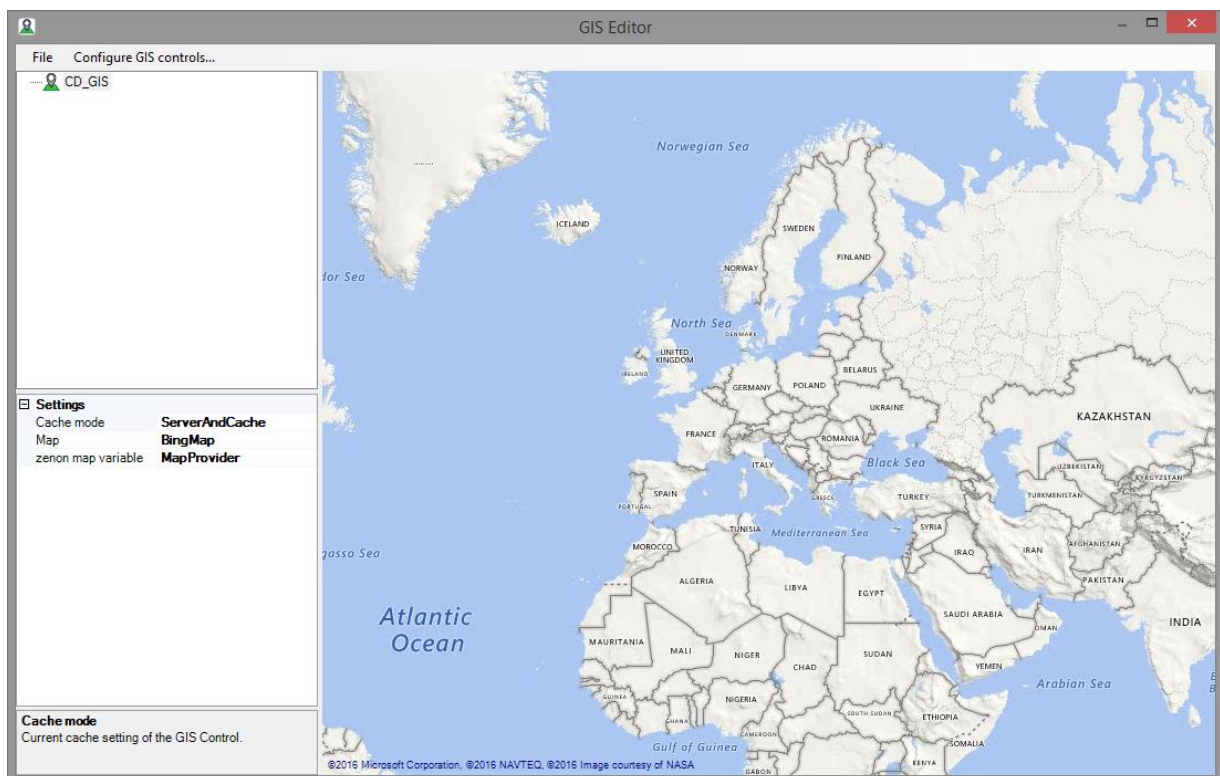
7.1.2 Areas in the GIS Editor

In general, the following applies:

▶ The window size of the tool can be freely scaled.

▶ The size of the areas can be amended by moving the splitters.

▶ If the **GIS editor** is open, no configuration in the zenon Editor is possible.

Note: The user interface of is only available in English.
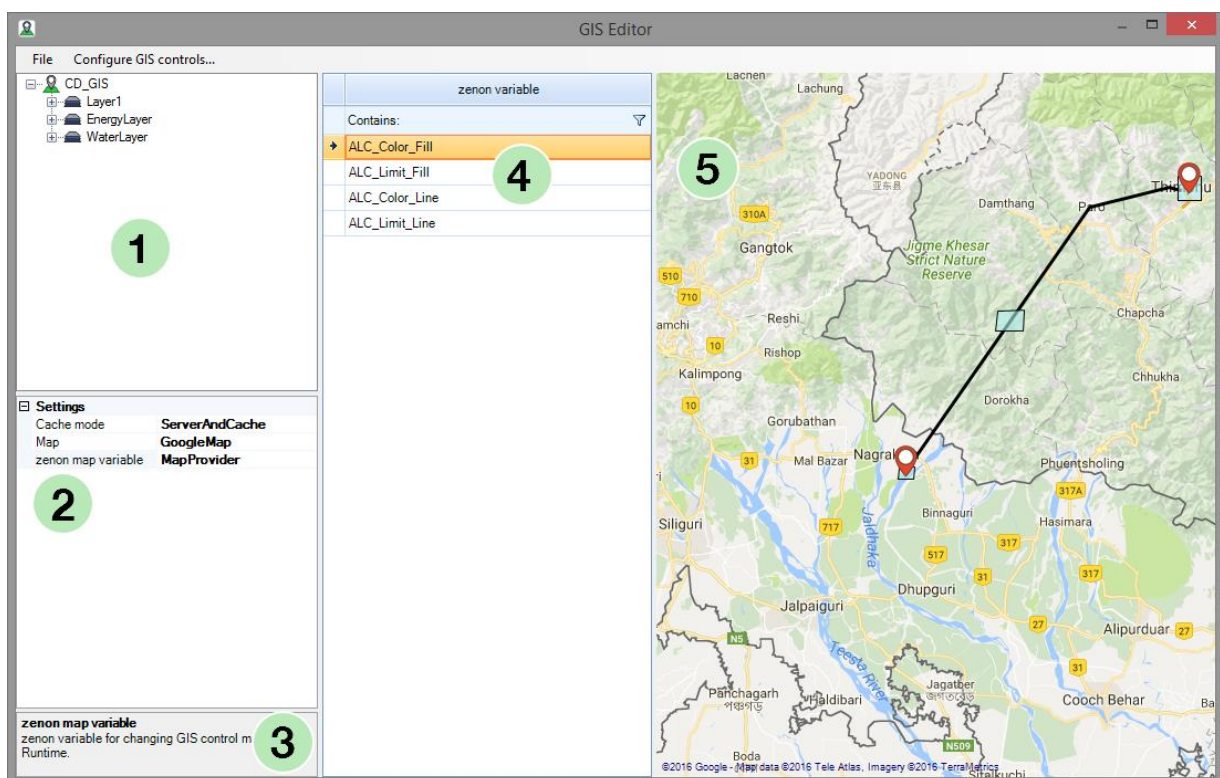
The **GIS Editor´s** user interface consists of different areas:

Parameter	Description
(1) **Tree view of the GIS configuration**	Tree view of the current GIS configuration. The display is divided into levels and the elements contained therein. ▶ [+] Expand the tree view. ▶ [−] Collapse the tree view

(2) **Settings**	Configurations of the selected level Properties for the currently-selected element. The properties depend on the selected element. Select the element in the tree view of the GIS configuration or click directly on a configured element in the map view.
(3) **Property help**	Short description of the property currently selected in the **Settings** area.
(4) **Configuration content of zenon Editor**	Configuration content of the current zenon project. Note: This area can be shown or hidden by clicking on the **...** button for a property with a linking function. This area is hidden by default.
(5) **Main window**	Main window with map view (on page 113). Map view of the selected **Map provider** and configured elements.

Graphic user interface (tool bars/context menus)

MENU BAR

Parameter	Description
File	Menu bar for file administration.
Configure GIS controls...	Opens the dialog to link a GIS configuration file to a configured GIS control (on page 122) in the zenon project configuration.

FILE

The **File** menu entry contains entries for the administration of an XML file with the saved GIS project configurations.

Parameter	Description
New	Creates a new, empty GIS configuration.
Open...	Opens an existing GIS configuration. Selection of the file by means of a file selection dialog. Only XML files can be loaded in this selection dialog. ▸ If there is already a GIS configuration active in the GIS editor and this contains unsaved changes, this is visualized with a request for confirmation. ▸ If the file to be loaded contains an invalid data structure (i.e. not compliant with the project), this is shown in a warning dialog.
Save	Saves the current configuration of the **GIS editor**. Default: `DefaultGISConfiguration.xml` Default save path: `C:\ProgramData\COPA-DATA\SQL2012\e6ba3e09-878b-4383-a6ef-56a cac1f7ee7\FILES\zenon\custom\additional` Note: If the project configuration is saved for the first time, the save dialog is opened at first.
Save as...	Backs up the current GIS configuration as a new XML file. Selection of the save path by means of a save dialog.
Exit	Closes the **GIS Editor**. If there are unsaved changes in the current project configuration, this is shown by a warning dialog.

UNSAVED CHANGES
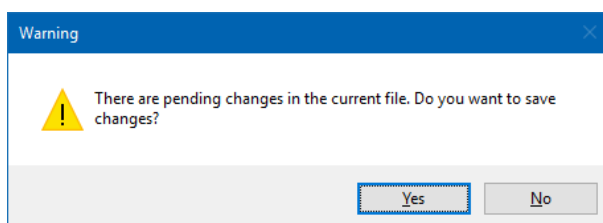
Parameter	Description
Yes	Saves current project configuration.
	Select the save location with the save dialog.
	Note: Clicking on the **Cancel** button in the save dialog closes the **GIS editor**. Unsaved configurations are discarded.
No	Changes to the current project configuration are discarded without saving.
	The **GIS editor** is closed.

FILE NOT SUCCESSFULLY LOADED
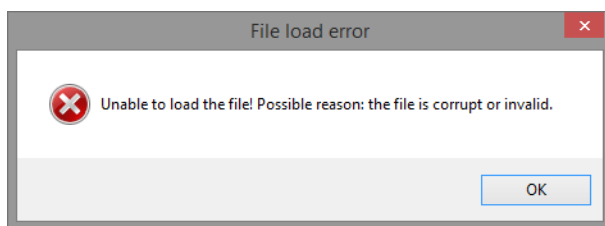
CD_GIS
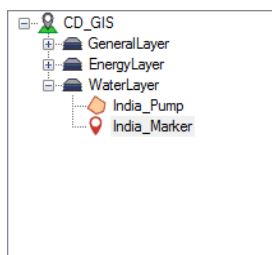
Tree view of the current GIS configuration.

The display is divided into levels and the elements contained therein.

CONTEXT MENU

Parameter	Description
Add Layer	Creates a new layer.
Show/Hide Lines	Showing and hiding lines.
	Note: This entry is not supported in the current version.

Settings

In the settings area, properties in the context of the selected node in the CD_GIS tree are shown.

Context help is available for each property. This offers a short description of the selected property in the **Settings** area and is shown in updated form by clicking on an property.

GIS control configuration

In this area, you configure the general settings for the display. This project configuration is applicable for all elements configured in the **GIS editor**.

SETTINGS

Parameter	Description

Cache mode	Type of updating of the map view for display in zenon Runtime.
	
	Select from drop-down list:
	
	▸ `CacheOnly`
	  The map view is only displayed with loaded data.
	  Note: only select these settings in order to be able to carry out your project configuration offline.
	
	▸ `ServerOnly`
	  The display of the map view is automatically updated via the Internet.
	
	▸ `ServerAndCache`
	  The display of the map view is updated online if required.
	
	Default: `ServerAndCache`
	
	Note: `ServerOnly` requires an active Internet connection for the display.

Map	Selection of the provider for the display in map view. Select from drop-down list: ▸ `GoogleMap` ▸ `GoogleSetelliteMap` ▸ `GoogleTerrainMap` ▸ `BingMap` ▸ `BingSatelitteMap` ▸ `OpenStreetMap` ▸ `ArcGISWorldStreet` ▸ `ArcGISWorldTopo` ▸ `EmptyProvider` Default: `BingMap`
Map variable	Input field for the name of the zenon variable for the selection of the **Map provider**. Clicking on the **...** button opens the area to select the zenon variable. Default: `MapProvider`

NUMERICAL VALUES FOR THE MAP PROVIDER

The following prescribed assignment is applicable for the selection of the **Map provider** by means of a variable:

Value	Map provider
1	**GoogleMap**
2	**GoogleSatelliteMap**
3	**GoogleTerrainMap**
4	**BingMap**
5	**BingSatelliteMap**
6	**OpenStreetMap**
7	**EmptyProvider**
8	**ArcGISWorldStreet**
9	**ArcGISWorldTopo**

If an invalid value is selected, no map is displayed on the GIS control.

Layer

You configure the general settings of a **Layer** in this area. This engineering is applicable for all elements configured in the **GIS editor**.

▸ If a configuration is changed for the layer, this is applied for all elements of this layer.

▸ If a configuration of an element is amended, this is applied for the settings of the layer.

> 💡 **Information**
>
> *Layer* correspond to *Visibility level* in the zenon Editor.

SETTINGS FOR LAYER

Parameter	Description
Areas	Settings (properties) for areas.
	Clicking on the **...** button opens the area properties (**Settings** (on page 106)) in their own dialog.
Lines	Settings (properties) for lines.
	Clicking on the **...** button opens the line properties (**Settings** (on page 104)) in their own dialog.
Markers	Settings (properties) for markers.
	Clicking on the **...** button opens the marker properties (**Settings** (on page 110)) in their own dialog.
Name	Name of the layer.
	Entry of an element name in the input field.
	Default: `NewLayer`

LAYER CONTEXT MENU

Parameter	Description
Add Line	Inserts a new line into the current layer.
	The display of the mouse pointer in the map view switches to a cross-hair. Lines can be drawn by setting the line points by means of clicking.
Add area	Inserts a new area into the current layer.
	The display of the mouse pointer in the map view switches to a cross-hair. Areas can be drawn by setting the corner points of the area by means of clicking.
Add marker	Inserts a new marker into the current layer.
	The display of the mouse pointer in the map view switches to a cross-hair. A marker can be positioned by clicking in the map view directly.
Show/hide	Hides or shows the current layer and elements configured for this.
	Note: This entry is not supported in the current version.
Rename	Renaming of the level.
	Note: Note: This entry is not supported in the current version. Change the name in the **Name** property.
Delete	Deletes the level and the elements configured therein.
	Attention: The deletion of the level and the content configured therein is carried out directly, without requesting confirmation.

PROPERTIES DIALOG FOR LEVELS
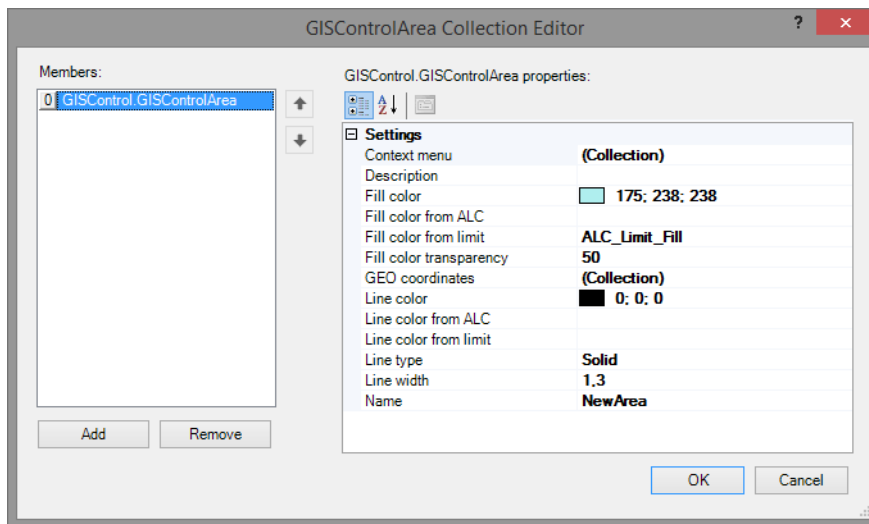
The settings in this dialog correspond to those as set up for the respective GIS element in the Settings area.

> ⚠ **Attention**
>
> Please note that changes to the properties in the dialog also change the parameter settings for the existing GIS element.
>
> It is expressly recommended that the parameters for project configurations for GIS elements are always set up using the element properties. A project configuration with the properties dialog of the level is not recommended.

WARNING DIALOG FOR LEVEL WITHOUT ELEMENT
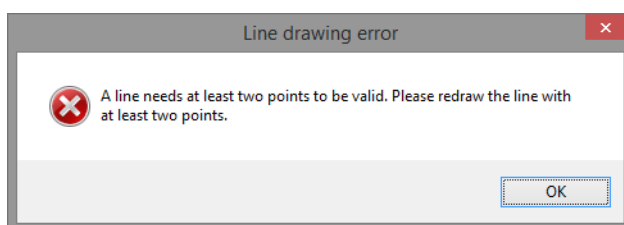
If a level is created and assigned an invalid project configuration, this configuration error is visualized with a warning dialog. The project configuration is not applied and the level is removed.

Line

You configure the settings of a line in this area.

Parameter	Description
Context menu	Linked zenon function
	The function linked here is executed in Runtime with a mouse click.
	Clicking on the **...** button opens the area to select a configured zenon function.
	Clicking on the ... button opens an area in the **GIS Editor** with functions of the current zenon project configuration.
	Default: `empty`
	You can find further information on this in the Linking of functions (on page 119) chapter.
Description	Input field for a freely-configurable description of the element. The configured content of this property is visualized as a tool tip in the zenon Runtime display.
	Default: `empty`
	Note: This entry is not supported in the current version.
GEO coordinates	Configuration of the line by entering GEO coordinates.
	Clicking on **...** opens the dialog for the manual entry of GEO coordinates (on page 123).
	Note: A line must consist of at least two GEO coordinates.
Line color	Static color for the display of the GIS element in zenon Runtime. Clicking on ... opens a drop-down list to select colors.
	Note: The configuration of this property is applied by the level settings. A change to the settings is applied in the level settings.
	Default: `0; 0; 0 (Black)`
Line color from ALC	The color of the GIS element is dynamically applied for the display in Runtime of an existing ALC project configuration in the zenon Editor.
	By clicking on **...**, in the **GIS Editor**, the area of the **zenon Editor project configuration content** with configured ALC elements (on page 121) of the zenon Editor are shown.
	You can find further information in the Coloring of GIS elements (on page 132) chapter in zenon Runtime.
	Default: `empty`
Line color from limit	The color of the GIS elements is applied dynamically for display in Runtime from the configuration of the zenon variable.
	By clicking on **...** in the **GIS Editor**, the area of the **zenon Editor configuration content** with variables (on page 120) is shown.
	You can find further information in the Coloring of GIS elements (on page 132)

	chapter in zenon Runtime.
	Default: `empty`
Line type	Type of line.
	Select from drop-down list:
	▸ `Solid` solid line
	▸ `Dash` dashed line
	▸ `Dot` dotted line
	▸ `DashDot` dash-dot line
	▸ `DashDotDot` dash-dot-dot line
	▸ `Custom`
	Default: `Solid`
	Note: The `Custom` line type is not supported and displayed as `Solid`.
Line width	Line thickness in pixels.
	Entry of a numerical value in the input field. The input is validated. If no valid numerical value is entered, this is shown in a warning dialog. Default: `3`
Name	Name of the line.
	Entry of an element name in the input field.
	Default: `NewLine`

CONTEXT MENU

Parameter	Description
Delete	Deletes the selected element.
	Attention: The selected element and its configuration are carried out immediately, without a request for confirmation.

Area

You configure the settings of an area in this area.

An area object is a polygenic area with any desired number of support points. An area must consist of more than two points.

Parameter	Description
Context menu	Linked zenon function The function linked here is executed in Runtime with a mouse click. Clicking on the **...** button opens the area to select a configured zenon function. Clicking on the ... button opens an area in the **GIS Editor** with functions of the current zenon project configuration. Default: `empty` You can find further information on this in the Linking of functions (on page 119) chapter.
Description	Input field for a freely-configurable description of the element. The configured content of this property is visualized as a tool tip in the zenon Runtime display. Default: `empty` Note: This entry is not supported in the current version.
Fill color	Static color for the display of the GIS element in zenon Runtime. Clicking on ... opens a drop-down list to select colors. Note: The configuration of this property is applied by the level settings. A change to the settings is applied in the level settings. Default: `175; 238; 238` (Cyan)
Fill color from ALC	The color of the GIS element is dynamically applied for the display in Runtime of an existing ALC project configuration in the zenon Editor. By clicking on **...**, in the **GIS Editor**, the area of the **zenon Editor project configuration content** with configured ALC elements (on page 121) of the zenon Editor are shown. You can find further information in the Coloring of GIS elements (on page 132) chapter in zenon Runtime. Default: `empty`
Fill color from limit	The color of the GIS elements is applied dynamically for display in Runtime from the configuration of the zenon variable. By clicking on **...** in the **GIS Editor**, the area of the **zenon Editor configuration content** with variables (on page 120) is shown. You can find further information in the Coloring of GIS elements (on page 132) chapter in zenon Runtime. Default: `empty`

Fill color transparency	Transparency of the **Fill color** of the GIS element.
	Enter the transparency in percent. An input of 100 causes the element to be completely colorless or see-through.
	Note: The values of this property are also used for the display of objects in limit value colors. If the transparency for limit values is not used for the element, configure the value 0 here.
	Default: 50
GEO coordinates	Configure the area by entering GEO coordinates.
	Clicking on ... opens the dialog for the manual entry of GEO coordinates (on page 123).
	Note: An area must consist of at least three GEO coordinates.
Line color	Static color of the outer line of the surface area.
	Static color for the display of the GIS element in zenon Runtime. Clicking on ... opens a drop-down list to select colors.
	Default: 0; 0; 0 (Black)
Line color from ALC	Color of the outer line of the area is transferred from a zenon ALC element.
	The color of the GIS element is dynamically applied for the display in Runtime of an existing ALC project configuration in the zenon Editor.
	By clicking on ..., in the **GIS Editor**, the area of the **zenon Editor project configuration content** with configured ALC elements (on page 121) of the zenon Editor are shown.
	You can find further information in the Coloring of GIS elements (on page 132) chapter in zenon Runtime.
	Default: empty
Line color from limit	Color of the outer line of the area is transferred from a zenon variable.
	The color of the GIS elements is applied dynamically for display in Runtime from the configuration of the zenon variable.
	By clicking on ... in the **GIS Editor**, the area of the **zenon Editor configuration content** with variables (on page 120) is shown.
	You can find further information in the Coloring of GIS elements (on page 132) chapter in zenon Runtime.
	Default: empty

Line type	Type of outer line of the area. Selection form a drop-down list: ▸ Solid ▸ Dash ▸ Dot ▸ DashDot ▸ DashDotDot ▸ Custom Default: Solid Note: The Custom line type is not supported and displayed as Solid.
Line width	Width of the outer line of the area in pixels. Default: 1,3
Name	Name of the area. Entry of an element name in the input field. Default: NewArea

CONTEXT MENU

Parameter	Description
Delete	Deletes the selected element. Attention: The selected element and its configuration are carried out immediately, without a request for confirmation.

Marker

You configure the settings of a marker in this area.

An area object is a polygenic area with any desired number of support points. An area must consist of more than two points.

Parameter	Description
Context menu	Linked zenon function
	The function linked here is executed in Runtime with a mouse click.
	Clicking on the **…** button opens the area to select a configured zenon function.
	Clicking on the ... button opens an area in the **GIS Editor** with functions of the current zenon project configuration.
	Default: `empty`
	You can find further information on this in the Linking of functions (on page 119) chapter.
Description	Input field for a freely-configurable description of the element. The configured content of this property is visualized as a tool tip in the zenon Runtime display.
	Default: `empty`
	Note: This entry is not supported in the current version.
GEO coordinate	Configure the marker by entering GEO coordinates.
	Clicking on **…** opens the dialog for the manual entry of GEO coordinates (on page 123).
	Note: A marker always consists of a GEO coordinate.
Graphics file	Graphics for the display of the marker.
	Clicking on **…** opens the dialog to select the file selection dialog to select a graphics file.
	If there is no graphics file selected for the marker, graphics prescribed by the **GIS editor** are used.
	Default: `CD_Marker.png`
	Note: if an invalid file type is selected, this is shown in a warning dialog. In this case, no new file is used for the marker.
Graphics heigt	Height of the graphics in pixels.
	Entry of a numerical value in the input field. The input is validated. If no valid numerical value is entered, this is shown in a warning dialog.
	Default: `25`
Graphics width	Width of the graphics in pixels.
	Entry of a numerical value in the input field. The input is validated. If no valid numerical value is entered, this is shown in a warning dialog.
	Default: `25`
Name	Name of the marker.

	Entry of an element name in the input field.
	Default: `NewMarker`

CONTEXT MENU

Parameter	Description
Delete	Deletes the selected element.
	Attention: The selected element and its configuration are carried out immediately, without a request for confirmation.

SYMBOL FOR MARKER

The graphic display of the marker can be designed individually with graphics. Different markers of a GIS configuration can be displayed with different markers.

The file selection dialog is opened by clicking on the **...** button in the **Graphics file** property. The content of the folder

`..\ProgramData\COPA-DATA\SQL2012\[PROJECTGUID]\FILES\zenon\custom\graphics` is displayed by default. This folder contains the content of the **Files** => **Graphics** node of the current project of the zenon Editor.

Select a graphics file to use this for the display of the marker in the **GIS editor** and in zenon Runtime.

🖒 **Hint**

The selection of the graphics file for the marker is not limited to the content of the zenon project folder. You can select a graphics file from any desired folder in the file selection dialog.

After a file is selected, it is applied in the zenon project configuration. In addition to the GIS project configuration, this file is automatically applied in the **Files** => **Graphics** node in the current zenon Editor project. The graphics file is copied across accordingly.

7.1.3   Map view
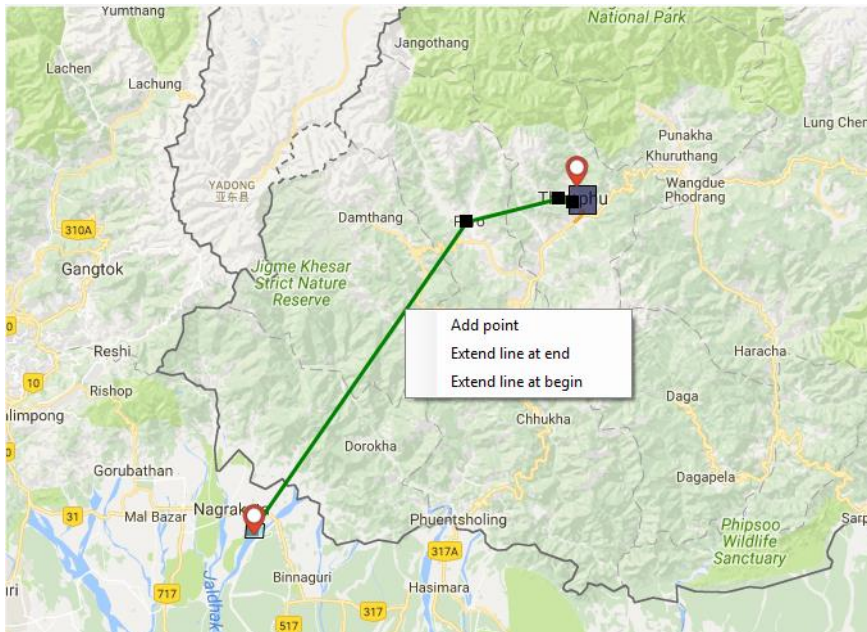
The GIS elements are configured at the click of a mouse in the map view.

▶ The display depends on the **Map provider** selected.

▶ The context menu entries depend on the selected element.

▶ If there is no valid **Map provider** available, the view is gray.

NAVIGATION IN THE MAP VIEW

The view can be orientated and scaled as desired with the mouse.

▶ **Mouse wheel forwards:**
Zooms into the map view = larger display.

▶ **Mouse wheel backwards:**
Reduces zoom stage of the map view.

▶ **Moving the mouse pointer when the right mouse button is held down**
Moves the card view in the direction of the mouse. The display of the mouse pointer switches during this time.

▶ **Right mouse button held on the element**
Display of the context menu
Note: The context menu can be hidden by pressing the **ESC** key.

7.1.4   Engineering in the GIS editor

The following is applicable for configuration in the **GIS editor**:

▶   The configuration is implemented with the mouse and by setting parameters.

▶   Changes to the properties are visualized in real time in the map view of the **GIS editor**.

▶   The geographical relationship is visualized in a real-time view of selectable maps.

▶   The configured elements are placed on a map directly.

▶   For linkings, the content of the current zenon editor projects are offered for selection.

▶   The project configuration is saved in an XML file.
     This file contains the necessary parameters for the `GIS control` for display in zenon Runtime.

PROJECT CONFIGURATION STEPS IN THE GIS EDITOR

Carry out the following steps in the **GIS editor** for a new GIS configuration:

1.   Start the GIS editor in the zenon Editor.

2.   Create a new configuration file:
      To do this, select the **New** entry in the **File** menu bar.

3.   Configure the GIS element.
      Note: You can find further information on this in the project configuration instructions for the individual elements.

4.   Link the GIS project configuration to zenon screens.

      a)   To do this, select the **Configure GIS controls...** entry in the menu bar.
            The **GIS Control configuration** (on page 122) configuration dialog is opened.

5.   Save the project configuration:
      To do this, click on the **Save** or **Save as...** entry in the **File** menu bar.

CHANGING AN EXISTING GIS CONFIGURATION

Carry out the following steps to amend an existing configuration:

1.   Start the GIS editor in the zenon Editor.

2.   Load an existing GIS configuration.

      a)   To do this, select the **Open...** entry in the **File** menu bar.
            The file selection dialog is opened.

      b)   Select an XML file.
            The configuration of the selected file is loaded. The content is visualized in the GIS editor.

Configuration of a level

To create a new layer:

1. In the **tree view of the GIS configuration**, select the **Add Layer** context menu entry.
   A new level with the name `NewLayer` is added.

2. Set the properties for the layer.

To delete an existing layer:

1. Select the level to be deleted in the **tree view of the GIS configuration**.

2. Select the **Delete** context menu entry.
   The selected level is removed from the node without a request for confirmation.

Configuration of a line

To create a new line:

1. In the **tree view of the GIS configuration**, select the corresponding level at which the line is to be created.

2. Select **Add Line** in the context menu entry.
   A new line with the name `NewLine` is added in the node.

3. Position line points (supporting points) in the main window of the **GIS editor**.

4. End drawing of the element by pressing the **Esc** key.

5. Set the properties of the line.

To delete an existing line:

1. Select the line to be deleted in the **tree view of the GIS configuration**.

2. Select the **Delete** context menu entry.
   The selected line and its configuration are removed from the node without a request for confirmation.

To extend an existing line:

1. Select the line to be extended in the **tree view of the GIS configuration**.
   The respective line is selected in the main view.

2. Select the corresponding context menu entry in the main view:

   - `Add point`

   - `Extend line at end`

   - `Extend line at begin`

POSITIONING OF THE LINE

Lines are positioned in the main window of the **GIS Editor** by clicking the mouse. New or existing support points are created or moved with a mouse click.

The drawing or editing of the element is ended with the **ESC** key. The cross-hair is replaced with the normal mouse pointer.

> ⚠ **Attention**
>
> *Lines Can only be configured for one layer.*
> *You can find information on creating a layer in the Configuration of a level (on page 115) chapter.*

CONTEXT MENU ENTRIES

A context menu with the following entries is shown by right-clicking on a line that has already been configured in the map view:

Parameter	Description
Add Point	Adds a new point to the existing project configuration at the position of the mouse pointer.
Extend line at end	Adds a new point to the existing project configuration at the end of the line.
Extend line at begin	Adds a new point to the existing project configuration at the start of the line.
Delete point	Deletes the selected point or the marker.

INCORRECT CONFIGURATION OF A LINE
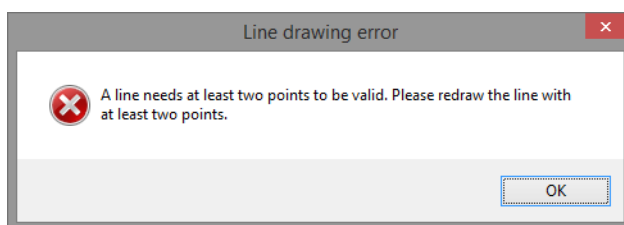
A line must consist of at least two points (support points). If a configuration is canceled with the **ESC** key after only one point has been configured, configuration is canceled and a corresponding warning dialog is shown. The line configuration is discarded and the line created in the layer is deleted.

Configuration of a line

To create a new area:

1. In the **tree view of the GIS configuration**, select the corresponding level at which the area is to be created.

2. Select **Add Area** in the context menu entry.
   A new area with the name `NewArea` is added.

3. Position corner points of the area in the main window of the **GIS editor**.

4. End drawing of the element by pressing the **Esc** key.

5. Set the properties for the area.

To extend an existing area:

1. Select the area to be extended in the **tree view of the GIS configuration**.
   The selected area is selected in the main view.

2. Select the **Add Point** context menu entry in the main view.

To delete an existing area:

1. Select the area to be deleted in the **tree view of the GIS configuration**.

2. Select the **Delete** context menu entry.
   The area to be deleted and its configuration are removed from the configurations without a request for confirmation.

POSITIONING OF THE AREA

Areas are positioned in the main window of the **GIS Editor** by clicking the mouse. Points for the areas are moved with a mouse click.

The drawing or editing of the element is ended with the **ESC** key. The cross-hair is replaced with the normal mouse pointer.

> ⚠ **Attention**
>
> *Areas Can only be configured for one layer.*
> *You can find information on creating a layer in the Configuration of a level (on page 115) chapter.*

CONTEXT MENU ENTRIES

A context menu with the following entry is shown by right-clicking on an area in the map view that has already been configured:

Parameter	Description
Add Point	Adds a new point to the existing project configuration at the position of the mouse pointer.

INCORRECT CONFIGURATION OF A LINE
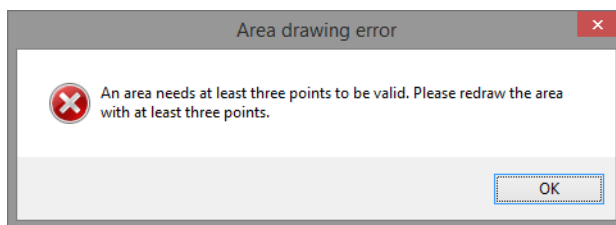
An area must consist of at least three points (support points). If a configuration is canceled with the **ESC** key after only one or two support points have been configured, configuration is canceled and a corresponding warning dialog is shown. The area configuration is discarded and the area created in the layer is deleted.

Configuration of a line

To create a new area:

1. Select the corresponding layer on which the marker ist to be created in the **tree view of the GIS configuration**.

2. Select **Add Marker** in the context menu entry.
   A new area with the name `NewArea` is added.

3. Position the marker in the main window of the **GIS editor** with a mouse click.

4. Set the properties for the marker.

To delete an existing area:

1. Select the area to be deleted in the **tree view of the GIS configuration**.

2. Select the **Delete Element** context menu entry.
   The area to be deleted and its configuration are removed from the configurations without a request for confirmation.

POSITIONING OF THE MARKER

A marker is positioned in the main window of the **GIS Editor** by clicking the mouse. The marker can be moved by holding down the mouse button. The marker is highlighted with a black border whilst being edited in the main window.

> ⚠️ **Attention**
>
> *Marker Can only be configured for one layer.*
> *You can find information on creating a layer in the Configuration of a level (on page 115)*
> *chapter.*

CONTEXT MENU ENTRIES

A context menu with the following entry is shown by right-clicking on a marker that has already been configured in the map view:

Parameter	Description
Delete point	Deletes the selected point or the marker.

Linking of functions

The **area of the zenon Editor project configuration content** is divided into two windows:

- ▶ **Function**
  List of all functions configured in the current zenon Editor project.
  The list entry corresponds to the **Name** property in the zenon Editor.
  Hinweis: The list can be filtered. Click on the funnel symbol to select a filter criterion.

- ▶ Linked function(s)
  List of the function(s) linked to the **GIS Editor** property
  Functions can be applied or removed from the list of linked functions by slowly double-clicking on the **Function** list.
  The column width can be moved by holding down the mouse button. The list can be filtered by clicking on the filter bar and entering corresponding parameters.

  - Display name of the function in Runtime
    This name can be changed in the name field by clicking in the name field.

  - Function
    Name of the function configured in zenon.
    This name cannot be changed.

ENGINEERING IN THE GIS EDITOR

Carry out the following steps in order to be able to execute a zenon function in Runtime via a context menu:

▸ In the map view, select the GIS element that you want to link to a configured zenon function.

▸ In the **Context menu** property of the GIS element, click the **...** Button.
   The area with the configuration content of the zenon Editor is shown.

▸ Select the desired zenon function in the function list.

▸ Apply the selected function by double clicking in the list of linked functions.

Linking of functions

	Variable
Contains:	▽
ALC_Color_Fill	
→ ALC_Limit_Fill	
ALC_Color_Line	
ALC_Limit_Line	
[Alarme] Alarme nicht quittiert	
val_=![3,1]	
val_=![2,1]	
val_=![1,1]	
GIS-MAPPROVIDER	
val_=!	

The area of the **zenon Editor configuration content** for variables lists variables that are configured in the zenon Editor.

▸ The list entry corresponds to the **Name** property in zenon Editor.

▸ The list can be filtered.
   Click on the funnel symbol to select a filter criterion.

▸ The selected variable is linked to the property by double clicking on a variable name in the list.

ENGINEERING IN THE GIS EDITOR

Carry out the following steps to link a zenon variable to the GIS configuration:

▸ In the map view, select the GIS element that you want to link to a configured zenon variable.

▸ In the **Fill color from limit** property of the GIS element, click the **...** Button.
   The area with the configuration content of the zenon Editor is shown.

▸ Select the desired zenon variable from the list.

▸ Apply the selected variable by double clicking in the GIS configuration.

Linking of functions

The **zenon Editor configuration content** area for ALC element lists variables configured in the zenon Editor:

- ▶ The list can be filtered.
  Click on the funnel symbol to select a filter criterion.

- ▶ The selected variable is linked to the property by double clicking on a variable name in the list.

- ▶ The list entries comprise:

  `[zenon screen name].[zenon` **Element name** `of the ALC line]`

ENGINEERING IN THE GIS EDITOR

Carry out the following steps to link a zenon variable to the GIS configuration:

- ▶ In the map view, select the GIS element that you want to link to a configured zenon variable.

- ▶ In the **Line color from ALC** property of the GIS element, click the **...** Button.
  The area with the configuration content of the zenon Editor is shown.

- ▶ Select the desired zenon ALC element from the list.

- ▶ Apply the selected variable by double clicking in the GIS configuration.

GIS control configuration dialog

In this dialog, you configure the linking of a file to the GIS project configuration content with an **ActiveX** `GIS control` in the zenon Editor.
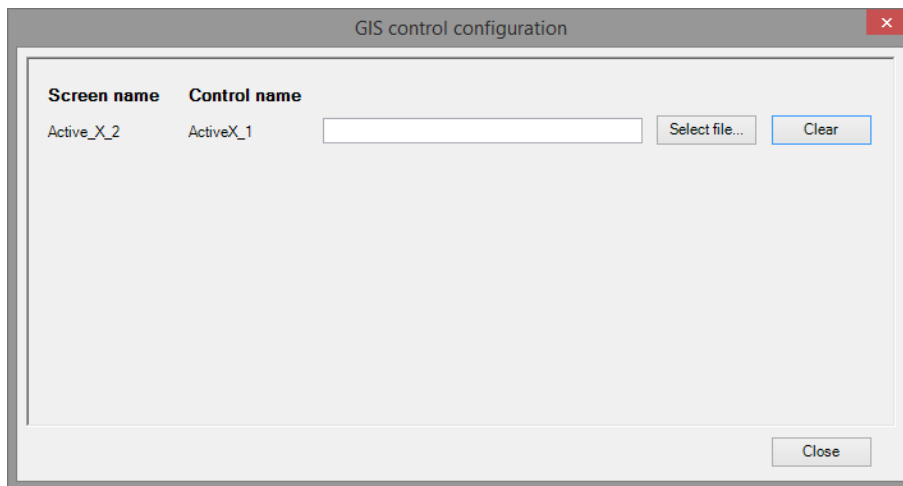
Parameter	Description
Screen name	Name of the screen of the zenon Editor project configuration.
	This corresponds to the **Name** property in zenon Editor.
	zenon screens with a configured GIS control are shown in this dialog.
Control name	Name of the configured GIS ActiveX controls in zenon Editor.
	This corresponds to the **Element name** property in zenon Editor.
Select file...	Opens dialog to select a GIS configuration file (default: `GisConfigLoadFile.xml`).
Clear	Discards all configured settings. The dialog remains open.
Close	Applies settings and closes the dialog.

💡 **Information**

The number of available entries and their naming depends on the project configuration in the current zenon project.

ERROR TREATMENT
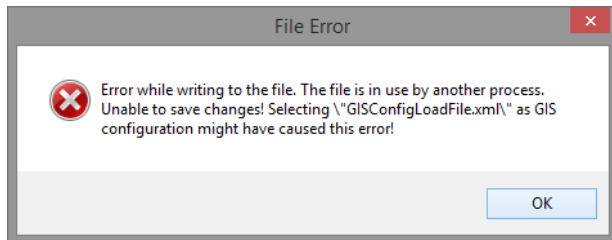
If the file selected with **Select file...** cannot be loaded, this is shown by a warning dialog.

Possible solutions:

- ▶ If the selected file is blocked by a running service, end the task responsible for the blocking with the Task Manager.

- ▶ If the file is blocked by an external application, close the external application.

- ▶ If the selected file contains an invalid XML structure, select a file with a valid structure.

GEO coordinates dialog
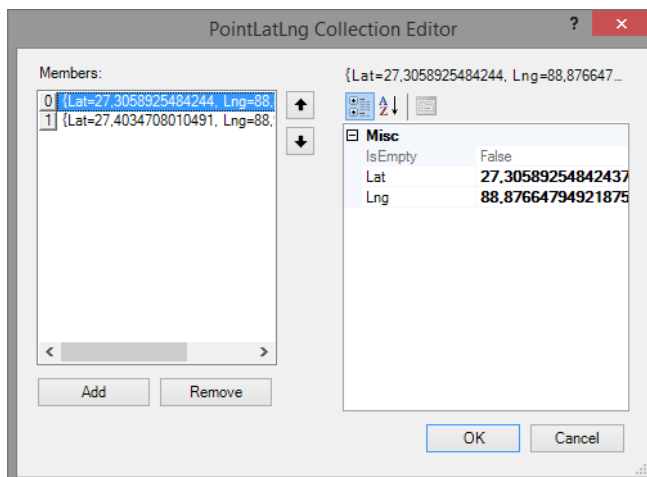
In this dialog, you configure GEO coordinates by manually entering coordinates for the geographical length and width.

Parameter	Description
Members	List of the configured GEO coordinates: ▸ `New coordinates:` Click on the **Add** button. ▸ `Delete coordinate(s):` Select and click on the **Remove** button. Note: Multiple selection is possible.
Misc	Properties of the GEO coordinates selected for **Members**: ▸ `Lat:` GEO coordinates of the geographical width of the support point. ▸ `Lng:` GEO coordinates of the geographical length of the support point.
Add	Adds new GEO coordinates to the **Members** list.
Remove	Removes the selected GEO coordinate from the **Members** list.

> 👍 **Hint**
>
> *It is recommended that the GEO coordinates of the support points are placed in the main view of the graphical user interface with the mouse.*

7.2   Engineering in the zenon Editor

The configuration in the zenon Editor serves as the basis for the configurations in the **GIS-Editor**. Ensure that all configurations in zenon - especially the content of screens opened in the Editor - have been saved. Unsaved content is not offered in the GIS editor for linking.

> 👍 **Hint**
>
> *Well-structured naming of elements in the zenon Editor simplifies the assignment for linking in the **GIS editor**.*

Note:
The configuration of a zenon screen with a GIS control (on page 125) must be carried out before starting the **GIS editor**.

Information

The connection between a zenon configuration and a GIS configuration is implemented by means of links. This means that, in the event of a change to the zenon Editor configuration, the GIS configuration does not need to be newly created, amended or linked.

7.2.1 zenon screen and GIS control

Carry out the following steps for the display in Runtime in the zenon Editor:

1. Create a new screen:

   In the tool bar or the context menu of the **Screens** node, select the **New screen** command. An empty `Standard` screen is created.

2. Change the properties of the screen:

   a) Name the screen in the **Name** property.

3. Create a new screen:

   In the toolbar or the context menu of the **Screens** node, select the **New screen** command. An empty `Standard` screen is created.

4. Change the properties of the screen:

   a) Name the screen in the **Name** property.

   b) Select the desired screen type in the **Screen type** property.
      Note: The GIS control can be configured for each screen type.

   c) Select the desired frame in the **Frame** property.

5. Configure the content of the screen:

   a) Place the **ActiveX** screen element in the screen.
      The **element input** dialog is opened.

   b) In this dialog, select the **GisControlGISControl** entry from the list of the **ActiveX elements**.

   c) Confirm the selection by clicking on the **OK** button.

   d) The screen element is shown on the screen with a preview screen:
      Note: the symbolic display always visualizes the country settings configured on the operating system. The actual zoom level configured in the **GIS editor** and the map view are not visualized in the zenon Editor.

   e) Ensure that this **ActiveX element** is configured with a sufficient size in order for it to be shown correctly in Runtime.

f) If necessary, configure additional elements for the screen.

6. Create a new function:

In the toolbar or in the context menu of the Functions node, select **New function**.
The dialog to select a function is opened.

  Navigate to node **Favorites**.

a) Select the **Screen switch** function.

b) The dialog for selecting a screen is opened.

c) Select the desired screen.
   Note: If you select a screen from another project, ensure that the project is running in
   Runtime.

d) Name the function in the **Name** property.

7.2.2   Functions and Colors

FUNCTION(S) - ENGINEERING

Carry out the following steps to create a new function:

1. Create a new function:

   • In the toolbar or in the context menu of the Functions node, select **New function**.
     The dialog to select a function is opened.

2. Select the desired color function in the list of functions.

3. The dialog for selecting a screen is opened.

4. Select the desired screen.
   Note: If you select a screen from another project, ensure that the project is running in Runtime.

5. `Optional`: Configure the filter.

6. Name the function in the **Name** property.

Note: You can find further information in the **Functions and Scripts** manual.

COLOR(S) - ENGINEERING

Carry out the following steps to create a color:

1. Create a new Color palette:

- Select the `Color Palettes` node (either via the `Screens` node in the local project or in the global project)

2. Select **New color palettes** in the context menu or in the toolbar.
A new color palette is created with:

   - **Color palette** plus **Color palette**, for example **Color**0

   - the same number of colors as the pre-existing palettes, all colors are `white` as standard

3. Create a new color:

   - Select **New color** in the context menu or in the toolbar, or press the `Insert` key

   At the lower end of the color table, a new color is inserted for all palettes with

   - Default color `white` and

   - Default **color** plus **index number**, for example **Color**10

4. Define the color and give it a name:

   a) Highlight the desired color in the palette

   b) Enter the color:

   - either directly into the table cell in the detail view, as a hexadecimal code or via the selection dialog by clicking on **…**

   - or in the properties in the **Color** group in the property group **Color** field as a hexadecimal code or via the selection dialog by clicking on **…**

Note: You can find further information in the Screens manual in the Color palettes chapter.

💡 Information

*zenon functions are linked in the **GIS editor** in the Context menu property.*

You can find further information for the display in Runtime in the Coloring of GIS elements (on page 132) chapter in zenon Runtime.

7.2.3 Variables, Limits and Reaction matrices

VARIABLE(S) - ENGINEERING

Carry out the following steps to create a new variable:

1. Create a new variable:

   - In the **Variables** node in the context menu, select the **New variable** command.
   The dialog to configure the variables is opened.

2. Configure the properties of the variable.

Note: You can find further information on this in the Variables manual in the Create, modify and use variables chapter.

LIMIT(S) - ENGINEERING

Carry out the following steps to create a new limit:

1. Select the **Variables** node in the tree view of the Project Manager.

   - Select a variable in the detail view of the project manager.

2. Create a limit:

   a) Click on the **Limit Values** property group.

   b) Create a new limit value by clicking on the **{New limit value}** property.
      A new limit value is created. The view of the properties switches to the properties group of the new limit value.

   c) Configure the properties for the limit value.

   d) **Optional:** Use the color palettes when setting the parameters of the limit value color.
      to do this, click on ... in the **Limit value color** property and select the `color palettes` tab in the drop-down list.

3. Repeat Item 2 to create further limit values.

Note: You can find further information in the Variables manual in the Limit values chapter.

REACTION MATRIX - ENGINEERING

Carry out the following steps to create a Reaction matrix:

1. Create a new Reaction matrix

   a) In the **Variables** node, go to the **Reaction matrix** sub node.

   b) In the toolbar or in the context menu of the node, select the **New reaction matrix...** command.
      The dialog to select a reaction matrix is opened.

   c) Name the reaction matrix and select the type of reaction matrix from the options list.

   d) Confirm your input by clicking on the **OK** button.
      The dialog to configure the reaction matrix is opened.

2. Set the parameters for the Reaction matrix

   a) Configure the states for the respective status.

   b) Configure the **limit value color** property in the **Additional attributes** field.

   c) **Optional:** Activate the **Flashing** option

3. Link the reaction matrix to a variable:

   a) Select the **Variables** node in the tree view of the Project Manager.

   b) Select a variable in the detail view of the project manager.

   c) Go to the **Limit Values** property group.

   d) Click on the **...** button for the **Reaction matrix** property.
      The dialog to select a reaction matrix is opened.

   e) Select the configured reaction matrix and confirm your selection by clicking on the **OK** button.

Note: You can find further information in the Variables manual in the Reaction matrices chapter.

> 💡 **Information**
>
> *zenon limit values and reaction matrices are linked to a zenon variable in the **GIS editor** in the **Limit color from limit** or **Fill color from limit** property.*
>
> *The variable for the display of the map view is linked in the **GIS editor** in the **Map variable** property.*
>
> *You can find further information for the display in Runtime in the Coloring of GIS elements (on page 132) chapter in zenon Runtime.*

7.2.4 GIS control - Engineering in the zenon Editor

ALC LINE - ENGINEERING

Carry out the following steps for the display in Runtime in the zenon Editor:

1. Create a new screen:

   In the tool bar or the context menu of the **Screens** node, select the **New screen** command. An empty `Standard` screen is created.

2. Change the properties of the screen:

   a) Name the screen in the **Name** property.

3. Create a new screen:

   In the toolbar or the context menu of the **Screens** node, select the **New screen** command. An empty `Standard` screen is created.

4. Change the properties of the screen:

   a) Name the screen in the **Name** property.

b) Select the desired screen type in the **Screen type** property.
Note: The GIS control can be configured for each screen type.

c) Select the desired frame in the **Frame** property.

5. Configure the content of the screen:

a) Place the `Line` screen element on the screen.
Click on the start of the line in the screen and drag the line with the mouse button held down.
The end of the line is set by releasing the mouse button.

6. Change the properties of the line:

a) Name the line in the **Element name** property of the **General** properties group.

b) Activate, in the **Automatic Line Coloring** project properties group, the **Color from ALC** property.

c) Optional: Amend the parameter settings for **Automatic Line Coloring** in the properties of the **Automatic Line Coloring** project properties group.

7. Save the configurations of the zenon screen.

8. Optional: Configure additional ALC lines:

- Repeat steps 5 to 7.

Note: You can find further information on configuration in the Automatic Line Coloring (ALC) manual in the Lines chapter.

FLASHING - ENGINEERING

Carry out the following steps to activate the flashing of screen elements:

1. Place the desired screen element onto a zenon screen.

2. Change the properties of the screen element:

a) Activate the **Alarm Message List active** property in the **Alarm Message List** properties group.

b) Activate the **Unacknowledged alarms flash** property.

c) Optional: Configure further alarm settings.

> 💡 **Information**
>
> *zenon ALC lines are linked to a zenon ALC line in the* **GIS editor** *in the* **Limit color from ALC** *or* **Fill color from ALC** *property.*
>
> *You can find further information for the display in Runtime in the Coloring of GIS elements (on page 132) chapter in zenon Runtime.*

7.3   Operation in zenon Runtime

NAVIGATION IN THE MAP VIEW

Navigation is effected with the mouse:

▸   **Mouse wheel forwards:**
     Zooms into the map view = larger display.

▸   **Mouse wheel backwards:**
     Reduces zoom stage of the map view.

▸   **Moving the mouse pointer when the right mouse button is held down**
     Moves the card view in the direction of the mouse. The display of the mouse pointer switches
     during this time.

▸   **Right mouse button held on the element**
     Display of the context menu
     Note: The context menu can be hidden by pressing the **ESC** key.

EXECUTION OF LINKED FUNCTIONS VIA THE CONTEXT MENU

The context menu of the element is shown by right-clicking on a line or in an area. zenon functions that
were linked during configuration are offered in this context menu. The function is executed in Runtime
by selecting a context menu entry.

DISPLAY IN THE EVENT OF INVALID MAP PROVIDER
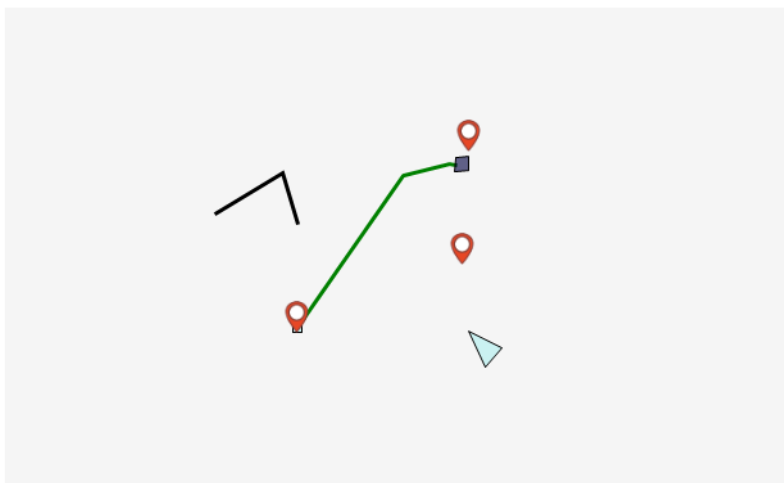
If no **Map provider** is linked or the map view cannot be loaded with the existing configuration, a gray
background is shown in Runtime.

7.3.1   Coloring of GIS elements

GIS elements take on the color for display in zenon according to the configuration of the variable in the zenon Editor. If several configurations have been configured for a GIS element and these are relevant, they are visualized according to a prescribed priority.

It is always only the highest-priority coloring that is visualized in Runtime.

PRIORITIZATION OF THE COLORING

The coloring of a GIS element is shown in zenon Runtime according to the following order:

1. **Automatic Line Coloring**
   If a zenon ALC line is linked in the GIS configuration, the coloring of the linked element is visualized in Runtime according to the ALC line configuration.

2. **Reaction matrix**
   If the GIS configuration contains a linking to a zenon variable with a linked reaction matrix, the coloring of the GIS element is visualized in Runtime according to the reaction matrix.

3. **Limit value**
   If there is a violation of a limit value for a variable and this variable is linked in the **GIS editor**, the limit value colors linked to the variable are used for display of the element in Runtime.

4. **Configured color in the GIS editor**
   If there is no variable in the configuration in the GIS editor linked for ALC, reaction matrices or limit values, the (static) color configured in the GIS editor is shown.

FLASHING

If flashing has been configured in the configuration in the zenon Editor for the element linked in the GIS editor (variable, ALC line, ...),   this is also visualized for the display of GIS elements in zenon Runtime. The flashing interval is prescribed with a value of 750 milliseconds in the process. This flashing interval cannot be changed.

8. Startup Tool

The **Startup Tool** enables you:

▶ to start Editor and Runtime with certain parameters

▶ to run different zenon versions on one computer in parallel
(already installed zenon versions are automatically created in the **Startup Tool**)

▶ to administrate different SQL instances for the same zenon version

- ▶ to administrate the settings for different versions
- ▶ to define the language of the Editor and the Runtime before the start
- ▶ To define the language of the web client
- ▶ to start tools in the **Startup Tool** directly

> **License information**
>
> *Part of the standard license of the Editor and Runtime.*

> ⚠ **Attention**
>
> *The **Startup Tool** only starts if the **zenAdminSrv** service is running. If it is not active, you can start it manually in the Windows **Control Panel** under **Administrative tools/Services**.*
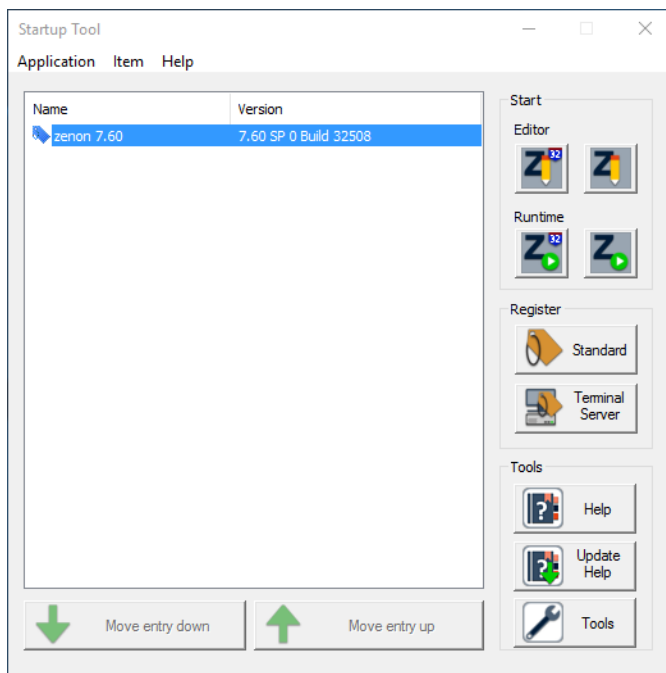
8.1 Start dialog

You administrate the currently installed zenon versions in the start dialog. From version 7.10, you have the possibility to choose whether to start Editor and Runtime as a 32-bit application or as a 64-bit application.

If only a 32-bit version of zenon 7.10 was specified or an older version was detected, only one button is shown for the Editor and Runtime respectively:
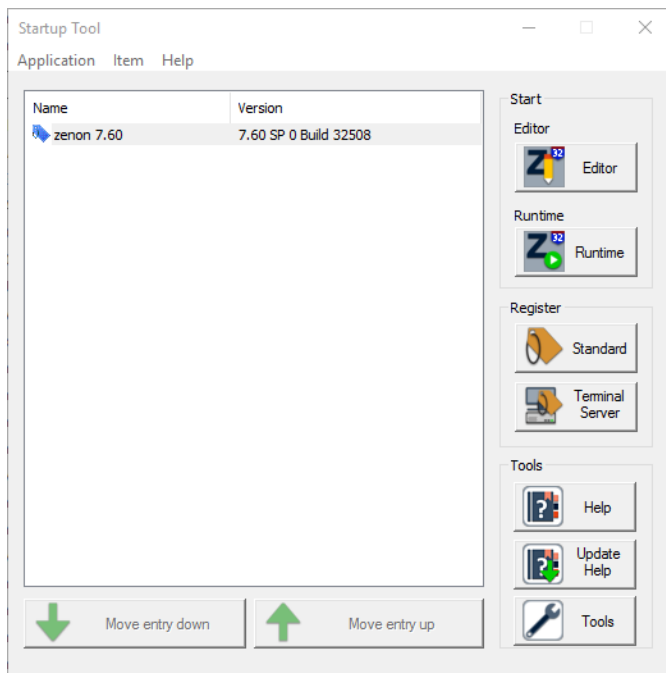
If both versions are specified, separate buttons for 32-bit and for 64-bit are displayed.

Button	Function
List of zenon versions.	Shows all installed zenon versions.
Move entry down	Moves the selected entry in the list downwards.
Move entry up	Moves the selected entry in the list upwards.
Editor	Starts the Editor of the selected zenon version
	Two separate buttons are available for 64-bit versions. The button for 64-bit contains a corresponding indication in the bottom left corner.
Runtime	Starts the Runtime of the selected zenon version
	Two separate buttons are available for 64-bit versions. The button for 64-bit contains a corresponding indication in the bottom left corner.
Register	Registers all services of the selected zenon version.
	▸ **Standard**: Registers zenon. **ZenSysSrv** is registered as a process.
	▸ **Terminal Server**: Registers zenon for use with a terminal server. Procedures: **ZenDBSrv** is deregistered and no longer re-registered and also not started. **ZenSysSrv** is registered as a service. The entries in **zenon6.ini** are amended for use on the terminal server.
	If, in an entry, there are no parameters (on page 153) stored for **workspace** or **Runtime**, the current version is re-registered. This applies for registration as a **standard** server and as a **terminal server**.
Help	Opens online help.
Update Help	Starts the **Documentation Download Tool**
Tools	Opens a dialog (on page 167) for starting additional applications of the selected zenon version
	If the tools for a valid 64-bit version are opened, then the tools are displayed in two lists for 32-bit tools and 64-bit tools.

PROCESSES DURING STARTING

When starting the Editor or the Runtime, data from the start settings are written to the `zenon6.ini` file. Existing settings in the INI file are overwritten.

From version 5, network communication has been handled with the two services **zenNetSrv.exe** and **zenSysSrv.exe**. Both files must exist in the zenon folder. As these services are version dependent, they must be registered for the appropriate version.

> ⚠ **Attention**
>
> *After conversion of a project into a later zenon version, this can no longer be edited with the previous version or will no longer run on it. However, the backup version created during the conversion can still be used in the original editor.*
>
> *For network projects, the same zenon Editor versions must be started on the server and clients.*

8.1.1   Application

Entry	Function
Options	Opens the dialog for configuring the settings.
Exit	Closes the **Startup Tool**.

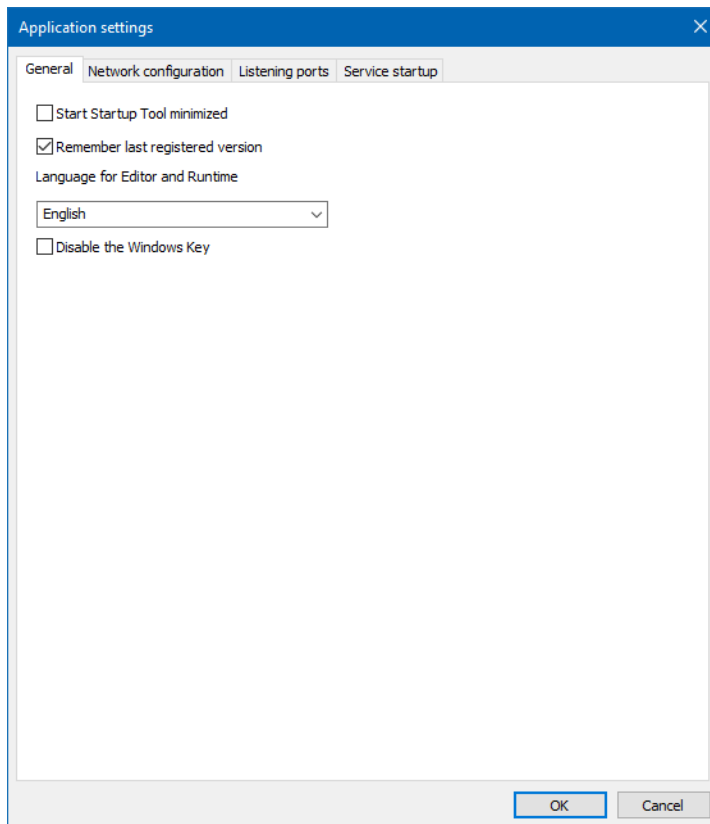**OPTIONS**

▶   The **Options** entry in the **Application** menu opens the dialog to configure the properties for:

▶   **General** (on page 137):
General settings

▶   **Network configuration** (on page 139):
Configuration of the network and the strong encryption of network communication

▶   **Listening ports** (on page 144):
Configuration of the monitoring ports

▶   **Service startup** (on page 148):
Start programs as a service

General

General settings:

Note: This dialog is only available in English.

The buttons are displayed in the system language of the computer.

Option	Active	Inactive
Start Startup Tool mimimized	Starts the Startup Tool minimized. You can reach the tool with the help of its icon in the task bar. The context menu offers all possible actions from the Start dialog (on page 133) for the active zenon.	Opens the tool on the desktop (`default`).
Remember last registered version	Sets the chosen version as standard and selects it automatically at the next start. Then the version is not registered again (`default`).	Offers the first version in the list when starting the Startup Tool. When the Editor or the Runtime are started, the respective version is always registered again.
Disable Windows Key	The **Windows** key is blocked on the keyboard and is not functional. Changes only take effect after the system has been restarted. This required restart is visualized with a dialog.	The **Windows** key is available. Changes only take effect after the system has been restarted. This required restart is visualized with a dialog.

Option	Description	
Language for Editor and Runtime	Starts Editor or Runtime in the selected language. Selection form combobox: ▶ Czech ▶ Chinese ▶ German ▶ English ▶ Spanish ▶ French ▶ Italian ▶ Russian Ensures that zenon with the **Startup Tool** is always started in the defined language. Has no influence if **zenon.exe** is started directly.	

BEHAVIOR OF THE DISABLE WINDOWS KEY OPTION

The **Disable Windows Key** option behaves as follows:

Set block

▶   Initial situation: The option is not set.

▶   Action: The option is activated.

▶   Result:

- The system must be restarted.

- The **Windows** button is used for operation. **Windows** keyboard shortcuts are blocked.

Undo block

▶   Initial situation: The option is not set.

▶   Action: The option is deactivated.

▶   Result:

- The system must be restarted.

- The **Windows** button is available for the operation. The block of the **Windows** key combinations is released.
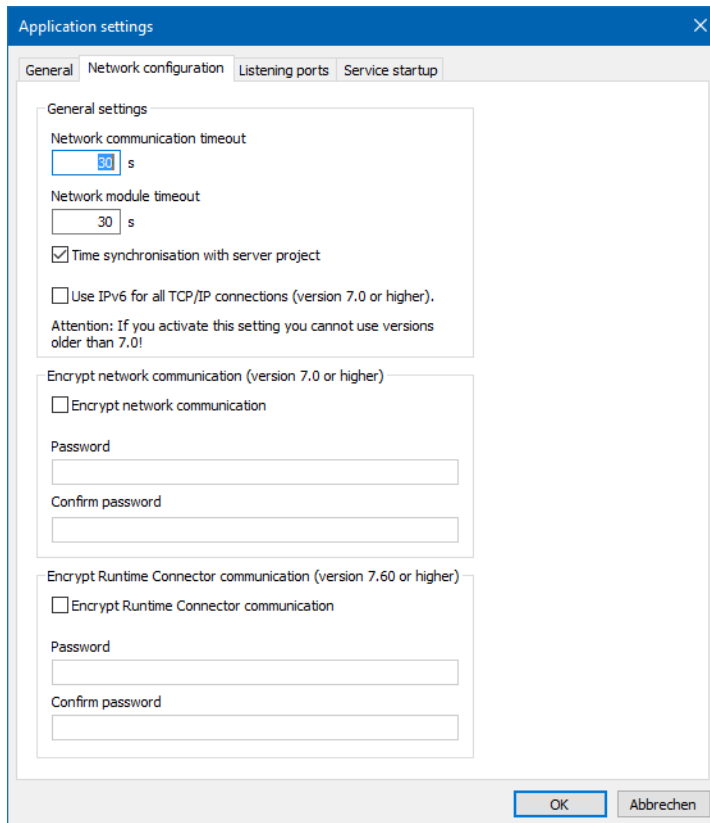
Network configuration

The following applies for zenon from version 7 onwards:

▶   you can use IPv6

▶   you can encrypt the transfer in the network.

This dialog configures:

▶   Timeouts

▶   the use of TCP/IP via IPv4 or IPv6

▶   the serious encryption of the network communication at the local computer

▶ the encryption for Runtime connector

Note: This dialog is only available in English.

The buttons are displayed in the system language of the computer.

GENERAL SETTINGS

General settings.

Changes of these settings are written to the registry in the **zenon6.ini** file and overwrite manual configurations that may be different.

Changed settings must be carried out for all Runtime computers or all connected stations. At changes of the **IPv6** settings, the computer must be restarted.

Changes are carried out after leaving the dialog only after the confirmation of a warning message by clicking on the **Yes** button.

Parameter	Description
Network communication timeout	Timeout for network communication in seconds. Default = 30 Corresponds to the **NET_TIMEOUT_MSEC**= entry in **zenon6.ini**.
Network module timeout	Timeout for module communication in seconds. Is not used for spontaneous module request on the client or standby. If no response comes from the server in the set time, the action is canceled. Default = 30 Examples: Call up of archive data for Extended Trend, recipe administration, password list...) Corresponds to the **NET_NETMODULE_TIMEOUT_MSEC**= entry in **zenon6.ini**.
Time synchronisation with server project	Checkbox for the setting of the time synchronization. ▶ Active: Time is synced with a server project (default). ▶ Inactive: Time is not synced (for circular redundancy, for example) Default: Inactive Corresponds to the **TIMESYNCH**= entry in **zenon6.ini**.
Use IPv6 for all TCP/IP connections	Checkbox for the activation of IPv6 for TCP/IP communication. ▶ Active: All TCP connections are only established via IPv6. ▶ Inactive: All TCP connections are only established via IPv4. Default: Inactive Dual operation is not possible. Corresponds to the **USEIPV6**= entry in **zenon6.ini**. Note: If this option is changed, the computer must be rebooted. The change must also be carried out on all connected stations. The following components are not affected by the setting (IPv4 used): ▸ Driver communication with the PLCs ▸ Protocol communication in the Process Gateway plug-ins

	▶ Workbench and Runtime communication in zenon Logic
	▶ SNMP trap service communication (**zenSnmpTrapSrv.exe**) with the SNMPNG32 driver
	Attention: Only works with version 7 onwards. No versions prior to version 7 can be started if this is active.

ENCRYPT NETWORK COMMUNICATION

Settings for serious encryption in the network

Parameter	Description
Encrypt network communication	Checkbox for the activation of strong encryption. ▶ `Active`: Communication is encrypted. ▶ `Inactive`: Communication is not encrypted. Default: `Inactive`.
Password	Input field for the password for encrypted network communication. For the criteria, see the "**Network encryption password"** section in the Strong encryption of network communication chapter. The displayed length is always set at `20 characters`, in order to hide the actual length. The password defined here is stored encrypted in the **zenon6.ini**.
Confirm password	Input field for password confirmation. enter password for confirmation again.

ENCRYPT RUNTIME CONNECTOR COMMUNICATION

Settings for encrypted communication of the HTML web engine, the SCADA Runtime connectors (CD_PRODUCTNAME and <ZRS> and the Remote Runtime driver (**RemoteRT.exe**).

| Parameter	Description
Encrypt Runtime Connector communication	Checkbox for the activation of encrypted communication with **SCADA Runtime connectors** (HTML web engine, zenon, zenon Analyzer) and **Remote Runtime driver**. ▶ `Active`: Communication in the network is encrypted. ▶ `Inactive`: Communication in the network is encrypted. Default: `Inactive` Note: This encryption is also applicable for zenon web client communication.
Password	Input field for the password for encrypted network communication. For the criteria, see the "**Network encryption password**" section in the Strong encryption of network communication chapter. The displayed length is always set at `20 characters`, in order to hide the actual length. Corresponds to the **ENCRYPTION_PWD=** entry in **zenon6.ini**.
Confirm password	Input field for password confirmation. enter password for confirmation again.

⚠ **Attention**

If entries were changed manually in the local **zenon6.ini**, they are overwritten as soon as the confirmation message is answered with **"Yes"** on login.

CONFORMATION DIALOG

Changes to the configuration are only completed after corresponding confirmation in a confirmation dialog:

▶ Click the **YES** button to apply your configurations.

▶   Clicking on the **Cancel** button returns to configuration.
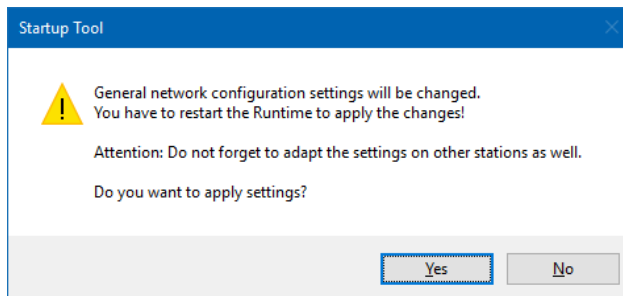
MESSAGES

For explanations about system messages and error messages see chapter Message at registration (on page 161).

> ### 💡 Information
>
> *You can find notes on error messages from strong encryption in:*
>
> *Network handbook -> Strong encryption of network communication chapter -> Error messages section.*

Listening ports

In this tab, the ports that are used by zenon can be individually configured for individual applications. The settings that were saved in the respective **zenon6.ini** file are used in Runtime.

⚠ **Attention**

Note the following during configuration:

▸ Changes in this tab can trigger a restart of the computer.
Note: This is shown by a corresponding dialog. If this dialog is closed by clicking on the
No button, no changes are made.

▸ All computers with which communication takes place must have the same settings.

▸ These settings are not available under Windows CE.

▸ If an IP address is defined, it must be amended if the setting for IPv6 is activated or
deactivated

▸ If a defined network address is not connected at the time when the service is started, no
listening socket is opened

▸ Error messages are not logged in the Diagnosis Server but in the **Windows Application
Event Log**.

LISTENING PORTS DIALOG
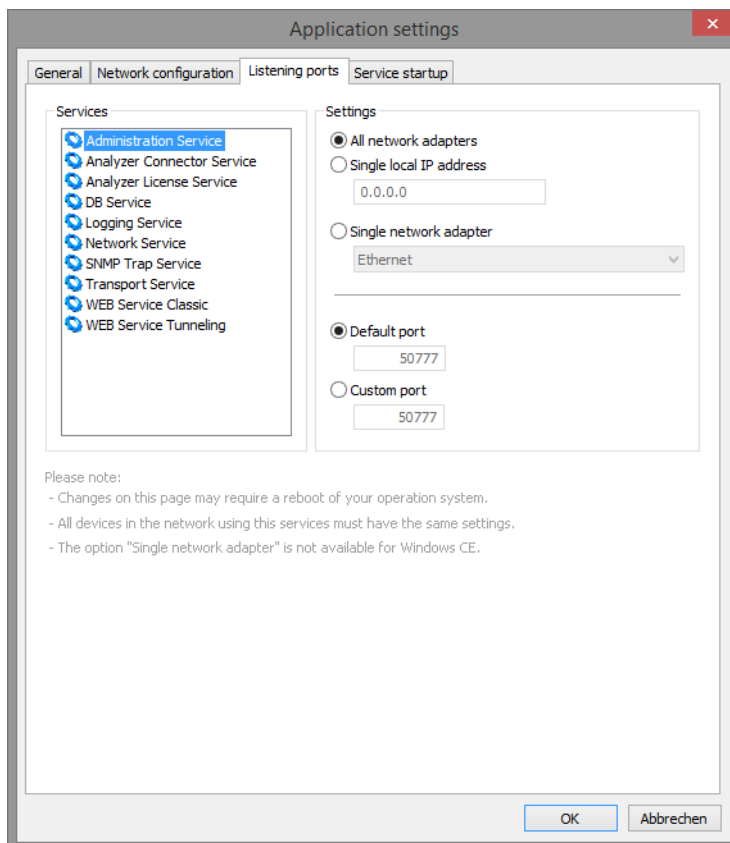
Note: This dialog is only available in English.

The buttons are displayed in the system language of the computer.

Parameter	Description
Services	List with all configurable applications. The selected application can be configured by means of the options in **Settings**.
Settings	Settings for the application selected in **Services**.
All network adapters	All available network cards are used for the binding of the **Listening ports**.
Single network adapter	The local address defined here is used for the binding of the **Listening ports**. Supported protocols: ▸ IPv4 ▸ IPv6
Single network adapter	The first address of the network card defined here is used for the binding of the **Listening ports**.
Default port	The standard port number is used for the binding.
Customer port	The port number entered here is used for the binding.

CLOSE DIALOG

Parameters	Description
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

DEFAULT PORTS

Assignment of the standard ports to applications:

Application	Standard port
zenon	
Network Service	1100
Transport Service	1101
WEB Service Classic	1102
DB Service	1103
SQL Browser Service, (for distributed engineering in the Editor)	1434
zenAdminSrv.exe	50777
Logging Service	50780
zenVNC.exe	5600 – 5610
SNMP Trap Service	50782
zenLicenseSr	50783
zenLicenseStub	50789
zenLicenseCenter	50689
WEB Service Tunneling	8080
zenon Logic	
Assigned port for zenon Logic or straton depends on the project and service. E.g.: First zenon Logic project occupies 1200 and 9000, second project 1201 and 9001 etc.	1200 – 1210 4500 – 4510 7000 – 7010 9000 – 9010
zenon Analyzer	
Administration Service	50777
Analyzer Connector Service	50778
Analyzer License Service	50779
ZAMS	50781
Drivers	
Driver Simulation	6000 – 6020
Process Gateway OPC Server	135
Process Gateway SNMP	161
Process Gateway Modbus	502
Process Gateway IEC60870-5 104 slave	2402
Process Gateway DEC	5555

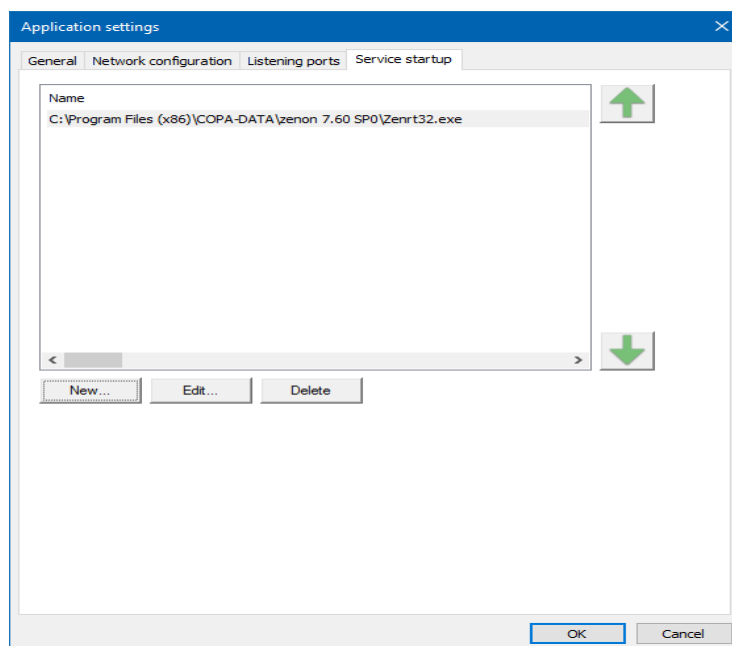| Process Gateway DNP3 Slave	20000

Service startup

Programs can be started automatically using the **zenStartupMgr** service.

> 👍 **Hint**
>
> *Use the possibility to start zenon Runtime automatically as a service.*

DIALOG SERVICE STARTUP

Parameter	Description
Liste Services	List of configured services.
New	Opens dialog to select a program.
Edit	Opens the dialog to edit the highlighted entry.
Delete	Deletes the highlighted entry.
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

SELECT PROGRAM DIALOG
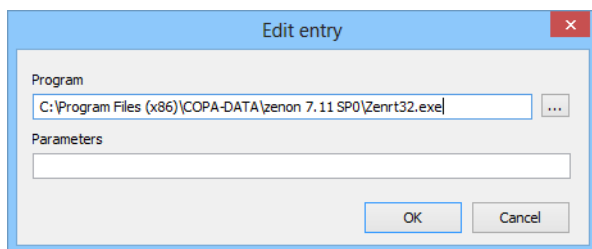
Parameter	Description
Program	Path to the program that is to be started as a service. Clicking on the ... button opens the file selection dialog. Maximum length: `259 characters`
Parameters	Input of parameters. The possible parameters depend on the program selected in the **Program** option. Maximum length: `259 characters`
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

START RUNTIME AS A SERVICE

To start Runtime as a service:

1. Register the file **zenStartupMgr.exe** as a service:

2. Configure the properties for sign-in.

3. Start, if necessary, Remote Transport with **zenStartupMgr.**

4. Define the Runtime to be started in the **Startup Tool**.

5. Configure a start delay for zenon Runtime if you are using a dongle license.

You can find details on this in the Runtime manual in the Starting Runtime as a service chapter.

Attention: If Runtime is started using the **zenStartupMgr**, it can no longer be stopped or restarted by users.

REGISTER SERVICE

To register **zenStartupMgr.exe** as a service:

1. Open the command line.

2. Go to the save location of the file **zenStartupMgr.exe**.
   (default with 32-bit OS: `%ProgramFiles(x86)%\Common Files\COPA-DATA\zenStartupMgr`
   (default 64-bit OS: `%ProgramFiles\Common Files\COPA-DATA\zenStartupMgr`)

3. Register the file as a service with the **zenStartupMgr.exe –service** command.
   Note: The service, if it is already running, is first stopped and then registered. If **zenStartupMgr** is running, it is closed.

CONFIGURE SERVICE FOR THE USE OF MANY DRIVERS

Windows as an operating system limits the number of windows that can be created due to its fixed, reserved desktop memory, depending on the version and possible interaction with the desktop.

| Version/action	Interactive Desktop	Non-Interactive Desktop
Windows 7 32-Bit	12 MB	512 KB
Windows 7/Windows Server 2008 R2 64-bit	20 MB	768 KB

zenon drivers each need several windows.   The number of drivers that can be used can be influenced using the **Allow data exchange between service and desktop** option in the properties of the service.

▶ `Inactive`:
   A maximum of 20 drivers can be started.

▶ `Active`:
   As many drivers as there are in a Runtime started as a user process can be started.

To activate the **Allow data exchange between service and desktop** option:

1. Open the Windows Service Manager.

2. Open the properties of the **zenStartupMgr** service.

3. Go to the **Login** tab.
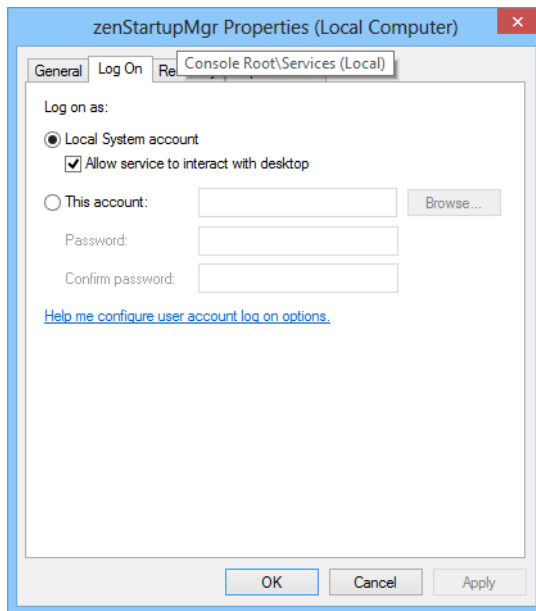
4. Activate the **Allow data exchange between service and desktop**.
   This service must be configured to `automatic` start type. With the service active, the user logged on to the computer is notified if the zenon Runtime as a service opens an additional window, for example in the event of a new alarm and active status line.

   Note Windows 8/Server 2012: In order for the service to be able to be started, the entry must be set correctly in the Windows registry:

   a) Go to the entry
      `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Windows`.

   b) Open or create the DWORD value **NoInteractiveServices**.

   c) Set the decimal value of `1` to `0`.

5. To stop Runtime messages being displayed on the desktop:
   Deactivate the **Detection of inactive services** service.

8.1.2   Item

The menu **Item** has the following entries:

Entry	Function
New	Creates a new entry in the list and opens dialog **Properties (on page 152).**
Delete	Deletes the selected entry after confirming a confirmation message.
Properties	Opens dialog **Properties** (on page 152) **for the** selected entry.

8.1.3   Help

Help menu to call up:

▶   **Help**:
     Opens the online help for the **Startup Tool**.

▶   **Info about**:
     Shows version information for the **Startup Tool**.

▶   **Update Help**:

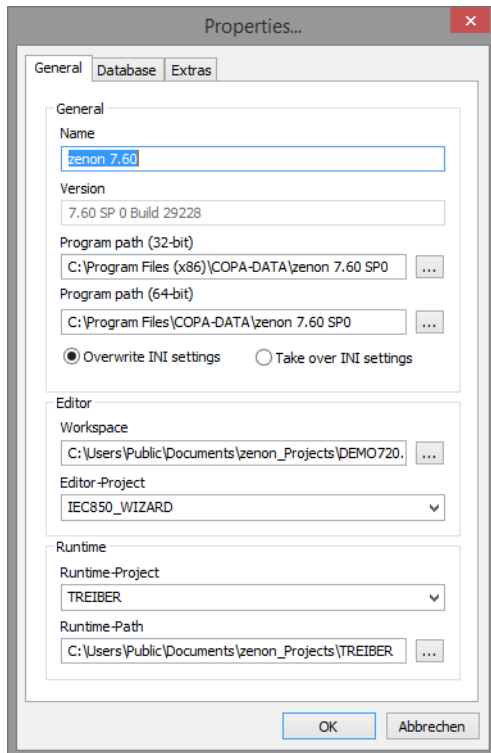   Starts the **Documentation-Download-Tool** (on page 78).

8.2   Properties

The parameters for each entry are defined in the **Properties** dialog:

Entry	Function
General	General settings
Database	Settings for the database connection
Extras	Settings for registering ActiveX controls (OCX) and COM servers (DLL) and for starting additional programs or batch files.

8.2.1   General

In this part, details about the zenon versions are entered. The path to the 32-bit version of zenon is absolutely necessary. If the **Startup Tool** detects a 64-bit version, the path to the 64-bit version is also cleared for an entry.

The following properties are available for a selected entry:

GENERAL

Parameter	Description
Name	Distinct name as it should be displayed in the list. This entry is absolutely essential.
Version	The **Startup Tool** automatically enters the zenon version number here. To do this, a program path must be entered beforehand under **Program Path**.
Programm path (32-bit)	Program path in which the executable 32-bit version of the zenon file (**Zenrt32.exe**) is located. If a 64-bit version of zenon is detected here, the **Programm path (64-bit)** property is also unlocked for input.
Programm path (64-bit)	Program path in which the executable 64-bit version of the zenon file (**Zenrt32.exe**) is located. Input only possible if the path to the 32-bit version was stated and a 64-bit version was detected by zenon. As soon as both paths have been entered correctly, the buttons for starting Editor and Runtime are divided into two buttons, one for 32-bit and one for 64-bit.
Overwrite INI settings	`Active`: The settings of this dialog are always used when the Editor is started. Changes made while working with the Editor are discarded. **Workspace, Editor-Project**, **Runtime-Project** and **Runtime-Path** are affected.
Take over INI settings	`Active`: All amended settings for **Workspace, Editor-Project**, **Runtime-Project** and **Runtime-Path** are saved in **zenon6.ini** after the Editor is closed, read into the Startup Tool and used for the next start.

EDITOR

Parameter	Description
Workspace	The desired workspace when the Editor is started. As soon as this is entered, all projects that are in this workspace are displayed automatically in the drop-down list under **Editor-Projekt**.
Editor-Project	Select the project which should be active after the Editor started.

RUNTIME

Parameter	Description
Runtime-Project	Project that is set as the start project for Runtime.
Runtime-Path	Path of the project. If the Runtime project is part of the workspace, the path is entered automatically.

> ### 💡 Info
>
> **UNKNOWN PARAMETERS?**
>
> If the settings for the workspace are unknown, use the following approach.
>
> 1. Enter **Name**, **Program Path** and **Workspace**
>
> 2. Leave **Editor-Project**, **Runtime-Project** and **Runtime-Path**
>
> 3. Activate **Read back the INI settings**
>
> 4. Leave dialog by clicking **OK**.
>
> *After the Editor has been started and closed once, the start settings are automatically taken from the INI file.*

8.2.2   Database

Define the database properties. It is possible to use different SQL instances for the different entries (zenon versions).

> ### ⚠ Attention
>
> *As of version 6.51 the SQL instance can be defined and the password is saved in an encrypted form. New entries have a higher priority than existing entries.*
>
> *Compatibility: If nothing is changed, the existing entries remain valid. If you change an entry for version 6.51 or higher, the new entries are valid. Older versions must be maintained separately. You can find the settings for version previous to 6.51 in chapter Database previous version 6.51 (on page 158).*
>
> *Display dialog: The display of the dialog is automatically adopted to the selected version (previous 6.51 (on page 158), as of 6.51).*

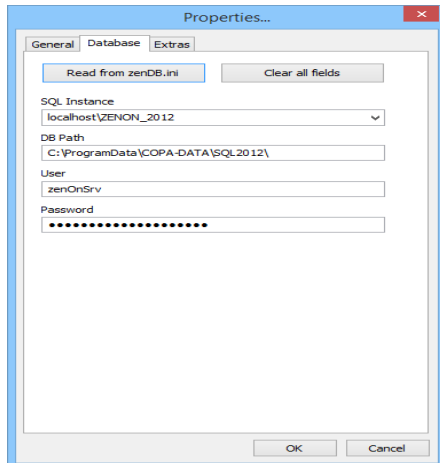| Entry	Function
Read from zenDB.ini	Clicking on the button reads off the settings from the `zenDB.ini` file and the following fields are automatically filled: ▸ **SQL instance** ▸ **DB Path** ▸ **User** ▸ **Password**
Clear all fields	All input field are cleared. Empty entries are not written to zenDB.ini at registering.
SQL Instance	Name of the SQL server instance which should be used. The name can be entered directly in the input field or can be selected from the drop-down list. Note: By clicking on the drop-down list the local computer is searched for instances which are then listed. The search may take some time.
DB Path	Path for the SQL database of the zenon projects. For example: `%ProgramData%\COPA-DATA\SQL\` Attention: Different SQL Servers (for example 2008R2 and 2012) must use separate paths. Background: When converting projects the GUID stays the same. If the same folders are used, both instances overwrite each others database files.
User	User name for the database. **Necessary rights** In SQL Server, the user must have the following **Server roles**: ▸ public ▸ sysadmin
Password	Password of the user. It is stored encrypted. The entry length is always displayed with 20 characters regardless of the actual length. Attention: The encryption is done via the **Startup Tool**. Therefore you must carry out the database setting via the **Startup Tool**. The password must also be amended on the SQL server for the **zenOnSrv** user.

These settings are saved in the **zenDB.ini** file.

Database previous version 6.51

Setting of the database property before zenon 6.51:

| Entry	Function
Read from zenDB.ini	Clicking on the button reads off the settings from the **zenDB.ini** file and automatically fills the **Provider** and **DB Path** fields.
Clear all fields	All input field are cleared. Empty entries are not written to zenDB.ini at registering.

Provider	Connection to the SQL instance. Important information:
	
	▸ Instance name
	
	▸ Used provider
	
	▸ User name
	
	▸ User password
	
	For example:
	`Provider=SQLNCLI.1;`
	`Password=srv_000;`
	`Persist Security Info=False;`
	`User ID=zenOnSrv;`
	`Initial Catalog=%s;`
	`Data Source=localhost\ZENON_DEV;`

DB Path	Path for the SQL database of the zenon projects. For example: `%ProgramData%\COPA-DATA\SQL\` **Attention:** It is necessary that SQL Server 2005 and SQL Server 2008 R2 use different folders. Background: When converting projects the GUID stays the same. If the same folders are used, both instances overwrite each others database files.

> ⚠ **Attention**
>
> *The entry for Provider differs in this dialog from the entry in the zenDB.ini.*
>
> ***Dialog****: String starts with* **Provider=...**
>
> ***zenDB.ini****: String starts with* **Provider=Provider=...**

8.2.3 Extras

Here, you create ActiveX controls (*.ocx) or COM servers (*.dll) which should be registered together with the respective zenon version. These OCX and DLL files can originate from any source, i.e. they can be written by you or come from other providers. Additionally you can define programs which are carried out before the starting or after the closing the Editor or the Runtime.
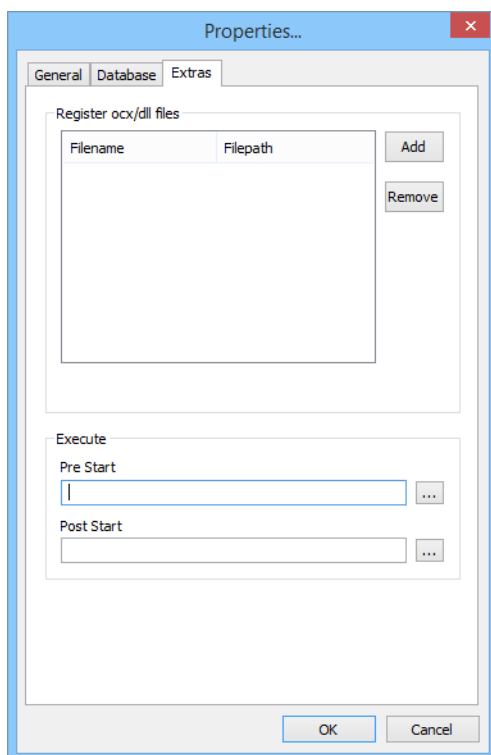
REGISTRATION ACTIVEX CONTROLS - COM SERVER

All files listed here are automatically registered together with the respective zenon version - independent of the central setting (on page 133) **register**.

Parameter	Description
Filename/Filepath	List of all files to be registered
Add	Opens the Windows dialog to select a file to be registered. There you can select OCX or DLL files individually and add them to the list. First select the wanted file type (OCX or DLL). All files are saved with path information. If the path changes, remove the link with **Remove** and create a new one.
Remove	Removes all selected entries from the selection list of the files to be registered. Attention: the selected entries are deleted without requesting confirmation.

PRE-START AND POST-START PROGRAMS

Pre Start and **Post Start** allow you to define programs and batch files that are to be executed before starting or after ending zenon.

Parameter	Description
Pre Start	External program that should be started, before the Editor or Runtime is started. Clicking on **...** opens the Windows selection dialog to select a program or batch file to be executed. Attention: Editor or Runtime are only started if this program is ended again.
Post Start	External program that should be started, after the Editor or Runtime is closed. Clicking on **...** opens the Windows selection dialog to select a program or batch file to be executed. Attention: Post Start is only called up if the **Read back the INI settings** (*Item->Properties->General*) option has been activated.

8.3   Message at registering

POP-UP AT REGISTERING

Message	Meaning
You have changed the IPv6 setting. All internal TCP/IP connections will be switched to IPv6/IPv4. **To ensure that all affected components are properly switched you have to restart the computer! You will also have to change this setting on all connected station!** **Do you really want to apply the change?**	You change the settings for the IP protocol from IPv4 to IPv6 or vice versa. After the changes you must restart the computer for all services to be adapted accordingly. The change must also be carried out on all connected stations. These changes are written to **zenon6.ini** or **zenon.ini** together with the registration and overwrite any manual configurations.
Gerneral network configuration settings will be changed. **You have to restart the runtime to apply the changes!** **Attention: Do not forget to adept the settings on other stations as well.** **Apply settings.** **Are you sure this is your intent?**	You change general settings (on page 139) in the same ways as time outs. These changes are written to **zenon6.ini** or **zenon.ini** together with the registration and overwrite any manual configurations. You must adapted changed settings for all Runtimes.

MESSAGE AT REGISTERING

At registering the service all steps are displayed in an own window which closes after 4 seconds automatically. When an error occurs, a warning message informs you about the cause. After confirming the message the procedure is canceled. zenon is not started. Possible error messages:

Message	Reason	Hint
Couldn´t find zenNetSrv Service!	File `zenNetSrv.exe` is missing from the zenon program folder or a wrong version is available.	Most of the time the fastest and safest solution is a new installation of zenon.
zenNetSrv.exe still running!	The service `zenNetSrv.exe` could not be stopped.	It is possible that a security tool is running on the computer which prevents the access.
Couldn´t find zenSysSrv Service!	File `zenNetSrv.exe` is missing from the zenon program folder or a wrong version is available.	Most of the time the fastest and safest solution is a new installation of zenon.
zenSysSrv.exe still running!	The service `zenSysSrv.exe` could not be stopped.	It is possible that a security tool is running on the computer which prevents the access.

8.4   Command line

You can also operate the Startup Tool using the command line. To do this, **zenon_Startup.exe** must be in the system path. You can find the file in the following folder: `%Program Files%\Common Files\COPA-DATA\STARTUP`

In the commando line you can:

- ▶ create new entries (on page 163)
- ▶ reorganize (on page 166) existing entries (e.g. after older versions have been deleted)
- ▶ register (on page 166) entries

8.4.1   Parameters

The input is started with **zenon_Startup.exe** followed by a **Parameter** and possible **field names.**

Parameters:

Parameters	Function	Field name	Return value
-new	creates a new entry.	yes, list see also new (on page 163)	0 or 1
-reg	registers services	Name of the entry	none
-reorg	checks and reorganizes existing entries	not available	none

If the startup tool is only called up with **-reg**, only the version is re-registered. In doing so, **zenon6.ini** is accessed on a read-only basis only. The version defined in the **[PATH]** section is registered; all parameters are taken from **zenon6.ini**.

USING SEVERAL PARAMETERS AT ONCE:

It is possible to use several parameters at once. If several **-new** parameters are used at once, the return value cannot be evaluated unambiguously.

In general when several parameters are used, it is proceeded in the following order:

1. **–new**: Create new entries.
2. **–reg**: Register the stated entry.
3. **–reorg**: Remove all invalid entries for deleted zenon versions.

new - Creating new entries

The **-new** parameter is used for creating new entries. It needs at least two field names:

▶ **NAME** as unique name for the entry

   If the name of the entry is already available, no entry is created.

▶ **PATH** as path in which zenon is stored.

SYNTAX

The syntax is constructed as follows: *zenon_Startup.exe -> Parameter > Field name="TEXT"*

1. **zenon_Startup.exe**
2. Space
3. Parameter
4. Space
5. Field name
6. **=** character
7. opening quotation marks

8. Text

9. closing quotation marks

> **Example**
>
> ***zenon_Startup.exe -new NAME***="new entry" PATH="C:\example folder\test"

FIELD NAME

The following field names can be used:

Field name	Mandatory field	Description
NAME	X	Unique name of the entry. E.g.: NAME="**Test**"
PATH	X	The user path in which zenon is saved. E.g.: PATH="`C:\Program Files (x86)\COPA-DATA\zenon 7.10 SP0`"
PATH64	-	The application path, in which the 64-bit version of zenon is located. E.g.: PATH="`C:\Program Files\COPA-DATA\zenon 7.10 SP0`"
PROJECT_RT	-	Name of the Runtime project which should be started. E.g.: **PROJECT_RT=**"Test Project"
PROJECT_RT_PATH	-	The Runtime folder of the project (see **PROJECT_RT**). E.g.: PROJECT_RT_PATH="`C:\Users\Public\Documents\zenon_Projects\Test Project`"
PROJECT_ED	-	The project which should be activated in the Editor. E.g.: **PROJECT_ED=**"Test Project"
WSP	-	The workspace with which the Editor should be loaded. E.g.: WSP="`C:\Users\Public\Documents\zenon_Projects\DEMO760.WSP6`"
SQLSRV	-	Name of the SQL Server which should be used by the Editor. E.g.: SQLSRV="MSSQL$ZENON_DEV"
PROVIDER	-	Provider string for the initialization of the SQL connection. E.g.: PROVIDER="`Provider=SQLNCLI.1;Password=000;Persist Security Info=False;User ID=zenOnSrv;Initial Catalog=%s;Data Source=localhost\ZENON_DEV;`"
DBPATH	-	Path for the SQL database which should be used E.g.: DBPATH="`C:\ProgramData\COPA-DATA\SQL\`"
PRESTART	-	Program call which is executed before the start of the Editor or the Runtime or the registering of this version. E.g.: PRESTART="C:\zenon Versions\zenon7.60\Dlls\zenVNCCli.exe"
POSTSTART	-	Program call which is executed after the Editor is closed. E.g.: POSTSTART="C:\zenon Versions\zenon7.60\Dlls\zenVNCCli.exe" **Attention:** Post Start is only executed when in the Startup Tool or in

		Startup.ini option **Read back the INI settings** (*Item -> Properties -> General*) is activated.

The field names are separated by spaces.

> 💡 **Information**
>
> *Paths with spaces must always be put between parentheses.*

RETURN VALUES

- ▶ `0`: Execution faultless
- ▶ `1`: Entry could not be created

reorg - reorganizing of entries

Parameter **-reorg** checks all entries to see whether the linked zenon version is still available in the file system. If the application files are no longer found, the entry is finally deleted from the Startup Tool.

The command does not provide a return value. After execution the Startup Tool is started.

Example: **zenon_Startup.exe -reorg**

reg - register entries

The **-reg** parameter registers all necessary services in the folder of the stated entry. It is called up via:

- ▶ **-reg "**`Name of the entry`**"**

If the Startup Tool has already been started, nothing is registered but the **Startup Tool** is moved to the foreground.
The command does not provide a return value.

> 📧 **Example**
>
> **zenon_Startup.exe -reg** *"version 6750"*
>
> *Registers version 7.50.*

Prerequisite: there is an entry with this name in the **Startup Tool**.

8.5   Tools

Tools allow the starting of applications from the **Startup Tool** directly. Depending on the application, parameters for the command line can also be transferred. The tools that are available depend on the zenon version and operating system.

You can find the tools in their own dialog. You can get to this by clicking on the **Tools** dialog in the **Startup Tool**:
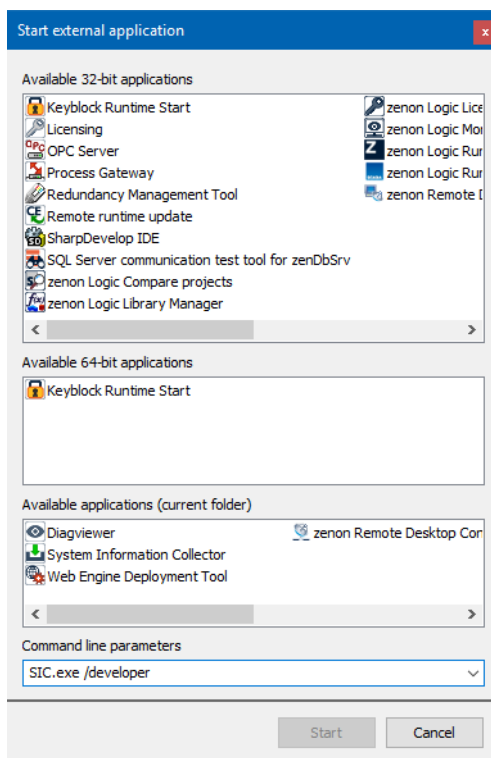
AVAILABLE 32-BIT APPLICATIONS

List of available 32-bit applications.

Option	Description
Keyblock Runtime Start	Starts the currently-active Runtime with the `Keyblock` option. All **Windows** system keys thus remain blocked when Runtime is started. Note the Information in the **Keyblock Runtime Start** (on page 88) chapter in the **Runtime** manual. Name of the EXE file: **zenKeyBlock.exe**
Licensing	Starts the dialog for product licensing. Name of the EXE file: **LizenzKnd.exe**
OPC Server	Starts the zenon OPC server. Name of the EXE file: **zenOPCSrv.exe**
Process Gateway	Starts the **Process Gateway**. Note the information in relation to configuration of the parameters. Name of the EXE file: **zenProcGateway.exe** **Parameter**: **/ini:MyConfig.INI** Replace **MyConfig.INI** with the correct name of your INI file
Redundancy Management Tool	Starts the zenon **Redundancy Management Tool**. Name of the EXE file: **zenon_redman.exe**
Remote runtime update	Opens the dialog to configure the **Remote Runtime Update** for CE. Name of the EXE file: **UpdateCE.exe**
SharpDevelop IDE	Start the SharpDevelop IDE for creating AddIns. Name of the EXE file: **SharpDevelop.exe**
SQL Server communication test tool for zenDBSrv	Opens the dialog to access to the zenon Database Admin client. Name of the EXE file: **zenDBAdmin.exe**
zenon Logic Compare projects	Opens the dialog to compare two zenon Logic projects. Name of the EXE file: **K5DiffTest.exe**
zenon Logic Library Manager	Opens the dialog of the zenon Logic Library Manager. Name of the EXE file: **K5LibMan.exe**
zenon Logic Licence Manager	Opens the zenon Logic License Manager.

	Name of the EXE file: **K5LicMan.exe**
zenon Logic Monitoring	Opens the zenon Logic Monitor. Name of the EXE file: **W5Monitoring.exe**
zenon Logic Runtime	Starts zenon Logic Runtime. You can also find further information in the **Starting Runtime** chapter in the **zenon Logic Runtime** manual. Name of the EXE file: **STRATONRT.exe**
zenon Remote Desktop	Opens the dialog for establishing a connection to a zenon Remote Desktop. Name of the EXE file: **zenVNCCli.exe**
Available 64-bit applications	List of available 64-bit applications.
Keyblock Runtime Start	Starts the currently-active Runtime with the Keyblock option. All **Windows** system keys thus remain blocked when Runtime is started. Note the Information in the **Keyblock Runtime Start** (on page 88) chapter in the **Runtime** manual. Name of the EXE file: **zenKeyBlock.exe**

AVAILABLE APPLICATIONS (CURRENT FOLDER)

List of the applications available in the current folder.

Option	Description
Diagviewer	Starts the Diagnosis Viewer (on page 36).
	Name of the EXE file: **DiagViewer.exe**
System Information Collector	Starts the **System Information Collector** (on page 173).
	Name of the EXE file: **SIC.exe**
Web Engine Deployment Tool	Starts the **Web Engine Deployment Tool**. You can also find further information in the Deployment of the web engine chapter in the **zenon Web Server** manual.
	Name of the EXE file: **WebEngineDeploymentTool.exe** Parameters: none
zenon Remote Desktop Configuration	Opens the dialog for the **configuration** of a zenon Remote Desktop.
	Name of the EXE file: **zenVNCCfg.exe**
Command line parameters	Entry of the parameters for the command line. Syntax: [Name of the EXE] /[Parameters]
	Attention: The name of the EXE file must be given.
Start	Closes the dialog and starts the selected application with the parameters entered.
Cancel	Closes the dialog.

8.5.1   Starting the tool

To start a tool:

1. Open the zenon **Startup Tool** (on page 132).

2. Click **Tools**.

The dialog for configuring the zenon **Tools** is opened.
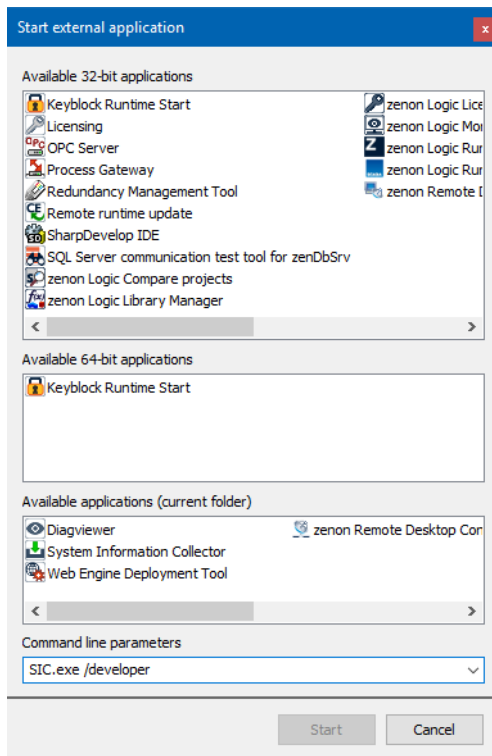
3. Select the desired tool.

4. Enter, if required, the following in the **Command line parameters** field:
    [Tool].EXE /[Parameter]
    Attention: The parameters alone are not sufficient. There must be a call to the respective EXE.

5. Click on **Start**.

AVAILABLE .EXE FILES

Application	EXE	Remark
Diagviewer	**DiagViewer.exe**	
Keyblock Runtime Start	**zenKeyBlock.exe**	
Licensing	**LizenzKnd.exe**	
OPC Server	**zenOPCSrv.exe**	
Process Gateway	**zenOnOnline.exe**	
Process Gateway	**zenProcGateway.exe**	Name of the INI file: **/ini:MyConfig.INI** Replace **MyConfig.INI** with the correct name of your INI file.
Redundancy Management Tool	**zenon_redman.exe**	
Remote runtime update	**UpdateCE.exe**	
SQL Server communication test tool for zenDbSrv	**zenDBAdmin.exe**	
System Information Collector	**SIC.exe**	Parameters: ▸ **forcedbaction**: Always allow **SQL Attach/Detach** ▸ **externalxmlenable**: Allow loading from external **Query-XML** ▸ **developer**: Quick scan
Web Engine Deployment Tool	**WebEngineDeploymentTool.exe**	--
zenon Logic Compare projects	**K5DiffTest.exe**	
zenon Logic Library Manager	**K5LibMan.exe**	
zenon Logic Licence Manager	**K5LicMan.exe**	
zenon Logic Monitoring	**W5Monitoring.exe**	
zenon Logic Runtime	**STRATONRT.exe**	

zenon Logic Runtime Manager	**StratonRT_Manager.exe**	
zenon Remote Desktop	**zenVNCCli.exe**	
zenon Remote Desktop Configuration	**zenVNCCfg.exe**	

9. System Information Collector

When solving problems, COPA-DATA Support may ask for the relevant data about your operating system and zenon. The easiest way for you to create this data is in an automated manner with the System Information Collector and then sending this to Support.

9.1 Starting the System Information Collector

The **System Information Collector** is also installed when zenon is installed.   It is located at:

▶ Computer in the path: `%Program Files (x86)%\Common Files\COPA-DATA\STARTUP`

▶ Installation medium in the following path `\AdditionalSoftware\COPA-DATA System Information Collector`.

To start the **System Information Collector**:

1. Windows 8: enter **SIC** as a search term for **Apps** on the desktop
   Windows 7: go to *Start/All Programs/zenon/Version Independent Tools*
   or: start it from the installation medium

2. Click on **System Information Collector**

3. The **System Information Collector** starts
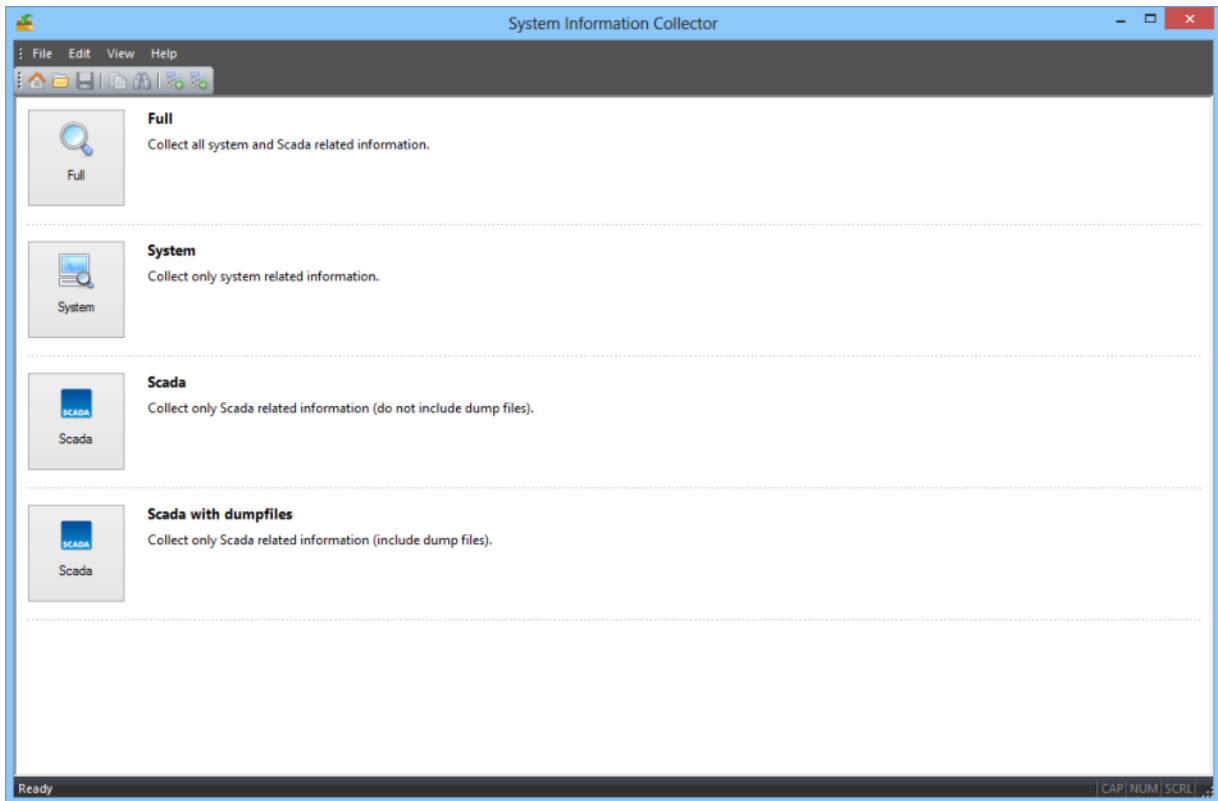
MENU AND TOOLBAR

MENU

The following options are available to you in the menu:

-   ▶   **File**
    -   •   **New Scan**:   Opens the Start window.
    -   •   **Open**: opens a saved report
    -   •   **Save**: saves the currently-displayed report as a ZIP file
    -   •   **Exit**: closes the **System Information Collector**
-   ▶   **Edit**
    -   •   **Copy**: copies highlighted text to the clipboard
    -   •   **Find**: opens a dialog to search the current report
-   ▶   **View**
    -   •   **Expand**: expands all nodes

- **Collapse**: closes all nodes
▶ **Help**
  - **About**: Information on the program version

With the exception of **Exit** and **About**, all options are also available from the toolbar.

TOOL BAR

Symbol	Description
Home **New Scan**	Opens the Start window.
Open	Opens a saved report.
Save	Saves the currently-displayed report as a ZIP file.
Copy	Copies highlighted text to the clipboard.
Find	Opens a dialog to search the current report
Expand	Expands all nodes.
Collapse	Closes all nodes.

9.2   Collecting information

To collect information in an automated manner:

1. Start (on page 173) the **System Information Collector**
2. Select one of the four options by clicking on the corresponding button
   - **Full**: collects information about the system and zenon. Dump files are not collected
   - **System**: collects information about the system only
   - **Scada**: collects information about zenon, without dump files

- **Scada with dumpfiles**: collects information about zenon and includes dump files
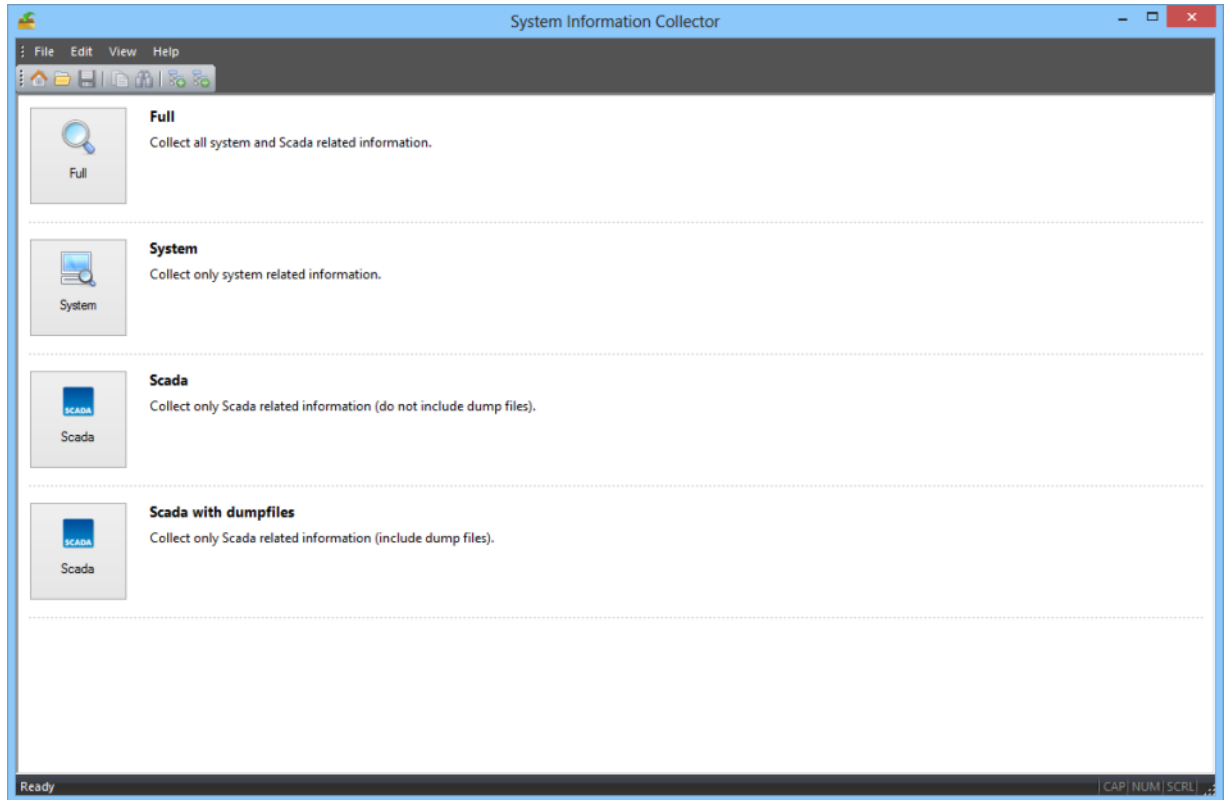
3. The **System Information Collector** creates a report with the desired information
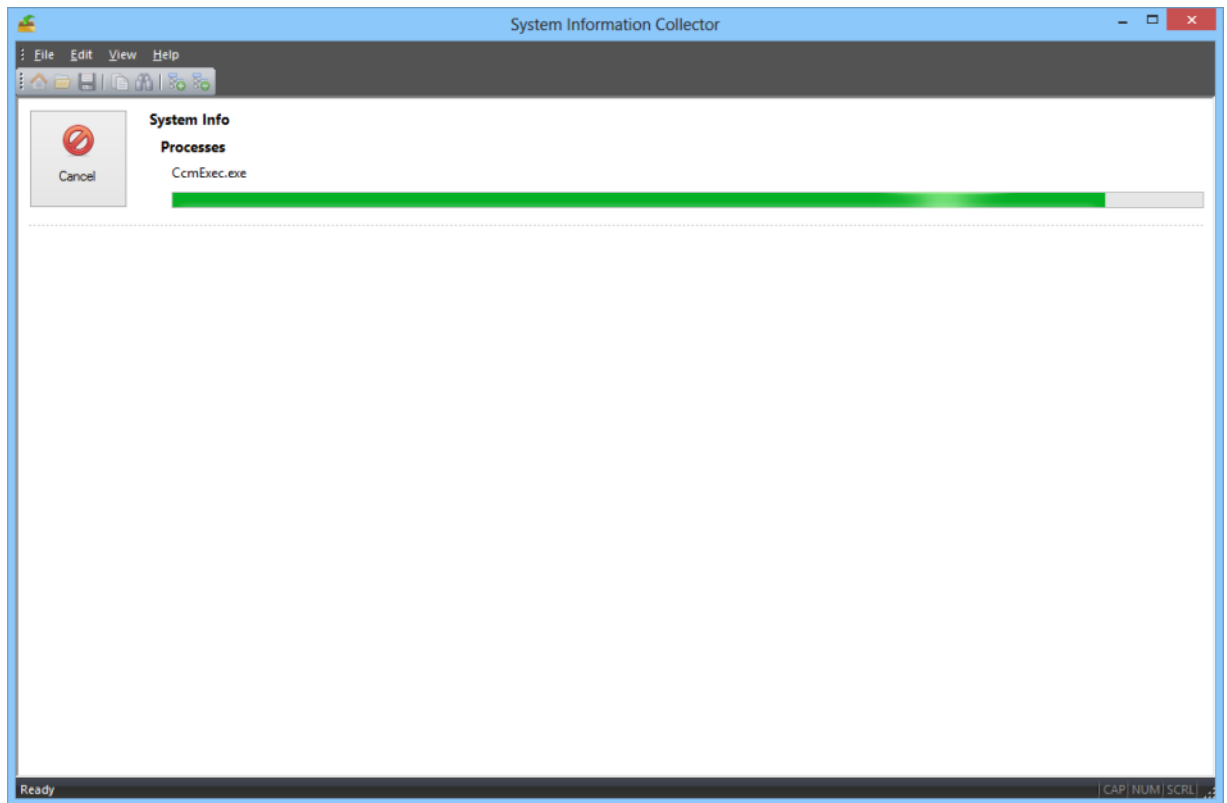
4. The completed report is displayed in the main window
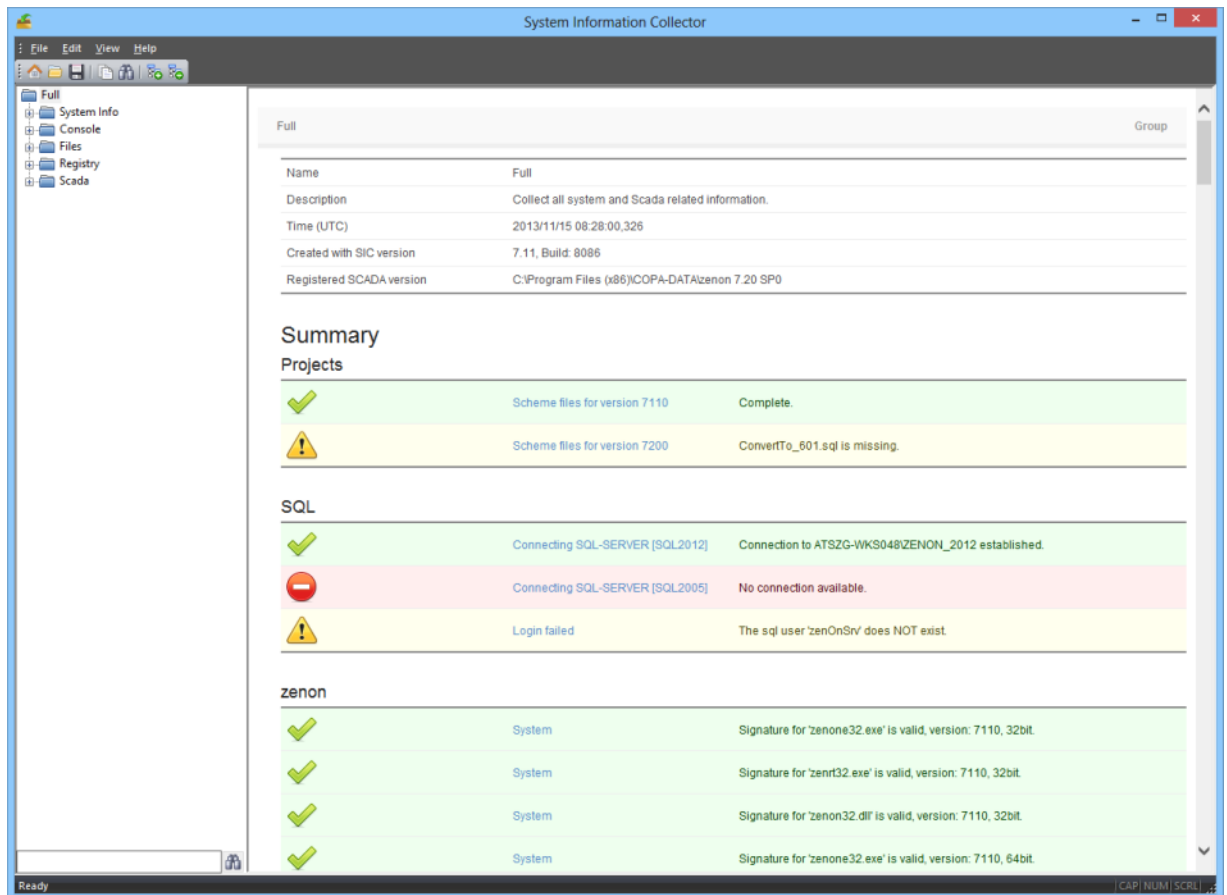
9.3 Using the information

All information collected is displayed in the **System Information Collector**. They can:

▶ Save the report

▶ Navigate through the report and search for certain information

▸ Highlight selected information and copy it to the clipboard
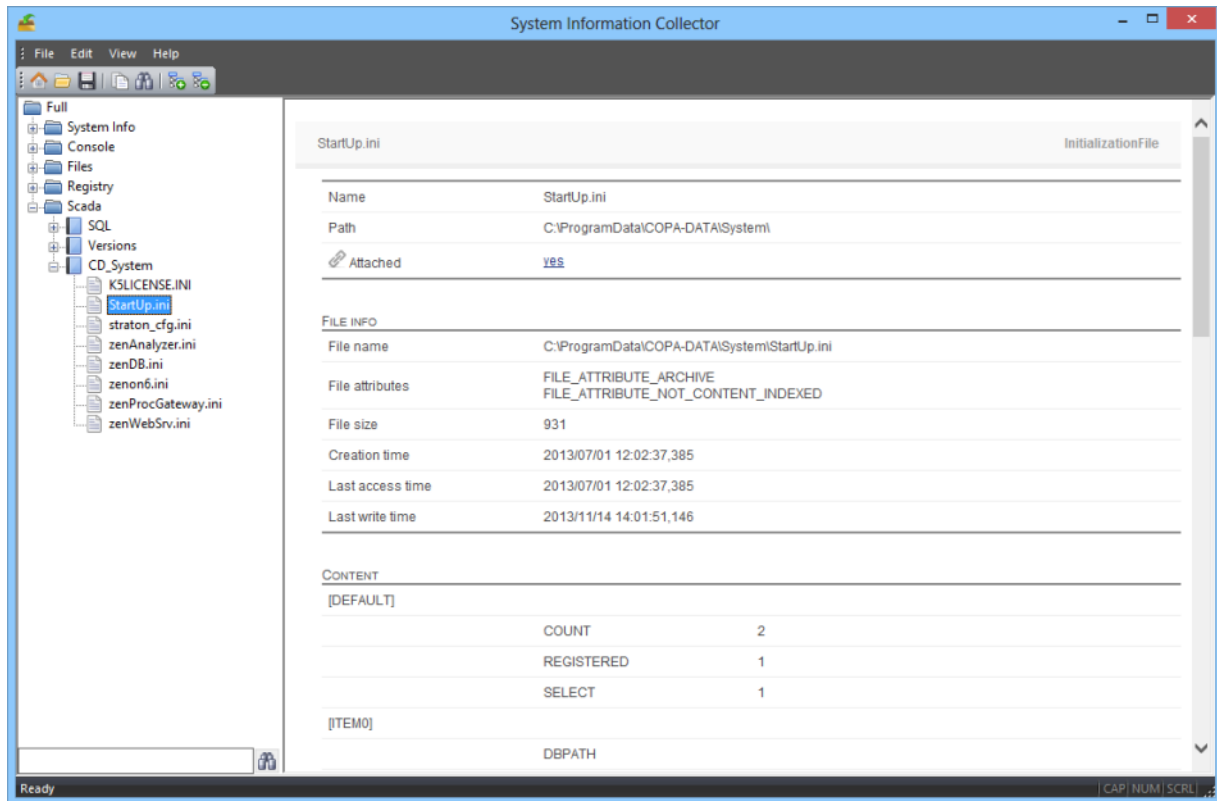
SAVING A REPORT

To save a report:

1. Click on the **Save** symbol or the **Save** command in the **File** menu

2. The dialog for voluntary entry of a password for the encryption of a report opens

3. the dialog for selecting a folder and file name is opened

4. The report is saved as a ZIP file

OPEN REPORT

To open a saved report:

1. Click on the **Folder** symbol in the toolbar

2. Select the report

3. If you have entered a password for the encryption of the report when saving, enter it again now or jump the step by clicking on **OK**

4. The report is opened

SAVING SELECTED INFORMATION

To saved selected information only:

1. highlight the relevant information.

2. Click on the **Copy** symbol or the **Copy** command in the **Edit** menu

3. The selection is copied to the clipboard

4. Insert the content into a text file and save this

5. Repeat this process for further selected information

9.4 Forward report to COPA-DATA

The report can, depending on its size, be forwarded as an e--mail or uploaded to a defined save location to COPA-DATA. You can find out details on how you forward the report and which online save location you can use for this from your COPA-DATA Support contact.

10. COPA-DATA PRP

zenon supports the Parallel Redundancy Protocol (PRP) for hardware-redundant communication in an Ethernet network. The protocol is standardized in IEC 62439-3.
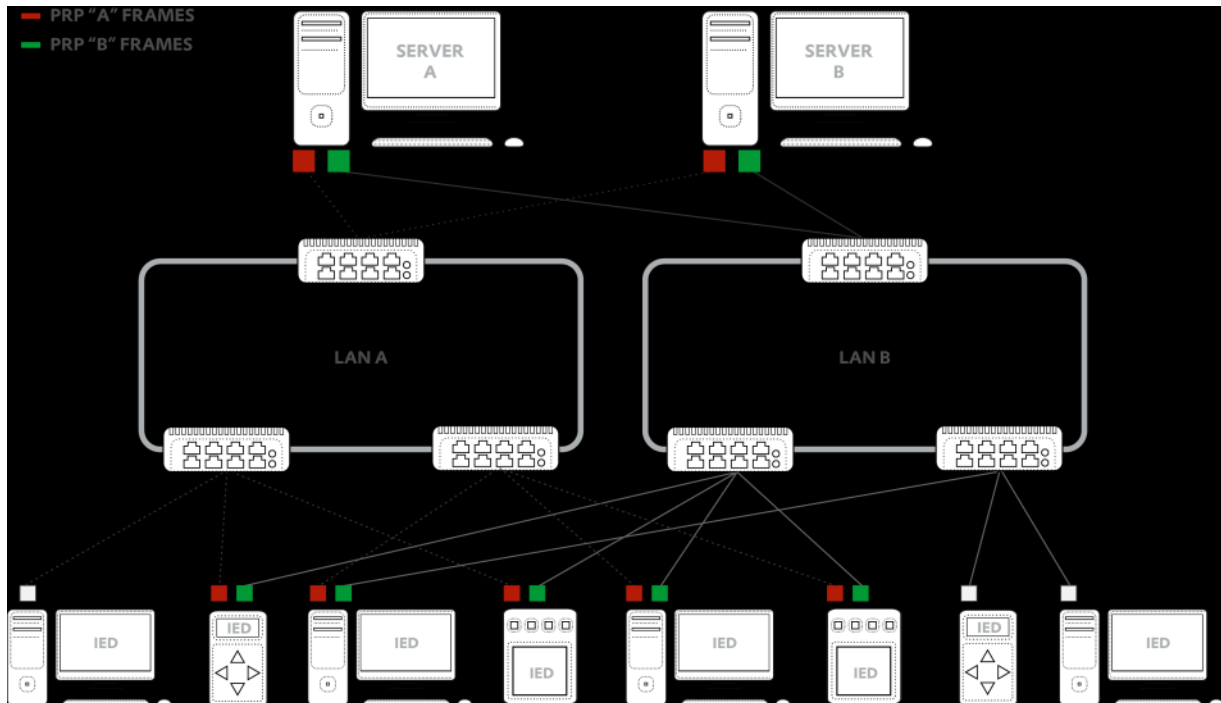
PRP communication is carried out at at OSI Layer 2 level directly, regardless of zenon Editor and zenon Runtime. Special configurations in zenon are not required. To use the protocol, the computer must have two network cards and be configured accordingly.

You need the following for the use of PRP:

▶ `COPA-DATA PRP driver` network service

▶ **PRP configuration and diagnosis tool**

You can find this on the installation medium. You can find a detailed description of the required configuration steps in this chapter in the installation and configuration (on page 182) chapter.

Note: The packet sync of the network service supports networks up to 100 Mbit.

License information

The network service is supplied.
A valid zenon license is required on the computer for use.

10.1 System requirements

PRP communication is supported for 100-Mbit/s-Ethernet in the following operating systems:

- ▶ Windows 7
- ▶ Windows 8
- ▶ Windows 10 from version 1607
  Attention: Earlier versions of Windows 10 are not supported.

10.2 Hardware requirements

The following hardware requirements are applicable for communication via PRP:

- ▶ Both used network cards must support `Jumboframes`.
- ▶ A configuration of the locally-administrated MAC address is possible for both network cards.

> ⚠ **Attention**
>
> PRP communication is only supported within a redundant network. In doing so, two physical networks can be connected via PRP.
>
> An additional connection in a further PRP network is not supported.

10.3 Installation and configuration

To prepare the computer for PRP installation:

1. Switch the computer off and separate the computer from the power supply (physical reset).
2. Restart the computer

Carry out the following steps in the operating system:

1. Configure your two existing network adapters.
2. Create a network bridge (= **Bridge**) from the network adapters.
3. Install the `COPA-DATA PRP driver` for the network bridge.
4. Configure your PRP connection

You can find a detailed description in the further chapters.

NOTE:

Please note:

- ▶ Administrator rights on the computer are required for installation.

- ▶ The system must be restarted for the installation.

- ▶ Note the instructions for the respective steps.

- ▶ The packet sync of the network service supports networks up to 100 Mbit.

- ▶ The PRP files can only be updated with a zenon main version or a service pack. Build versions are not in a position to do this.

> ⚠ **Attention**
>
> *Ensure that you carry out the configuration steps in the given sequence.*

10.3.1   Installation and configuration

In the first step, amend the configuration of the operating system for both network adapters used. The configuration dialog and the naming of the enhanced properties depends on the network card.

NETWORK ADAPTER 1

Configure the first network adapter in the operating system.

1. Open the **Change adapter settings** system setting.
   You can find these settings in the `Control Panel => Network and Internet => Network and Sharing Center`

2. Select the desired network adapter.

3. With the right mouse button, select the **Properties** entry in the context menu.
    The configuration dialog for the properties of the network adapter are opened.
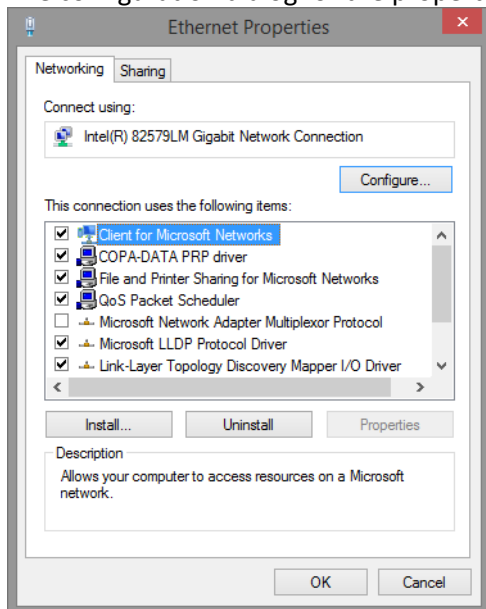
4. Click on the **Configure ...** button
    The properties window of the network adapter is opened.

5. Switch to the **Advanced** tab there.

6. In the list of **settings** there, select the **Jumbo Packet** entry
    Note: The name of this entry may be different for each network card.
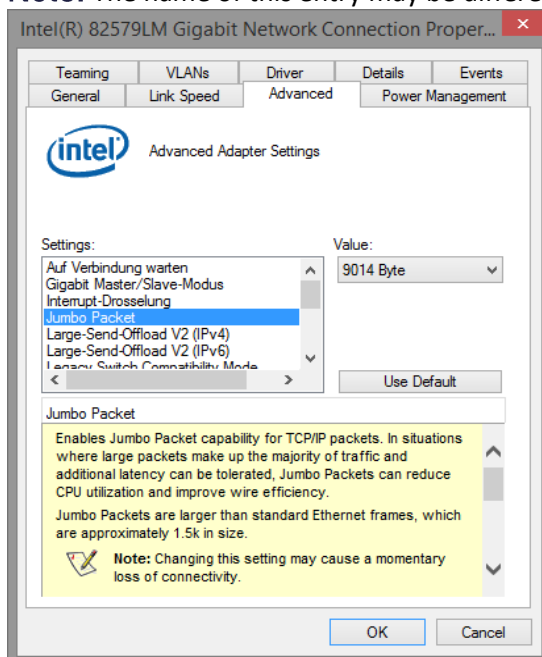
7. Select a value in the **Value** drop-down list.
   Select the lowest-available value that is greater than 1530 bytes.
   Attention: The **Disabled** setting must not be selected.

8. In the **Advanced** tab, select the **Locally-administered address** setting.

9. Enter a unique MAC address in the `Value:` input field. The format of the MAC address depends on the hardware used.
   Examples:

   - 0A:80:41:ae:fd:7e

   - 0A-80-41-ae-fd-7e

   - 0A8041aefd7e

10. Ensure that, for both connections used, the same MAC address is used.
    Change this address in the **Value** input field:

    - This MAC address must start with `0A`!

    - The MAC address in the local network must be unique.

11. Finish configuration of the network card by clicking on the **OK** button.

NETWORK ADAPTER 2

Repeat the steps for the second network adapter.
When entering the MAC address, ensure that the same MAC address as the one in the previous configuration is entered.

> ⚠ **Attention**
>
> *Ensure that*
>
> ▸ The MAC address used on both computers is the same
>
> ▸ It is not used by any other computer in the local network.

10.3.2 Installation and configuration

In this step, you combine two network adapters with a network bridge. Amend the configuration for both network adapters used.

Create a network bridge in the system settings.

1. Open the **Change adapter settings** system setting.
   You can find these settings in the `Control Panel => Network and Internet => Network and Sharing Center`

2. Select the two network adapters that you want to use for PRP communication.
    Note: Note that for both network adapters, the necessary configurations have already been carried out. A subsequent amendment to the configuration of a network adapter only becomes effective if you then create a new bridge.
    Attention: Both network adapters selected must be configured with the same MAC address!

3. With the right mouse button, select the **Bridge connections** entry in the context menu.
    A network bridge is created for the selected network adapter. This is visualized in a dialog.
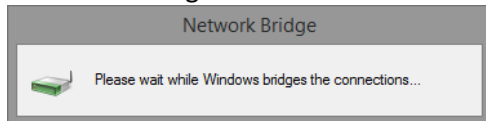
4. The bridge created is displayed in the Control Panel:
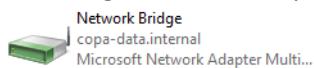
    Attention: The bridge must only contain two adapters.

10.3.3   Installation and configuration

In this step, you install the service system required for PRP communication.

Install the `COPA-DATA PRP driver`

1. Select the Bridge created.

2. With the right mouse button, select the **Properties** entry in the context menu.
The configuration dialog for the properties of the bridge is opened.
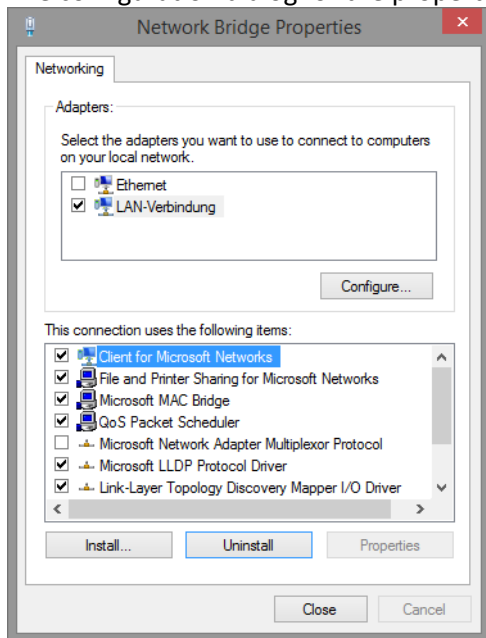
3. Click on the **Install** button.
The dialog to install a network feature is opened.
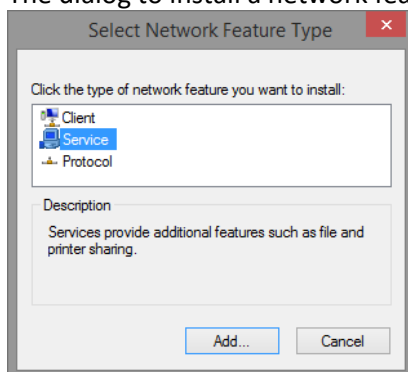
4. Select **Service** as the network feature to be installed.

5. Click on the **Add...** button
    The dialog for the selection of the network service is opened.
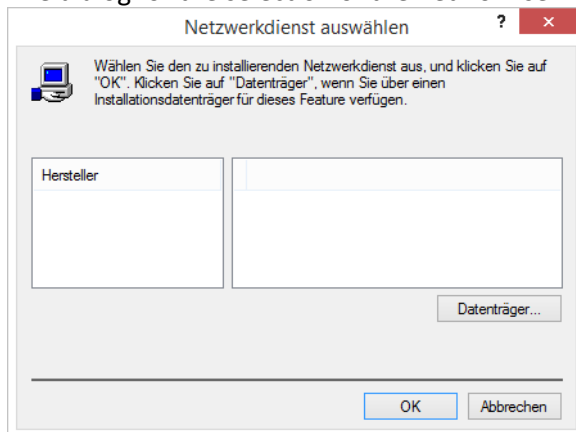
6. Click on the **Data medium ...** button
    The dialog to select the save location of the installation program for the network service is opened.
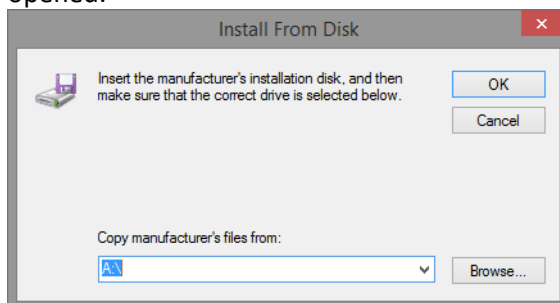
7. Click on the **Browse** button.

8. Go to the following folder on your local computer:

    - `\Programs (x86)\Common Files\COPA-DATA\CDPrpFlt\`
      for 32-bit operating systems.

    - `\Programs\Common Files\COPA-DATA\CDPrpFlt\`
      for 64-bit operating systems.

9. Select the `CDPrpFlt.inf` file.
   Attention: Ensure that you select the correct installer for your operating system (32-bit or 64-bit).

10. Confirm the selection by clicking on **OK**.
    The dialog to select the network service is opened.
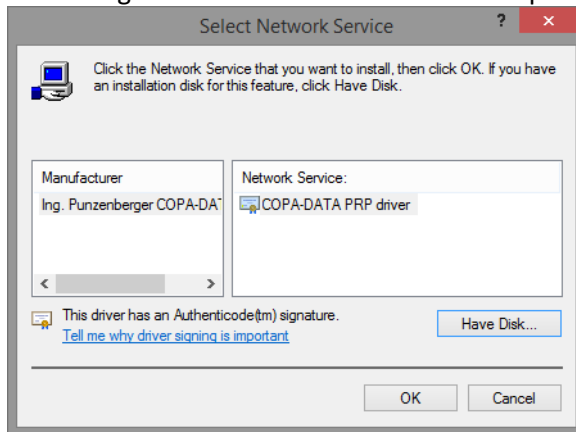
11. Select the `COPA-DATA PRP driver` network service.

12. Confirm your selection with **OK**.

- Confirm the Windows request for confirmation by clicking on the Install button.
  Attention: It may then be necessary to restart your computer.
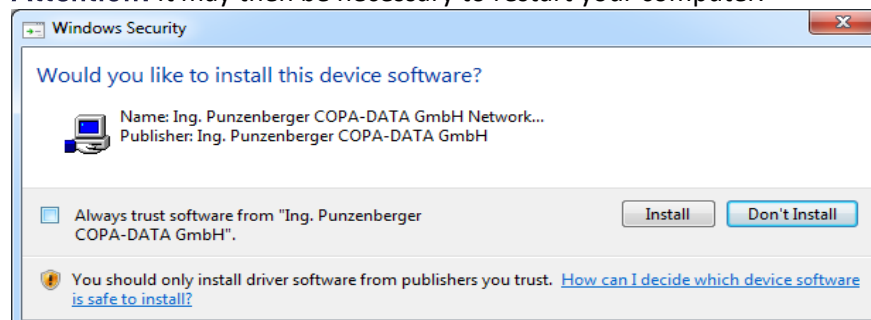
  Note: This request for confirmation is not shown if you have already activated the "... always trust" box when installing zenon program components earlier.

13. After successful installation (and restarting the computer) the service is visible in the properties window of the network adapter in the list of elements used.
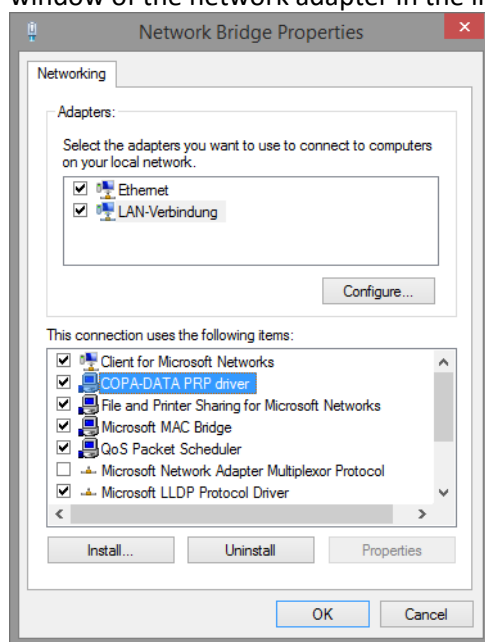
14. Ensure that the LAN connection and the network service **COPA-DATA PRP driver** are activated using the checkbox.

⚠ **Attention**

Ensure that use in the active system is not jeopardized by the required restart.

10.3.4   Configuration of PRP connection (step 4 of 4)

Before configuration, ensure that the LAN connection and the **COPA-DATA PRP driver** network service are activated.

PRP CONFIGURATION

1. Start the program called `PRPCfgDiag.exe.`
    You can find this software on your computer in the following folder: `C:\Program Files (x86)\Common Files\COPA-DATA\STARTUP.`
    The **PRP Configuration and Diagnostics** dialog is opened.
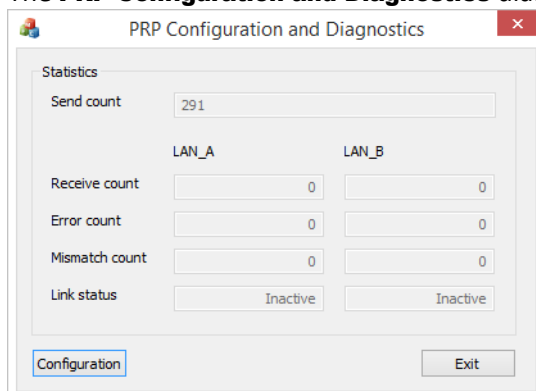
    Note: The **PRP Configuration and Diagnostics Tool** is only available in English.

2. Click on the **Configuration** button.
    The dialog for the selection of the network adapter is opened.
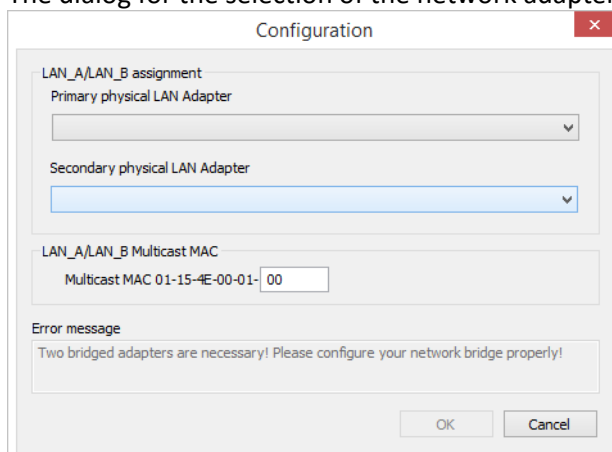
    Note: The content of the drop-down list is based on the system settings.

3. Select, from the drop-down list, the network adapter for **LAN_A** and **LAN_B**.
    Note: Ensure that, for all PRP-compatible devices in the network, the references between the physical network and **LAN_A**   or **LAN_B** are configured the same.

4. Confirm the assignment with **OK**.

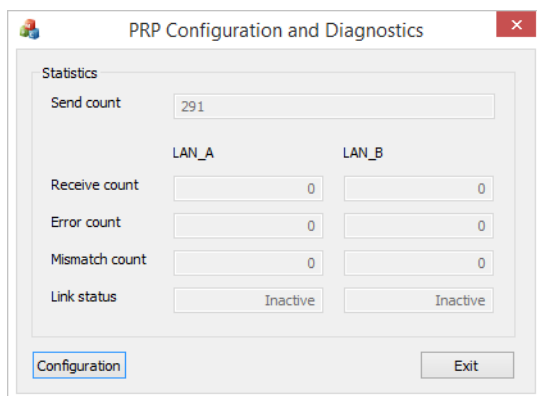5. End the configuration by clicking on the **Exit** button.

10.4   PRP configuration and diagnosis tool

The **PRP Configuration and Diagnostics Tool** performs two tasks:

▶ Visualization (on page 193)
Display of the data traffic sent via PRP. The display is separate for the two network adapters used.

▶ Configuration (on page 194)
Assignment of the configured network adapter.

Note: This dialog is only available in English.

PRPCfgDiag.exe is supplied with zenon.
You can find this software on your computer in the `C:\Program Files (x86)\Common Files\COPA-DATA\STARTUP` folder.

REQUIREMENTS

The **PRP Konfigurations- und Diagnose Tool** needs the following for operation or configuration:

▶ Two network adapters that are combined into a bridge in the system settings.
Note: In this bridge, only the two network adapters that are used for PRP communication can be configured. Other network adapters must not be included in this bridge.
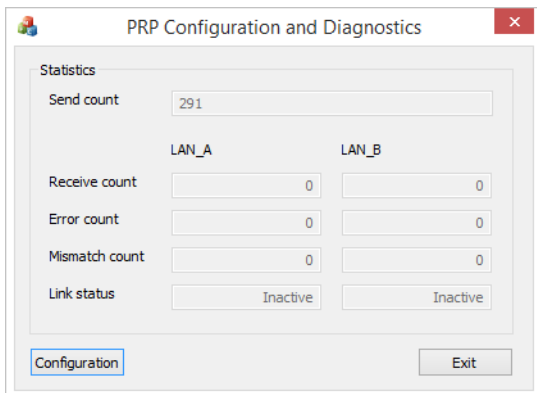
▶ The CDPrpFlt driver must be installed.

> 💡 **Information**
>
> *You can find information on the installation and necessary preparations in the system settings in the installation and configuration (on page 182) chapter.*

10.4.1   Statistics

The data flow is visualized in the **Statistics** dialog. The setting is displayed separately for both LAN adapters.

The flow of data is always recorded, even if the tool is not open.

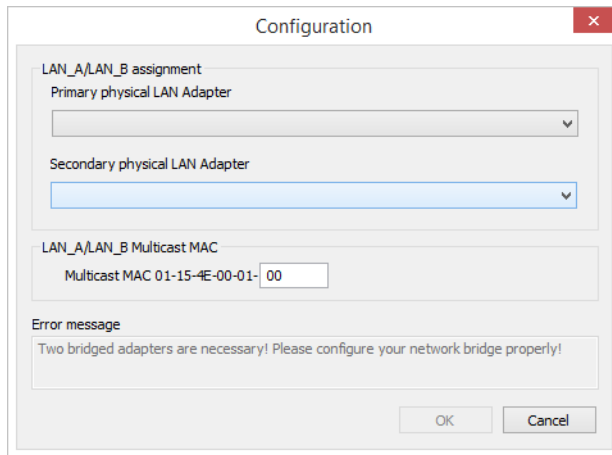Note: This dialog is only available in English.

Parameter	Description
Send count	Display of the Ethernet frame sent.
Receive count	Display of the Ethernet frame received.
Error count	Display of invalid PRP frames.
Mismatch count	Display of PRP frames received/sent differently if the network data traffic of the two LAN adapters differs from one another.
Link status	Status of the network card: ▶ Active PRP-Supervision frames are received correctly for the respective (`LAN_A` or `LAN_B`). ▶ Inactive No PRP Supervision frames are received within the past two seconds. There is no PRP station in the network or there is an error.
Configuration	Opens the configuration dialog (on page 194).
Exit	Closes the program. Note: The data continues to be recorded.

10.4.2   Configuration

The following is carried out in the **Configuration** dialog:

▶ Network adapter is assigned by means of a drop-down list.
The content of the drop-down list is based on the network settings.
You can find further information in the installation and configuration (on page 182) chapter.

▶ The multicast MAC address is visualized

▶ Error messages from the network adapter configuration are visualized in an output window

⚠ **Attention**

The computer must be restarted after changes to the configuration have been made.

Note: This dialog is only available in English.

Parameter	Description
Primary physical LAN Adapter	Assignment of a network adapter to the physical connection for the primary LAN adapter.
	In the drop-down list, the adapters that are included on the configured bridge are listed. You can find information on this in the installation and configuration (on page 182) chapter.
Secondary physical LAN Adapter	Assignment of a network adapter to the physical connection for the secondary/redundant LAN adapter.
	In the drop-down list, the adapters that are included on the configured bridge are listed. You can find information on this in the installation and configuration (on page 182) chapter.
LAN_A/LAN_B Multicast MAC	Multicast MAC address for PRP-Supervision frames. This address for communication in the network is preset and cannot be changed.
	Note: Ensure that no other network adapter in your network uses this address!
	The last byte can be configured in the input field. The input format for this entry is HEX.
Error message	Output window with error messages.
OK	Accepts all changes and switches to statistics dialog (on page 193).
Cancel	Discards all changes and switches to statistics dialog (on page 193).