COPADATA
do it your way

zenon manual

Wizards

v.8.00

COPADATA

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.

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.

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.

2. Wizards

In order to be able to handle recurring tasks in the engineering phase easily and expeditiously, zenon offers wizards for different fields of engineering.

Users can also create their own wizards.

START WIZARDS

To start a wizard:

▶ In the **Tools** menu, select the **Start Editor wizards...** entry.

or

▶ press the short cut `Alt+F12`.

The dialog to select an Editor wizard is opened.
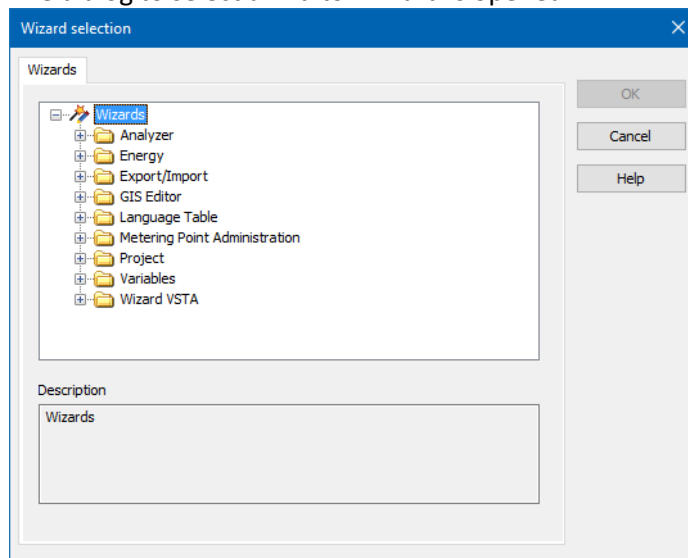
The wizard for project creation is automatically offered when a new project is created.

SETTINGS ZENON6.INI

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]`.

3. Topics

The following wizards are available in zenon:

▶ Analyzer (on page 8)

3.1   Analyzer

The zenon Analyzer has wizards that support correct setting of parameters for the SCADA system and the export of data from the SCADA system. The zenon SCADA system is currently supported.

Wizards:

- ▶ **Export Wizard for Analyzer 2.10** (on page 9): Supports the export of metadata from zenon for the zenon Analyzer, version 2.10.

- ▶ **Export Wizard for Analyzer 2.20** (on page 37): Supports the export of metadata from zenon for the zenon Analyzer, version 2.20.

- ▶ **Export Wizard for Analyzer 3.00** (on page 67): Supports the export of metadata from zenon for the zenon Analyzer, version 3.00.

- ▶ **Export Wizard for Analyzer 3.10** (on page 100): Supports the export of metadata from zenon for the zenon Analyzer, version 3.10.

- ▶ **Meaning and Waterfall Chart Wizard** (on page 134): Helps you prepare a zenon project for the processing of variable information in zenon Analyzer.

- ▶ **Sankey Wizard** (on page 160): supports you when creating Sankey diagrams that you can see in the Runtime or which are used in zenon Analyzer.

The wizards for zenon Analyzer are automatically installed when installing zenon 7.20. The **Analyzer Export Wizard** has its own DLL. **Meaning and Waterfall Chart Wizard** and **Sankey Wizard** share a DLL. Installation and maintenance thus differ from other zenon wizards. Analyzer wizards are automatically kept up to date with the updates from zenon from version 7.20. The update can, if required, also be carried out manually via the build file contained in the zenon Analyzer installation medium for zenon from version 7.10. These wizards are not updated by means of the update mechanism of the zenon wizard. For details, see the **Installation and Update** chapter in the **zenon Analyzer** manual.

SYNTAX FOR INPUTS IN ZENON

Input in in zenon depends on the version of zenon that is used.

UP TO ZENON 7.11

Up to and including zenon version 7.11, the meaning and waterfall model is entered in the zenon **Resources label** property. These can contain meanings for several categories.

The following is applicable to entries in the resource label property:

- ▶ Categories are separated by a semicolon (**;**).
- ▶ Areas within a category are separated by a comma (,).
- ▶ Categories are marked by an index:

- `ME=`: Identifies a (Meaning).
  Syntax: `ME=[main meaning as text],[additional meaning as text],[additional meaning as text],…;`
  Example: **ME=Station_1,Station_2;**

- `WF=`: Identifies a variable for the waterfall display.
  Syntax: `WF=[model name text],[line index INT],[index in column INT],[color code as text #XXXXXX];`

- Every other entry is also understood as a Meaning

Complete syntax for the **Resources label** property:
`ME=[meaning1],[meaning2],…,[meaningN];WF=[model name],[row index],[index in row],[color code];`

Attention: The **Resources label** property is limited to 256 characters in the zenon Editor.

FROM ZENON 7.20

From zenon 7.20, there are separate properties in zenon for the definition of Meaning and waterfall, as well as the input of a display name. These entries do not need an identification in front of them.

The following properties in the zenon   **Analyzer** variable properties group provide information for reports in the zenon Analyzer:

▸ **Display name**: Entry of a display name of the variable in zenon Analyzer. This must be unique in the project. The check is not carried out when issued in zenon, but when imported into zenon Analyzer. If this property is changed after the first export to a zenon Analyzer, these changes are not applied in the zenon Analyzer.

▸ **Meaning**: Entry of the (Meaning) of a variable in the zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. Several meanings are separated by a comma.
Syntax: `[Meaning1],[Meaning2],…,[MeaningN]`

▸ **Parameters for waterfall diagram**: Parameters of a variable for a waterfall diagram in zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. The individual parameters are separated by a comma. Several waterfalls are divided by a semicolon.
Syntax: `[model name],[row index],[index in row],[color code];`

Attention: All these input fields are limited to 256 characters in the zenon Editor.

▸ When exporting to zenon Analyzer, both the previous property and the new one are checked. If both are assigned, the entries of the new properties are taken on. Entries that are created using the **Meaning and Waterfall Chart Wizard** are always entered into the new properties.

3.1.1   Export Wizard for Analyzer 2.10

The zenon   Export Wizard for Analyzer 2.10 supports the export of metadata from zenon from version 7.10 SP0 for the zenon Analyzer 2.10.

The following can be exported:

- ▶ Data from the global project
  - Equipment models
  - Alarm/event classes
  - Alarm/event groups
  - User
- ▶ Data from selected projects:
  - Archives
  - Variables
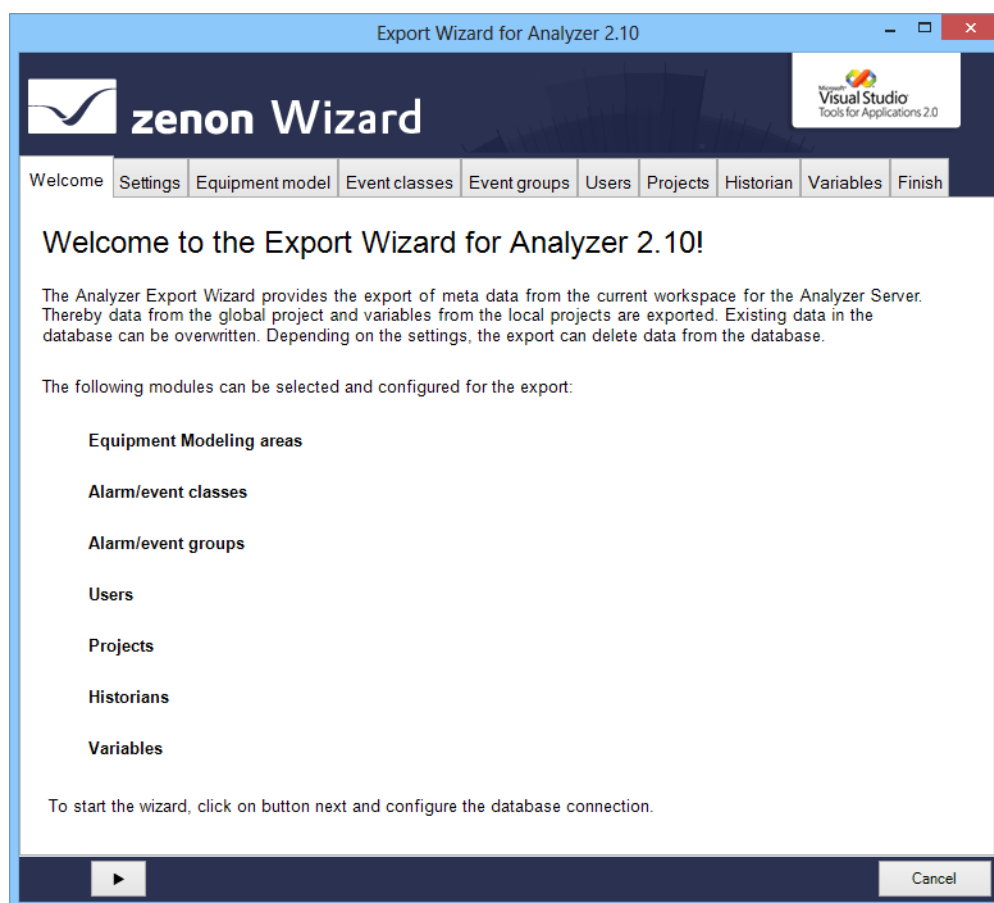
Note: The wizard is only available in English.

COMPATIBILITY:

The Analyzer Export Wizard works, depending on the version, with different zenon Analyzer versions and different zenon versions. For details, read the **Analyzer wizard compatibility** chapter.

Install and call up wizard

The wizard is automatically installed with zenon for each supported version of zenon Analyzer.

STARTING THE WIZARD

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].`

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.
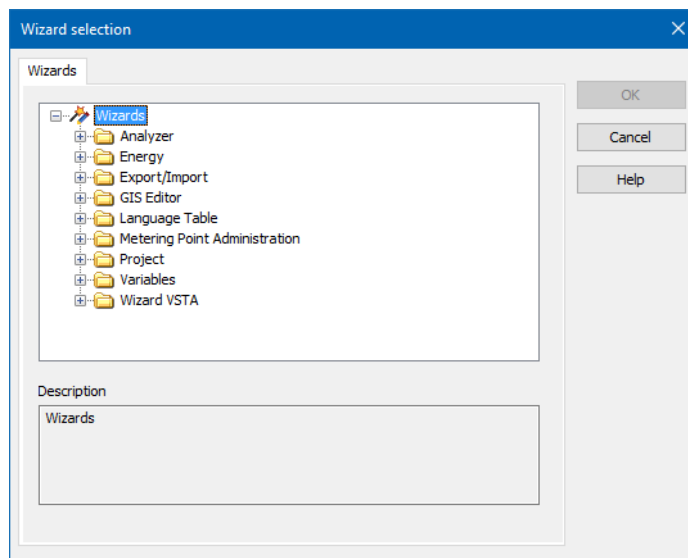
2. Navigate to the node **Analyzer**.

3. Select the **Export Wizard for Analyzer 2.10**.

4. Click on **OK.**

The wizard starts with the welcome page.

Start window

When the wizard is opened, you receive an overview page that lists all exportable objects.

The individual objects are configured for the export on individual tabs.
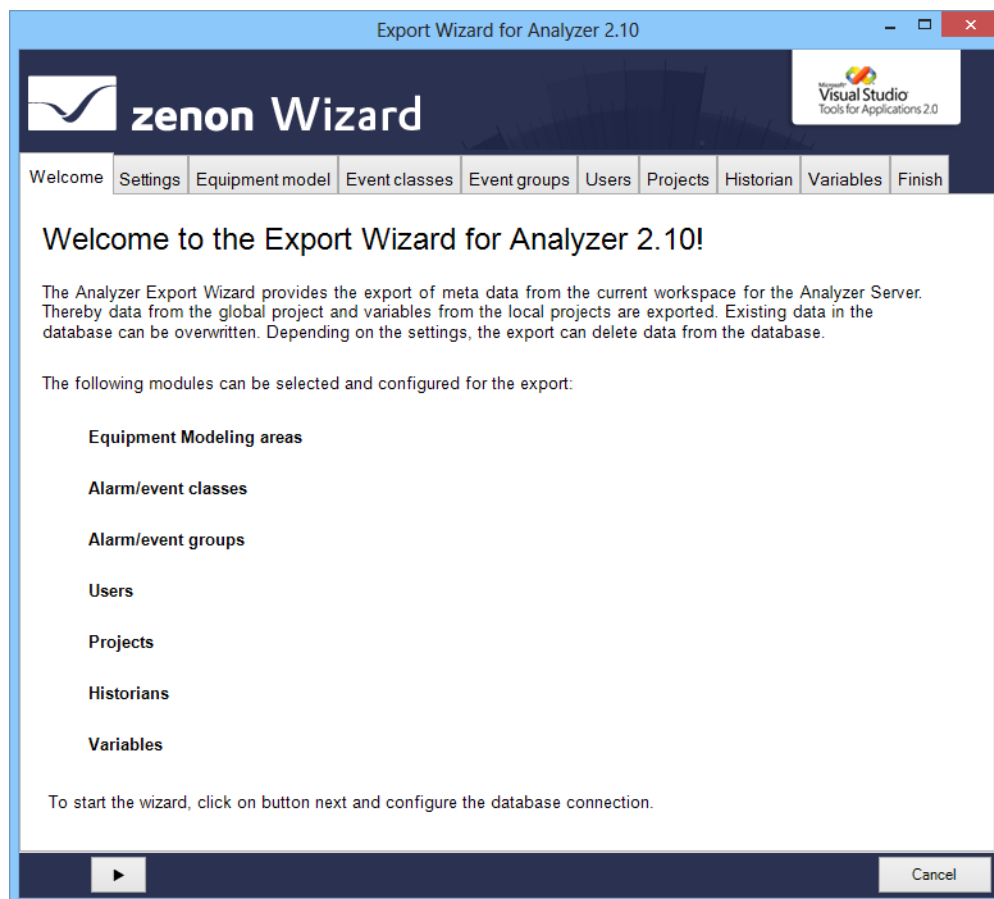
Click on the button with the **arrow** to navigate through the configuration (on page 41) of the export.

Configuration

When exporting with the **Analyzer Export Wizard**, all modules selected in the Settings (on page 43) tab are offered in sequence for detailed configuration. You get to the next level by clicking on the button with the **right arrow**. You can select individual tabs directly by clicking on the title of the tab.

The following tabs are available for configuration of the export:

- ▶ **Settings** (on page 43):
  Options for collection metadata

- ▶ **Equipment model**: (on page 47)
  Export of the model groups from the global project

- ▶ **Event classes** (on page 50):
  Alarm/Event classes from global project

- ▶ **Event Event groups** (on page 52):
  Alarm/event groups from global project

▶ **Users** (on page 54):
User from global project

▶ **Projects** (on page 55):
Projects from workspace

▶ **Historian** (on page 58):
Archives of the selected projects

▶ **Variables** (on page 60):
Variables of the selected projects

▶ **Finish** (on page 65):
Start of the export and output of the result
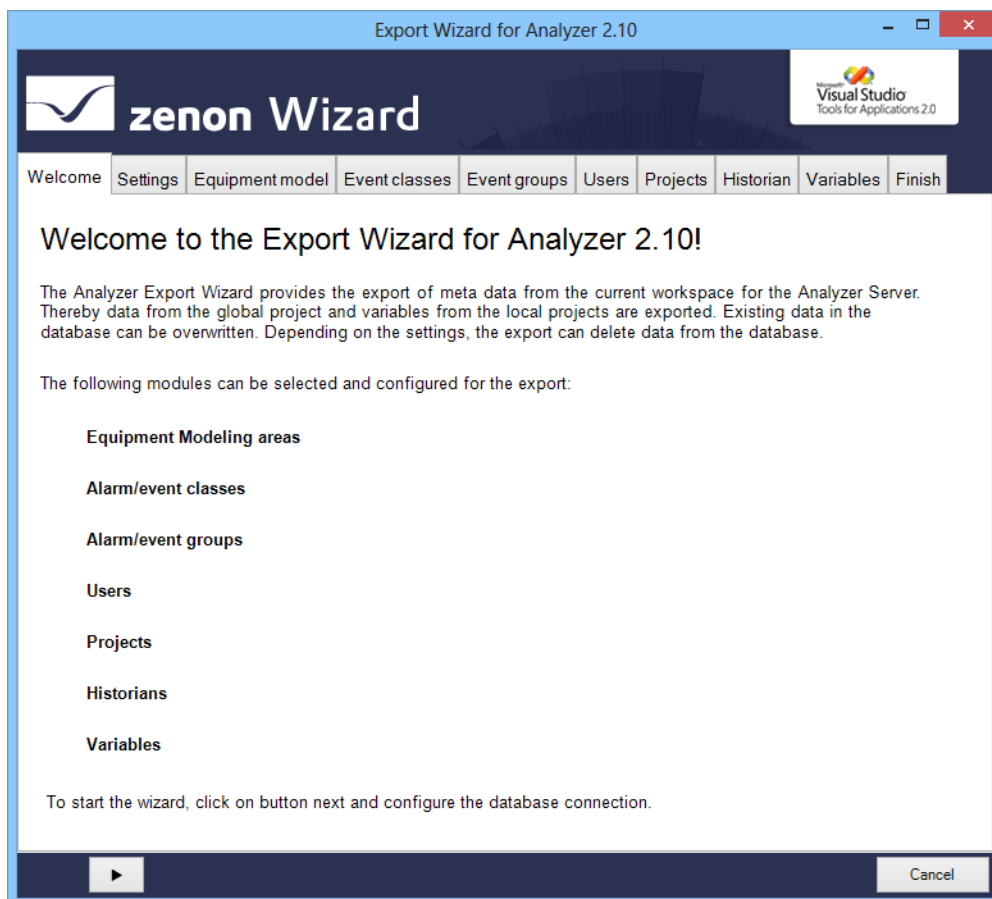
Attention: Only one global project can be exported to the database! Workspaces with projects that are to be exported to the database must include this global project.

Navigation

Navigation through the tabs is carried out by means of the navigation bar in the lower area of the wizard window:

Button	Description
Arrow left	Goes back one tab in the wizard process.
Arrow right	Goes forward one tab in the wizard process.
Export	Exports the data to the Analyzer database. Is only active if the **Finish** tab is opened.
Cancel	Closes the wizard without exporting. When closing, a dialog asks if the configuration is to be saved ▸ **Yes:** writes the settings configured in the **Settings** (on page 43) tab to the registry and closes the wizard; the wizard is opened with these settings the next time it is restarted ▸ **No:** closes the wizard without saving the configuration The configuration is saved for each specific user.

Individual tabs can also be selected by clicking directly on the title of the tab.

Settings

In this tab:

1. You define the database to which the wizard connects
2. You define general options for exporting

3. You start the data readout

Option	Description
Settings	Information and hints about current export processes.
Database settings	Connection settings to the Analyzer server.
DB host	Computer on which the database is located.
DB instance	Instance of the database.
DB name	Name of the database.
Authentication	Type of authentication: ▸ `Windows Authentication`: Windows login information is used. ▸ `SQL Server Authentication`: Login with data from an SQL server user.
User name	Entry of the user name. Only for login with `SQL Server Authentication`. Display only with `Windows Authentication`.
Password	Entry of the password. Only for login with `SQL Server Authentication`. No input possible with `Windows Authentication`.
Remember password	Password is saved for next connection. Only for login with `SQL Server Authentication`. Inactive for `Windows Authentication`.
Options	General options for the export.
Load every project of this workspace into the memory	`Active`: Loads all projects present in the workspace, even if they are not active and not set to **Keep project in memory**.

Keep the exisiting data in the Analyzer database	`Active`: Only entries from the workspace are written to the database.
	`Inactive`: Entries in the database are also updated or deleted. Exception: Projects are not deleted
Preselect existing Analyzer database content	`Active`: Entries already present in the database are preselected in the individual areas.
Load Data	
Load Data	Clicking on the button loads, depending on the **Load every project of this workspace into the memory** parameter - the data from the currently loaded project into the wizard. In doing so, a check is made to see if data is present in the Analyzer database. Pre-existing data is combined with the data from the workspace and loaded into the wizard. In the event of naming conflicts, a dialog to rectify the error is called up. If the loading of data has been successfully concluded, the export can be configured in the following tabs.

RENAME OBJECT

Objects must always be named the same in the Analyzer database and in zenon. If objects that are already present in the database are renamed in zenon, these changes can be accepted or rejected when the data is combined. Rejection of the changes leads to the wizard being closed, because only objects with identical names can be handled correctly.

DIALOG FOR RENAMING

In the event of conflicts in the naming of objects, a dialog for dealing with the error is opened:

Option	Description
List of amended objects	Contains all objects that were changed. Previous name and new name are displayed. The following renamed objects are displayed in the list: ▸ Name of the equipment models ▸ Names of the alarm/event classes ▸ Names of the alarm/event groups ▸ Project name ▸ Variable name Exceptions: ▸ Users are always recreated ▸ Archive names are only created once in the database as a **visual name** and can be overwritten in the zenon Analyzer
Rename	Renames all objects listed in the database, closes the dialog and stops reading in data.
Cancel	Leaves the previous name in the database, finishes reading in data and closes the wizard.

Equipment model

Configuration of the model group which should be exported from the global project.

⚠ **Attention**

Each equipment group in zenon may only be assigned to one individual time model.

If several time model groups are assigned, the Analyzer Wizard Export uses the first that it finds and exports this to the metadata of the Analyzer. Other time model groups are ignored.

Option	Description
Equipment modeling	Information and notes on exporting.
Selection of equipment/medium	Drop-down list to select what is offered in **List of equipment models/media** for configuration: ▸ `Plant`: displays equipment models ▸ `Media`: displays media
List of equipment models/media	List field with the possibility to select equipment models and model groups or media. To select an entry, activate the check box in front of the entry. In the list field the name, as it is stored in the database, is always displayed in the individual nodes. If the name was changed, the original name from the zenon project is displayed in brackets. Equipment groups that were deleted in the global project are no longer displayed. If, in the **Settings** tab, the option **Keep the existing data in the Analyzer database** was selected, amended objects in the database are deleted or updated.
Select all	Clicking on the button selects all equipment groups
Deselect all	Clicking on the button deselects all equipment groups.

Alarm/event classes

Configuration of the alarm/event classes which should be exported from the global project.

Option	Description
Alarm/event classes	Information and notes on exporting.
List of the alarm/event classes	List field with the possibility to select the alarm/event classes. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several rows are highlighted, a click in the check box sets the options for all selected rows. Alarm/event classes that were deleted in the global project are no longer displayed here. If, in the **Settings** tab, the option **Keep the existing data in the Analyzer database** was selected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Event groups

Configuration of the alarm/event groups which should be exported from the global project.

Option	Description
Alarm/event groups	Information and notes on exporting.
List of the alarm/event groups	List field in which you can select alarm/event groups. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several rows are highlighted, a click in the check box sets the options for all selected rows. Alarm/event classes that were deleted in the global project are no longer displayed here. If, in the **Settings** tab, the option **Keep the existing data in the Analyzer database** was selected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Users

Configuration of the user which should be exported from the global project.

Option	Description
Users	Information and notes on exporting.
User List	List field with selection possibility for users. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several rows are highlighted, a click in the check box sets the options for all selected rows. If, in the **Settings** tab, the option **Keep the existing data in the Analyzer database** was selected, amended objects in the database are deleted or updated. If a user was renamed in zenon they are considered new and recreated in the project. The previous user is deleted.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Projects

Configuration of the local projects which should be exported. The names for the server and standby-server can be changed here. To do this:

1. Highlight the project in the list of projects
2. Enter the desired name for the server and standby-server

If the name of the Server or the Standby Server is changed in the zenon project, this is only updated in the Analyzer database if the **Network active** setting was activated in the project properties.

Option	Description
Projects	Information and notes on exporting.
Project list	List field with selection possibility for projects. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several rows are highlighted, a click in the check box sets the options for all selected rows. If, in the **Settings** tab, the option **Keep the existing data in the Analyzer database** was selected, amended objects in the database are deleted or updated.
Server	Address of the server for the project selected in the list window.
Standby	Address of the server for the project selected in the list window.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Historian

Selection of the archive from the selected projects (on page 55). Only base archives are displayed. Aggregated archives are not displayed in the list, but are also selected with the base archives and written to the database.

Option	Description
Historian	Information and notes on exporting.
Archive list	List field with possibility to select for archives. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several rows are highlighted, a click in the check box sets the options for all selected rows. If, in the **Settings** tab, the option **Keep the existing data in the Analyzer database** was selected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Variables

Configuration of the variables from the local project which should be exported. When selecting variables, the entries offered can be prefiltered.

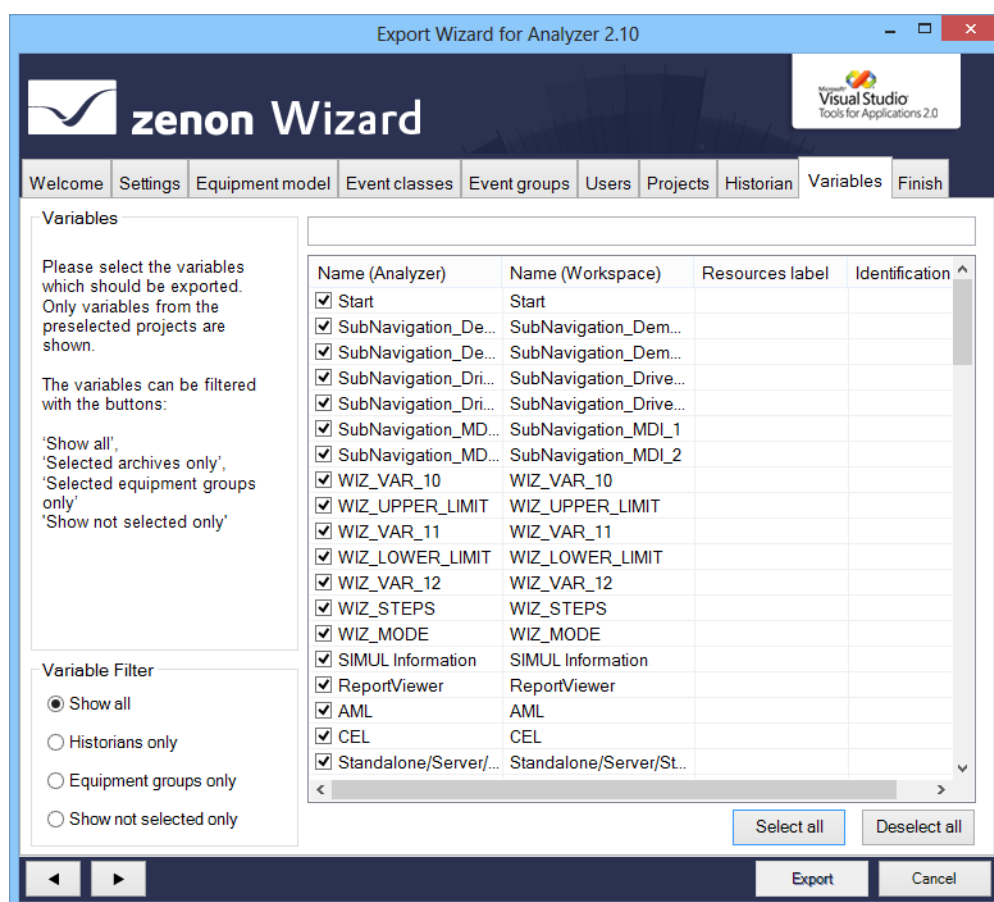| Option	Description
Variables	Information and notes on exporting.
Variable Filter	Selection of the variable filter using the following option fields: ▸ **Show all**: All variables are displayed. ▸ **Historians only**: Only archive variables are displayed. ▸ **Equipment groups only**: Only variables are displayed which are part of the selected Equipment model (on page 47). ▸ **Show not selected only**: Only variables that were not selected are displayed.
Filter row	Input of alphanumerical characters according to which the **List of variables** is to be filtered.
List of variables	List field with possibility to select variables. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several rows are highlighted, a click in the check box sets the options for all selected rows. If, in the **Settings** tab, the option **Keep the existing data in the Analyzer database** was selected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

RULES FOR THE EXPORT OF VARIABLES WITH REACTION MATRICES

If linked variables are exported with reaction matrices, the limit value text and the status value of the reaction matrix statuses are also exported to the **STATUSNAME** table in the metadata database of the Analyzer. Because only certain states can be evaluated in the reports, they must be pre-sorted using the wizard.

The following statuses of the reaction matrices can be exported or excluded:

Rema	Rules
Numeric	▸ The default status is ignored. ▸ If several statuses with the same status and limit value condition are set, then only the first status and its status text are exported. ▸ Only statuses with a value that is equal to a limit value are exported (limit value condition). ▸ The limit value conditions `greater than`, `less than`, `as desired` and `range` are ignored.
Multi numeric	▸ Correspond to the rules for **numeric**. ▸ Substatuses are also ignored.

Binary	▸ Only statuses that have value bits set consistently from right to left in the bit mask (`0` or `1`) are set.
	For example:
	`........ ....10.. 1`
	`........ .....100 .`
	`........ .....100 1`
	The following are ignored, for example
	`........ ........ 1`
	`........ ......00 1`
	`........ .10..100 1`

Multi binary	▸ Correspond to the rules for **Binary**. ▸ In addition, substatuses and statuses are also ignored with edge definitions in the bit mask.
String	▸ Are completely ignored and not exported.

Finish

To export the configured data:
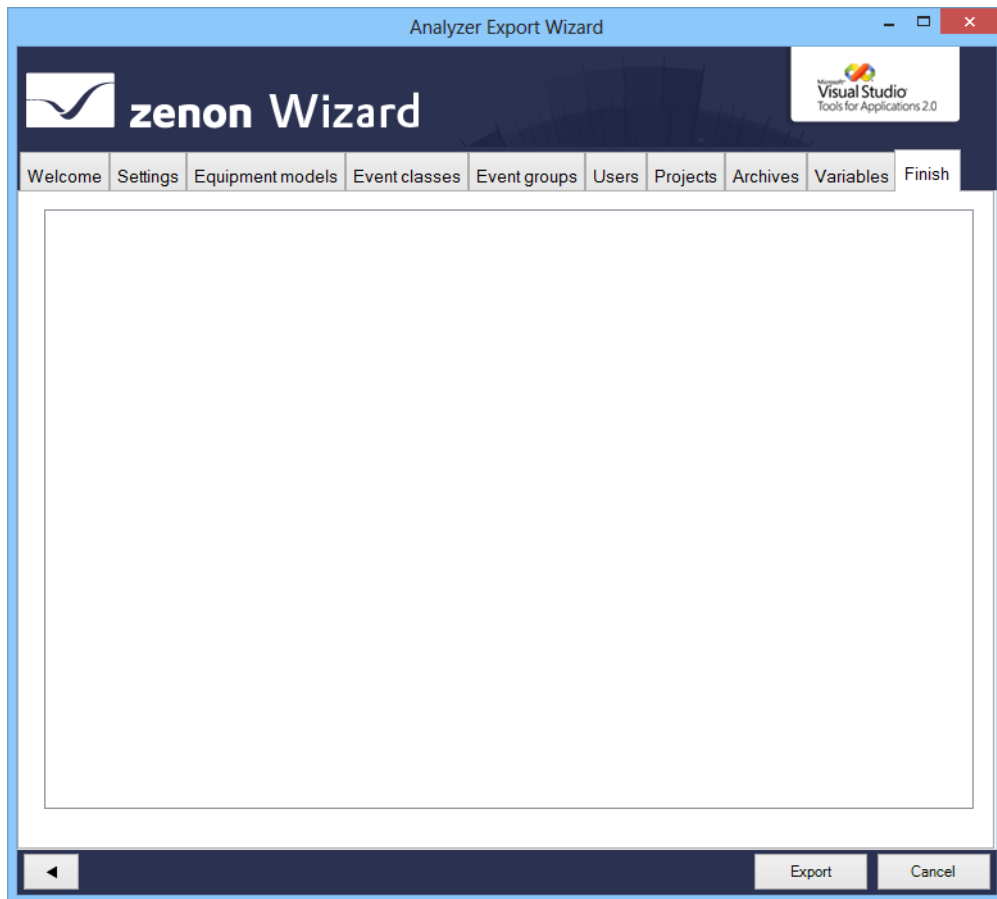
1. In the Finish tab, click on the **Export** button

2. the export is started

3. The exported elements are shown in the output window with the attendant success and error messages
   In addition, the number of objects that have been added, replaced or deleted, and the number of errors that occurred are shown.

4. Click on **Close** to close the wizard

RECONFIGURING THE WIZARD

To reconfigure the wizard:

1. Open the Settings (on page 43) tab

2. click on button **Load data**

3. Configure the tabs

Close wizard

To close the wizard:

▶ Click on the **Cancel** button

▶ a dialog prompts whether the configuration should be saved

- Clicking on **Yes** writes the settings configured in the Settings (on page 43) tab to the registry and closes the wizard; the wizard is opened with this configuration next time it is started

- Click on **No** closes the wizard and the configuration is not saved.

3.1.2 Export Wizard for Analyzer 2.20

The zenon Analyzer Export Wizard 2.20 supports the export of metadata from zenon from version 7.0 SP0 for the zenon Analyzer 2.20.

The following can be exported:

▶ Data from the global project

- Equipment models

- Alarm/event classes

- Alarm/event groups

- User

▶ Data from selected projects:

- Archives

- Variables, with:

  - **Display name** (see **visual names** (on page 64) section)

  - **Meaning** (see **meaning** (on page 64) section)

  - **Parameters for waterfall diagram** (see **parameter waterfall chart** (on page 64) section)

▶ Sankey diagrams (see **Sankey charts** (on page 38) section)
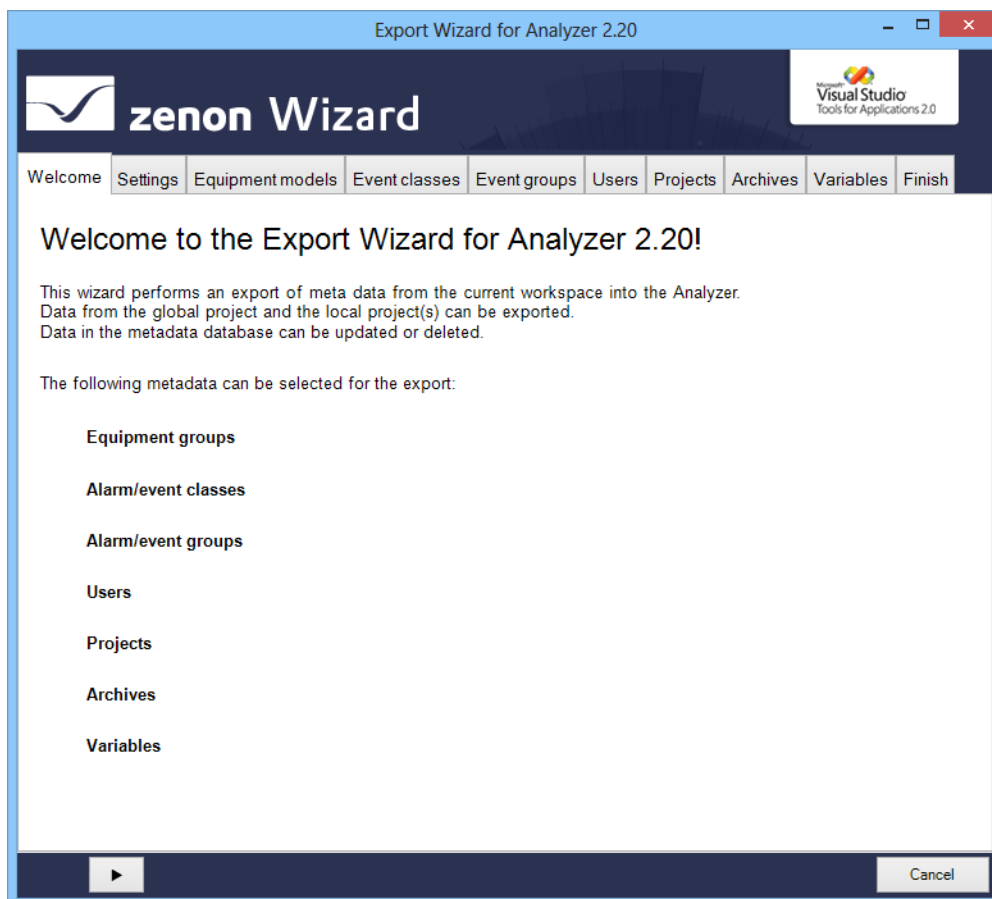
Note: The wizard is only available in English.

COMPATIBILITY:

The Analyzer Export Wizard works, depending on the version, with different zenon Analyzer versions and different zenon versions. For details, read the **Analyzer wizard compatibility** chapter.

Sankey diagrams

The wizard automatically reads the definition for Sankey diagrams from all activated projects (on page 43) and the global project. These are in the zenon project folder `\Files\Others`.
For this, the following applies:

▶ Only valid XML files that were created for the zenon Analyzer are taken into account.
Diagrams that have the **Analyzer** and **Valid** attributes set to `True` in the **Sankey** XML file are valid. All other Sankey diagrams are ignored and not loaded.

▶ All Sankey diagram definitions are written to the zenon Analyzer metadata database in the **SANKEY_DIAGRAMM**, **SANKEY_OBJECT** and **SANKEY_VARIABLE** tables.

▶ Diagrams are added depending on the setting for the **Keep the existing data in the Analyzer database** option (on page 43):

• `Active`: Only new diagrams are added to the Analyzer database.

• `Inactive`: New diagrams are added and existing diagrams are updated.

▶ Diagrams deleted in zenon (XML files) are not deleted in the Analyzer. Diagrams can only be deleted in the database directly in zenon Analyzer.

▶ For the adding or updating of diagrams, the following must apply to all required zenon variables:

• Be selected via the **Variables** (on page 60) tab
  or

• already be in the database

If variables that are required for the Sankey diagram are not selected for export, the Sankey diagram is not exported.

▶ If the Sankey diagram already exists, the metadata database tables are updated according to the changes.

▶ Clicking on the **Export** button in the **Finish** tab starts the export of the Sankey diagrams from zenon in to zenon Analyzer.
The diagrams are only exported once all other data such as projects or variables have been exported. The success of the export is shown in the message list of the **Finish** tab.

> ⚠ **Attention**
>
> *The import of Sankey diagrams is carried out automatically in the background. There are no user interface or configuration options available.*

Install and call up wizard

The wizard is automatically installed with zenon for each supported version of zenon Analyzer.

STARTING THE WIZARD

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]`.
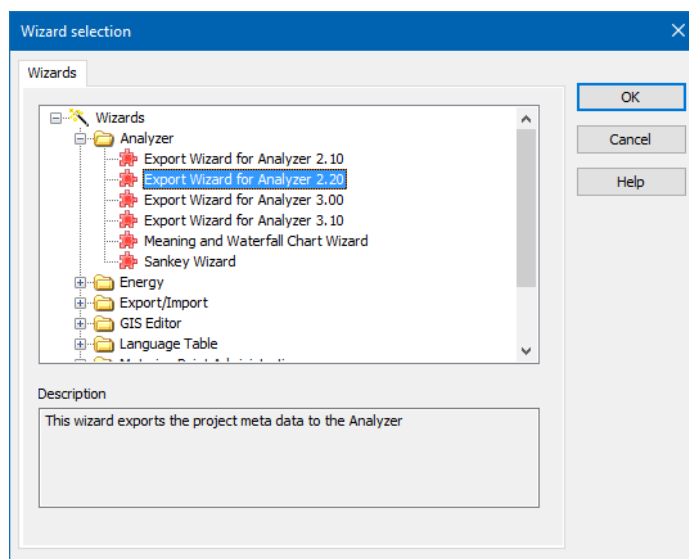
To start the wizard:

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

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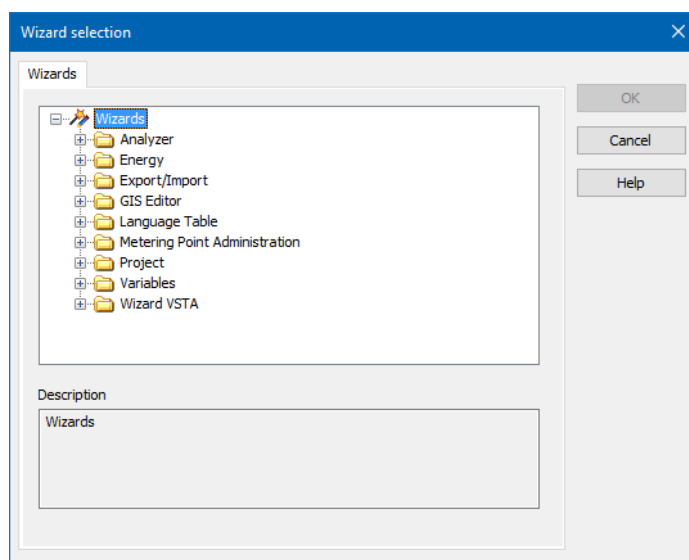
2. Navigate to the node **Analyzer**.

3. Select the **Export Wizard for Analyzer 2.20**.

4. Click on **OK.**

   The wizard starts with the welcome page.

Start window

When the wizard is opened, you receive an overview page that lists all exportable objects.

The individual objects are configured for the export on individual tabs.
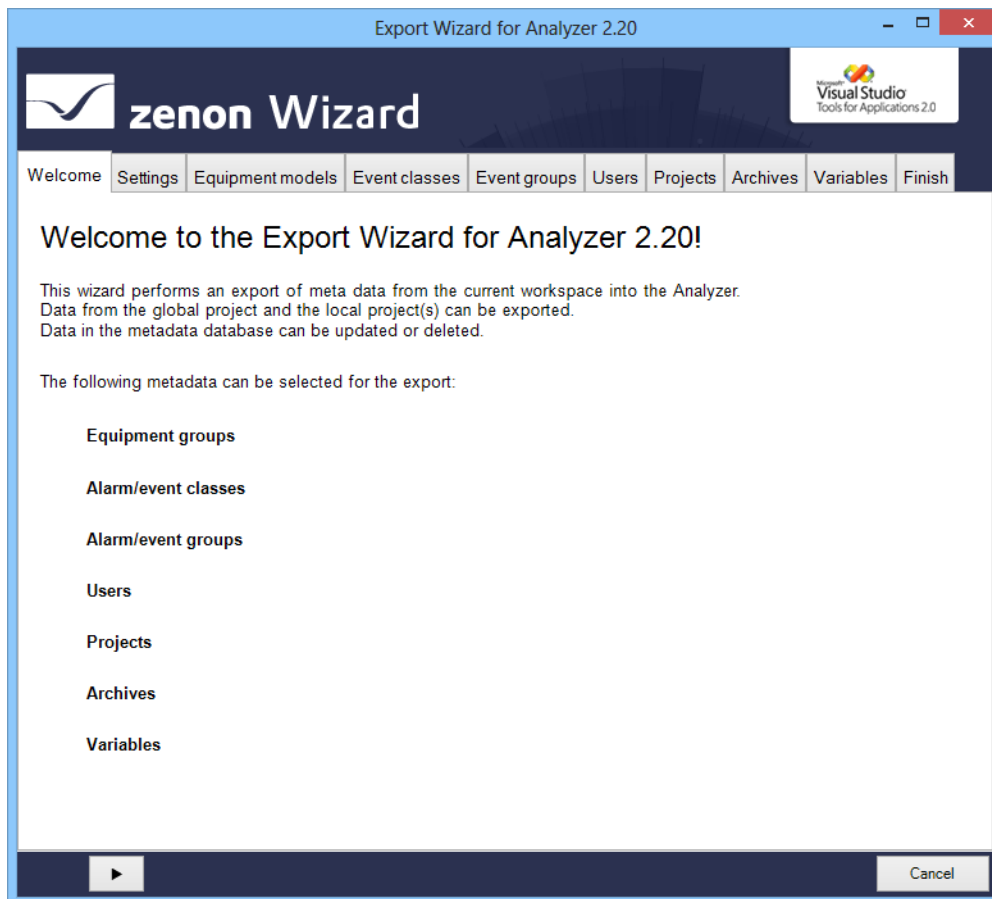
Click on the button with the **arrow** to navigate through the configuration (on page 41) of the export.

Configuration

When exporting with the Analyzer Export Wizard, all modules available for export are offered for detailed configuration. Only the selected data is exported. The export of Sankey diagrams (on page 38) is carried out in the background, without the possibility of configuration. You get to the next level by clicking on the button with the **right arrow**. You can also select individual tabs directly by clicking on the title of the tab.

The following tabs are available for configuration of the export:

▶ Settings (on page 43): Options for the export of metadata

▶ Equipment models: (on page 47) Export of the equipment groups from the global project

- ▶ Event classes (on page 50): Alarm/Event classes from global project

- ▶ Event groups (on page 52): Alarm/event groups from global project

- ▶ Users (on page 54): User from global project

- ▶ Projects (on page 55). Projects from workspace

- ▶ Archives (on page 58): Archives of the selected projects

- ▶ Variables (on page 60): Variables of the selected projects

- ▶ Finish (on page 65): Start of the export and output of the result

Navigation

Navigation through the tabs is carried out by means of the navigation bar in the lower area of the wizard window:

Button	Description
Arrow left	Goes back one tab in the wizard process.
Arrow right	Goes forward one tab in the wizard process.
Export	Exports the data to the Analyzer database. Is only active if the **Finish** tab is opened.
Cancel	Closes the wizard without exporting. When closing, a dialog asks if the configuration is to be saved ▸ **Yes:** Writes the settings set in the **Settings** (on page 43) tab to the registry and closes the wizard. The wizard is opened with this configuration the next time it is started. ▸ **No:** Closes the wizard without saving the configuration The configuration is saved for each specific user.

Individual tabs can also be selected by clicking directly on the title of the tab.

Settings

In this tab:

1. You define the database to which the wizard connects
2. You define general options for exporting

3. You start the data readout

SETTINGS

Option	Description
Settings	Information and hints about current export processes.

DATABASE SETTINGS

Parameter	Description
Database settings	Connection settings to the Analyzer server.
DB host	Computer on which the database is located.
DB instance	Instance of the database.
DB name	Name of the database.
Authentication	Type of authentication: ▸ `Windows Authentication`: Windows login information is used. ▸ `SQL Server Authentication`: Login with data from an SQL server user.
User name	Entry of the user name. Only for login with `SQL Server Authentication`. Display only for `Windows Authentication`.
Password	Entry of the password. Only for login with `SQL Server Authentication`. No input possible with `Windows Authentication`.
Remember password	Password is saved for next connection. Only for login with `SQL Server Authentication`. Inactive with `Windows Authentication`.

PROJECTS

Parameter	Description
Projects	List of the available projects in the current zenon workspace. The checkbox shows whether the data of the project is used:

	▸ `Active`: Project is used. Projects that are active in the memory are pre-selected. Inactive projects can be added by means of selection with a checkbox.

OPTIONS

Parameter	Description
Options	General options for the export.
Keep the existing data in the Analyzer database	▸ `Active`: Only completely new entries from the workspace are written to the database. Note: If linkings from variables, archives etc. are changed or new ones are created, these are not transferred. If these are also transferred, the checkbox must be set to `Inactive` ▸ `Inactive`: Entries in the database are also updated or deleted. New entries are created, amended entries are updated and deleted entries are removed. Exception: Projects and Sankey diagrams are not deleted.
Preselect existing Analyzer database content	▸ `Active`: Entries already present in the database are preselected in the individual areas.

LOAD DATA

Load Data	Clicking on the button loads, depending on the **Load every project of this workspace into the memory** parameter - the data from the currently loaded project into the wizard. In doing so, a check is made to see if data is present in the Analyzer database. Pre-existing data is combined with the data from the workspace and loaded into the wizard. In the event of naming conflicts, a dialog to rectify the error is called up. If the loading of data has been successfully concluded, the export can be configured in the following tabs.

RENAME OBJECT

Objects must always be named the same in the Analyzer database and in zenon. If objects that are already present in the database are renamed in zenon, these changes can be accepted or rejected when the data is combined. Rejection of the changes leads to the wizard being closed, because only objects with identical names can be handled correctly.

DIALOG FOR RENAMING

In the event of conflicts in the naming of objects, a dialog for dealing with the error is opened:

Parameter	Description
List of amended objects	Contains all objects that were changed. Previous name and new name are displayed. The following renamed objects are displayed in the list: ▸ Name of the equipment models ▸ Names of the alarm/event classes ▸ Names of the alarm/event groups ▸ Project name ▸ Variable name Exceptions: ▸ Users are always recreated ▸ Archive names are only created once in the database as a **Visualname** and can be overwritten in the zenon Analyzer
Rename	Renames all objects listed in the database, closes the dialog and stops reading in data.
Cancel	Leaves the previous name in the database, finishes reading in data and closes the wizard.

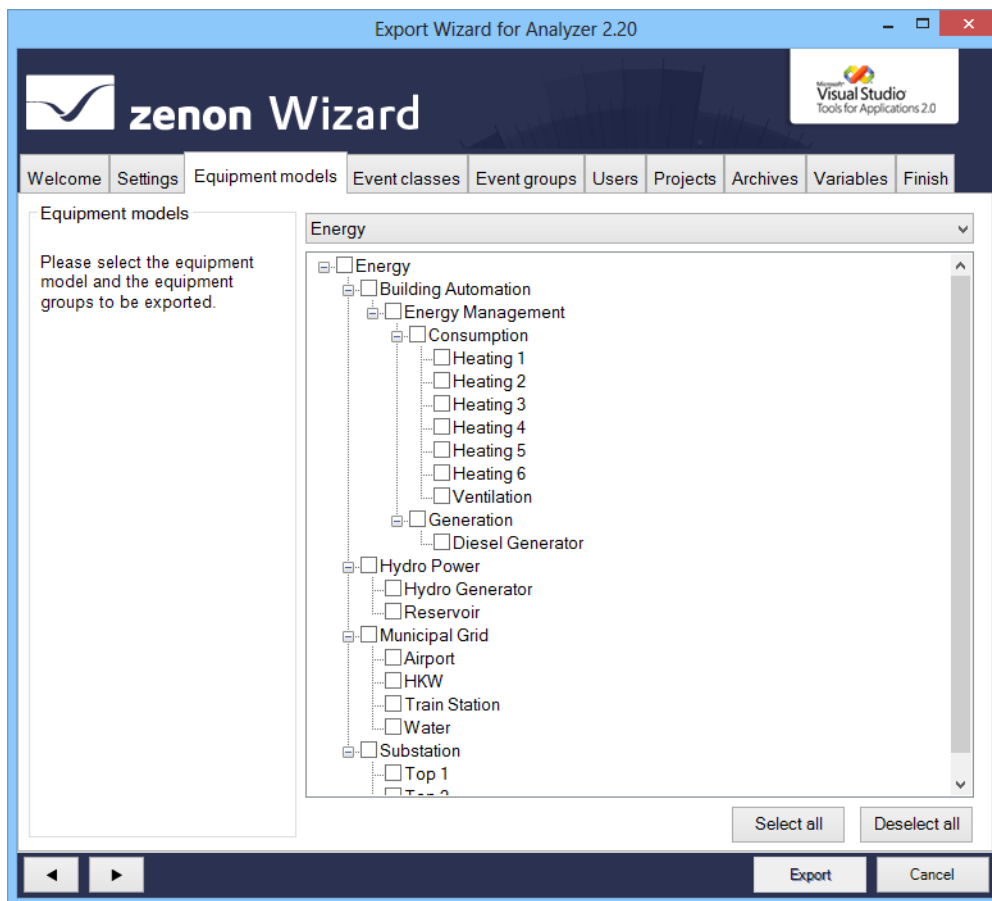## Equipment models

Configuration of the model group which should be exported from the global project.

> ⚠ **Attention**
>
> *Each equipment group in zenon may only be assigned to one individual time model.*
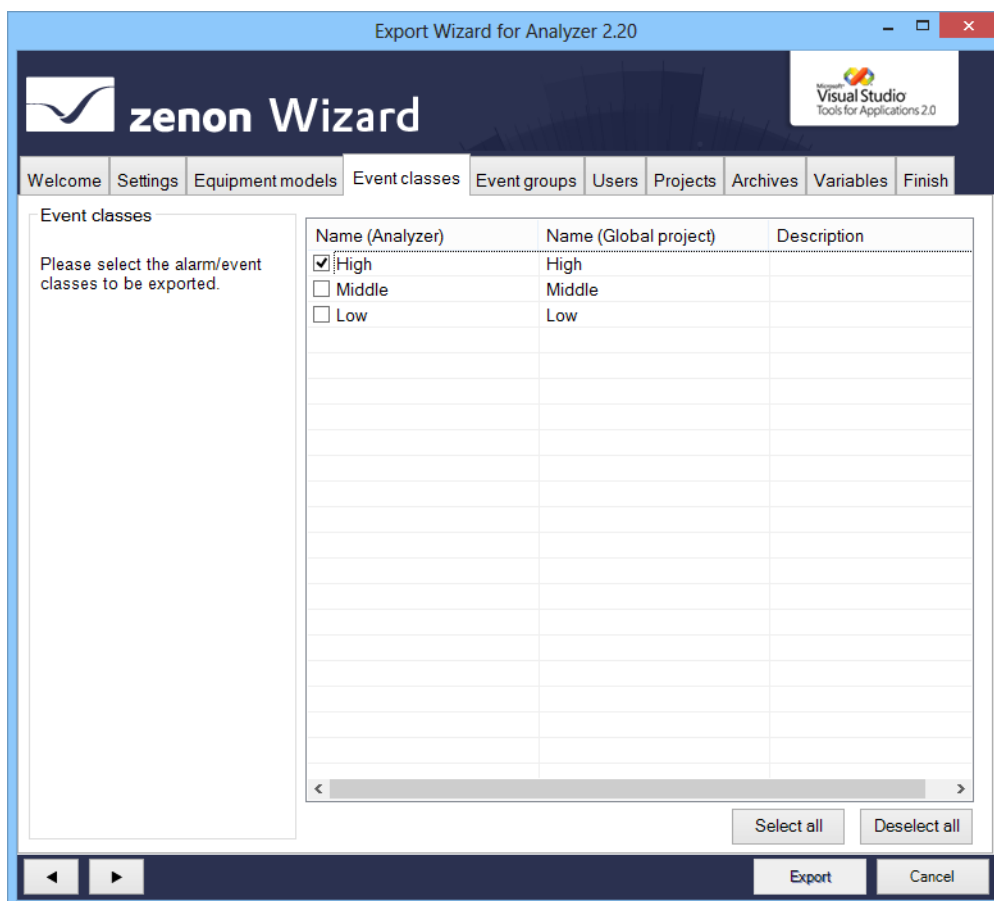>
> *If several time model groups are assigned, the Analyzer Wizard Export uses the first that it finds and exports this to the metadata of the Analyzer. Other time model groups are ignored.*

Option	Description
Equipment models	Information and notes on exporting.
Selection of equipment/medium	Drop-down list to select a model that is offered in the **Equipment models/media** list for configuration.
List of equipment models/media	List field with the possibility to select equipment models and model groups or media. To select an entry, activate the check box in front of the entry.
	In the list field the name, as it is stored in the database, is always displayed in the individual nodes. If the name was changed, the original name from the zenon project is displayed in brackets.
	Equipment groups that were deleted in the global project are no longer displayed.
	If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Clicking on the button selects all equipment groups
Deselect all	Clicking on the button deselects all equipment groups.

Alarm/event classes

Configuration of the alarm/event classes which should be exported from the global project.

Option	Description
Event classes	Information and notes on exporting.
List of the alarm/event classes	List field with the possibility to select the alarm/event classes. To select an entry, activate the check box in front of the entry.

Sorting: Clicking on the column identifier sorts the entries after this column upwards or downwards.

Multiple selection: If several lines are highlighted, the selection applies for all selected lines.

Alarm/event classes that were deleted in the global project are no longer displayed here.

If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated. |
| **Select all** | Selects all entries in the list and activates the checkboxes. |
| **Deselect all** | Selects all entries in the list and deactivates the check boxes. |

Event groups

Configuration of the alarm/event groups which should be exported from the global project.

Option	Description
Event groups	Information and notes on exporting.
List of the alarm/event groups	List field in which you can select alarm/event groups. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. Alarm/event classes that were deleted in the global project are no longer displayed here. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Users

Configuration of the user which should be exported from the global project.

Option	Description
Users	Information and notes on exporting.
User List	List field with selection possibility for users. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated. If a user was renamed in zenon they are considered new and recreated in the project. The previous user is deleted.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Projects

Configuration of the local projects which should be exported. The names for **Server 1** and **Server 2** can be changed here.

To change the name of a Server or Standby Server:

1. Highlight the project in the list of projects.
2. Enter the desired name for **Server 1** and **Server 2**.

If the name of **Server 1** or **Server 2** is changed in the zenon project, then this is only updated in th analyzer database if the **Network active** setting was activated in the project properties.

Option	Description
Projects	Information and notes on exporting.
Project list	List field with selection possibility for projects. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Server 1	Address of the **Server 1** for the project selected in the list window.
Server 2	Address of the **Server 2** for the project selected in the list window.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Archives

Selection of the archive from the selected projects (on page 55). Only base archives are displayed. Aggregated archives are not displayed in the list, but are also selected with the base archives and written to the database.

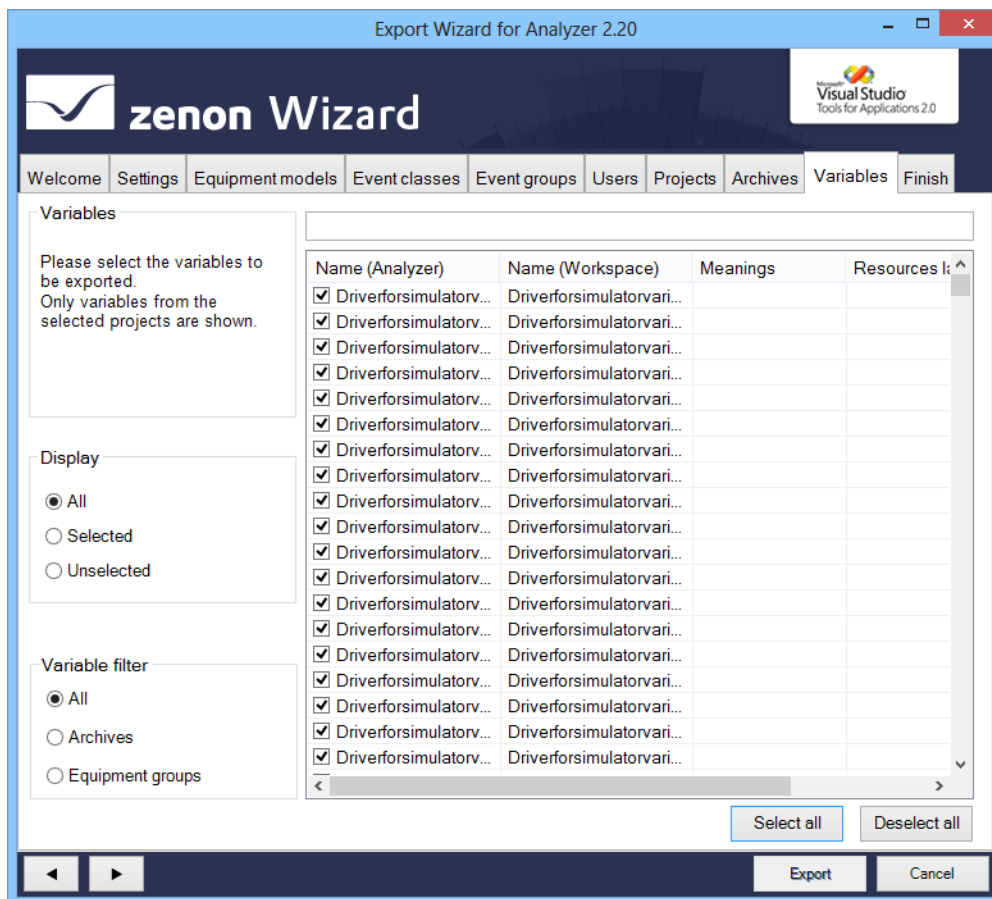| Option	Description
Archives	Information and notes on exporting.
Archive list	List field with possibility to select for archives. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Variables

Configuration of the variables to be exported from the selected local projects (on page 55). When selecting variables, the entries offered can be prefiltered.

Option	Description
Variables	Information and notes on exporting.
Display	Selection of which variables are displayed, via the following option fields: ▸ **All**: All variables are displayed. ▸ **Selected**: Only variables that have already been selected are displayed. ▸ **Unselected**: Only variables that have not yet been selected are displayed.
Variable filter	Selection of the variable filter using the following option fields: ▸ **All**: All variables are displayed. ▸ **Archives**: Only archive variables are displayed. ▸ **Equipment groups**: Only variables are displayed which are part of the selected Equipment model (on page 47).
Filter row	Input of alphanumerical characters according to which the **List of variables** is to be filtered.
List of variables	List field with possibility to select variables. To select an entry, activate the check box in front of the entry. The following are displayed: ▸ **Name (Analyzer)**: Name in zenon Analyzer. ▸ **Name (Workspace)**: Can be issued from zenon 7.20 in the Editor by means of the **Display name** property. Must be unique in the project. See also chapter **Visual name** (on page 64) ▸ **Meaning**: Can be issued from zenon 7.20 in the Editor by means of the **Meaning** property. See also chapter **Meaning** (on page 64) ▸ **Ressource label**: corresponds to the **Resources label** property in zenon. Is used for zenon up to and including version 7.11 for **meaning** (on page 64) and **parameter waterfall diagram** (on page 64). From version 7.20, there are separate properties available for this in zenon. ▸ **Identification**: It corresponds to the **Identification** property in zenon. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines.

	If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

RULES FOR THE EXPORT OF VARIABLES WITH REACTION MATRICES

If linked variables are exported with reaction matrices, the limit value text, the limit value color and the status value of the reaction matrix statuses are also exported to the **STATUSNAME** table in the metadata database of the Analyzer. Because only certain states can be evaluated in the reports, they must be pre-sorted using the wizard.

The following statuses of the reaction matrices can be exported or excluded:

Rema	Rules
Numeric	▸ The default status is ignored. ▸ If several statuses with the same status and limit value condition are set, then only the first status and its status text are exported. ▸ Only statuses with a value that is equal to a limit value are exported (limit value condition). ▸ The limit value conditions `greater than`, `less than`, `as desired` and `range` are ignored.
Multi numeric	▸ Correspond to the rules for **numeric**. ▸ Substatuses are also ignored.

Binary	▸ Only statuses that have value bits set consistently from right to left in the bit mask (`0` or `1`) are set.
	 For example:
	 `......... ....10.. 1`
	 `......... .....100 .`
	 `......... .....100 1`
	 The following are ignored, for example
	 `......... ........ 1`
	 `......... ......00 1`
	 `......... .10..100 1`

Multi binary	▸ Correspond to the rules for **Binary**. ▸ In addition, substatuses and statuses are also ignored with edge definitions in the bit mask.
String	▸ Are completely ignored and not exported.

IMPORT OF VARIABLE INFORMATION FROM ZENON

The following properties in the zenon   **Analyzer** variable properties group provide information for reports in the zenon Analyzer:

▸ **Display name**: Entry of a display name of the variable in zenon Analyzer. This must be unique in the project. The check is not carried out when issued in zenon, but when imported into zenon Analyzer. If this property is changed after the first export to a zenon Analyzer, these changes are not applied in the zenon Analyzer.

▸ **Meaning**: Entry of the (Meaning) of a variable in the zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. Several meanings are separated by a comma. Syntax: `[Meaning1],[Meaning2],…,[MeaningN]`

▸ **Parameters for waterfall diagram**: Parameters of a variable for a waterfall diagram in zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. The

individual parameters are separated by a comma. Several waterfalls are divided by a semicolon.
Syntax: `[model name],[row index],[index in row],[color code];`

Visual name

The wizard reads the **Analyzer/Display name** property when loading the zenon workspace from zenon 7.20 and displays this for each variable in the **Variables** (on page 60) tab. The following applies for visual names:

▶ The name must be unique for each project.

▶ Names in a project that appear several tines are highlighted in red.

▶ The **Display name** are entered when writing the data to the metadata database.

▶ In the event of duplicated name within a project, the **Display name** is only entered for the first variable found. For the second variable, the **Name** of the variables is entered in zenon.

▶ The **Display name** is only set when the variable is exported for the first time. If this is subsequently changed in the Editor, this change is no longer applied in the metadata database. Changes are of course applied to a new metadata database when exporting to a new database.

▶ With a version of zenon before 7.20, the visual name is always taken from the zenon **Identification** property.

Meaning

From zenon 7.20, the wizard reads the **Analyzer/Meaning** property and displays this for each variable in the **Variables** (on page 60) tab.
The following applies for meanings:

▶ If there are entries for **Meaning**, the corresponding entries in the **Resources label** are ignored.

▶ If there are no entries, corresponding entries from the **Resources label** are accepted.

▶ The identification **ME=** is no longer necessary but can continue to be used. If a variable is assigned several meanings, a comma is used as a separator.

▶ With a version of zenon before 7.20, the meaning is always taken from the zenon **Resources label** property.
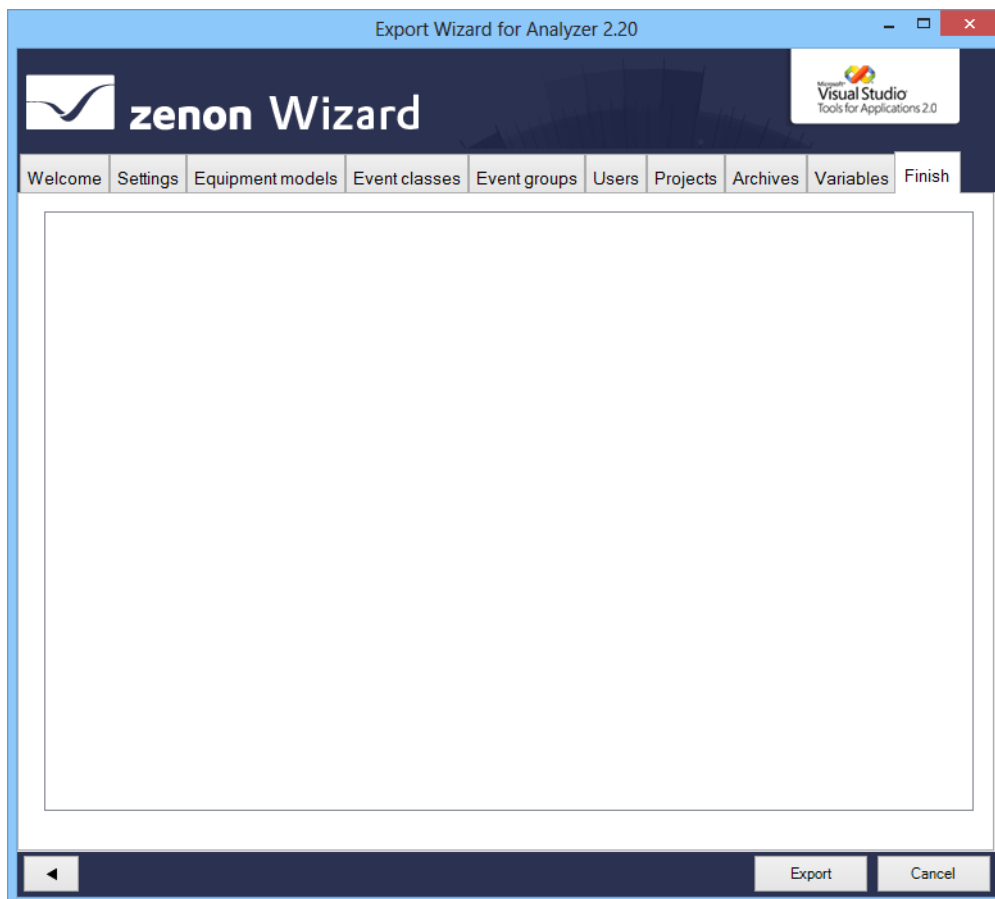
Parameter waterfall diagram

The wizard reads the **Analyzer/Parameters for waterfall diagram** property when loading the zenon workspace from zenon 7.20 and displays this for each variable in the **Variables** (on page 60) tab. The following applies for waterfall:

▶ If there are entries for **Parameters for waterfall diagram**, the corresponding entries in the **Resources label** are ignored.

▶ If there are no entries, corresponding entries from the **Resources label** are accepted.

▶ The identification **WF**= is no longer necessary but can continue to be used. The individual elements of a model are separated by a comma. If several waterfall models are assigned to a variable, a semicolon is used as a separator.

▶ With versions of zenon before 7.20, the waterfall parameters are always taken from the zenon **Resources label** property.
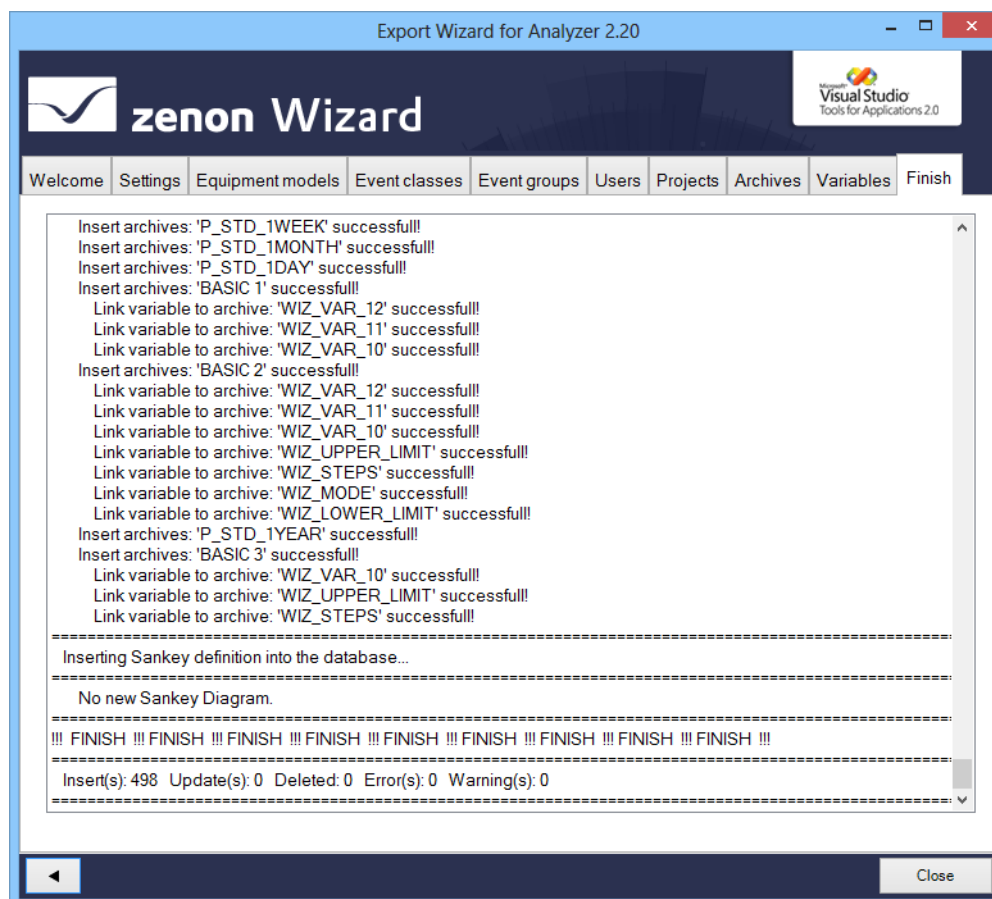
Finish

To export the configured data:

1. In the Finish tab, click on the **Export** button.

2. the export is started

3. The exported elements are shown in the output window with the attendant success and error messages

In addition, the number of objects that have been added, replaced or deleted, and the number of errors that occurred are shown.

4. Click the **Close** button to close the wizard

RECONFIGURING THE WIZARD

To reconfigure the wizard:

1. Open the **Settings** (on page 43) tab.

2. Click on the **Load data** button.

3. Configure the tabs.

Close wizard

To close the wizard:

▶ Click on the **Cancel** button .

▶ A dialog prompts whether the configuration should be saved.

- **Yes: W**rites the settings set in the **Settings** (on page 43) tab to the registry and closes the wizard. The wizard is opened with this configuration the next time it is started. The configuration is saved for each specific user.

- **No:** Closes the wizard without saving the configuration

3.1.3   Export Wizard for Analyzer 3.00

The zenon **Export Wizard for Analyzer 3.00** supports the export of metadata from zenon from version 7.11 SP0 for the zenon Analyzer 3.00.

The following can be exported:

▶ Data from the global project

- Equipment models

- Alarm/event classes

- Alarm/event groups

- User

▶ Data from selected projects:

- Archives

- Variables, with:

  - **Display name** (see **visual names** (on page 95) section)

  - **Meaning** (see **meaning** (on page 95) section)

  - **Parameters for waterfall diagram** (see **parameter waterfall chart** (on page 69) section)

▶ Sankeydiagrams (see Sankey **diagrams** (on page 68) section)

▸ Efficiency classes (on page 95)
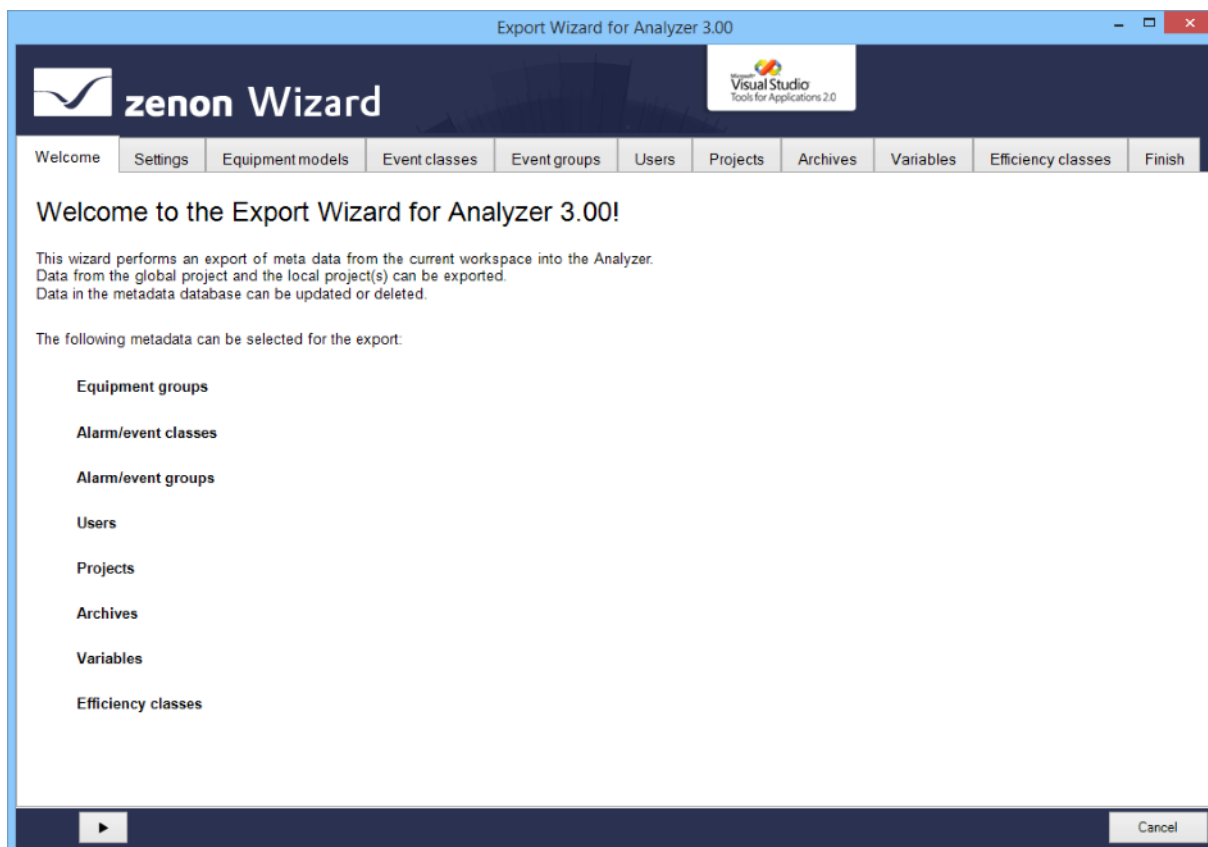
Note: The wizard is only available in English.

COMPATIBILITY:

The   Analyzer Export Wizard works, depending on the version, with different zenon Analyzer versions and different zenon versions. For details, read the **Analyzer wizard compatibility** chapter.

Sankey diagrams

The wizard automatically reads the definition for   Sankey diagrams from all activated projects (on page 74) and the global project. These are in the zenon project folder `\Files\Others`.
For this, the following applies:

▸ Only valid XML files that were created for the zenon Analyzer are taken into account. Diagrams that have the **Analyzer**   and **Valid** attributes set to `True` in the **Sankey** XML file are valid. All other Sankey diagrams are ignored and not loaded.

▸ All Sankey diagram definitions are written to the zenon Analyzer metadata database in the **SANKEY_DIAGRAMM**, **SANKEY_OBJECT** and **SANKEY_VARIABLE** tables.

▶ Diagrams deleted in zenon (XML files) are not deleted in the Analyzer. Diagrams can only be deleted in the database directly in zenon Analyzer.

▶ For the adding or updating of diagrams, the following must apply to all required zenon variables:

- Be selected via the **Variables** (on page 91) tab
  or

- already be in the database

If variables that are required for the Sankey diagram are not selected for export, the Sankey diagram is not exported.

▶ If the Sankey diagram already exists, the metadata database tables are updated according to the changes.

▶ Clicking on the **Export** button in the **Finish** tab starts the export of the Sankey diagrams from zenon in to zenon Analyzer.
The diagrams are only exported once all other data such as projects or variables have been exported. The success of the export is shown in the message list of the **Finish** tab.

> ⚠ **Attention**
>
> *The import of Sankey diagrams is carried out automatically in the background. There are no user interface or configuration options available.*

Waterfall chart

A waterfall diagram can be used for either **line-based reports** or for **machine-based reports**. The parameters for the diagram are stored in the **Analyzer/Parameters for waterfall diagram** variable property from zenon 7.20. These can be entered manually or created with the **Meaning and Waterfall Chart Wizard** (on page 134).

EXPORT

The wizard reads the **Parameters for waterfall diagram** property when loading the zenon workspace. If there are correct entries, these these are exported in the background and written to the database of the zenon Analyzer.

STRUCTURE OF THE ENTRIES

Depending on the structure of the entries, a decision is made on whether it is entries for machine-based or line-based diagrams.

▶ Machine based: Structure with 4 digits, separated by a comma; ended with a semicolon.

Syntax: **[model name],[line index],[column index],[color code code];**
Example: **MyWaterfall,4,2,#80FF00;**

▶ Line-based: Structure with 7 digits, separated by a comma; ended with a semicolon.

Syntax: **[model name],[line index],[column index],[color code],[loss of auxiliary machine],[add loss of auxiliary machine],[subtract loss of auxiliary machine];**
Example: **MyLineAnlaysis,4,2, #80FF00,0,0,0;**

RULES FOR READING:

The following is applicable for reading:

▶ If there are entries for **Parameters for waterfall diagram**, corresponding entries in the **Resources label** field are ignored.
The structure decides whether the entry can be evaluated as machine-based or line-based.

▶ The identification **WF**= is not necessary but can to be used. The individual elements of a model are separated by a comma. If several waterfall models are assigned to a variable, a semicolon is used as a separator.

▶ If there are no entries, corresponding entries from the **Resources label** are accepted. The identification **WF**= must be prefixed here.

▶ With versions of zenon before 7.20, the waterfall parameters are taken from the zenon **Resources label** property.

Install and call up wizard

The wizard is automatically installed with zenon for each supported version of zenon Analyzer.

STARTING THE WIZARD

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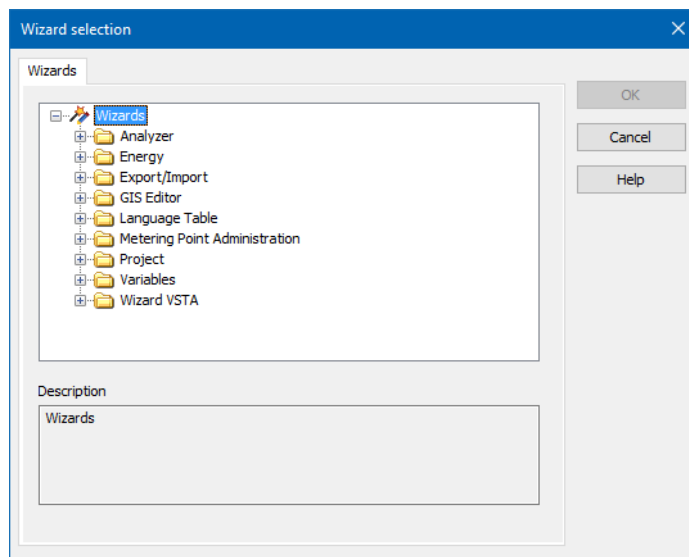
[VBA]

EIN=1

[VSTA]

ON=1

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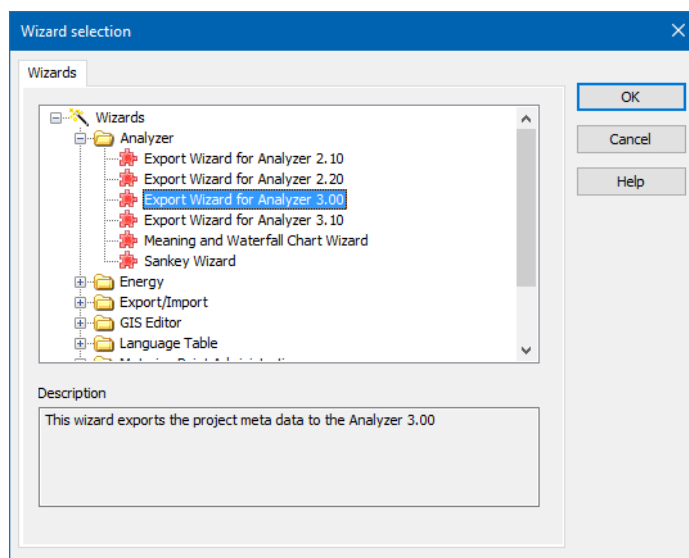`[VSTA]`.

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 the node **Analyzer**.
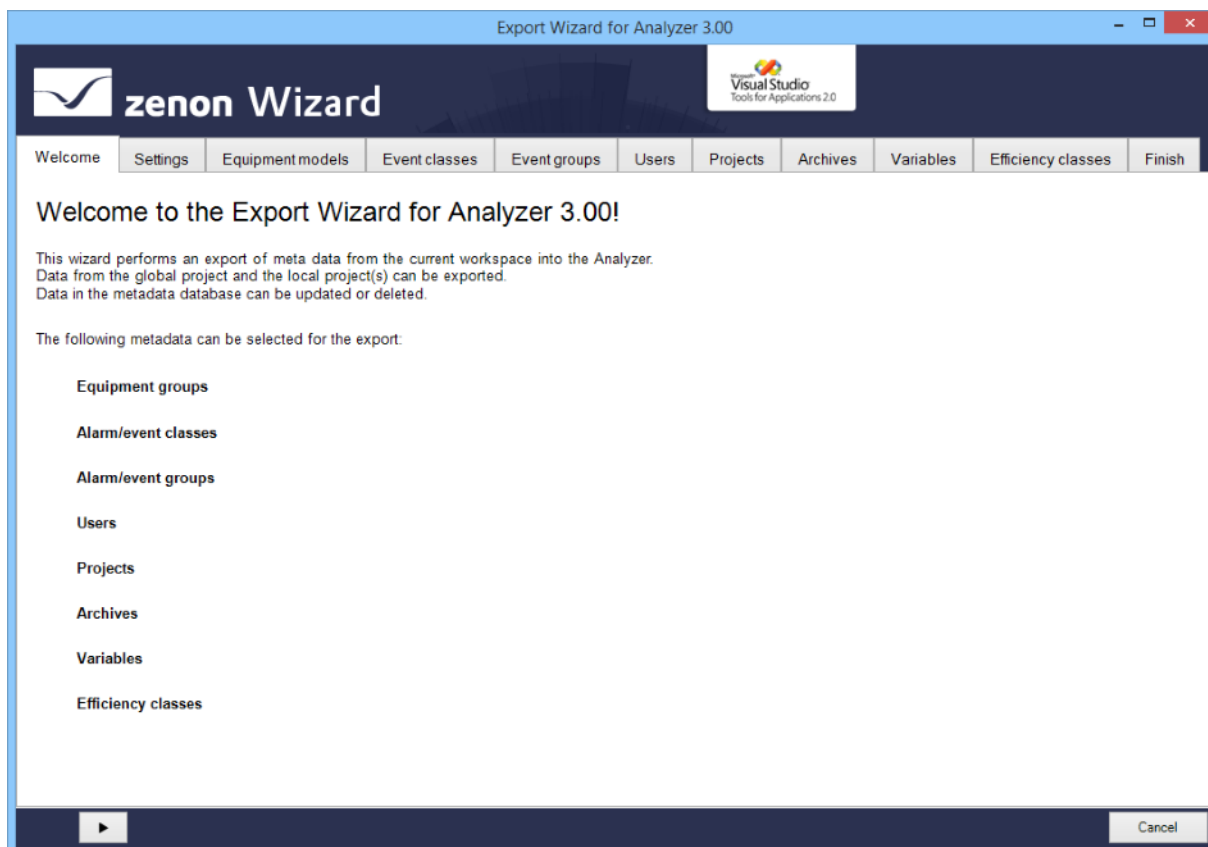
3. Select the **Export Wizard for Analyzer 3.00**.

4. Click on **OK.**

The wizard starts with the welcome page.

Start window

When the wizard is opened, you receive an overview page that lists all exportable objects.

The individual objects are configured for the export on individual tabs.

Click on the button with the **arrow** to navigate through the configuration (on page 72) of the export.
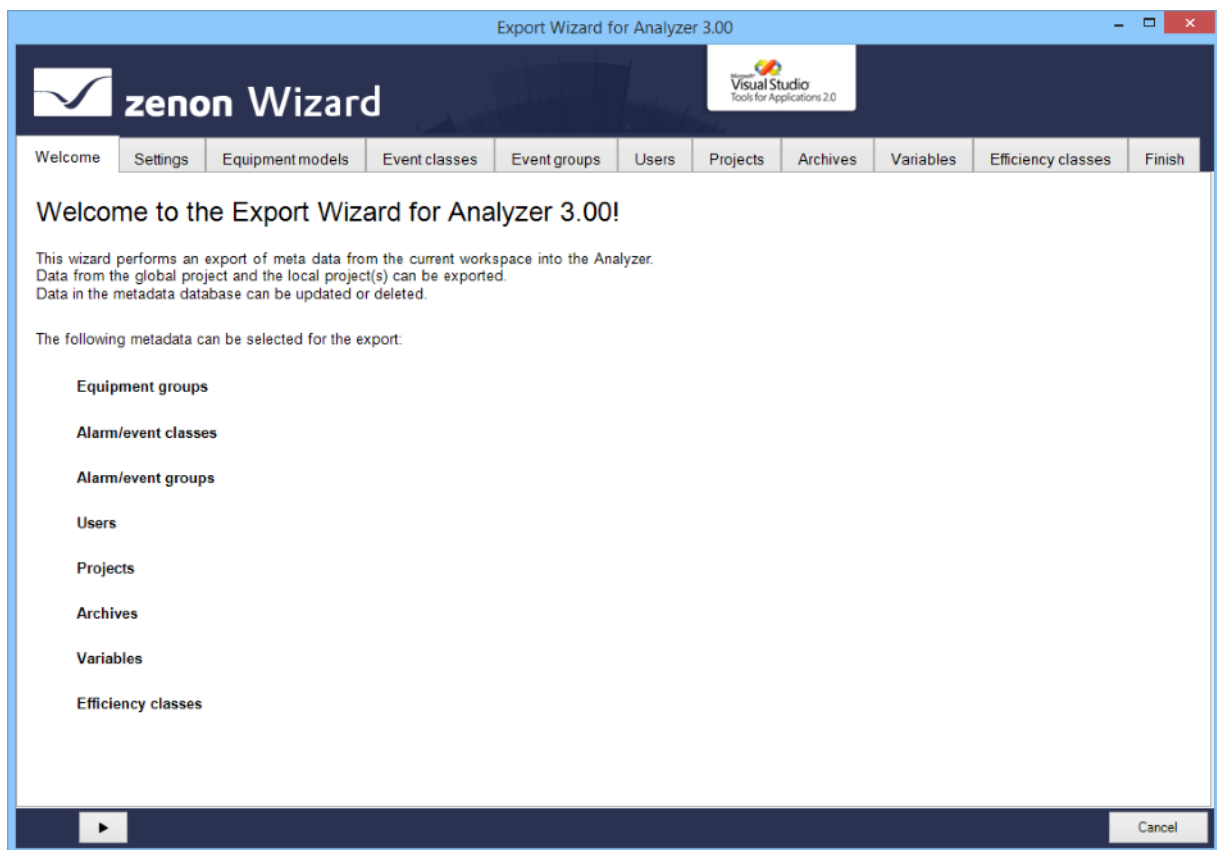
Configuration

When exporting with the Analyzer Export Wizard, all modules available for export are offered for detailed configuration. Only the selected data is exported. The export of Sankey diagrams (on page 68) is carried out in the background, without the possibility of configuration. You get to the next level by clicking on the button with the **right arrow**. You can also select individual tabs directly by clicking on the title of the tab. Entries already present in the database are preselected in the individual areas.

The following tabs are available for configuration of the export:

▶ **Settings** (on page 74): Options for the export of metadata

▶ **Equipment models** (on page **79**):   (on page 47)Export of the equipment groups from the global project

▶ **Event classes** (on page 81): Alarm/Event classes from global project

▶ **Event groups** (on page 83): Alarm/event groups from global project

▶ **Users** (on page 85): User from global project

- ▶ **Projects** (on page 86): Projects from workspace

- ▶ **Archives** (on page 89): Archives of the selected projects

- ▶ **Variables** (on page 91): Variables of the selected projects

- ▶ **Efficiency classes** (on page 95): Display of the efficiency classes to be exported.

- ▶ **Finish** (on page 98): Start of the export and output of the result

Navigation

Navigation through the tabs is carried out by means of the navigation bar in the lower area of the wizard window:

Button	Description
Arrow left	Goes back one tab in the wizard process.
Arrow right	Goes forward one tab in the wizard process.
Export	Exports the data to the Analyzer database. Is only active if the **Finish** tab is opened.
Cancel	Closes the wizard without exporting. When closing, a dialog asks if the configuration is to be saved ▸ **Yes:** Writes the settings set in the **Settings** (on page 43) tab to the registry and closes the wizard. The wizard is opened with this configuration the next time it is started. ▸ **No:** Closes the wizard without saving the configuration The configuration is saved for each specific user.

Individual tabs can also be selected by clicking directly on the title of the tab.

Settings

In this tab:

1. You define the database to which the wizard connects
2. You define general options for exporting

3. You start the data readout

SETTINGS

Parameter	Description
Settings	Information and hints about current export processes.

DATABASE SETTINGS

Parameter	Description
Database settings	Connection settings to the Analyzer server.
DB host	Computer on which the database is located.
DB name	Name of the database.
Authentication	Type of authentication: ▸ `Windows Authentication`: Windows login information is used. ▸ `SQL Server Authentication`: Login with data from an SQL server user.
User name	Entry of the user name. Only for login with `SQL Server Authentication`. Display only for `Windows Authentication`.
Password	Entry of the password. Only for login with `SQL Server Authentication`. No input possible with `Windows Authentication`.
Remember password	Password is saved for next connection. Only for login with `SQL Server Authentication`. Inactive with `Windows Authentication`.

PROJECTS

Parameter	Description
Projects	List of the available projects in the current zenon workspace. The checkbox shows whether the data of the project is used: ▸ `Active`: Project is used.

	Projects that are active in the memory are pre-selected. Inactive projects can be added by means of selection with a checkbox.

OPTIONS

Parameter	Description
Options	General options for the export.
Don't modify existing data in the Analyzer metadata database	▶ `Active`: Only completely new entries from the workspace are written to the database. Note: If linkings from variables, archives etc. are changed or new ones are created, these are not transferred. If these are also transferred, the checkbox must be set to `Inactive` ▶ `Inactive`: Entries in the database are also updated or deleted. New entries are created, amended entries are updated and deleted entries are removed. Exception: Projects and Sankey diagrams are not deleted.
Update Visual names	Only available if the **Don't modify existing data in the Analyzer metadata database** option has been deactivated. ▶ `Active`: In zenon, amended display names are overwritten when exporting to the metadata database of zenon Analyzer. ▶ `Inactive`: Amended display names are not changed in zenon Analyzer. Default: `Inactive` The setting is not saved. The checkbox is set to deactivated each time the wizard is started. Behavior: If the checkbox is activated, display names amended in zenon are also amended in zenon Analyzer for: ▶ **Equipment models** ▶ **Event classes** ▶ **Event groups** ▶ **Projects** ▶ **Archives** ▶ **Variables** The visual names for **Users** cannot be changed. These are recreated in the event of changes. Changes to display names are displayed in the individual lists. Example: Initial situation:

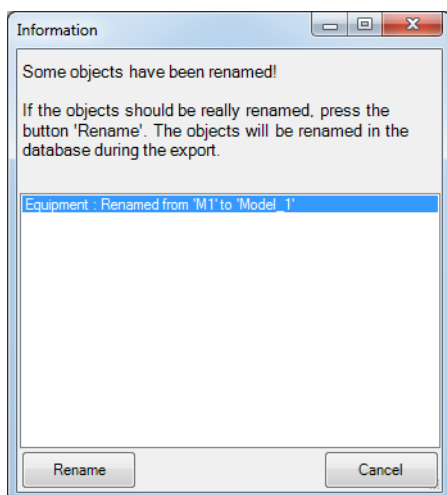|	
	▸ Display name in the zenon project: **Z**
	▸ Display name in the zenon Analyzer: **A**
	Action:
	▸ **A = Z**: nothing happens.
	▸ **A <> Z**: **Z** is applied if the name has not yet been issued in the metadata table. If **Z** is already present in the table, **A** remains unchanged and an error message is given.

LOAD DATA

Load Data	Clicking on the button loads, depending on the **Load every project of this workspace into the memory** parameter - the data from the currently loaded project into the wizard.
	In doing so, a check is made to see if data is present in the Analyzer database. Pre-existing data is combined with the data from the workspace and loaded into the wizard. In the event of naming conflicts, a dialog to rectify the error is called up.
	If the loading of data has been successfully concluded, the export can be configured in the following tabs.

RENAME OBJECT

Objects must always be named the same in the Analyzer database and in zenon. If objects that are already present in the database are renamed in zenon, these changes can be accepted or rejected when the data is combined. Rejection of the changes leads to the wizard being closed, because only objects with identical names can be handled correctly.

DIALOG FOR RENAMING

In the event of conflicts in the naming of objects, a dialog for dealing with the error is opened:

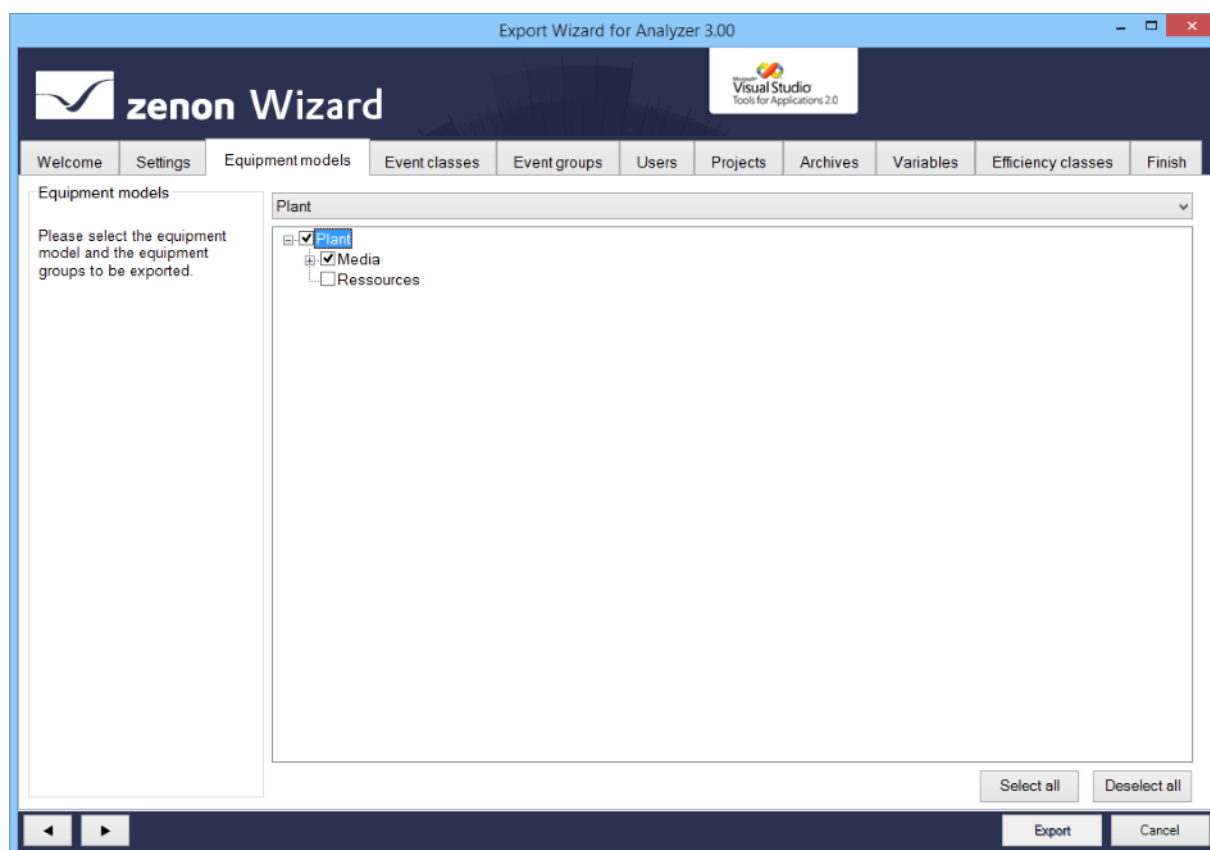| Parameter	Description
List of amended objects	Contains all objects that were changed. Previous name and new name are displayed.
	Exception: Users are always recreated.
Rename	Renames all objects listed in the database, closes the dialog and stops reading in data.
Cancel	Leaves the previous name in the database, finishes reading in data and closes the wizard.

Equipment models

Configuration of the model group which should be exported from the global project.

> ⚠ **Attention**
>
> *Each equipment group in zenon may only be assigned to one individual time model.*
>
> *If several time model groups are assigned, the Analyzer Wizard Export uses the first that it finds and exports this to the metadata of the Analyzer. Other time model groups are ignored.*

Parameter	Description
Equipment models	Information and notes on exporting.
Selection of equipment/medium	Drop-down list to select a model that is offered in the **Equipment models/media** list for configuration.
List of equipment models/media	List field with the possibility to select equipment models and model groups or media. To select an entry, activate the check box in front of the entry.
	In the list field the name, as it is stored in the database, is always displayed in the individual nodes. If the name was changed, the original name from the zenon project is displayed in brackets.
	Equipment groups that were deleted in the global project are no longer displayed.
	If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Clicking on the button selects all equipment groups
Deselect all	Clicking on the button deselects all equipment groups.

Event classes

Configuration of the alarm/event classes which should be exported from the global project.

Parameter	Description
Event classes	Information and notes on exporting.
List of the alarm/event classes	List field with the possibility to select the alarm/event classes. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. Alarm/event classes that were deleted in the global project are no longer displayed here. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Event groups

Configuration of the alarm/event groups which should be exported from the global project.

Parameter	Description
Event groups	Information and notes on exporting.
List of the alarm/event groups	List field in which you can select alarm/event groups. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. Alarm/event classes that were deleted in the global project are no longer displayed here. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Users

Configuration of the user which should be exported from the global project.

Parameter	Description
Users	Information and notes on exporting.
User List	List field with selection possibility for users. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated. If a user was renamed in zenon they are considered new and recreated in the project. The previous user is deleted.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Projects

Configuration of the local projects which should be exported. The names for **Server 1** and **Server 2** can be changed here.

To change the name of a Server or Standby Server:

1. Highlight the project in the list of projects.
2. Enter the desired name for **Server 1** and **Server 2**.

Note: Changes here are only possible if, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option has been deactivated. The information that is displayed for the server depends on the settings in the project and the database. For details, see the **Display of server settings** section.

Parameter	Description
Projects	Information and notes on exporting.
Project list	List field with selection possibility for projects. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Server 1	Address of the **Server 1** for the project selected in the list window. Source (project or database) depending on configuration.
Server 2	Adress of the **Server 2** for the project selected in the list window. Source (project or database) depending on configuration.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

DISPLAY OF SERVER SETTINGS

The following is applicable for the display and configuration of the server in this tab:

▶ In the zenon project, the **Network active** property is activated:
Server 1 and **Server 2** from the project are displayed.

▶ In the zenon project, the **Network active** property is deactivated:
Server 1 and **Server 2** from the database are displayed.

▶ In the zenon project, the **Network active** property is deactivated and there are no entries present for the server in the database:
Empty entries are displayed for **Server 1** and **Server 2**.

Archives

Selection of the archive from the selected projects (on page 86). Only base archives are displayed. Aggregated archives are not displayed in the list, but are also selected with the base archives and written to the database.

Parameter	Description
Archives	Information and notes on exporting.
Archive list	List field with possibility to select for archives. To select an entry, activate the check box in front of the entry. ▸ **Name (Analyzer)**: Name of the archive in zenon Analyzer. ▸ **Name (Project)**: Name of the archive in the project. ▸ **Archive ID (Project)**: ID of the archive in the project. ▸ **Project**: Project from which the archive comes. ▸ **Description**: Individual description of the project. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Variables

Configuration of the variables to be exported from the selected local projects (on page 86). When selecting variables, the entries offered can be prefiltered.

Parameter	Description
Variables	Information and notes on exporting.
Display	Selection of which variables are displayed, via the following option fields: ▸ **All**: All variables are displayed. ▸ **Selected**: Only variables that have already been selected are displayed. ▸ **Unselected**: Only variables that have not yet been selected are displayed.
Variable filter	Selection of the variable filter using the following option fields: ▸ **All**: All variables are displayed. ▸ **Archives**: Only archive variables are displayed. ▸ **Equipment groups**: Only variables are displayed which are part of the selected Equipment model (on page 79).
Filter row	Input of alphanumerical characters according to which the **List of variables** is to be filtered. Attention: The filter makes a distinction between upper-case and lower-case letters (it is case sensitive).
List of variables	List field with possibility to select variables. To select an entry, activate the check box in front of the entry. The following are displayed: ▸ **Name (Analyzer)**: Name in zenon Analyzer. ▸ **Name (Workspace)**: Can be issued from zenon 7.20 in the Editor by means of the **Display name** property. Must be unique in the project. See also chapter **Visual name** (on page 95) ▸ **Meanings**: Can be issued from zenon 7.20 in the Editor by means of the **Meaning** property. See also chapter **Meaning** (on page 95) ▸ **Project**: Project from which the variable comes. ▸ **Identification**: It corresponds to the **Identification** property in zenon. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended

	objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

RULES FOR THE EXPORT OF VARIABLES WITH REACTION MATRICES

If linked variables are exported with reaction matrices, the limit value text, the limit value color and the status value of the reaction matrix statuses are also exported to the **STATUSNAME** table in the metadata database of the Analyzer. Because only certain states can be evaluated in the reports, they must be pre-sorted using the wizard.

The following statuses of the reaction matrices can be exported or excluded:

Rema	Rules
Numeric	▸ The default status is ignored. ▸ If several statuses with the same status and limit value condition are set, then only the first status and its status text are exported. ▸ Only statuses with a value that is equal to a limit value are exported (limit value condition). ▸ The limit value conditions `greater than`, `less than`, `as desired` and `range` are ignored.
Multi numeric	▸ Correspond to the rules for **numeric**. ▸ Substatuses are also ignored.

Binary	▸ Only statuses that have value bits set consistently from right to left in the bit mask (`0` or `1`) are set.
	 For example:
	 `........ ....10.. 1`
	 `........ .....100 .`
	 `........ .....100 1`
	 The following are ignored, for example
	 `........ ........ 1`
	 `........ ......00 1`
	 `........ .10..100 1`

Multi binary	▸ Correspond to the rules for **Binary**. ▸ In addition, substatuses and statuses are also ignored with edge definitions in the bit mask.
String	▸ Are completely ignored and not exported.

IMPORT OF VARIABLE INFORMATION FROM ZENON

The following properties in the zenon **Analyzer** variable properties group provide information for reports in the zenon Analyzer:

▸ **Display name**: Entry of a display name of the variable in zenon Analyzer. This must be unique in the project. The check is not carried out when issued in zenon, but when imported into zenon Analyzer. If this property is changed after the first export to a zenon Analyzer, these changes are not applied in the zenon Analyzer.

▸ **Meaning**: Entry of the (Meaning) of a variable in the zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. Several meanings are separated by a comma.
Syntax: `[Meaning1],[Meaning2],…,[MeaningN]`

▸ **Parameters for waterfall diagram**: Parameters of a variable for a waterfall diagram in zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. The individual parameters are separated by a comma. Several waterfalls are divided by a semicolon.
Syntax: `[model name],[row index],[index in row],[color code];`

Visual name

The wizard reads the **Analyzer/Display name** property when loading the zenon workspace from zenon 7.20 and displays this for each variable in the **Variables** (on page 60) tab. The following applies for visual names:

▶ The name must be unique for each project.

▶ Names in a project that appear several tines are highlighted in red.

▶ The **Display name** are entered when writing the data to the metadata database.

▶ In the event of duplicated name within a project, the **Display name** is only entered for the first variable found. For the second variable, the **Name** of the variables is entered in zenon.

▶ The **Display name** is only set when the variable is exported for the first time. If this is subsequently changed in the Editor, this change is no longer applied in the metadata database. Changes are of course applied to a new metadata database when exporting to a new database.

▶ With a version of zenon before 7.20, the visual name is always taken from the zenon **Identification** property.

Meaning

From zenon 7.20, the wizard reads the **Analyzer/Meaning** property and displays this for each variable in the **Variables** (on page 60) tab.
The following applies for meanings:

▶ If there are entries for **Meaning**, the corresponding entries in the **Resources label** are ignored.

▶ If there are no entries, corresponding entries from the **Resources label** are accepted.

▶ The identification **ME**= is no longer necessary but can continue to be used. If a variable is assigned several meanings, a comma is used as a separator.

▶ With a version of zenon before 7.20, the meaning is always taken from the zenon **Resources label** property.

Efficiency classes

Selection and configuration of the efficiency classes to be exported. In doing so, zenon reaction matrices (REMAs) are displayed, the status of which correspond to the rules of the efficiency class structure. Only reaction matrices that meet certain conditions are read.

ZENON REACTION MATRIX REQUIREMENTS

In order for a reaction matrix to be read as an efficiency class, it must meet the following conditions:

▶   `Numeric` or `multi-numeric` type

▶   Status configured correctly

▶   Limit value text present

STATUS CONFIGURATION

The statuses to be configured must meet the following conditions:
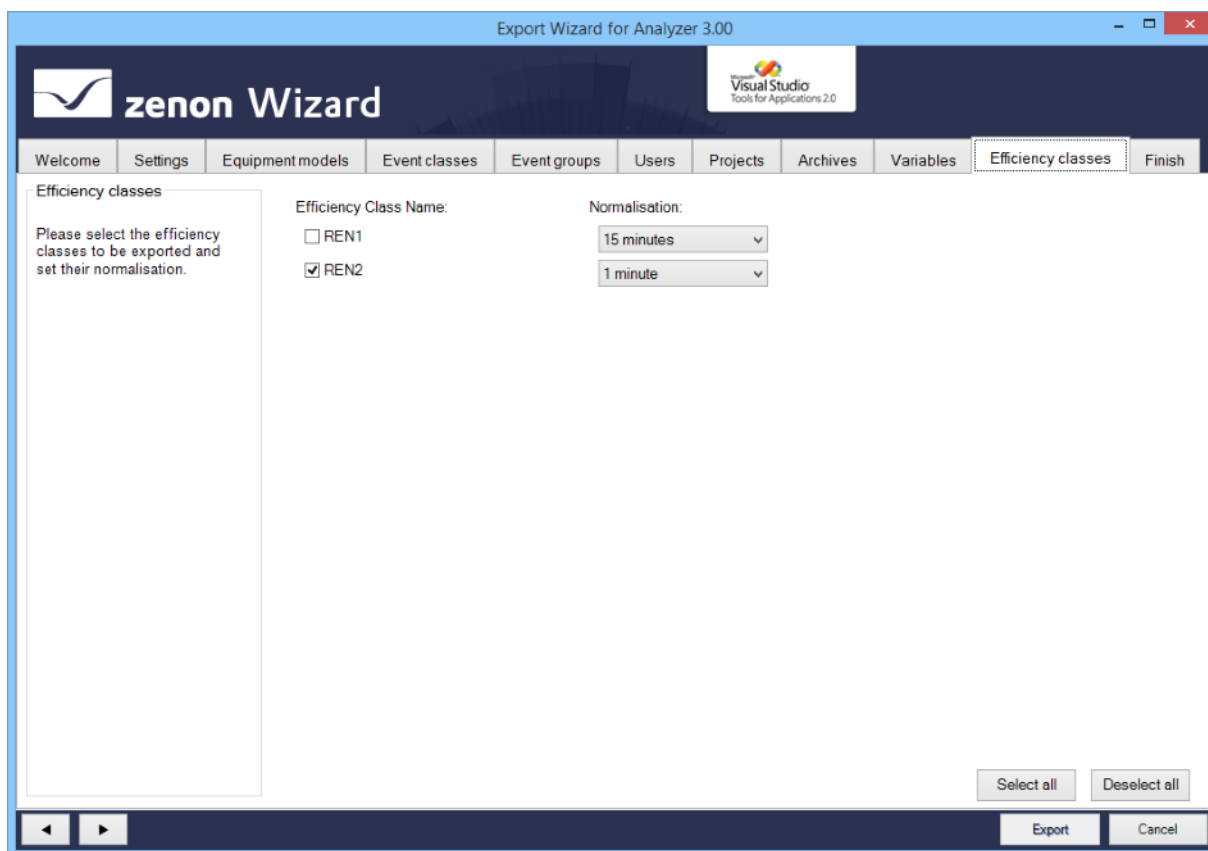
▶   The first status is less than a defined value. The area is open downwards.

   Status n1: $<x$

▶   The last status is greater than the last value defined beforehand. This area is open upwards.

   Status n4: $>z$

▶   Fixed ranges are defined between the first and last value. These areas must follow one another exactly.

   Status n2: $x-y$

   Status n3: $y-z$

CONFIGURATION IN THE WIZARD

To select efficiency classes for export:

1.   Select the desired efficiency classes.

2.   Configure the normalization.
     Attention: The `None` value is reserved for a subsequent expansion stage and must not be selected.

All pre-existing efficiency classes in the metadata database are deleted during export if they have been   created by the wizard. However, efficiency classes that come from the **Metadata Editor** are retained. All selected efficiency classes are then written to the metadata database.

Parameter	Description
Efficiency Class Name	Selection of the efficiency class to be exported by means of Activation of checkbox in front of the name.
Normalisation	Selection of the normalization from a drop-down list. ▸ Minimum: `1 minute` ▸ Maximum: `1 year` Default: `15 minutes` Attention: `None` must not be selected. This value is reserved for a subsequent expansion level and leads to invalid configurations.

> ⚠️ **Attention**
>
> *Reaction matrices are identified in zenon by means of their name. If the name of a reaction matrix is amended in zenon, the attendant efficiency class is recreated during export and the previous efficiency class is deleted.*

Finish

To export the configured data:

1. In the Finish tab, click on the **Export** button.

2. the export is started

3. The exported elements are shown in the output window with the attendant success and error messages
    In addition, the number of objects that have been added, replaced or deleted, and the number of errors that occurred are shown.

4. Click the **Close** button to close the wizard

RECONFIGURING THE WIZARD

To reconfigure the wizard:

1. Open the **Settings** (on page 74) tab.

2. Click on the **Load data** button.

3. Configure the tabs.

Close wizard

To close the wizard:

▶   Click on the **Cancel** button .

▶   A dialog prompts whether the configuration should be saved.

- **Yes: W**rites the settings set in the **Settings** (on page 74) tab to the registry and closes the wizard. The wizard is opened with this configuration the next time it is started. The configuration is saved for each specific user.

- **No:** Closes the wizard without saving the configuration

3.1.4   Export Wizard for Analyzer 3.10 and 3.20

The zenon **Export Wizard for Analyzer 3.10 and 3.20** supports the export of metadata from zenon from version 7.20 SP0 for the zenon Analyzer 3.10 and 3.20.

The following can be exported:

▶ Data from the global project

- Equipment models

- Alarm/event classes

- Alarm/event groups

- Users

▶ Data from selected projects:

- Archives

- Variables, with:

  - **Display name** (see **visual names** (on page 129) section)

  - **Meaning** (see **meaning** (on page 129) section)

  - **Parameters for waterfall diagram** (see **Waterfall chart** (on page 102) section)

▶ Sankeydiagrams (see Sankey **diagrams** (on page 101) section)

▶ Efficiency classes (on page 129)

▶   Shift calendar (on page 103)
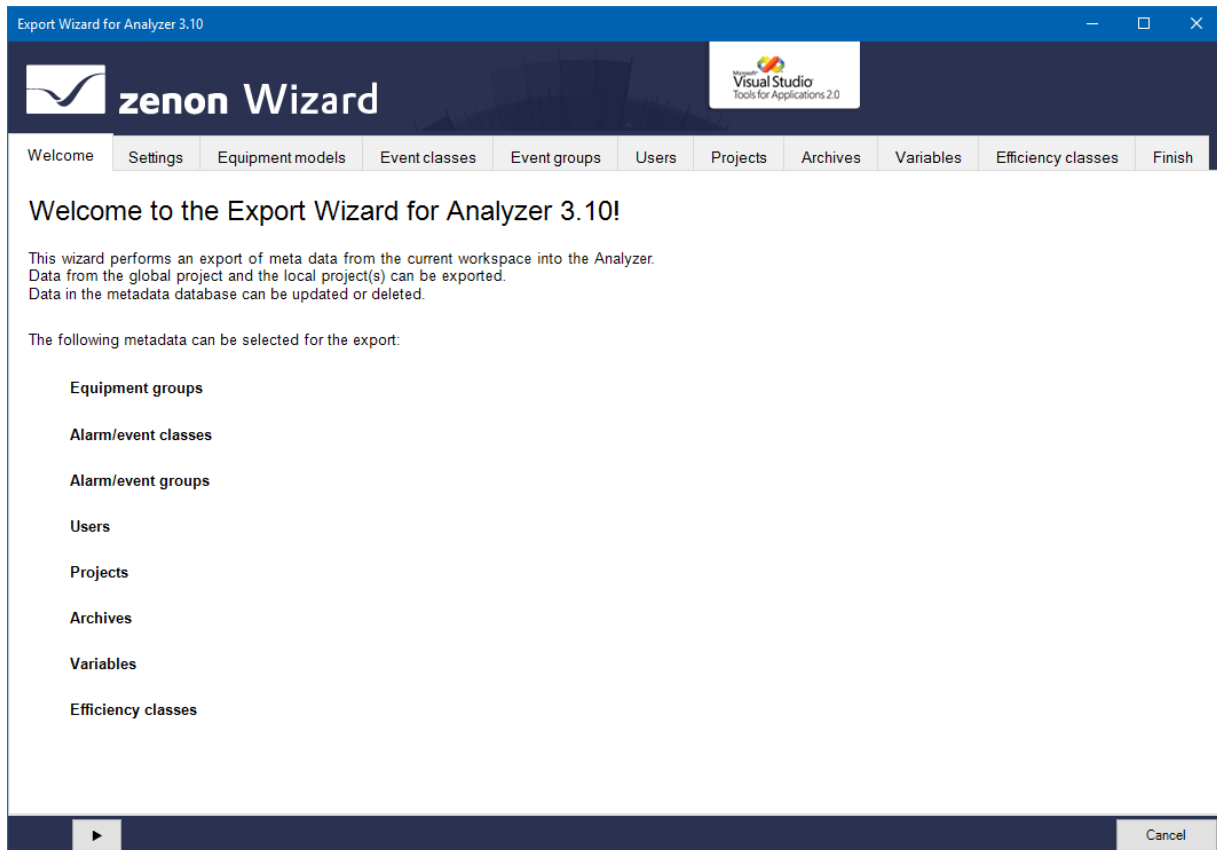
Note: The wizard is only available in English.

COMPATIBILITY:

The   Analyzer Export Wizard works, depending on the version, with different zenon Analyzer versions and different zenon versions. For details, read the **Analyzer wizard compatibility** chapter.

Sankey diagrams

The wizard automatically reads the definition for   Sankey diagrams from all activated projects (on page 108) and the global project. These are in the zenon project folder `\Files\Others`.
For this, the following applies:

▶   Only valid XML files that were created for the zenon Analyzer are taken into account. Diagrams that have the **Analyzer**   and **Valid** attributes set to `True` in the **Sankey** XML file are valid. All other Sankey diagrams are ignored and not loaded.

▶   All Sankey diagram definitions are written to the zenon Analyzer metadata database in the **SANKEY_DIAGRAMM**, **SANKEY_OBJECT** and **SANKEY_VARIABLE** tables.

▶ Diagrams deleted in zenon (XML files) are not deleted in the Analyzer. Diagrams can only be deleted in the database directly in zenon Analyzer.

▶ For the adding or updating of diagrams, the following must apply to all required zenon variables:

- Be selected via the **Variables** (on page 125) tab
  or

- already be in the database

If variables that are required for the Sankey diagram are not selected for export, the Sankey diagram is not exported.

▶ If the Sankey diagram already exists, the metadata database tables are updated according to the changes.

▶ Clicking on the **Export** button in the **Finish** tab starts the export of the Sankey diagrams from zenon in to zenon Analyzer.
The diagrams are only exported once all other data such as projects or variables have been exported. The success of the export is shown in the message list of the **Finish** tab.

> ⚠ **Attention**
>
> *The import of Sankey diagrams is carried out automatically in the background. There are no user interface or configuration options available.*

Waterfall chart

A waterfall diagram can be used for either **line-based reports** or for **machine-based reports**. The parameters for the diagram are stored in the **Analyzer/Parameters for waterfall diagram** variable property from zenon 7.20. These can be entered manually or created with the **Meaning and Waterfall Chart Wizard** (on page 134).

EXPORT

The wizard reads the **Parameters for waterfall diagram** property when loading the zenon workspace. If there are correct entries, these these are exported in the background and written to the database of the zenon Analyzer.

STRUCTURE OF THE ENTRIES

Depending on the structure of the entries, a decision is made on whether it is entries for machine-based or line-based diagrams.

▶ Machine based: Structure with 4 digits, separated by a comma; ended with a semicolon.

Syntax: **[model name],[line index],[column index],[color code code];**
Example: **MyWaterfall,4,2,#80FF00;**

▶ Line-based: Structure with 7 digits, separated by a comma; ended with a semicolon.

Syntax: **[model name],[line index],[column index],[color code],[loss of auxiliary machine],[add loss of auxiliary machine],[subtract loss of auxiliary machine];**
Example: **MyLineAnlaysis,4,2, #80FF00,0,0,0;**

RULES FOR READING:

The following is applicable for reading:

▶ If there are entries for **Parameters for waterfall diagram**, corresponding entries in the **Resources label** field are ignored.
The structure decides whether the entry can be evaluated as machine-based or line-based.

▶ The identification **WF=** is not necessary but can to be used. The individual elements of a model are separated by a comma. If several waterfall models are assigned to a variable, a semicolon is used as a separator.

▶ If there are no entries, corresponding entries from the **Resources label** are accepted. The identification **WF=** must be prefixed here.

▶ With versions of zenon before 7.20, the waterfall parameters are taken from the zenon **Resources label** property.

Export shift calendar

The wizard automatically searches in all activated projects (on page 74) for **SQL export shift calendar** functions and reads out information to linked equipment groups.
In doing so, the following applies:

▶ A search is carried out in all available zenon projects.

▶ Assigned equipment groups are created in the **EquipmentShift** table.

▶ If the function has not been assigned to an equipment group, all equipment groups are created.

▶ Only data from projects and equipment groups that have been selected in the wizard settings are exported.

Reading and exporting is carried out in the background.

Install and call up wizard

The wizard is automatically installed with zenon for each supported version of zenon Analyzer.

STARTING THE WIZARD

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]`.
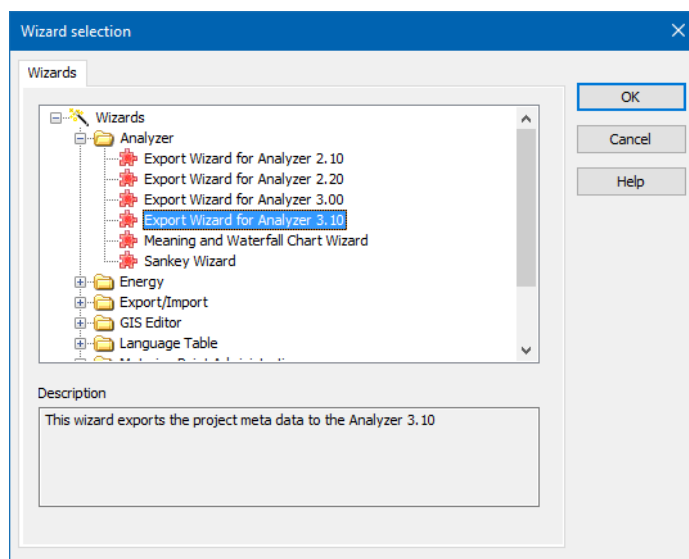
To start the wizard:

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

   The selection window with the available wizards opens.

Wizard selection	×

   Wizards

   - Wizards
     - Analyzer
     - Energy
     - Export/Import
     - GIS Editor
     - Language Table
     - Metering Point Administration
     - Project
     - Variables
     - Wizard VSTA

   OK
   Cancel
   Help

   Description
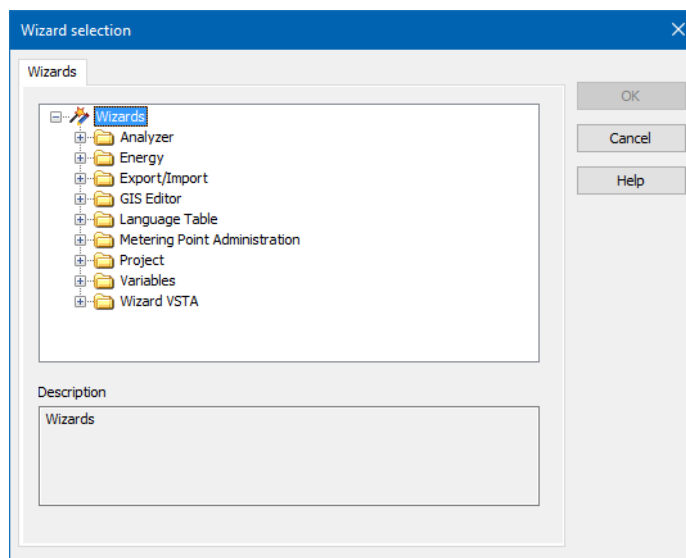
   Wizards

2. Navigate to the node **Analyzer**.

3. Select the **Export Wizard for Analyzer 3.10 and 3.20**.

4. Click on **OK.**

   The wizard starts with the welcome page.

Start window

When the wizard is opened, you receive an overview page that lists all exportable objects.

The individual objects are configured for the export on individual tabs.
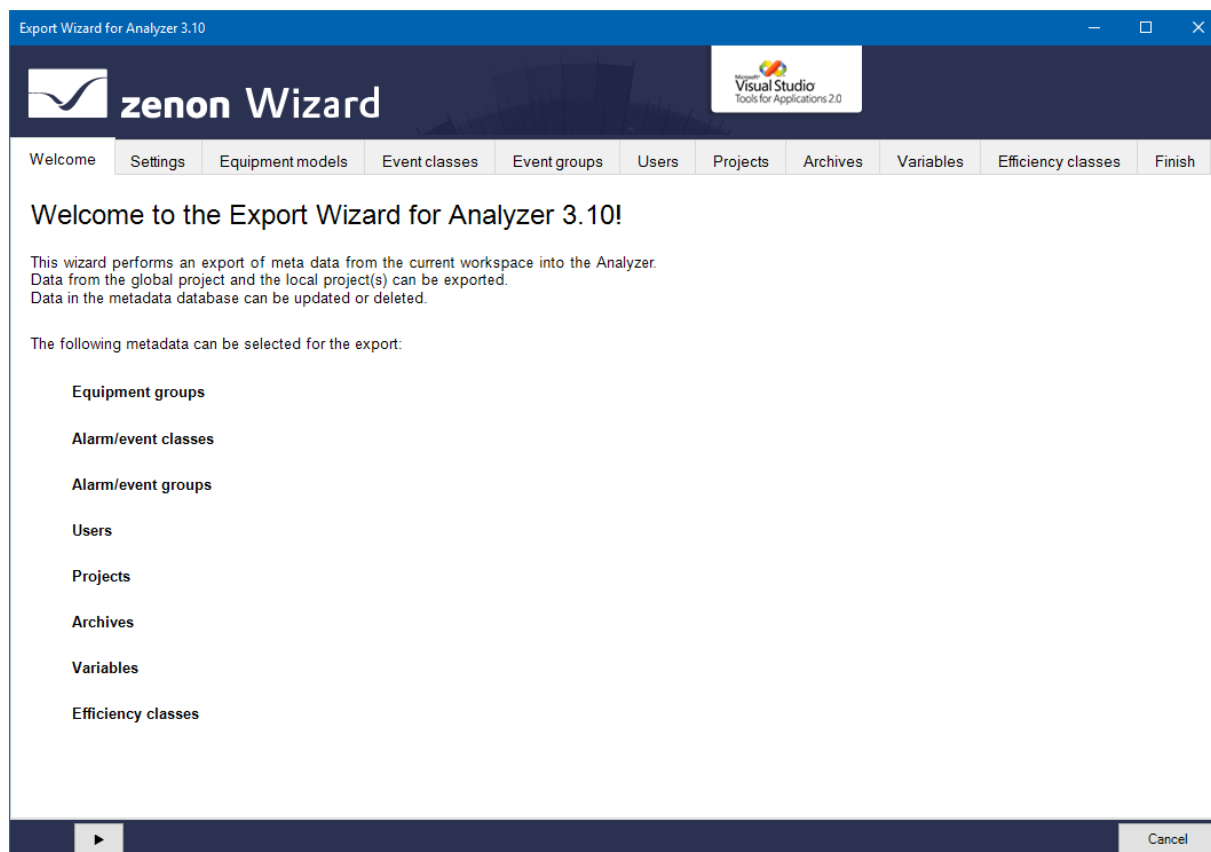
Click on the button with the **arrow** to navigate through the configuration (on page 106) of the export.

Configuration

When exporting with the Analyzer Export Wizard, all modules available for export are offered for detailed configuration. Only the selected data is exported. Sankey diagrams (on page 101) and equipment models for the shift calendar (on page 103) are exported without a configuration possibility in the background. You get to the next level by clicking on the button with the **right arrow**. You can also select individual tabs directly by clicking on the title of the tab. Entries already present in the database are preselected in the individual areas.

The following tabs are available for configuration of the export:

▶ **Settings** (on page 108): Options for the export of metadata

▶ **Equipment models** (on page **113**):   (on page 47)Export of the equipment groups from the global project

▶ **Event classes** (on page 115): Alarm/Event classes from global project

▶ **Event groups** (on page 117): Alarm/event groups from global project

▶ **Users** (on page 119): User from global project

- ▶ **Projects** (on page 120): Projects from workspace

- ▶ **Archives** (on page 123): Archives of the selected projects

- ▶ **Variables** (on page 125): Variables of the selected projects

- ▶ **Efficiency classes** (on page 129): Display of the efficiency classes to be exported.

- ▶ **Finish** (on page 132): Start of the export and output of the result

Navigation

Navigation through the tabs is carried out by means of the navigation bar in the lower area of the wizard window:

Button	Description
Arrow left	Goes back one tab in the wizard process.
Arrow right	Goes forward one tab in the wizard process.
Export	Exports the data to the Analyzer database.
	Is only active if the **Finish** tab is opened.
Cancel	Closes the wizard without exporting.
	When closing, a dialog asks if the configuration is to be saved
	▸ **Yes:** Writes the settings set in the **Settings** (on page 43) tab to the registry and closes the wizard. The wizard is opened with this configuration the next time it is started.
	▸ **No:** Closes the wizard without saving the configuration
	The configuration is saved for each specific user.

Individual tabs can also be selected by clicking directly on the title of the tab.

Settings

In this tab:

▸   You define the database to which the wizard connects

▸   You define general options for exporting

▶ You start the data readout

SETTINGS

Option	Description
Settings	Information and hints about current export processes.

DATABASE SETTINGS

Option	Description
Database settings	Connection settings to the Analyzer server.
DB host	Computer on which the database is located.
DB name	Name of the database.
Authentication	Type of authentication: ▸ `Windows Authentication`: Windows login information is used. ▸ `SQL Server Authentication`: Login with data from an SQL server user.
User name	Entry of the user name. Only for login with `SQL Server Authentication`. Display only for `Windows Authentication`.
Password	Entry of the password. Only for login with `SQL Server Authentication`. No input possible with `Windows Authentication`.
Remember password	Password is saved for next connection. Only for login with `SQL Server Authentication`. Inactive with `Windows Authentication`.

PROJECTS

Option	Description
Projects	List of the available projects in the current zenon workspace. The checkbox shows whether the data of the project is used: ▸ `Active`: Project is used.

	Projects that are active in the memory are pre-selected. Inactive projects can be added by means of selection with a checkbox.

OPTIONS

Option	Description
Options	General options for the export.
Don't modify existing data in the Analyzer metadata database	▸ `Active`: Only completely new entries from the workspace are written to the database. Note: If linkings from variables, archives etc. are changed or new ones are created, these are not transferred. If these are also transferred, the checkbox must be set to `Inactive` ▸ `Inactive`: Entries in the database are also updated or deleted. New entries are created, amended entries are updated and deleted entries are removed. Exception: Projects and Sankey diagrams are not deleted.
Update Visual names	Only available if the **Don't modify existing data in the Analyzer metadata database** option has been deactivated. ▸ `Active`: In zenon, amended display names are overwritten when exporting to the metadata database of zenon Analyzer. ▸ `Inactive`: Amended display names are not changed in zenon Analyzer. Default: `Inactive` The setting is not saved. The checkbox is set to deactivated each time the wizard is started. Behavior: If the checkbox is activated, display names amended in zenon are also amended in zenon Analyzer for: ▸ **Equipment models** ▸ **Event classes** ▸ **Event groups** ▸ **Projects** ▸ **Archives** ▸ **Variables** The visual names for **Users** cannot be changed. These are recreated in the event of changes. Changes to display names are displayed in the individual lists. Example: Initial situation:

	▸ Display name in the zenon project: **Z**
	▸ Display name in the zenon Analyzer: **A**
	Action:
	▸ **A = Z**: nothing happens.
	▸ **A <> Z**: **Z** is applied if the name has not yet been issued in the metadata table. If **Z** is already present in the table, **A** remains unchanged and an error message is given.

LOAD DATA

Option	Description
Load Data	Clicking on the button loads, depending on the **Load every project of this workspace into the memory** parameter - the data from the currently loaded project into the wizard.
	In doing so, a check is made to see if data is present in the Analyzer database. Pre-existing data is combined with the data from the workspace and loaded into the wizard. In the event of naming conflicts, a dialog to rectify the error is called up.
	If the loading of data has been successfully concluded, the export can be configured in the following tabs.

RENAME OBJECT

Objects must always be named the same in the Analyzer database and in zenon. If objects that are already present in the database are renamed in zenon, these changes can be accepted or rejected when the data is combined. Rejection of the changes leads to the wizard being closed, because only objects with identical names can be handled correctly.

DIALOG FOR RENAMING

In the event of conflicts in the naming of objects, a dialog for dealing with the error is opened:

Option	Description
List of amended objects	Contains all objects that were changed. Previous name and new name are displayed.
	Exception: Users are always recreated.
Rename	Renames all objects listed in the database, closes the dialog and stops reading in data.
Cancel	Leaves the previous name in the database, finishes reading in data and closes the wizard.

Equipment models

Configuration of the model group which should be exported from the global project.

> ⚠ **Attention**
>
> *Each equipment group in zenon may only be assigned to one individual time model.*
>
> *If several time model groups are assigned, the Analyzer Wizard Export uses the first that it finds and exports this to the metadata of the Analyzer. Other time model groups are ignored.*

Option	Description
Equipment models	Information and notes on exporting.
Selection of equipment/medium	Drop-down list to select a model that is offered in the **Equipment models/media** list for configuration.
List of equipment models/media	List field with the possibility to select equipment models and model groups or media. To select an entry, activate the check box in front of the entry.
	In the list field the name, as it is stored in the database, is always displayed in the individual nodes. If the name was changed, the original name from the zenon project is displayed in brackets.
	Equipment groups that were deleted in the global project are no longer displayed.
	If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Clicking on the button selects all equipment groups
Deselect all	Clicking on the button deselects all equipment groups.

Event classes

Configuration of the alarm/event classes which should be exported from the global project.

Option	Description
Event classes	Information and notes on exporting.
List of the alarm/event classes	List field with the possibility to select the alarm/event classes. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. Alarm/event classes that were deleted in the global project are no longer displayed here. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Event groups

Configuration of the alarm/event groups which should be exported from the global project.

Option	Description
Event groups	Information and notes on exporting.
List of the alarm/event groups	List field in which you can select alarm/event groups. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. Alarm/event classes that were deleted in the global project are no longer displayed here. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Users

Configuration of the user which should be exported from the global project.

Option	Description
Users	Information and notes on exporting.
User List	List field with selection possibility for users. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated. If a user was renamed in zenon they are considered new and recreated in the project. The previous user is deleted.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Projects

Configuration of the local projects which should be exported. The names for **Server 1** and **Server 2** can be changed here.

To change the name of a Server or Standby Server:

1. Highlight the project in the list of projects.
2. Enter the desired name for **Server 1** and **Server 2**.

Note: Changes here are only possible if, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option has been deactivated. The information that is displayed for the server depends on the settings in the project and the database. For details, see the **Display of server settings** section.

Option	Description
Projects	Information and notes on exporting.
Project list	List field with selection possibility for projects. To select an entry, activate the check box in front of the entry. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Server 1	Address of the **Server 1** for the project selected in the list window. Source (project or database) depending on configuration.
Server 2	Adress of the **Server 2** for the project selected in the list window. Source (project or database) depending on configuration.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

DISPLAY OF SERVER SETTINGS

The following is applicable for the display and configuration of the server in this tab:

▶ In the zenon project, the **Network active** property is activated:
  Server 1 and **Server 2** from the project are displayed.

▶ In the zenon project, the **Network active** property is deactivated:
  Server 1 and **Server 2** from the database are displayed.

▶ In the zenon project, the **Network active** property is deactivated and there are no entries present for the server in the database:
  Empty entries are displayed for **Server 1** and **Server 2**.

Archives

Selection of the archive from the selected projects (on page 120). Only base archives are displayed. Aggregated archives are not displayed in the list, but are also selected with the base archives and written to the database.

Option	Description
Archives	Information and notes on exporting.
Archive list	List field with possibility to select for archives. To select an entry, activate the check box in front of the entry.
	▸ **Name (Analyzer)**: Name of the archive in zenon Analyzer.
	▸ **Name (Project)**: Name of the archive in the project.
	▸ **Archive ID (Project)**: ID of the archive in the project.
	▸ **Project**: Project from which the archive comes.
	▸ **Description**: Individual description of the project.
	Sorting: Clicking on the column identifier sorts the entries after this column upwards or downwards.
	Multiple selection: If several lines are highlighted, the selection applies for all selected lines.
	If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

Variables

Configuration of the variables to be exported from the selected local projects (on page 120). When selecting variables, the entries offered can be prefiltered.

Option	Description
Variables	Information and notes on exporting.
Display	Selection of which variables are displayed, via the following option fields: ▸ **All**: All variables are displayed. ▸ **Selected**: Only variables that have already been selected are displayed. ▸ **Unselected**: Only variables that have not yet been selected are displayed.
Variable filter	Selection of the variable filter using the following option fields: ▸ **All**: All variables are displayed. ▸ **Archives**: Only archive variables are displayed. ▸ **Equipment groups**: Only variables are displayed which are part of the selected Equipment model (on page 113).
Filter row	Input of alphanumerical characters according to which the **List of variables** is to be filtered. Attention: The filter makes a distinction between upper-case and lower-case letters (it is case sensitive).
List of variables	List field with possibility to select variables. To select an entry, activate the check box in front of the entry. The following are displayed: ▸ **Name (Analyzer)**: Name in zenon Analyzer. ▸ **Name (Workspace)**: Can be issued from zenon 7.20 in the Editor by means of the **Display name** property. Must be unique in the project. See also chapter **Visual name** (on page 129) ▸ **Meanings**: Can be issued from zenon 7.20 in the Editor by means of the **Meaning** property. See also chapter **Meaning** (on page 129) ▸ **Project**: Project from which the variable comes. ▸ **Identification**: It corresponds to the **Identification** property in zenon. **Sorting:** Clicking on the column identifier sorts the entries after this column upwards or downwards. **Multiple selection:** If several lines are highlighted, the selection applies for all selected lines. If, in the **Settings** tab, the **Don't modify existing data in the Analyzer metadata database** option is deselected, amended

	objects in the database are deleted or updated.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.

RULES FOR THE EXPORT OF VARIABLES WITH REACTION MATRICES

If linked variables are exported with reaction matrices, the limit value text, the limit value color and the status value of the reaction matrix statuses are also exported to the **STATUSNAME** table in the metadata database of the Analyzer. Because only certain states can be evaluated in the reports, they must be pre-sorted using the wizard.

The following statuses of the reaction matrices can be exported or excluded:

Rema	Rules
Numeric	▸ The default status is ignored. ▸ If several statuses with the same status and limit value condition are set, then only the first status and its status text are exported. ▸ Only statuses with a value that is equal to a limit value are exported (limit value condition). ▸ The limit value conditions `greater than`, `less than`, `as desired` and `range` are ignored.
Multi numeric	▸ Correspond to the rules for **numeric**. ▸ Substatuses are also ignored.

Binary	▸ Only statuses that have value bits set consistently from right to left in the bit mask (`0` or `1`) are set.
	For example:
	`........ ....10.. 1`
	`........ .....100 .`
	`........ .....100 1`
	The following are ignored, for example
	`........ ........ 1`
	`........ ......00 1`
	`........ .10..100 1`

Multi binary	▸ Correspond to the rules for **Binary**. ▸ In addition, substatuses and statuses are also ignored with edge definitions in the bit mask.
String	▸ Are completely ignored and not exported.

IMPORT OF VARIABLE INFORMATION FROM ZENON

The following properties in the zenon **Analyzer** variable properties group provide information for reports in the zenon Analyzer:

▸ **Display name**: Entry of a display name of the variable in zenon Analyzer. This must be unique in the project. The check is not carried out when issued in zenon, but when imported into zenon Analyzer. If this property is changed after the first export to a zenon Analyzer, these changes are not applied in the zenon Analyzer.

▸ **Meaning**: Entry of the (Meaning) of a variable in the zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. Several meanings are separated by a comma. Syntax: `[Meaning1],[Meaning2],…,[MeaningN]`

▸ **Parameters for waterfall diagram**: Parameters of a variable for a waterfall diagram in zenon Analyzer. Entry is manual or by means of the **Meaning and Waterfall Chart Wizard**. The individual parameters are separated by a comma. Several waterfalls are divided by a semicolon. Syntax: `[model name],[row index],[index in row],[color code];`

Visual name

The wizard reads the **Analyzer/Display name** property when loading the zenon workspace from zenon 7.20 and displays this for each variable in the **Variables** (on page 125) tab. The following applies for visual names:

▶ The name must be unique for each project.

▶ Names in a project that appear several tines are highlighted in red.

▶ The **Display name** are entered when writing the data to the metadata database.

▶ In the event of duplicated name within a project, the **Display name** is only entered for the first variable found. For the second variable, the **Name** of the variables is entered in zenon.

▶ The **Display name** is only set when the variable is exported for the first time. If this is subsequently changed in the Editor, this change is no longer applied in the metadata database. Changes are of course applied to a new metadata database when exporting to a new database.

▶ With a version of zenon before 7.20, the visual name is always taken from the zenon **Identification** property.

Meaning

From zenon 7.20, the wizard reads the **Analyzer/Meaning** property and displays this for each variable in the **Variables** (on page 125) tab.
The following applies for meanings:

▶ If there are entries for **Meaning**, the corresponding entries in the **Resources label** are ignored.

▶ If there are no entries, corresponding entries from the **Resources label** are accepted.

▶ The identification **ME**= is no longer necessary but can continue to be used. If a variable is assigned several meanings, a comma is used as a separator.

▶ With a version of zenon before 7.20, the meaning is always taken from the zenon **Resources label** property.

Efficiency classes

Selection and configuration of the efficiency classes to be exported. In doing so, zenon reaction matrices (REMAs) are displayed, the status of which correspond to the rules of the efficiency class structure. Only reaction matrices that meet certain conditions are read.

ZENON REACTION MATRIX REQUIREMENTS

In order for a reaction matrix to be read as an efficiency class, it must meet the following conditions:

- ▶ `Numeric` or `multi-numeric` type
- ▶ Status configured correctly
- ▶ Limit value text present

STATUS CONFIGURATION

The statuses to be configured must meet the following conditions:

- ▶ The first status is less than a defined value. The area is open downwards.

    Status n1: `<x`

- ▶ The last status is greater than the last value defined beforehand. This area is open upwards.

    Status n4: `>z`

- ▶ Fixed ranges are defined between the first and last value. These areas must follow one another exactly.

    Status n2: `x-y`

    Status n3: `y-z`

CONFIGURATION IN THE WIZARD

To select efficiency classes for export:

1. Select the desired efficiency classes.

2. Configure the normalization.
   Attention: The `None` value is reserved for a subsequent expansion stage and must not be selected.

All pre-existing efficiency classes in the metadata database are deleted during export if they have been   created by the wizard. However, efficiency classes that come from the **Metadata Editor** are retained. All selected efficiency classes are then written to the metadata database.

Option	Description
Efficiency Class Name	Selection of the efficiency class to be exported by means of Activation of checkbox in front of the name.
Normalisation	Selection of the normalization from a drop-down list. ▸ Minimum: `1 minute` ▸ Maximum: `1 year` Default: `15 minutes` Attention: `None` must not be selected. This value is reserved for a subsequent expansion level and leads to invalid configurations.

> ⚠ **Attention**
>
> *Reaction matrices are identified in zenon by means of their name. If the name of a reaction matrix is amended in zenon, the attendant efficiency class is recreated during export and the previous efficiency class is deleted.*

Finish

To export the configured data:

1. In the Finish tab, click on the **Export** button.

2. the export is started

3. The exported elements are shown in the output window with the attendant success and error messages
In addition, the number of objects that have been added, replaced or deleted, and the number of errors that occurred are shown.

4. Click the **Close** button to close the wizard

RECONFIGURING THE WIZARD

To reconfigure the wizard:

1. Open the **Settings** (on page 108) tab.

2. Click on the **Load data** button.

3. Configure the tabs.

Close wizard

To close the wizard:

▶ Click on the **Cancel** button **.**

▶ A dialog prompts whether the configuration should be saved.

- **Yes: W**rites the settings set in the **Settings** (on page 108) tab to the registry and closes the wizard. The wizard is opened with this configuration the next time it is started. The configuration is saved for each specific user.

- **No:** Closes the wizard without saving the configuration

3.1.5 Meaning and Waterfall Chart Wizard

The **Meaning and Waterfall Chart Wizard** helps you prepare a zenon project for the processing of variable information in the zenon Analyzer.

Note: The wizard is only available in English.

> ⚠ **Attention**
>
> If the **Meaning and Waterfall Chart Wizard** is used with a project with distributed engineering (Multi-User), then **Enable changes** must be activated in the zenon Editor for:
>
> ▸ The project (context menu of the project)
>
> ▸ The variables (context menu of the variables or the **Variables** module)
>
> Otherwise the changes made by the **Meaning and Waterfall Chart Wizard** cannot be applied. These are then discarded.

The Meaning and Waterfall Chart Wizard helps you, when engineering projects in zenon, to configure:

- ▸ Meanings (Meaning)
- ▸ Waterfall Charts charts for **machine-based reports** and **line-based reports**.

The wizard writes the configuration in the corresponding properties of the variables selected in the wizard. The target properties depend on the version of zenon that is used.

> ⚠ **Attention**
>
> *Only equipment models from the global project are available.*

FROM ZENON 7.20

- ▸ Meanings:

  The Meanings are written in the **Analyzer/Meaning** property. Several entries are separated by a comma (**,**).

- ▸ Waterfall:

The parameters for waterfall diagrams are written in the **Analyzer/Parameters for waterfall diagram** property. The parameters for a diagram are separated by a comma (**,**). Several diagrams are separated by a semi colon (**;**)

- Syntax machine-based: **[model name],[line index],[column index],[color code code];**

- Syntax line-based: **[model name],[line index],[column index],[color code],[loss of auxiliary machine],[add loss of auxiliary machine],[subtract loss of auxiliary machine];**

The following applies for both properties: If there are still entries in the **General/Resources label** property from previous versions of   zenon, these are deleted and entered in the corresponding properties for zenon 7.20.

UP TO ZENON 7.11:

Meanings and parameters for waterfall diagrams are written to the **Resources label** variable property. In doing so, the prefix WF= is added for meanings and the prefix `WF=` is added for waterfall parameters.

For further information, see the **Analyzer Wizards** chapter.

Install and call up wizard

The wizard is automatically installed together with zenon.

STARTING THE WIZARD

*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].`

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.
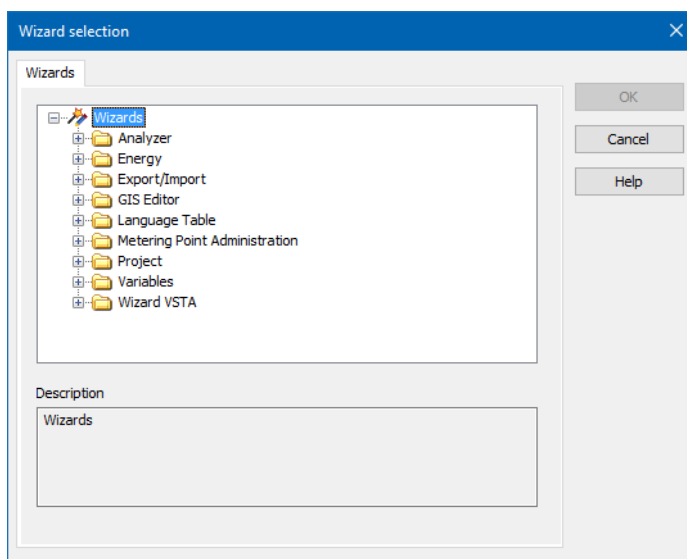
2. Navigate to the node **Analyzer**.

3. Select the **Meaning and Waterfall Chart Wizard**.
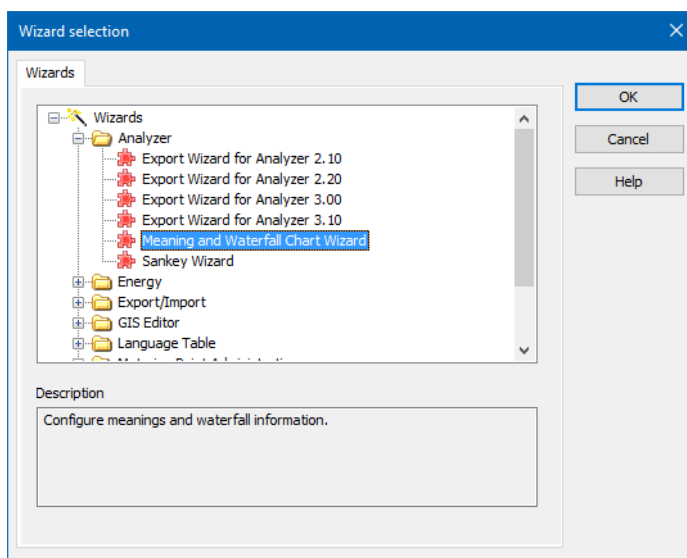
4. Click on **OK.**

   The wizard starts with the welcome page.

Start window

When opening the wizard, you receive an overview that lists and explains all objects that can be configured. Configuration starts with the **Settings** (on page 140) tab.
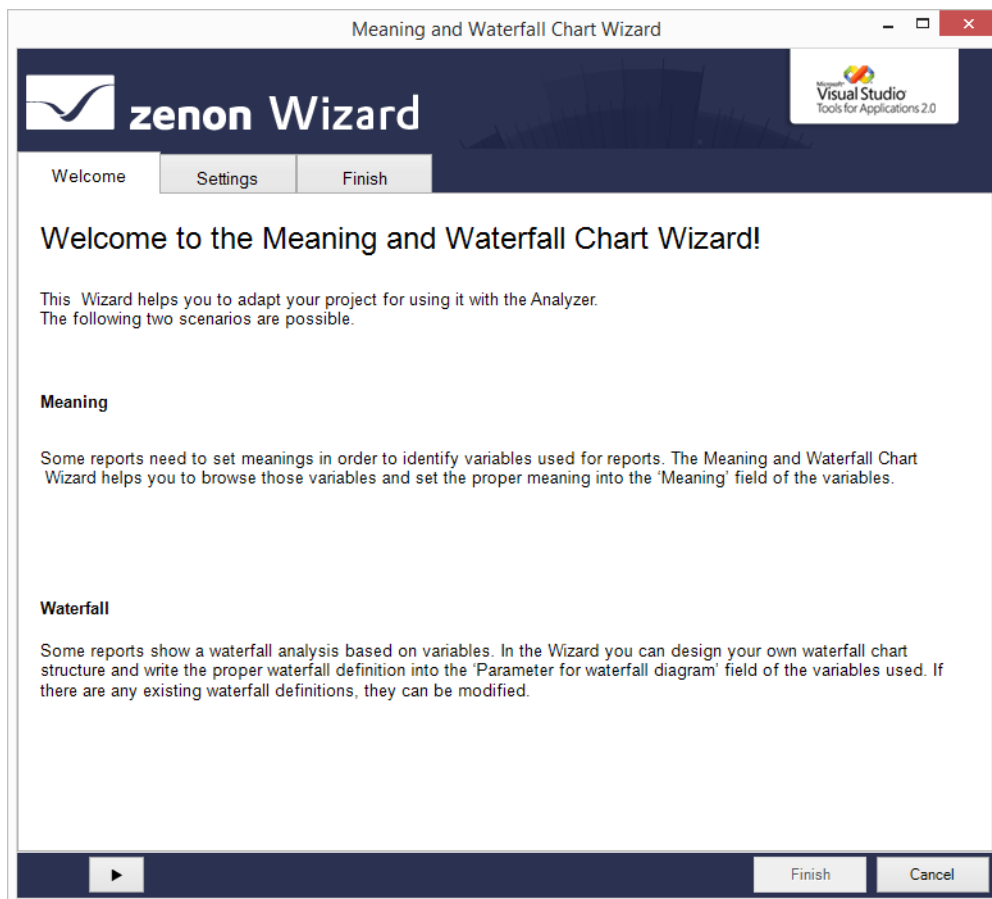
MEANING

zenon variables often receive technically-orientated names in the project. This naming is often not meaningful enough for display in a zenon Analyzer report. The variables can be given an unique name for display in the zenon Analyzer report. This name is saved to the corresponding variable property depending on the zenon version. Target property and entry are automatically selected by the wizard.

After import into zenon Analyzer, this name is used for reports without the existing variable name needing to be changed. For details, see the Analyzer Wizards chapter in the online help.

WATERFALL CHART

Some zenon Analyzer reports can display a waterfall diagram using zenon variables. To do this, information on the appearance of the diagram must already be present in the resource label of the

selected variable. The structure and appearance of a waterfall diagram for machine-based reports or line-based reports can be defined with a wizard. The waterfall information is saved to the corresponding variable property depending on the zenon version. Target property and entry are automatically selected by the wizard. For details, see the Analyzer Wizards chapter in the online help.

NAVIGATION

Click on the button with the **arrow** to navigate through the configuration of the export.

Configuration

The **Meaning and Waterfall Chart Wizard** is configured with the following tabs:

- ▶ **Settings** (on page 140): Loading the data from the projects.
  Only once the data to be loaded is selected are other tabs available for meanings or waterfall diagrams.

- ▶ **Meaning filter** (on page 142): Filter settings for meanings.

- ▶ **Meaning** (on page 144): Selection and assignment of the meanings.

- ▶ **Waterfall filter**: Filter settings for machine-based waterfall diagram (on page 148) or line-based waterfall diagram (on page 152).

- ▶ **Waterfall charts**: Selection of variables and configuration of   machine-based waterfall diagram (on page 150) or line-based waterfall diagram (on page 154).

- ▶ **Finish** (on page 159): Acceptance of configuration and configuration by the wizard.

The tabs that can be shown depend on the configuration of the **Settings** (on page 140) tab.

Navigation

Navigation through the tabs is carried out by means of the navigation bar in the lower area of the wizard window:
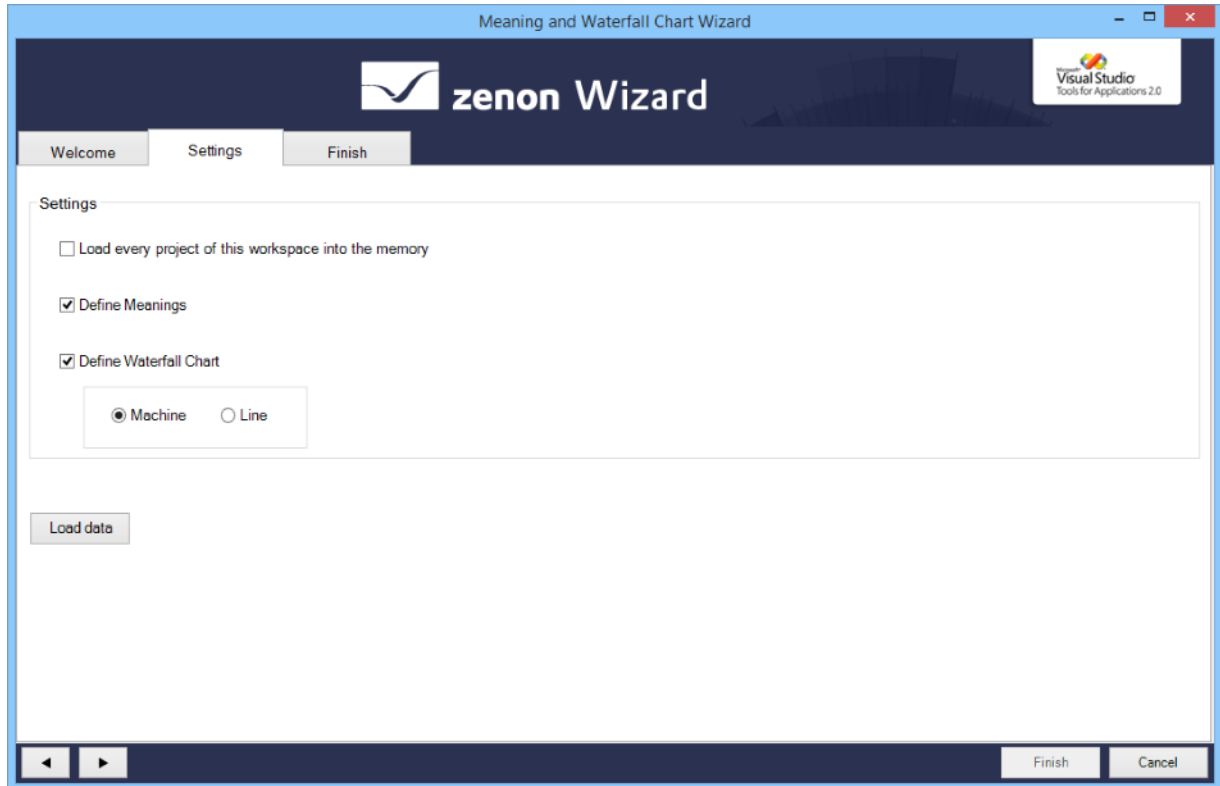
Button	Description
Arrow left	Goes back one tab in the wizard process.
Arrow right	Goes forward one tab in the wizard process.
Finish	Writes all changes to the zenon variable in the Editor and closes the wizard.
Cancel	Ends the wizard without making changes.

Individual tabs can also be selected by clicking directly on the title of the tab.

Settings

Selection and loading of the tabs to be configured.

Option	Description
Settings	Setting for which tabs are to be loaded.
Load every project of this workspace into the memory	▶ `Active`: When loading, projects from the workspaces that are not in the memory are also taken into account. Once the wizard has been ended or once the **Finish** action has been executed, these are removed.
Define Meanings	▶ `Active`: The **Meaning filter** (on page 142) and **Meaning** (on page 144) tabs are loaded.
Define Waterfall Chart	Selection of waterfall chart: ▶ `Active`: A waterfall chart is created. Selection of the waterfall type by means of the radio button: ▶ **Machine**: A machine-based waterfall chart is created. The **Waterfall filter** (on page 148) und **Waterfall** (on page 150) tabs are loaded. ▶ **Line**: A line-based waterfall chart is created. The **Line Analysis filter** (on page 152) and **Line Analysis** (on page 154) tabs are loaded.
Load data	Clicking on the button searches through the variables of all projects loaded in the workspace and loads the required information for the filter and editing the variables. The corresponding tabs are displayed in the wizard. A progress bar is displayed during the loading process.

After loading, the tabs are available for the selected data, for configuration.
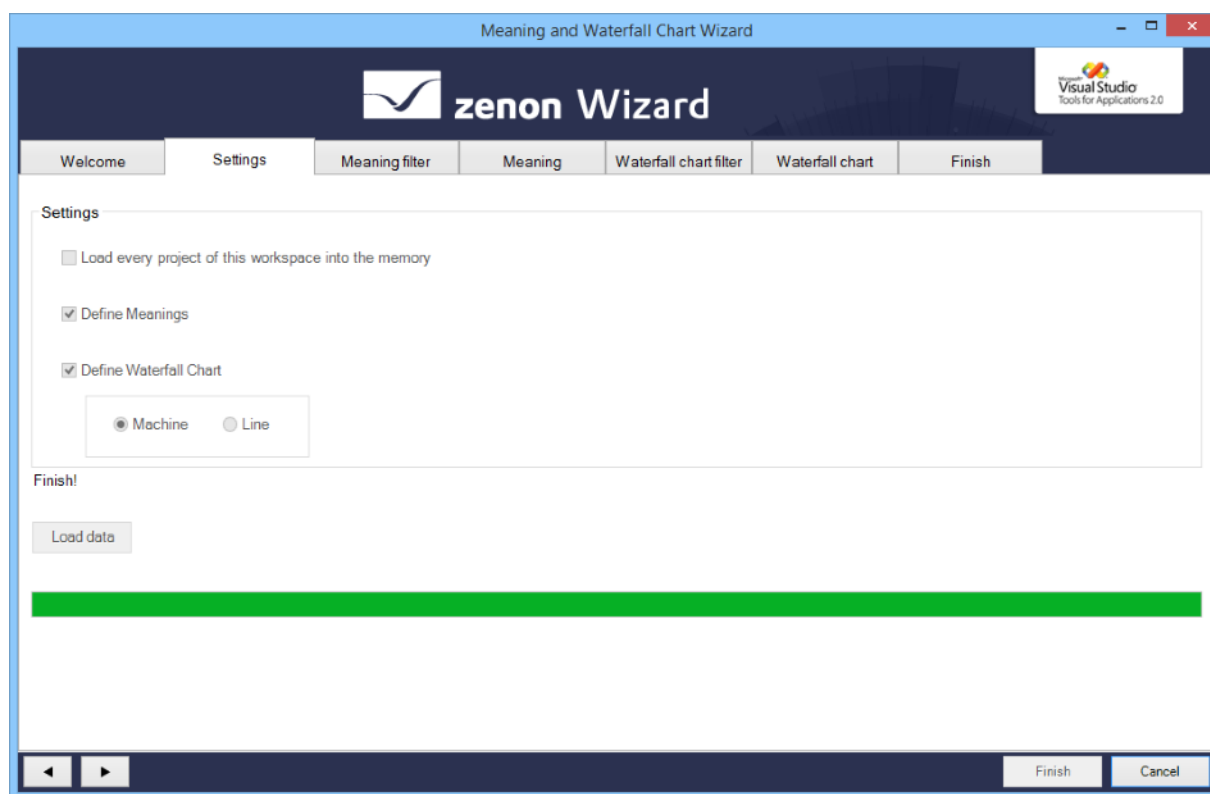
Meanings

Configuration of the meanings using the **Meaning filter** and **Meaning** tabs.

Meaning filter

The variables to be edited are pre-filtered with this tab. If an object is not selected in any group, all variables are available in the **Meaning (on page 144)** tab.

> ⚠ **Attention**
>
> *Only equipment models from the global project are available.*
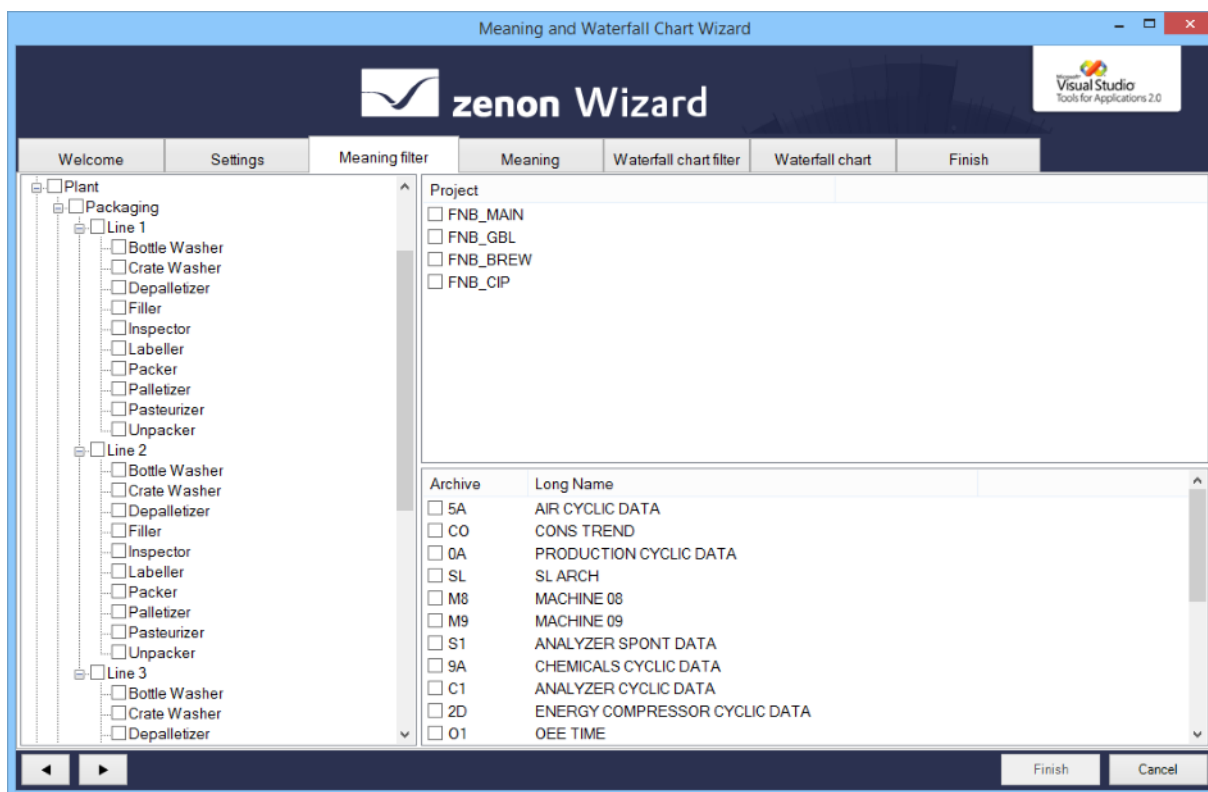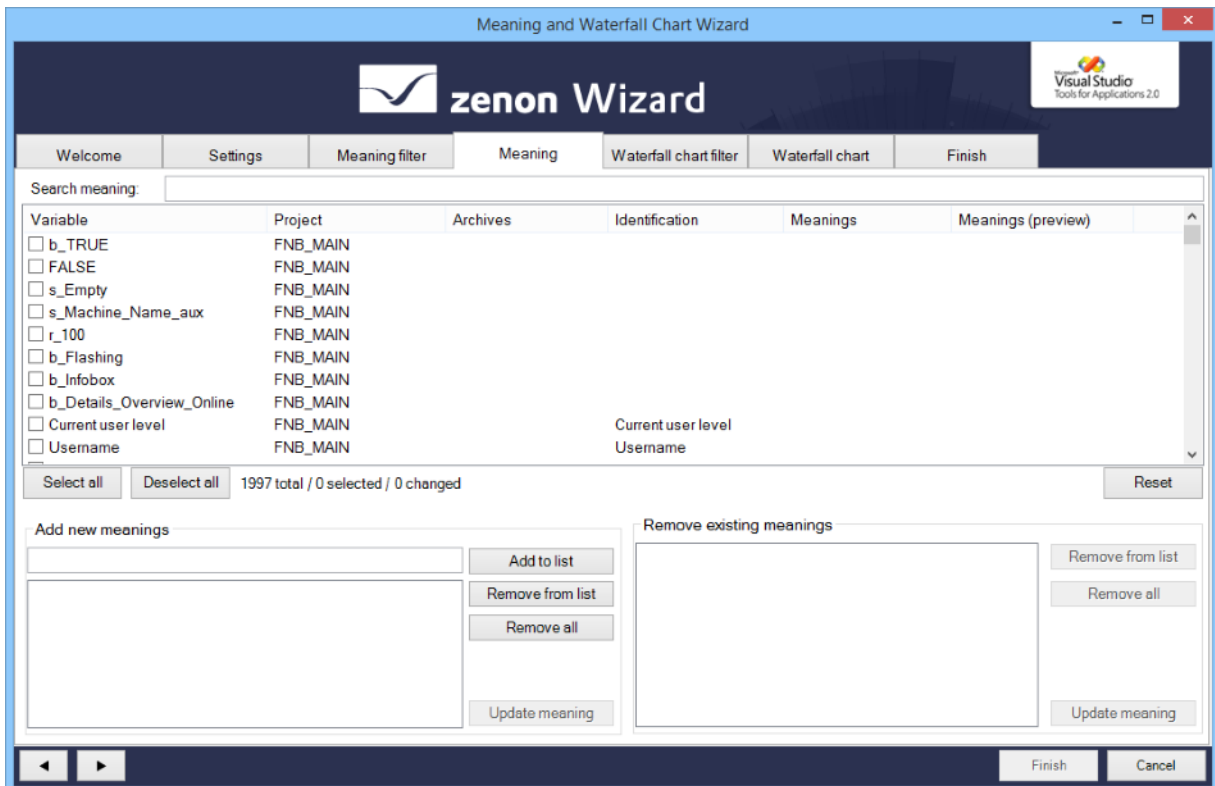
Option	Description
List of equipment groups	Filtering for individual models by activating the respective checkboxes.
	`No selection`: Variables of all equipment models are selected.
List of projects	Filtering for individual checkboxes by activating the respective checkboxes.
	`No selection`: Variables of all projects are selected.
List of archives	Filtering for individual archives by activating the respective checkboxes.
	`No selection`: Variables of all archives are selected.

Meaning

The meanings of the variables are edited in this tab. Variables can be selected and given new meanings, and existing meanings can be removed.

VARIABLE SELECTION

Option	Description
Search meaning	Input of a search term lists all variables with their corresponding meanings. The list is immediately updated with the entry of a character. Placeholders cannot be used.
List Variablen	List of the variables available after filtering. Selection of variables for editing: Activation of the checkbox before the variables. Existing meanings of the variables are shown in the **Meanings** column. In doing so, only meanings are displayed. Other entries or entries for the waterfall chart are hidden or ignored when editing. The variables can be sorted by clicking on a column label.
Select all	Clicking this selects all variables for editing.
Deselect all	Clicking this deselects all variables.
Display statistics	Display how many variables: ▸ Are present in the list ▸ Have been selected ▸ Have been changed
Reset	Resets all changes that have been made by clicking on **Update meaning**. Note: Changes are only accepted finally after clicking on **Finish**.

ADD MEANINGS

Option	Description
Add new meanings	Allows meanings to be added to variables. New meanings are entered in the input field, added to the list and assigned to the selected variables using the **Update meaning** button.
Eingabefeld	Entry of a new meaning. Maximum length: `50 characters`
Liste Meanings	Lists all meanings that have been created.
Add to list	Adds entry from text field to the list of meanings.
Remove from list	Deletes selected entry from the **list of Meanings**.
Remove all	Deletes all entries from the **list of Meanings**.

| Update meaning | Clicking this assigns a new meaning to all entries in the **list ofMeanings**. The meanings to be added are displayed in the **Meanings (preview)** column; the row with the variables has a green background. |

REMOVE MEANINGS

Option	Description
Remove existing meanings	Allows meanings to be removed from variables.
	If a variable is selected, all assigned meanings are displayed in the **list of Meanings**. Meanings that are to be retained are deleted from the list by clicking on the **Remove from list** button. Clicking on the **Update meaning** button removes the meanings from the selected variables.
List Meanings	Lists all of the meanings assigned to the selected variables.
Remove from list	Deletes selected entry from the **list of Meanings**.
Remove all	Deletes all entries from the **list of Meanings**.
Update meaning	Clicking this removes all entries in the **list of Meanings** from the selected variables. The row with the variables has a red background.

Attention: Changes and new entries are only written to the zenon variable once the **Finish** action in the **Finish** tab has been executed.

EXAMPLE OF COLOR IDENTIFICATION
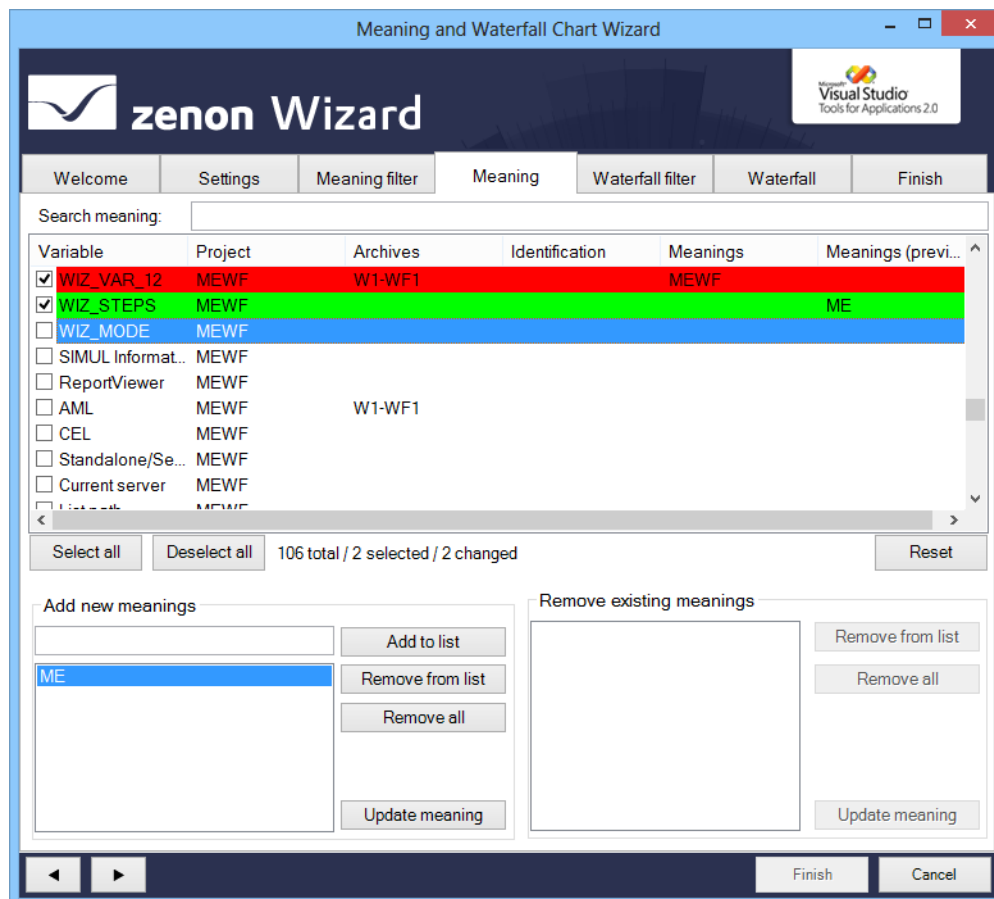

- ▸ Red: All Meanings of the variable have been deleted.
- ▸ Green: Variable has received a new   Meaning.

Topics

Machine

Configuration of a waterfall model for **machine-based reports** using the **Waterfall chart filter** and **Waterfall chart** tabs.
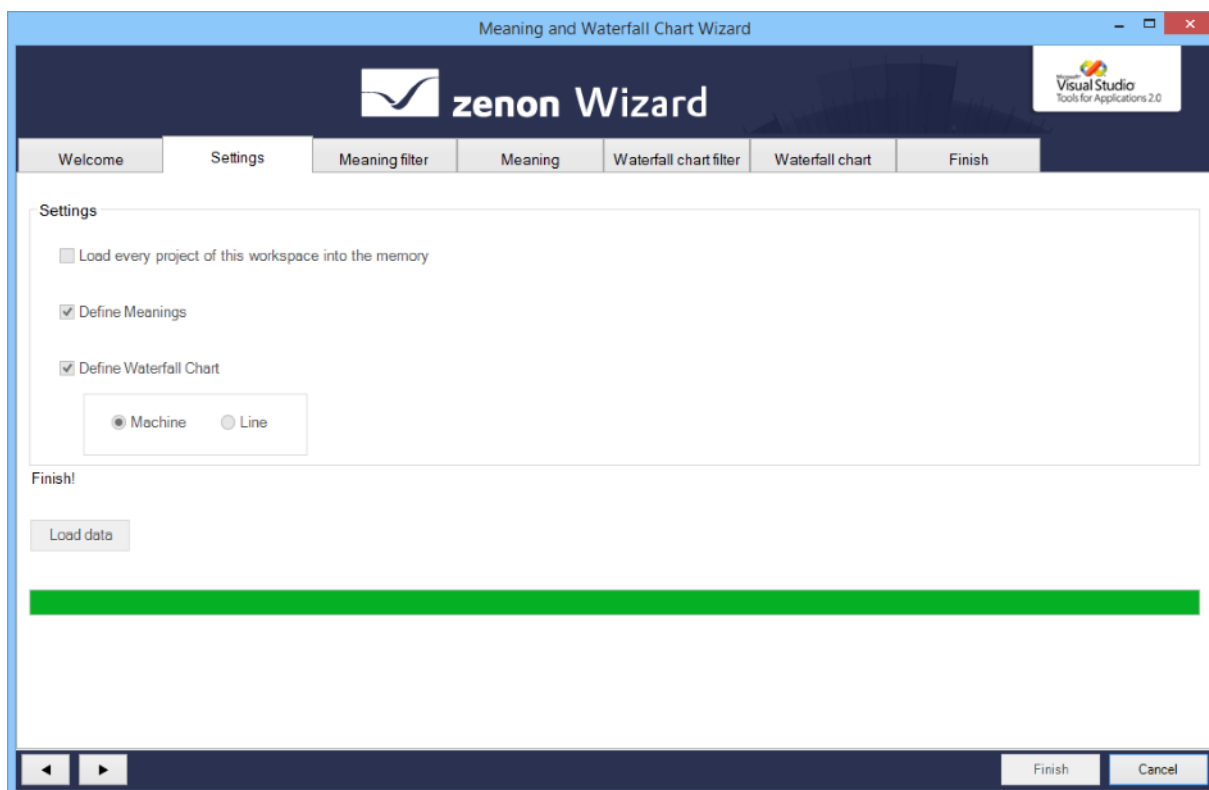
Waterfall chart filter

You define the machine-based waterfall diagram in this tab. To do this, all variables must be assigned to the same equipment group. If variables from an archive are used, the archive and the variables must be assigned to the same equipment group.

> ⚠ **Attention**
>
> *Only equipment models from the global project are available.*
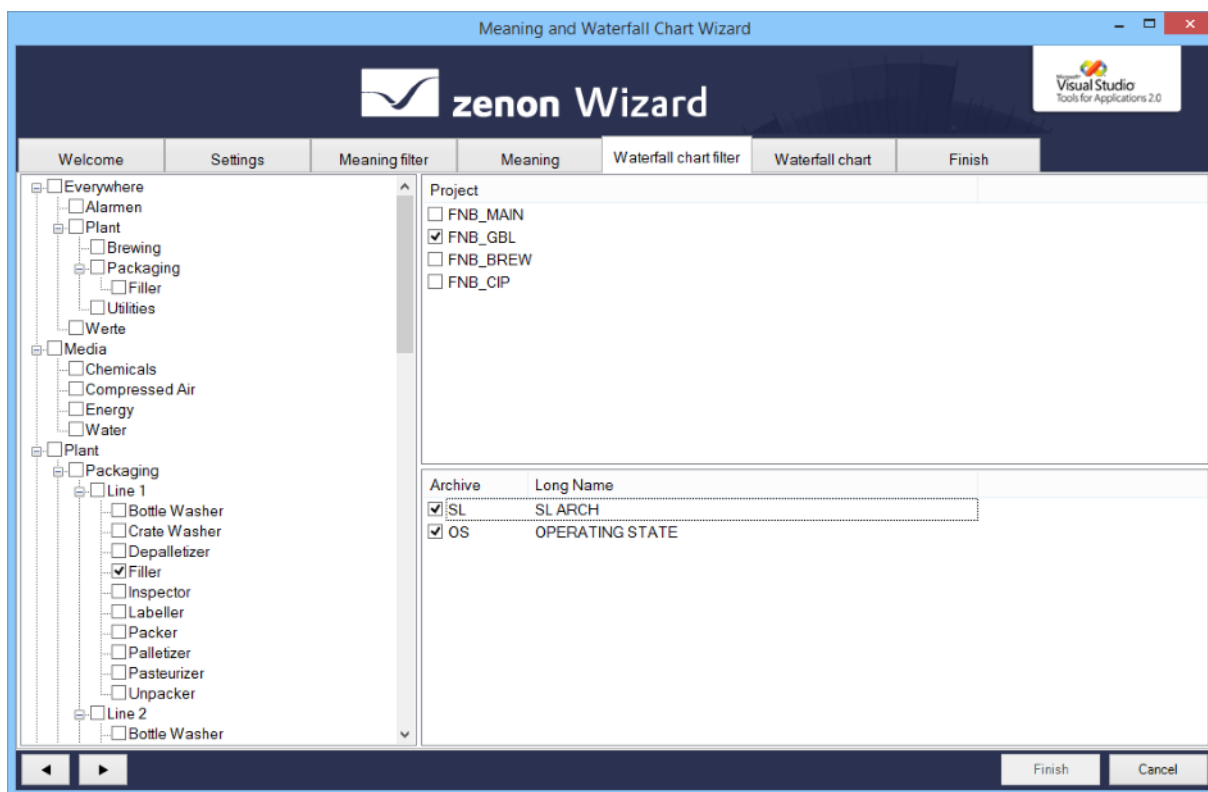
Option	Description
List of equipment groups	Selection of an equipment group.
List of projects	Selection of a project.
List of archives	Select an archive.

An equipment group and a project must be selected. As a option, it is also possible to select an archive from the appropriate equipment group.

No variables can be displayed in the **Waterfall** (on page 150) tab:

▶   No project was selected

▶   No equipment group was selected

▶   Objects were selected that are not assigned to the same equipment group

Waterfall chart

Waterfall definitions can be created and edited on this tab:

Option	Description
New	`Active`: A new waterfall definition is created.
Update	`Active`: An existing waterfall definition is edited. Select from drop-down list.
Chart	Entry of a name for a new waterfall definition.
Save	Clicking on the button saves the entries. Note: All changes are only written to the zenon variable once the **Finish** action in the **Finish** tab has been executed.
Variablenliste	Lists all variables that correspond to the configuration on the Waterfall filter (on page 148) tab. `Bool` and `String` variables are not displayed. The list can also be sorted by clicking on the column heading. Existing waterfall definitions are displayed in the **Waterfalls** column. New or amended waterfall definitions are displayed in the **Waterfalls (preview)** column.
Chart	Waterfall definitions can be created or amended here by dragging & dropping.

Note: All changes are only written to the zenon variable once the **Finish** action in the **Finish** tab has been executed.

CREATING A WATERFALL DEFINITION

To create a new waterfall definition:

1. Select **New**.

2. Move the desired variable by drag&drop in sequence in the **Chart** area

3. Arrange the bar according to the rules

4. Enter a name in the **Chart** input field

5. Click on **Save**.

6. The configuration is saved in the **Waterfalls (preview)** column

7. Switch to tab **Finish**.

8. Click on **Finish**.

Line

Configuration of a waterfall model for **line-based reports** using the **Waterfall chart filter** and **Waterfall chart** tabs.
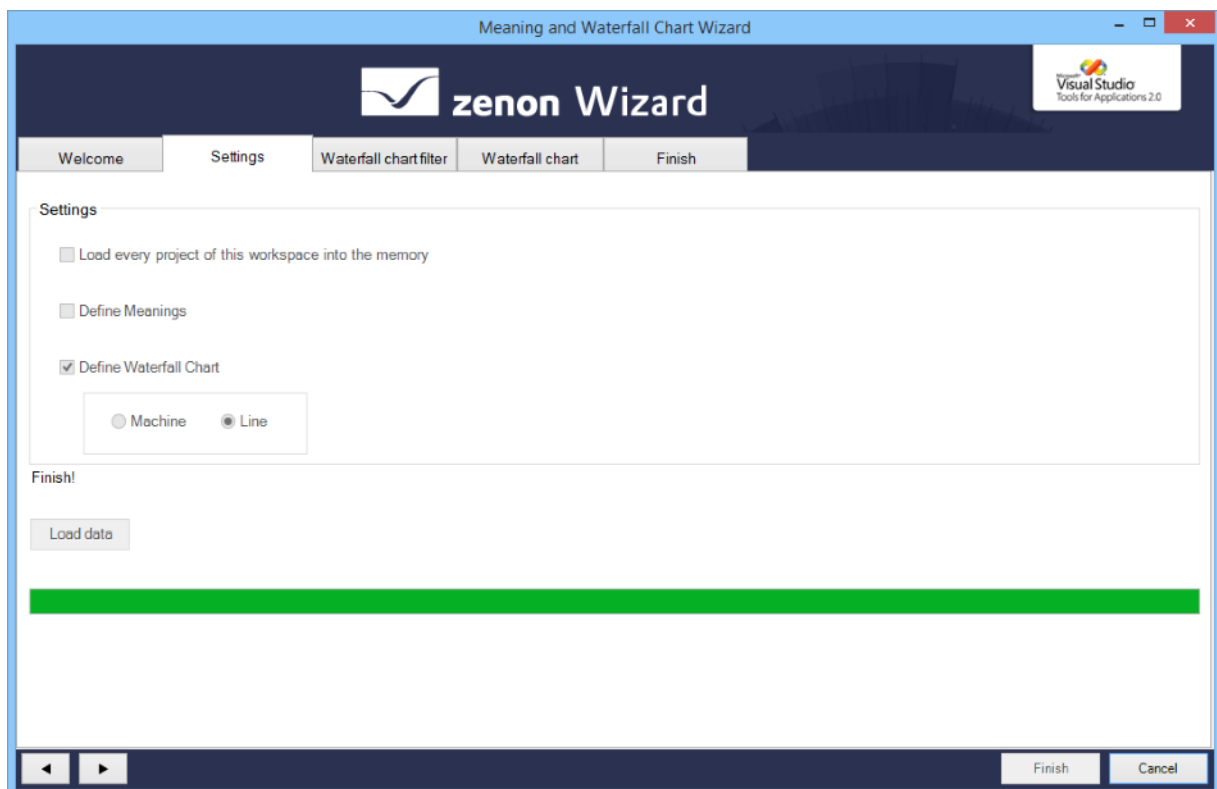
Waterfall chart filter

You define the line-based waterfall diagram in this tab. To do this, all variables and archives must be assigned to the same equipment group.

⚠ **Attention**

Only equipment models from the global project are available.

Parameter	Description
Main machine	Configuration of the main machine.
Equipment	List of the existing equipment models.
	Selection of a model by activating the checkbox. The selection defines the archives that can be used.
	Only one model can be selected.
Project	Existing projects.
	The list of archives can be filtered using the selection of projects. The selection is optional.
Archive	List of existing archives.
	Selection of an archive by activating the checkbox.
	Only one archive can be selected.
Side machines	Configuration of the auxiliary machines
Equipment	List of the existing equipment models.
	Selection of a model by activating the checkbox. The selection defines the archives that can be used.
	As many models as desired can be selected.
Project	Existing projects.
	The list of archives can be filtered using the selection of projects. The selection is optional.
Archive	List of existing archives.
	Selection of an archive by activating the checkbox.
	As many archives as you want can be selected.

RULES

The following is applicable for the selection of the main machine:

- ► Precisely one equipment group must be selected.

- ► The archive selection can be prefiltered using the **Project** filter.
  Only one project can be selected.

- ► Precisely one archive can be selected.

The following is applicable for the selection of the auxiliary machines:

- ► Several equipment groups can be selected. However these must be from the same level as the main machine.

- ► If an equipment group has been selected for the main machine, only equipment groups at the same level as the main machine can be selected for the auxiliary machines. The equipment group of the main machine is precluded in the process.

▶ The archive selection can be prefiltered using the **Project** filter.
Several projects can be selected.

▶ At least one archive must be selected. If a variable is already used in the archive of the main machine, it is not available for the auxiliary machine.
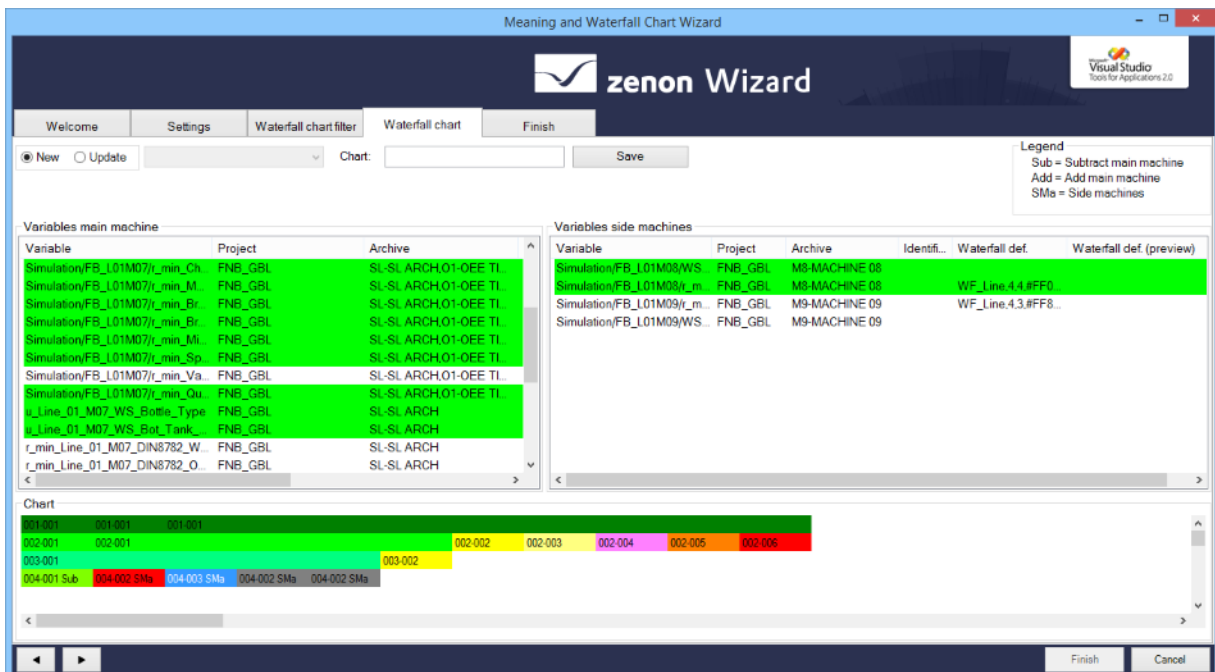
⚠ **Attention**

In order for variables to be available for the diagram, they must always be linked to the same equipment group as the archive in which the variables are located. This applies to main machines and auxiliary machines.

Waterfall chart

Waterfall definitions can be created and edited on this tab:

Note the rules for filtering on the **Line Analysis filter** tab: Precisely the same variable filter settings must be set for main and auxiliary machines.

Option	Description
New	`Active`: A new waterfall definition is created.
Update	`Active`: An existing waterfall definition is edited. Select from drop-down list.
Chart	Entry of a name for a new waterfall definition.
Save	Clicking on the button saves the entries. Note: All changes are only written to the zenon variable once the **Finish** action in the **Finish** tab has been executed.
Legend	Key for the assignment of the variables: ▸ **Sub**: Losses of auxiliary machines are subtracted from the main machine. ▸ **Add**: Losses of auxiliary machines are added to the main machine. ▸ **SMa**: Auxiliary machines .
Variables main machine	Lists all variables available for the main machine. The list can also be sorted by clicking on the column heading.
Variables side machine	Lists all the variables available for the auxiliary machines. The list can also be sorted by clicking on the column heading.
Chart	Waterfall definitions can be created or amended here by dragging & dropping.

Note: All changes are only written to the zenon variable once the **Finish** action in the **Finish** tab has been executed.

CREATING A WATERFALL DEFINITION

To create a new waterfall definition:

1. Select **New**.

2. Move the desired variable by drag&drop in sequence in the **Chart** area

3. Arrange the bar according to the rules

4. Enter a name in the **Chart** input field

5. Click on **Save**.

   The configuration is displayed in the list in the **Waterfall def. preview (preview)** column.

6. Switch to tab **Finish**.

7. Click on **Finish**.

EDITING A WATERFALL DEFINITION

To edit an existing waterfall definition:

1. Select **Update**.

2. Select the desired definition from the drop-down list.

   The existing definition is displayed in the diagram field.

3. Edit the definition.

4. Click on **Save**.

5. The configuration is displayed in the list in the **Waterfall def. preview (preview)** column.

6. Switch to tab **Finish**.

7. Click on **Finish**.

RULES WHEN DRAWING THE DIAGRAM:

When drawing, the following rules are applicable, in contrast to a machine-based diagram:

Position	Rule	Definition	Code
Last line, first column	Entries for main machines only.	**SUBTRACT_SIDE_MACHINE_LOSSES**	**Sub**
n-column, last line and not 1st column.	Main machine entries.	Default: **ADD_SIDE_MACHINE_LOSSES = 0**	(none)
		Alternative: Clicking on the cell with the right mouse button opens, after the dialog, a further dialog to select colors. Confirmation with **Yes** changes the definition to: **ADD_SIDE_MACHINE_LOSSES = 1**	**Add**
n-column, last line and not 1st column.	Auxiliary machine entries.	**LOSS_FROM_SIDE_MACHINE = 1**	**SMa**

DIALOG: ADD AUXILIARY MACHINE LOSSES

Under the following conditions, after the color selection dialog has been closed, an additional dialog to add losses from auxiliary machines is displayed:

▶ Click on the right mouse button in the diagram

▶ On a variable of the main machine

▶ In the last line

▶   From the second column
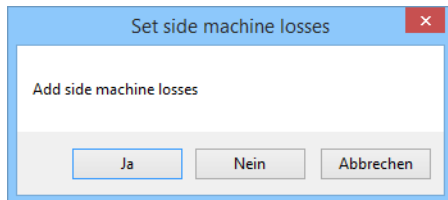
Option	Description
Add side machine losses	Query of whether losses from auxiliary machines are to be added.
Yes	The value for **DD_SIDE_MACHINE_LOSSES** is set to 1. The losses of the auxiliary machine are added.
No	The value for **DD_SIDE_MACHINE_LOSSES** is set to 0. The losses of the auxiliary machine are subtracted.
Cancel	The status remains as it was before the dialog was called up.

General rules for waterfall diagrams

The following rules apply when creating and editing waterfall definitions:

1.   For the first bar, the variable in the upper left corner of the character area must be dragged.

2.   The second bar can only be inserted below the first bar.

3.   All other bars can be inserted either below the existing bar or to the right of an existing bar.

   - The first row can only contain one bar.

   - If a bar is inserted to the right of an existing bar, the bar above this is extended.

4.   The selected variable is displayed in green.

5.   Each variable can only be used once.

6.   The bar contains an index:

   - First number: Row index

   - Second number: Column index

7.   The name of the selected variable is displayed in the tooltip of the bar.

8.   For line-based diagrams only: Variables of auxiliary machines can only be entered in the last line.

Note: Note the rules for filtering (on page 152) and diagram design (on page 154) for line-based diagrams.

SAVING A WATERFALL DEFINITION

To save a waterfall definition:

1. Enter a name in the **Chart** input field

2. Click on the **Save** button.

3. The definition is saved in the variable list and the new entry is displayed in the **Waterfall def. preview (preview)** column

4. The new waterfall definition is only written to the zenon variable after clicking on the **Finish** button in the **Finish** tab.

EDITING A WATERFALL DEFINITION

To edit a new waterfall definition:

1. Select **Update**.

2. Select the desired waterfall definition from the drop-down list.

    Attention: Only definitions that correspond to the configuration in the **Waterfall filter** (on page 148) tab are offered

3. The waterfall definition is displayed in the **Chart** area

4. Change the definition in accordance with the rules:

    - Adding a bar: Move the variable to the desired position: The variable is colored green.

    - Deleting a bar: Drag the bar to the deletion area. The variable is displayed again without a highlighting color.

    - Moving a bar: Move the bar to the desired location.

    - Changing the color: Assign the bar the desired color with a right-click.

5. Click on **Save**.

6. All changes are displayed in the list in the **Waterfall def. preview (preview)** column

7. Switch to tab **Finish**.

8. Click on **Finish.**

DELETING A BAR

Bars can be deleted if:

- ▶ It is a short bar

- ▶ There is no other bar below or to the right

To delete a bar, drag & drop it to a free location outside the Chart field (but not in the variable list).

THE BAR IS DELETED. ALL OTHER BARS ARE MOVED ACCORDINGLY. MOVING THE BAR

Bars can be moved if:

- ▶ It is a short bar

- ▶ The movement is within a row

To move a bar, drag & drop it to the new position. All other bars between the old and the new position are moved by one place.

CHANGING THE COLOR OF A BAR

To change the color of a bar:

1. Right-click on the bar

2. The dialog to select the color opened:

3. select the desired color

4. Click on **OK.**

Finish

In this tab, the changes are written to the variables in zenon and the result is displayed in the output field.
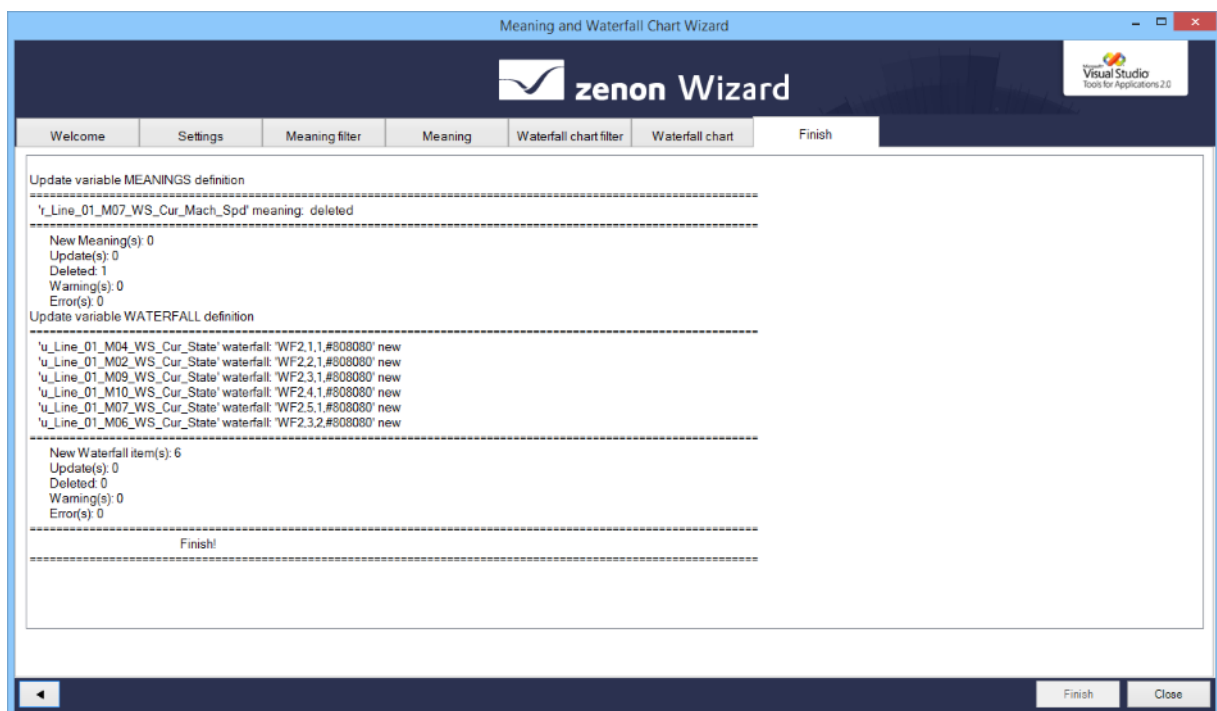
Clicking on the 'Finish' button writes the changes to the zenon variable in the Editor.

The changes made are displayed in the output field:

- ▶ Update MEANINGS definition variable: Changes to the variables that are carried out and that concern the meanings.

- ▶ Update WATERFALL definition variable: Changes to the variables that have been carried out and that concern the waterfall definition

- ▶ Notes on new and deleted entries, warnings and error messages.

  When importing into zenon, the length of the entry is checked for the corresponding properties. This must not consist of more than 250 characters If the entry is longer, the sequence is cut off after the 250th character and an error message is written in the output field of the 'Finish' tab.

3.1.6   Sankey Wizard

A Sankey diagram is a graphic display of quantity flows. The quantities are displayed by arrows with a thickness proportional to the quantity. Sankey diagrams are important aids for the visualization of energy and material flows, as well as inefficiencies and potential for saving when using resources.

The **Sankey Wizard** supports you when creating Sankey diagrams that you can see in zenon Runtime and in zenon Analyzer.

The following scenarios are possible:

- ▶ Create a new Sankey diagram.

- ▶ Use a pre-existing Sankey diagram as a template.

- ▶ Edit an existing Sankey diagram.

- ▶ Delete an existing Sankey diagram.

The Sankey diagram is saved in an XML file.

Note: The wizard is only available in English.

Installing the Sankey wizard

The wizard is automatically installed together with zenon.

Starting the Sankey Wizard

> 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]`.

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.
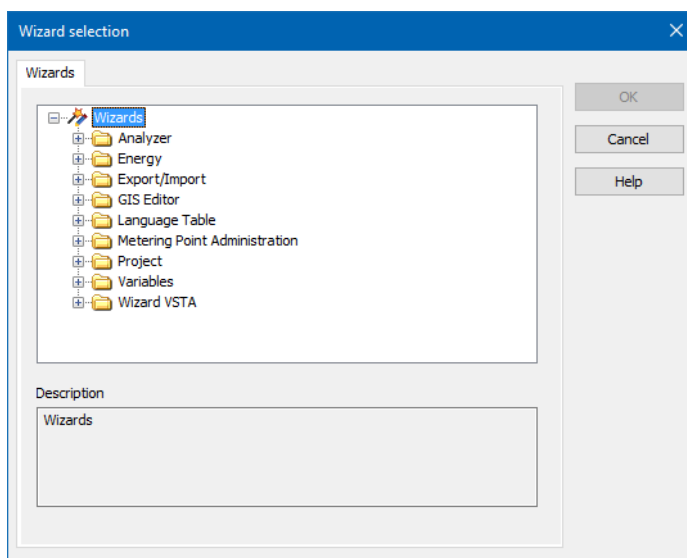
2. Navigate to the node **Analyzer**.

3. Select the **Sankey Wizard**.
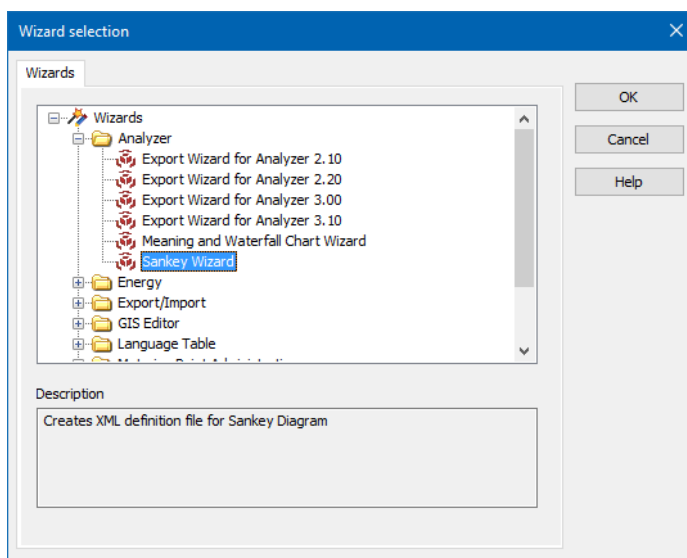
4.   Click on **OK.**

The wizard starts with the welcome page.

Start window

When opening the wizard, you receive an overview that lists and explains all objects that can be configured. Configuration starts with the **Action** tab.
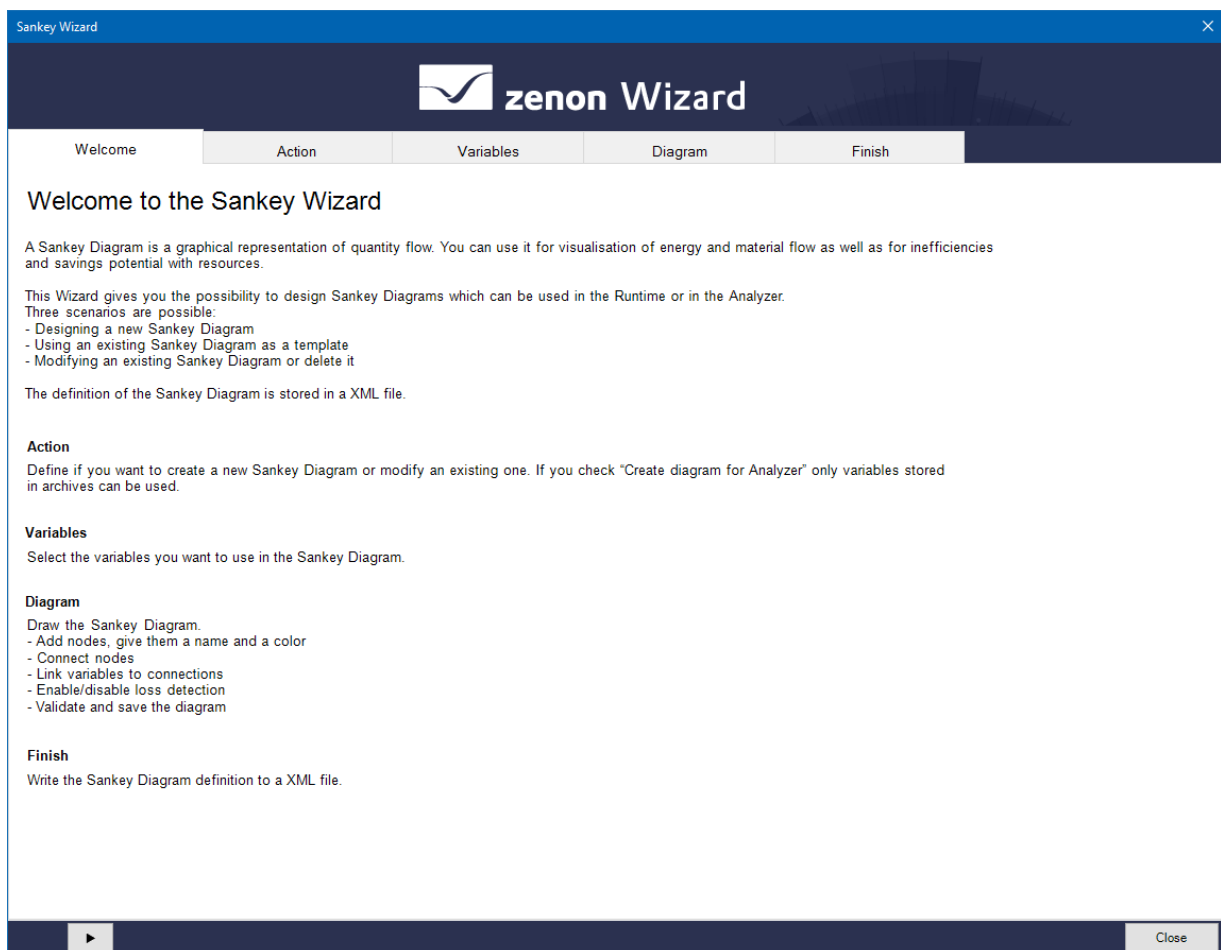
Click on the button with the **arrow** or on the title of the tab to navigate through the configuration of the export.

Sorting and filtering lists

SORTING OF LISTS

All lists in the **Action** and **Variables** tabs can be sorted.

The sorting is alphabetical by default, which can however be inverted.

To sort:

1. Click on the corresponding header of the column according to which sorting is to take place.

   The list is displayed sorted according to this column.

2. A further click inverts the sorting.

FILTERING OF LISTS

You can filter all lists in the **Action** and **Variables** tab according to certain criteria. Several filters can also be combined with one another.

Note: To reset a filter, delete the filter text from the header.

Engineering:

1. Click in the desired list, with the left mouse button, in the input field for the corresponding filter symbol.

2. Enter the term according to which filtering is to take place.

3. Click on the corresponding filter symbol in the desired list with the left mouse button.

   The context menu is opened.

4. Make your choice by clicking on the desired filter possibility with the left mouse button.

   The choices are:

   - **No filter**: no filter set
   - **Contains**: contains
   - **Does not contain**: does not contain
   - **Starts with**: starts with
   - **Equals**: is equal to
   - **Not equal to**: is not equal to

   The list is filtered according to your selection.

Note: The filter is set to "**Contains**" by default.

Navigation

Navigation through the tabs is carried out by means of the navigation bar in the lower area of the wizard window:
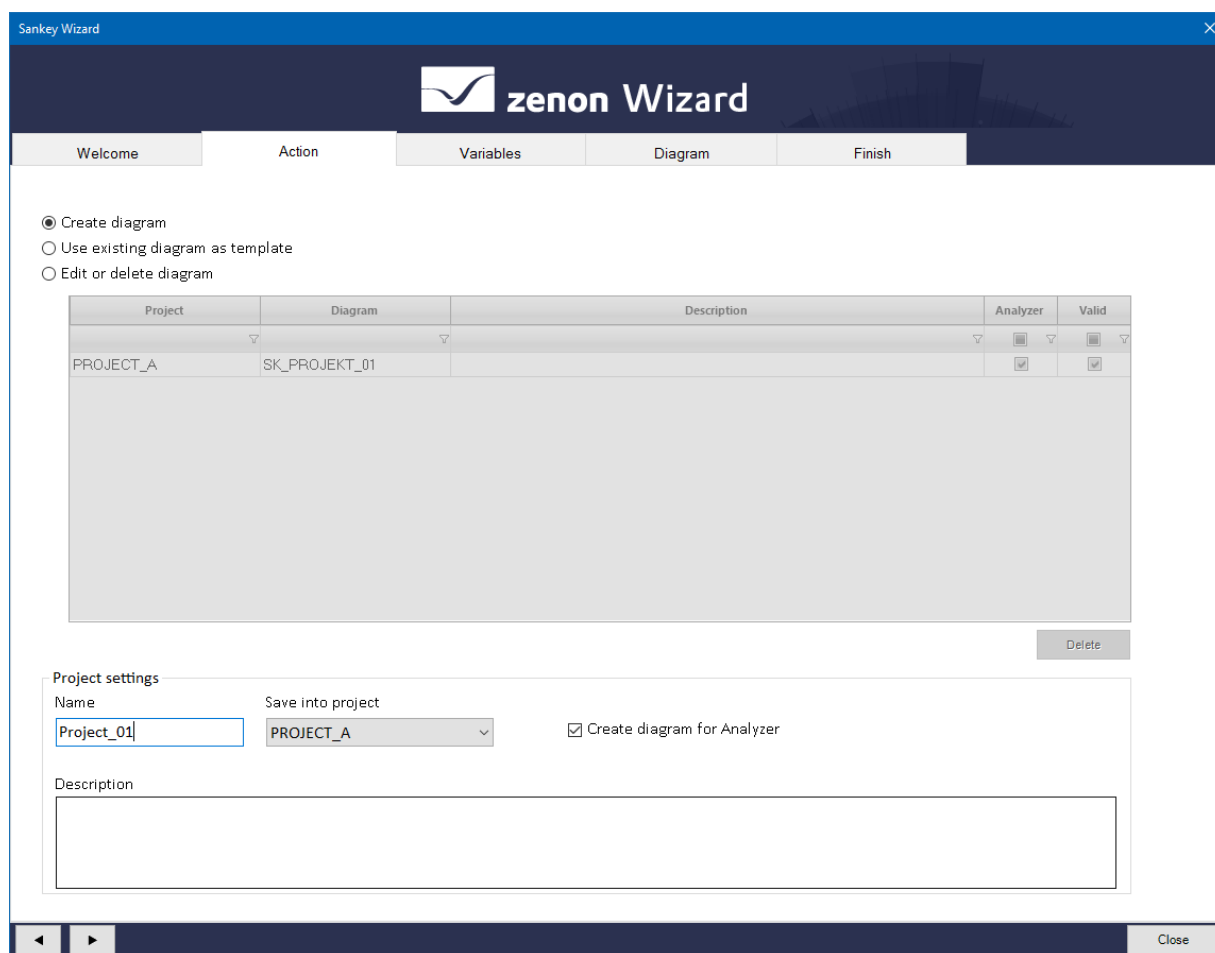
Button	Description
Arrow left	Goes back one tab in the wizard process.
Arrow right	Goes forward one tab in the wizard process.
Finish	Writes all changes to the zenon variable in the Editor and closes the wizard.
Cancel	Ends the wizard without making changes.

Individual tabs can also be selected by clicking directly on the title of the tab.

Action - select action

Select, in the **Action** tab, the desired action by activating it.

There are the following three possibilities:

Option	Description
Create diagram	Creates a new diagram.
Use existing diagram as template	Uses an existing diagram as a template. Note: In this case, variables must be linked to node connections again. The variable linkings of existing diagrams are not shown in the template.
Edit or delete diagram	Allows the editing or deletion of an existing diagram. The diagram to be edited or deleted can be selected from the list of the created diagrams.

SORTING AND FILTER POSSIBILITIES

You can sort the list in the **Action** tab and filter according to certain criteria. You can find details on this in the Sort and filter lists (on page 163) chapter.

LIST OF THE DIAGRAMS THAT HAVE BEEN CREATED

The window in the middle shows a list with the diagrams that have already been created. The entries are grayed out if **Create_Diagram** has been selected. The following information for this is visible:

Option	Description
Project	Name of the project in which the diagram is saved
Diagram	Shows the name of the diagram.
Description	Shows the description of the diagram.
Analyzer	`Active`: The diagram can be used in the Analyzer and in Runtime. `Inactive`: The diagram can only be used in Runtime.
Valid	`Active`: The diagram is valid. `Inactive`: The diagram is not valid. You cannot use the diagram in either the Analyzer or in Runtime. Note: In this case, edit the diagram and amend it until it is valid.
Delete	Deletes the selected diagram. A dialog requesting confirmation is called up before the selected diagram is deleted.

PROJECT SETTINGS

You can change the following settings for the project in this area:

Option	Description
Name	Enter a name for the project here.
	Note: The name must be unique. Otherwise a warning dialog will make you aware of this. A newly-created program with a name that already exists would replace the existing one if the warning dialog is confirmed. However if you click on **No** in the warning dialog, _1 is automatically added to the name.
Save into project	Here you select the project in which your diagram is to be saved.
Description	Enter a description here. Note: This is optional.
Create diagram for Analyzer	`Active`: Only variables that are in archives are shown. Note: The variables that you want to use must first be exported with the Analyzer Export Wizard.
	`Inactive`: Selection of the variables is possible without limitations, however the diagram cannot be used in zenon Analyzer, only in zenon Runtime.

Note: Once this tab is left, it is no longer possible to edit the settings that have been made.

DIALOG: DELETE DIAGRAM

A dialog requesting confirmation is called up before the selected diagram is deleted.
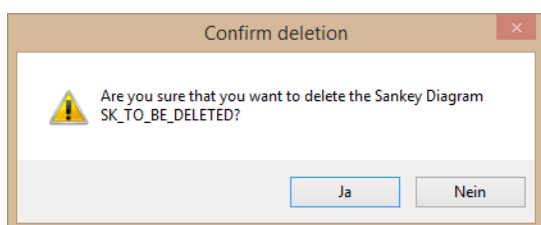
Option	Description
Ja	Deletes the selected diagram.
Nein	The deletion process is canceled. The dialog is closed and the selected diagram is not deleted

Variables - select variables

You can select variables for your project in this tab.

SORTING AND FILTER POSSIBILITIES

You can sort the lists in the **Variables** tab and filter according to certain criteria. You can find details on this in the Sort and filter lists (on page 163) chapter.

SELECT PROJECT

Option	Description
Select project	List of all active zenon projects.
	Select the project(s) from which you want to select variables for your diagram here.
	Note: Multiple selection is possible.

SELECT DATA SOURCE

Option	Description
Select data source	Select the data source here (archives). Note: The **Online Data** option is available for all other variables that do not come from archives. This option can only be selected if you have not activated the **create for Analyzer** option in the **Action** tab. Live values, i.e. online values, are used for Runtime. Historical values are used for zenon Analyzer.
	▶ `Short name` Short identification of the archive
	▶ `Long name` Full name of the archive
	▶ `Project` Project name of the archive
	▶ `Parent archive` Version of the archive used

VARIABLES

Option	Description
Project variables	Select the variables that you want to link to your diagram here. Multiple selection is possible.
	Possibilities for this:
	▶ Double-click on the desired variable.
	▶ Highlight the desired variable and then click on **Add->**.
	▶ Hold down the `Ctrl key`, highlight several variables, click on **Add->**.
	▶ Click on **Add all->** to select all variables.

	Variable list:

	▸ Name
	  Variable name
	
	▸ Project
	  Name of the project of the variable
	
	▸ Archive:
	  Short identification of the archive
	
	▸ Aggregation:
	  Aggregation type of the archive
	
	• AVG (Average)
	
	• Max (Maximum value)
	
	• Min (Minimum value)
	
	• Sum (Sum)
	
	• RAW (Raw data format - without aggregation)

Button **Add ->**	Adds selected variable(s) to the list of **Diagram variables**.
Button **Add all ->**	Adds all variables to the list of **Diagram variables**.
Button **<- Delete**	Removes selected variable(s) from the list of the **Diagram variables**.
Button **<- Delete all**	Removes all variables form the list of **Diagram variables.**

DIAGRAM VARIABLES

Option	Description
Diagram variables	You can see all selected variables here. These are relevant for the next tab when creating the diagram. To delete variables again: ▸ Highlight the variable that you want to delete and click on **<-Delete**. ▸ Hold down the Ctrl key, highlight several variables that you want to delete at the same time and click on **<-Delete**. ▸ Click on **<-Delete all** to delete all selected variables again. **Variable list:** ▸ Name Variable name

	▸ `Project` Name of the project of the variable
	▸ `Archive:` Short identification of the archive

	▸ `Aggregation:`
	  Aggregation type of the archive
	
	  • `AVG` (Average)
	  • `Max` (Maximum value)
	  • `Min` (Minimum value)
	  • `Sum` (Sum)
	  • `RAW` (Raw data format - without aggregation)

Note: Once you have left this tab, changes to the settings that have been made here are possible.

Diagram - create diagram

You are able to draw a diagram in this tab.
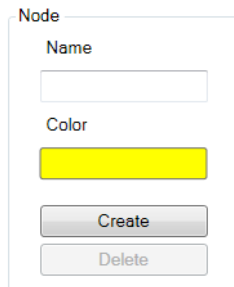
Note that:

▸ You can create a maximum of 26 start or end nodes.

▸ The start nodes cannot overlap.

▶ The end nodes cannot overlap.
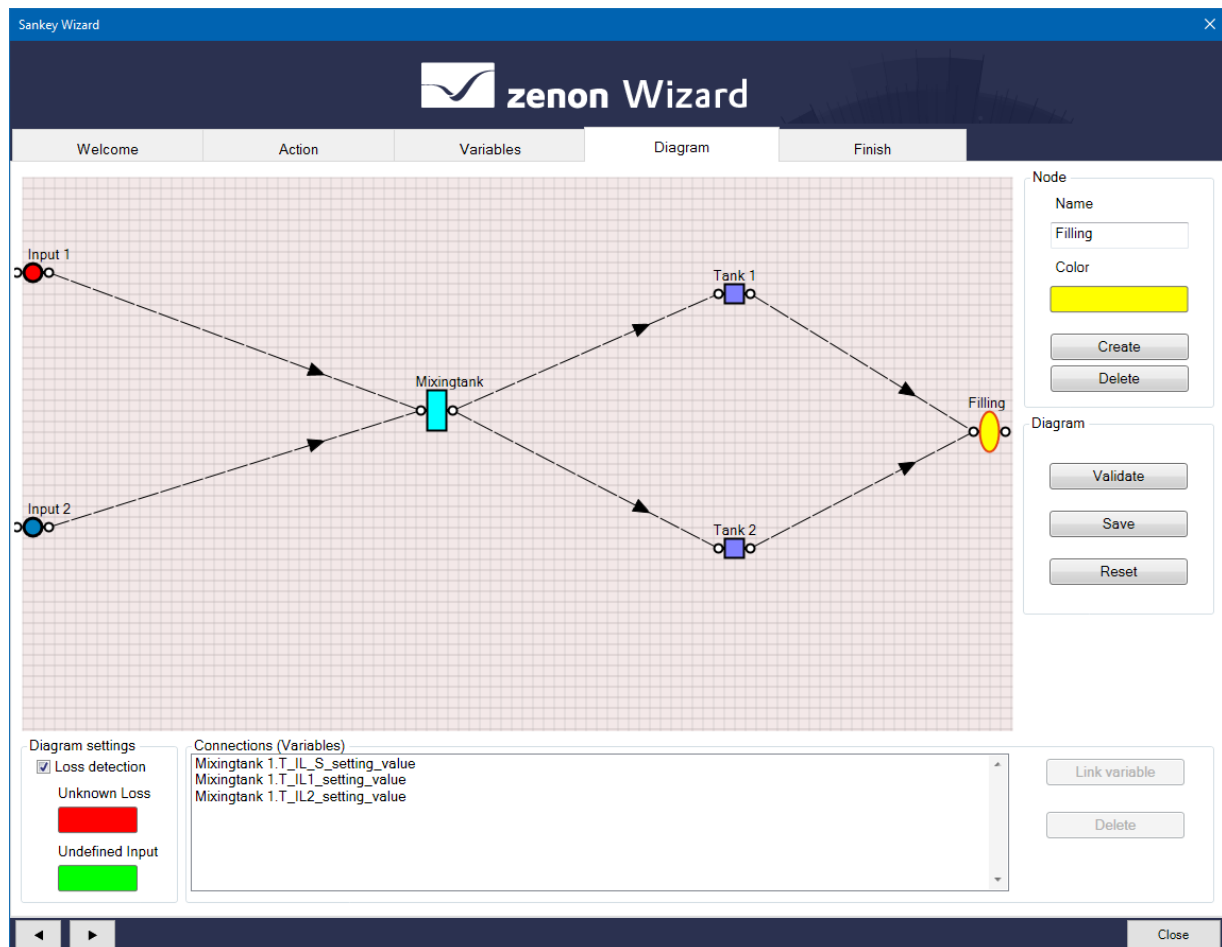
DRAWING AREA

You position your nodes and connections in the drawing area.

NODE

Option	Description
Name	Node name
Color	Color of the node. Displays the last selected color. Clicking on the button opens the color selection dialog.
Create	Creates nodes and positions these on the drawing area.
Delete	Deletes selected nodes from the drawing area. Only active if at least one node in th drawing area has been selected.

DIAGRAM

Option	Description

Validate	Checks whether all nodes have been linked and/or whether the links are occupied with a variable.
	
	The result of the validation is displayed in a dialog.
	
	▸ `Node xx is not connected!`
	  The node is not connected to another node.
	
	▸ `A connection of node xx has no variable linked!`
	  The linking of the node does not have an assigned variable.

Save	Saves the current project configuration. A check is also carried out before saving.
Reset	Deletes all nodes and previously-configured connections.

DIAGRAM SETTINGS

Option	Description
Loss detection	Automatic loss detection with an additional connection that visualizes the differential flow. ▸ `activated:` The automatic loss detection is calculated. ▸ `deactivated:` No automatic loss detection is calculated. Default: `deactivated`
Unknown Loss	If, for a node, the quantity of inflows exceeds the quantity of outflows, a differential flow in the selected color is displayed.

	Only active if **Loss detection** is active. Note: This differential flow is only displayed in zenon Runtime or in zenon Analyzer.
Undefined Input	If, for a node, the quantity of outflows exceeds the quantity of inflows, a differential flow is displayed in the selected color. Only active if **Loss detection** is active. Note: This differential flow is only displayed in zenon Runtime or in zenon Analyzer.

CONNECTIONS (VARIABLES)

Option	Description
Connections (Variables)	List of all the variables available for linking. If a variable is already linked to a connection, this variable is shown in green in the selection list. Note: These variables are provided in the **Variables** tab.
Link variable	Links the selected variable to the selected connection. Not active if no connection is selected. Note: If a second node and a variable is selected, the connection is also drawn in addition to the linking.
Delete	Deletes selected connection. Multiple selection of connections is possible. Not active if no connection is selected.

Create diagram

This is how you create a Sankey diagram with the Sankey wizard:
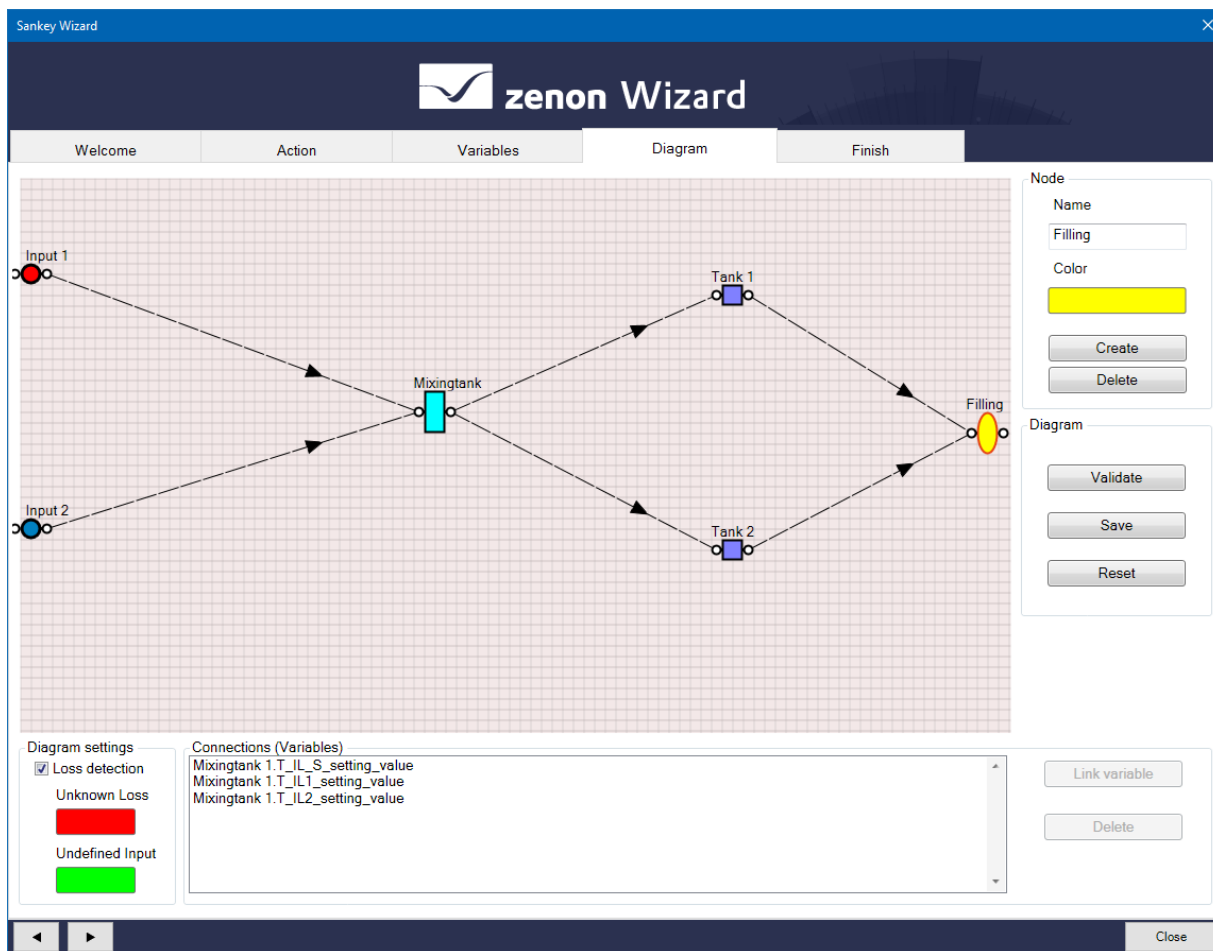
CREATING NODES AND CONNECTIONS:

Note that:

▶ You can create a maximum of 26 start or end nodes.

▶ The start nodes cannot overlap.

► The end nodes cannot overlap.

Node
Name

Color

Create
Delete

Engineering:

1. Enter, in the **Node** window, under the **Name** field, a name for the node to be created.

2. Select a color for the node by clicking on the **Color** field.

3. Then click on **Create**.

4. Create the required nodes and arrange these as you wish.

5. Connect the nodes by dragging a node output (to the right of the node) to a node input (to the left of the node).

Note: A node can have connections to several nodes or several nodes can have connections to one node. The size of the output node changes depending on how many connections there are. Nodes that are only connected on one side are displayed as round or oval. Nodes that have connections on both sides are shown as angular.

There are the following possibilities with regard to node connections:

Back-coupling: Establish a connection from the output of a node to its input

To do this:

► Double-click on the node on which you want to create the back-coupling.

or

► Drag the connection from the output of the node to its input.

Establish a connection between 2 nodes and link a variable to it at the same time:

To do this:

1. Highlight both nodes that you want to connect and the variable that you want to link to it.

2. Click **Link Variable**.

LINKING VARIABLES TO CONNECTIONS:

There are several possibilities for linking variables to connections:
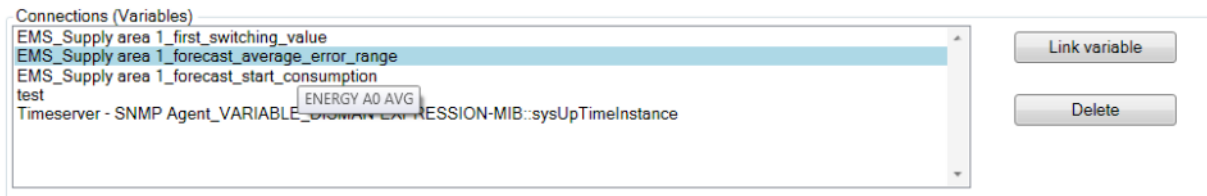
Drag&Drop

▶ Drag the desired variable from the **Connections (Variables)** window to the desired node connection.

Note: Provided that you have already established the connection between the nodes.

Button **Link Variable**

1. Highlight the desired node connection

2. Highlight the variable that you want to link to the connection.

3. Click on the **Link Variable** button.

Note: You can only link one variable to each connection.

Linking a variable to several node connections:

1. Hold down the `Ctrl` key and highlight several node connections.

2. Highlight the desired variable

3. Click on **Link Variable**

   or

4. Drag the variable to the highlighted node connections.

Note: In order to see the name of the variable that is linked to the connection, move the mouse to above the connection.

DIAGRAM SETTINGS:
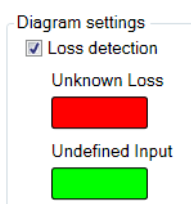
If you activate the **Loss Detection** option, loss detection is calculated automatically. An additional connection then visualizes the differential flow.

You can select the colors that are to be used for the display of the differential flows in the **Unknown Loss** and **Undefined Input** fields. To select a color, click in the field. The color palette for selecting a color is opened

CONCLUDING THE DRAWING OF THE DIAGRAM:
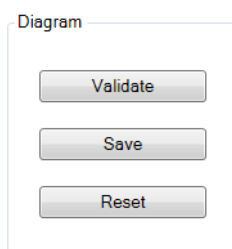
Once you have finished drawing your diagram,

▶   Click on the button   **Validate**:

If all your connections are correct, a dialog appears informing you that the diagram is valid. Otherwise a dialog appears informing you that there are still nodes that are not connected or that variables are not linked to the connections.
In order for a diagram to be valid:

▶   All nodes must be connected

▶   All connections must be occupied with a variable

▶   No nodes can overlap if they are moved towards inputs (left) or outputs (right)

To save your diagram,

▶   Click on the **Save** button.

The diagram you have created is validated. The diagram is saved and marked as valid or invalid. You are shown the project in which it is saved.

To redraw the diagram,

▶   Click on the **Reset** button.

All the nodes you have drawn and your connections are thus deleted.

> ### 💡 Information
>
> *Clicking on the **Validate** or **Save** buttons orientates the nodes to the right and left side of the drawing area.*
>
> *Note: Nodes must not overlap in the process.*

EDITING NODES:

Once you have created some nodes, you can

Issue several nodes with the same name:

1. Hold down the `Ctrl` key.

2. Highlight the nodes that you want to name.

3. Enter a name.

Select the same color for several nodes:

1. Hold down the `Ctrl` key.

2. Highlight the nodes that you want to color.

3. Then select a color.

Moving several nodes at the same time:

1. Hold down the `Ctrl` key.

2. Select the node that you want to move.

3. Move the nodes. Your connections are also moved.

Note: You can also edit a node individually by highlighting it and make the desired change.

DELETING NODES:

1. Highlight the node that you want to delete.

2. Click, in the **Node** window, on **Delete** or use the `Del` key.

Deleting several nodes at the same time:

1. Hold down the `Ctrl` key and highlight the node that you want to delete.

2. Click, in the **Node** window, on **Delete** or use the `Del` key.

Note: When the node is deleted, its connections are also deleted.

DELETING CONNECTIONS:

1. Highlight the connection that you want to delete.

2. Click, in the **Connections (Variables)** window, on **Delete** or use the `Del`key.

Deleting several connections at the same time:

1. Hold down the `Ctrl` key and highlight the connections that you want to delete.

2. Click, in the **Connections (Variables)** window, on **Delete** or use the `Del`key.

Display of Sankey diagram in zenon Analyzer

The nodes are always rearranged in zenon Analyzer and do not follow the exact positioning in the wizard in the process. The display of the Sankey diagram is automatically optimized in zenon Analyzer for legibility and clarity.

The width of the connection is taken into account specially for this arrangement. This width is dependent on the respective values shown (the more there are, the thicker it is).

HORIZONTAL ARRANGEMENT

Nodes are distributed horizontally over the whole width in proportion to their number.

Example: With three nodes, the display of the first connection will end in the middle of the display.

VERTICAL ARRANGEMENT

The vertical arrangement of the nodes is always carried out in a vertical line in zenon Analyzer. This means that the first level is always arranged in a vertical line, regardless of the project configuration in the wizard.

The end nodes are automatically arranged from top to bottom at equal distances.

> **Information**
>
> *Note the following examples of views.*

Examples of views: Wizard - zenon Analyzer

EXAMPLE OF HORIZONTAL ARRANGEMENT

SANKEY WIZARD CONFIGURATION
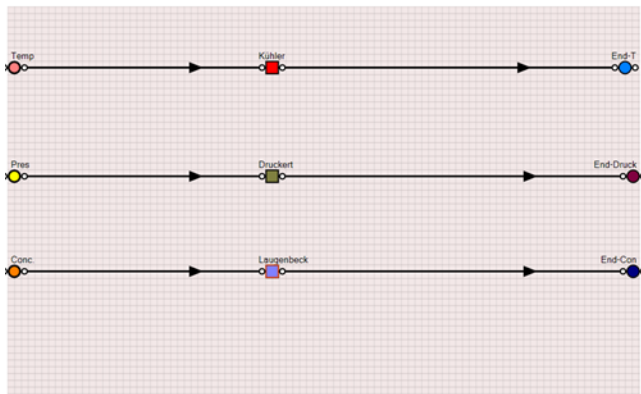
VIEW ZENON ANALYZER
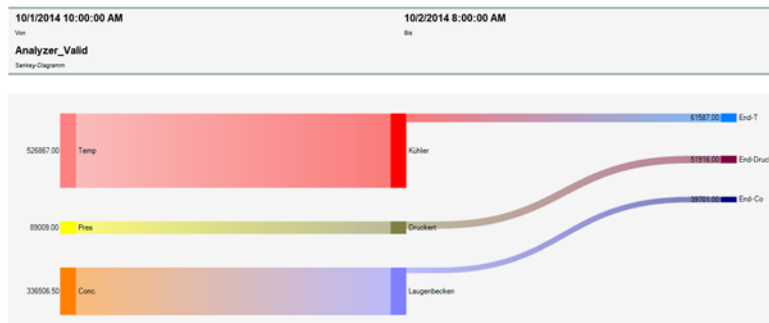
EXAMPLE OF VERTICAL ARRANGEMENT

SANKEY WIZARD CONFIGURATION
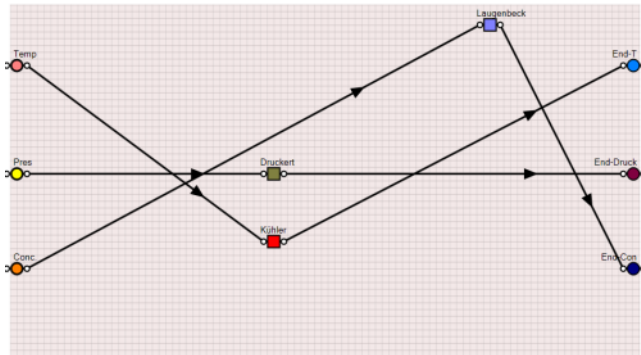
VIEW ZENON ANALYZER
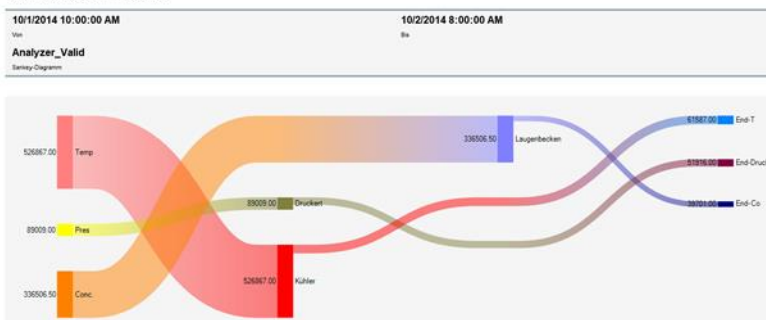
EXAMPLE OF MIXED ARRANGEMENT

SANKEY WIZARD CONFIGURATION
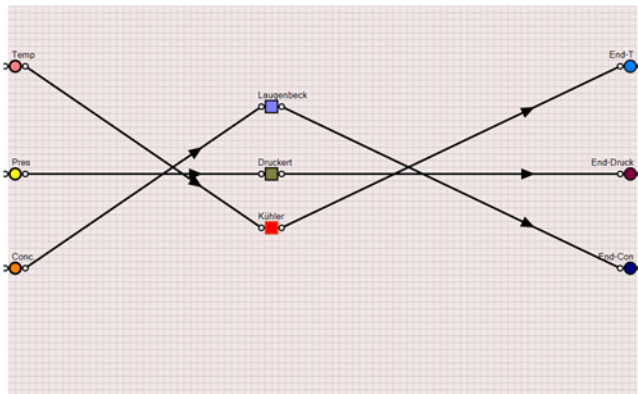
VIEW ZENON ANALYZER
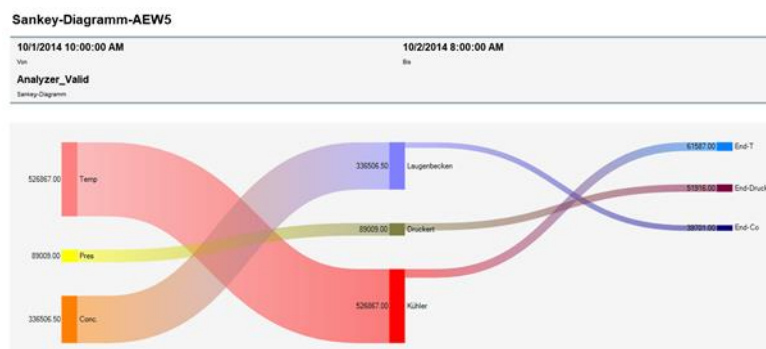
Finish - complete

In the **Finish** tab, you can see whether the diagram you have created is valid and the location where the diagram you have created has been saved.

▶ Click on the **Finish** button.
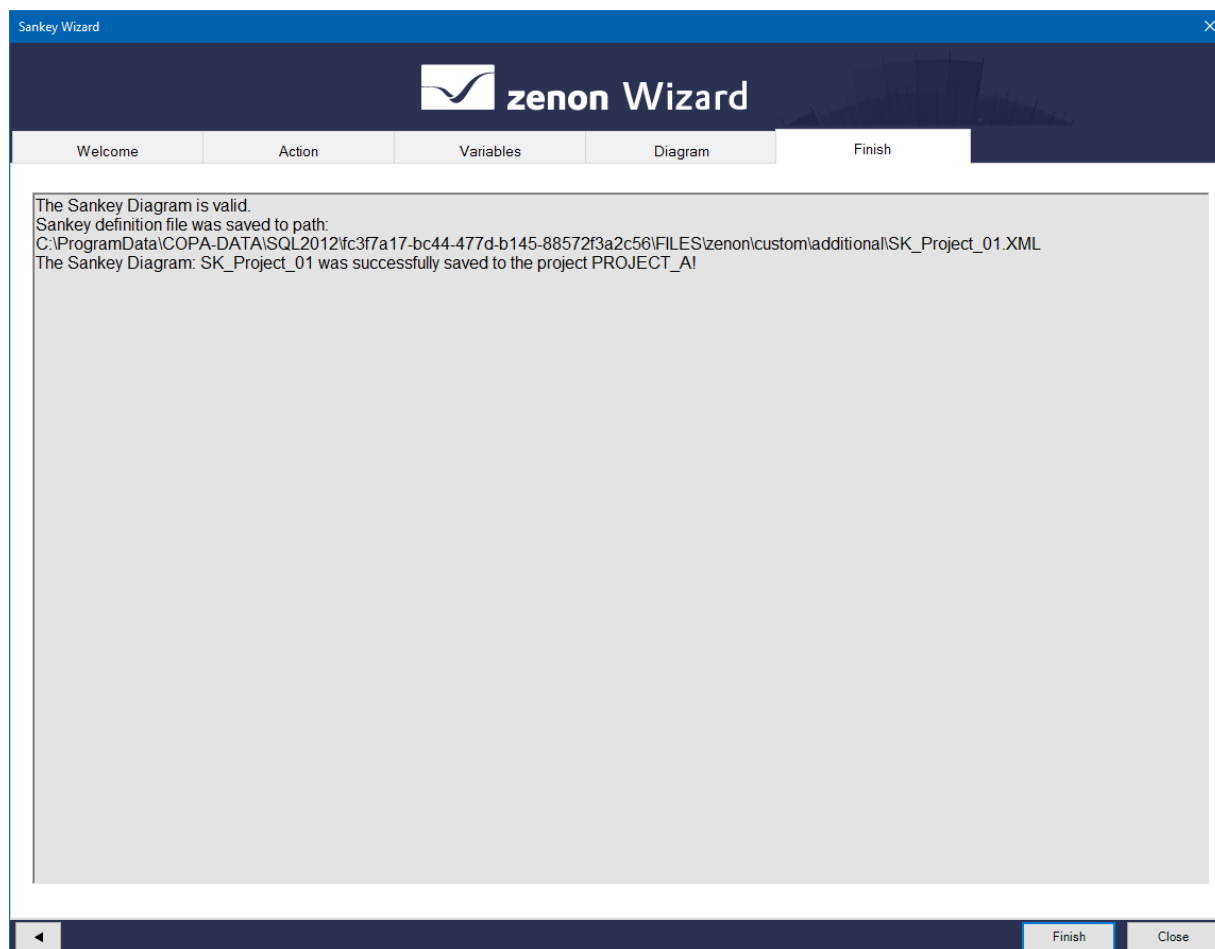
To close the Sankey wizard:

▶ Click on the **Close** button.

> 💡 **Information**
>
> *The configuration of your Sankey diagram is saved in an XML file.*
>
> *This is in the **project manager** of the selected project in the **Files** node in the **Other** folder.*
>
> *With the Analyzer Export Wizard, you can accept the modeled Sankey diagram for use in zenon Analyzer.*
>
> *You can read details of this export in the Analyzer Export Wizard. (on page 38) manual*

3.2 Energy

Wizards for the energy industry.

3.2.1 Driver Simulation

The wizard creates an own zenon Logic program for each driver in the zenon project for which a driver simulation project is created. This zenon Logic program simulates for all variable pairs of the driver, for which a substitution rule applies, a direct allocation from command variable to response variable.

EXAMPLE

- ▶ zenon variables:
  - Test_CO : USINT
  - Test_RV : USINT
  - Switch_CO: USINT
  - Switch_RV: LREAL
- ▶ Rules for substitutions:
  - ***_CO -> *_RV**
- ▶ Result in zenon Logic:
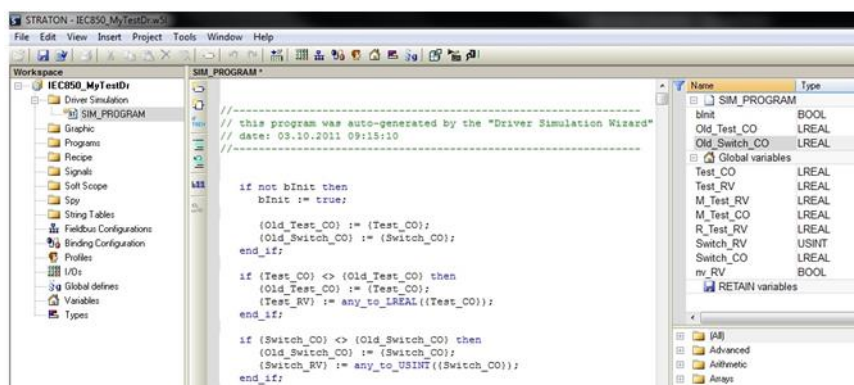
> ⚠ **Attention**
>
> *This wizard does not support distributed engineering and is not available in multiuser projects.*

Starting the wizard

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.
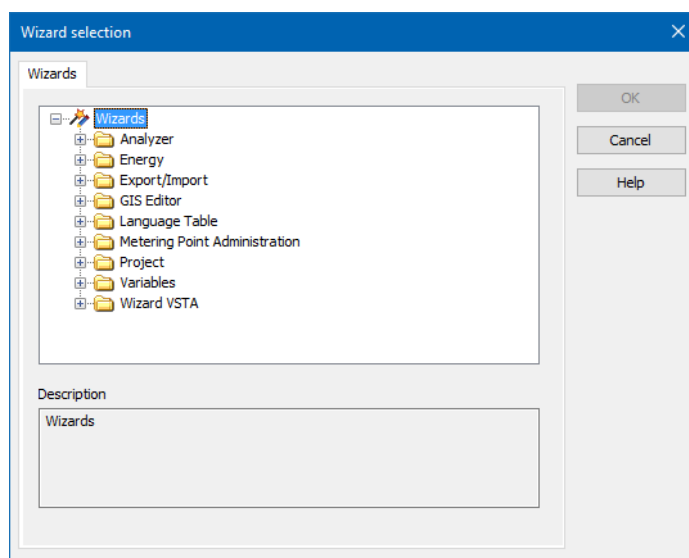
2. Select the folder **Energy**.

3. There select the **Driver Simulation Wizard.**
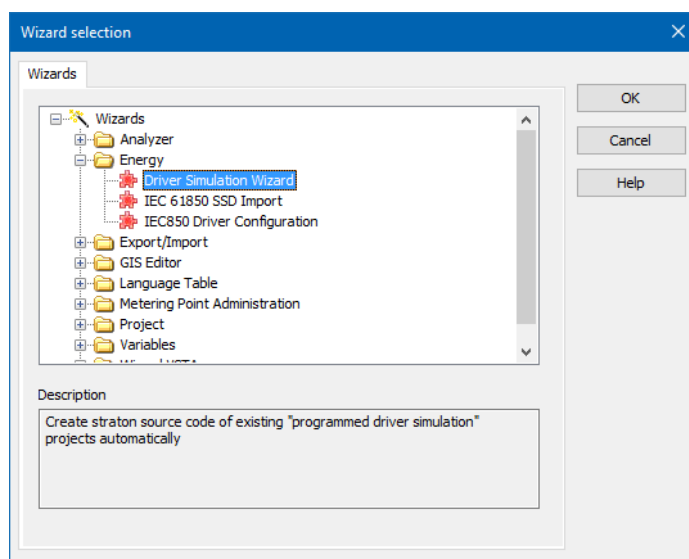
4. Click on **OK**.

   The wizard starts with the welcome page.

Welcome

The tab **Welcome** informs you about performance and use of the wizard.
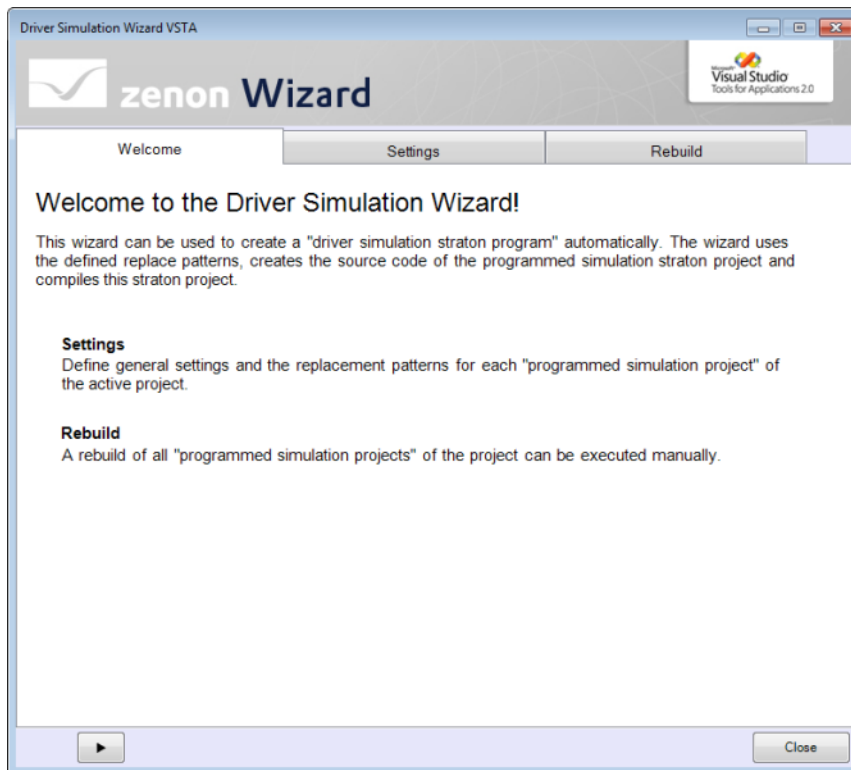
The navigation through the wizard is done by clicking on the individual tabs or step by step by clicking on the arrow keys.

Click on **Close** to close the wizard.

Settings

On this tab the substitution rules are created.
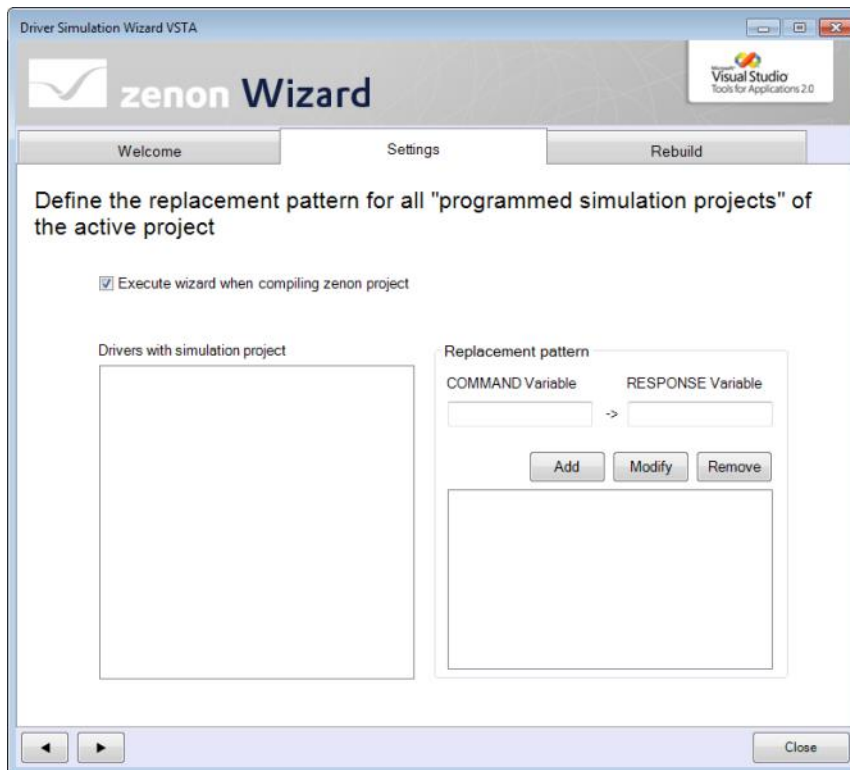
Parameter	Description
Execute wizard when compiling straton project	`Active`: As soon as action **Create Runtime files** is executed in zenon, the wizard is also executed. Note: The logic for creating the straton project is running in the background. The user interface of the wizard is not displayed.

Drivers with simulation project	Lists all drivers of the zenon project currently active in the zenon Editor for which a driver simulation project was created. If a driver is selected in this list, the defined substitution rules for this driver are displayed in area **Replacement pattern**.
Replacement pattern	Substitution rules.
COMMAND Variable	Command variable. Only one wildcard (*) is allowed.
RESPONSE Variable	Response variable. Only one wildcard (*) is allowed.
Add	Adds rules to **List of rules**.
Modify	Makes it possible to change selected rules.
Remove	Removes selected rules from the **List of rules**.
List of rules	Lists the defined rules.
Arrow keys	Moves to the previous or next tab.
Close	Closes wizard.

If rules are changed, the recreation of the simulation project is offered when you close the dialog. For this a dialog is opened:
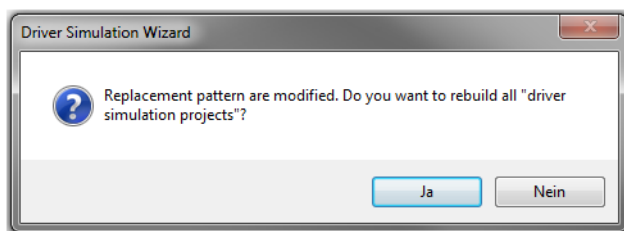
Note: Confirm this dialog with **Yes** if all substitution rules are deleted for a driver. Simulation projects without substitution rules are not considered at the automatic creation of the Runtime files in zenon.

Rebuild

On this tab you can trigger a rebuild of all straton simulation projects.
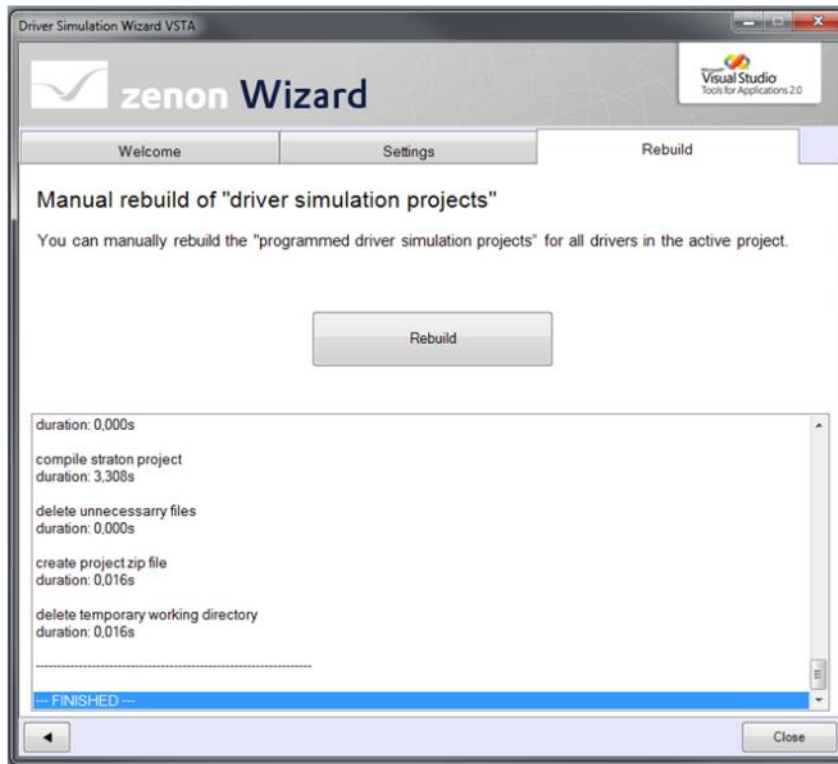
Click on button **Rebuild** in order to start the recreation of the driver simulation project for all corresponding drivers in the project.

3.2.2   IEC 61850 SSD Import

The **IEC 61850 SSD Import Wizard** makes it possible to read project configurations from an SSD file and to transfer these to a zenon screen including ALC-compliant project configuration. The position of the individual devices is calculated from the content of the SSD files.

The size of the symbols can be configured. Country-specific templates of symbols can be used for visualization. The use of your own symbols is also supported.

The variables must still be assigned manually for complete project configuration.

> 💡 **Information**
>
> *It is recommended that you use the SSD import wizard with a licensed zenon Energy Edition.*

ZENON MODULES AND CONTENT

The wizard uses the following zenon modules and content. For further detailed information, click on the link to the respective manuals and chapters:

- ▶ Screens
    - • Screen elements
    - • Combined element
    - • Frames
    - • Symbols and element groups
- ▶ Automatic Line Coloring
- ▶ Editor
    - • Visibility levels
- ▶ Worldview

Starting the wizard

The **IEC 61850 SSD Import Wizard** is automatically installed as part of the zenon standard installation.

STARTING THE WIZARD

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.
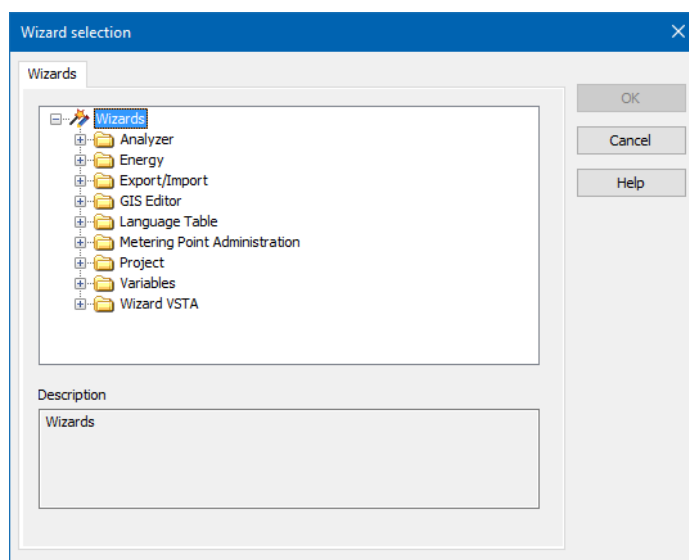
2. Select the folder **Energy**.

3. Then click on **IEC 61850 SSD Import**. The selection window with the available wizards opens.
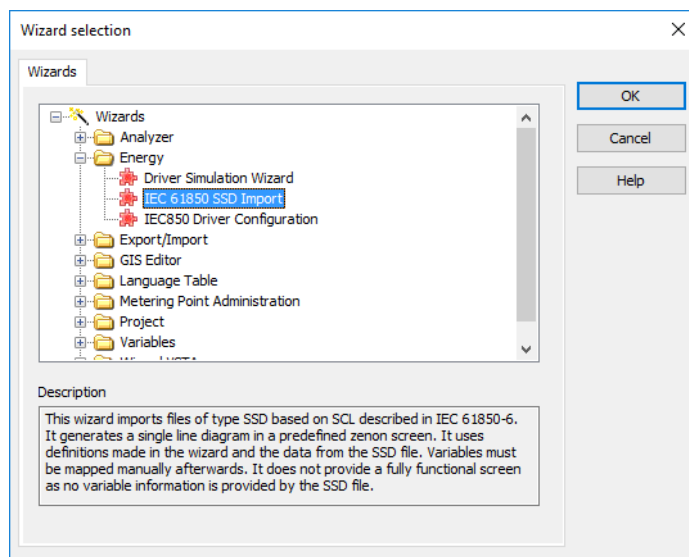
4. Click on **OK**.

   The wizard starts with the dialog **IEC 61850 SSD Import.**

   💡 **Information**

   The IEC 61850 SSD import wizard is only available in English.

Configuration dialog

In this dialog, you configure the parameters for the configuration of a zenon screen including ALC connections.

SELECTION

Parameter	Description
`File`	Input field for the selection of the SSD import file.
	Clicking on **...** opens the dialog to select the SSD file.
	Default: `empty`
	Default path `C:\Public\Documents`
	Supported file formats:
	▶ *.SCD
	▶ *.ICD
	▶ *.CID
	▶ *.IID
	▶ *.SED
`List of available symbols`	List of all symbols available in the project.
	The wizard checks to see whether there are the symbols for the supported types.
	Available symbols are visualized with a green tick.
	If a symbol for a supported type is missing, this is shown in the list with a red warning signal.
	Default: `No Symbols Found`
`Symbols`	Drop-down list for selection of the symbols:
	▸ `local` The symbols of the project configuration of the active project are used.
	▸ `[Dateiname]` The symbols are imported from an XML file. All XML files from the following directory are displayed: `C:\ProgramData\COPA-DATA\zenon800\Templates\IEC850Import\`
	Default: `local`
	Clicking on **...** imports the content of the selected XML file to the **Symbolbibliothek** in the **Bilder** node in the current project.
	If there are symbols missing, this is shown by means of a red warning triangle.
	Note: You can find further information in the Symbols for SSD import (on page 199) chapter.
Import Symbols	Imports selected symbols from the drop-down list of

	Symbols in the symbol library.
	Grayed out if no selection has been made in the drop-down list.

AVAILABLE ZENON SCREENS

List of all configurable screens of the active project in the zenon Editor. The list can be sorted and filtered.

- ▶ Click a column heading to sort. Another click reverses the sorting sequence.
  The sorting direction is visualized with an arrow.
  Use the context menu for sorting (on page 205) for enhanced sorting possibilities.

- ▶ Click the filter list to filter. The filter is set to "`Contains`" by default.
  Use the context menu for filters (on page 208) for enhanced filter possibilities.
  An active filter is visualized with a yellow filter symbol.

IMPORT TO SCREEN

Parameter	Description
Name	Name of the configured screen in the active zenon project
Type	Screen type of the configured screen. Note: the configured screen type is listed with the prefix tp.
Frame	Name of the frame that is assigned to the screen.
Size	Configured size of the screen.

SCALE AND LAYOUT

Parameter	Description
Global scaling factor	Basic size of a symbol for automatic configuration in a zenon screen. Denoted in pixels. This enlargement factor applies for the complete project configuration. Input range: 1 to 1000 Default: 40 Note: In principle, symbols with a size of 1x1 are assumed. This is multiplied by the value in the **Global scaling factor** input field. Example: With a **Global scaling factor** of 40, the symbol is portrayed as 40 x 40 pixels. A configuration of less than 1 is not permitted. This incorrect configuration is automatically corrected to 1.
CBR	Enlargement factor for the element, based on the value configured in the Ratio field. ▶ x = horizontal enlargement ▶ y = vertical enlargement Input range: 1 bis 20 Default: 1
CTR	Enlargement factor for the element, based on the value configured in the Ratio field. ▶ x = horizontal enlargement ▶ y = vertical enlargement Input range: 1 bis 20 Default: 1

DIS	Enlargement factor for the element, based on the value configured in the Ratio field.
	▶ x = horizontal enlargement
	▶ y = vertical enlargement
	Input range: `1 bis 20`
	Default: `1`
DISG	Enlargement factor for the element, based on the value configured in the Ratio field.
	▶ x = horizontal enlargement
	▶ y = vertical enlargement
	Input range: `1 bis 20`
	Default: `1`
REA	Enlargement factor for the element, based on the value configured in the Ratio field.
	▶ x = horizontal enlargement
	▶ y = vertical enlargement
	Input range: `1 bis 20`
	Default: `1`
IFL	Enlargement factor for the element, based on the value configured in the Ratio field.
	▶ x = horizontal enlargement
	▶ y = vertical enlargement
	Input range: `1 bis 20`
	Default: `1`
PTR	Enlargement factor for the element, based on the value configured in the Ratio field.
	▶ x = horizontal enlargement
	▶ y = vertical enlargement
	Input range: `1 bis 20`
	Default: `1`
	Note: it is recommended that `PTR` symbols are always configured in double size.
VTR	Enlargement factor for the element, based on the value configured in the Ratio field.
	▶ x = horizontal enlargement

	▶ y = vertical enlargement
	Input range: `1 bis 20`
	Default: `1`
CAP	Enlargement factor for the element, based on the value configured in the Ratio field. ▶ x = horizontal enlargement ▶ y = vertical enlargement Input range: `1 bis 20` Default: `1`

LAYOUT

Parameter	Description
`Bay name position`	Position of the labeling of the bay: ▶ `Top` Bay labeling in positioned in the zenon screen above a bay. ▶ `Bottom` Bay labeling is positioned in the zenon screen below a bay. Default: `Top`

CLOSE DIALOG

Parameter	Description
Cancel	Closes the wizard and discards all configurations.
Import	Draws the project configuration, including ALC connections, on the selected screen. A warning (on page 212) appears if there are already elements on the screen. The configuration process is started by clicking on the **OK** button. Clicking on the **Cancel** button returns to the wizard. Note: not active if no SSD file is selected.

Symbols for the SSD import

To draw a zenon screen, the **SSD Import Wizard** reads the selected SSD file. In doing so, the wizard recognizes the types of the ConductingEquipments (according to the standard) and uses the corresponding configured symbols.

Supported file formats:

▶   *.SCD

▶   *.ICD

▶   *.CID

▶   *.IID

▶   *.SED

In order for this process to work without problems, the corresponding symbols must be present in the project configuration in the zenon.

You can find a detailed description of the required elements in the Supported types (on page 200) chapter.

> ⚠ **Attention**
>
> *Note capitalization when naming the elements.*

MISSING SYMBOLS
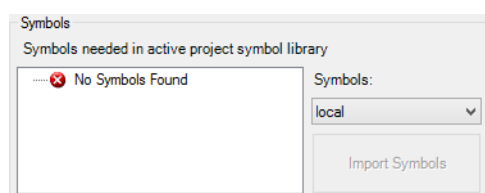
If there is a symbol missing in the current zenon project configuration, this is visualized in the SSD Import Wizard with a red warning signal. This warning dialog always appears in the wizard next to the **Symbols** drop-down list. If the symbols are imported from an XML file, this warning message is only shown once the import has been carried out.

▶   `No Symbols Found`
No elements are present in the local symbol library.

▶   `Missing [Element name]`
Not all required elements are present in the local symbol library. The missing symbols are displayed in the list.
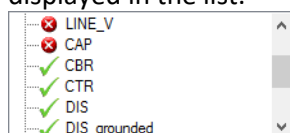
Note: The warning messages are only available in English.

IMPORTS SYMBOLS FROM AN XML FILE.

▶ Select the desired file from the drop-down list
All XML files from the following directory are displayed:
`C:\ProgramData\COPA-DATA\zenon800\Templates\IEC850Import\.`

▶ Click on the **...** button to import the elements of the XML file.
Note: Once imported successfully, the selection of the drop-down list returns to `local` again.

▶ Check the naming of the imported symbols.

A new file import overwrites pre-existing symbols.

Supported types

The following types of the standard are supported:

Type	Description	Element name
CBR	Circuit Breaker	You can find further information on the configuration of the screen for the circuit breaker

CBR_H

CBR_V

Combined element with different states

Switch |
| **CTR** | Current Transformer | CTR_H

CTR_V

Transparent lines "through" the symbol connect external lines

Switch

Do not translate ### |
| **DIS** | Disconnector or earthing switch | DIS_H

DIS_V

Combined element with different states |
| **DISG** | Disconnector grounded | DIS_grounded_DOWN

DIS_grounded_L

DIS_grounded_R

DIS_grounded_UP

Consists of two combined elements

- suspected empty part in turn contains symbols for all states

- transparent line

Color from ALC |
| **REA** | Reactor | REA_DOWN |

		### Do not translate ### ### Do not translate ### ### Do not translate ###
IFL	Infeeding line	IFL ### Do not translate ### ### Do not translate ###
PTR	Power Transformer	PTR ### Do not translate ### ### Do not translate ### ### Do not translate ### ### Do not translate ### ### Do not translate ### ### Do not translate ###Transformer ### Do not translate ### ### Do not translate ### ### Do not translate ### PTR_3_DOWN
VTR	Voltage Transformer	VTR_L VTR_R VTR_UP VTR_DOWN

		### Do not translate ### ### Do not translate ### ### Do not translate ### ### Do not translate ###
CAP	Capacitor Capacitor	
	Vertical line	LINE_V Color from ALC Size: 100 x 2 Thicknesses: 2
	Horizontal line	LINE_H
DESC	Description Description of the element	DESC Textbox

EXCEPTIONS FROM THE STANDARD

▶ **DIS_grounded (DISG)**
DIS_grounded Is not present in the standard. DIS_grounded is a ConductingEquipment with the DIS type and a terminal with ConnectivityNode "`grounded`"

▶ **PowerTransformer (PTR)**
PTR is not ConductingEquipment but nevertheless has a type and symbol and is also drawn. This is the recommended procedure in the standard.

> ⚠ **Attention**
>
> *Note capitalization when naming the elements.*

Symbols that are not present are visualized as a red square.

Requirements for a symbol

How to configure correctly

Symbol size - examples

The size of the symbols with automatic configuration by the SSD Import Wizard is determined by two sizes:

- ▶ **Global scaling factor**
  Basic size of all symbols on the zenon screen.
  The size is stated in pixels.

- ▶ Enlargement factor per element
  This calculates the respective multiple of the configured ratio.
  The enlargement factor can be given for:

  - • x = horizontal enlargement

  - • y = vertical enlargement

EXAMPLE 1

Global scaling factor: 20

Size of element: 5 (x and y)

Result: Symbol size 100 pixels

EXAMPLE 2

Global scaling factor: 50

Size of element: 1 (x and y)

Result: Symbol size 50 pixels

EXAMPLE 3

Global scaling factor: 25

Size of element x: 2

Size of element y: 1

Result: Symbol size 50 x 25 pixels

EXAMPLE 4

Global scaling factor: 5

Size for element CBR x: 6

Size for element CBR y: 6

Size for element PTR x: 10

Size for element PTR y: 10

Size for element REA x: 2

Size for element REA y: 6

Result:

Symbol size for element CBR: 30 x 30 pixels

Symbol size for element PTR: 50 x 50 pixels

Symbol size for element REA: 10 x 30 pixels

Sorting context menu

The list of available zenon screens can be sorted, filtered and amended with the context menu. To apply these enhanced sorting possibilities, navigate to a column heading and click the right mouse button.

These settings are not remanent. The standard view is available again after the wizard has been restarted.

💡 **Information**

The content of the context menu is only available in English.

| Sort Ascending |
| Sort Descending |
| Clear Sorting |
| Conditional Formatting |
| Group by this column |
| Column Chooser |
| Hide Column |
| Pinned state ▶ |
| Best Fit |

Parameter	Description
Sort Ascending	Ascending sorting of the selected column (A - Z). Note: The sorted column is visualized with a small arrow above the column heading.
Sort Descending	Descending sorting of the selected column (A - Z). Note: The sorted column is visualized with a small arrow above the column heading.
Clear Sorting	Cancels active sorting. Not active if no sorting is active.
Conditional Formatting	Opens the dialog to configure a view filter. Conditions for display can be configured in this filter.
Group by this column	Switches to grouped display. The column heading is shown in the first line of the available zenon screen. Cancel the grouping by clicking on the **X** button in group view.
Column Chooser	Opens dialog to show or hide columns. Columns that are not displayed are offered in this dialog and can be moved using Drag&Drop into the list of the available zenon screens. Displayed columns can be hidden using Drag&Drop (back to this dialog).
Hide Column	Hides the selected column. To display the column again, execute Column Chooser and drag the desired column using Drag&Drop into the list of available zenon screens. Not available if only one column is displayed.

Pinned state	Moves selected column:
	
	▸ Unpin column
	  column can be freely moved to the position using Drag&Drop.
	
	▸ Pin at left
	  Moves the selected column to the far left.
	  The selected column thus becomes the first column
	
	▸ Pin at right
	  Moves the selected column to the far right.
	  The selected column thus becomes the last column

Best Fit	Determines the "optimum width" for the selected column. The width of the column is - if possible - changed so that all content can be read.

GROUPED DISPLAY
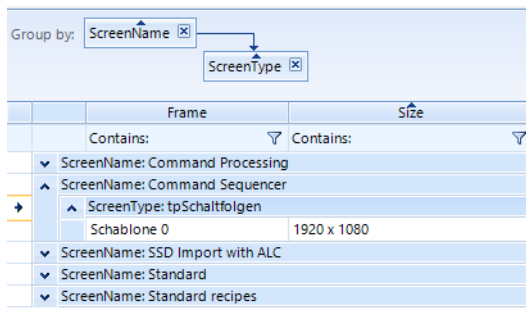
The columns can be displayed as grouped in the list of available zenon screens.

You get the grouped display:

- ▶ by moving the column headings with Drag&Drop into the heading area (`Drag a column here to group by this column.`)

- ▶ by selecting the `Group by this column` entry from the context menu.

In the grouped display, you can expand or reduce the view by clicking on the upward or downward arrow.

By clicking on the x button next to the name of the grouped column, you cancel the grouped display again (for this column).

> 💡 **Information**
>
> *The screens can also be filtered in the grouped view.*

Filtering context menu

Context menu for filtering in the list of available zenon screens. To activate, click on the filter symbol in the respective column.

Parameter	Description
`No filter`	`No filter` Cancels selected filter.
`Contains`	`Contains` Filters for entries that contain the criterion entered.
`Does not contain`	`Does not contain` Filters for entries that do not contain the criterion entered.
`Starts with`	`Starts with` Filters for entries that start with the criterion entered.
`Ends with`	`Ends with` Filters for entries that end with the criterion entered.
`Equals`	`Equals` Filters for entries that are exactly the same as the criterion entered.
`Not equal to`	`Does not equal` Filters for entries that do not correspond to the criterion entered.
`Is null`	`Is empty` Filters according to empty entries.
`Is not null`	`Is not empty` Filters for any desired entries that are present.
`Custom`	Opens the dialog for the configuration of a user-defined filter. Note: With certain monitor resolutions, it is possible that the dialog for the configuration of the user-defined filter is "hidden" behind the window of the wizard. The wizard then no longer reacts to entries and mouse clicks. Press the `Esc key` once in order to be able to use the wizard again.

Configuration of an ALC-compliant zenon screen

POSITIONING OF THE TYPE - CONTEXT DISPLAY

The wizard uses the coordinates of the enhanced standard. This means that for the positioning of the types, the coordinates (SCLcoordinates), as stated in the SSD file, are used:

- ▶ X describes the horizontal orientation
- ▶ Y describes the vertical orientation

SCL is a hierarchical data model. This does not contain the complete coordinates. The X and Y coordinates are each given hierarchically to the prior element.

Each node knows its relative position in relation to its superordinate nodes. Substations are always accepted as root nodes. The absolute position is calculated from the addition of all superordinate nodes. This calculation is carried out automatically by the **SSD Import Wizard**.

NAMING OF THE LINES

The `ConnectivityNode` of the SSD file is used for naming the connection lines.

VISIBILITY LEVEL

The automatic screen configuration by the wizard uses visibility levels:

- ▶ Visibility level 8
  Elements and connection lines

- ▶ Visibility level 0
  Description (DESC)

As a result of this, complex configurations can be displayed clearly for editing in the Editor.

Engineering in the Editor

Before you start the wizard in the zenon Editor, you should have already carried out the following configuration:

- ▶ Create a zenon screen
  The wizard supports all zenon screen types. An evaluation for the appropriateness of the screen type used is not made.
  Ensure that the size of the screen is sufficient with comprehensive descriptions in the selected SSD file.

- ▶ Create corresponding symbols in the symbol library (optional).
  When creating symbols, ensure that the elements are labeled correctly (on page 200).

Symbols can also be added to the symbol library of the active project in the started wizard by means of import from an XML file.

▶ Configure the ALC settings in the project properties
Configure the behavior of automatic line coloring for your project.

CONFIGURATION IN THE WIZARD

Configure the following settings in the **SSD Import Wizard**:

▶ Selection of an SSD file.

▶ Import or selection of the symbols (optional)

▶ Selection of a pre-configured zenon screen

▶ Selection of the position of the labeling

▶ Configuration of the basic size (**Global scaling factor**) of the symbols

▶ Configuration of the enlargement factor of an element

Preparation of the zenon screen

SCREEN SIZE

*The **SSD Import Wizard** ignores the configured screen size when drawing the screen. The symbols are arranged according to the configured **Global scaling factor** and element size, as well as according to the content of the SSD file.*

You should nevertheless ensure that you stipulate a sufficient size when configuring the screen. This size can also be amended once the wizard has been closed.

WORLDVIEW

If screens are defined as larger than the frame, they become a world view. In this worldview screen, the screen can be moved with the mouse or touch control.

For navigation and scrolling in Worldviews, a Worldview overview screen, the Touch control and the mouse can be used.

CONFIGURATION SPEED

Close the screen used in the Editor while the drawing process is being carried out by the SSD Import Wizard. However if the screen is nevertheless open for editing in the Editor, the automatic drawing will require a multiple of the time!

Screen elements - ALC-compliant project configuration

      Screen element CBT

Configure the screen element for the **circuit breaker** in accordance with the following requirements:

Project configuration view in the zenon Editor

Examples of views in zenon Runtime:

ALC engineering

Configure your settings for the behavior of the ALC in the project properties:

1. To do this, select the active project in the **Workspace**.

2. Select the **Automatic Line Coloring** property group in the project properties.

3. Click the ... button in the **ALC configuration** property

4. The dialog for configuration is opened.

5. Configure the properties for

   - Sources

   - Interlockings

   - Screen marker

> 💡 **Information**
>
> *You can find further information on configuration in the Automatic Line Coloring (ALC) manual in the Configuration chapter.*

Combined elements

Do not translate

Configuration tips for the symbols used:

Name the symbols correctly

Configure symbols with the help of the combined element for different ALC states

DO NOT TRANSLATE

Do not translate

Warning dialog when configuration has already been carried out

Once the necessary configuration has been completed in the wizard, click on the **Save** button to draw the project configuration on the selected zenon screen.

If you execute this configuration on a screen that already has content, the elements contained therein are validated. If an element is already present, you are informed of this by a warning dialog.

If this configuration takes place on a screen that already has a configuration, you are notified of this by a warning dialog.

WARNING DIALOG:

```
There are already [number of symbols] elements on [screen name]
Do you want to continue?
```
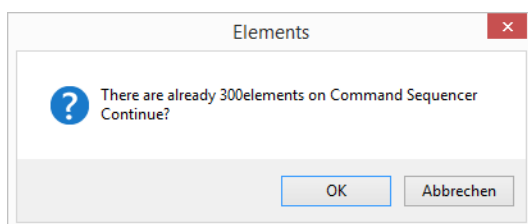

CLOSE DIALOG

Option	Description
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

The screen is drawn again by clicking on the **OK** button. Existing configurations are replaced in the process. If an element is placed again during the drawing process, the following notice dialog appears:

Confirm this dialog by clicking on the **OK** button to continue drawing.

> 👍 **Hint**
>
> If you have started the new configuration of your zenon screen in error and confirmed the warning dialog with the **OK**, you can suppress the individual subsequent dialogs it with the following step:
>
> 1. Position the mouse pointer over the **Cancel** button.
>
> 2. Do not confirm the notice dialog that appears with a mouse click. Use the `Enter key` to confirm.
>
> 3. Hold down the `Enter key`.
>
> 4. At the same time, click on the **Cancel** button with the mouse pointer.
>
> Then delete the content in the zenon screen and restart the **SSD Import Wizard**.

3.2.3 IEC850 Driver Configuration Wizard

The **IEC850 Driver Configuration Wizard** supports you when configuring reporting. The correct RCBs can be selected in a graphic user interface and assigned to the IEC850 driver using drag&drop.

Variables that supply the IED to the driver using the selected RCBs can be created in the wizard. IEC850 drivers can also be created in the zenon Editor due to the wizard. These are also configured in the wizard on the basis of an existing SCL file, such as TCP/IP addressing.

Example: An SCD file contains the description of the substation. In the zenon Editor, all required IEC850 drivers are configured using this SCD file. If the driver is still not present in the project, this can be created in the wizard.

Step by step, content from from several SCL files (such as ICD) can also be transferred consecutively into the driver configuration.

The configuration steps are carried out in the wizard by means of drag&drop and the context menu.

Note in relation to output: RCBs that are already in the configuration and are read from the text file are displayed without the **[dataset name]**. Only RCBs that have been added by means of dragging & dropping in the wizard have the dataset name as a suffix.

> 💡 **Information**
>
> *The **IEC850 Driver Configuration Wizard** is only available in English.*

REQUIREMENTS

There must be a SCL file (***.scl**, ***.icd**, ***.cid**, ***.scd**, ***.ssd**) available to use the wizard.

Starting the wizard

The **IEC850 Driver Configuration Wizard** is automatically installed as part of the zenon Energy Edition installation.

STARTING THE WIZARD

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.
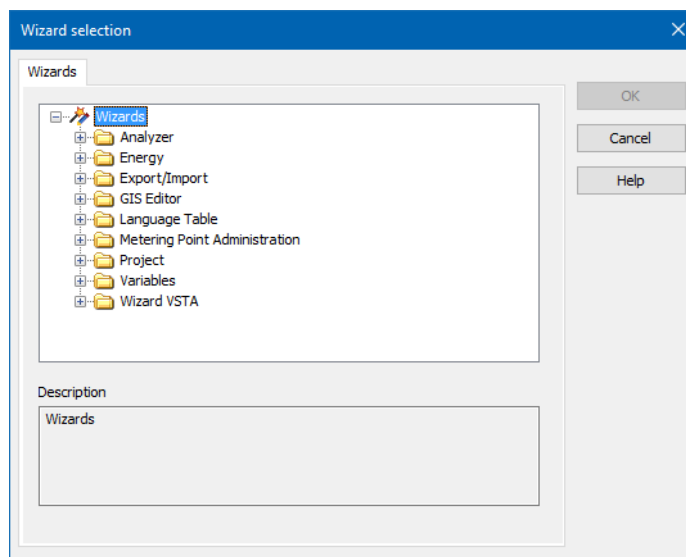
2. Select the folder **Energy**.

3. Then click on **IEC850 Driver Configuration**.
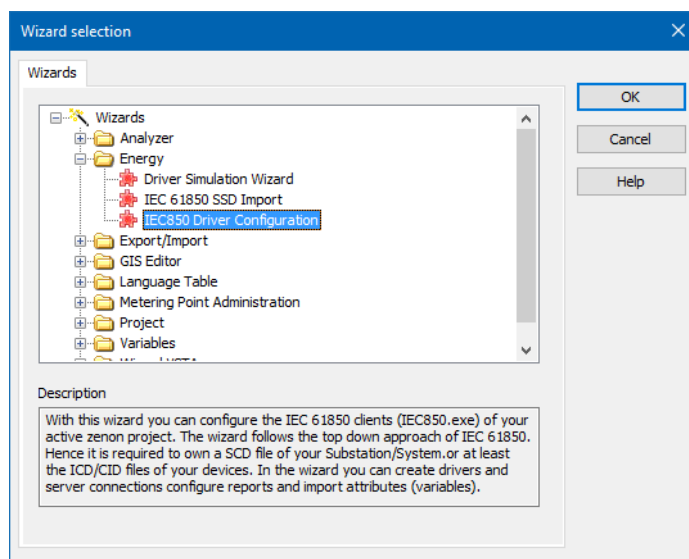
4. Click on **OK**.

    The wizard starts with the page `Configuration`.

    💡 **Information**

    The IEC850 Driver Configuration Wizard is only available in English.

Configuration

The **IEC850 driver** is configured in this dialog.

If there is already one or more **IEC850 drivers** configured in the zenon project, these drivers are displayed on the right-hand side of the dialog in a tree view. In addition, further drivers can be created directly in the wizard.
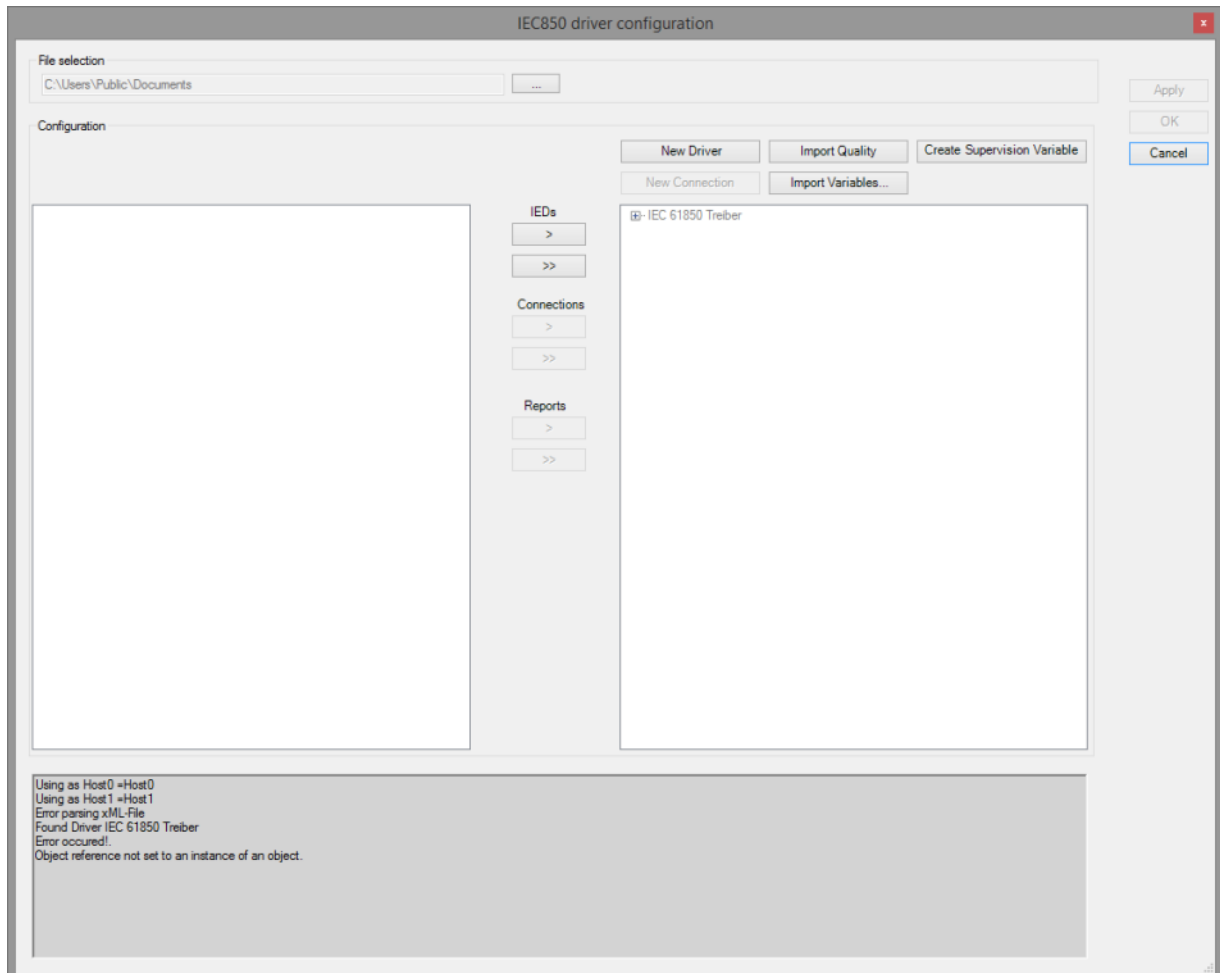
FILE SELECTION

Selection of the SCL file. Click on the **...** button to open the file selection dialog

▶ Once a file has been selected, it is loaded into the wizard. The file content is displayed in a tree structure in the left area of the wizard in the **List of IEDs**.

▶ There is also be an evaluation of the data content when loading. Non-supported content is displayed in the **preview window**.

Parameter	Description
File name	Display of the selected SCL file.
	If a file is selected, the complete path is visualized in the display field. This field cannot be filled actively.
	Default: `empty`
	The file that was selected last is preselected if the wizard is called up again.
	Note: If the wizard was previously started and a file was selected that is no longer available, there is a time delay when restarting the wizard or when selecting a file again by clicking on the **...** button.
	This may then be the case if the file is on a computer in the network that is no longer available at the current time.

CONFIGURATION

The view is divided into the following areas:

▶ Left column with content from the selected SCL file. Content is shown in a tree view.

▶ Buttons in the middle that correspond to the available drag&drop functionality.

▶ Buttons for the administration of driver project configurations.

▶ Right column with content of the existing IEC850 driver configuration of the current zenon project. The content is shown in a tree view.

WIZARD - DIVISION OF AREAS

Parameter	Description

List of IEDs
`[file content]`
	In the left column, the content of the assigned SCL file is listed in a tree structure.
	
	Content that has already been assigned is displayed as grayed out.
	
	Clicking on **[+]** expands the view.
	Node structure:
	
	    ▶ [Server IP-Adresse]_[IED-Name]
	
	    ▶ Reports
	
	    ▶ [RCB-Name]_[Dataset-Name]
	
	    ▶ [ClientLN.iedName]

List of drivers **[project content]**	In the right column, all IEC850 drivers created in the project and in the wizard are listed with their connections. Drivers can be added or deleted in the wizard directly using the context menu. Connections are allocated by dragging & dropping (on page 226) and can be deleted via the context menu (on page 221). Default: Configuration of the IEC850 driver in the zenon Editor. Empty if there is still no IEC850 driver created in zenon. Note: Further connections can be added to drivers that have already been created in zenon. Connections or drivers that already exist in zenon cannot be deleted. Settings that cannot be changed with the wizard are already grayed out.
Output window	LOG, information and status texts for the IEC850 driver configuration wizard.

BUTTONS FOR THE ADMINISTRATION OF DRIVER PROJECT CONFIGURATIONS

Parameter	Description
New Driver	Creates a new driver.
Import Quality	Imports the template for the 850-quality reaction matrix. You can link this reaction matrix to variables that correspond to the data attributes `*/q[ST|MX]`. A pre-configured template file is supplied. Save location: %ProgramData%\COPA-DATA\zenon8.00\Templates\EnergyWizard\IEC_61850_Quality.XML Note: This template is implicitly loaded in the Variables in dataset (on page 242) dialog.

Create Supervision Variable	Creates a connection monitoring variable in the current zenon project.
	A reaction matrix is automatically created and linked for this variable.
	You can find further information in relation to this in the IEC850 driver manual, in the Establishing a connection and detecting a connection failure chapter: `Connection State-Variable`.
	Save location: C:\ProgramData\COPA-DATA\zenon8.00\Templates\EnergyWizard\IEC_61850_Connection_State.XML
	Attention: If the driver is not yet present in the current project, no connection monitoring variable can be created. This is primarily the case if a driver is created in the wizard but this has not yet been applied to the project configuration with the **Apply** button.
New Connection	Creates a new connection to the server and calls up the **New connection** (on page 232) dialog for the configuration of the connection.
	You can get further information in the Manage drivers (on page 229) chapter
	Note: Only available if a driver has been selected.
Import Variables	Opens **Variables in Dataset** (on page 242) dialog to create variables that are present in datasets of the selected `RCBs`.
	These variables are created in the current zenon project.

MIDDLE BUTTON GROUP

As an alternative to assignment of connections by means of drag&drop, the assignment can also be carried out with buttons. With buttons, content from the loaded file can be applied to the driver parameter settings. When applying this, the content that has already been applied is taken into account. Dual application is thus prevented.

Parameter	Description
IEDs	Buttons for the application of IEDs with the connections contained in these and reports in new drivers.
>	Only accepts selected IED into the driver project configuration. In doing so, a new driver with the connection to the selected IED is created.
>>	Applies all available IEDs as new drivers in the driver configuration.
Connections	Button to apply connections and reports in existing drivers. The buttons of this section are only available if a driver is selected in the list of drivers. If a subnode is selected in the driver, these buttons are also not available.
>	Creates a connection to the IED in the existing driver.
>>	Applies all available IEDs as connections in the existing driver.
Reports	Button to apply RCBs in an existing connection. The buttons in this section are only available if a connection is selected in the list of drivers.
>	Applies the selected RCBs in the driver project configuration.
>	Applies all RCBs of the IED s in driver configuration.

CLOSE DIALOG

Parameter	Description
Apply	Applies settings. The dialog remains open and other project configurations are possible. Note: Only active if there are unsaved project changes in the wizard.
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog. Before closing the wizard, a dialog is opened requesting confirmation.

CONFIRMATION REQUEST WHEN CLICKING ON CANCEL
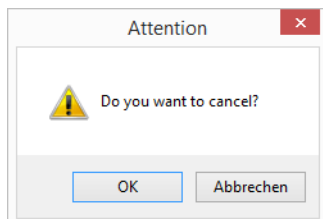
Parameter	Description
OK	The wizard is ended. Unsaved changes are lost
Cancel	Cancels the ending of the wizard.

Context Menu

There are different versions of the context menu. The content of the context menu depends on the position of the node on which it is used.

CONTEXT MENU

Parameter	Description
Create all connections	Creates several new IEC850 drivers. A separate new driver is created for each IED.
	New corresponding entries are created in the list of drivers.
	Driver name: The driver is created with the name of the IED.
	You can get further information in the Manage drivers (on page 227) chapter.
New Driver	Creates a new IEC850 driver. A new entry is created in the list of drivers.
	Default driver name: `Edit` (must be changed).
	You can get further information in the Manage drivers (on page 227) chapter.
Rema Supervision	Creates a connection monitoring variable and links this to the reaction matrix.
New Connection...	A new connection or a new host is created, depending on the position in the tree view:
	• `Driver` Creates a new connection to the server and calls up the **New connection** (on page 232) dialog for the configuration of the connection. You can get further information in the Administer connection (on page 229) chapter.
	• `Connection or Report` Creates a new host in the driver configuration and calls up the **New connection** (on page 232) dialog for the configuration of the host. You can get further information in the Administer host (on page 233) chapter.
Edit	Calls up the dialog to configure the connection (on page 232). Different project configurations can be amended depending on the position in the tree view:
	▶ `Driver`
	• Connection settings
	• Host settings
	• Report settings
	▶ `Connecten & node Report`
	• `Net address`

	• `IP address`
	
	• `Name of connection.`
	
	You can get further information in the administer connection (on page 229) chapter.
	
	▶ `Host`
	
	    • Host settings
	
	You can get further information in the administer hosts (on page 233) chapter.
	
	▶ `Report`
	
	    • Report settings
	
	You can get further information in the administer report assignments (on page 237) chapter.

Delete	Deletes selected node without requesting confirmation.
Create Variables...	Selective creation of new variables. Opens **Variables in Dataset** (on page 242) dialog.
Create all Variables	Creation of new variables. Variable for all entries of the datasets of the RCBS are created in the zenon Editor.
Expand all	All nodes are expanded.
Collapse all	All nodes are collapsed.

Nodes - Context menu entry

The entries of the context menu depend on the position from which the context menu is called up. In this chapter, you can find an overview of which context menu entries are available in which node.

LIST OF IEDS

- There is no context menu available for the list of IEDs.

LIST OF DRIVERS

▶ **No selection**
The following context menu entries are available if no node is selected:

- `New Driver`

- Expand all

- Collapse all

▶ **Driver**
The following context menu entries are available if the node of a driver is selected:

- Create all Connections

- New Driver

- Rema Supervision

- New Connection...

- Edit
(only available if the node was created in the wizard directly and the wizard has not been restarted. If the wizard is restarted, this entry is not available for existing project configurations).

- Delete
(only available if the node was created in the wizard directly and the wizard has not been restarted. If the wizard is restarted, this entry is not available for existing project configurations).

- Create Variables...

- Create all Variables

- Expand all

- Collapse all

▶ **Connection**
The following context menu entries are available if the node of a connection is selected:

- New Driver

- Rema Supervision

- New Conncection...

- Edit...
(only available if the node was created in the wizard directly and the wizard has not been restarted. If the wizard is restarted, this entry is not available for existing project configurations).

- Delete

- Create Variables...

- Create all Variables

- Expand all

- Collapse all

▶ **Reports node**
The following entries are available if the Reports node is selected:

- New Driver

- Rema Supervision

- New Connection...

- Edit...
  (only available if the node was created in the wizard directly and the wizard has not been restarted. If the wizard is restarted, this entry is not available for existing project configurations).

- Delete

- Create Variables...

- Create all Variables

- Expand all

- Collapse all

▶ **Host**
The following nodes are available if if the node of a host is selected:

- New Driver

- Edit...

- Delete

- Create Variables...

- Create all Variables

- Expand all

- Collapse all

▶ **Report**
The following context menu entries are available if a report is selected:

- New Driver

- Edit...

- Delete

- Create Variables...

- Create all Variables...

- Expand all

- Collapse all

Working with the wizard

The configuration steps are carried out in the wizard by means of drag&drop and the context menu.

The buttons can also be used as an alternative to drag&drop.

Configuration in the wizard

To configure drivers:

1. Select the desired SCL file.
   To do this, click on the **...** button in **File selection**.
   The following are possible files:

   - SCD file with description of the substation

   - ICD file with the configuration of an individual IEC61850 server.

   - Other files: *.scl, *.cid, *.ssd

   If the selected file does not contain all required elements, this is shown with a message in the output window. The list of IEDs in the wizard remains empty.

2. In the **list of drivers**, create new drivers (on page 227) or hosts (on page 233) if necessary.
   This step is optional. You can also carry out this project configuration in the zenon Editor and then restart the wizard.
   Changes that are configured in the wizard are transferred to the zenon Editor project configuration.

3. From the left-hand **list of IEDs**, select the desired connection to the server (on page 229).
   Drag this using drag&drop to the desired driver in the right-hand list.

4. Select, from the left **List of IEDs**, the desired reports (on page 237).
   Highlight the reports that you want to assign to the host of a driver.
   Multiple selection is possible in the process.

5. Drag & drop the selected reports to the desired driver in the right-hand list.
   If your selection is dragged over a host, these reports are automatically applied to the list of the respective host.
   Note: If no host has been created for a connection, no assignment is possible. Carry out step 2 and create corresponding hosts with the context menu.

6. Close the wizard by clicking on the **OK** button.

ALLOCATION RULES

For the allocation of reports from a file to the drivers of a project configuration in zenon, each report of a file can only be allocated a driver once in zenon.

Each report from the **list of IEDs** can only be assigned to a host of the **list of drivers** once. With multiple selection, reports that have already been assigned are ignored if there is a reassignment by means of drag&drop. Only the reports that have not been used are taken into account in the process and the new host is added.

DELETE REPORTS

To release a report:
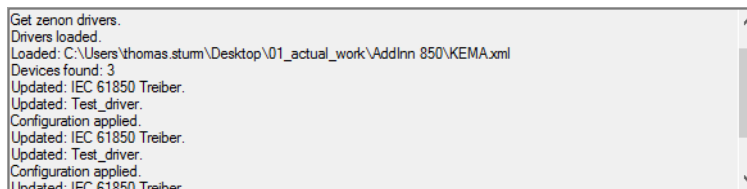
1. Highlight the desired report in the node of the host that is allocated to the reports.

2. Select the **Delete** command in the context menu.

3. The allocation of the report to a host is removed.

Note: Deletion using multiple selection is not possible. Several reports are highlighted. However only the last report highlighted is deleted.

ACCEPT DRIVER CONFIGURATION IN THE PROJECT

To apply the new configuration, click on the **OK** or **Apply** button.

▶ The configuration is checked.

▶ New drivers are created in zenon.

▶ New connections are created in zenon.

▶ The RCB configurations are created or updated in the driver configuration.

▶ The result is displayed in the output window.

```
Get zenon drivers.
Drivers loaded.
Loaded: C:\Users\thomas.sturm\Desktop\01_actual_work\AddInn 850\KEMA.xml
Devices found: 3
Updated: IEC 61850 Treiber.
Updated: Test_driver.
Configuration applied.
Updated: IEC 61850 Treiber.
Updated: Test_driver.
Configuration applied.
Updated: IEC 61850 Treiber.
```

▶ The wizard is closed by clicking on the **OK** button.

Administer driver

IEC850 drivers that are already present in the active zenon project when the wizard is started are displayed in the wizard and can be configured.

New drivers can also be created in the wizard directly. Drivers that have been created in the wizard and have not yet been transferred to a zenon project with **Apply** or **OK** can be removed again.

ADDING A DRIVER

To add a driver:

1. Select the **New Driver** command in the context menu of the driver list.

2. The driver is shown in the list with the default entry `Edit`.
   This entry remains active until it is replaced with a proper driver description.

3. Give it a unique name.
   The driver name entered is evaluated to see that it is unique and has valid characters. If the driver already exists or an invalid character has been entered for the name, an error dialog is called up.

4. The driver is created in zenon by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

DELETE DRIVER

Drivers can only be deleted in the wizard directly if the driver has been created as a new driver in the wizard directly. Existing drivers from a project configuration in the zenon Editor are grayed out and **Delete** is not available.
To delete a driver:

1. Highlight the desired driver in the **list of drivers**.

2. Select the **Delete** command in the context menu.

3. The driver is deleted without requesting confirmation.

Note: Only drivers that have not yet been created in zenon can be deleted.

WIZARD AND ZENON EDITOR

If the name of a driver is changes, a new driver is created after clicking on the Apply button.

> **Example**
>
> *A new driver is created in the **IEC850 Driver Configuration wizard**.*
>
> *By clicking on the **Apply** button in the wizard, this new driver is transferred to the zenon Editor.*
>
> *This driver is then deleted in the wizard with the context menu.*
>
> *The configuration is transferred to the zenon Editor by clicking on the **Apply** button beforehand.*
>
> *This means that the driver created in the wizard and then deleted there again is is listed in the list of drivers again when the wizard is restarted.*

THERE IS AN ERROR DIALOG IF THERE ARE DUPLICATED DRIVER NAMES

If the driver name is already present in the zenon project configuration, the following dialog is called up:
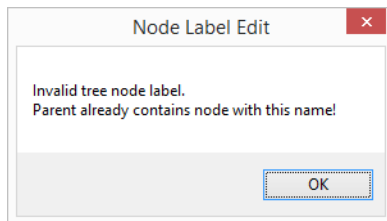
ERROR DIALOG WITH INVALID CHARACTERS IN THE DRIVER NAMING

If invalid characters are entered for the driver names, the following dialog is called up:
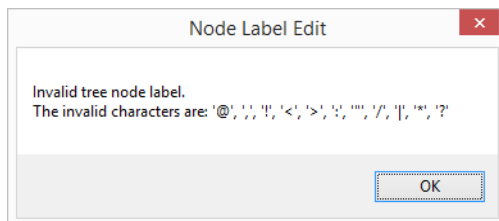
Configuration

The connection denotes the server to which the driver establishes a connection. A driver can have connections to several servers.

Connections can be created in the wizard with the context menu or with drag&drop of content. These connections can then only be edited if they were also created in the wizard.

You edit configurations that already exist in the zenon Editor directly, in the driver settings.

ADD CONNECTION WITH DRAG&DROP

To add a connection to a driver via drag&drop:

1. Select, in the (left) **list of IEDs**, the desired connection with a mouse click.

2. Drag this connection with drag&drop into the **list of drivers**, above the desired driver.

3. In the list of drivers, a new subnode for the connection is created for the selected connection.

   a) The naming of the subnode is taken from the **list of IEDs**:
   [Net address]_[IP address]_[Name]

   b) A new `Reports` subnode is created in this subnode.

c) A new `Host 0` subnode is created in this subnode.

> ### 💡 Information
>
> The reports already assigned in the list of IEDs are not transferred by this process. Only the corresponding connection with an empty host is created.
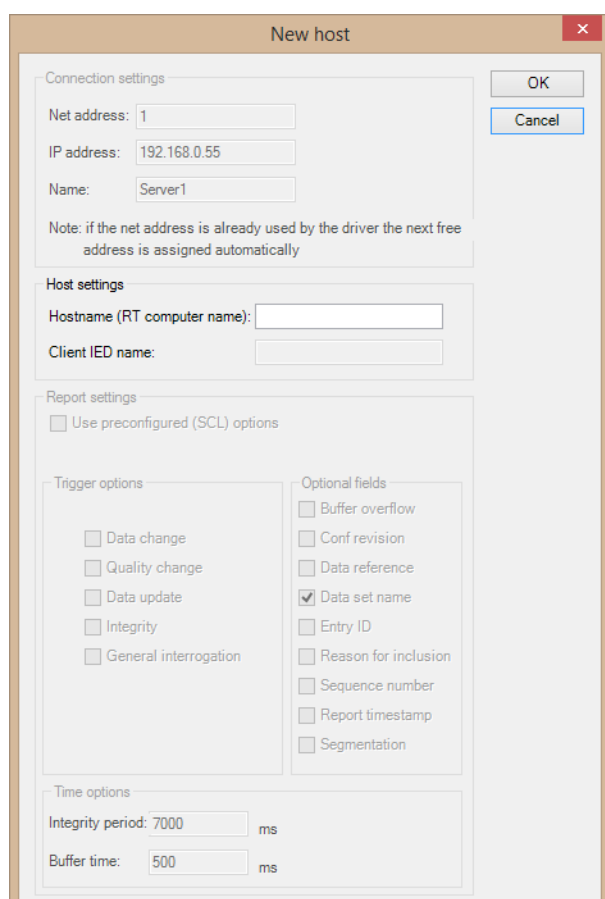
ADD CONNECTION USING THE CONTEXT MENU

To add a connection with the context menu:

1. In the **list of drivers**, click on the desired driver for which you want to create a connection.

2. In the context menu of the node of the selected driver, select the **New Connection** command. The dialog to configure a connection (on page 232) is opened.

3. Configure the following in this dialog:

    a) **Net address:**
       Net address of the connection

    b) **IP address:**
       IP address of the connection

    c) **Name:**
       Freely definable name of the connection Is used for the name of the variable on variable import.
       Corresponds to the **Server name** property of the driver configuration.

4. Confirm your input by clicking on the **OK** button.
    The dialog is closed. In the list of drivers, a new subnode for the connection is created for the selected driver.

    a) The naming of the subnode:
       [Net address]_[IP address]_[Name]

    b) A new Reports subnode is created in this subnode.

5. The driver is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

AVAILABILITY AND BEHAVIOR FOR "DELETE CONNECTION" AND "EDIT CONNECTION"

Connections can only be deleted or edited in the wizard directly if the wizard has been newly-created in the wizard. Existing drivers from a project configuration in the zenon Editor are grayed out and **Delete/Edit** is not available.

Connections that were already present in the Editor before the start of the wizard are not deleted!

Command to delete and edit are only possible if:

1. The Connection is created in the wizard directly:

a) via context menu

b) was transferred using drag&drop.

DELETE CONNECTION

To delete a connection:

1. Highlight the desired connection entry in the **list of drivers**.

2. In the context menu of the node of the selected connection, select the **Delete** command.

3. The connection is deleted without requesting confirmation.
    All of the hosts and reports already assigned to this connection are deleted without a request for confirmation.

4. The driver is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

if the wizard is restarted, all connections are grayed out because they have already been created in the Editor.
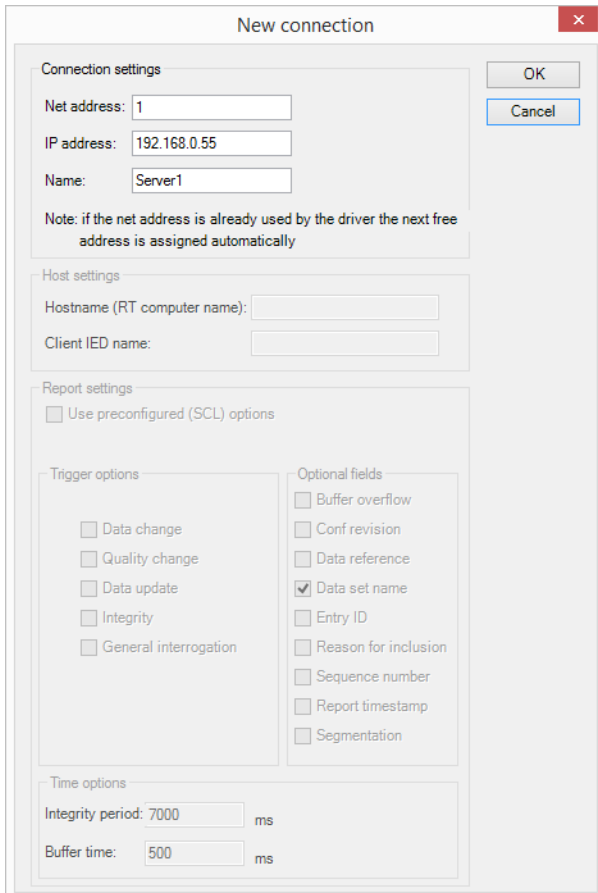
EDIT CONNECTION

To edit a connection with the context menu:

1. Click on the connection that you want to edit in the **list of drivers**.

2. Select the **Edit...** command in the context menu of the node of the selected connection.
    The dialog to configure a connection (on page 232) is opened.

3. Configure the following in this dialog:

    a) **Net address:**
       Net address of the connection

    b) **IP address:**
       IP address of the connection

    c) **Name:**
       Freely definable name of the connection Is used for the name of the variable on variable import.
       Corresponds to the **Server name** property of the driver configuration.

    d) Confirm your input by clicking on the **OK** button.
       The dialog is closed. The changes are accepted in the wizard.

4. The driver is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

Configuration

Not all properties of the dialog are available for the configuration of the connection to the IEC61850 server. Properties that are not available are grayed out. Incorrect project configurations are visualized with a warning signal (exclamation mark in red circle) next to the input field.

CONNECTION SETTINGS

Parameter	Description
Net address	Corresponds to the **Net address** property in variable configuration. Note: If the configured **Net address** has already been issued in the driver configuration, the next-highest available number is issued. Maximum value: `65535`
IP address	IP address of the server to which a connection is to be made.
Name	Freely definable name. Is used for the names of variables when variables are imported. It is recommended that this name is kept short but unique. If this name is read from an SCL file, the name consists of `IED+LDevice`. This read-in name can be shortened with this property as desired.

NAVIGATION

Parameter	Description
OK	Applies settings and closes the wizard.
Cancel	Discards all changes and closes the wizard.

Manage hosts

A host is the name of a computer on which the driver in zenon Runtime is started.

Example:

- ▶ `Computer name of the Primary Server`
- ▶ `Address of the Standby Server.`

Hosts can be created in the wizard with the context menu or with drag&drop of content. All hosts can be newly-created, edited and deleted in the wizard. These changes in the wizard are transferred to the driver configuration in the zenon Editor.

ADD HOST - DRAG&DROP

If a connection from the list of IEDs is added to the list of drivers using drag&drop, a host is created.

When creating a connection with drag&drop, a neutral entry for a host is created. This host is created in the list of drivers by default with `Host0` under the respective selected driver.

ADD HOST - CONTEXT MENU

To add a host using the context menu:

1. In the **list of drivers**, click on the desired driver for which you want to create a host.

2. Expand the tree view of the driver until you can select the `Reports` level of the connection.

3. Click on the `Reports` node.

4. Select the **New Connection** in the context menu of the node of the selected connection.
   The dialog to configure a host   (on page 235) is opened.

5. Configure the host names in this dialog:
   Enter the desired host name in the input field**Hostname (RT computer Name)**.

6. Confirm your input by clicking on the **OK** button.
   The dialog is closed. A new subnode is created for the host in the **list of drivers**.

7. The host is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

DELETE HOST

To delete a host:

1. Highlight the desired host in the tree view of the **list of drivers**.

2. Expand the tree view of the list of drivers if required.

3. Select the **Delete** command in the context menu of the node of the selected host.

4. The host is deleted without requesting confirmation.
   All report assignments that are allocated to this host are also deleted without requesting confirmation.

5. The driver is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

EDIT HOST

To edit a host using the context menu:

1. In the **list of drivers**, click on the desired driver for which you want to amend a host.

2. Expand the tree view of the list of drivers if required.

3. Select the **Edit…** command in the context menu of the node of the selected host.
   The dialog to configure a host (on page 235) is opened.

4. Edit the existing entries in the input field**Hostname (RT computer Name)**.

5. Confirm your input by clicking on the **OK** button.
   The dialog is closed. The host is displayed with the new name in the **list of drivers** in the corresponding subnode .

6. The host is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

Manage hosts

Not all properties of the dialog are available for the configuration of the hosts. Properties that are not available are grayed out. Incorrect project configurations are visualized with a warning signal (exclamation mark in red circle) next to the input field.

HOST SETTINGS

Parameter	Description
Hostname (RT computer name)	Name of the computer on which the driver is running that receives the reports: ▸ For standalone projects: `$SCADA_SERVER1` Or computer name of the computer on which the zenon Runtime is running ▸ In the zenon network: `$SCADA_SERVER1` Or computer name of the project server **Server 1** `$SCADA_SERVER2` or computer name of the project standby server **Server 2** Computer name of the network client for the determination of orIdent. This is only taken into account if option **Use SCADA network client orIdent** in dialog **Server** is activated. Note: Do not use `localhost`; use the computer names from the operating system instead. The **Hostname** must not be empty if at least one of the following configuration settings has been configured. Default: `empty`
Client IED name	IED name of the IEC61850 clients as stated in the SCD file and given there under RCB.RptEnabled.ClientLN. This input field is only for display and cannot be edited in the wizard. Therefore the **Client IED name** in this dialog is always grayed out. You can find additional information on the client IED in the Manage recipe assignments chapter.

CLOSE DIALOG

Option	Description
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

Manage recipe assignments

Reports can be assigned in the wizard using drag&drop. RCBs hosts can be assigned in the wizard. The host - an IEC850 driver that has been started on a certain computer - thus knows which RCBs it should use.

As an option, the middle group of buttons can also be used for assignment.

RCBs transferred from an SCL file can be assigned, edited and deleted. These changes in the wizard are transferred to the driver configuration in the zenon Editor. They are not written to the SCL file.

ADD REPORT - DRAG&DROP

Reports can be assigned to a connection in the **list of drivers** using drag&drop from the **list of IEDs**!

1. Highlight the desired RCB in the tree view of the **list of IEDs**.
    To do this, expand the tree view of the connections if necessary.
    Multiple selection is possible.

2. Hold down the mouse button and drag&drop the selected reports to above the desired host of the desired driver in the **list of drivers**.
    A host must be present in order to be able to assign reports to a driver.

DELETE REPORT

To assign a report to a connection:

1. Highlight the desired report in the tree view of the **list of drivers**.
    To do this, expand the tree view of the connections if necessary.
    Multiple selection is possible, but only the last entry highlighted is edited. Editing or deletion of several reports is not possible.

2. In the context menu of the node of the selected connection, select the **Delete** command.

3. The report is deleted without requesting confirmation.

4. The driver configuration is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

EDIT REPORT

To edit the configuration of a report with the context menu:

1. In the **list of drivers**, click on the desired report for which you want to change the assignment configuration.

2. Expand the tree view of the list of drivers if required.

3. Select the **Edit...** command in the context menu of the node of the selected host.
    The dialog to configure the report settings (on page 239) is opened.

4. Edit the existing entries in the input field **Report settings.**

5. Confirm your input by clicking on the **OK** button.
   The dialog is closed.

6. The driver configuration is transferred to the zenon Editor configuration by clicking on the **Apply** button or when closing the wizard by clicking on **OK**.

CLIENT IED NAME - HOST NAMING

If an instance of the RCB has been configured for a **Client IED name** the host naming is supplemented accordingly in the **list of drivers**. This Client IED name cannot be edited in the wizard. The **Client IED name** is visualized between two brackets next to the host name. Configuration of this name is not possible in the wizard.

```
[Host name] (client IED name as configured in SCL file)
```

> **Example**
>
> *Example configuration of the Client IED name in an SCL file:*
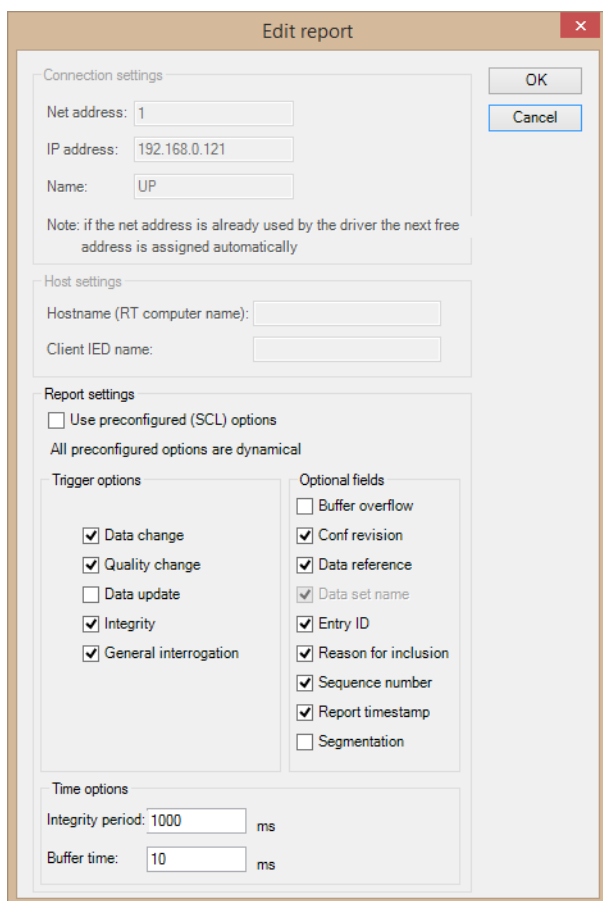
```
<RptEnabled max="4">
<ClientLN iedName="SCADA_Standby_CLIENT" ldInst="LD0" lnClass="ITCI"
lnInst="1"/>
</RptEnabled>
```

According to Edition 2 of the standard, the client with the corresponding ClientLN name is obliged to use the instance of the RCB if it is defined as such in an SCL file. RCBs of other clients are to be avoided.

As soon as a host has been assigned a report with ClientLN, the host accepts this ClientLN name as its own. From this time on, this host can only be assigned reports without ClientLN or with the same ClientLN.

Dialog - manage reports

Not all properties are available for the configuration of the dialog. Properties that are not available are grayed out.

REPORT SETTINGS

The form of the **Use preconfigured (SCL) options** property depends on the content of the SCL file. Find out more information in the chapter RCB attributes (on page 241).

Parameter	Description

Use preconfigured (SCL) options	`active:`
	The driver activates a report without overwriting the data attributes of the RCB. The content of the SCL file of the server is defined as a result of this. The following data attributes are affected by this:
	
	▶ IntgPd
	
	▶ BufTime
	
	▶ TrgOps
	
	▶ OptFields
	
	`Inactive:`
	The driver writes the data attributes of the RCB during activation.

Trigger options	You can activate/deactivate the following trigger options regardless of one another. ▶ `TrgOp: data-change` ▶ `TrgOp: quality-change` ▶ `TrgOp: data-update` ▶ `TrgOp: integrity` ▶ `TrgOp: general-interrogation` Note: Not all servers support TrgOps data-change and data-update together. TrgOp intergity can also lead to an unnecessary overload of communication if a an IntgPd (Integrity Period) that is too short was defined in the server for RCB. In case of doubt, set TrgOps: data-change + quality-change + general-interrogation. Note: not active if **Use preconfigured (SCL) options** is activated.
Optional fields	The Optional Fields are written on the server when a report is activated. These correspond to the bits in the OptFlds data attribute of the RCB. It is recommended that you activate "**Sequence number**", "**Data set name**", "**Reason for inclusion**" and "**Entry ID**". "**Data set name**" must be activated, because without this option the driver cannot evaluate the reports received. Note: not active if **Use preconfigured (SCL) options** is

	activated.

TIME OPTIONS

Parameter	Description
Integrity period	Time interval (IntgPd) in milliseconds in which the server sends an Integrity Report. Note: not active if `TrgOp integrity` is deactivated or **Use preconfigured (SCL) options** is activated. Because an Integrity Report does not normally contain value changes, it is expressly recommended that only one single report on the server is activated with `TrgOp: integrity`. With an activated integrity report, the server can detect a connection failure more quickly. zenon does not need this report. Note: not active if **Use preconfigured (SCL) options** is activated.
Buffer time	Time interval (BufTime) in milliseconds in which the server collects the data for a report. Note: not active if **Use preconfigured (SCL) options** is activated.

> 💡 **Information**
>
> You can find a more detailed description of the **Trigger options** in the IEC850 driver documentation in the **statically assigned RCB** chapter.

RCB attributes

The RCB properties of an SCL file are transferred from the SCL file to the driver configuration by means of drag&drop.
In doing so, the wizard checks the "IED.Services.ReportSettings" section of the SCL file and determines whether the following options exist:

    ▶   optFields („Optional Fields")

- ▶ bufTime („Buffer Time")

- ▶ trgOps („Trigger options")

- ▶ intgPd („Integrity period")

In addition, a check is carried out to see whether these options are defined as dynamic ("Dyn").

If the options are not defined in the SCL file, this is defined as ("Fix").

ALL RCB ATTRIBUTES ARE DYNAMIC

If all these corresponding options are dynamic ("Dyn") the dialog is as follows:
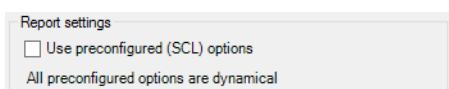
In this case, the "Use preconfigured (SCL) options" property is not active.
The notice text underneath provides corresponding information.

NON-DYNAMIC RCB ATTRIBUTES

If the options are not just "Dyn" but also "Fix" or "Conf", the dialog is as follows:
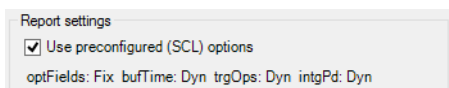
In this case, the "**Use preconfigured (SCL) options**" property is active and the RCB attributes (**Trigger options, Optional fields, Time options**) cannot be edited.
The notice text below provides corresponding information on which RCB attributes a client should not exceed whilst they activate the report on the server.

Dialog - Variables in dataset

This dialog shows the content of the selected dataset. Selected datasets are those that are present in the RCBs that are currently assigned to the driver in the wizard.

This content can be filtered and preselected.

Variables for the current zenon project can be created due to the pre-selection.
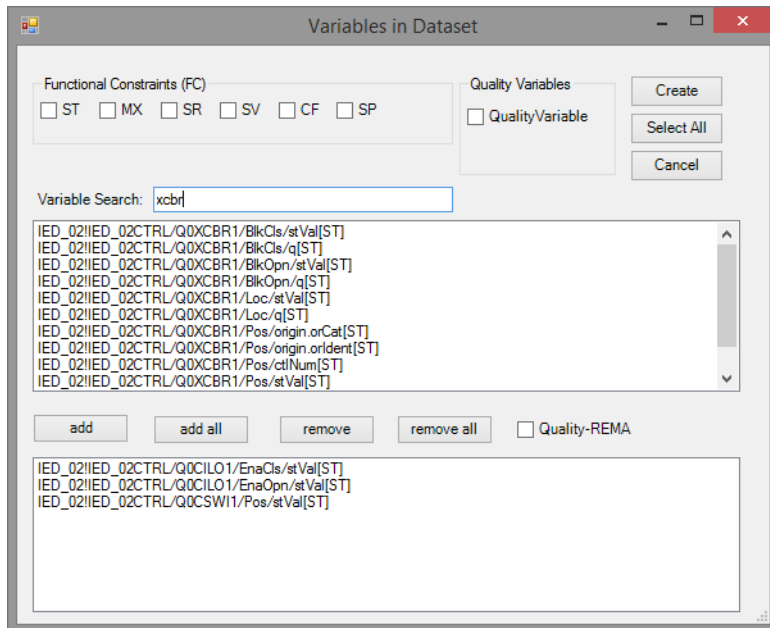
VARIABLE PREFILTERING

All content of the selected dataset is displayed in the preview window.

By clicking on the buttons, the variables that are applied by clicking on the **add** or **add all** buttons in the `list of variables to be created` are prefiltered. A combination of the checkboxes and input field is possible.

Parameter	Description
Functional Constraints (FC)	The content available in the report is prefiltered on the basis of the selected **Functional Constraints** and displayed in the preview window. Prefiltering is activated by clicking the respective checkbox. Multiple selection is possible.
Quality Variables	Checkbox for prefiltering according to quality variables that correspond to the $*/q[ST|MX]$ data attribute. If the checkbox is activated, only quality variables are shown in the preview window. A combination with **Functional Constraints (FC)** is possible.
Variable Search	Input field for filter text. Only variables that contain

	the text entered are displayed in the upper preview window.
	Prefiltering is already updated during entry in real time.

ACTION BUTTONS

Parameter	Description
Create	Variables in the current zenon project configuration are created for selected entries.
	The dialog is then closed.
Select all	This button has no function and is not used in the current version of the wizard.
Cancel	Discards all settings and closes the dialog.

PREVIEW WINDOW - LIST OF THE VARIABLES TO BE CREATED

This area visualizes, in the lower area, a preview of the content of the selected dataset for which variables in the current zenon project are created by clicking on the **Create** button.

Content from prefiltering can be be applied or removed by clicking on the buttons.

Parameter	Description
add	The selected entry is added to the `list of variables to be created`.
add all	All (pre-filtered) entries offered are added to the `list of variables to be created`.
remove	The selected entry is removed from the `list of variables to be created`.
remove all	All entries in the `list of variables to be created` are removed.
Quality-REMA	Linking of variables to a reaction matrix.
	If activated, the quality reaction matrix is linked to the variables that correspond to a `*/q[ST|MX]` data attribute.

Configuration of the driver

In the Editor, the driver saves its configuration in the TXT file as defined in **Configuration file name**. In Runtime, the driver gets its configuration from the copy of the file that the editor has provided.

STRUCTURE OF A CONFIGURATION FILE OF THE DRIVER

Line	Description
1	Number of configured servers
2 – (m-1)	Server configuration (see server configuration)
m – n	Possible further server configuration(s)

SERVER CONFIGURATION

Line	Description	Example
1	Start of a server configuration (= `*** SERVER ***`)	*** SERVER ***
2	Number of items in this server configuration, abbreviated: `CNTSRVITEMS`	44
3	Net address	1
4	Server name	RELAY1
5	Primary IP address	192.168.250.22
6	Primary IP port	102
7	**Polling rate** Read interval in milliseconds	1000
8	Calling AE qualifier	12
9	Called AE qualifier	12
10	Calling AP title[0]	1
11	Called AP title[0]	1
12	Calling AP title[1]	1
13	Called AP title[1]	1
14	Calling AP title[2]	1
15	Called AP title[2]	999
16	Calling AP title[3]	999
17	Called AP title[3]	1
18	Calling AP title[4]	-1
19	Called AP title[4]	1
20	Calling AP title[5]	-12851
21	Called AP title[5]	-1
22	Calling AP title[6]	-12851

23	Called AP title[6]	-12851
24	Calling AP title[7]	-12851
25	Called AP title[7]	-12851
26	Calling AP title[8]	-12851
27	Called AP title[8]	-12851
28	Calling AP title[9]	-12851
29	Called AP title[9]	-12851
30	**Max. auto used URCBs** Maximum number of Unbuffered Reports (URCBs) that the driver activates with automatic assignment per Logical Device	10
31	* - in newer configurations With old configuration: names of the assigned Buffered Reports (BRCBs), separated with commas	*
32	**Use preconfigured (SCL) options** 0 = subsequently configured RCB settings (TrgOps, OptFlds, IntgPd, BufTm) are used 1 = the RCB settings that have already been preconfigured in the IEC61850 server - in its SCL file - are used	0
33	**Use Report-ID for RCB assignment** 0 = The RCB instances of the server are identified by name. 1 = Report ID that is used instead of the report name in the dialog for RCB assignment.	0
34	**Use Authentication** 0 = no ISO-Authentication used 1 = If active, the driver sends the **Authentication String** at establishing the connection.	0
35	**Authentication String**	
36	Alternative IP address	
37	Alternative IP port	0
38	TrgOp data-change: 0 = inactive ; 1 = active	1
39	TrgOp quality-change: 0 = inactive ; 1 = active	1
40	TrgOp data-update: 0 = inactive ; 1 = active	0
41	TrgOp integrity: 0 = inactive ; 1 = active	0
42	TrgOp general-interrogation: 0 = inactive ; 1 = active	1
43	**GetNameList on DO**	0

	0 = Normal GetNameList 1 = The driver reads the object model by requesting data objects (DO) for each Logical Node available in the server and each Functional Constraint (FC) defined in the IEC61850 standard. This option has been removed from the configuration dialog in version 8.00 and replaced with an automated method.	
44	**Integrity Period**	7000
45	**Buffer Time**	500
46	**OptFlds** Optional fields of the RCB	73
47	**RCBs enable reties** Cycle in seconds in which an attempt is made to activate RCBs that were not activated successfully again. Only present if CNTSRVITEMS >= is 45	7
48	**Automatic Watchdog**	1
49	**Data consistency scan**	300
50	**Use SCADA network orIdend**	0
51	Number of client configurations	
52 – (m-1)	Client configuration (see Client configuration)	
m – n	Possible further client configurations	

CLIENT CONFIGURATION

Line	Description	Beispiel
1	Start of a client configuration (= *** CLIENTCFG ***)	*** CLIENTCFG ***
2	Number of Items in this client configuration	1
3	**Hostname (RT computer name)** Name of the computer on which the driver is running that receives the reports	WKS007
4	**ClientLN.iedName**	SCADA_Server1
5	**orIdent**	
6	Number of RCB configurations	2
7 – (i-1)	RCB configuration (see RCB configuration)	
i – (j-1)	Possible further RCB configurations	
y	Number of dynamic dataset configurations	

k – (l-1)	Dynamic dataset configuration (see dynamic dataset configuration)	
l – m	Possible further dynamic dataset configuration	

RCB CONFIGURATION

Line	Description	Example
1	Start of a RCB configuration (= *** RCBCFG ***)	*** RCBCFG ***
2	Number of items in this RCB configuration	2
3	RCB name or ID	UP_CTRL/LLN0/urcb_QxCSWI1_Pos02[RP]
4	Name of the dynamic data set.	NEW_DYN_DATASET

DYNAMIC DATASET CONFIGURATION

Line	Description	Example
1	Start of a dynamic dataset (= *** DATASET ***)	*** DATASET ***
2	Number of items in this dynamic dataset configuration	1
3	Name of the dynamic data set	NEW_DYN_DATASET
4	Number of Object References of the dynamic dataset	2
5	Object Reference	UPCTRL/Q1CSWI1CFPos
6 – n	Possible further Object Reference.	UPCTRL/Q1CSWI1STPos

3.3 Import - Export

Wizards for export and import of data.

3.3.1 FactoryLink import wizard

The **FactoryLink Import Wizard** ports **FaktoryLink** projects into a zenon project configuration.

The following **FactoryLink** components are supported for porting:

- ▶ Variables

▶ Graphics files (*.bmp, *.png, *.gif, etc.)

▶ Templates (incl. standard elements)

▶ Mimics (incl. standard elements)

> 💡 **Information**
>
> The current **FactoryLink Import Wizard** was implemented with VSTA for **FactoryLink** 7.5 for zenon 7.50. This wizard replaces the previous VBA **FactoryLink wizard**.

Install and call up wizard

The **FactoryLink Import Wizard** is automatically installed as part of the zenon standard installation.

WIZARD DISPLAY IN THE ZENON EDITOR

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]`.

STARTING THE WIZARD

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.

.
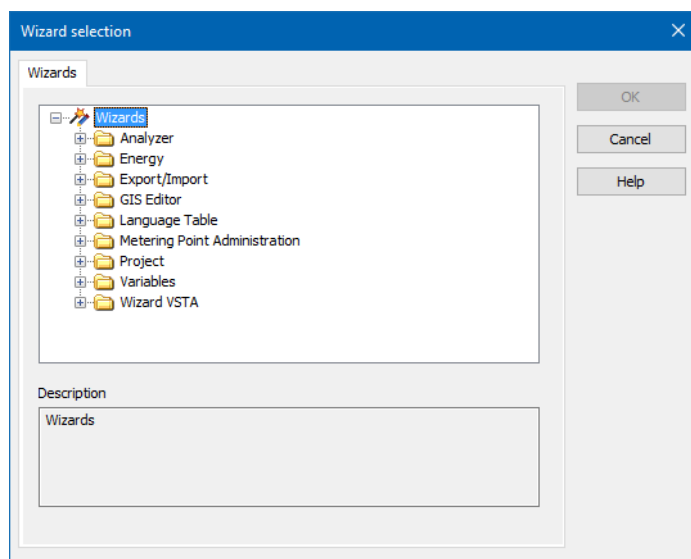
2. Select the folder **Export/Import**.

3. There, click on **FactoryLink Import Wizard**.
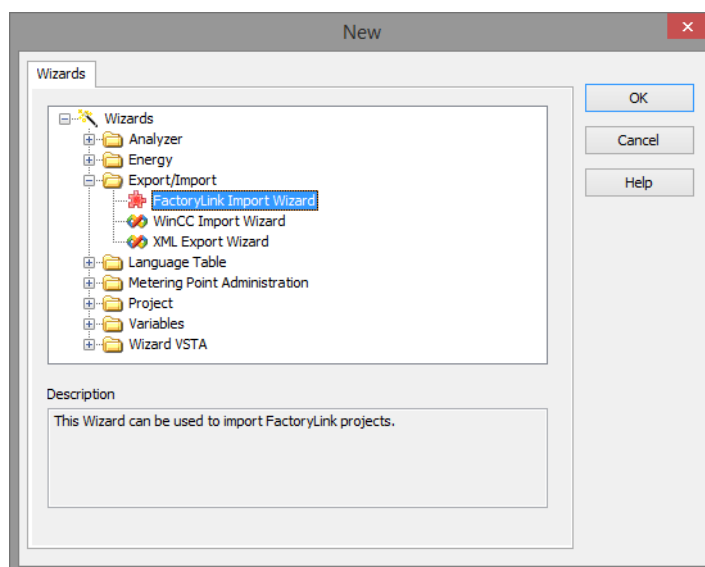
4. Click on **OK**.

The wizard starts with the start window.

> 💡 **Information**
>
> The **FactoryLink Import Wizard** is only available in English.

Multi-user project

The current project is checked after starting the **FactoryLink Import Wizard**. A warning dialog is displayed if the project is detected as being a **multi-user project**.
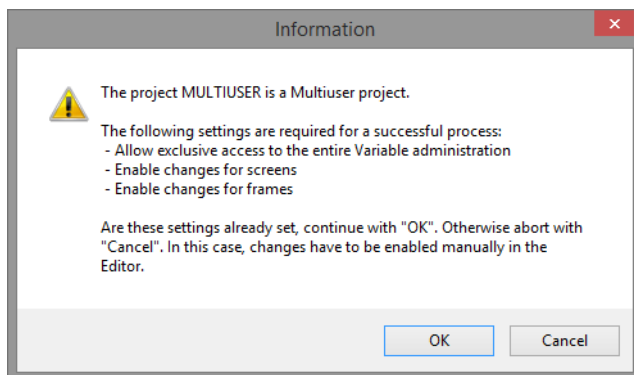
Note: This dialog is only available in English.
The buttons are displayed in the system language of the computer.

Ensure that these requirements are met before you continue with the wizard.

Parameter	Description
OK	Confirms the warning dialog and starts the wizard with the **Welcome** start dialog (on page 254).
Cancel	Closes the wizard without requesting confirmation.

REQUIREMENTS

With a **multi-user project**, the **Check out** setting is active for the following node in the zenon Editor:

- ▶ Variables
- ▶ Screens
- ▶ Frames

> ⚠ **Attention**
>
> *If the Check out setting is not activated, the import will be unsuccessful.*

Preparation for export of project data from FactoryLink

FactoryLink project data is exported in the FactoryLink program using the Display - Library Converter menu in the ClientBuilder application. Here, the desired libraries all all project data to be converted must be selected.

In addition, access to the bitmaps used in the project must be guaranteed. All files must remain in the folder structure that has been created and prescribed by FactoryLink .

SCREEN AND MIMICS EXPORT FROM FACTORYLINK
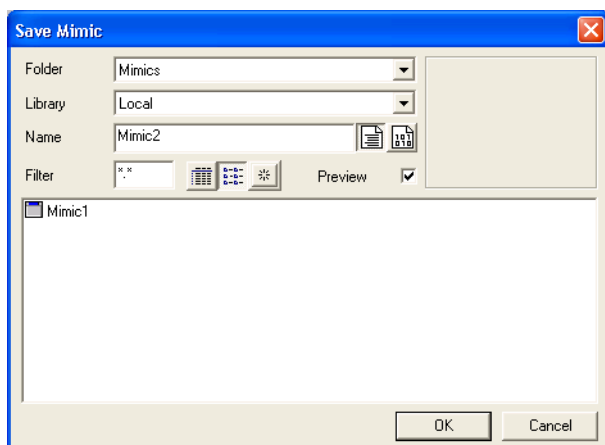
> ⚠ **Attention**
>
> *ASCII must be selected as a target format of the screens (`Mimics`).*

Project import

Welcome

When opening the wizard, you get an overview page with a summary of the wizard functionality.
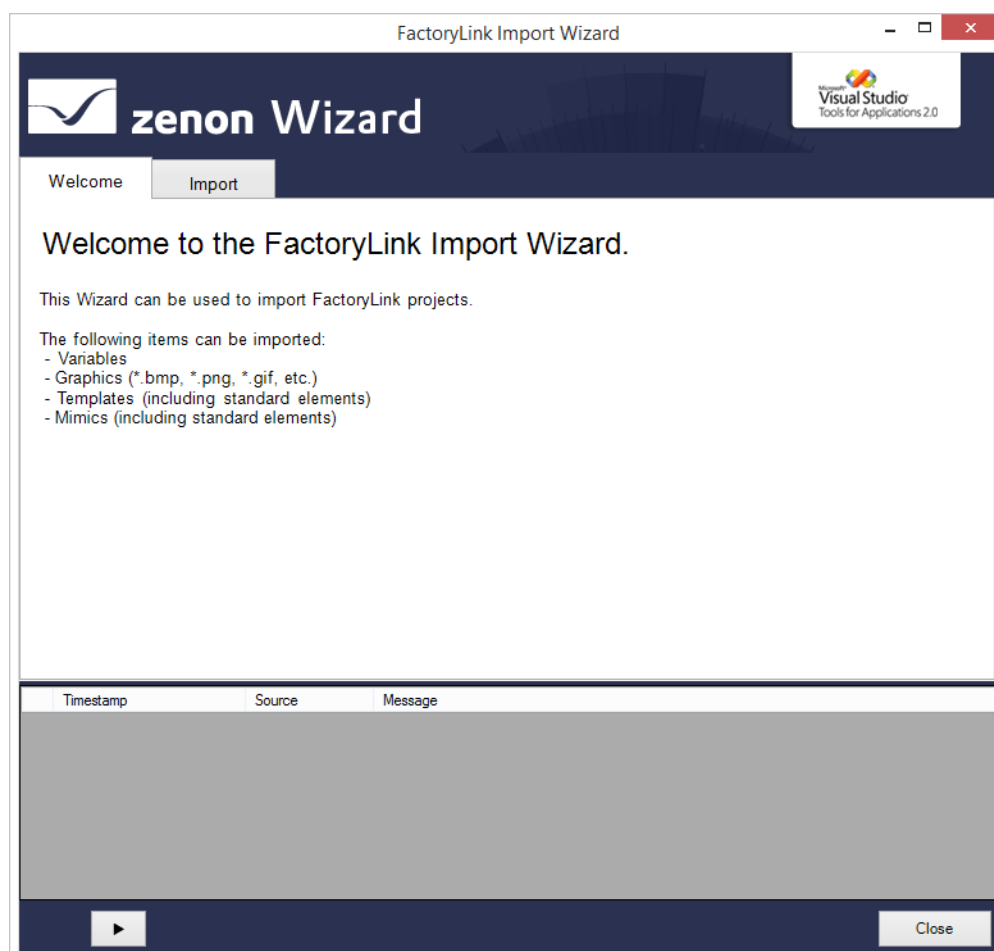
NAVIGATION

Navigation through the wizard is by clicking on the individual tabs, or with the mouse clicking on the arrow keys.

Clicking on the **Close** button closes the wizard. The folder and files that have previously been set are not saved.

Import

In the **Import** tab, you select the files and folders of the **FactoryLink** configuration.

The labels in brackets correspond to the file or folder name of a standard **FactoryLink** configuration. A file selection dialog opens if the respective "**...**" button is clicked on.

Note: It is not absolutely necessary to select all folders and files.

Parameter	Description
Language definitions (MLANG.DAT)	File with language information of the FactoryLink configuration.
	The stating of this file is optional for multi-language **FactoryLink** project content.
	Once the file has been selected, the available languages can be selected in the **Language for Import**.
	An initial evaluation result is shown after the file has been selected in the output window:
	`n languages found in the language file.`
	Default: `empty`
	FactoryLink Standard:
	`\FactoryLinkProjektName\Config Files\MLANG.DAT`
	(from FactoryLink Client Builder)
Variables (object.asc)	File for variable definition(s).
	Individual variables are selected here. The `object.asc` file contains the definition of the variables used.
	Default: `empty`
	FactoryLink Standard:
	`\FactoryLinkProjektName\Variables\asc\object.asc`
	(from FactoryLink Configuration Server - OPC Server Export)
Graphics (Bitmap Files)	Selection of the folder of the graphics used.
	Default: `empty`
	FactoryLink Standard:
	`\FactoryLinkProjektName\Bitmap Files`
	(from FactoryLink Client Builder)
Templates (Templates Files)	Default: `empty`
	FactoryLink Standard:
	`\FactoryLinkProjektName\Template Files`
	(from FactoryLink Client Builder)
Mimics (Mimic Files)	Default: `empty`
	FactoryLink Standard:
	`\FactoryLinkProjektName\Mimic Files`
	(from FactoryLink Client Builder)

IMPORT

Parameter	Description
Language for import	Drop-down list with the languages available.
	The drop-down list visualizes the available languages as contained in the **Language definitions (MLANG.DAT)** property. The drop-down list is empty if no `MLANG.dat` file has been selected.
	The number of languages read does not necessarily need to match the number of languages available in the mimics/templates for text elements. If the selected language is not available for elements in a mimic/template, it cannot be imported successfully.
	Default:
	▸ `[empty]`
	If no `MLANG.DAT` file is given.
	▸ `DEFAULT` `Language(s)`
	If a `MLANG.DAT` file is given.
	Note: If no language definition file is selected, or the "DEFAULT" value is selected, multilingual text information is not taken into account for the import.
Import	Starts the import from the configured files and folders.
	Not active if at least one `.asc` file or folder has been selected.

OUTPUT WINDOW

Evaluation results, errors and import steps are shown in the output window.

Output window

The individual actions carried out by the wizard are listed in the output window.
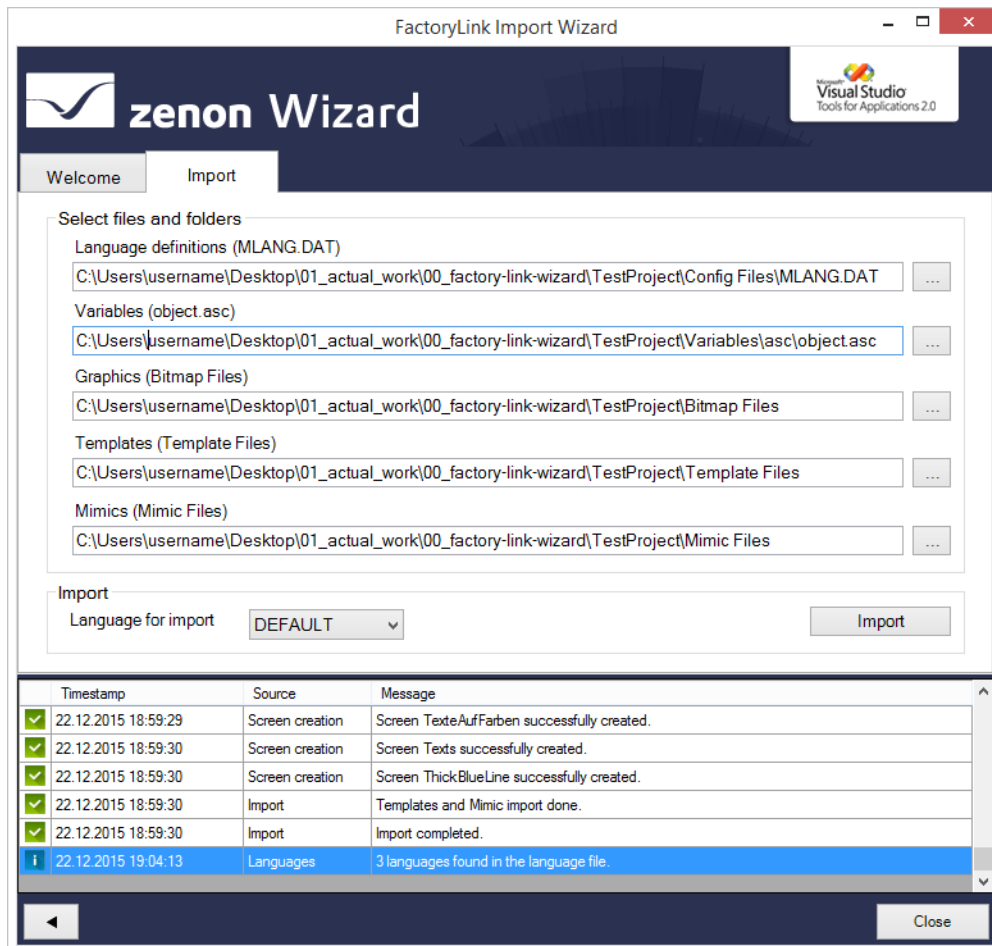
The list can be sorted by clicking on the respective column heading. A further click reverses the sorting order.

Parameter	Description
Action symbol	Graphic symbol of the action:
Timestamp	Time stamp of the action carried out by the wizard. Format: `DD.MM.YYYY hh:mm:ss`
Source	Identifier or origin of the action carried out: ▶ `Import:` Detailed description of the individual step, for example: • `Adding file for import` • `Starting the import of the Templates.` ▶ `Screen creation:` Import steps for zenon screens. ▶ `Element creation:` Notes for creating an element, for example: • `An Element with the name [element name] already exists in the screen [screen name]` ▶ `Graphics import:` Searches through project configurations ▶ `Languages:` Evaluation of the language definition (**Language definitions**)
Message	Short description of the action carried out.

GRAPHIC SYMBOLS

Parameter	Description
ℹ️	General information about the current stage in the wizard.
✅	Successful result for the action carried out
❌	Error notice
⚠️	Warning notice

Import

Please note the following points in zenon when executing the wizard:

▶ For the import of a **FactoryLink** project configuration, it is recommended that a new, empty zenon project is created in the Editor. This therefore precludes names of screens and frames being present twice before import.

▶ No existing project configurations are overwritten in the zenon Editor during import! If there is already a corresponding projecting, a corresponding message is shown in the output window.

▶ The variables are automatically mapped to the internal driver of the zenon project on import.

- This way, the data types can be assigned to the available data types of the real driver first by means of multiple selection.

- You then assign the imported variables to the desired real driver.

▶ If variables are renamed in the zenon Editor, these are imported with the original names when the wizard is restarted.

> ⚠ **Attention**
>
> zenon symbols are not created.

TEMPLATES AND MIMICS:

`Templates` in **FactoryLink** must not be mixed up with frames in zenon. **FactoryLink** `Templates` correspond to screen templates in zenon. The **FactoryLink Import Wizard** treats `Templates` and `Mimics` the same, and creates screens and frames from this for the zenon project configuration, including standard elements.

The following elements are supported in the process:

▶ Text element

▶ Circle/ellipse

▶ Rectangle
(including rounding)

▶ Line

▶ Polygon

▶ Bitmap
(becomes button with graphics)

List of importable objects

The import from **FactoryLink** projects supports the following objects:

- ▶ Variables
  - Names
  - Identification
  - Data type
- ▶ Drivers
  - Always internal - Driver for internal variables
- ▶ The import and creation of FactoryLink templates and mimics.
- ▶ Import and creation of static picture elements:
  - Text element
  - Circle/ellipse
  - Rectangle
    (including rounding)
  - Line
  - Polygon
  - Bitmap
    (becomes button with graphics)
- ▶ Import of MultiLang texts from text elements (for static text elements)

3.3.2   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.

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.

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.

3.3.3   PDiag Import Wizard

The **zenon PDiag Import Wizard** supports PDiag messages during import. This wizard can also serve as a template for your own expansions in this context.

The **PDiag Import Wizard** is only available in English.

> ⚠ **Attention**
>
> *This wizard does not support distributed engineering and is not available in multi-user projects.*

Requirements

The wizard imports an XML file exported from the **Prozess Diagnose (PDiag) Simatic** module. This export can be carried out in the **Simatic Manager**/process diagnosis with the **Process diagnosis | Export** menu item.

The XML file created in this way is imported with the wizard in zenon. In doing so, variables that are based on the S7-TCP driver are created with the **Alarm-S** driver object type. Each message and each accompanying value corresponds to a zenon variable.

Only UINT variables are imported as an accompanying value. In doing so, the message text is analyzed for the **Simatic PDiag** identifier "`@1X%2d@`", "`@1X%3d@`" und "`@1X%4d@`" and adapted for zenon accordingly. Use of the language table for dynamic text is also possible. In doing so, the texts outside the wizard are to be transferred to the zenon.

This wizard also imports S7 graph messages that are automatically generated by PDiag and are thus also included in the XML file.

Settings

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.
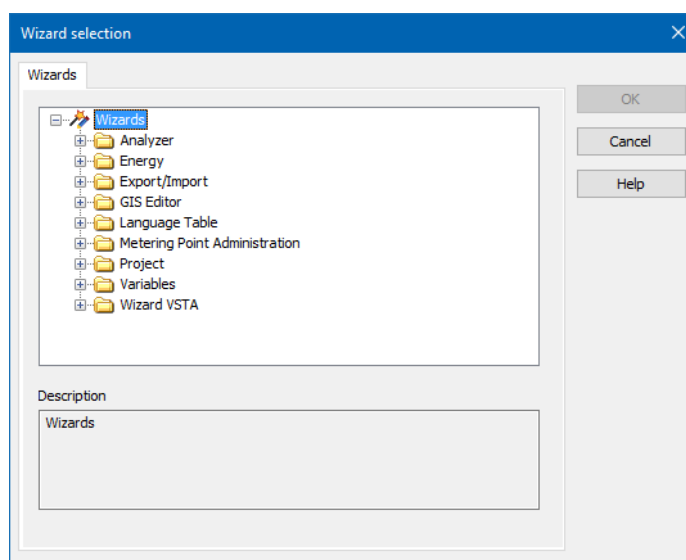
2. Open the **Export/Import** node.

3. Select **PDIAG Wizard**.

4. Click on **OK**.

    The wizard starts with the welcome page.

The wizard has the following tabs

   ▶   **Welcome** (on page 265)

   ▶   **Settings** (on page 266)

   ▶   **Finish** (on page 268)

To import an XML file.

Welcome
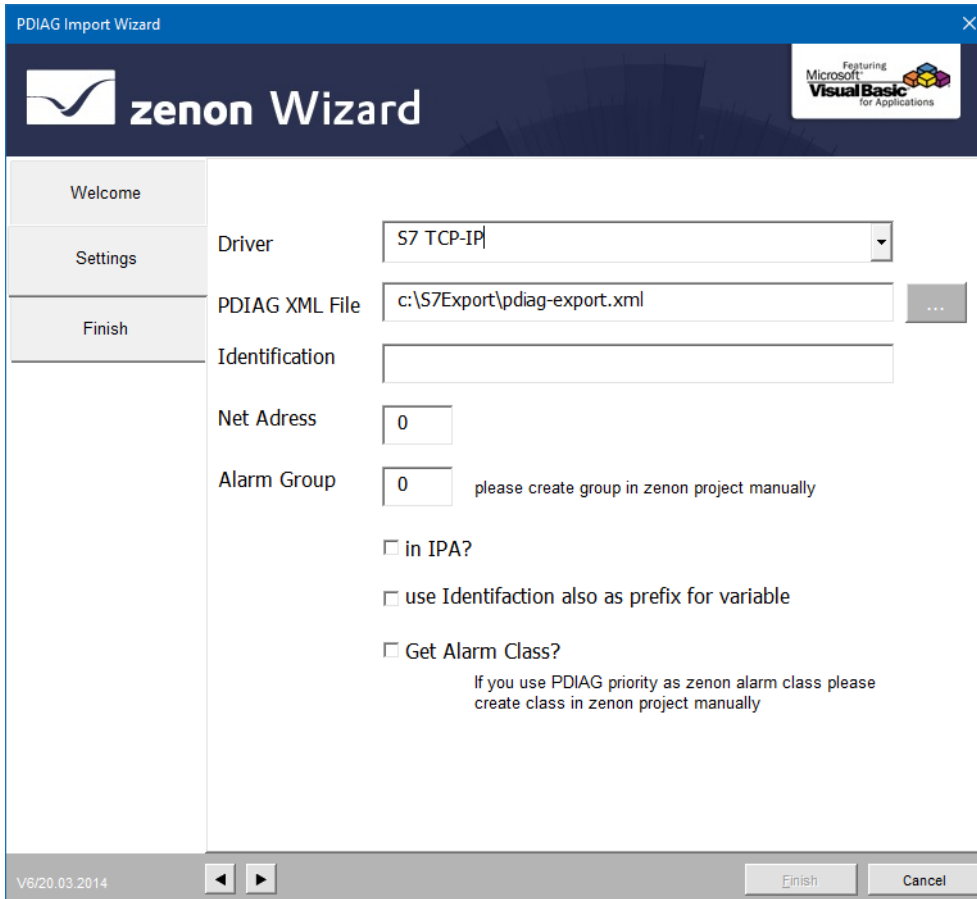
The **Welcome** tab contains a short explanation on how the wizard works and what is required.
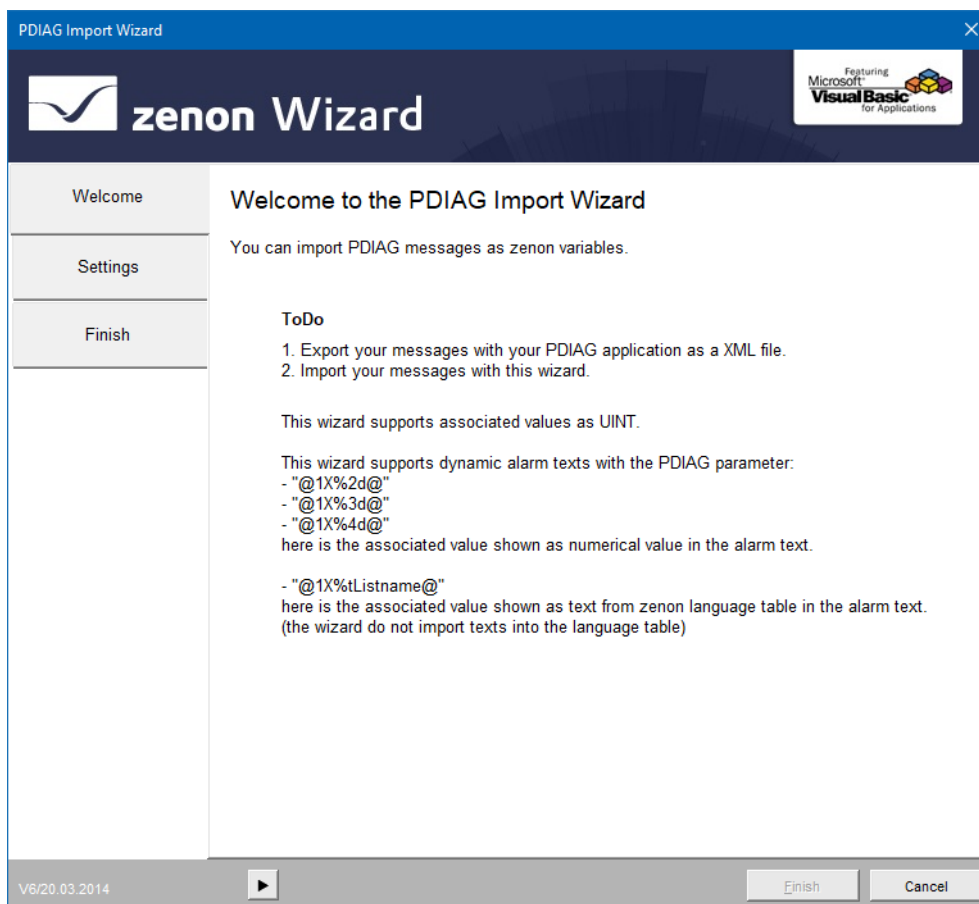
In order to get the the **Settings** (on page 266) tab, click on the **Settings** menu selection or on the arrow at the bottom left.

Settings

You can adjust the import settings in the **Settings** tab.

Setting	Description
Driver	Selection of the S7-TCP driver from the active project for which the import is to be carried out.
PDIAG XML File	Selection of the XML file to be imported.
Identification	Optional entry for variable identification. This entry can be filtered in the variable list.
Net Adress	Defines the net address for the zenon variable addressing. You can see the valid net address in the driver configuration.
Alarm Group	Sets the alarm/event group of the messages to be imported. Attention: The wizard does not create alarm/event classes in zenon independently. These must be manually created before the import.
In IPA	`Active`: Sets the **Save in IPA database** property for the variables. This transfers the messages to the industrial performance analyzer.
use Identification also as prefix for variable	`Active`: For the variable names of the alarm variables, the variable detection given in the wizard is used as a prefix for the variable names. This option supports unique variable names for projects with several drivers.
Get Alarm Class	`Active`: The message priority set in Simatic Manager is interpreted as zenon alarm/event class. Attention: The wizard does not create alarm/event groups in zenon independently. These must be manually created before the import.

The import is started with click on **Finish**. This button is only active in the **Finish** (on page 268) tab. Click on **Finish** in the menu or on the arrow at the bottom left.

Finish

To start the import, click on the **Finish** button.
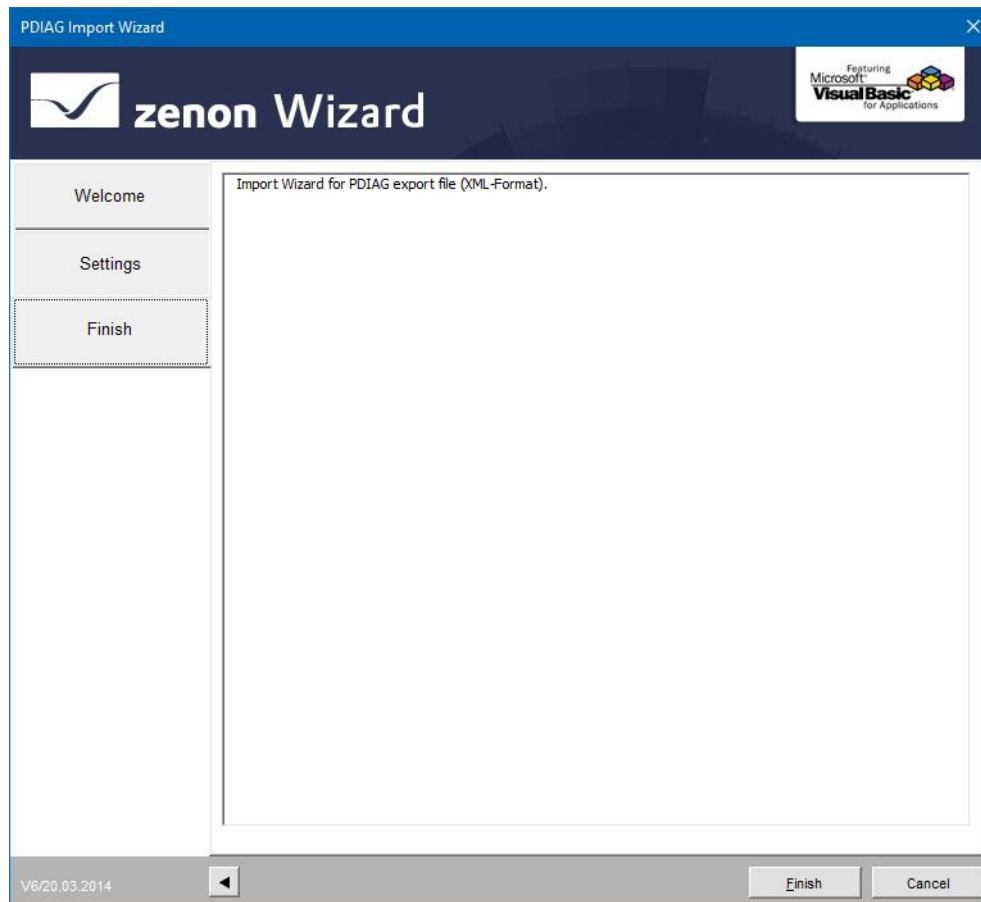
Import of messages

Notices are given during the import:
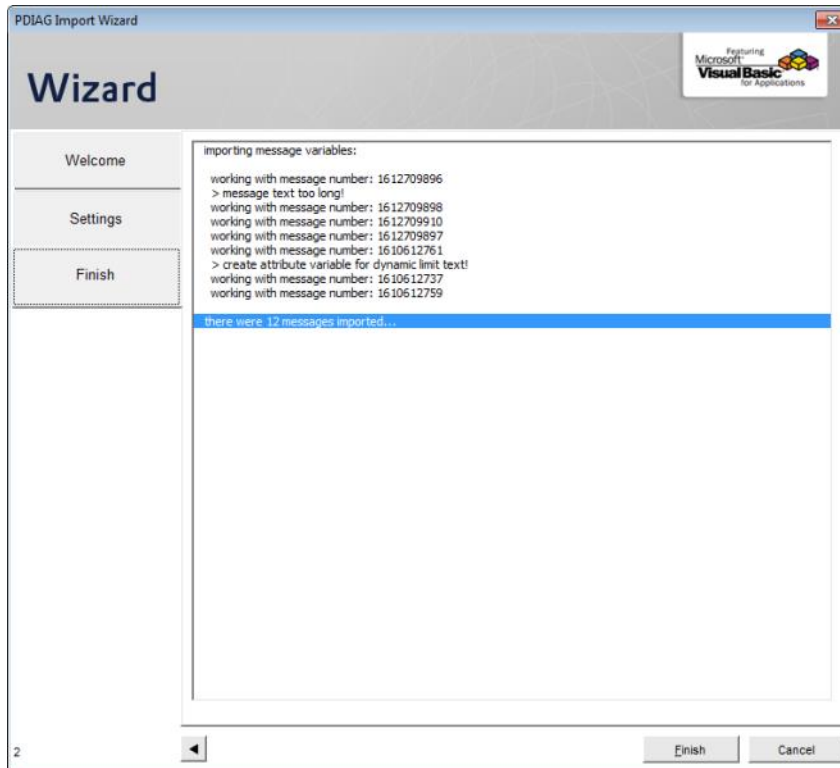
After the import has finished, there is a note stating how many variables were imported.

IMPORTANT MESSAGES

Message	Description
message text too long	The alarm text is too long and will be cut to the valid length in zenon.
creating attribute variable for dynamic limit text	In addition to the message variable, an accompanying value variable for the dynamic limit value text is created.

COPADATA

3.3.4 Welcome to COPA-DATA help

ZENON VIDEO-TUTORIALS

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LICENSES AND MODULES

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3.3.5 WinCC Import Wizard

The **WinCC Import Wizard** imports selected parts of an existing WinCC project to the currently loaded zenon project.

⚠ **Attention**

The import of the WinCC project data is carried out using two programs:

▶ **WinCC Graphics Converter** (on page 275): exports WinCC screens, frames and symbols from WinCC in an XML file

▶ **WinCC Import Wizard** (on page 278): imports

- Data blocks (`Structure TAGs`), `TAG`s, alarms and archives directly

- Screens, frames and symbols via XML files which were previously created with the help of the **WinCC Graphics Converter** (on page 275)
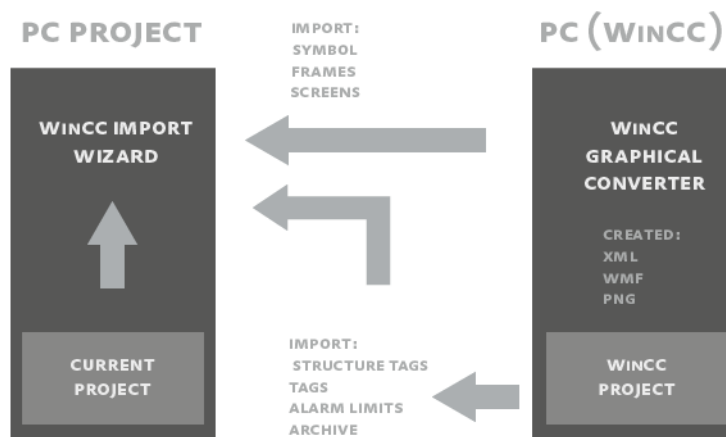
Installation

To execute the WinCC Import Wizard, you must first install all components.

> 💡 **Information**
>
> *You should NOT install zenon on the same computer as WinCC.*

INSTALLATION WINCC GRAPHICS CONVERTER

In order to access the WinCC information, the **WinCC Graphics Converter** must be installed on the computer on which the WinCC project runs. The program is located on the zenon installation medium in folder `\AdditionalSoftware\COPA-DATA WinCC Graphics Converter`.

After the installation you can find the converting tool for different WinCC versions under Start - All Programs - COPA-DATA - WinCC Graphics Converter. Always start the tool for matching version.

> **ⓘ Information**
>
> *For using the converter, **.NET Framework 3.5** must be installed. When installing the converter, it is checked whether it is available. If the framework is missing, the installation is canceled. In this case first install **.NET Framework 3.5** and then start the installation of the converter again.*

INSTALLATION OF THE WIZARD FOR ZENON 7.0 AND HIGHER

The wizard is automatically installed together with the zenon Editor. No separate settings are needed. You can start the wizard right away in the zenon Editor under File - Wizards... and there under Export/Import.

INSTALLATION OF THE WIZARD FOR ZENON 6.51

As the wizard is not a part of 6.51 SP0, you must carry out the following steps for the installation:

- ▸ Install at least Build 6 of zenon 6.51. You can request Build 6 from your sales representative.

- ▸ Install the wizard together with the **WinCC Graphics Converter**. This setup installs the WinCC Graphics Converter tool and also the wizard if zenon 6.51 SP0 is installed. You can request the setup from your sales representative.

▶ After the installation, start the zenon Editor. The dialog for updating the wizard is displayed. The wizard is added to the VSTA workspace by starting the update.
If you want to carry out this step later, you can return to this dialog in the zenon Editor via menu File - Update wizards.... To get to this dialog at any time.
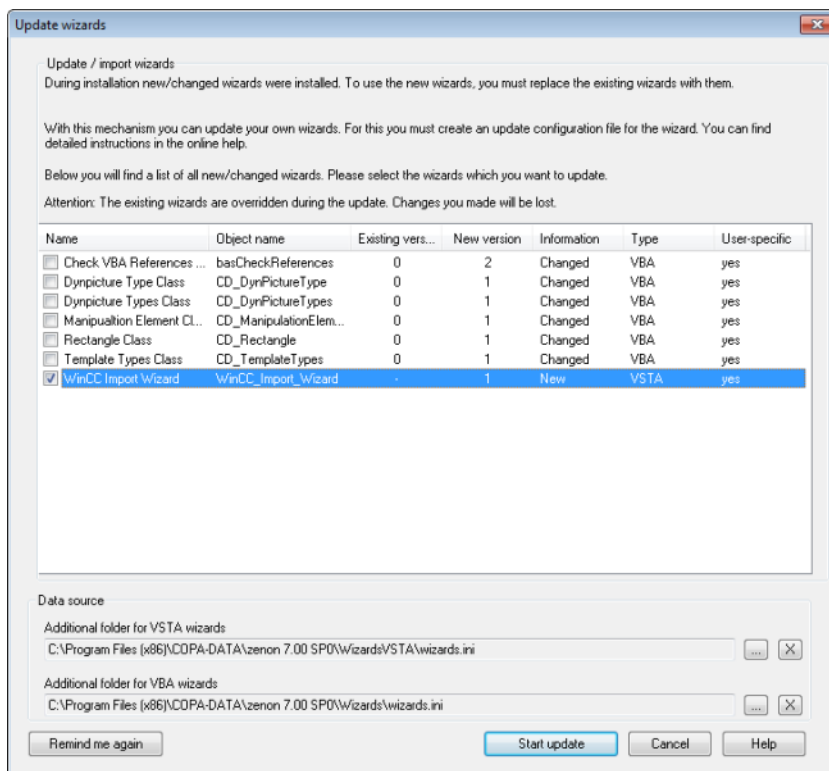
▶ Start the VSTA Editor in the zenon Editor in the File - Open VSTA Editor... and select, in the `Project Explorer` window, the `References` node. Carry out menu item **Add Reference...** in the context menu in order to add two missing references:

- `MSDASC`: In the **Add Reference** dialog, you switch to the **COM** tab and add the `Microsoft OLE DB Service Component 1.0 Type Library` component to the project.

- ADODB: In the **Add Reference** dialog, switch to the **Browse** tab. Navigate to the folder C:\Program Files (x86)\Microsoft.NET\Primary Interop Assemblies and select file adodb.dll.
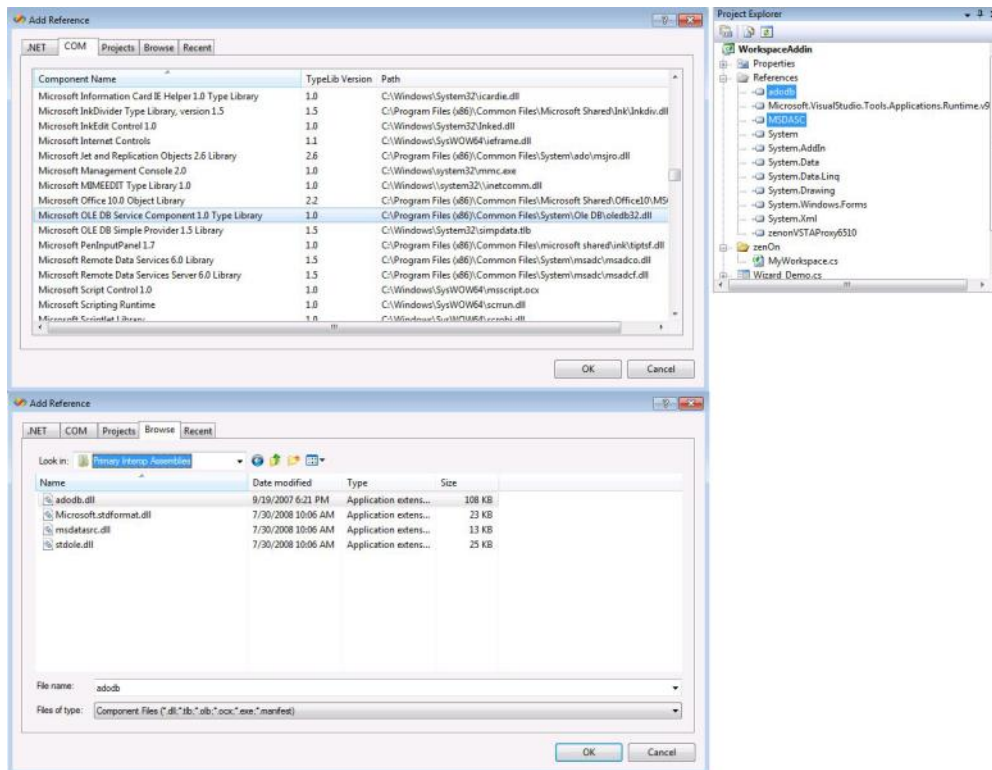
Note: This screenshot is only available in English.

► Now, in the **Project Explorer** window in the VSTA Editor, you can select the **WorkspaceAddin** node and compile the add-in using the **Build** command in the context menu.

After the compiling was successful, the wizard is available in the zenon Editor under File - Wizards... and there under Export/Import.

WinCC Graphics Converter

The **WinCC Graphics Converter** makes it possible to select screens, frames and symbols in WinCC projects and export them as XML files.

> 💡 **Information**
>
> *At the moment XML files can be created from WinCC projects of versions 7.0 and 7.0 SP1.*

Welcome

With the help of the WinCC Graphics Converter you can convert WinCC graphics files (PDL) to an XML format which the WinCC Import Wizard can read. Existing graphics information are saved as PNG files and WMF files together with the XML files and stored in a selected folder.

To execute the converter:

1. Click on Start.

2. Go to COPA-DATA -> **WinCC Graphics Converter**

3. Start the **WinCC Graphics Converter**.

4. Follow the instructions of the wizard.
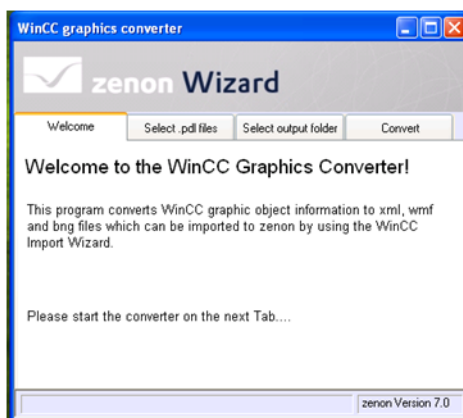
Select .pdl files

On this tab you select the PDL files which should be exported from the **WinCC project**. To do this:

1. Click on the **Select .pdl files** button.

2. Navigate to the project folder which contains the PDL files.

   Note: In order that the files can be selected, the WinCC project must be loaded on the computer!

3. Select the desired files.

All selected PDL files are displayed in the preview window.
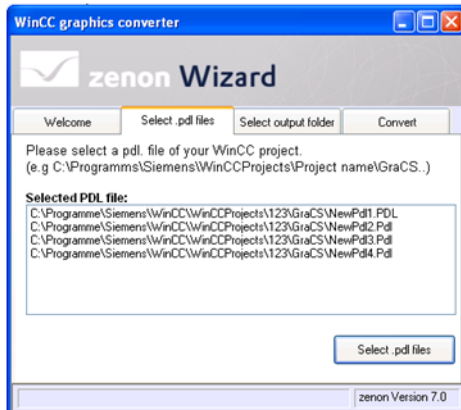
Select output folder

On this tab you select the folder in which the export files should be saved. To do this:

1. Click on the **Select output folder** button.

2. Navigate to the folder in which the export files should be saved.
   Note: You can create a new folder in the selection dialog
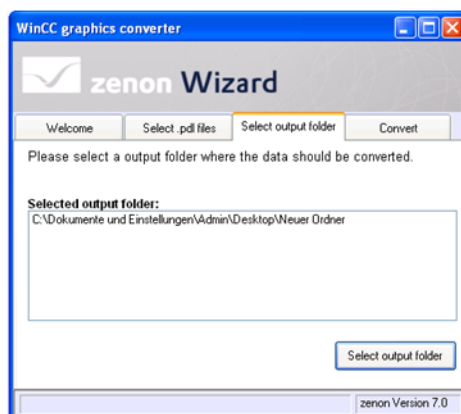
Convert

On this tab you can carry out the conversion.

After the successful export copy the folder to the computer with the zenon project in which the data should be imported or make sure that the computer with the zenon project has access to the export folder.

WinCC Import Wizard

The WinCC Import Wizard is started via the wizard dialog of the Editor and can be used to import the following WinCC elements:

- ▶ Import of the Screens (on page 290) (the XML files created with the **WinCC Graphics Converter** (on page 275) are converted to frames, screens and symbols in zenon)

- ▶ Import of the WinCC TAGs (on page 285) (only S7 TCP)

- ▶ Import of the WinCC Structure TAGs (on page 283) (only S7 TCP)

- ▶ Import Alarm Limits (on page 286)

- ▶ Import Archive TAGs (on page 288)

STARTING THE WIZARD

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]`.

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.
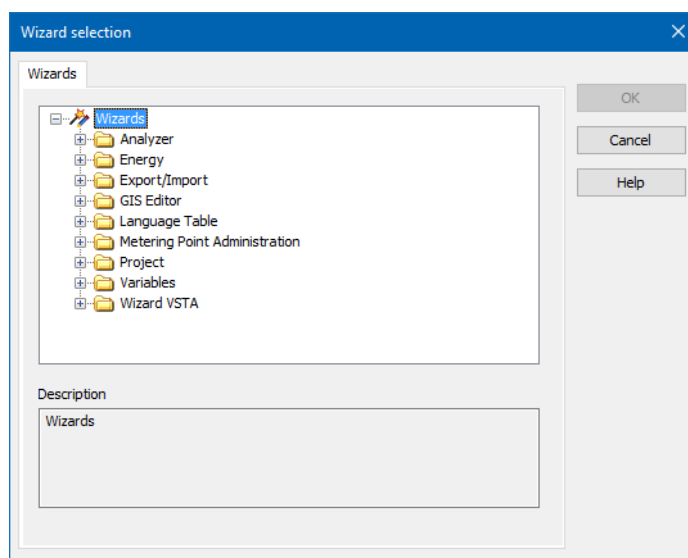
2. Navigate to the node **Export/Import**.

3. Select the **WinCC Import Wizard**.
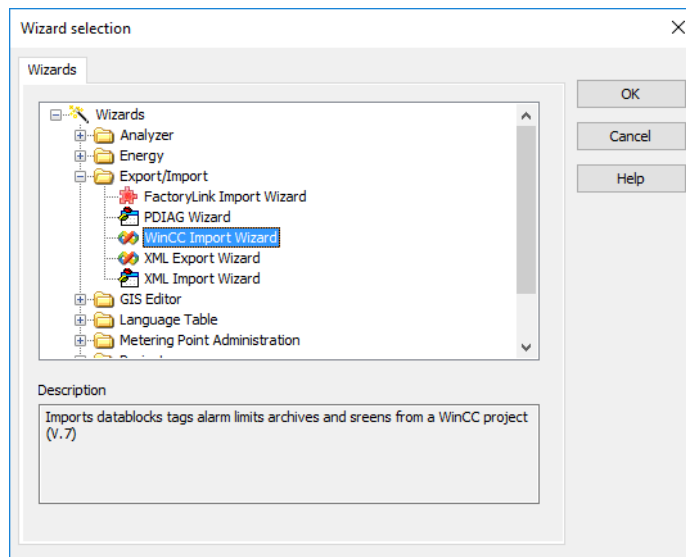
4. Start the wizard by clicking on **OK**

The wizard is divided into areas:

▶   **Welcome** (on page 280): Overview over the wizard.

▶   **Settings** (on page 281): Settings for the connection to the WinCC project. After the connection has been established successfully, the tabs for the direct import are displayed:

   •   **Data Blocks** (on page 283): Structure TAGs from WinCC

   •   **TAGs** (on page 285): TAGs from WinCC

   •   **Alarm Limits** (on page 286): Alarm classes and alarms from WinCC

   •   **Archive TAGs** (on page 288): Archive files from WinCC

▶   **Screens** (on page 290): Import of the screens from WinCC via the **WinCC Graphics Converter** (on page 275)

Welcome

The start page of the wizard informs you about all other import steps:
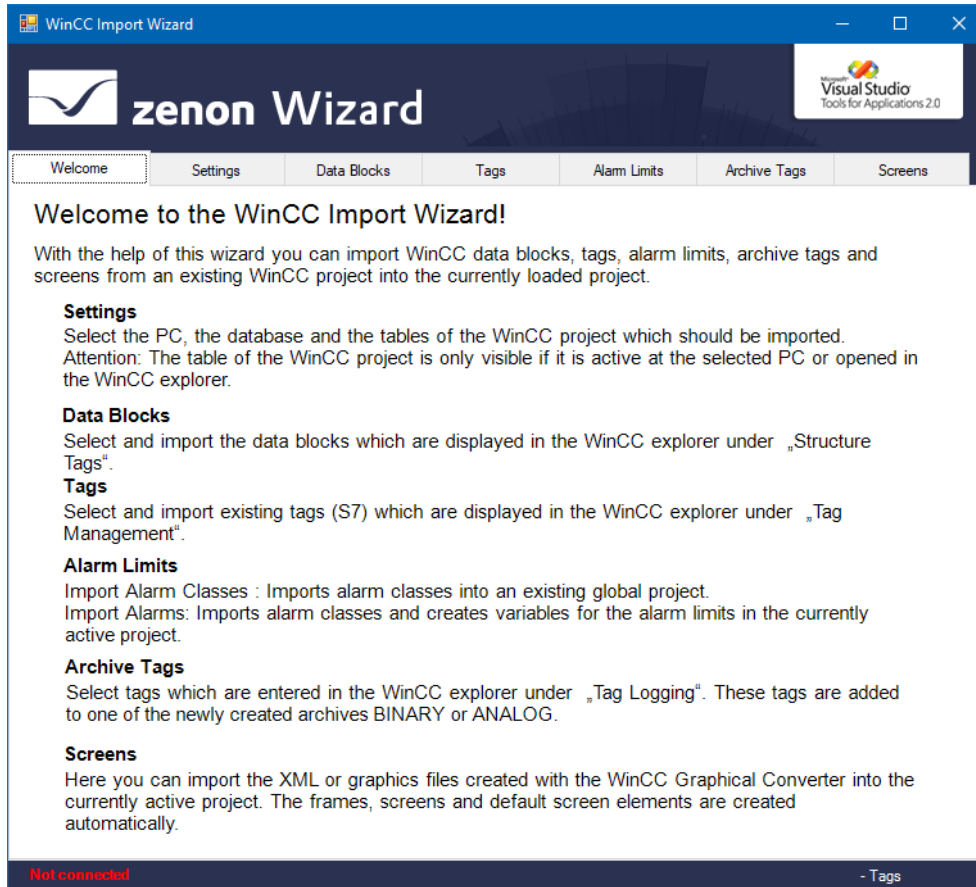
The direct import of data is only possible after you have configured the connection to the WinCC project on tab **Settings**.

Settings

On this tab you configure the connection to the WinCC project whose data should be imported.
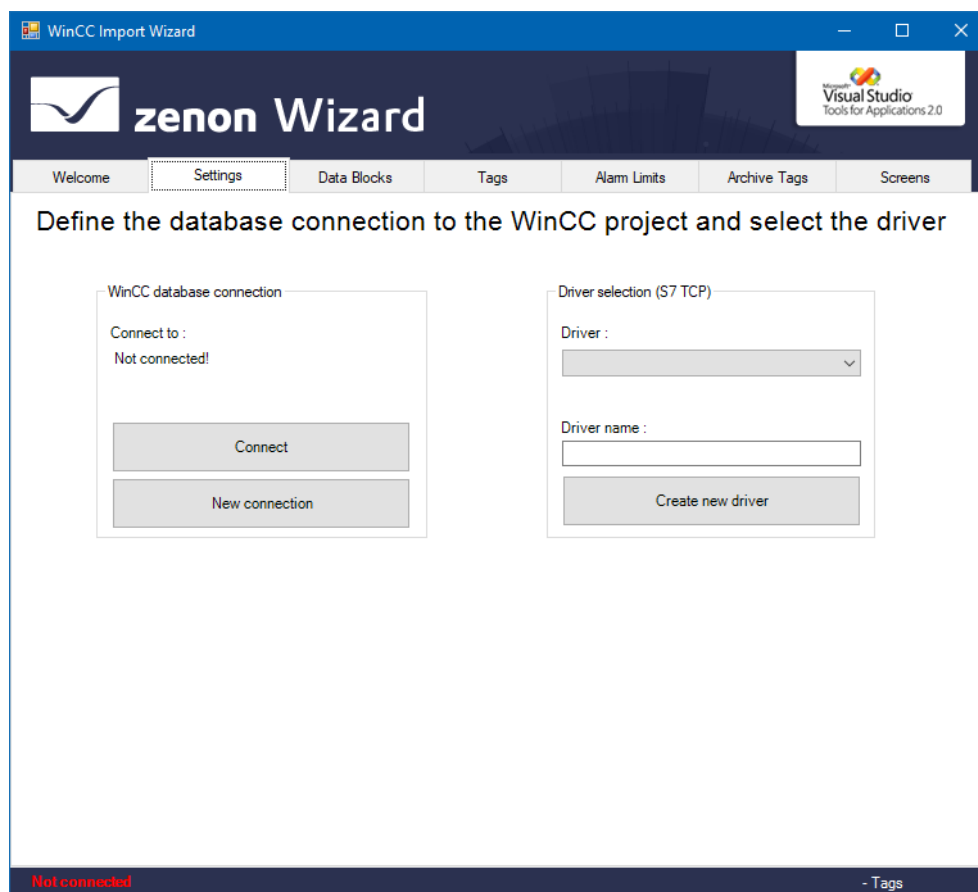
Parameter	Description
WinCC DB connection	Configuration of the connection to the WinCC database.
Connected with	Display of the active connection.
Connect	Establishes a connection.
New Connection	Opens the dialog for configuring a new connection.
Driver selection (S7 TCP)	Configuration of the zenon drivers.
Driver	Selection of a zenon driver from the drop-down list.
Create new Driver	Opens the dialog for creating a new driver.

> ⚠️ **Attention**
>
> *In order that the connection can be established, the WinCC project must be active or opened in the WinCC Explorer on the PC with which the connection should be established.*

CONFIGURATION OF THE CONNECTION

To establish a connection:

1. Click on the button **New connection**

2. The dialog for the connection settings is opened
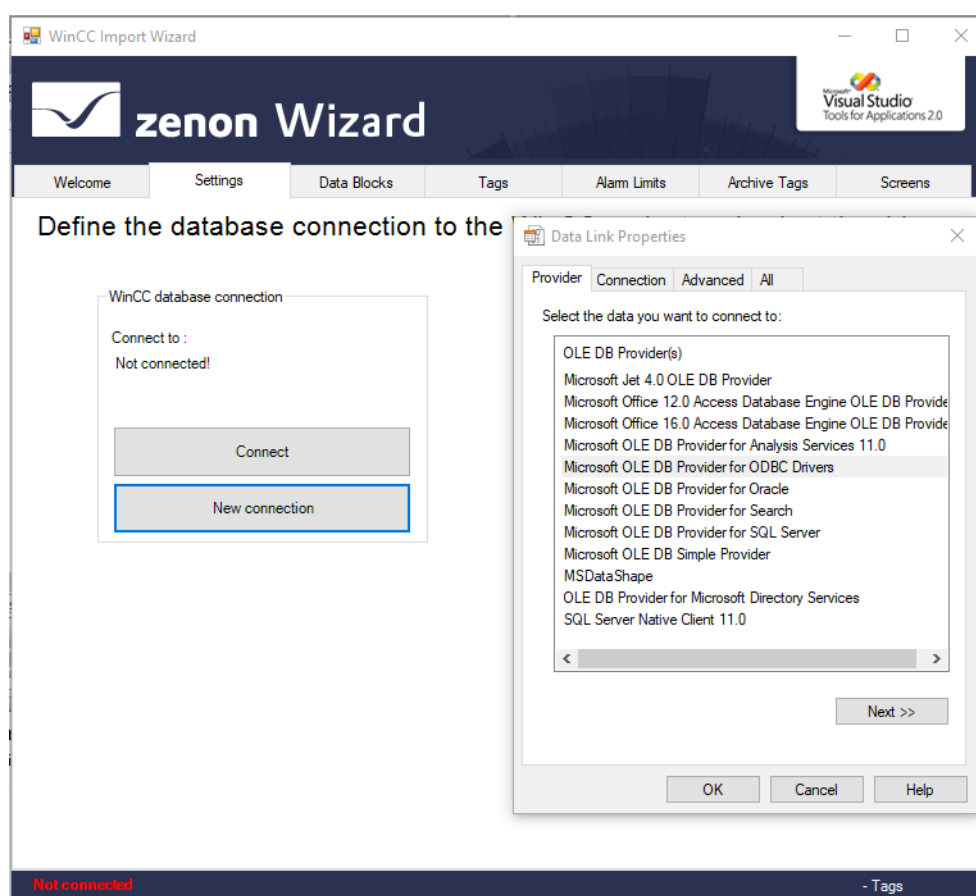
3. On the **Provider** tab, select the provider `Microsoft OLE DB Provider for SQL Server`

4. On the **Connection** tab:

   a) For **server name** enter the instance of the SQL server in which the WinCC project is located.
   For example: `HOSTNAME\WINCC`
   Important: The WinCC SQL server instance (sqlsrv.exe) must be enabled in the firewall.

b) For **logon information** enter your access data. At first you must create the access data with the help of SQL Server Management Studio in the SQL server instance.
Important: Activate the option **Allow saving password**

c) For **database** select the WinCC Editor project. This is the database name without the suffix _R
Note: The project must be loaded and running in the WinCC Editor. Otherwise the project is not available in the SQL server.

d) Test the connection

5. Close the configuration dialog with **OK**

6. after that you can establish the connection to the WinCC project in the wizard via button **Connect**.

7. select a zenon driver
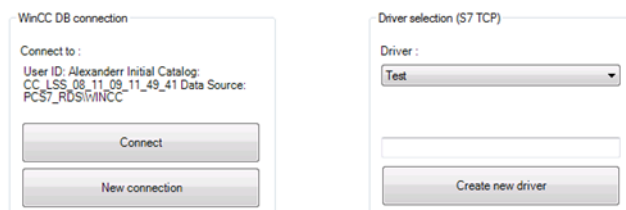
After a successful connection and the selection of a zenon driver, the tabs for the direct import are displayed.

Data Blocks

On this tab you select the data blocks which are displayed in the WinCC Explorer under **Data Blocks** and then imported as data types to zenon.

The WinCC data blocks are grouped according to drivers and are displayed sorted according to block type and name.
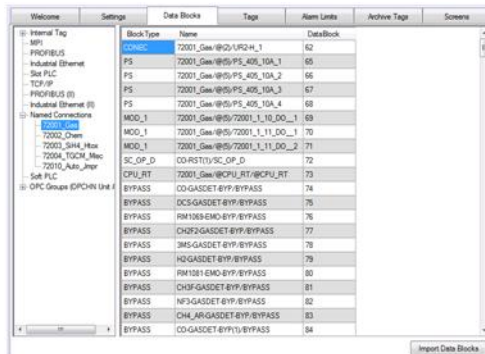
To import data blocks:

1. select the desired data blocks

2. click on **Import Data Blocks**

RESULT

Data blocks in WinCC:
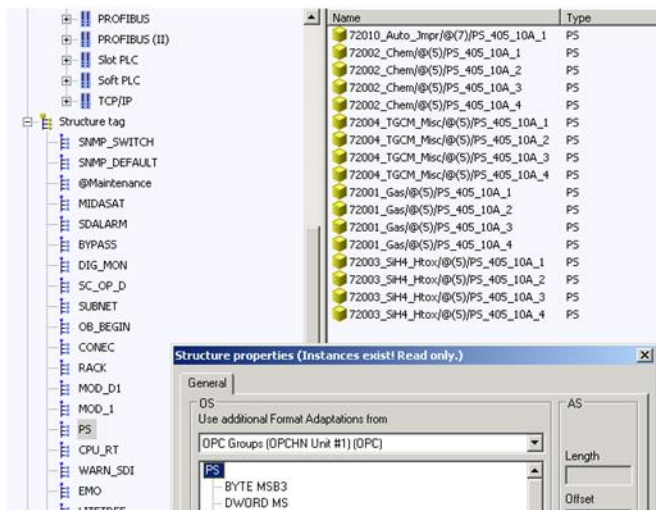
Data types in zenon
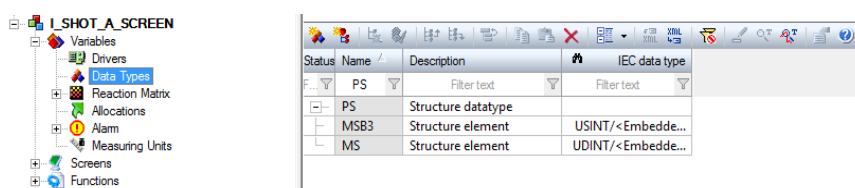
TAGs

On this tab TAGs (S7) are selected and imported as zenon variables, which are displayed as **Tag Management** in the WinCC Explorer. The export can be carried out directly to zenon or to a CSV file.
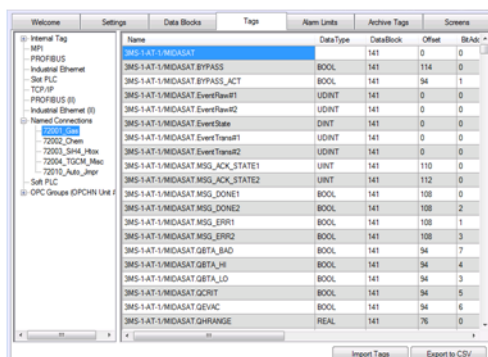
To import tags:

1. select the desired TAGs

2. Click on **Import Tags** or **Export to CSV**

RESULT

Tags in WinCC:

Variables in zenon:

Alarm Limits

On this tab alarm classes and limit values are imported:

▶ **Import Alarm Classes**:
Imports alarm classes to an existing global project.

▶ **Import Alarms**:
Imports alarm classes and groups to the local zenon project and creates variables for the limit values.

IMPORT ALARM CLASSES

Imports alarm classes from WinCC to a global project in zenon. The global project must already exist and must be active in zenon.
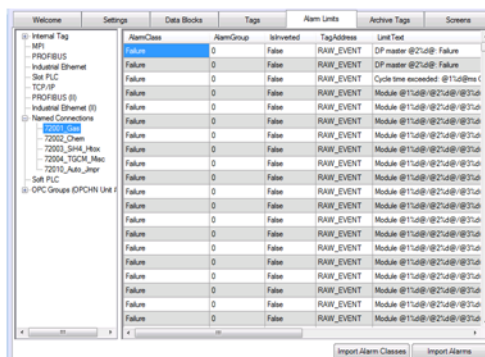
To import alarm classes:

1. select the desired alarm classes

2. click on **Import Alarm Classes**

RESULT

Alarm classes in WinCC:
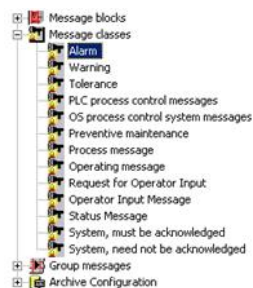
Alarm classes in zenon:
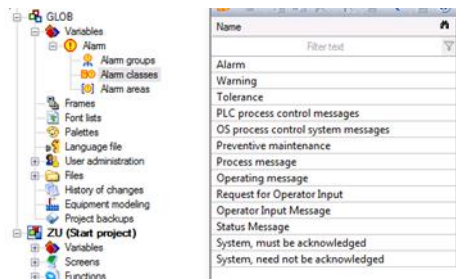
IMPORT ALARMS

With this kind of import all alarm classes and alarm groups are imported to the zenon project. The WinCC limit texts are replaced by limit value variables.

To import alarms:

1. select the desired alarms

2. click on **Import Alarms**

RESULT

Alarms in WinCC:

Alarms in zenon:

Archive TAGs

On this tab TAGs which are entered under **Tag Logging** in the WinCC Explorer can be selected and imported. The import is carried out in one of the two newly created archives `BINARY` or `ANALOG` in the zenon project.

> ⚠ **Attention**
>
> *TAGs are only created in the zenon archive if they were imported as TAGs beforehand.*
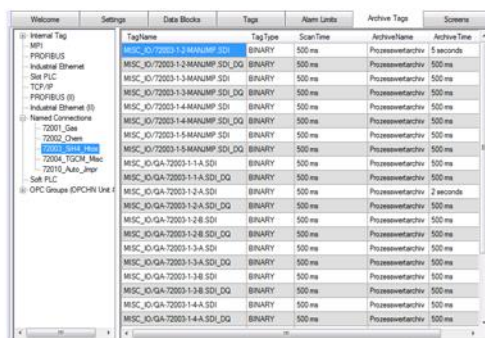
To import Archive Tags:

1. select the desired Archive TAGs

2. click on **Import Archiv Tags**

RESULT

Archive TAGs in WinCC:

MISC_IO/72003-1-3-MANJMP.SDI	MISC_IO/72003-1-3-MANJMP.SDI	Binary	
MISC_IO/72003-1-3-MANJMP.SDI_DQ	MISC_IO/72003-1-3-MANJMP.SDI_DQ	Binary	
MISC_IO/72003-1-4-MANJMP.SDI	MISC_IO/72003-1-4-MANJMP.SDI	Binary	
MISC_IO/72003-1-4-MANJMP.SDI_DQ	MISC_IO/72003-1-4-MANJMP.SDI_DQ	Binary	
MISC_IO/72003-1-5-MANJMP.SDI	MISC_IO/72003-1-5-MANJMP.SDI	Binary	
MISC_IO/72003-1-5-MANJMP.SDI_DQ	MISC_IO/72003-1-5-MANJMP.SDI_DQ	Binary	
MISC_IO/QA-72003-1-1-A.SDI	MISC_IO/QA-72003-1-1-A.SDI	Binary	
MISC_IO/QA-72003-1-1-A.SDI_DQ	MISC_IO/QA-72003-1-1-A.SDI_DQ	Binary	
MISC_IO/QA-72003-1-2-A.SDI	MISC_IO/QA-72003-1-2-A.SDI	Binary	
MISC_IO/QA-72003-1-2-A.SDI_DQ	MISC_IO/QA-72003-1-2-A.SDI_DQ	Binary	
MISC_IO/QA-72003-1-2-B.SDI	MISC_IO/QA-72003-1-2-B.SDI	Binary	

Archives in zenon:
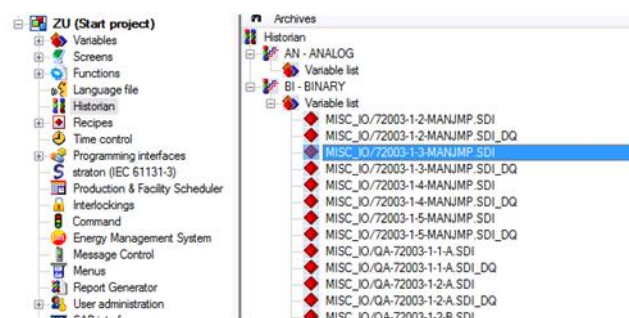
Screens

In this tab you can import the XML files which were created with the WinCC Graphics Converter (on page 275) to the active zenon project. In zenon frames, screens and standard screen elements are created based on the information stored in the XML files and based on the WMF and PNG files which are stored in the folder.
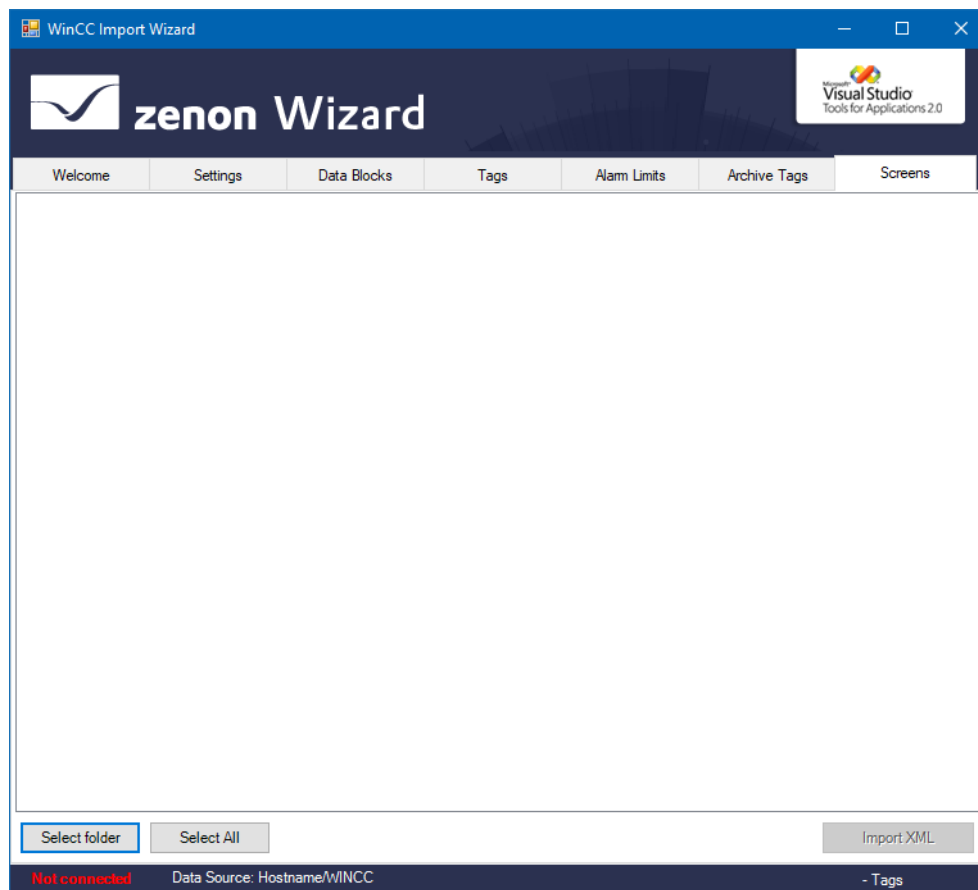
Parameter	Description
List of files	Shows all existing files in the selected folder.
Select Folder	Opens the dialog for selecting the folder with the import files.
Select All	Selects all existing files on the screen.
Import XML	Starts the import.

To import screens:

1. select the desired XML files

2. click on **Import XML**

RESULT

Screens in WinCC:
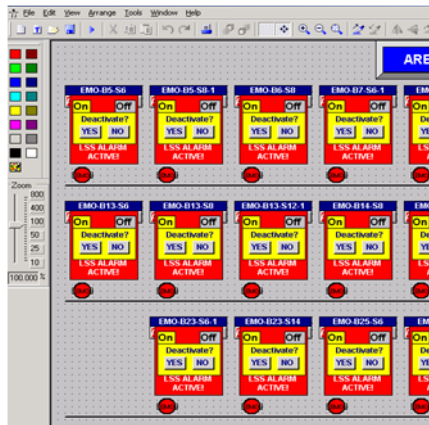
Screens in zenon:
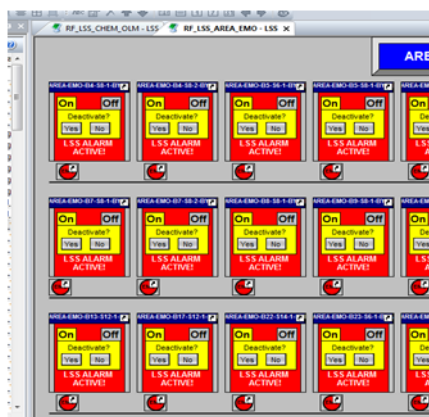
WHICH WINCC SCREEN ELEMENTS ARE AUTOMATICALLY CREATED IN THE ZENON EDITOR?

STANDARD SCREEN ELEMENTS

▶ Line

▶ Polygon

▶ Polyline

▶ Ellipse

▶ Circle

▶ Elipse Segment

▶ Pie Segment

- ▶ Elipse Arc

- ▶ Circular Arc

- ▶ Rectangle

- ▶ Rounded Rectangle

- ▶ Static Text

TUBE OBJECTS

- ▶ Polygon tube

- ▶ T-piece

- ▶ Double T-piece

- ▶ Tube bend

SMART OBJECTS

- ▶ I/O Field

- ▶ Graphic Object

- ▶ Windows Objects

- ▶ Button

For all other WinCC objects a placeholder is created in zenon.

ERROR HANDLING

Errors when importing screens are displayed in the zenon output window when the Runtime files are created.

Error message	Error handling
The symbol "could not be found in the symbol library"!	A placeholder for non-interpretable elements has been placed in the screen. Background: For each non-interpretable element, a symbol is created in the screen using the wizard. This is not in the symbol library however. You therefore have the opportunity to check to see if elements (placeholders) in a screen still need work carried out on them.
WRN:(FDV_RECETTE_TUNNEL_TPOS_DETAILS_FOU2->(ZONE_CNS0)Variable: could not be found in the project!	Signifies variable names, that are stored in WinCC in I\O Field Element but are not (including in WinCC) created as variables.

COPADATA

3.3.6   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.

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.

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.

3.3.7   XML export wizard VSTA

You export all desired modules of a project into a folder of your choice with the XML export wizard. An independent XML file is created for each module.

> ⚠ **Attention**

The wizard is only available in English.

Starting the wizard

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.
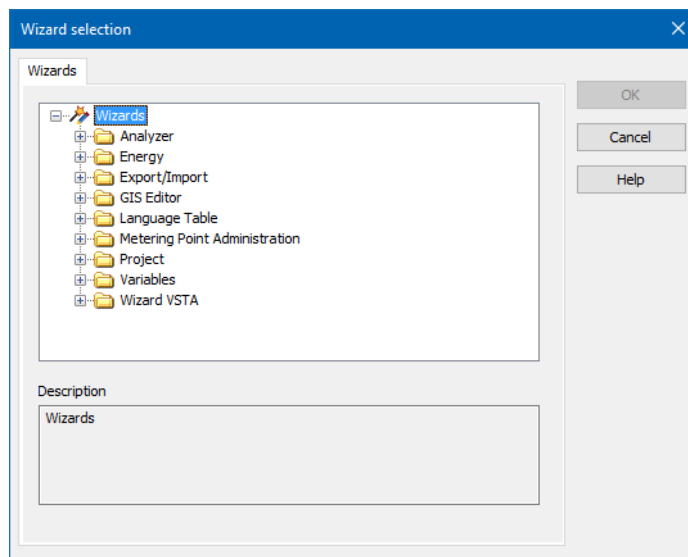
2. Select the folder **Export/Import**.

3. There select the **XML Export Wizard**

4. Click on **OK**.

   The wizard starts with the welcome page and displays:

   - brief instructions

   - the zenon version

   - the name of the project from which the export is taking place

   - Project GUID

- Project path
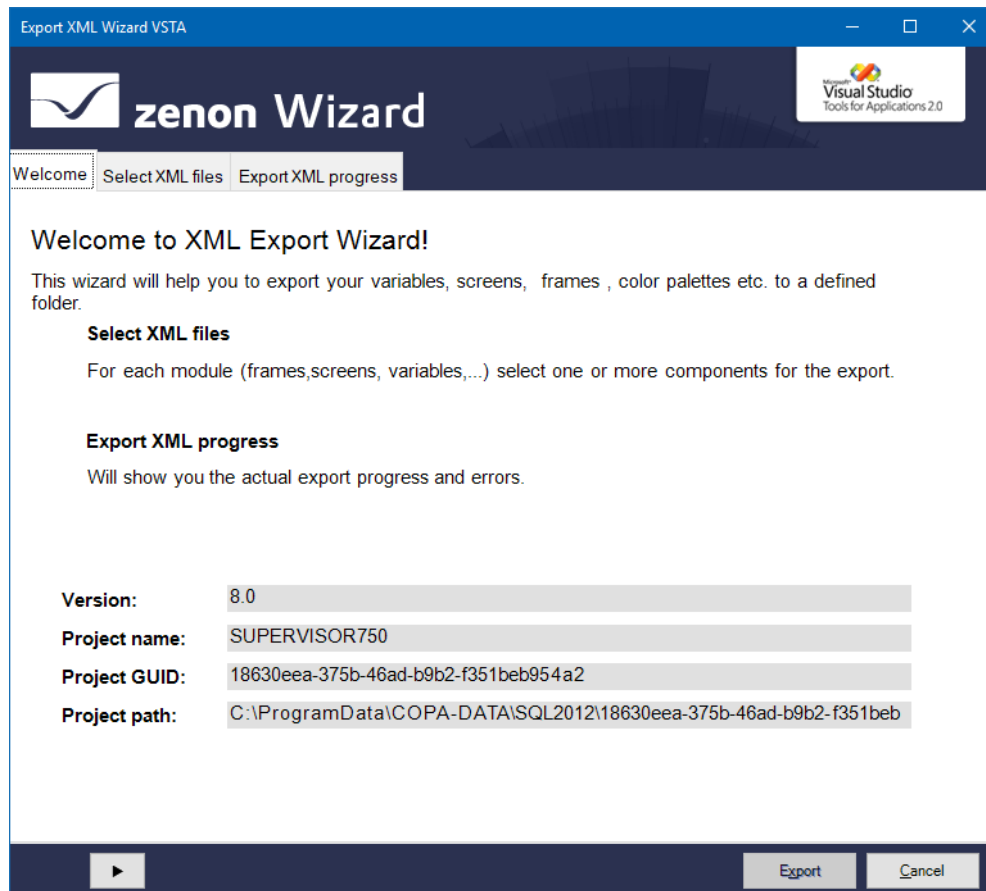
- The arrow key takes you through the wizard step by step
  Alternatively, a click on the tab opens the respective setting

- to activate the **Export** button, the **Export XML progress** page must be open

Select XML files

Select which module of the project is to be imported:
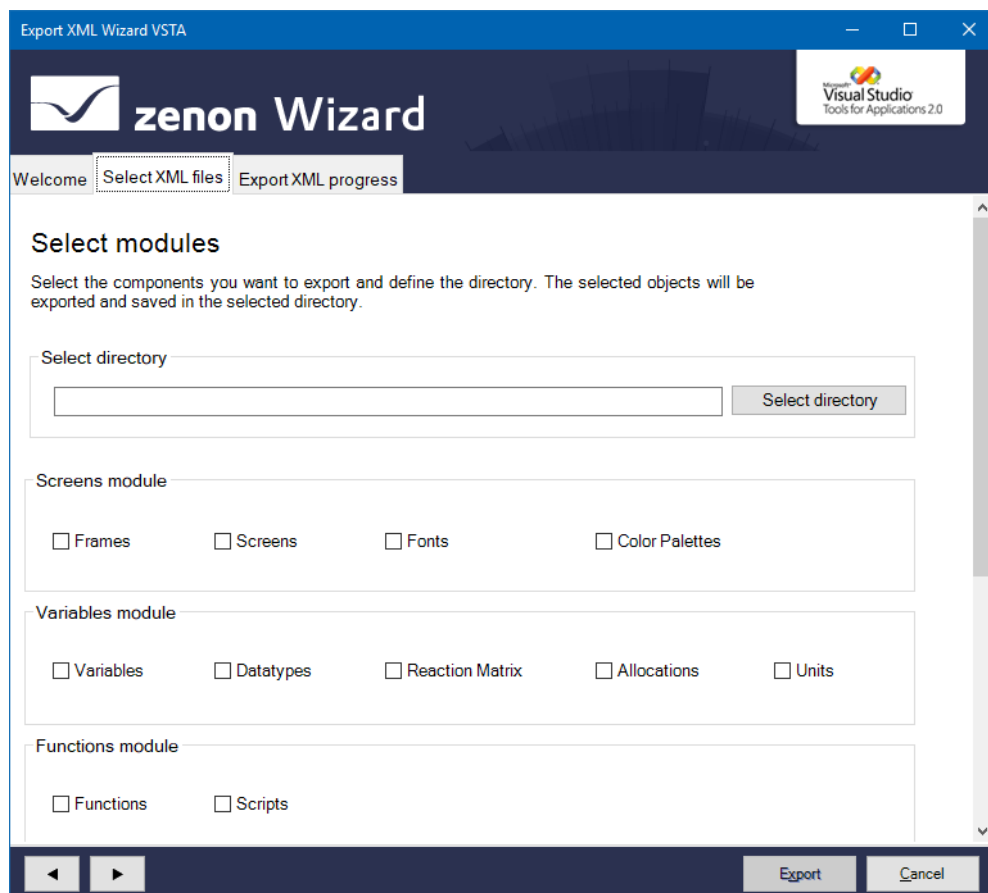
▶ Click on **Select Directory** to define the folder for export

▶ Select the modules and elements that are to be exported by ticking the checkboxes (scroll down if necessary)
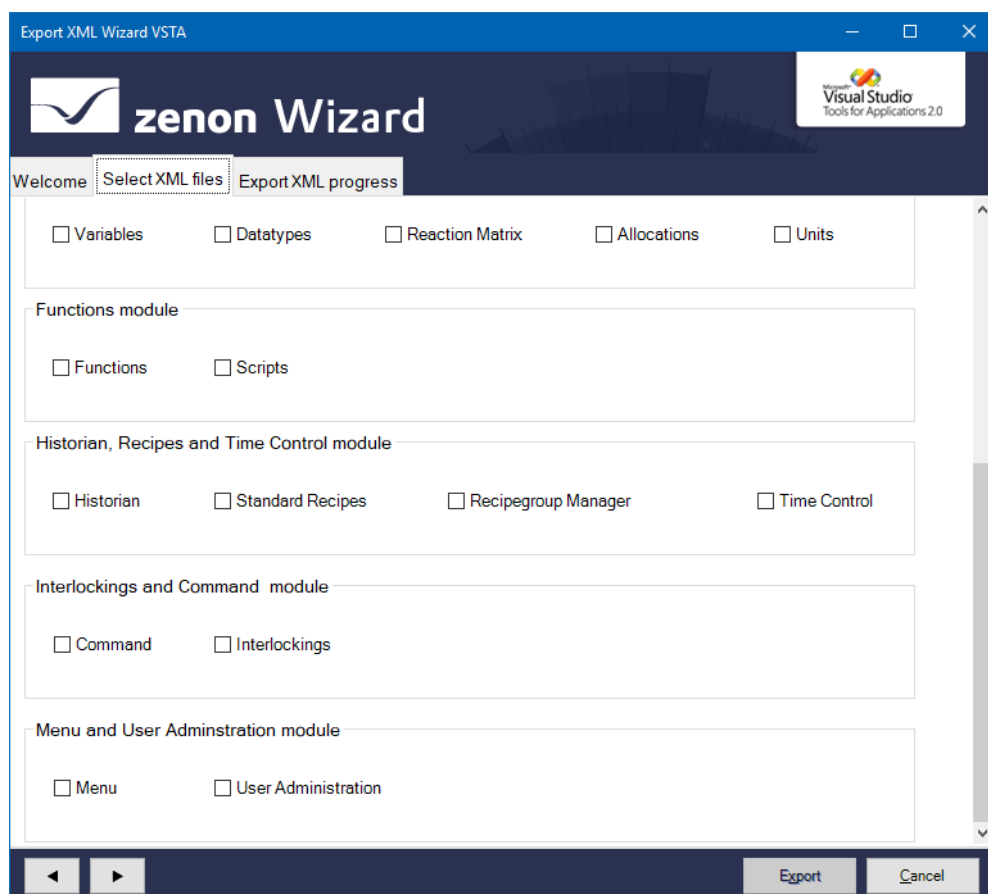
Export

To start the export:

▶ Click on the button **Export**

▶ the desired modules are exported

▶ The output window displays which modules are exported with what success

▶ The wizard closes automatically three seconds after the end of the export
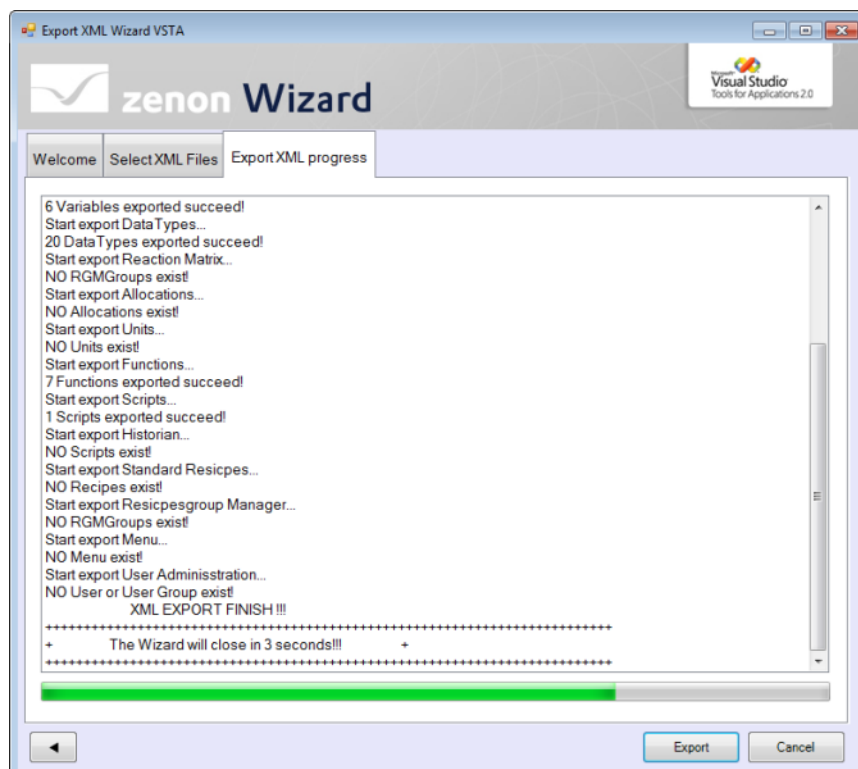
3.3.8 XML Import Wizard

This wizard helps with importing variables, functions, screens and scripts from a XML file.

⚠ **Attention**

This wizard does not support distributed engineering and is not available in multi-user projects.

3.4 Language Table

Wizards for language switching.

3.4.1 Language Table Wizard

This wizard

▶ Searches the active projects for translatable texts or key words (text marked with a @).

▶ Writes key words that are found

- either to the selected language table in the active project or

- Optional in the global project.

For reference purposes, at least on table (ZENONSTR.TXT) must be selected for the import.

If texts without as @ character are found, these can be set as a key word in a project. To do this, a @ is written at the start of the text.

Note: The wizard is only available in English.

The Language Table Wizard replaces the **Language Change Wizard (VBA)**.

Calling up the wizard

The wizard can also be selected directly in the dialog for starting wizards.

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. Select the folder **Language Table.**

3. There select the **Language Table Wizard**.
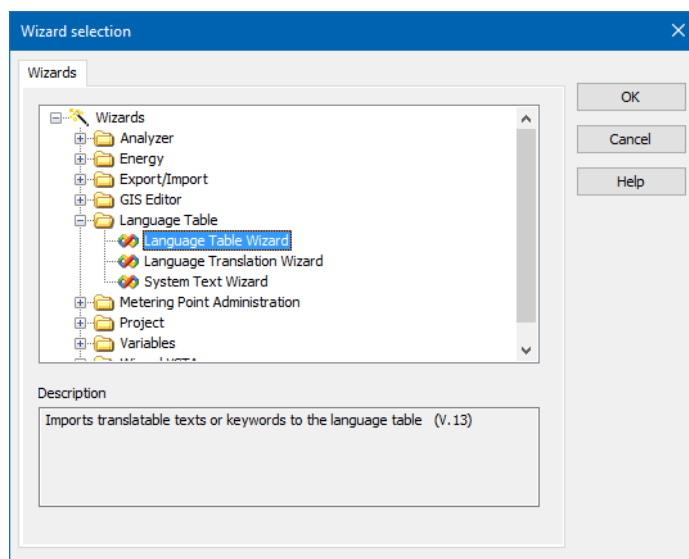
4. Click on **OK**.

    The wizard starts with the welcome page (on page 302).

Start window

When opening the wizard, you get an overview page with English-language documentation for the wizard.
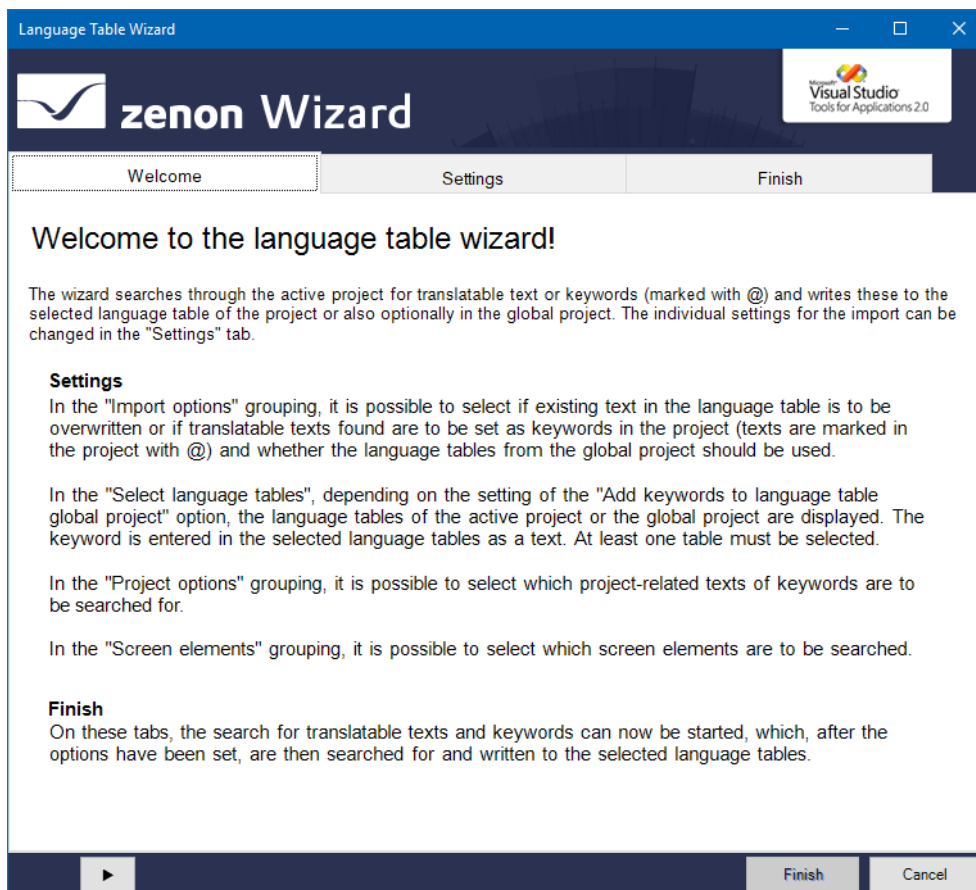
The navigation through the wizard is done by clicking on the individual tabs or step by step by clicking on the arrow keys.

Click on **Cancel** to close the wizard.

Settings
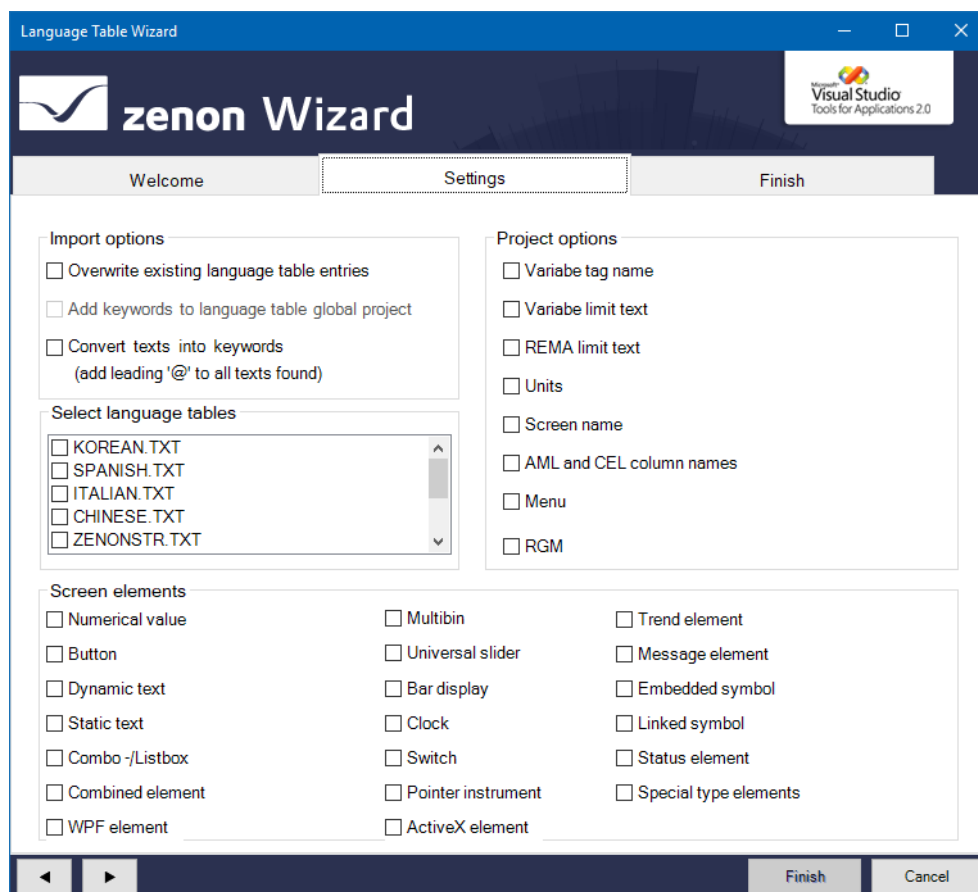
IMPORT OPTIONS

It is possible to select the following in the **Import options** group:

- ▶ whether existing texts are to be overwritten in the selected language table,

- ▶ whether translatable texts found are to be set as key words in the project (texts are marked in the project with a @) and

- ▶ whether the language tables are to be used by the global project.

SELECT LANGUAGE TABLES

In the "**Select language tables**", depending on the setting of the "`Add keywords to language table global project`" option, the language tables of the active project or the global project are displayed. The key word is entered in the selected language tables as a text. At least one table must be selected.

PROJECT OPTIONS

In the "„**Project options**" grouping, it is possible to select which project-related texts of key words are to be searched for.

SCREEN ELEMENTS

In the "„**Screen elements**" grouping, it is possible to select which screen elements are to be searched.

Finish

You start the search for translatable text and key words on this tab.
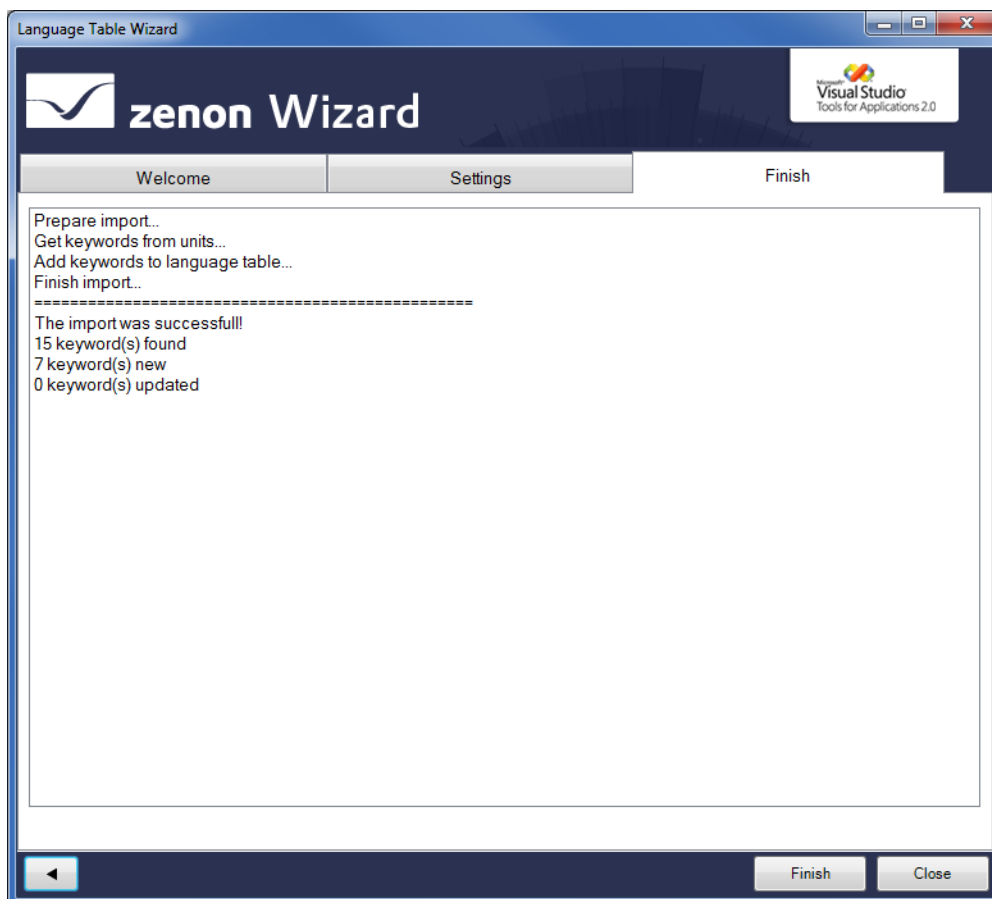
To start the search, click on the **Finish** button.

Depending on the options set in the settings, translatable text is searched for and written in the selected language tables.

3.4.2 Language Translation Wizard

This wizard is for the preparation of data for the **Project Translation Interface**, a translation tool.

In doing so, all relevant data for translation is prepared and compressed into a ZIP file. This ZIP file can then be unzipped in the **Project Translation Interface** and the language tables can be edited or supplemented. After editing, the ZIP file can be loaded into the wizard and the edited language tables can be reimported into the project.

⚠ **Attention**

Note: The wizard is only available in English.

Starting the wizard

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.
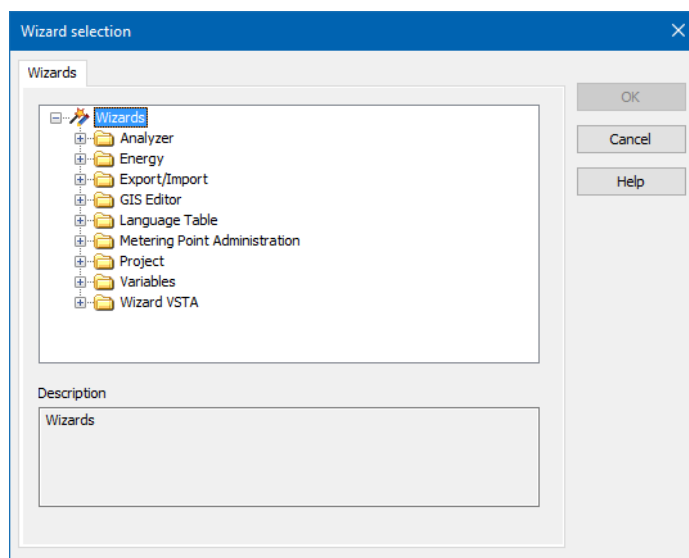
2. Select the folder **Language Table**.

3. There select the **Language Translation Wizard**

4. Click on **OK**.

   The wizard starts with the welcome page (on page 306).

Start window

When opening the wizard, you get an overview page with English-language documentation for the wizard.
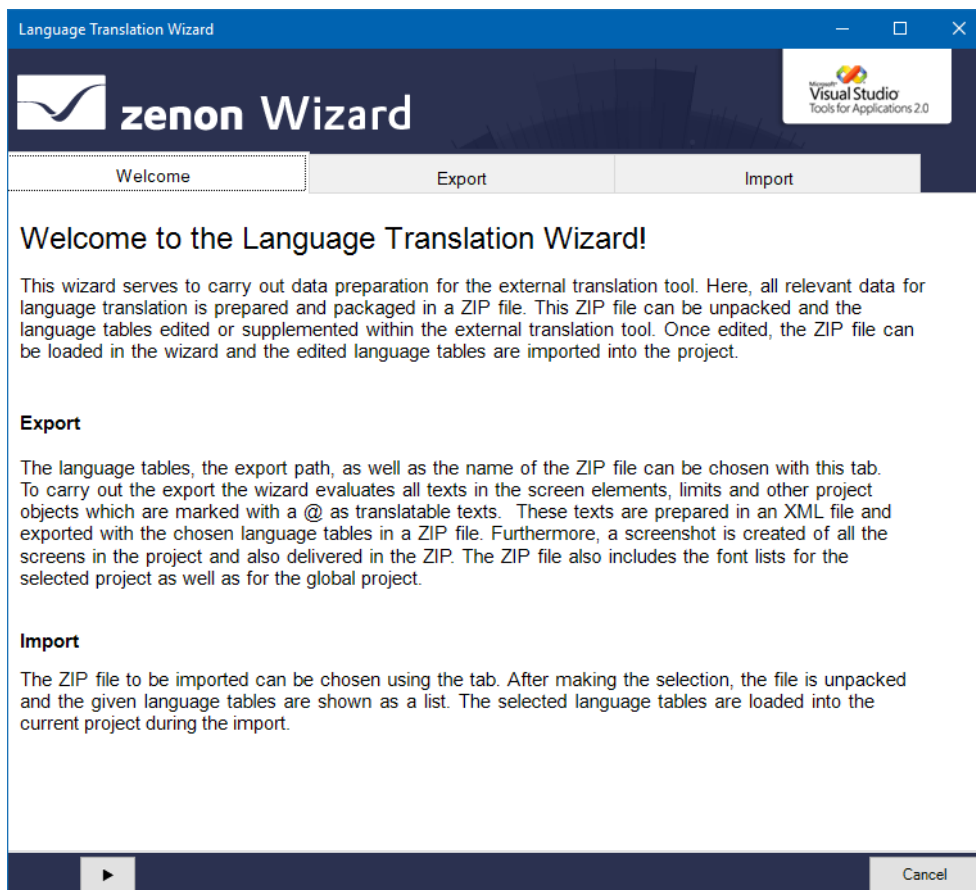

The navigation through the wizard is done by clicking on the individual tabs or step by step by clicking on the arrow keys.

Click on **Cancel** to close the wizard.

Export

When carrying out the export, the wizard evaluates all texts from screen elements, limits and other project objects, which are marked as translatable text with a @.

These texts are prepared into an XML file and exported with the selected language tables as a ZIP file. In addition, a screenshot of all screens is created and also provided in the ZIP file. The ZIP file also contains the font lists of the selected project and those of the global project.
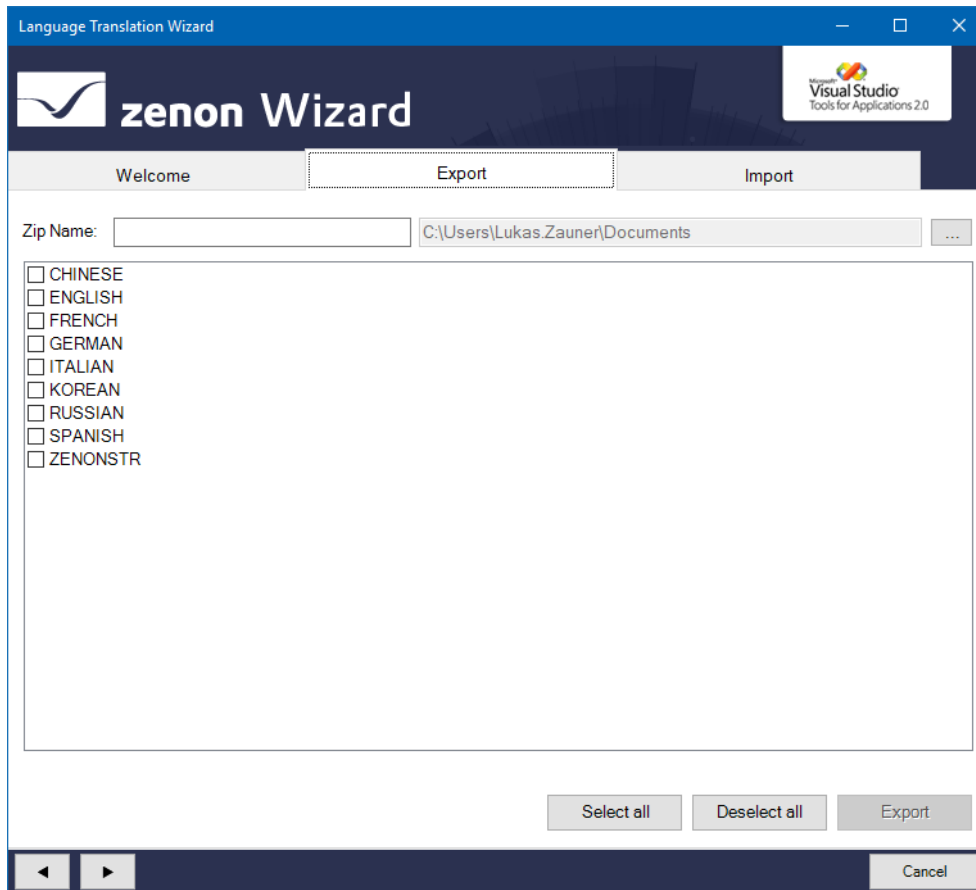
Button	Description
Zip Name:	Name of the export file
C:	Save location of the export file. Click on button **...** Opens the file browser for selecting a target folder.
Liste Sprachdateien	List field with the possibility to select the existing language files in the project.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.
Export	Exports the files to the target folder. Is only active if one or more language tables are selected.
Arrow left	Goes back one tab in the wizard process.
Arrow right	Goes forward one tab in the wizard process.
Cancel	Closes the wizard without exporting.

⚠ **Attention**

The following special characters must not be used in the screen names:
*: / \ * < >*

These special characters are removed and replaced by a serial number.

Import

The ZIP file to be imported can be selected in this tab.
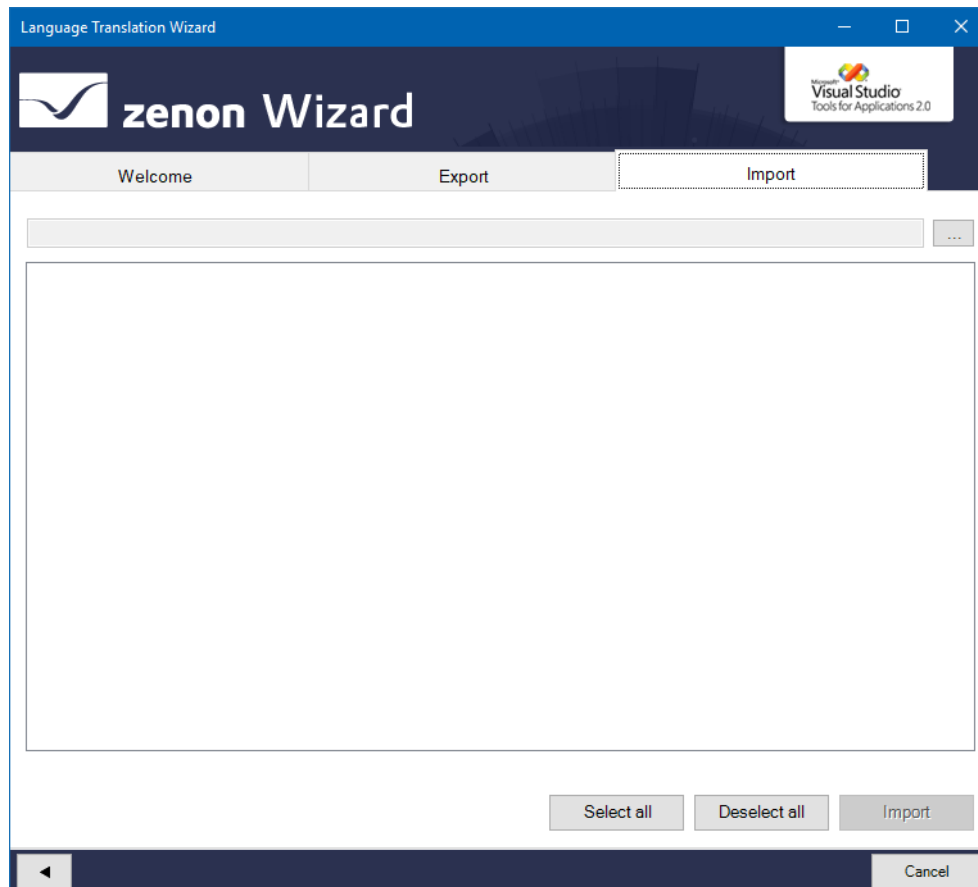
Button	Description
…	Save location of the import file. Click on button **…** Opens the file browser to select a file folder.
List of language files	List field with the possibility to select the language files to be translated and imported.
Select all	Selects all entries in the list and activates the checkboxes.
Deselect all	Selects all entries in the list and deactivates the check boxes.
Import	Imports the selected language tables in the current zenon project. Is only active if one or more language files are selected.
Arrow left	Goes back one tab in the wizard process.
Cancel	Closes the wizard without importing.

⚠ **Attention**

If a new language file is added in zenon 6.51, the project must be reloaded in the workspace once the wizard has been ended.

The language files are automatically updated in version 7.00 SP0 onwards.

3.4.3 System Text Wizard

The System Text Wizard allows the import of system text into the language table. System texts are Runtime texts   that are used in zenon dialogs and menus and cannot be changed by the user. In order to be able to make these texts, which are predetermined by zenon, compatible with language switching, these texts must first be imported into the language table with this wizard. The number of imported key words and texts can be limited by means of an option in the wizard.

💡 **Information**

The wizard is only available in English.

Calling up the wizard

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.
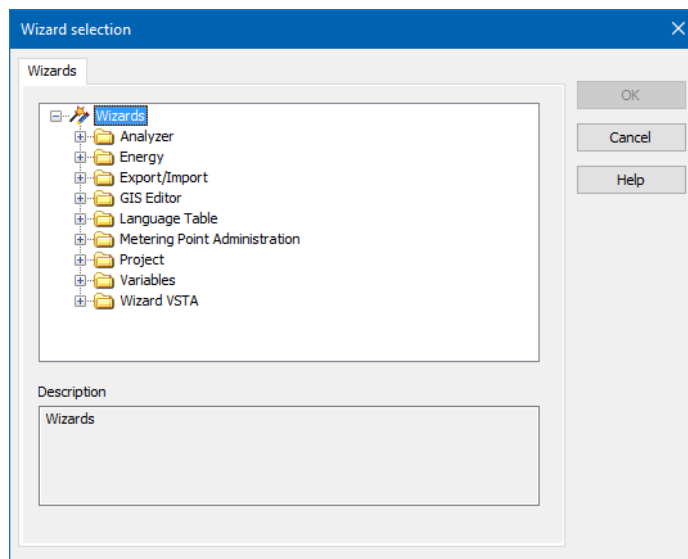
2. Select the folder **Language Table**.

3. There select **System Text Wizard.**

4. Click on **OK**.

    The wizard starts with the welcome page (on page 312).

Start window

When opening the wizard, you get an overview page with English-language documentation for the wizard.
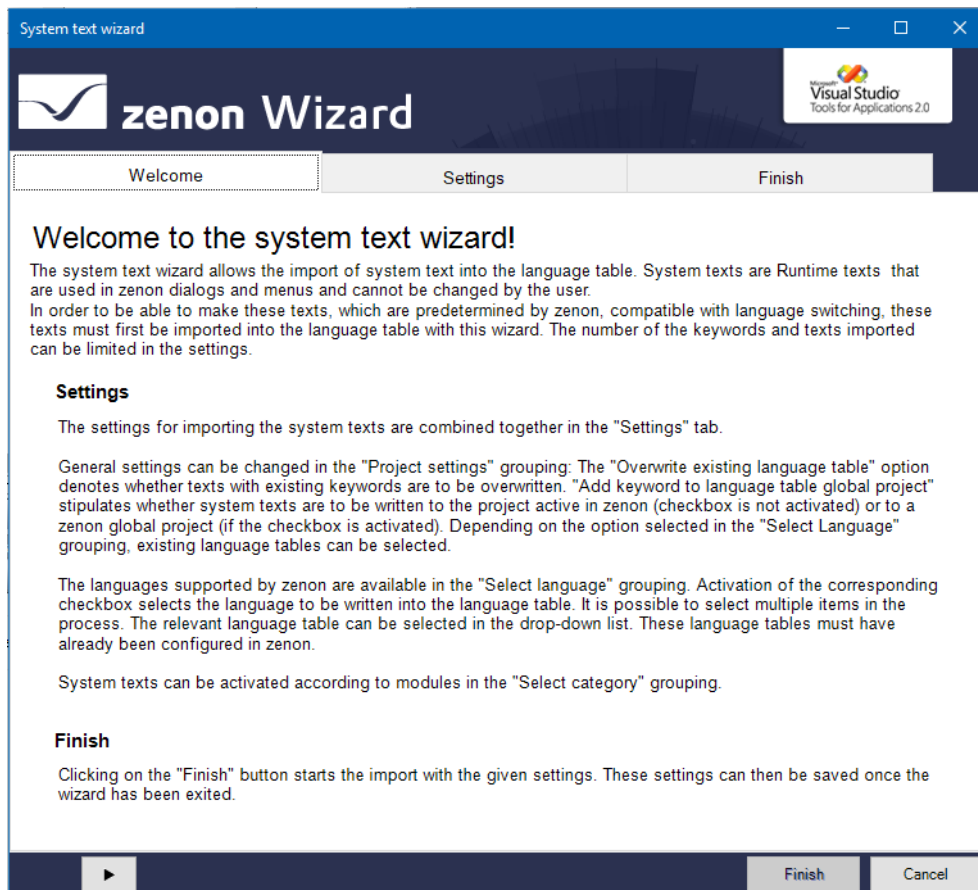
The navigation through the wizard is done by clicking on the individual tabs or step by step by clicking on the arrow keys.

Click on **Cancel** to close the wizard.

Settings

The settings for importing the system texts are combined together in the "**Settings**" tab.
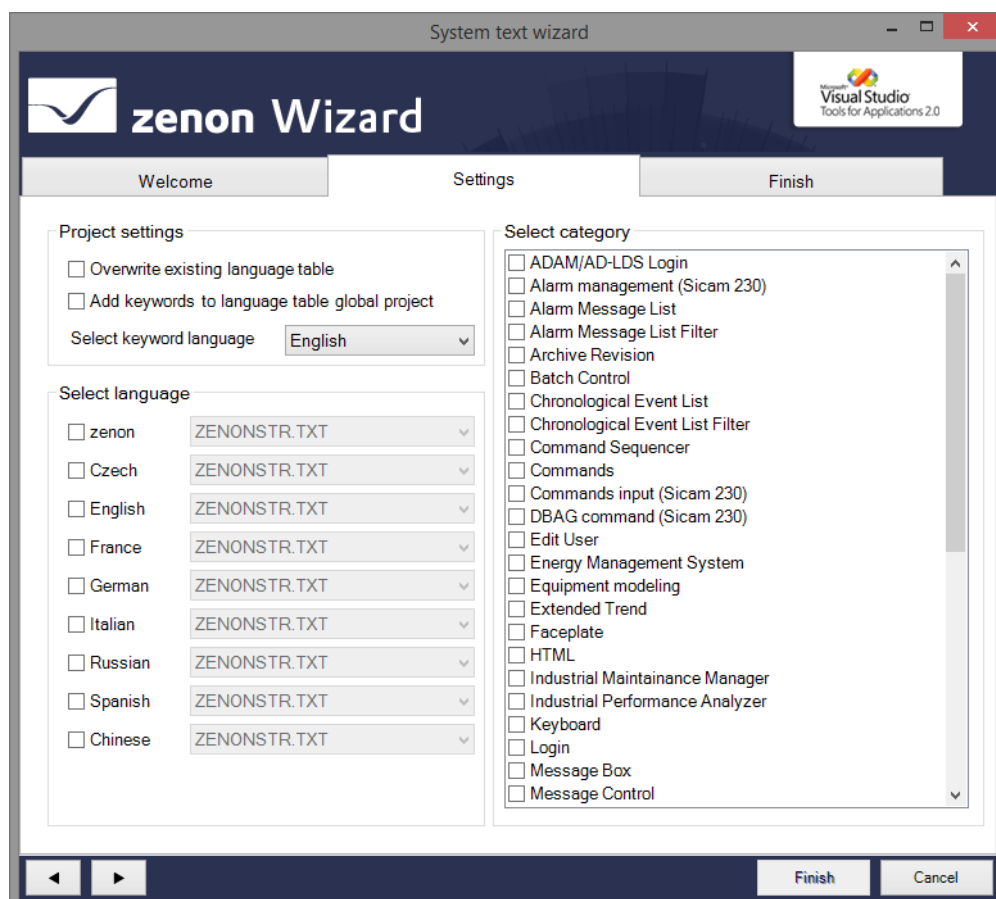
PROJECT SETTINGS

Option	Description
Overwrite existing language table	▸ `Active`: Texts with existing key words are overwritten.
Add keyword to language table global project	▸ `Active`: System texts are written to the language table in the global project. ▸ `Inactive`: System texts are written in the language table in the local project.
Select keyword language	Selection of the language for the key words from a drop-down list.

SELECT LANGUAGE

Selection of the languages and the attendant language file. The languages supported by zenon are available.

To select a language:

1. Activate the checkbox in front of the desired language.
   Multiple selection is possible.

2. Select the appropriate language file in the drop-down list.
   Caution: The language must file have have already been configured in zenon.

SELECT CATEGORY

Selection of the modules and functions for which symbol texts are to be imported. To select an object, activate the check box in front of the entry.

Finish

You start the import in this tab.
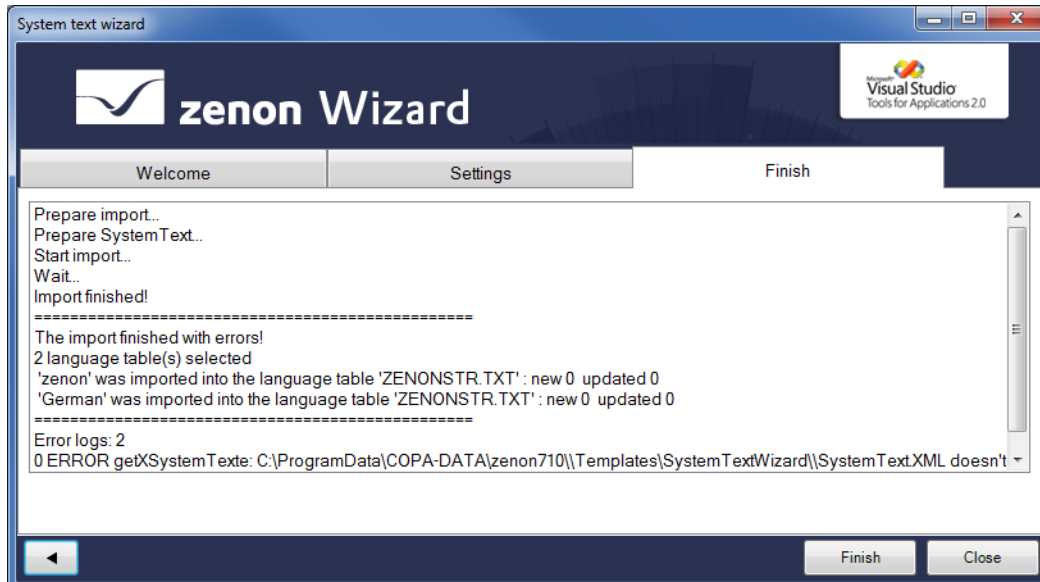
To start with the import, click on the **Finish** button.
The configuration of the wizard can be saved for future use on closing.

3.5 Metering Point Administration

Wizard for the configuration of metering points in the Editor.

> **Information**
>
> This documentation also contains information for the operation of the **metering point administration** module in zenon Runtime.

3.5.1 Metering Point Administration

The **Metering point administration** is a tool to manage technical data and administer metering points.

- ▶ In zenon Editor, the project configuration is created with the **Metering Point Administration Wizard** (on page 320).

- ▶ For display in Runtime, a corresponding ActiveX element (on page 363) is configured in the Editor in any desired zenon screen.

- ▶ Meters can be assigned to metering points in Runtime, meters can be replaced and values can be (manually) corrected.

- ▶ In addition, there is the possibility to transfer archive entries from existing source archives to a target archive, using a validation process in Runtime.

The wizard is available in the following languages:

- ▶ English
- ▶ Romanian
- ▶ German
- ▶ Chinese

General - project configuration
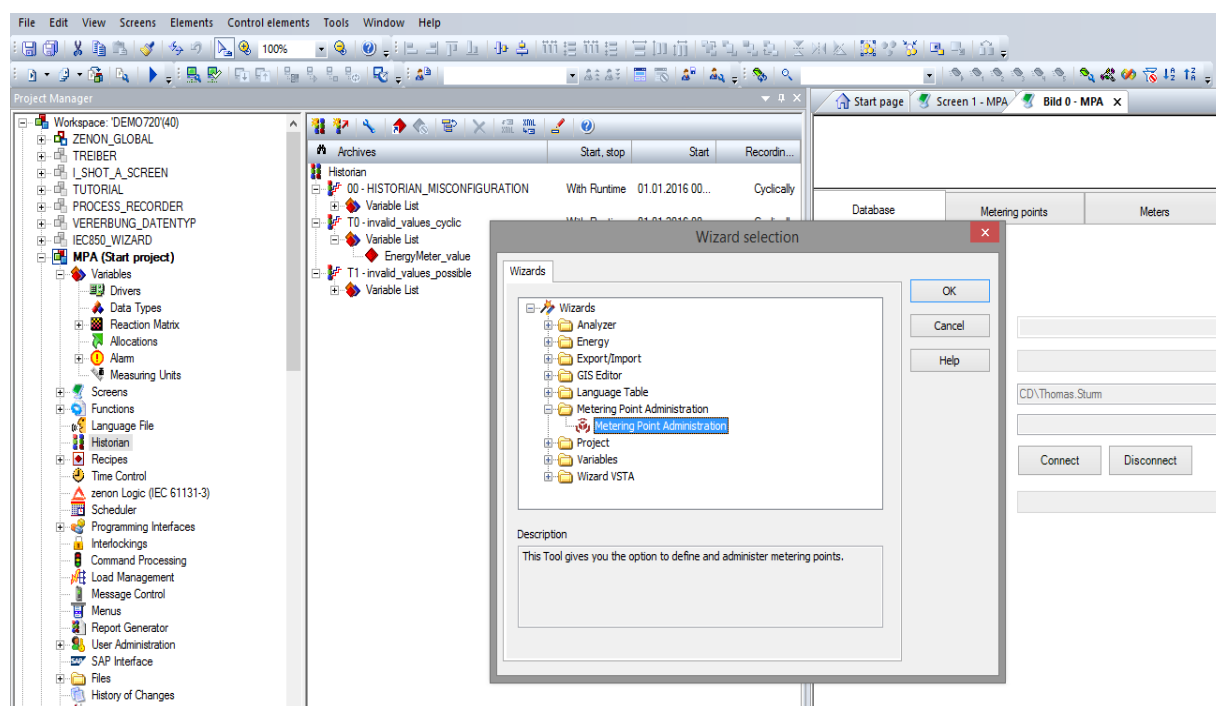
To use the metering point administration, the following project configuration steps are necessary:

1. Configure variables in zenon Editor.
    Note: corresponding variables for relative values can also be created in the wizard directly.

2. Configure archives in zenon Editor.
    Note: Archives can also be created directly in the wizard.

3. In zenon Editor, start the **Metering Point Administration** wizard.

4. Create metering points and meters in the wizard.
    Note: Meters can also be created in Runtime.

5. In the wizard, assign the metering points to absolute value variables and relative value variables from archives.
    Note: Relative values can also be calculated automatically.

6. Configure a screen in zenon Editor.

7. Place an ActiveX element (on page 363) in this zenon screen.

8. Assign meters to the corresponding metering points in Runtime.

9. If necessary, enter current values for manual metering points in Runtime for the meters.

Install and call up metering point administration

The **Metering Point Administration** is automatically installed as part of the zenon standard installation.

STARTING THE WIZARD

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]`.

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.
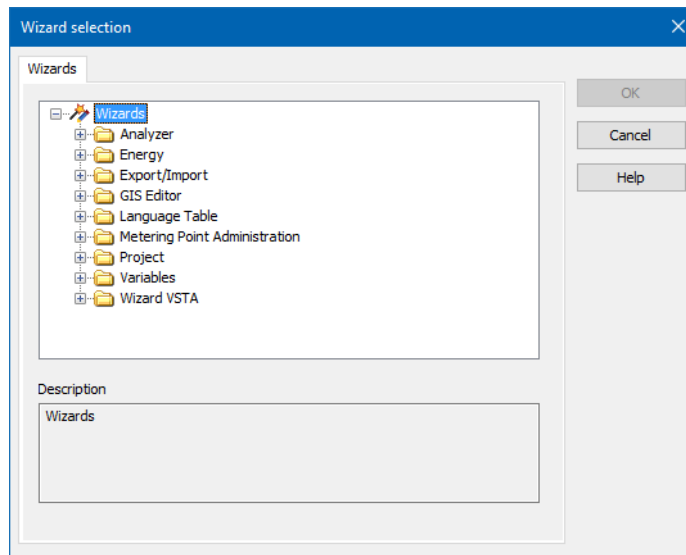
2. Select the folder **Metering Point Administration**.

3. Then click on **Metering Point Administration**.
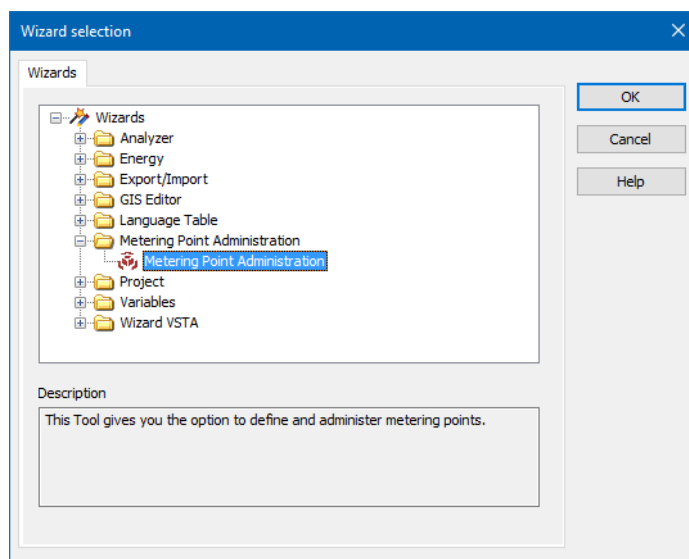
4. Click on **OK**.

Wizard - start dialog
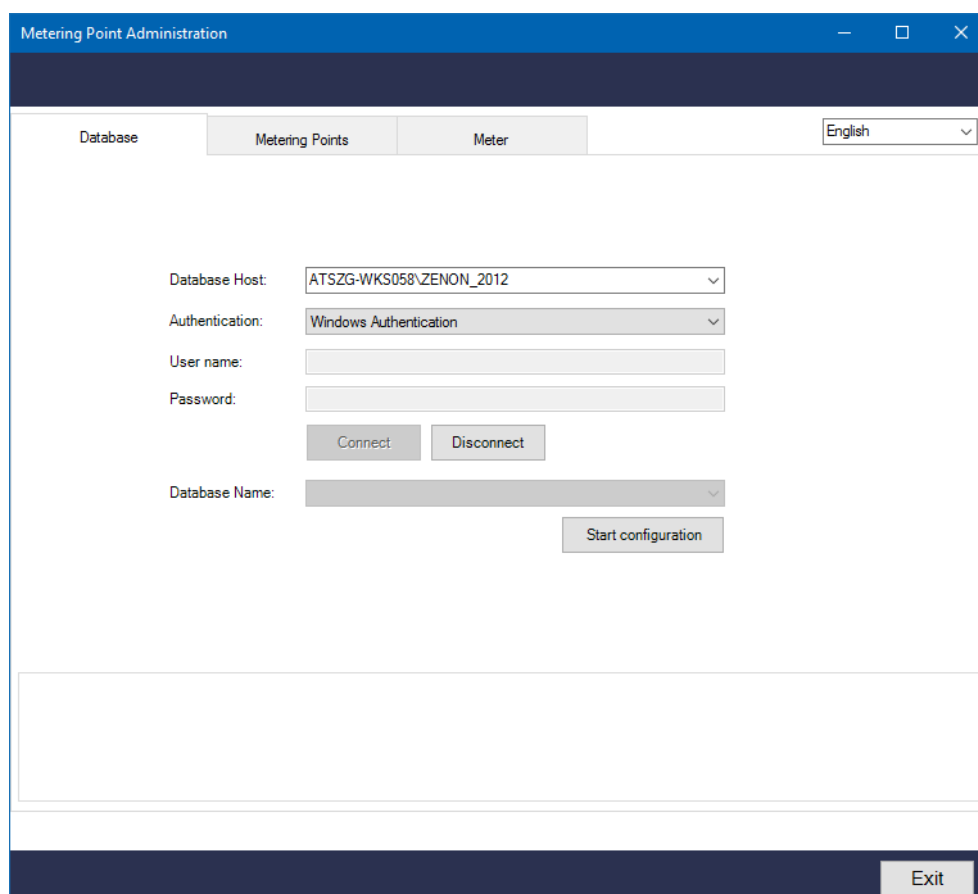
The **Metering Point Administration** wizard starts with the welcome page in English.

When starting the **Metering point Administration** in the zenon Editor, a check is first made to see whether zenon Logic Workbench is open. To avoid incorrect configurations, you are requested to close zenon Logic Workbench if it is open. The wizard cannot be started if Workbench is open!
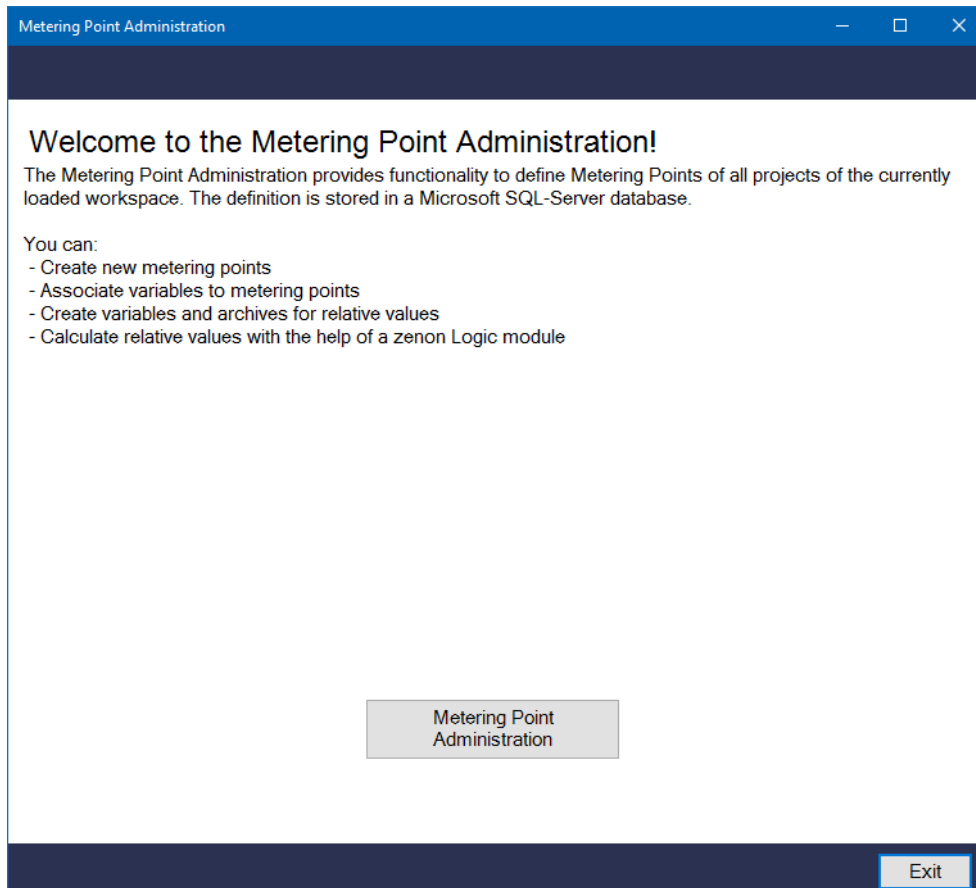
▶ To continue, click on the **Metering Point Administration** button.
The dialog switches to the configuration dialog for metering point administration.

▶ Clicking on the **Exit** button closes the wizard.

Wizard - Metering Point Administration

Once the start dialog for the wizard has been confirmed, start the configuration of the metering point administration. Configuration starts with the **Database** tab.
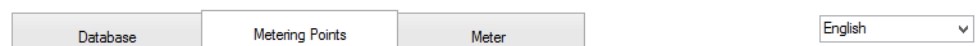
Initially, all activated zenon projects of the workspace and the attendant databases are loaded. This loading process is visualized with a progress bar.

If database settings have already been saved, an attempt to establish a connection is started automatically when the wizard is called up. If this is successful, a switch to the **Measuring points** tab is made. If the establishment of a connection is unsuccessful, a corresponding error message is shown.

Navigation through the tabs is carried out by clicking on the title of the tab.

It is possible to select from `German`, `English` or `Romanian` in the drop-down list for the display language.

Database

You configure the communication settings for a database in this tab.

Parameters	Description
Database Host	Drop-down list for the selection of the database server. Select, for example, your computer in this field. Note: Your computer is shown as a default when the tab is opened.
Authentication	Drop-down list for selection of the login method: ▸ **Windows Authentication** (Default): The login to the database is carried out with the information of the user logged in to the local computer. ▸ **SQL Server Authentication**: User name and password are entered manually. The corresponding login data must be available for database login.
User name	User name for login to a database. Grayed out if the authentication is **Windows Authentication**.
Password	Password for login to a database. For security reasons, each letter is shown with a * when the password is entered. Grayed out if the authentication is **Windows Authentication**.
Connect	Establishes the connection to the configured database server. If no connection is possible (for example due to incorrect entry of user name and/or password), an error message is called up. Grayed out if it is already connected to a database server.
Disconnect	Disconnects an existing connection to a database server. Grayed out if no connection is active.
Database Name	Drop-down list to select a database. This list shows all available databases of the database server configured under **Datenbank-Host**. If this list is empty, there is no connection to a database server or there is no SQL database available on the selected computer.
Start configuration	Switches to the **Metering point** tab. If there is not currently a connection to a database, a

	connection with the login information that has already been entered is established when clicking on the **Start configuration** button.
	If this input is incorrect or incomplete, no further settings can be changed in the **Metering points** or **Meters** tabs. A connection to a database is always necessary for this!

CLOSE DIALOG

Button	Description
Exit	Closes the wizard.
	Changes that have not been saved are lost.

💡 **Information**

If there is already a connection to a database, all input fields are grayed out.

Database - evaluation and amendment

If a connection to a database is established, the structure of this database is evaluated immediately. Tables required for metering point administration are created automatically if required. The validation is carried out in the Editor and in Runtime.

If amendments to the existing database are required, you are informed of this by means of a dialog. The dialog only appears if amendments are necessary.

EVALUATION DIALOG
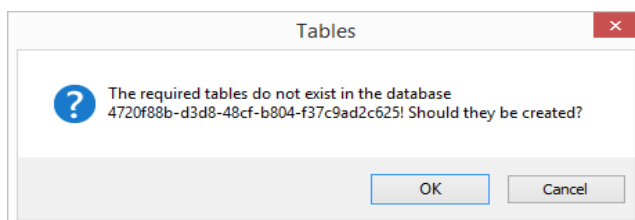
▶ Confirm this dialog with **Yes** if the database is to be amended to the corresponding tables.

▶ **Cancel** closes the dialog. No amendments are made in the dialog. Configuration of metering points is not possible. The wizard jumps to the Database tab.

VALIDATION OF THE ARCHIVES

A validation is carried out on starting - errors are visualized.

If a problem occurs when validating the archives, this is signaled by a red warning symbol next to the problematic element. You get a detailed description in the tool tip, if you move to the warning symbol with the mouse.

EXAMPLE OF A VIEW - RUNTIME

Industrial Maintenance Manager compatibility

The functionality of the Industrial Maintenance Manager (IMM) can be used for meters in metering point administration. The IMM is used for the administration of machine and maintenance data. Service intervals can be planned and administered with ease. You can see at a glance which devices, items of equipment, machines, etc. have to be maintained today / this week / next month etc. Furthermore, the service work that has been completed in the past is also logged.

When checking the database, the table names of an existing IMM project configuration are checked. If necessary, these names are amended after confirmation.
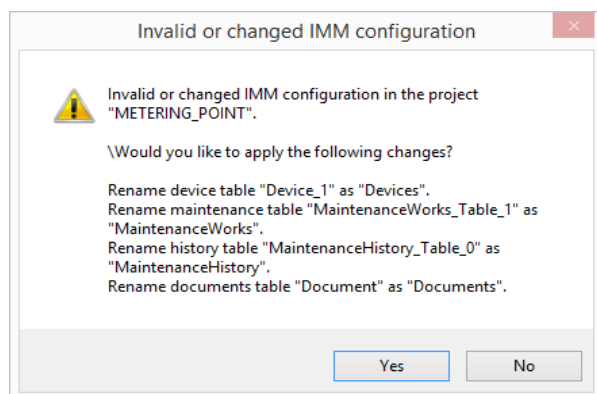
▶ Confirm this dialog with **Yes** if the table names are to be amended.

▶ **No** closes the dialog. No amendments to the table names are made in the database. Configuration of metering points is possible.

IMM TABLE NAMES:

▶ **Table for devices**: `Devices`

▶ **Table for maint. works**: `MaintenanceWorks`

▶ **Table for history**: `MaintenanceHistory`

▶ **Table for documents**: `Documents`

> 💡 **Information**
>
> Project configurations from zenon version 7.20 are not affected by this. From version 7.20, the table names for the Industrial Maintenance Manager can no longer be freely configured.

Metering Points

New metering points are created in this tab and existing ones are administered.

Parameter	Description
New... (on page 329)	Opens the dialog to create a new Metering Point (on page 329).
Edit... (on page 346)	Opens the dialog to edit the selected metering point (on page 346).
Delete (on page 347)	Deletes the selected Metering Point.
List of metering points	List of the metering points that have been created, as configured in the dialog to create a new metering point (on page 329). Selection by means of clicking. The selected metering point is highlighted in color. Multiple selection is not possible. ▶ `Name` Name of the metering point ▶ `Description` Short description of the metering point ▶ `Location` Location of the metering point ▶ `Automatic` Active, if **Metering Point behavior** is `automatic`. ▶ `Metering point Type` Type of the metering point ▶ `Calculation active` Active if **Calculate relative value** has been `activated`. ▶ `Meter name` ▶ `Meter description` ▶ `Behavior` Metering Point Administration ▶ `Relative value variable` Assigned variable for the relative value. ▶ `Absolute value variable` Assigned variable for the absolute value. You can find out more information in the dialog description (on page 329).
Filter variable [...] (on page 354)	Opens the dialog to select a filter variable (on page 354) that is used in Runtime for the filtering of metering points. In addition to the variable name, the name of the project from which the filter variable comes is shown here, separated by **#**.
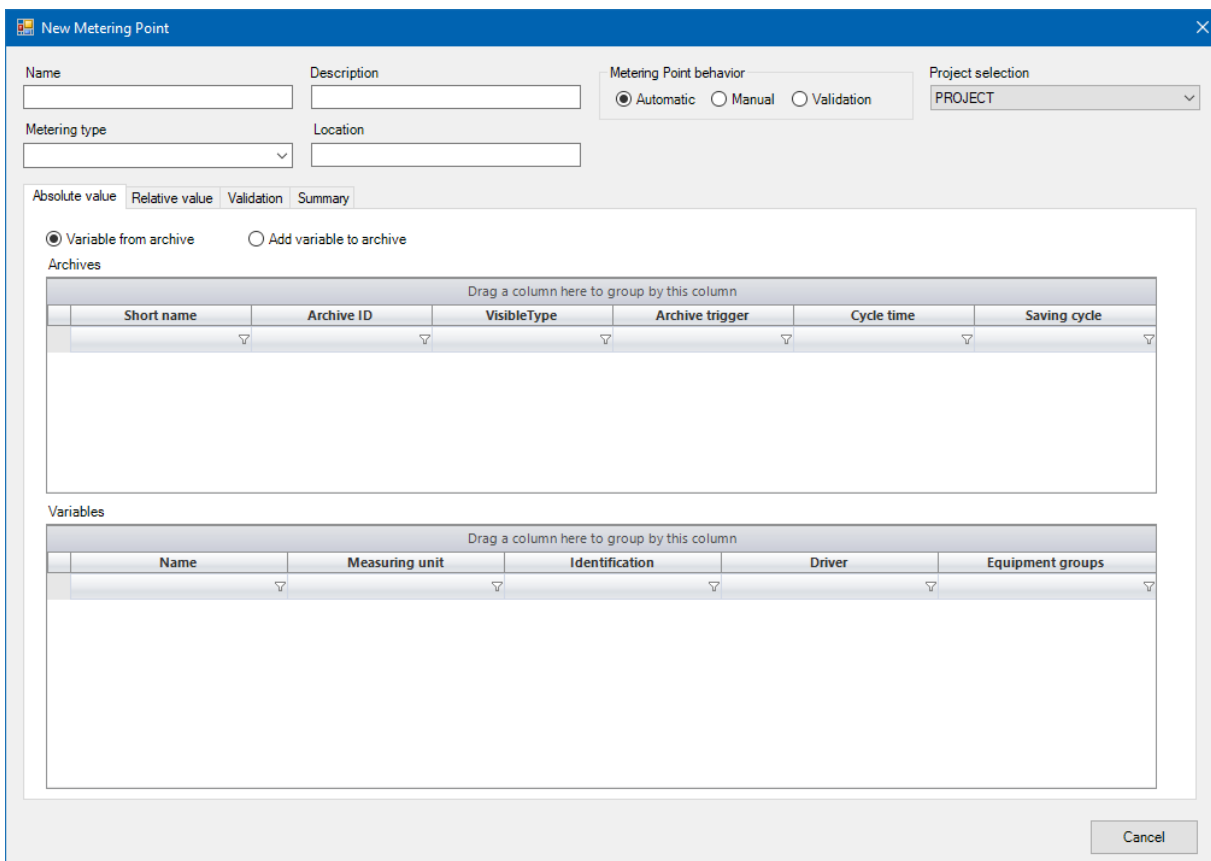
CLOSE DIALOG

Button	Description
Exit	Closes the wizard.
	Changes that have not been saved are lost.

Create new metering points

Click, in the **Metering points** tab, on **New** to create a new metering point.

The following dialog opens, in which you can configure the new metering point.

Parameter	Description
Name	Name of the metering point. `Mandatory field`
Description	Description of the metering point. `Optional entry`
Location	Location of the metering point. `Optional entry`
MeteringType	Type assignment of the metering point. `Optional entry` Note: A list is kept with all the previously-configured metering point types. These types are displayed when the first applicable letter is typed. If the type that has been entered does not exist in the list, that type is added to the list (auto suggest).
Metering Point behavior	Option field for selection of the value entry ► `Automatic:` When this option is activated, both cyclical and spontaneous archives can be selected for the absolute value. The values are taken from the variable. Relative values can be automatically calculated in due course. You can find further information on this behavior in the Relative value (on page 335) tab. ► `Manually:` When this option is activated, only spontaneous archives can be selected for the absolute value. The meter values must be read and entered manually. ► `Validation:` When activating this option, archive values can be confirmed or modified in Runtime. You can find further information on this behavior in the Validation (on page 339) tab. The following is applicable for `automatic` and `manual` **metering point behavior**: Note: The list of the archives and the list of variables for absolute and relative values is filtered according

	to the metering point behavior. This means that, with manual metering point administration, only spontaneous archives or variables from spontaneous archives are displayed in the list of archives and variables. Attention: If you change the metering point behavior of an existing metering point, the absolute value variable and the relative value variable must be reselected.
Project selection	Drop-down list with projects from the current workspace in zenon Editor. Note: Archives and variables available are tied to a project. Select the desired project in this field.
Absolute value (on page 331)	Tab for the configuration of the absolute value of the metering point.
Relative value (on page 335)	Tab for the configuration of the relative value of the metering point.
Validation (on page 339)	Tab for the configuration of the validation.
Summary (on page 344)	Checking and conclusion of the configuration of metering point administration.

NAVIGATION

Parameter	Description
Cancel	Discards all changes in all tabs and closes the dialog.

Absolute value

In this tab, an absolute value variable is assigned to the metering point.

Parameter	Description
Variable from archive	In the list of variables, variables from the selected archive (list of archives) are displayed.
	Select a corresponding archive and a corresponding variable for the absolute value.
	Attention: The calculation of substitute values must be activated for this archive.
Add variable to archive	Variables from the project are displayed. The selected variable is added to the selected archive.
	Attention: The calculation of substitute values must be activated for this archive.
New archive	Opens dialog for the creation of a new archive (on page 348).
	Only active if **Add variable to archive** is active.

💡 **Information**

*The options in this tab are not available if the **metering point behavior** is* `validation.`

ARCHIVES (LIST)

Here, you select an archive from which you want to have variables displayed or to which you want to add a selected variable.

Note: Existing project configurations of archives are displayed in the list. In addition, it is possible to create a new archive directly in the wizard by clicking on the **New archive** (on page 348) button.

Parameters	Description
Short name	Archive reference.
Archive ID	Archive name
Type	Archive type ▶ `Cyclic` Archive is cyclical. Values are saved in configured time intervals. ▶ `EventTriggerd` Archive is event-triggered. Note: Event-triggered archives can only be used for automatic metering points. Direct configuration of event-triggered archives in the metering point administration is not possible. ▶ `Value Change` Archive is spontaneous. Each change to a value is immediately written to the variable in the archive. Hysteresis can be configured.
Archive trigger	Trigger in order to write values to an archive. Note: Only available with event-triggered archives.
Cycle time	Time interval in which values are written to the archive with cyclical scanning. Format: ▶ `n.A.` If archive type is `Value Change` or `EventTriggerd`. ▶ `DD:HH:MM:SS` ▶ `Month`With monthly cycle
Saving cycle	Time interval between the creation of new archive files. Format: ▶ `DD:HH:MM:SS` ▶ `Month` With saving cycle set to „turn of month". ▶ `Year`With saving cycle set to `turn of year`.

VARIABLES (LIST)

Parameters	Description
Name	Name of the variable.
Measuring unit	Measuring unit of the variables.
Identification	Identification of the variable.
Driver	Driver of the variable.
Equipment Groups	Equipment group that is assigned to the variable. Note: A variable can also be assigned to several equipment groups.

NAVIGATION

Parameter	Description
Cancel	Discards all changes in all tabs and closes the dialog.

Relative value

In this tab, a relative value variable is assigned to the metering point.

Parameter	Description
Create variable	A new variable is created for the relative value.
	Type: `LREAL`, driver: `INTERN`.
Name	Name of the new variable to be created.
	A valid name, based on the selected absolute value variable, is proposed. The name must be unique and can be given as desired. No special characters are permitted. A maximum of 256 characters can be entered.
	The entry is validated. The result of the validation (success or error) is shown next to the input field by means of a symbol.
	Note: Only visible if **Create variable** has been selected. A variable must be selected in the Absolute value tab, so that a proposed name is shown here.
Variable from archive	Shows list of archives and list of variables belonging to the selected archive:
	Attention: The calculation of substitute values must be activated for this archive.
Add variable to archive	Variables from the project are displayed. The selected variable is added to the selected archive.
	Attention: The calculation of substitute values must be activated for this archive.
Calculate relative value	Checkbox to activate the automatic calculation of relative values:
	Selection is optional with automatic metering points.
	Selection is automatically activated with manual metering points. This automatic preselection cannot be deactivated.
	Note: You can get further information on the automatic calculation of relative values in the zenon Logic (on page 399) chapter.
New archive	Opens dialog for the creation of a new archive (on page 348).
	Not active if **Variable from archive** is active.
Archives	Archives that were previously created in zenon Editor or with the **New archive** button are ready for selection in list form. Only cyclical archives are

	displayed.

> 💡 **Information**
>
> *The options in this tab are not available if the **metering point behavior** is* `validation`.

ARCHIVES (LIST)

Here, you select an archive from which you want to have variables displayed or to which you want to add a selected variable.

Note: Existing project configurations of archives are displayed in the list. In addition, it is possible to create a new archive directly in the wizard by clicking on the **New archive** (on page 348) button.

Parameters	Description
Short name	Archive reference.
Archive ID	Archive name
Type	Archive type ▶ `Cyclic` Archive is cyclical. Values are saved in configured time intervals. ▶ `EventTriggerd` Archive is event-triggered. Note: Event-triggered archives can only be used for automatic metering points. Direct configuration of event-triggered archives in the metering point administration is not possible. ▶ `Value Change` Archive is spontaneous. Each change to a value is immediately written to the variable in the archive. Hysteresis can be configured.
Archive trigger	Trigger in order to write values to an archive. Note: Only available with event-triggered archives.
Cycle time	Time interval in which values are written to the archive with cyclical scanning. Format: ▶ `n.A.` If archive type is `Value Change` or `EventTriggerd`. ▶ `DD:HH:MM:SS` ▶ `Month`With monthly cycle
Saving cycle	Time interval between the creation of new archive files. Format: ▶ `DD:HH:MM:SS` ▶ `Month` With saving cycle set to „turn of month". ▶ `Year`With saving cycle set to `turn of year`.

VARIABLES (LIST)

Parameters	Description
Name	Name of the variable.
Measuring unit	Measuring unit of the variables.
Identification	Identification of the variable.
Driver	Driver of the variable.
Equipment Groups	Equipment group that is assigned to the variable. Note: A variable can also be assigned to several equipment groups.

Information

The list of variables is hidden if **Create variable** is active.

NAVIGATION

Parameter	Description
Cancel	Discards all changes in all tabs and closes the dialog.

Validation

Variables from archives are configured for a validated metering point in the **Validation** tab.

The parameters of this tab are only available if, in the **Metering point behavior** property, the `Validation` option has been selected.

Parameter	Description
Variable from archive	In the list of variables, variables from the selected source archive (list of archives) are displayed. Select a corresponding archive and a corresponding variable for the measured value.
Add variable to archive	Variables from the project are displayed. The selected variable is added to the selected archive.
Source archive	List of the configured archives. Selection of the archive with the click of a mouse. After selection, the variables contained therein are displayed in the variable list.
New archive...	Opens the dialog for the creation of a new source archive (on page 348). Not active if **Variable from archive** is active.

Variables	List of variables:
	
	▸ **Variable from archive**:
	  Variables from the selected source archive
	
	▸ **Add variable to archive**:
	  Variable list of the loaded project.

Source archive	List of all configured `EventTriggered` archives.
New archive...	Opens the dialog for the creation of a new target archive (on page 348). Note: Target archives are only `EventTriggered` archives by default.

STANDARD TIME FILTER FOR VALIDATION

Input field for selection of the validation time range. The time range set here is used in Runtime during validation as a time filter for the archive entries to be displayed.

The time range comprises days and hours.
Click on the desired range to highlight this for the change. Change the area with an entry or by clicking on the arrow keys.

The following is applicable for entry:

▸ Only whole numbers are taken into account.

▸ Value entries with a comma are rounded up.

▸ An hour entry >23 is corrected to 23.

▸ A day entry > 1000 is corrected to 1000.

▶ Negative inputs receive the value 0.

Parameter	Description
Days	Time range of validation in days. Default: 1
Hours	Time range of validation in hours. Default: 0

ARCHIVES (LIST)

Here, you select an archive from which you want to have variables displayed or to which you want to add a selected variable.

Note: Existing project configurations of archives are displayed in the list. In addition, it is possible to create a new archive directly in the wizard by clicking on the **New archive** (on page 348) button.

Parameters	Description
Short name	Archive reference.
Archive ID	Archive name
Type	Archive type ▶ `Cyclic` Archive is cyclical. Values are saved in configured time intervals. ▶ `EventTriggerd` Archive is event-triggered. Note: Event-triggered archives can only be used for automatic metering points. Direct configuration of event-triggered archives in the metering point administration is not possible. ▶ `Value Change` Archive is spontaneous. Each change to a value is immediately written to the variable in the archive. Hysteresis can be configured.
Archive trigger	Trigger in order to write values to an archive. Note: Only available with event-triggered archives.
Cycle time	Time interval in which values are written to the archive with cyclical scanning. Format: ▶ `n.A.` If archive type is `Value Change` or `EventTriggerd`. ▶ `DD:HH:MM:SS` ▶ `Month`With monthly cycle
Saving cycle	Time interval between the creation of new archive files. Format: ▶ `DD:HH:MM:SS` ▶ `Month` With saving cycle set to „turn of month". ▶ `Year`With saving cycle set to `turn of year`.

VARIABLES (LIST)

Parameters	Description
Name	Name of the variable.
Measuring unit	Measuring unit of the variables.
Identification	Identification of the variable.
Driver	Driver of the variable.
Equipment Groups	Equipment group that is assigned to the variable. Note: A variable can also be assigned to several equipment groups.

Summary

The configurations of a metering point are evaluated and concluded in this tab.

The result is shown in the summary window in two fields.

SUMMARY

Parameters	Description
Field for project configuration information	The upper field contains a summary of the configuration of the metering point. The text information is distinguished by being displayed in different colors.
`Black` text color	Settings are correct. These are created and applied by clicking on **Save & New**.
`Red` text color	Errors in the configured settings must be checked once again and improved. No saving is possible in this case.
`Green` text color	New settings are created and applied. Saving is now possible.
`Blue` text color	Amended project configurations are shown in blue text.
`Orange` **text color**	Warning messages. Project configurations that are not recommended are shown in orange.
Field for additional information	General information about the steps carried out is shown in this field if available. The color coding of the texts is the same as in the field for project configuration information. However in this text field, only successful (green text) and faulty steps (red text) are shown.
Save & New	Accepts settings and creates the new metering point. All values are reset and it is possible to continue with the configuration of other metering points. If the project configuration in incorrect, corresponding project information is shown in the field for project configuration information.
Cancel	Discards all changes in all tabs and closes the dialog.

Edit metering points

To edit an existing metering point, proceed as follows:

1. Select a metering point that you want to edit in the **Meter** tab.
    The selected metering point is accented in color.

2. Then click on the **Edit** button or double click on the desired metering point.

    The existing project configuration is shown in the dialog **Edit Metering Point**.

3. Add additional information, administer the metering point as you wish and click in the **Summary** tab on **Save & Close**.

SUMMARY:

Amended settings are shown in the summary in `blue`.

▶ Clicking on **Save & Close** saves the amended settings.

> ⚠ **Attention**
>
> *Ensure that the project is loaded when editing a metering point. Editing without a project destroys the metering point.*

Delete Metering Point

To delete an existing metering point, proceed as follows:

1. Select a metering point that you want to delete in the **Meter** tab.

2. Then click on the **Delete** button.

3. A warning dialog appears.

4. Confirm the deletion by clicking on the **OK** button.

5. The selected metering point is deleted.

WARNING DIALOG
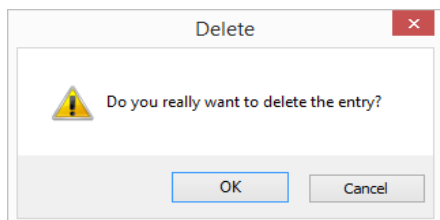
Parameter	Description
OK	Selected metering point is deleted.
Cancel	Cancels deletion process. Warning dialog is closed without an action.

Information

If an automatic metering point with automatic relative value calculation is deleted, the attendant project configurations (variables and code lines) are removed in zenon Logic.
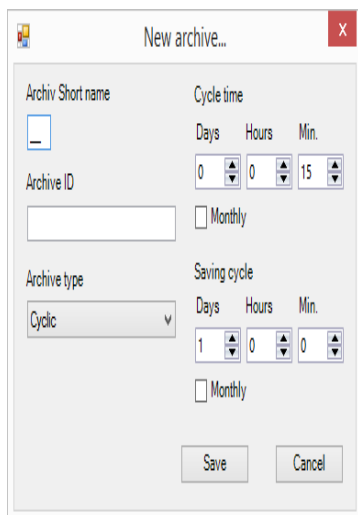
New archive

The "**New archive**" button is visible:

▸ If, in the **Absolute value** tab of the wizard, the **Add variable to archive** button is active.

▸ If, in the **Relative value** tab of the wizard, the **Create variable** or **Add variable to archive** buttons are active.

If the **Add variable to archive** button is active in the **Validation** tab.

The button is always active during validation of target archives. These archives have `event triggered` as the archive type by default.

Parameter	Description
Archiv Short name	Short name for the archive to be created. Maximum 2 characters, 0-9 or A-Z, must be unique. Attention: You cannot change the identification afterwards.
Archive ID	Name of the archive. Default: `empty`
Archive type	Type of recording: ▶ `Cyclic` The data is written to the archive in the set interval (default). ▶ `ValueChange` Record on change ▶ `Event triggered` Is only available for target archives of the validation.
Cycle time	Define the cycle (days, hours, minutes and seconds) in which values for cyclical archives are to be read. Default: `15 minutes` (for cyclical archives)

Monthly	If active: The values are read in each time the month changes (monthly archive). Default: `inactive`.
Saving cycle	Define the cycle time (days, hours and minutes) in which new archive files are to be created. Default: `1 day` Note: grayed out if cycle time is monthly
Monthly	If active: The archive file is saved each time the month changes Default: `inactive`.

CLOSE DIALOG

Parameter	Description
Save	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

> 💡 **Information**
>
> You can get further information about archives in the Historian manual, in the Edit archives chapter.

Background information

When creating new archives for absolute value and relative value variables in metering point administration, the duration of storage for archive files is set to the maximum possible value.

This is necessary because manual editing via the metering point administration is not possible for non-evacuated archive files (in *.ARX format). This does not include data that has been evacuated to SQL; subsequent manual editing of this is always possible.

> ⚠ **Attention**
>
> *Evacuated archive files in .ARX internal database format cannot be edited. You should therefore always select SQL database for evacuated archives.*
> *Note: You configure the evacuation in the **Edit archive** dialog in the **Save**.tab*

RECOMMENDATION

To keep the number of files to be stored within limits, it is recommended that you configure a sufficiently large save cycle.

👍 **Hint**

Always configure your save cycle >= 1 day.
You can get further information in the Historian manual, in the Edit archive, Save chapter.

OFFSET AND WAITING TIME

To ensure correct archiving of the relative value, the metering point administration module carries out automatic project configurations.

The following settings are set automatically:

▶ Offset: 5 seconds (only for relative value archives)
You can find further information in the Historian manual, in the Edit archive, Recording type chapter.

▶ VACO waiting time: 10 seconds
If an automatic measuring point calculation is activated for relative value, the waiting time of the VACO (on page 401) must be set to 10 seconds and the offset for new relative value archives to 5 seconds.
For existing relative value archives, the offset must be checked manually and amended accordingly.
You can find more information in the VACO function block chapter.

INFORMATION DURING PROJECT CONFIGURATION

The corresponding information is shown during project configuration in the **Summary** (on page 344) tab for the Metering Points (on page 327):

▶ Archive for absolute values should have offset 0 (corresponding warning message)

▶ Relative value archive must have offset 5 (information, amendment is automatic)

▶ Both archives should be different (corresponding waning message)

Visualization of incorrect project configurations

If a problem occurs when configuring a project, this is signaled by a red warning symbol next to the problematic element. You get a detailed description in the tool tip, if you move to the warning symbol with the mouse.

Short name	Archive ID	Type	Archive trigger	Cycle time	Saving cycle
T1	TEST	Cyclic		00:00:15:00	00:08:00:00
E2	TEST ARCHIVE	Cyclic		00:00:15:00	00:08:03:00
E1	Test_archive	Cyclic		00:00:15:00	01:00:00:00
				:15:00	00:08:00:00
AA	HISTORIAN TRIGGERED	EventTriggerd	Test_absolut1.1.1l	n.A.	00:02:00:00

Ratio between saving cycle and cycle time is incorrect or the cycle time is largen than the saving cycle!

Checking the archives

Archives used in the **Metering Point Administration** module are evaluated during project configuration.
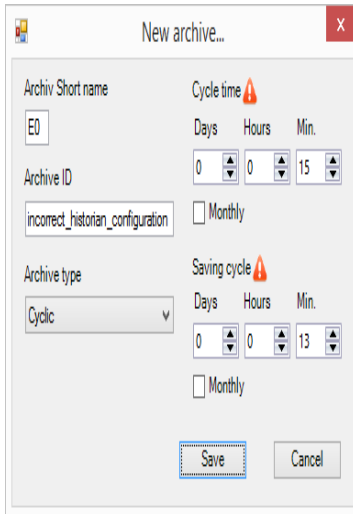
The archive configuration is checked as follows:

▶ After the wizard has started, in the list of metering points.
A cause for the incorrect project configuration could be editing the archive in zenon Editor directly.

▶ When creating/editing metering points.

▶ When creating a new archive using metering point administration.
Validation is triggered by clicking on the **Save** button.

CONFIGURATION CRITERIA FOR RELATIVE VALUE ARCHIVES

Certain configuration criteria are applicable for automatic metering points for relative value archives. These criteria result due to the logic of the relative value calculation.
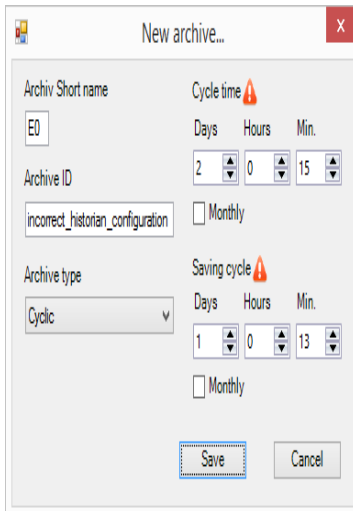Archives created with the wizard always correspond to these criteria.

▶ The cycle time must not be greater than the save cycle.

▶ The save cycle must be an integral multiple of the cycle time.

▶ If monthly change is selected as a cycle time, the save cycle must be a monthly change or yearly change.

▶ If monthly change is selected as a save cycle, the cycle time must be a maximum of 1 day.

Examples

CYCLE TIME GREATER THAN SAVE CYCLE
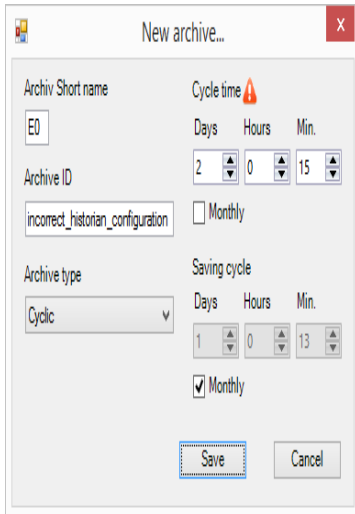
SAVE CYCLE NOT A WHOLE-NUMBER MULTIPLE OF THE CYCLE TIME

INCORRECT CYCLE TIME FOR MONTHLY SAVE CYCLE
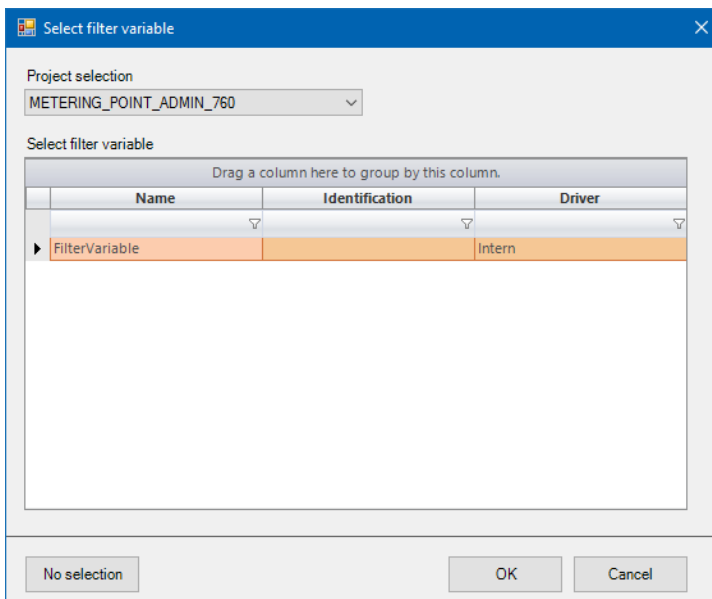
Link filter variable

This dialog can be used to select a variable for filtering in Runtime.

First, create a variable from the `Intern` driver with the `String` **Data Type** and sufficient **String length** (such as `500`) in you project.

Note: The filter is always updated if the variable is updated.

Parameter	Description
Project selection	Combobox to select the project. A variable from another project can also be selected as a filter variable.
List of variables	Selection of the variable by clicking. The selected metering point is highlighted in color. Multiple selection is not possible. ▶ `Name` Name of the variable ▶ `Identification` Identification of the variable ▶ `Driver` Driver on which the variable is based
No selection	Deletes the variable selection and closes the dialog.
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

This variable is used for filtering in Runtime. You can find detailed information on this in chapterFiltering of meters by means of variable

Counter

In this tab, there is the possibility to create new meters, to administer them and to display the meters that have already been created in a list.

Name	Description	Manufacturer	Meter type	Serial Number	Note	Year of constru...
Water_1_1	Water meter - 1 fl...		Water			2010
Water_1_2	Water meter - 1 fl...		Water			2014
Gas_roof	Gas - Roof		Gas	ff10511 2001		1975
Water_1_3	Water meter - 1 fl...		Water			2007
Gas_1	Gas meter - 1 floor		Gas			2008
Gas_2	Gas meter - 2 floor		Gas			2010
Electricity_1	Current meter - 1...		Electricity			2010
Electricity_2	Current meter - 2...		Electricity			2010
Gas_1_1	Gas meter - NEW...		Gas		Replaces the old...	2015
Water_1_1_1	Water meter - NE...		Water		Replaces the old... serial# 92819203	2015
Test	for testing only		not used		has no usage - thi...	
Test_meter_1			not used			
Test_meter_2			not used			
Test_meter_1_1			not used			

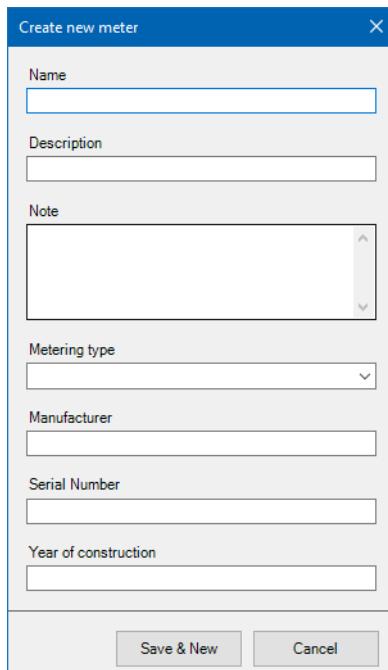| Parameter	Description
New...	Opens the dialog to create a new meter (on page 358).
Edit...	Opens a dialog to edit the selected meter (on page 360).
Delete	Deletes the selected meter.

LIST OF THE CONFIGURED METERS

Parameter	Description
Name	Name of the meter.
Description	Description of the meter.
Manufacturer	Manufacturer of the meter.
Meter type	Type assignment of the meter.
Serial number	Serial number of the meter.
Comment	Note for the meter.
Year of construction	Year of construction of the meter.

CLOSE DIALOG

Button	Description
Exit	Closes the wizard. Changes that have not been saved are lost.

Create new meter

In this dialog (both in the wizard and in Runtime), meters are configured and existing project configurations are amended.

Parameters	Description
Name	Identification of the meter. `Mandatory field`
Description	Description for the meter. `Optional entry`
Note	Note in relation to the meter. `Optional entry`
MeteringType	Type assignment of the meter. Drop-down list with types that have already been configured. This drop-down list also corresponds to the type list for the creation of a new metering point. `Optional entry`
Manufacturer	Name of the manufacturer of the meter. `Optional entry`
Serial Number	Serial number of the meter. `Optional entry`
Year of construction	Year of construction of the meter. `Optional entry`

CLOSE DIALOG

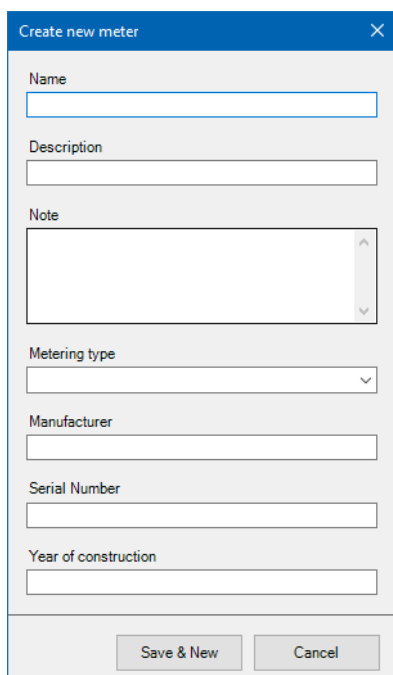| Parameters	Description
Save & New	Saves the new meter. The dialog to create a new meter is then called up with empty content again. Other meters can be configured.
Cancel	Discards all changes and closes the dialog.

Note: Once the entries have been saved, a new entry is written to the database and the new entry is added to the list.

Configuration of a meter

To create a new meter, proceed as follows:

1. Click on the **Meter** button in the wizard

2. Click on **New**.

3. The dialog to create a new meter or amend an existing one is opened.

4. Enter the information about the meter.

Note: Incorrect entries are signaled by a red warning triangle next to the input field.

Edit meter

To edit a meter that already exists, proceed as follows:

1. Switch to the **Meter** tab.

2. Select the corresponding meter in the list of the configured meters.

3. Click on **Edit**.

4. The **Edit meter** dialog is opened.

5. Add any other desired information and administer the meter as you wish.

6. Click on **Save & Close**.

Delete meter

To delete an existing meter, proceed as follows:

1. Select a meter that you want to delete in the **Meter** tab.

2. Then click on the **Delete** button and confirm the warning dialog with **OK.**

3. The meter you have elected is deleted.

Note: If a meter is already connected to a metering point, it cannot be deleted. The **Delete** button is grayed out in this case. To delete a meter that has already been assigned, it must first be deleted from the metering point or replaced in Runtime.
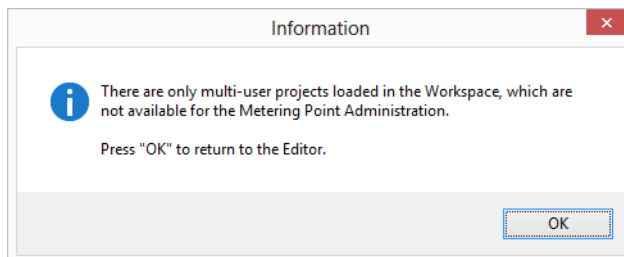
Multi-user projects

The wizard for metering point administration in the zenon Editor does not support multi-user projects.

If there are multi-user projects in the workspace, a dialog is shown accordingly when the wizard is started:
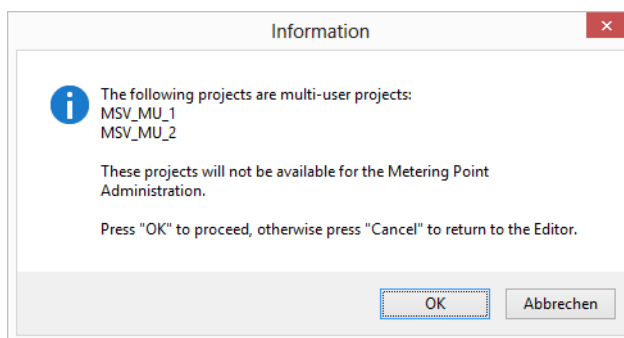
Note: This dialog is only available in English.

If there are only multi-user projects in the workspace, the following message is given:

Note: This dialog is only available in English.

CONVERT MULTI-USER PROJECT TO STANDARD PROJECT

A multi-user project can be converted to a "non-multi-user" standard zenon project:

1. Create a project copy:
   Select, in the context menu of the respective project, the **Project** -> **Save as ...** command.
   The dialog to back up the project data is opened.

2. Give it a new name.

3. The backed-up project is read back as a new "non-multi-user" project in the current workspace and created.

> ### 💡 Information
>
> If the project is in an association of multi-user projects, the project references must be taken into account.
>
> You can find further information in relation to this in the Project administration and workspace manual in the Replace project references chapter.

Engineering in the zenon Editor

In zenon Editor, configure an `ActiveX element` in a screen in order to be able to use **metering point administration** in Runtime.
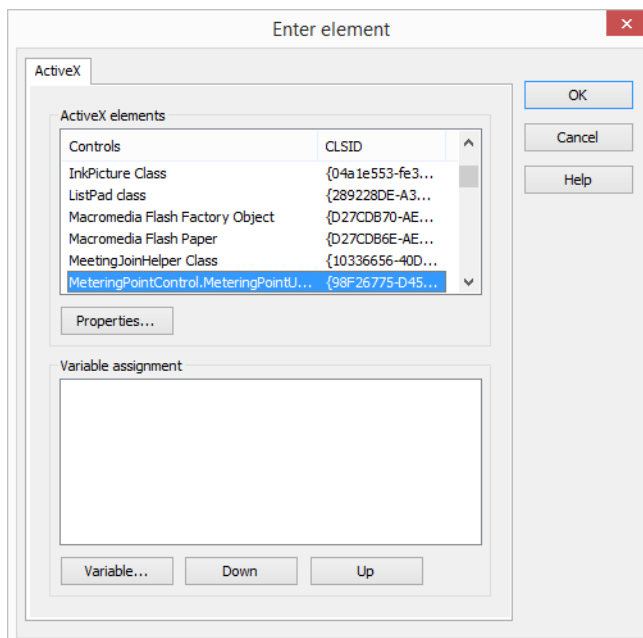
1. To do this, create a new screen in zenon Editor.

2. Select the **ActiveX** element and draw an area in the screen with it.

3. The **Enter element** dialog is opened.

4. In this dialog, select **MeteringPointControl.MeteringPointUserControl** from the list of the **ActiveX elements**.

Attention: The ActiveX element must be at least `900 pixels` wide and `575 pixels` high in order for it to be shown correctly in Runtime.

> **Information**
>
> You can find information about the ActiveX element in the Screens manual in the Screen elements/ActiveX chapter.

Metering Point Administration in the Runtime

The following is carried out in Runtime:

- ▶ Configured metering points and meters are linked to one another.

- ▶ New meters are created.

- ▶ Existing meter information is amended.

- ▶ Manual values are entered.

Database

Parameters	Description
Database Host	Drop-down list for the selection of the database server. Select, for example, your computer in this field. Note: Your computer is shown as a default when the tab is opened.
Authentication	Drop-down list for selection of the login method: ▶ **Windows Authentication** (Default): The login to the database is carried out with the information of the user logged in to the local computer. ▶ **SQL Server Authentication**: User name and password are entered manually. The corresponding login data must be available for database login.
User name	User name for login to a database. Grayed out if the authentication is **Windows Authentication**.
Password	Password for login to a database. For security reasons, each letter is shown with a * when the password is entered. Grayed out if the authentication is **Windows Authentication**.
Connect	Establishes the connection to the configured database server. If no connection is possible (for example due to incorrect entry of user name and/or password), an error message is called up. Grayed out if it is already connected to a database server.
Disconnect	Disconnects an existing connection to a database server. Grayed out if no connection is active.
Database Name	Drop-down list to select a database. This list shows all available databases of the database server configured under **Datenbank-Host**. If this list is empty, there is no connection to a database server or there is no SQL database available on the selected computer.
Start configuration	Switches to the **Metering point** tab. If there is not currently a connection to a database, a

	connection with the login information that has already been entered is established when clicking on the **Start configuration** button.
	If this input is incorrect or incomplete, no further settings can be changed in the **Metering points** or **Meters** tabs. A connection to a database is always necessary for this!

CLOSE DIALOG

Button	Description
Exit	Closes the wizard.
	Changes that have not been saved are lost.

💡 **Information**

If there is already a connection to a database, all input fields are grayed out.

Metering Points

Metering points in zenon Runtime can be administered in this tab.

Parameter	Description
Assign Meter... (on page 367)	Only active if the selected metering point has not been assigned a meter.
History... (on page 374)	Keeps a log of edited metering points and replaced meters.
Replace Meter... (on page 367)	Only active if the selected metering point has already been assigned a meter.
Manual value input... (on page 376)	Allows manual value input for the desired metering point. If, in the list of metering points, an automatic metering point is selected, the **Manual entry of values** button is grayed out.
Manual post processing... (on page 379)	Allows subsequent manual editing of relative values of metering points.
Fix invalid values... (on page 384)	Opens the **Fix invalid values** dialog. Allows the determination, display and correction of invalid values. Only available for `automatic` metering points. Note: Multiple selection of metering points for the correction of the values of several metering points is possible.
Validation... (on page 388)	Allows the taking and modification of values from a `validation` metering point. Only active if the selected metering point is `Validation`.
Reload	Loads zenon project configurations in Runtime and gets new settings from the database.
List of metering points	List of the created metering points. Selection by means of clicking. The selected metering point is highlighted in color. ▶ `Name` Name of the metering point ▶ `Description` Short description of the metering point ▶ `Location`

	Location of the metering point
	▶ Metering point Type Type of the metering point
	▶ Calculation active Active if **Calculate relative value** has been activated.
	▶ Meter name
	▶ Meter description
	▶ Behavior Metering Point Administration
	▶ Equipment groups
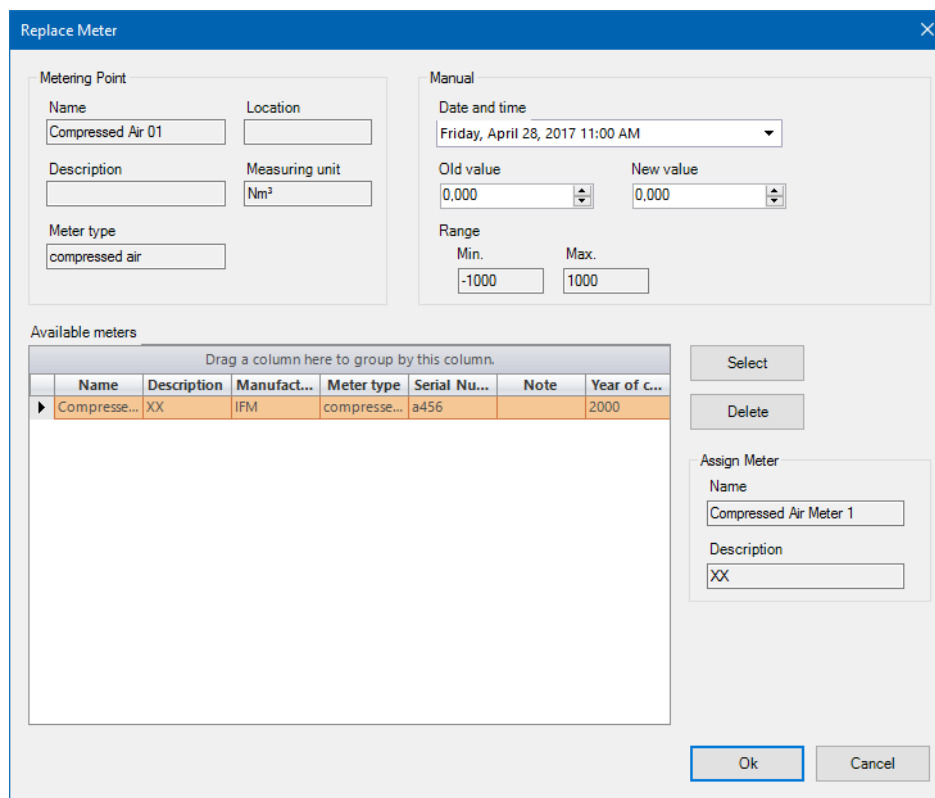
💡 Information

If a variable of a project is not available, this is signalized by a red warning symbol in the list view. In this case, check to see if a project with these variables is loaded.

Assign, replace or remove meter

In this dialog, individual meters can be assigned to a metering point, amended or removed.

With automatic metering points, the dialog for subsequent editing (on page 379) always opens when there is a change to the allocation of meters (new assignment, change, deletion).

METERING POINT

Parameters	Description
Name	Name of the metering point. Cannot be changed in this dialog.
Location	Location of the metering point. Cannot be changed in this dialog.
Description	Description of the metering point. Cannot be changed in this dialog.
Measuring unit	Measuring unit of the metering point. Cannot be changed in this dialog.
Meter type	Type of meter. Cannot be changed in this dialog.

MANUAL

Parameters	Description
Date and time	Date and time of the meter allocation or meter replacement. Default: Query time period, rounded up to a complete hour. Clicking on the drop-down list opens a dialog to select the date and time. Note: Only the entry of dates from 1. 1. 2000 is possible. Calls before this date are not valid and are signalized by a red warning symbol.
Range	The range of the absolute value variable.
Min.	Minimum input range. Cannot be changed in this dialog.
Max.	Maximum input range. Cannot be changed in this dialog.

Old value	Value of the old meter at the time of replacement.
	Default: 0
	Note: Only visible when a meter is replaced.
New value	Value of the new meter at the time of replacement.
	Default: 0
	Note: If the entry is outside the input range of the variable (min./max.), the incorrect entry is automatically amended to the range.

AVAILABLE METERS

Parameters	Description
Available meters	List of available meters
	All meters of the appropriate meter type that are not yet assigned to a metering point are displayed.
	Only one meter per metering point can be assigned.
Select	Assigns the selected meter and transfers its values to the **Assign meter** range.
Delete	Deletes the assignment of a meter to a metering point.
	The meter itself is not deleted and remains in the list of meters.

ASSIGN METER

Parameters	Description
Name	Name of the assigned meter.
	Cannot be changed in this dialog.
Description	Description of the assigned meter
	Cannot be changed in this dialog.

CLOSE DIALOG

Option	Description
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

Project configuration - meter assignment

To assign a meter to a metering point or to amend an existing assignment:

1. Select a metering point in the **list of metering points**.

2. Click on:

   a) **Assign Meter** if the meter has not yet been assigned to a meter.

   b) **Replace Meter** if the meter has already been assigned to a meter.

3. The **Assign Meter/Replace Meter** dialog is opened.

4. If there is a meter replacement or allocation, enter the current value of the newly-assigned meter in the **New value** input field.
   A warning dialog appears if this value is already present in the archive.
   Entries that do not correspond to the input range are automatically amended to the maximum or minimum value.
   Note: For automatic metering points, the value entered here in the **dialog for subsequent editing** is shown in green in the **Absolute value** column.

5. In the event of a meter replacement or when a meter assignment is deleted:
   Also enter the current value of the meter to be replaced or deleted in the **Old value** input field.
   Entries that do not correspond to the input range are automatically amended to the maximum value or minimum value.
   Note: For automatic metering points, the value entered here in the **dialog for subsequent editing** is shown in green in the **Absolute value** column.

6. Select a meter from the list of **available meters**.
   Note: All meters with the same metering point type as the selected metering point are displayed here.

7. Configure the meter assignment:

   a) Click on the **Select** button to assign the selected meter to the metering point.

   b) Click on the **Delete** button to release a meter that has already been assigned from the metering point.

8. The selected meter is:

   a) Applied in the **Assign Meter** area.

   b) Removed from the **Assign meter** area.

9. Click on **OK** to end the assignment.

10. The dialog is closed:

    a) For manual metering points:
       Absolute values are written to the absolute value archive. Corresponding relative values are calculated automatically and written to the relative value archive.

    b) For automatic metering points:
       The dialog for subsequent editing is opened.

Meter assignment for manual metering points

Values are automatically written to the archive depending on the action:

1. Assign meter:
   New value

2. Remove meter:
   Old value

3. Replace meter:
   Both values
   Note: Time stamp for replacement:

   a) Old value: Current time stamp

   b) New value: Two seconds later than the time stamp of the old value.

RELATIVE VALUE CALCULATION

The relative values are automatically recalculated.

1. During assignment:

   a) Relative values between the new value and the last absolute value found before that are recalculated.

   b) Relative values between the new value and the first absolute value found after that are recalculated.

2. During deletion:

   a) Relative values between the old value and the last absolute value found before that are recalculated.

   b) Relative values between the old value and the first absolute value found after that are recalculated.

3. When replacing:

   a) Relative values between the old value and the last absolute value found before that are subsequently calculated.

   b) Relative values between the new value and the first absolute value found after that are recalculated.

EXAMPLE OF A METER REPLACEMENT:

Maintenance should be carried out every 11 operations.

The last maintenance was carried out when the counter reading was 90. The current counter value is 99 operations.

The next maintenance must therefore be carried out 2 operations later when the counter reading is 101.

If the counter now breaks down, it must be replaced with another counter. This has the counter value 12.

Because the next maintenance is due 2 operations later, it is to be carried out when the counter reading is 14.

WARNING DIALOG

If a meter replacement is carried out at a time at which an archive entry already exists, this must be overwritten. A dialog warns of this.
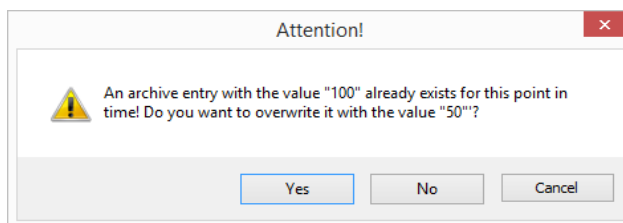
Parameters	Description
Yes	Applies settings and closes the dialog.
No	Discards all changes and closes the dialog.
Cancel	Retains all changes. The changes are not carried out. The dialog remains open for corrections.

Meter assignment for automatic metering points

With automatic metering points, the post editing dialog (on page 379) always opens when amending the assignment of a meter. The values configured in the allocation dialog (**Old value** and **New value**) are shown in green in the **Absolute value** column. The respective time stamp is increased by two seconds.

> 💡 **Information**
>
> The new values are only applied to the relative value archive after completion of the project configuration in the post editing dialog!

History

The metering point history dialog shows the course of configuration of the selected metering point. Changes are not possible in this dialog.

Parameter	Description
Name	Name of the metering point. Cannot be changed in this dialog.
Location	Location of the metering point. Cannot be changed in this dialog.
Description	Description of the metering point. Cannot be changed in this dialog.
MeteringType	Type of the metering point Cannot be changed in this dialog.

HISTORY

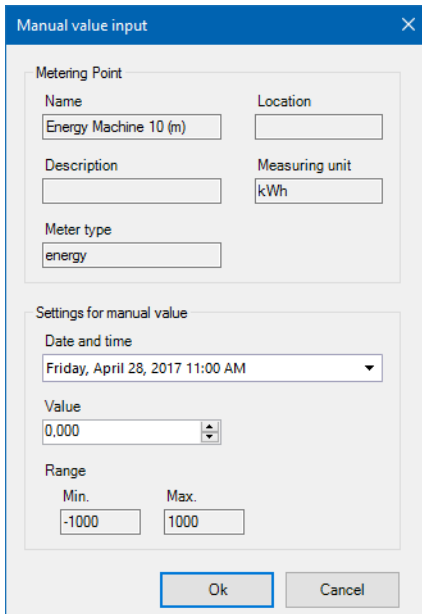| Parameter	Description
Time	Time of the meter assignment or the meter replacement.
Old meter name	Name of the old meter.
Old meter value	Value of the old meter.
New meter name	Name of the new meter.
New meter value	Value of the new meter.
User ID	ID of the user who has entered the meter replacement.
User name	Name of the user who has entered the meter replacement.
Change type	The change that has been made is shown. ▶ `Added` When a meter is assigned for the first time = **Assign Meter** ▶ `Changed` When a meter replacement is carried out = **Replace Meter** ▶ `Deleted` The assignment of a meter has been removed. No new meter was assigned to the metering point.
Close	Closes the dialog.

> ### 💡 Information
>
> *The history only shows changes of meter assignments for a metering point.*
>
> *Value changes are not displayed in the history.*

Manual value input

Manual values can only be entered for manual (i.e. not automatic) metering points. With the manual value entry, values can be entered for a certain point in time. Value entries for the future are not permitted.

METERING POINT

Parameter	Description
Name	Name of the metering point.
	Cannot be changed in this dialog.
Location	Location of the metering point.
	Cannot be changed in this dialog.
Description	Description of the metering point.
	Cannot be changed in this dialog.
Measuring unit	Measuring unit of the metering point.
	Cannot be changed in this dialog.
Meter type	Type of meter.
	Cannot be changed in this dialog.

SETTINGS FOR MANUAL VALUE

Parameter	Description
Date and time	Date and time of the entry of the absolute value.
	Clicking on the drop-down list opens a dialog to select the date and time.
	Note: Only the entry of dates from 1. 1. 2000 is possible. Calls before this date are not valid and are signalized by a red warning symbol.
	Default: Query time point, rounded up to a complete hour.
Value	Absolute value of the manual meter.
	Note: If the entry is outside the input range of the variable (`Min./Max.`), this is signalized by a red warning symbol.
	Default: `Last-saved absolute value in the archive.`
Range	Range of the absolute value.
Min.	Minimum value of the absolute value variable
	Cannot be changed in this dialog.
Max.	Maximum value of the absolute value variable
	Cannot be changed in this dialog.

CLOSE DIALOG

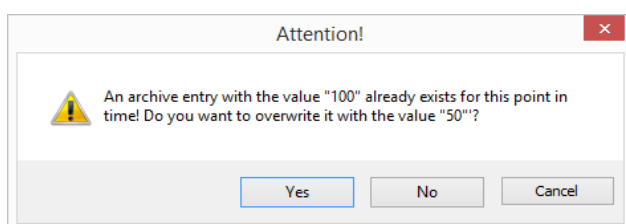| Option	Description
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

Manual value input

To enter values manually:

1. Select a manual metering point from the list of metering points.

2. Click on the **Manual value input** button.

3. The **Manual value input** dialog is opened.

4. Select the date and time of the manual value:
   To do this, click on the **Date and time** drop-down list or enter the corresponding time in the input field directly.
   Attention: Manual value entries must not be in the future!

5. Enter the new value in the input field
   Note: The valid input range of the selected variable is shown under Range.

6. Click **OK** to apply the new value with the configured time stamp.

7. The value input is validated.
   A warning dialog opens if there is already a value for the selected time point.

8. The relative values are automatically recalculated.
   The following takes place after the values are entered:

   a) From the entered value until the last absolute value found is subsequently calculated.

   b) From the entered value until the next subsequent absolute value found is subsequently calculated.

DIALOG IN THE EVENT OF DUPLICATE VALUE ENTRIES

If there is already an archive entry at the selected time point, this must be overwritten. A dialog warns of this.

Parameters	Description
Yes	Applies settings and closes the dialog.
No	Discards all changes and closes the dialog.
Cancel	Retains all changes. The changes are not carried out. The dialog remains open for corrections.

SHOW MANUAL ENTRIES

> 👍 **Hint**
>
> To have manual value entries shown, use the **Post-editing** button.

Manual post processing

Values from an archive can be subsequently edited in this dialog. Missing entries for relative values can be interpolated in order to get continuous values and thus, for example, close gaps more quickly as a result.

If, for an automatic metering point, the meter is replaced or deleted, the dialog for subsequent editing also opens.

METERING POINTS

Parameter	Description
Name	Name of the metering point. Cannot be changed in this dialog.
Location	Location of the metering point. Cannot be changed in this dialog.
Description	Description of the metering point. Cannot be changed in this dialog.
MeteringType	Type of the metering point Cannot be changed in this dialog.

VALUES

Parameter	Description
Time period	Time range from relative values and absolute values that is to be displayed.
From	Start of the time query Clicking on the drop-down list opens a dialog to select the date and time. Note: Only the entry of dates from 1. 1. 2000 is possible. Calls before this date are not valid and are signalized by a red warning symbol. Default: Query time point - 2 h (rounded up to a full minute).
to	End of the time query Clicking on the drop-down list opens a dialog to select the date and time. Note: Only the entry of dates from 1. 1. 2000 is possible. Calls before this date are not valid and are signalized by a red warning symbol. Default: Query time point (rounded up to the next whole minute).
Load	Loads the archive files for the absolute and relative values for the selected time range and lists these individually in the list of archive entries.

Interpolate	Calculates the relative values in the range between two selected absolute values. Selection of start and end by clicking and pressing the `Shift key`.
Apply	Writes the changes that have been made into the archive.
Range	Value range of the relative value.
Min.	Minimum value of the relative value variable Cannot be changed in this dialog.
Max.	Maximum value of the relative value variable Cannot be changed in this dialog.

LIST OF ARCHIVE ENTRIES

This list is empty when the dialog is called up. After the query time has been entered and the Load button is clicked on, the list is filled with the archive entries that are found.

Parameter	Description
Time	Time of the archive entry. Format: `DD.MM.YYYY hh:mm:ss`
Absolute value	Absolute value of the archive entry. Note: Values that are transferred from a meter assignment, a meter replacement or a meter deletion are shown in green.
Relative value	Relative value of the archive entry.

CLOSE DIALOG

Parameter	Description
Close	Closes the dialog.

Subsequent editing of values

To edit values subsequently:

1. Select the desired metering point in the **Metering points** tab.
2. Click on the **Post-editing...** button.

   The post editing dialog is opened

3. Select a **time range**.

4. Click on **Load** to load the archive data for the absolute and relative values for the selected time range.

   The value entries that are found are shown in the list.

INTERPOLATE VALUES

There must be valid absolute values in order to be able to interpolate values.

1. Go to the list of archive entries and select the absolute values that you want to use for the calculation of relative values.

2. To do this, hold down the `Shift key` and select the start and end values that are to be used for interpolation.

3. Click on **Interpolate** to automatically calculate relative values between these.

   The new values are shown in the relative value column.

4. Click on the **Apply** button to transfer the newly-calculated relative values to the archive.

A dialog is called up if the start or end values for interpolation are not valid:
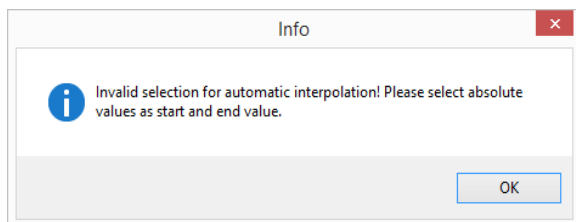
ENTER RELATIVE VALUES

1. Click on the list of the archive entries for the relative value that you want to change.

   The field to enter the relative value is unlocked.

2. Enter the desired new relative value.

   The entry is validated.
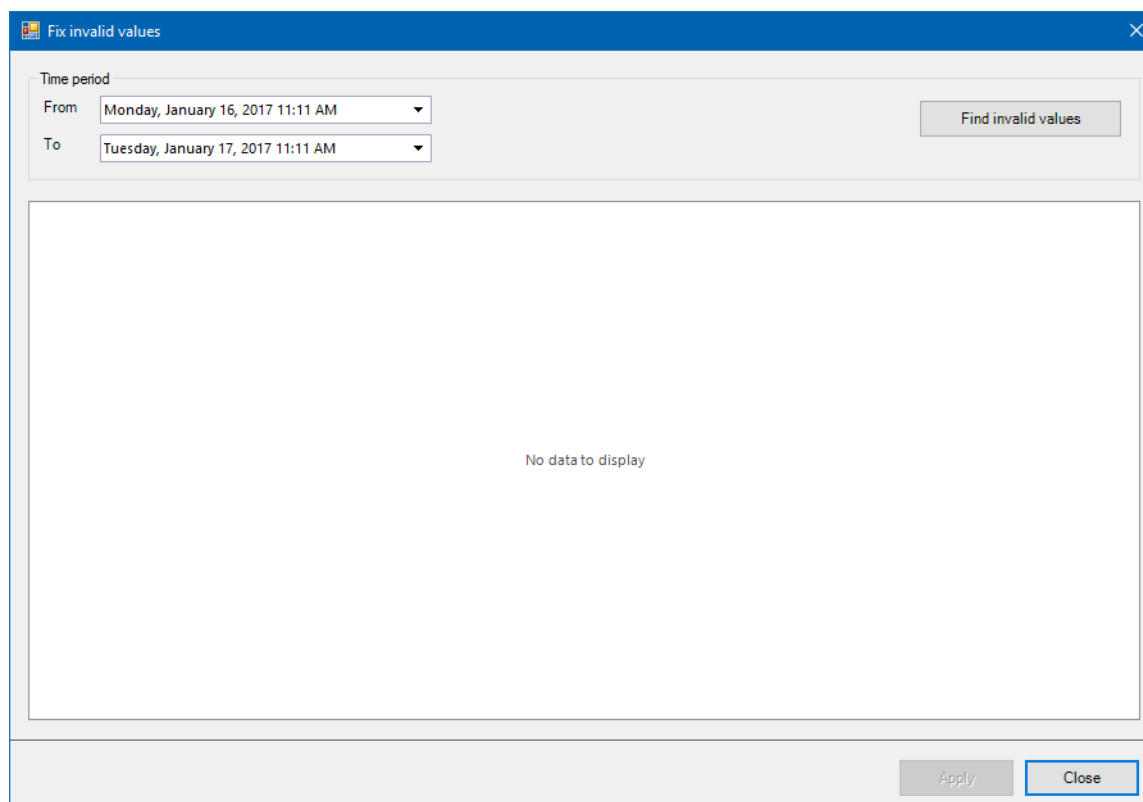
VALIDATION

If the value entered is outside the valid input range, it is not possible to complete the entering of the values in the input field. This is visualized with a red warning symbol at the start of the line. You can get other error details in the tool tip if you move the mouse over the warning symbol.

Note: empty value entries are not permitted. In this case, enter the figure 0.

Fix invalid values

Invalid values are determined, displayed and corrected in this dialog.

TIME PERIOD

The time range for the determination of invalid values is configured in this area.

Parameter	Description
From	Start of the time range to be examined.
	Selection from drop-down dialog or by direct input. Invalid entries are already corrected or suppressed during input.
	Format: `Weekday, dd. month YYYY hh:mm`
	Default: `1 day before calling up the dialog`
To	End of the time range to be examined.
	Selection from drop-down dialog or by direct input. Invalid entries are already corrected or suppressed during input.
	Format: `Weekday, dd. month YYYY hh:mm`
	Default: `Time the dialog is called up`
Search invalid values	Starts the search for possible invalid values for the specified time range.
	The progress is shown in a bar during the search. The search can be canceled by clicking on the Cancel button.
	Note: A value is invalid if the `18 [INVALID]` status bit is active for this. The relative value archive of the selected metering point is examined.
`List of invalid values`	List of entries found in the relative value archive with invalid values.
	Default: `Empty with display text "No data to display".`

FOOTER
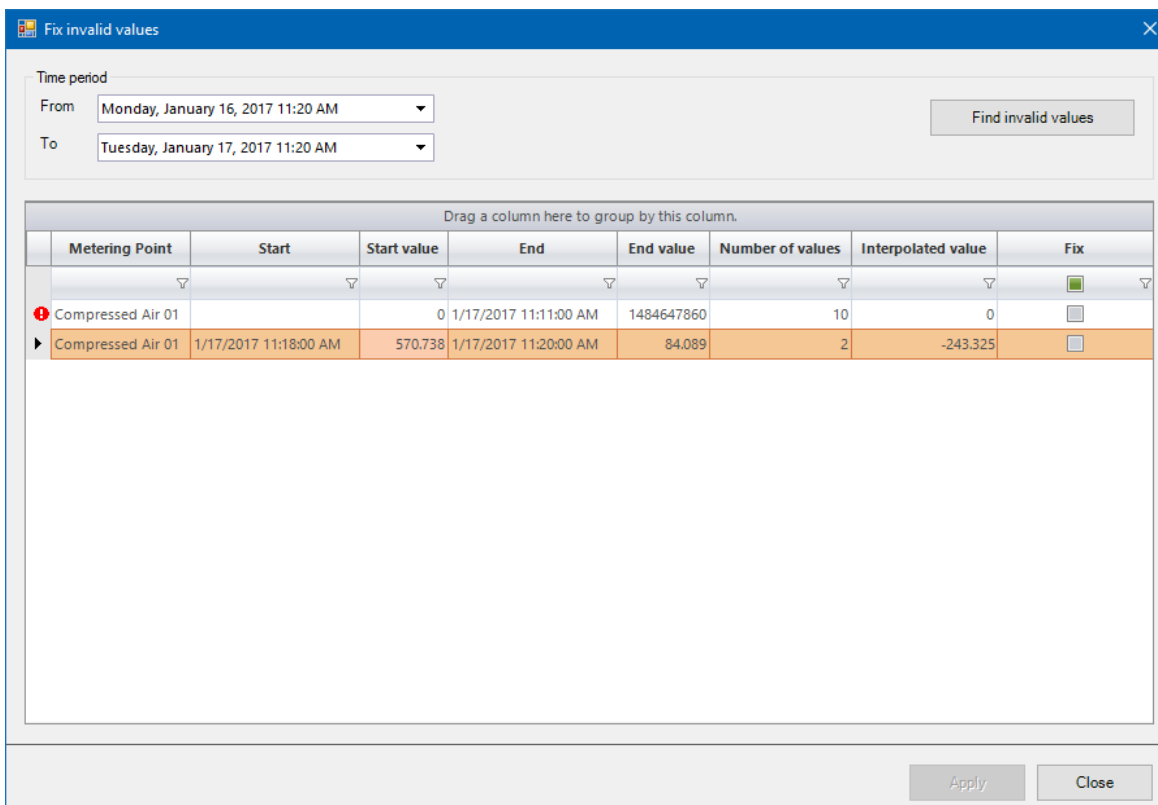
Parameter	Description
Apply	Starts the correction for the selected entries. Correction is visualized with a progress bar and can be canceled by clicking on the Cancel button.
	Correction overwrites the incorrect relative values in the archive.
	Note: Corrections are logged for each entry in the CEL.
	`Relative value correction for the metering point [metering point name]: Start [date], end: [Date], Relative value: [Relative value]`
	Not available if no value is selected for correction or correction is not possible for the selected value.

| Close | Closes the dialog. |

LIST OF INVALID VALUES

All invalid values are shown in this list.

▶ Consecutive incorrect values are compiled into one entry.

▶ Entries that cannot be corrected are marked with a warning symbol (red circle or exclamation mark).

▶ The possible reason for the prevention of automatic correction is visualized with a tool tip.

▶ The view of the list can be configured:

   • Move the display width by clicking on the hyphen in the column view and moving the divider.

   • Arrange the columns by means of clicking the mouse and Drag&Drop.

▶ The list can be sorted and filtered.

   • Sort by clicking on the column heading.

   • Filter by entering a filter term into the input field underneath the column heading.
     The filter criteria can be selected with the context menu

Parameter	Description
Metering Point	Name of the metering point.
Start	Time stamp of the last valid absolute value.
Start value	Last valid absolute value before an invalid value.
End	Time stamp of the first valid absolute value after an invalid value.
End value	First valid absolute value after an invalid value.
Number of values	Number of invalid relative values in the entry.
Interpolated value	Value that is written to the archive on correction.
Fix	Checkbox for the activation of automatic correction. Default: `inaktiv` Note: Clicking on the checkbox in the column header activates correction for all entries. Not available if correction is not possible for the entry (warning symbol).

TIME SELECTION DROP-DOWN DIALOG

Drop-down dialog to select the start time and end time for the determination of the invalid entries. Selection by means of mouse click.
Note: The drop-down dialog is only available in English.
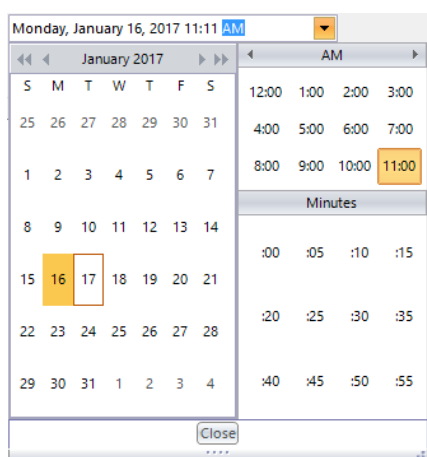
PROGRESS BAR

Progress bar when determining the correction of invalid values.
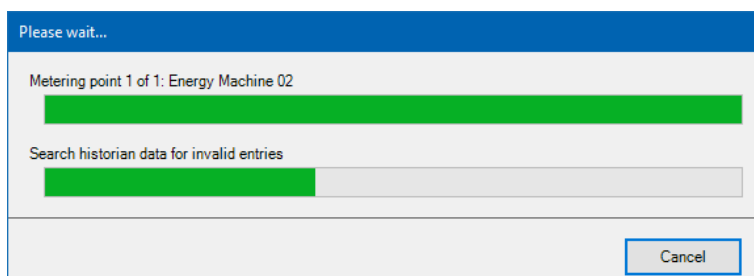
INVALID VALUES
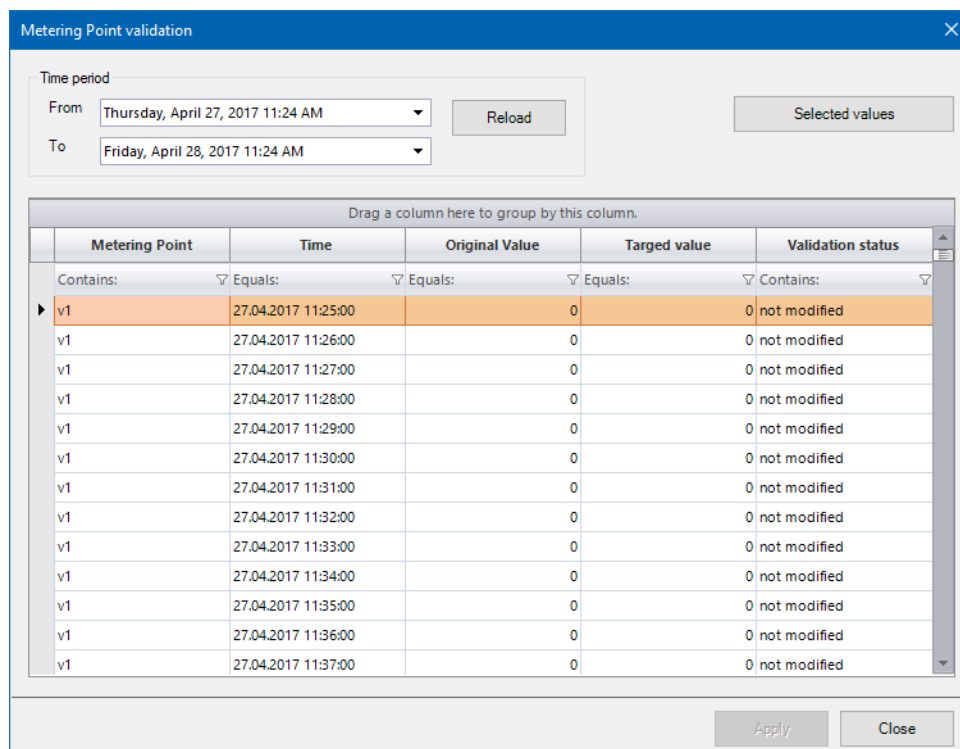
Visualization and tool tip for values that cannot be corrected.

Validation

In the **metering point validation** dialog, all archive values in the selected time range are shown for the configured metering point in a list.

The individual values can be confirmed and modified.

TIME PERIOD

Time filter for the display of variables from the archive.

Parameter	Description
From	Validation start time. Selection via D
to	Validation end time
Reload	Updates the list of values with the configured time range.

SELECTED VALIDATION

Clicking on the **Validate Selected** button sets the validation type to `confirmed` for all selected entries.

LIST OF VALUES

The list of values shows all archive entries of the archives configured for the metering point.

The list can be sorted and filtered.

▸ Click on a column heading to sort the list.

▶ Another click reverses the sorting order.

▶ Right clicking on a column heading activates the context menu for the configuration of filtering.

Parameter	Description
Metering Point	Name of the metering point as configured. Note: cannot be changed
Time	Time stamp of the archive value. Note: cannot be changed
Source value	Value from source archive. Note: cannot be changed
Target value	Target value as applied after validation: ▶ The original value from the source archive is entered by default. ▶ The target value is 0 if there is not yet any value in the archive. A new target value is entered: ▸ By double-clicking in the entry's target value cell ▸ By entering the target value in the cell manually. Input takes valid counter values into account. There is no check of the limit values. The validation type is amended to `manipulated` after the value has changed.
Validation type	Editing status of the value ▶ `Unedited`: Value has not yet been confirmed or amended. ▶ `Edited`: The target value has been amended. Note: Amended entries are shown in the list in blue. ▶ `Confirmed`: Value has been confirmed. Note: Confirmed values are shown in green in the list.

CLOSE DIALOG

Parameter	Description
Close	Closes the dialog. Before the closing process, a check is carried out to see whether all loaded values have been confirmed or processed. If there are values in the list that have not been confirmed or corrected (validation type: `unprocessed`), this is shown with a dialog.
Apply	Applies settings and writes amended values to the archive. For each value that is written to the target archive, a corresponding CEL entry is also created.

DIALOG - MISSING VALIDATION

Clicking on the **Close** button instigates a check for the `unprocessed` validation type. If there are still entries with the `unprocessed` validation type present, this is shown in a notice dialog.

Parameter	Description
OK	Closes the dialog. Attention: Values that have not been applied are thus not transferred to the archive.
Cancel	Returns to the **metering point validation** dialog. Further configuration can be carried out.

Validation - Operation in the Runtime

In order to validate entries of a metering point in Runtime:

▶ Go to the **Metering Points** tab:
A list of configured metering points is shown.

▶ Highlight the metering point with the `validation` action.

▶ Click on the **Validation** button:
The **metering point validation** dialog is opened.
Opening this dialog can take some time depending on the size of the archive entries. This loading process is shown.

▶ Validate the data:

• Modify the corresponding entries with new values.

- Confirm the existing entries for which no changes are necessary.
  To do this, use multiple selection and the **Validate selected** button.
  Individual entries can be confirmed by double-clicking in the **target value** line.

▶ Click on the **Apply** button to write your amendments to the target archive.
Successful saving of the data in the target archive is visualized with a green tick next to the button.
The status of an edited entry is set to manual value (**MAN_VAL**).

▶ Carry out further amendments.

▶ End the validation by clicking on the **Close** button.
Before closing the dialog, the list is checked for entries that have not yet been confirmed.

▶ The validation dialog is closed by clicking on the **OK** button.

> 🔆 **Information**
>
> Entries that have already been amended or transferred (validation type: `validated`) can be amended again. These get the `edited` validation type again after a change. Ensure that each change is transferred to the archive with the **Apply** button.

Filtering of meters by means of variable

You have the possibility to filter the list of metering points according to certain criteria. To achieve this, write a corresponding value to the filter variable (on page 354).

> 👍 **Hint**
>
> *You can define a filter string for each user and set this to the filter variable using a recipe when the user is logged in.*
>
> *You thus have each user only having the metering points that are relevant to them visible in the list.*
>
> *This filtering can also be used for more simple validation, in that all metering points that are not relevant to validation are removed from the filter and the remaining ones are automatically selected.*

The following is applicable for filtering:

▶ A filter can be defined for each column

▶ Individual filter strings are separated by **#**

▶ The divider within a filter string is an empty space

▶ The arrangement of the elements in the filter string is as desired

▶ All filtered entries are automatically selected with the **SelectAll** string

Structure of a filter string

Operator filter value column code

OVERVIEW OF COLUMN CODES AND OPERATORS FOR FILTERING

The following column codes and operators are available

OVERVIEW OF THE COLUMN CODES

Code	Column
na	Name
de	Description
lo	Location
mt	MeteringType
ca	Calculation active
mn	Meter name
md	Meter description
bh	Behavior
eq	Equipment groups

OVERVIEW FOR OPERATORS

The number or string can be chosen to be used as an operator.

Number	String
0	None
1	IsLike
2	IsNotLike
3	IsLessThan
4	IsLessThanOrEqualTo
5	IsEqualTo
6	IsNotEqualTo
7	IsGreaterThanOrEqualTo
8	IsGreaterThan
9	StartsWith
10	EndsWith
11	Contains
12	NotContains
13	IsNull
14	IsNotNull
15	IsContainedIn

EXAMPLES

Entry in the **Name** column contains the Com string:
Value of the filter variable: **na Contains Com**

Calculation active is set:
Value of the filter variable: **ca 5 True**

Entry in the **Behavior** column starts with Auto, automatic selection of the filtered entries:
Value of the filter variable: **bh StartsWith Auto#SelectAll**

Combination of all three filters:
Value of the filter variable: **na Contains Com#ca 5 True#bh StartsWidth Auto#SelectAll**

If a filter string contains invalid values, the other filter strings are nevertheless applied.

Counter

Meters are administered in Runtime in this tab.
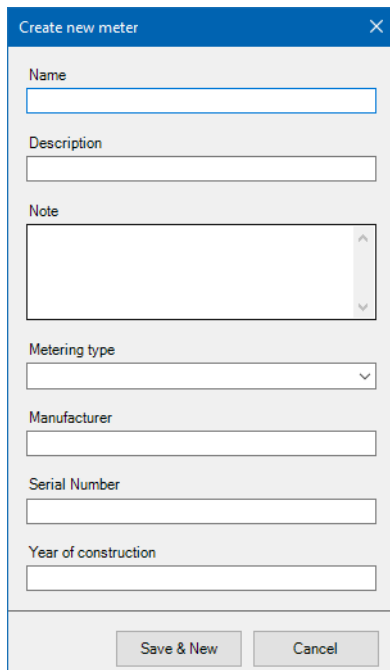
Parameter	Description
New (on page 358)	Opens the dialog to create a new meter.
Edit (on page 360)	Opens the dialog to edit the selected meter.
Delete (on page 360)	Deletes the selected meter.

LIST OF THE METERS

Parameter	Description
Name	Name of the meter that has been created.
Description	Description of the meter.
Manufacturer	Manufacturer of the meter.
Meter type	Meter type of the meter.
Serial Number	Serial number of the meter.
Comment	Note in relation to the meter that has been created.
Year of construction	Year of construction of the meter.

Create new meter

In this dialog (both in the wizard and in Runtime), meters are configured and existing project configurations are amended.

Parameters	Description
Name	Identification of the meter. `Mandatory field`
Description	Description for the meter. `Optional entry`
Note	Note in relation to the meter. `Optional entry`
MeteringType	Type assignment of the meter. Drop-down list with types that have already been configured. This drop-down list also corresponds to the type list for the creation of a new metering point. `Optional entry`
Manufacturer	Name of the manufacturer of the meter. `Optional entry`
Serial Number	Serial number of the meter. `Optional entry`
Year of construction	Year of construction of the meter. `Optional entry`

CLOSE DIALOG

Parameters	Description
Save & New	Saves the new meter. The dialog to create a new meter is then called up with empty content again. Other meters can be configured.
Cancel	Discards all changes and closes the dialog.

Note: Once the entries have been saved, a new entry is written to the database and the new entry is added to the list.

Configuration of a meter in Runtime

To create a new meter, proceed as follows:

1. Click on the **Meter** tab.

2. Click on **New**.

3. The dialog to create a new meter or amend an existing one is opened.

Create new meter	×
Name	
Description	
Note	
Metering type	
Manufacturer	
Serial Number	
Year of construction	
Save & New	Cancel

4. Enter the information about the meter.

Note: Incorrect entries are signaled by a red warning triangle next to the input field.

Edit meter

To edit a meter that already exists, proceed as follows:

1. Switch to the **Meter** tab.

2. Select the corresponding meter in the list of the configured meters.

3. Click on **Edit**.

4. The **Edit meter** dialog is opened.

5. Add any other desired information and administer the meter as you wish.

6. Click on **Save & Close**.

Delete meter

To delete an existing meter, proceed as follows:

1. Select a meter that you want to delete in the **Meter** tab.

2. Then click on the **Delete** button and confirm the warning dialog with **OK.**

3.   The meter you have elected is deleted.

Note: If a meter is already connected to a metering point, it cannot be deleted. The **Delete** button is grayed out in this case. To delete a meter that has already been assigned, it must first be deleted from the metering point or replaced in Runtime.

Metering Point Administration in the zenon network

If the **metering point administration** in Runtime is executed on a client and the primary server fails, the module is deactivated. A corresponding message is shown in zenon Runtime.

Entry of dialogs that are still open at the time of the server failure are ignored. This ensures that there is no inconsistent data between zenon archives / Chronological Event List and the metering point history.

The module is active again as soon as the primary server can be reached again.

zenon Logic components of metering point administration

The calculation of relative values with automatic metering points is implemented with the **Calculate relative value** setting active with zenon Logic.

Necessary configurations are automatically applied by the **metering point administration**. You can find information about these automated steps in the **Summary** (on page 344) tab of the `Metering Point Administration` wizard in zenon Editor. You are informed of any problems that occur in this tab.

Check for open zenon Logic Workbench

When starting the **Metering point Administration** in the zenon Editor, a check is first made to see whether zenon Logic Workbench is open. To avoid incorrect configurations, you are requested to close zenon Logic Workbench if it is open. The wizard cannot be started if Workbench is open!

Note: This dialog is only available in English.
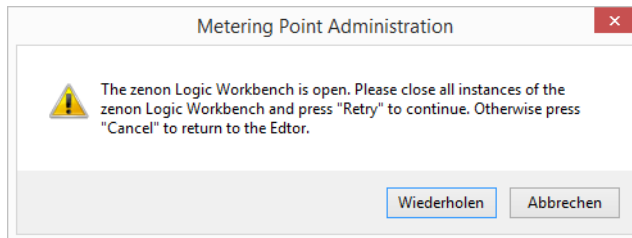
Parameter	Description
Wiederholen	Another check for open zenon Logic Workbench. If zenon Logic Workbench is not open, the wizard is loaded.
	If zenon Logic Workbench is still open, the error dialog appears again.
Abbrechen	Cancels the opening of the metering point administration.

zenon Logic project configurations for metering point administration

When creating automatic metering points with the **Calculate relative value** setting activated, the following actions are carried out in the background:

CREATION OF A DRIVER

1. Typ STRATONNG

2. Name: MeteringPoint

3. Amendment of the driver settings

   a) Host: localhost

   b) Port: 14731
   The port number is increasing by 1 for every loaded project if there are many projects in the workspace.

CREATION OF A ZENON LOGIC PROJECT

1. Name: MeteringPoint

2. Host: localhost

3. Port: 14731
   The port number is increasing by 1 for every loaded project if there are many projects in the workspace.

CREATION OF A PROGRAM IN THE ZENON LOGIC PROJECT FOR THE CALCULATION OF RELATIVE VALUES

Name: `RelativeValueCalculation`

Once configuration has been completed, the zenon Logic project and the zenon project are compiled.

The zenon Logic Workbench must be closed during the configuration of a metering point in the wizard. If there is a problem, a corresponding warning message appears in the Summary of the wizard (on page 344).

> ⚠ **Attention**
>
> All manual changes to the **MeteringPoint** driver, as well as the changes to the zenon Logic `MeteringPoint` project (including `RelativValueCalculation` program) can lead to automatic relative value calculation no longer working.

Apply changes in zenon Logic

Changes to the configuration of metering points can lead to changes in the zenon Logic Program (on page 399).

These changes are not applied in zenon Runtime by reloading. The current zenon Logic program is only loaded when Runtime is restarted.

> 📑 **Example**
>
> Change to the cycle time of an existing archive.
>
> In order for correct calculations to take place for a metering point with calculated relative values (**Calculate relative value** property active), zenon Runtime must be restarted.

VACO function block

The VACO function block in zenon Logic carries out the calculation of relative values.

When creating automatic metering points with the **"Calculate relative value"** setting activated, an instance of the function block is created in the zenon Logic program `RelativValueCalculation` for the corresponding metering point. If an automatic metering point with activated relative value calculation is deleted or the relative value calculation for an automatic metering point is deactivated, the attendant project configurations (variables and lines of code) are removed in zenon Logic.

PROGRAMMING - SOURCE CODE

```
//Instance for Metering Point MessstellenName

VACO_MessstellenID(ANY_TO_LREAL({AbsolutVariablenName}),INT#1,{FunktionsTriggerVariabl
enName},T#5s,FALSE,0.0);

{RelativVariablenName}:=ANY_TO_DatenTypRelativVariable(VACO_0001);

{ArchivTriggerVariablenName}:=VACO_MessstellenID.TA;
```

ArchivTrigger function block

The ArchivTrigger function block carries out the necessary calculations (in the background) in order to trigger cyclical archives with the configured cycle time.

If the project configuration of a cyclical archive for the metering point administration in zenon is changed, the zenon Logic program is automatically updated after the wizard is opened.

PROGRAMMING - SOURCE CODE

```
//Instance for Trigger RE

Trigger_RE(ULINT#1420066800,ULINT#900,ULINT#28800,False,False,False);

OUT_TF_RE:=Trigger_RE.TF;
```

3.6   Pharmaceutical

Wizards for the pharmaceutical industry.

3.6.1   Pharmaceutical Wizard

The pharmaceutical wizard enables the management of validated projects for the pharmaceutical industry. It summarizes the relevant settings necessary for a Good Manufacturing Practice (GMP) project. These settings can be managed and changed in the wizard. The settings are loaded into the wizard either via an existing project or via a configuration files.

The following settings are managed:

- ▶   General project settings
- ▶   User Administration

- ▶ User Groups

- ▶ Settings for the Chronologic Event List

- ▶ Settings for the Alarm Message List

- ▶ XML template

Engineered settings in the wizard can be:

- ▶ written back to the active project

- ▶ saved in a new project

- ▶ saved to a special configuration file
  These configuration files created in the wizard can be used over and over again and can be enhanced. However they can be only read and edited with the wizard.

Starting the wizard

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.
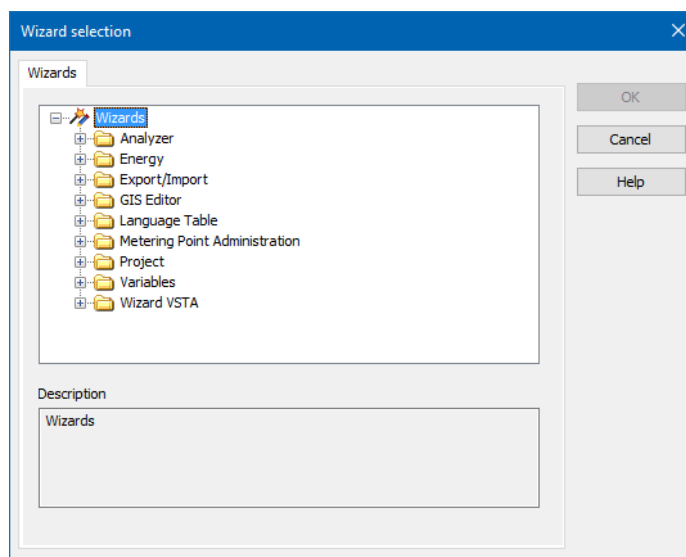
2. Select the folder **Pharmaceutical**.

3. There select the **Pharmaceutical Wizard**

4. Click on **OK**.

   The wizard starts with the welcome page (on page 404).

Welcome

The tab **Welcome** informs you about performance and use of the wizard.
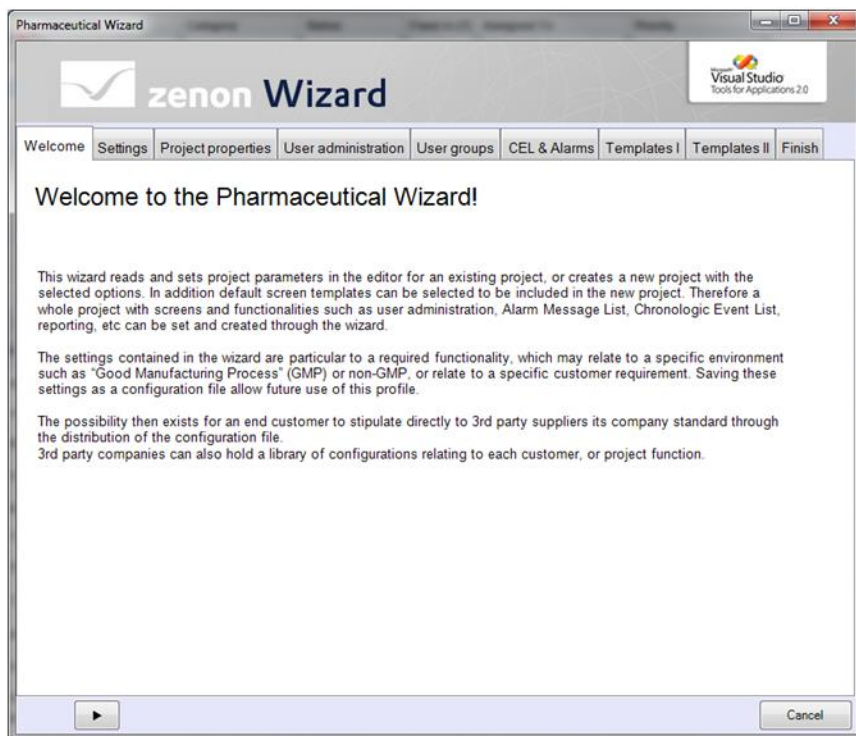
The navigation through the wizard is done by clicking on the individual tabs or step by step by clicking on the arrow keys.

Click on **Cancel** to close the wizard. All changes made to a file or project since the last saving are discarded.

Settings

In this tab:

▶   Settings are loaded

▶   Project descriptions are adapted

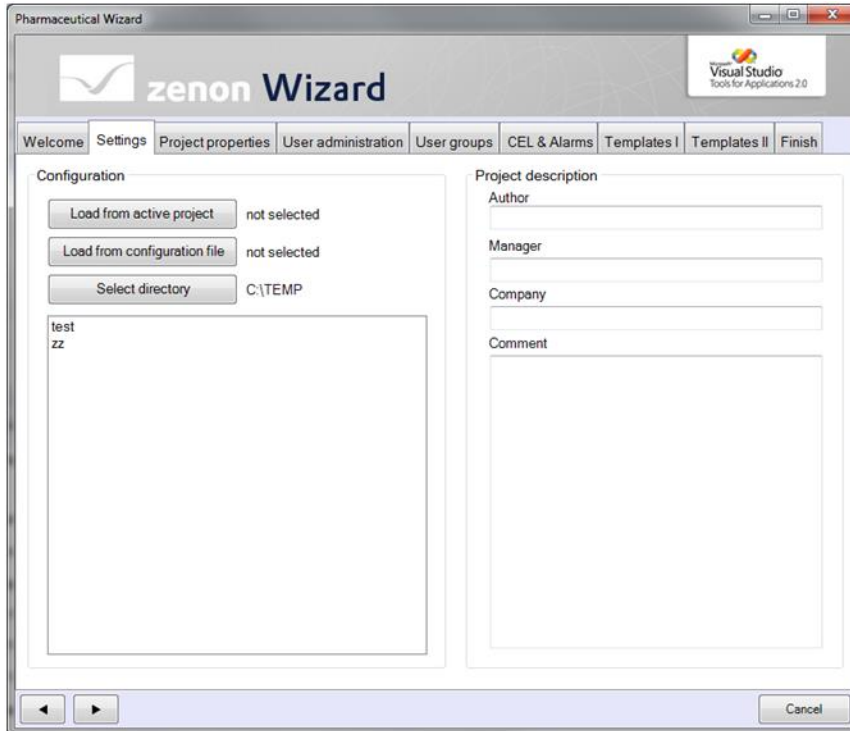| Parameter	Description
Configuration	Definition which project is edited.
Load from active project	Loads the settings of the active project in the workspace into the wizard.
Load from configuration file	Loads data from a saved configuration file (`*.cof`). The file is selected from the list. The list displays all available configuration files in the selected folder (**Select directory**). Info: The configuration files can only be read, created and edited with the wizard.
Select directory	Opens file selection dialog in order to select the folder in which the desired configuration files (`*.cof`) are available. They are displayed in the list below the button.
Templates	Settings for XML and XRS templates.
Project description	Information about the project as defined in property **Project description** of the dialog. It is taken over by the loaded project and can be edited. For checking purposes all changes are displayed on tab Finish (on page 429).
Author	Author of the project.
Manager	Project manager.
Company	Company.
Comment	Comment.

Project properties

Settings for:

- ▶ Network
- ▶ Authorization in the network

▶   History of Changes

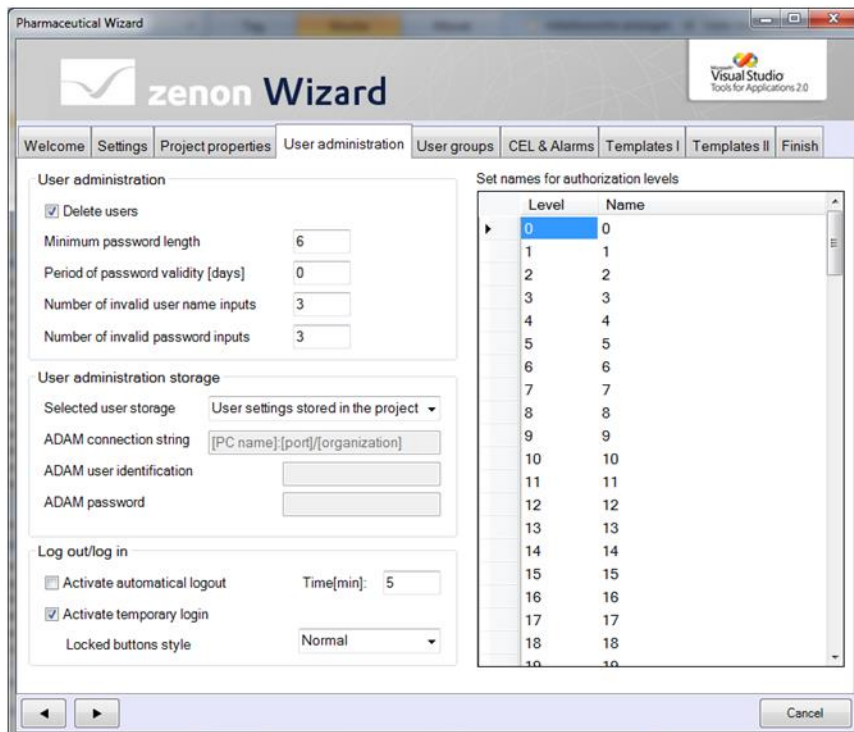| Parameter	Description
Network	**Network** Properties for use of the project in a network. More in the online help.
Active	**Network active** ▶ `Active:` The project is used as a network project. A server must be defined. ▶ `Inactive:` The project is a standalone project. Default: `Inactive` More in the online help.
Server name	**Server 1** Only available if property **Network active** is active. Computer which establishes the connection to the hardware for network projects and which manages the project data. The clients connect to this computer. Clicking on **...** opens the dialog with a list of the computers available in the network. Hint name: The IP address is not sufficient; the name of the computer must be entered. **"localhost"** must not be used as name. If the name is changed, it cannot be reloaded. It is updated only after the Runtime has been restarted. More in the online help.

Standby name	**Server 2**
	Only available if a computer has been specified in **Server 1** property.
	Clicking on **...** opens the dialog with a list of the computers available in the network. This computer takes over the role of the server in redundant systems in the event of a primary server failure. The failure is detected if the Primary Server does not react in the time defined in the **Network communication timeout** property in the **Startup Tool**. An own buffer in the Standby bridges the downtime between server loss and switch thus preventing data loss.
	Hint name: **"localhost"** must not be used as name. If the name is changed, it cannot be reloaded. It is updated only after the Runtime has been restarted. Attention: Primary Server and Standby Server must have identical system times. More in the online help.
Redundancy type	**Redundancy type**
	Only available if a computer has been specified in property **Server 2**.
	zenon supports two types of redundancy:
	▶ `Software redundancy`: The system consists of one PLC and two redundant control system computers. Both computers must have a connection to the PLC. Both computers communicate with the control and at the same time keep the data from the control updated. The communication to the control is managed by the computer which is the server. The server communicates bidirectionally, the standby communicates unidirectionally. If the Server crashes, the Standby Server takes over the bidirectional communication with the PLC.
	▶ `Hardware redundancy`: The system consists of two redundant PLCs and two redundant control system computers. Each server communicates bidirectionally with one PLC. Both computers and both PLCs are synchronizing their data. If one component in the first system crashes, the second system takes over.
	Default: `Software redundancy`
	More in the online help.

Network authorization	Operating authorization
	Properties for the operating authorization in the network.
	More in the online help.
Active	**Bedienberechtigung aktiv**
	Only available if property **Network active** is active. The authorization in the network makes sure that in the network only one station at a time can carry out active operations (e.g. change set values). Passive, reading access is always possible regardless of the option.
	▶ `Active:` Only one computer can operate the project at a time (e.g. acknowledge alarms, write set values).
	▶ `Inactive:` Several computers can operate the project at the same time.
	Default: `Inactive`
	More in the online help.
Timeout for request [s]	**Timeout for request [s]**
	Only available if, for the **Operating authorization in the network** property, `Global operating authorizations` or `Operating authorization via equipment model` has been selected from the drop-down list. If the operating authorization in the network is blocked by a station, it can be requested by another computer. Within the time limit defined here the request must be answered. After the time expires without an answer, the requesting station automatically receives the authorization.
	Default: `60 Seconds`
	More in the online help.
Timeout for acknowlewdgement [s]	**Timeout for operating authorization [s]**
	Only available if the **Operating authorization in the network** property has been configured. Within this time period, the computer (client) that has the operating authorization must report to the server. If this does not happen, the authorization is released automatically. Attention: This value must be smaller than the time defined in property **Timeout [s]**.
	Default: `60 seconds`
	More in the online help.

History of changes	**History of Changes** Properties for the history of changes. More in the online help.
Active	**History of changes active** `Active:` Changes to the project are also logged. `Inactive:` Changes to the project are not logged. Default: inactive. More in the online help.
Detailing level	**Detailling level** Only available if the **History of changes active** property has been activated. Selection of details levels from drop-down list. ▶ `Object`: Only the object names of the changed objects are logged. Details concerning properties and their values are not displayed in the History of changes. ▶ `Properties`: Additionally to the object names the changed properties and the new values are displayed in the history of changes. ▶ `Value changes`: This setting causes the most detail level of logging. Not only the new value of a property is displayed but also the old one. This makes complete traceability of the changes of values possible. Default: `Object` Note: Amended values are cut to a length of `128 characters`. More in the online help.

User administration

Settings for the user administration:

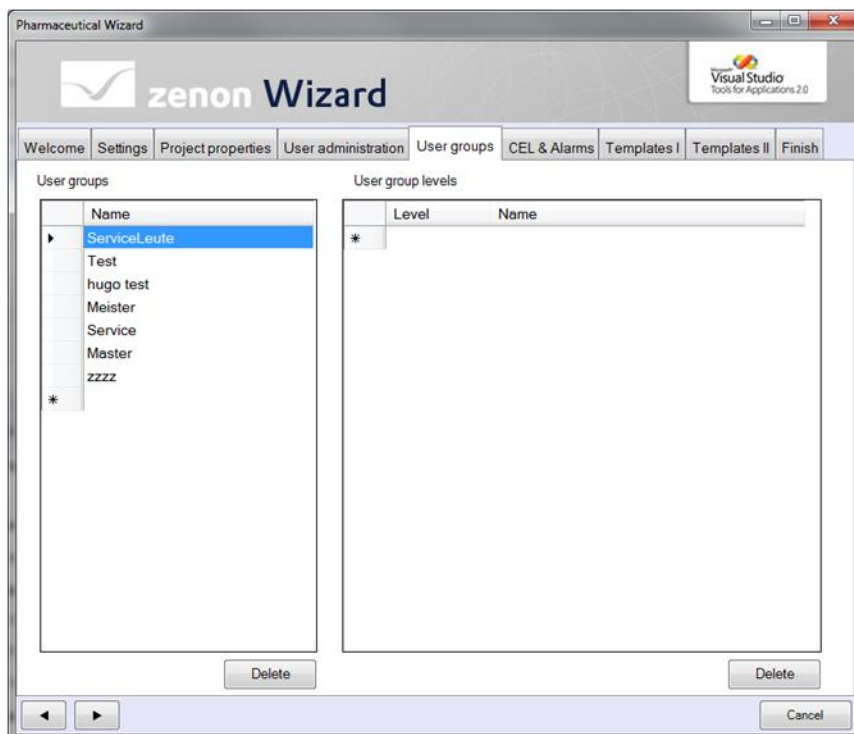| Parameter	Description
User administration	**User Administration** Project-related properties for user administration. More in the online help.
Delete users	**Deleting users** ▸ `Active:` Deletion of a user in Runtime is permitted. ▸ `Inactive:` Users can only be marked as deleted. The users remain in the list of users, but are no longer valid for operation in Runtime (in accordance with FDA guidelines). Default: `active` More in the online help.
Minimum password length	**Minimum password length** Minimum length of the password in characters. ▸ Minimum: `0` ▸ Maximum: `20` Default: `6` More in the online help.
Period of password validity [days]	**Password - period of validity [d]** Enter a time period (in days) defining how long a password should stay valid. After the time expired, you must enter a new password. ▸ **Minimum**: `0` - The password never expires and need not be renewed. For this setting the value `2147483647` is written to system driver variable "**Days until password expires**". ▸ **Maximum**: 4294967295 **Default**: `0` Attention: For productions according to the FDA guidelines entry `0` is not allowed as the rules of the FDA demand a cyclic change of the password. More in the online help.
Number of invalid user name inputs	**Max. user error**

	Number of permitted entries of a non-existent user name. The system is blocked if this number is exceeded. With the exception of administrators, no more users can log on. The system is automatically unlocked after an administrator logs on. A corresponding entry is made in the Chronological Event List (CEL). Changes to this value are only effective in Runtime after restarting. ▸ Minimum: 0 ▸ Maximum: 65535 Default: 3 More in the online help.
Number of invalid password inputs	**Max. password error** Number of incorrect password entries. The corresponding user is blocked if this number is exceeded. The block can only be lifted by an administrator. A corresponding dialog is created in the Chronological Event List (CEL). ▸ Minimum: 0 ▸ Maximum: 65535 Default: 3 More in the online help.
User administration storage	Saving the user administration
Selected user storage	Select where you want to save the user administration: ▸ Project ▸ Active Directory (AD) ▸ Active Directory Application Mode (ADAM)
ADAM connection string	**AD LDS connection** Connection path to ADAM or AD LDS. You must enter the connection path in the following form: **[PC name]:[port]/[organization]** Example: **w3k:50000/O=800,c=com** More about the AD LDS in the online help.

	More about ADAM in the online help.
ADAM user identification	**AD LDS user name** User name of a local user of the ADAM/AD LDS computer with administrator rights. More about the AD LDS in the online help. More about ADAM in the online help.
ADAM password	**AD LDS password** Password of the local user of the ADAM/AD LDS PC. More about the AD LDS in the online help. More about ADAM in the online help.
Log out/log in	Properties for log in and log out.
Activate automatical logout	**Activate automatical logout** ▸ `Active`: The user is automatically logged out if there is no operation for the time period defined in the **Time [min]** property. ▸ `Inactive`: The user is not automatically logged out by the system. Default: `Inactive` More in the online help.
Activate temporary login	**Temp. login active** Activation of temporary login for users who want to operate an element but are not logged in: ▸ `Active`: A user who needs operating authorization is requested to enter their identification and password. To do this, the `login` screen or a modal dialog is called up, depending on the configuration. The user is automatically logged out again immediately after the operation ▸ `Inactive`: The user who needs operating authorization is informed that they are not entitled to carry out this operation. Default: `active` Note:

	▶ You can define the position and size of the modal dialog in the **zenon6.ini** file at **[Befehlsgabe]** **Position** =.
	▶ The `login` screen can be used instead of the modal dialog. This is defined with the **Screen for Login with signature** property.
	More in the online help.
Locked buttons style	**Locked buttons** Only available if the property is **Temp. login active** `inactive`. Defines the look of buttons that are locked due to the configuration of the authorization. Is combined in the Runtime for the operation of keys with property **Interlocked buttons** (graphical design). Possible formats: ▶ `Grey` ▶ `Normal` ▶ `Invisible` Default: `Normal` More in the online help.
Set names for authorization levels	Conforms to property **Rename authorization levels**. You can assign a name to each of the 128 authorization levels. Click in the right-hand column in order to enable the renaming.

User groups

On this tab you assign authorization levels to user groups.

Parameter	Description
User groups	List of user groups
User group levels	List of the authorization levels
Delete	Deletes selected object without confirmation message.

Click on a user group in order to show its authorization level. Clicking on the level allows the editing of the authorization level. The name is automatically adapted. Click on an empty level to insert a new authorization level.

When clicking on **Delete** , you can delete both the groups and the assigned authorization levels. At deleting no confirmation message is displayed.

CEL & alarms

Configuration of the Chronological Event List and the Alarm Message List.

Parameter	Description
Chronlogic Event List and Alarm Message List	**Chronological Event List** Properties for administration of the Chronological Event List (CEL). More in the online help.
CEL active	**CEL active** ▶ `Active:` The Chronological Event List (CEL) is active in the Runtime. Events are recorded and the CEL is available. ▶ `Inactive:` No event are recorded. Default: `active` Note: Changes take effect after the Runtime has been restarted. More in the online help.
Update automatically	**Update automatically** Only available if property **CEL active** is active. ▶ `Active:` During the time the CEL is open in Runtime, amended events are immediately added when they occur. ▶ `Inactive:` Whilst the CEL is open, amended entries are only added each time before a value is written to the PLC. In doing so, the value that was in the PLC before writing is entered as the actual value in the CEL. The new entries are added when the CEL is opened the next time. Default: `active` More in the online help.
Print system messages	**Print system messages** `Active:` At online printing system messages are also printed. `Inactive:` At online printing system messages are not printed.

	Default: `active`
	More in the online help.

Long dynamic limit texts CEL	Long dynamic limit value texts CEL
	Determines whether the comment field for dynamic limit value texts is available. The dynamic limit value allows you to include the current values of other variables in the limit value text of a variable. ▸ `Active:` Dynamic contents will be stored in a file with the file format **D*.CEL**. It will be stored in addition to the file **C*.CEL**. The comment filed can therefore been used for comments. Dynamic limit value texts can have a maximum length of `1024 characters`. ▸ `Inactive:` The comment field is used for dynamic limit value texts and is therefore not available for comments. Maximum length: `80 characters`. Default: `Inactive`. More in the online help.
Signature text editable	Signature text editable
	`Active:` A dialog to edit the signature text is opened in Runtime. `Inactive:` The signature text cannot be changed in Runtime. Default: `Inactive` More in the online help.
Data storage CEL	Data storage CEL
	Properties for saving Chronological Event List entries (CEL) in the main memory and to the hard drive. More in the online help.

Size of the ringpuffer	Size of the ring buffer
	Only available if property **CEL active** is active.
	Size of the CEL ring buffer. If the ring buffer overflows (cel.bin), the the superfluous entries are removed. Tthe ring buffer can be saved manually via the **Save ring buffer on change** property
	▸ Minimum: `1`
	▸ Maximum: `32767`
	Default: `100`
	Note: In the Runtime it is possible that more entries are displayed than you engineered as old entries are only removed from the CEL when the list is updated.
	More in the online help.
Save CEL data	**Save CEL data**
	Only available if property **CEL active** is active.
	▸ `Ring buffer and historic data:` All CEL entries (*.cel) are saved.
	▸ `Only ring buffer:` Only a defined number of CEL entries (cel.bin) is saved. The number is defined via property **Size of the ring buffer**.
	▸ `Default:` On CE devices only the ring buffer (**cel.bin**) is saved on the hard disk; on PCs the historic entries (***.cel**) are also saved.
	Default: `Default` The files (cel.bin and *.cel) are saved in `folder\project folder\computer name\project name`.
	More in the online help.

Save ringpuffer on change	Save ring buffer on change
	Selection of the type of data saving: ▷ `Active`: Each change of the data of the Chronological Event List (CEL) triggers the saving of the data (**cel.bin**). ▷ `Inactive`: Data of the CEL (**cel.bin**) are only when the Runtime is closed or when function Save AML and CEL ring buffer is executed. Recommended especially for low performance. Historic data (***.cel**) can be saved independently at every value change. Note: If the property is set to `active`, this can lead to a considerable load being placed on the system - with flash disks most of all. If the property is set to `inactive`, this can lead to data being lost in the event of Runtime closing unexpectedly. `Inactive` Recommended especially for low performance. Default: `Inactive` More in the online help.
Logging	Logging General properties for the Chronological Event List (CEL). More in the online help.
Alarm acknowledgement	Alarm acknowledgement Only available if property **Alarm Message List active** is active. `Active`: If an alarm is acknowledged, an entry is created in the Chronological Event List (CEL). `Inactive`: Acknowledging an alarm does not trigger an entry in the CEL. Default: `Inactive`. More in the online help.

| Function Set SW	Function Write set value
	Only available if property **CEL active** is active. ▹ `Active`: At successful writing of values to the hardware, a corresponding entry is entered in the CEL. ▹ `Inactive`: The successful writing of values is not logged in the CEL. Default: `Inactive` Note: This setting only has an effect on Runtime if the writing of the set value is carried out using the **Write set value** function. More in the online help.
Send recipes	**Send recipes** Only available if property **CEL active** is active. ▶ `No logging`: The changing of standard recipes and recipes of the Recipegroup Manager (RGM) is not logged in the CEL. ▶ `Log recipes`: When sending a recipe, it is logged with the name of the recipe in the CEL. ▶ `Log recipes and values`: When writing a recipe, it is logged in the CEL with: • Name of the recipe • New and old values of the variables • Names of the variable Default: `no logging` More in the online help.

Change recipes	**Change recipes** Only available if property **CEL active** is active. ▶ `No logging:` The changing of standard recipes and recipes of the Recipegroup Manager (RGM) is not logged in the CEL. ▶ `Log recipes:` When changing a recipe, it is logged with the name of the changed recipe in the CEL. ▶ `Log recipes and values:` The following is logged in the CEL when the recipe is changed: • Name of the recipe • New and old values of the variables • Names of the variable Default: `no logging` More in the online help.
Alarm groups	Alarm/event groups
Add	Adds the character string entered in the input field as new alarm/event group. Adding can also be carried out via key `Enter.`
Remove	Deletes highlighted alarm/event group.
Alarm classes	Alarm/event classes
Add	Adds the character string entered in the input field as new alarm/event class. Adding can also be carried out via key `Enter.`
Remove	Deletes highlighted alarm/event group.

Templates I

On this tab you can edit the following elements:

▶ Screens

▶ Data Types

▶ Color Palettes

▶ Reaction Matrices
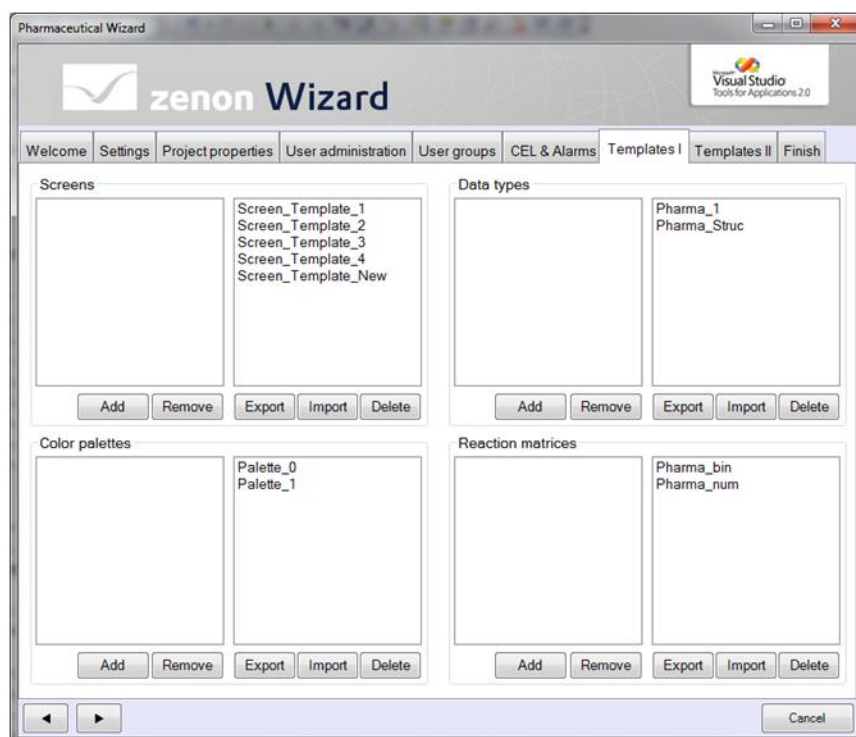
In each right-hand list the XML files, which exist in the current configuration file for the element, are displayed and edited.
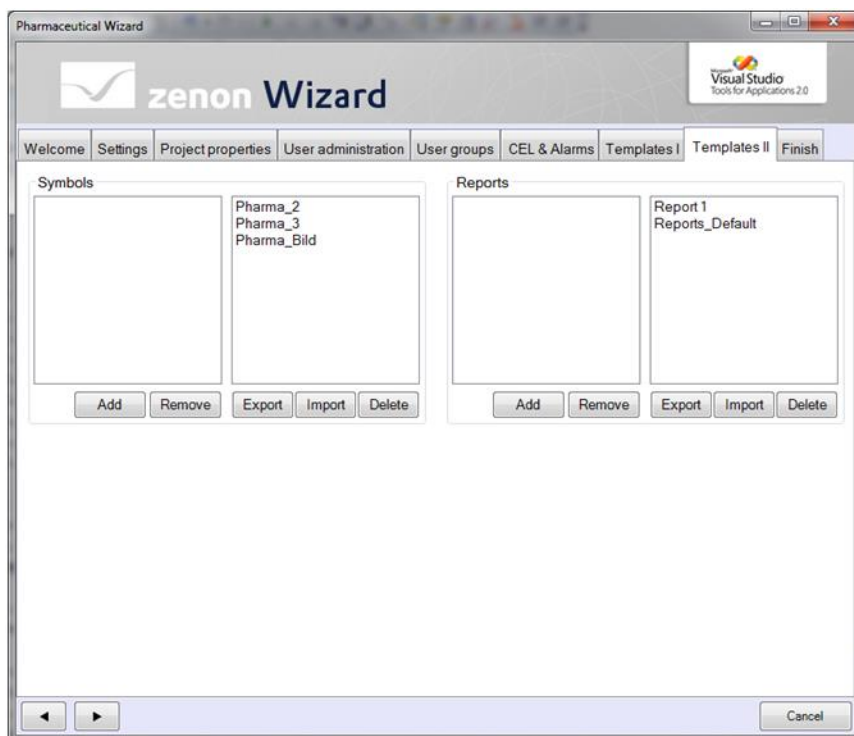
Buttons	Function
Right-hand list	
Export	Opens the dialog for exporting XML files which were created in the Editor via command **Exported selected XML**.
Import	Opens the dialog for importing XML files which were created in the Editor via command **Exported selected XML**.
	Import is into the following folder: `%ProgramData%\COPA-DATA\zenon8.00\Templates\PharmaWizard`
Delete	Deletes XML files that have been created in the Editor using the **Export selected XML** command.
Left-hand list	
Add	Adds templates from the left-hand list. As an alternative you can also carry out a double click on the template.
	Saving to the current project or to another project is carried out on tab Finish (on page 429).
Remove	Removes template from the list.

Templates II

On this tab you can edit the following elements:

▶   Symbols
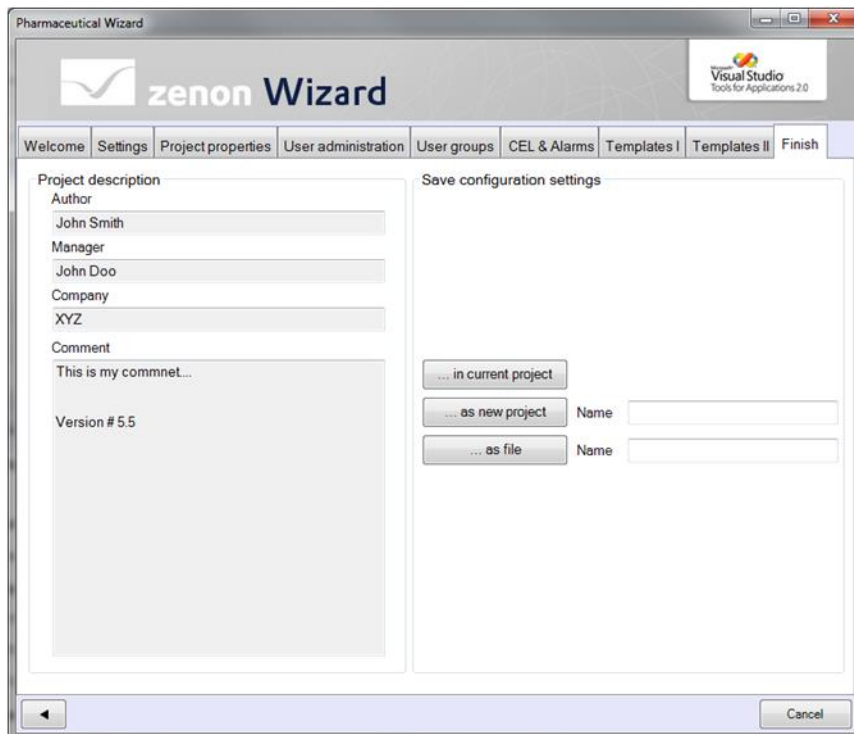
▸ Reports from the Report Generator

In each right-hand list the XML files, which exist in the current configuration file for the element, are displayed and edited. Reports are saved as XRS files.

Buttons	Function
Right-hand list	
Export	Opens the dialog for exporting XML files which were created in the Editor via command **Exported selected XML**.
Import	Opens the dialog for importing XML files which were created in the Editor via command **Exported selected XML**. `C:\\ProgrammData\COPA-DATA\zenon8.00\Templates\PharmaWizard.`
Delete	Deletes XML files that have been created in the Editor using the **Export selected XML** command.
Left-hand list	
Add	Adds templates from the left-hand list. As an alternative you can also carry out a double click on the template. Saving to the current project or to another project is carried out on tab Finish (on page 429).
Remove	Removes template from the list.

Finish

In this tab:

▶ the project description is entered

▶ you define how the changed engineering is saved

Parameter	Description
Project description	Information about the project as defined on tab Settings (on page 404). Display only, cannot be changed.
Author	Name of the engineer.
Manager	Name of the manager.
Company	Company.
Comment	Comments to the project.
Save configuration settings	Options for saving changes done by the wizard.
Message field	Messages about success/failure of save actions.
... in current project	All settings are loaded in the current project. With this the settings in the project are overwritten.
... as new project	A new project is created with the defined settings and the selected frames. You must first select a project name.
... as file	A new configuration file of file name *.cof is created. If the name of an existing configuration file is used it is overwritten. Attention: The created configuration files can only be read, created and edited with the wizard.
Name	Name of the configuration file.

3.7　Project

Wizards for:

▸　Project creation (on page 443)

▸　the compare of project backups (on page 430)

▸　the creation of a project documentation (on page 467)

3.7.1　Project comparison

The wizard makes it possible to compare project backups. At this it is analyzed which objects and elements were deleted, added or changed. The result can be saved and displayed as XML or HTML file.

REQUIREMENTS

The wizard can read in and compre project backups which:

- ▶ were saved as zip file

- ▶ were created with activated versioning

- ▶ were created with activated XML export

To activate versioning and XML export:

1. Open the **General** node in Project Properties.

2. Go to the   section **Versioning**.

3. Activate the **Versioning active** property.

4. Activate the **XML export active** property.

TEMPORARY FILES

During the compare the wizard unzips the project backup in the temporary fodler
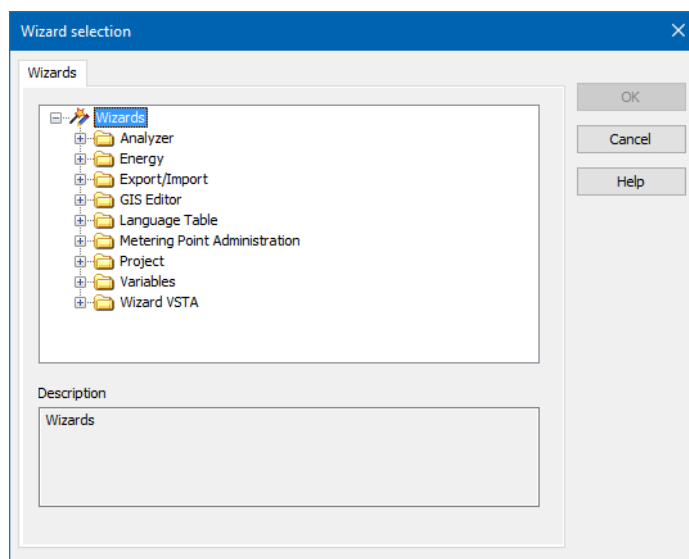`BackUpComparisonWorkingFolder`. It is created in path
`C:\Users\Public\Documents\zenon_Projects\Worspace`. This temporary folder is
deleted when the wizard is closed.

Starting the wizard

To start the wizard:

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

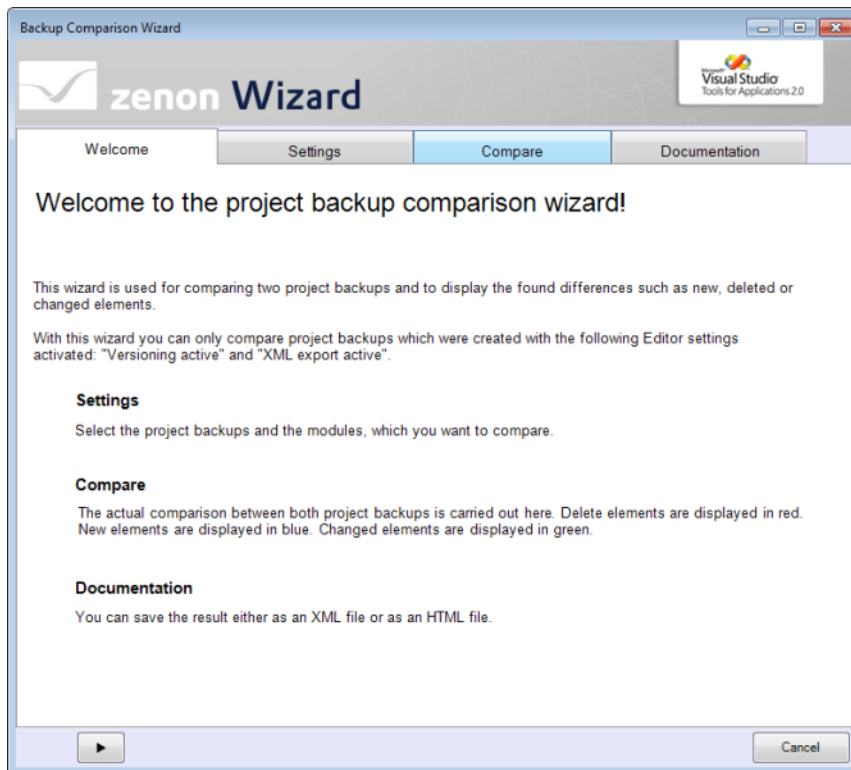The selection window with the available wizards opens.

2. Select the folder **Project**.

3. There select the **Backup Comparison Wizard**

4. Click on **OK.**

   The wizard starts with the welcome page (on page 433).

Welcome

The tab **Welcome** informs you about performance and use of the wizard.
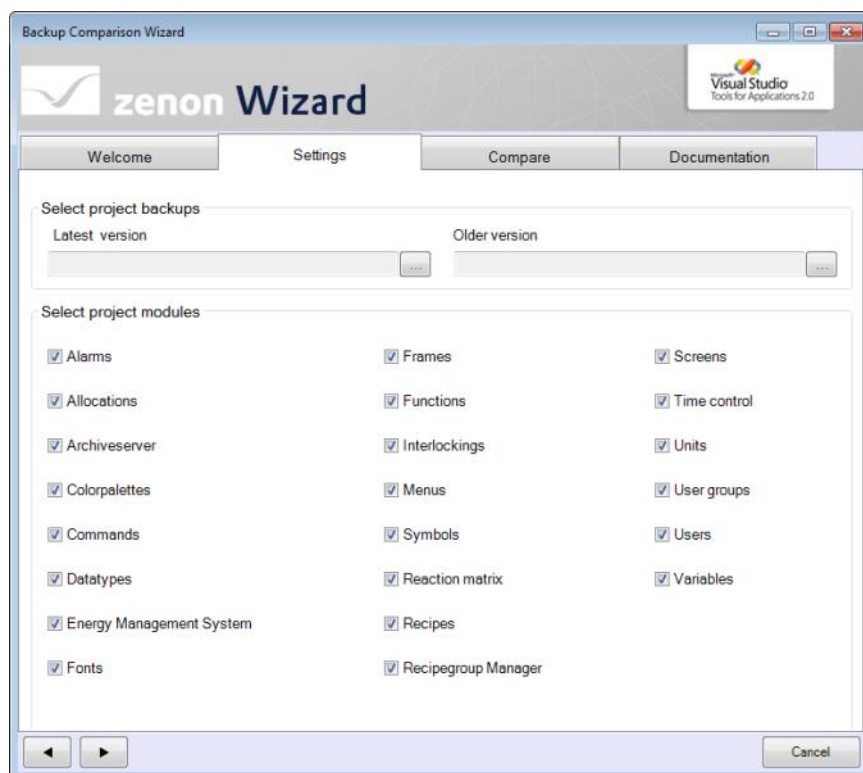

The navigation through the wizard is done by clicking on the individual tabs or step by step by clicking on the arrow keys.

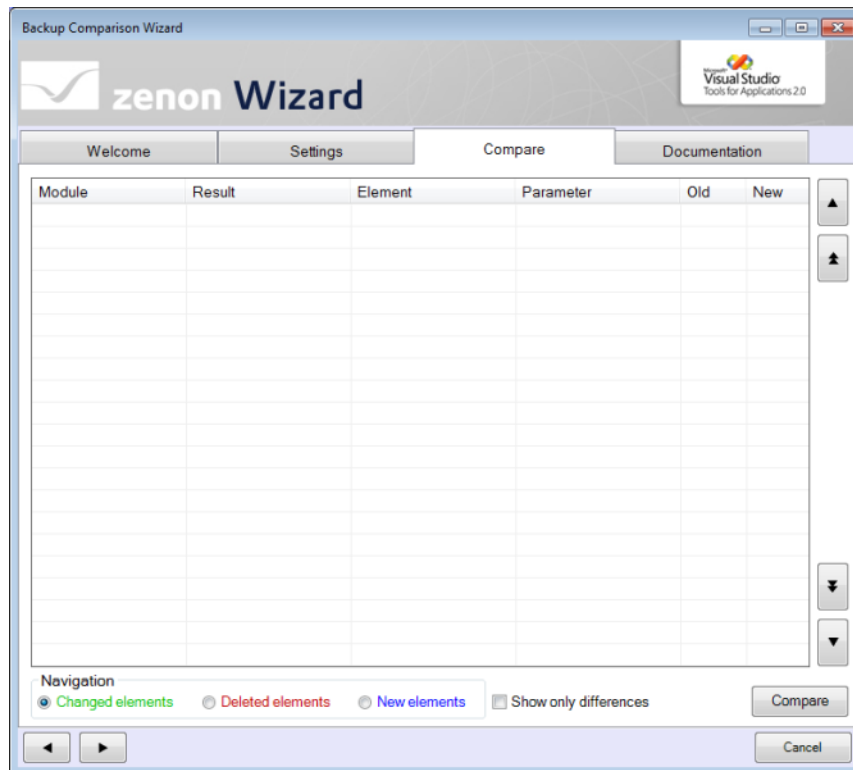Click on **Cancel** to close the wizard.

Settings

On this tab the two project backups which should be compared are selected and the zenon modules which should be part of the compare.

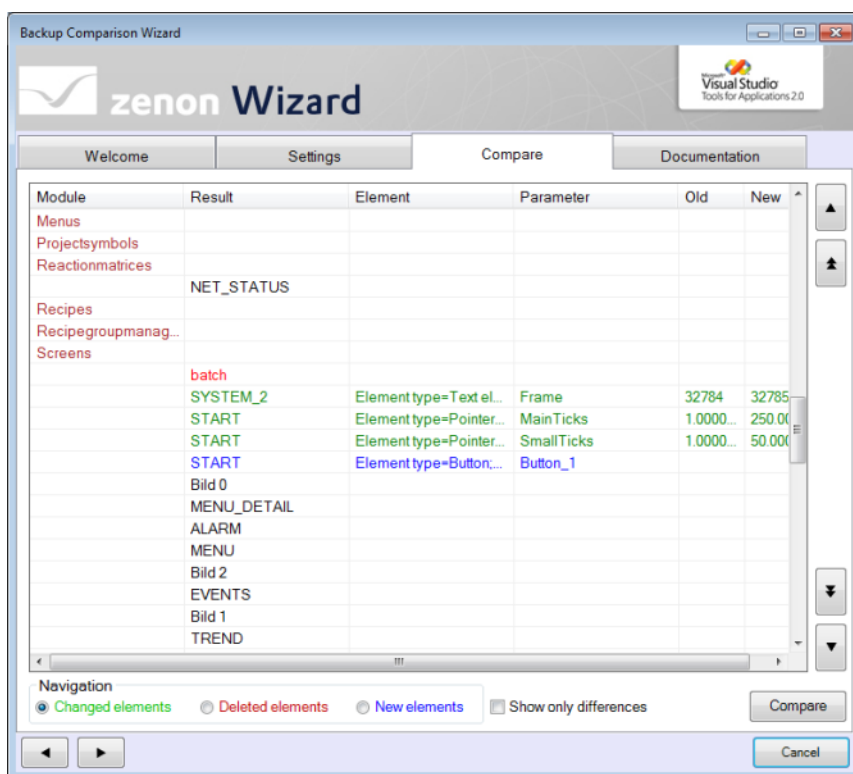| Parameter	Description
Select project backups	Selection of the backup files.
Latest version	Latest version. Click on button **...** Opens the file browser to select a project backup.
	Note: Per default project backups are in folder `%ProgramData%\COPA-DATA\SQL2008R2\BACKUP\[Project]`; via export however they can be stored in any folder.
Older version	Older version. Click on button **...** Opens the file browser to select a project backup.
Select project modules	Selection of the modules which should be compared. Selection takes place via activating the checkboxes in front of the module names.
	These settings are saved for each user individually and are available when the wizard is opened again.
Arrow keys	Click on the button to go to the previous or next tab.
Cancel	Closes the wizard.

Compare

On this tab the project backups are compared on basis of the selected modules.

| Parameter	Description
List field	After you click on button **Compare** the differences of the project backups are displayed in the list field. Content of the columns: ▸ **Module:** Name of the module. ▸ **Result:** Name of the object. ▸ **Element:** Display and description of the element. ▸ **Parameter:** Name of the changed parameter. ▸ **Old:** Previous value of a changed parameter. ▸ **New:** New value of a changed parameter. Color-coded marking: ▸ `blue`: new objects and elements ▸ `red`: deleted objects and elements ▸ `green`: changed objects and elements ▸ `black`: unchanged objects and elements
Navigation	Elements for the navigation in the list.
Changed elements	`Active`: Click on the button with the vertical arrow in order to jump to the previous/next changed element.
Deleted elements	`Active`: Click on the button with the vertical arrow in order to jump to the previous/next deleted element.
New elements	`Active`: Click on the button with the vertical arrow in order to jump to the previous/next new element.
Show only differences	`Active`: After you click on button **Compare** only the differences are displayed color-coded; unchanged elements are not displayed. If this option is changed, you must start the compare again by clicking **Compare**.
Compare	Compares the project backups in accordance with the selection and displays them in the list field.
vertical double arrow buttons	Click on the button to jump to the previous/next module.
Vertical arrow buttons	Click on the button to jump to the previous/next result of the same type depending on the setting. ▸ **Changed elements** ▸ **Deleted elements** ▸ **New elements**
Horizontal arrow keys	Click on the button to go to the previous or next tab.

Cancel	Closes the wizard.

EXAMPLE PROJECT COMPARE:

ALL OBJECTS:

Some changes:

In module screens:

▶   the screen **batch** was deleted

▶   in screen **SYSTEM_2** a text element was changed

▶   in screen **START** a button named Button_1 was added

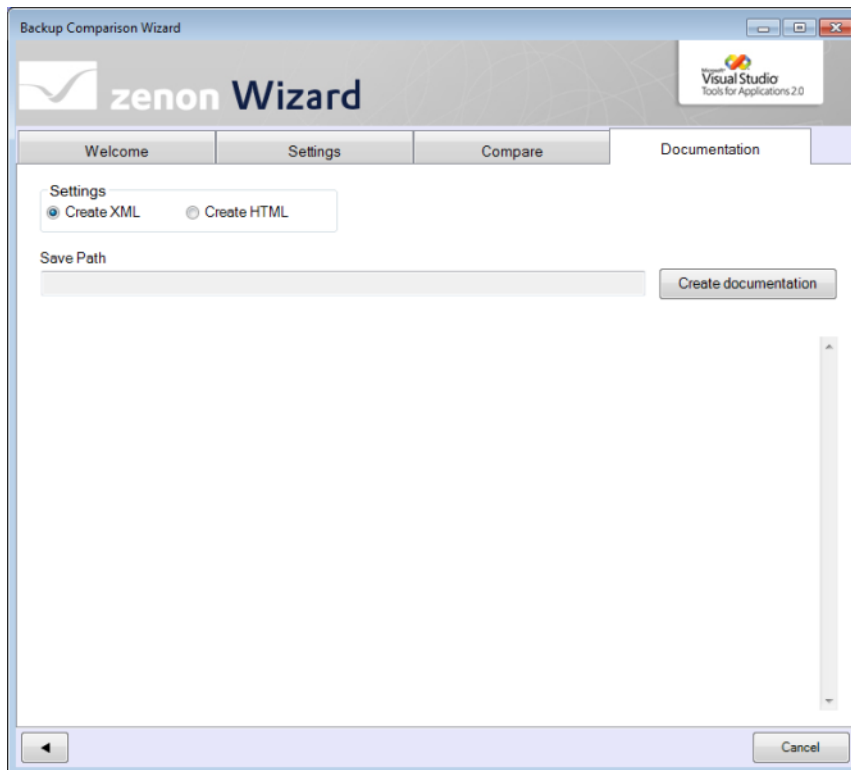▶   in screen **ALARM** nothing was changed

ONLY DIFFERENCES:
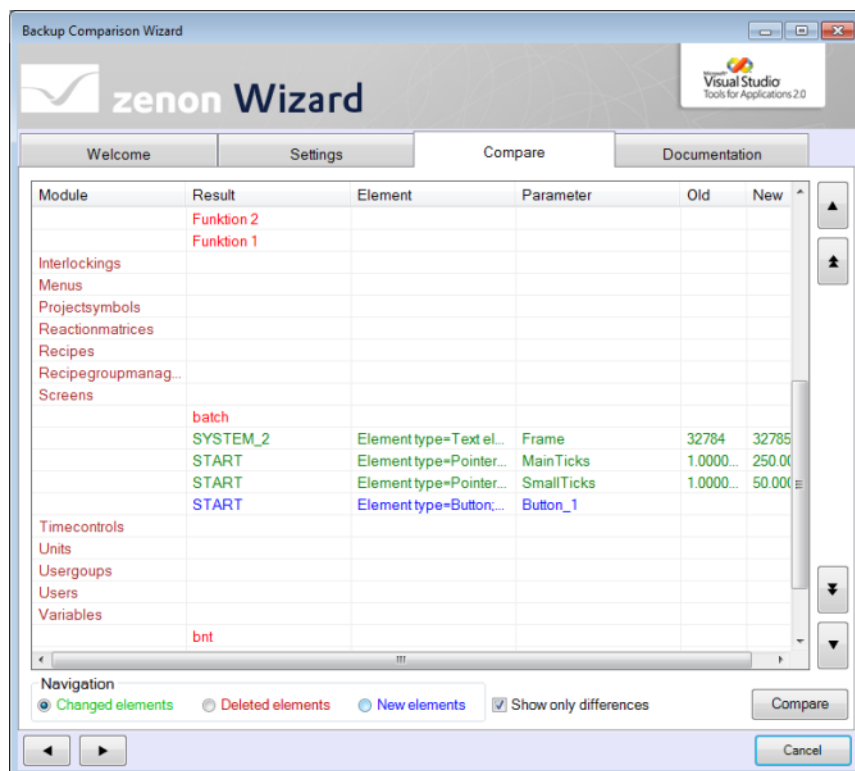
The changes are visible in the same way as in the previous screenshot. Objects and elements which have not been changed are hidden.

Documentation

On this tab you can display and save the result of the project backup compare as XML file or HTML file.

Parameter	Description
Settings	Settings for type of documentation.
Create XML	`Active`: An XML file is created.
Create HTML	`Active`: A HTML file is created.
Save Path	Path to the folder in which the file is saved. Display only. Selection is carried out via button **Compare**.
Create documentation	Click on button: ▸ to open the file browser: Select the saving location and give a name to the documentation file. ▸ The documentation is saved in the desired type and is displayed in the list field.
List field	Display documentation.
Arrow button	Click on the button to go to the previous tab.
Cancel	Closes the wizard.

EXAMPLE XML FILE

Display in the wizard:
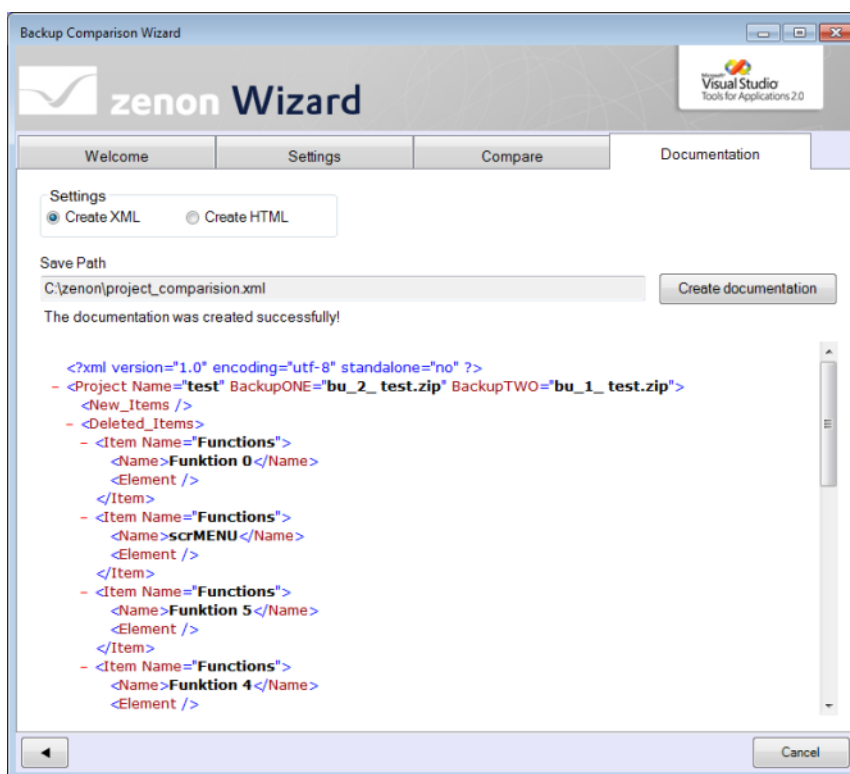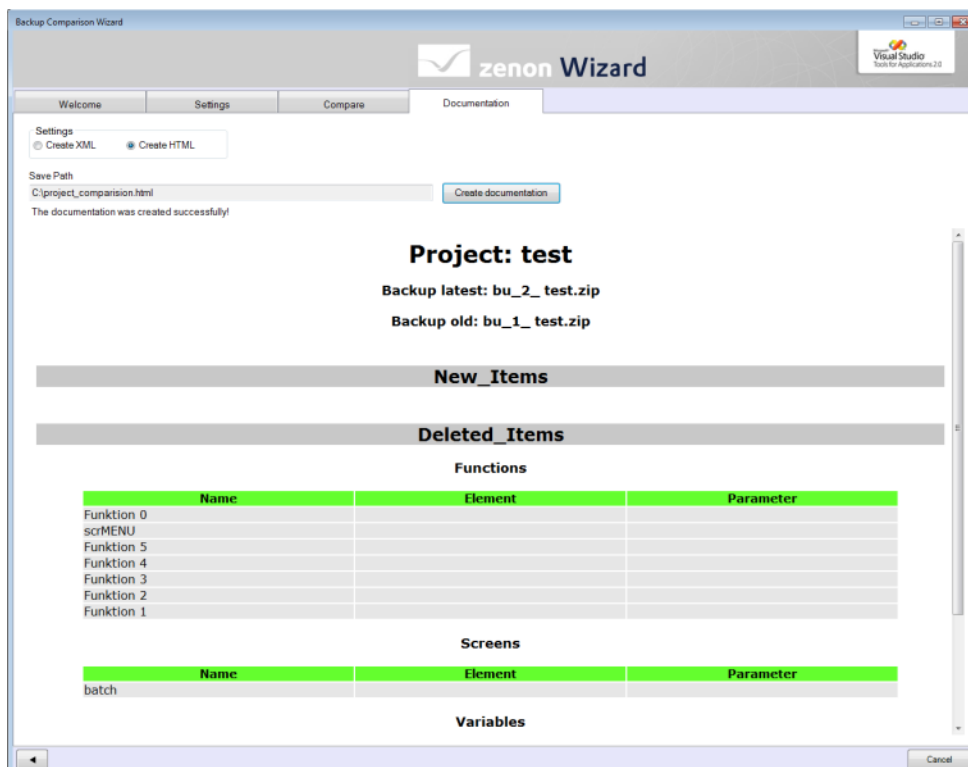
Display as XML file:

```xml
<?xml version="1.0" encoding="utf-8" standalone="no" ?>
<Project Name="sepp" BackupONE="2011-10-31_08-47-48 sepp.zip" BackupTWO="2011-10-10_08-07-46 sepp.zip">
  <New_Items>
    <Item Name="Screens">
      <Name>Screen 30</Name>
      <Element />
    </Item>
    <Item Name="Screens">
      <Name>Screen 18</Name>
      <Element />
    </Item>
    <Item Name="Screens">
      <Name>Screen 51</Name>
      <Element />
    </Item>
    <Item Name="Screens">
      <Name>Screen 39</Name>
      <Element />
    </Item>
    <Item Name="Screens">
      <Name>Screen 1</Name>
      <Element />
    </Item>
    <Item Name="Screens">
      <Name>Screen 55</Name>
      <Element />
    </Item>
    <Item Name="Screens">
      <Name>Screen 32</Name>
      <Element />
```

EXAMPLE HTML FILE

At the creation of an HTML file, an XML and an XSLT file are also created at the saving location. These two files are used to generate the HTML file dynamically:

Structure of the HTML file:

3.7.2 Project Configuration Wizard

With this wizard you can create basic objects for new projects. You can configure:

- ▶ Information about the project
- ▶ Drivers also with driver variables
- ▶ Graphics settings
- ▶ Basic screens with symbols, WPF element, AML, CEL, system information and an overview of the simulation variables
- ▶ Navigation

Settings changed in the wizard can be saved in the operating system's user profile and loaded upon opening by the same user.

The wizard is executed in English; the language in the project corresponds to that of the open zenon Editor. This wizard is automatically executed when a new project is created.

MULTI-USER PROJECTS

The wizard does not support **multi-user projects**. When a new **multi-user project** is created, the wizard is not automatically started. With a manual start, it is ended again with a warning message.

Information

If the wizard is selected manually via the Wizard selection dialog, then the following must be the case:

▶ An empty project must be created

▶ The project must be active

Starting the wizard

This wizard is automatically executed when a new project is created. It can also be selected directly in the dialog for starting wizards.
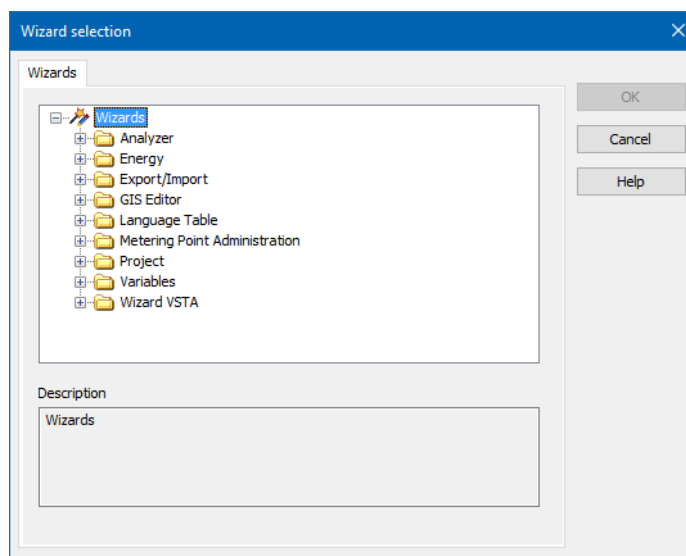

⚠ Attention

The complete scope of wizard functions is only available for an empty zenon project. If the wizard is started in a project that already contains project configurations, only the creation of dashboards is supported by the wizard.

To start the wizard:

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

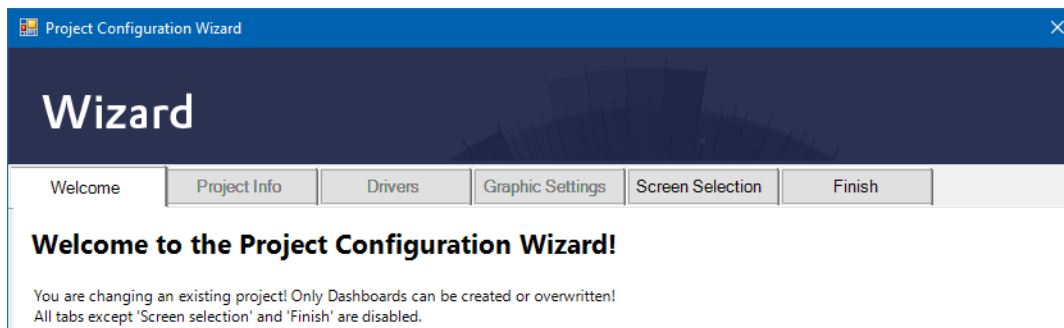   The selection window with the available wizards opens.

2. Select the folder **Project**.

3. There select the **Project Configuration Wizard**

4. Click on **OK**.

   The wizard starts with the welcome page.
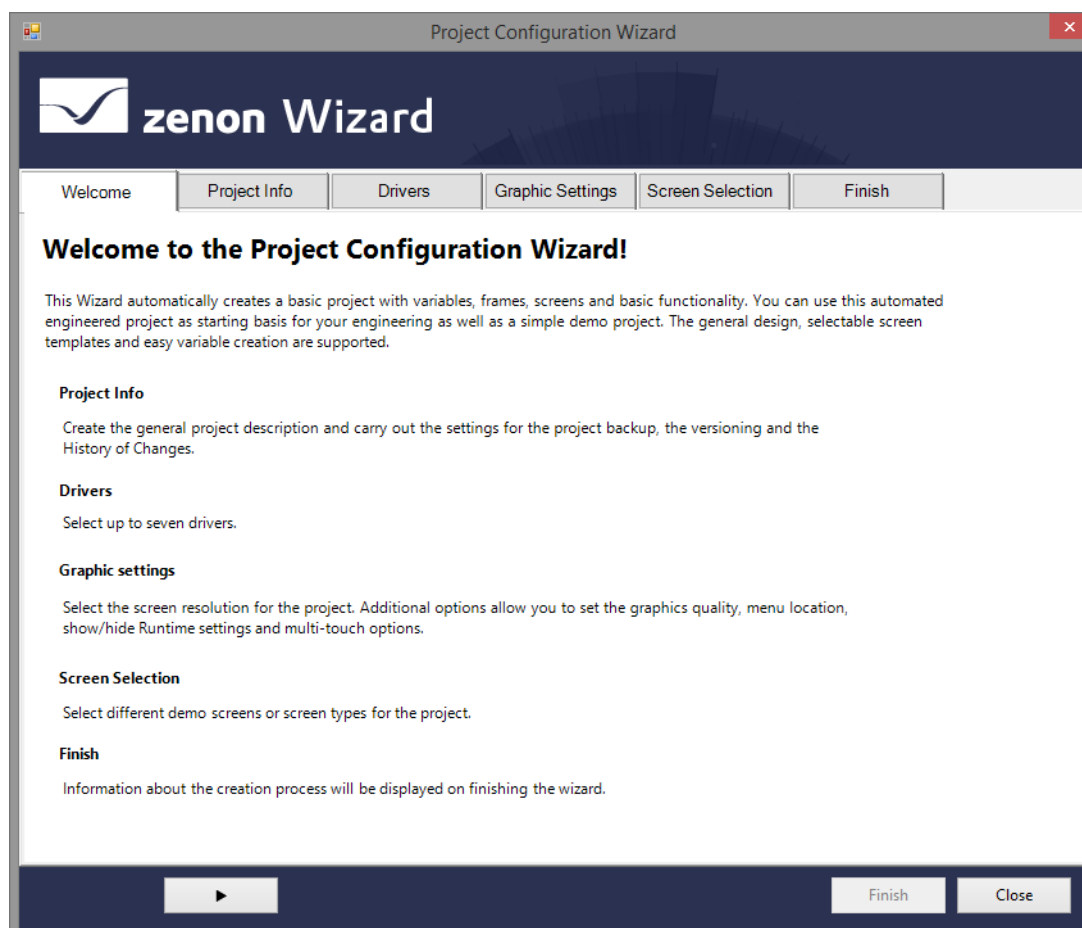
If you call up the wizard from an existing project, you receive a warning:

By clicking on **Yes**, you confirm that you accept changes to your existing configuration.
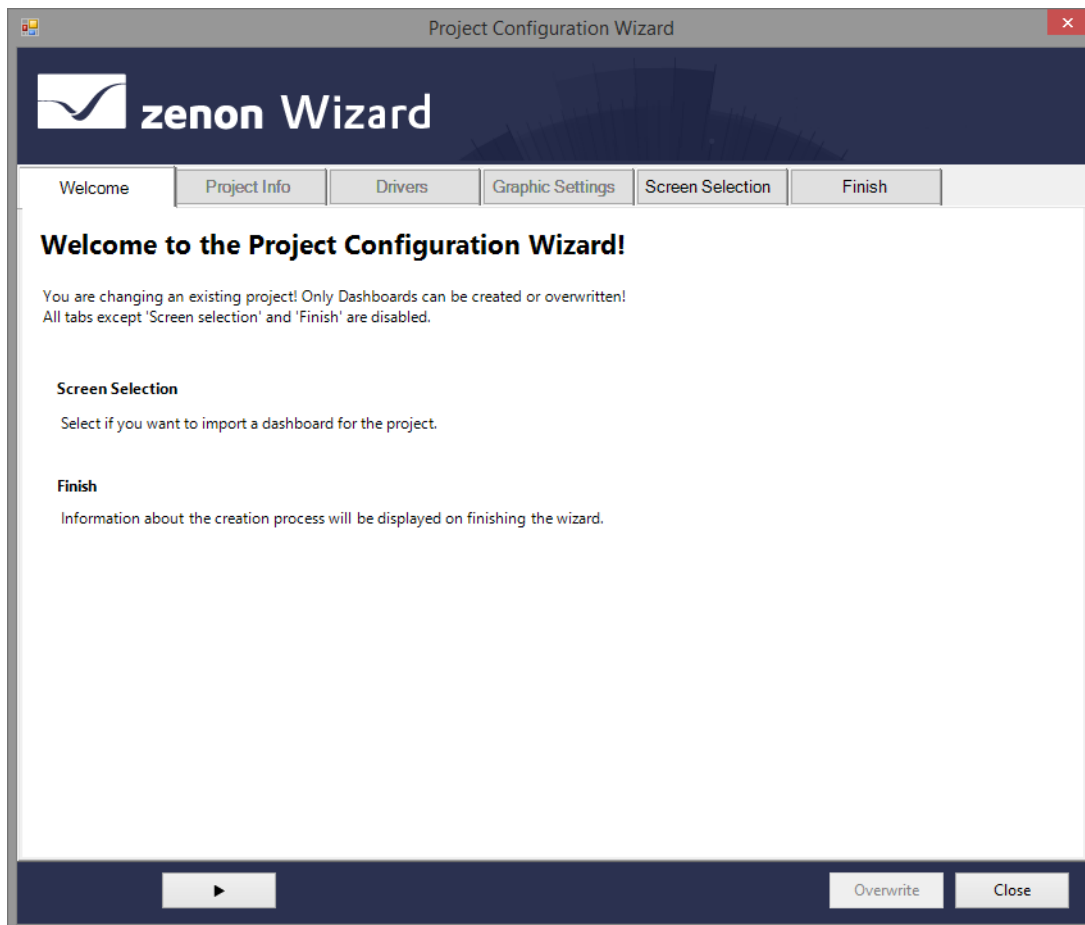
Welcome

The **Welcome** tab provides a brief overview of the wizard's scope.

The navigation (on page 447) through the wizard is done by clicking on the individual tabs or step by step by clicking on the arrow keys.

If the wizard is started in an existing zenon project in which changes have already been made, the following start page appears in the **Welcome** tab:

Note: Instead of the **Finish** button, the **Overwrite** button is now shown, because data will be overwritten in the event of changes being made.

Navigation bar

You can go forwards or backwards by one tab with the **navigation bar**.
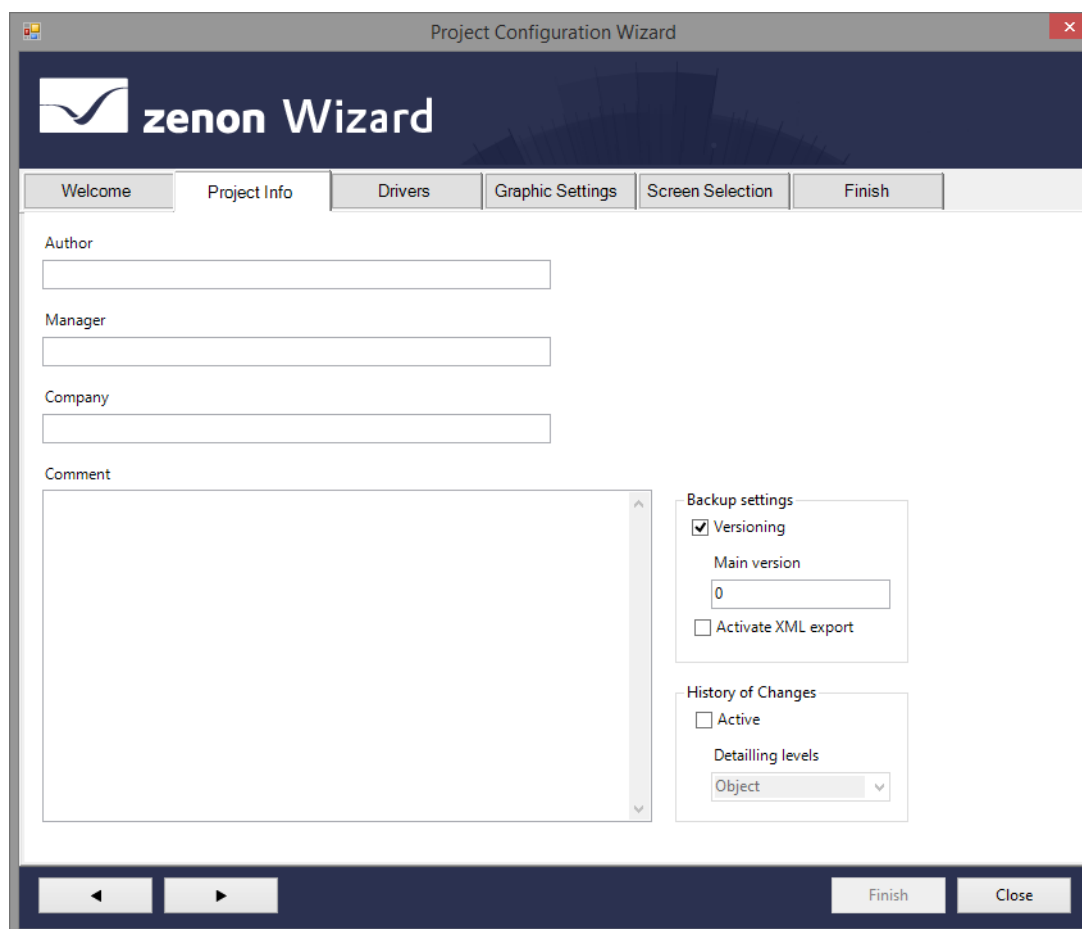
View when the wizard is used the first time:

View when the wizard is subsequently used:

Parameter	Description
Arrow keys	Move one tab forward or back.
Finish	Creates project and overwrites possibly existing object. Only active if tab **Finish** is opened.
Overwrite	Replaces existing data in the project with the changes made in the wizard. Only active if the wizard is started in an existing zenon project in which changes have already been made.
Close	Closes the wizard. The made changes can be saved for the current user.

Project Info

On this tab you configure general project settings and settings concerning versioning and the History of Change.

Parameter	Description
Author	Optional input field for the author of the project.
Manager	Optional input field for the project manager.
Company	Optional input field for the project company.
Comment	Optional input field for comments in relation to the project.

BACKUP SETTINGS

Settings for backup and versioning.

Parameter	Description
Versioning	`Active`: Project versioning is used. Every project backup is saved with an own version number. `Inactive`: no versioning of the project backup. Default: `Inactive` More in the online help.
Main version	Input field for the number of the main version. All other versions continue to be counted from the number entered. Default: `0`
Activate XML export	`Active`: At each project backup an zip file (**version.zip**) is inserted. It includes 24 XML files with the backups of the individual modules. Note: For multi-user projects only for local backups. Default: `Inactive` More in the online help.

HISTORY OF CHANGES

Settings for history of changes.

Parameter	Description
Active	**History of changes active** `Active`: Changes to the project are also logged. `Inactive`: Changes to the project are not logged. Default: inactive. More in the online help.
Detailing levels	Only available if the **History of changes active** property has been activated. Selection of details levels from drop-down list. ▸ `Object`: Only the object names of the changed objects are logged. Details concerning properties and their values are not displayed in the History of changes. ▸ `Properties`: Additionally to the object names the changed properties and the new values are displayed in the history of changes.

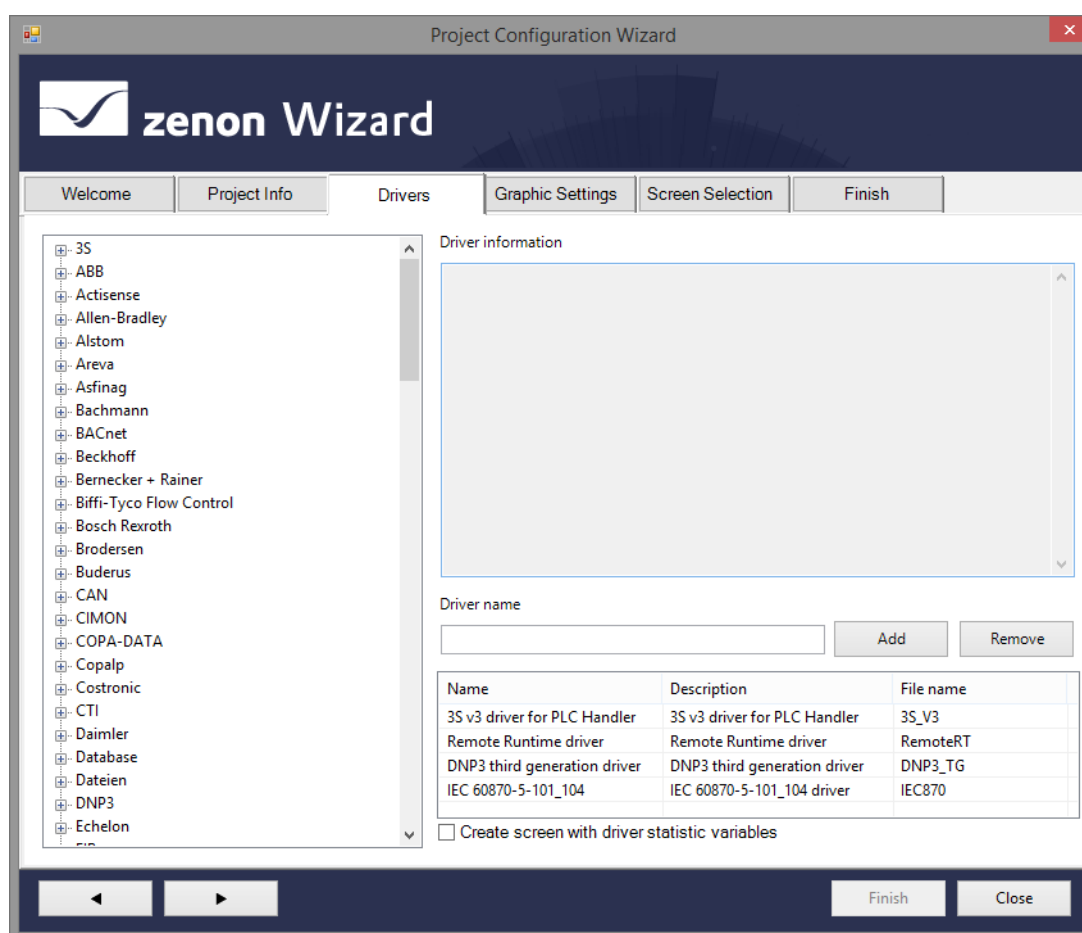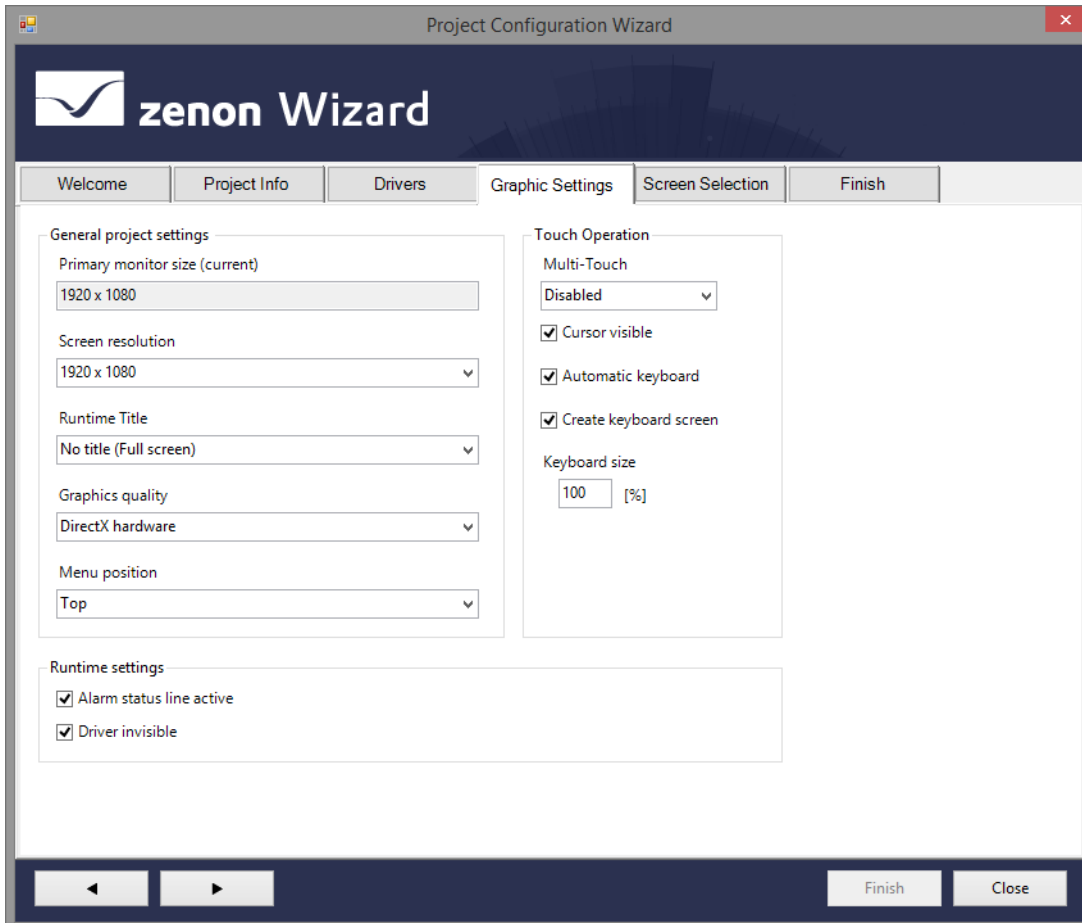|	
	▶ `Value changes`: This setting causes the most detail level of logging. Not only the new value of a property is displayed but also the old one. This makes complete traceability of the changes of values possible. Default: `Object` Note: Amended values are cut to a length of `128 characters`. More in the online help.

Drivers

In this tab, the zenon driver is selected, which is automatically configured when the wizard is executed.

Parameter	Description
Driver list	List of the zenon drivers in a tree display. ▸ Clicking on **[+]** expands the entry. ▸ Clicking on **[-]** reduces the entry. Select the driver by clicking.
Driver information	Display of the additional information about the selected driver.
Driver name	Name of the driver as it is to be created in the project. Free text input. The driver name is pre-filled with a proposal after it is selected. Unique name of the driver. zenon identifies the driver with the help of this name and not with the help of the file name. Thus it is possible to load the same driver several times. This is necessary, for example, when you have to access the same control types that are connected to different serial interfaces. Attention: This property is not available for language switch.
Add	Adds the selected driver to the list of driver to be created.
Remove	Removes the selected driver from the list drivers to be created.
List of drivers to be created	List of drivers to be created with name, description and file name.

Create screen with driver statistic variables	Checkbox for the activation of automatic configuration of a zenon screen and the attendant system driver variables with static information in the zenon project.
	
	▸ `Active:`
	    A screen with driver variables is created for the selected driver(s).
	
	▸ `Inactive:`
	    No project configuration in the zenon project.

Graphic Settings

On this tab you configure the resolution and the settings for the Runtime and touch screens.

GENERAL PROJECT SETTINGS

General graphical settings for the project.

Parameter	Description
Current primary monitor size (current)	Display of the current screen resolution. For multi-monitor systems the resolution of the main screen is displayed. Note: This option cannot be changed.
Screen resolution	Selection of desired screen resolution from drop-down list.
Runtime Title	**Runtime title** Display of the Runtime main window. Select from drop-down list: ▶ `no title`: Complete display. Title bar is not displayed. ▶ `Title with min. and max. button`: The window can be changed in its size and can be moved. Closing is not possible (also not via context menu, task bar or the shortcut `Alt+F4`). Right click on the header opens the context menu. ▶ `Title with system, min. and max. button`: The window can be changed in its size and can be moved and it can be closed by clicking on button **X**. Right click on the header opens the context menu. ▶ `Title with system menu`: The window can be moved and closed by clicking on button **X**. Right click on the header opens the context menu. ▶ `Title without buttons`: The window can be moved and closed by clicking on button **X**. Right click on the header opens the context menu. Default: `no title` Attention: If this property is changed in the Editor, Runtime must be restarted. Reloading alone does not work, because Runtime must first be closed and then reopened in order for the main menu to be applied. More in the online help.
Graphics quality	Setting for the quality of the graphics display. `DirectX` allows a higher quality than `Windows Basic`. In principle, when using `DirectX`, the `DirectX Hardware` setting is preferable and `DirectX Software` should only be used if absolutely necessary. Possible selection: ▸ `Windows Basic`:

	Basic graphics settings. Recommended for resource-weak hardware.
	▸ `DirectX Software`: Graphics calculation is done by the CPU and can lead to high CPU load.
	▸ `DirectX Hardware`: A part of the graphics calculation is done by the graphics card. If the system does not support the setting, it automatically switches to `DirectX Software`.
	Default: `DirectX Hardware`
	Attention: `DirectX` Not available under Windows CE.
	Note: ▸ When switching the mode during the engineering, there can be slight pixel deviation. There set this property before you create screens. ▸ When activating `Windows basic` for all line types that use **Line width [Pixel]** > 1, all line types are set to `solid line`. ▸ `DirectX` is not used for the display of ActiveX elements (file suffix: *.ocx). More in the online help.

Menu position	Menu position for the display in zenon Runtime. Select from drop-down list:
	 ▸ `Top`:
	  Menu bar is configured at the top
	 ▸ `Bottom`:
	  Menu bar is configured at the bottom

RUNTIME SETTINGS

Settings for the display when zenon Runtime starts.

Parameter	Description
Alarm status active	**Status line active** Only available if property **Alarm Message List active** is active. ▸ `Active:` As soon as an alarm occurs, a red status line with alarm information is displayed at the top of screen in the Runtime. In this status line the alarm can also be acknowledged with a double right click if the logged in user has the corresponding rights. ▸ `Inactive:` No status line is displayed. Default: `active` *Attention multi-project administration: The setting in the integration project defines the behavior for sub projects, regardless of the setting of the sub projects. The alarm status line of the uppermost project is always used in Runtime.* More in the online help. Note: This wizard automatically activated property **Alarm Message List active**.
Driver invisible	**Driver invisible** Checkbox for the display of the driver that has been started in the Windows task bar. ▸ `Active:` Started drivers are not displayed in the Windows task bar in the Runtime. ▸ `Inactive:` Started drivers are displayed in the Windows task bar in the Runtime. Default: `Inactive`. More in the online help.

TOUCH OPERATION

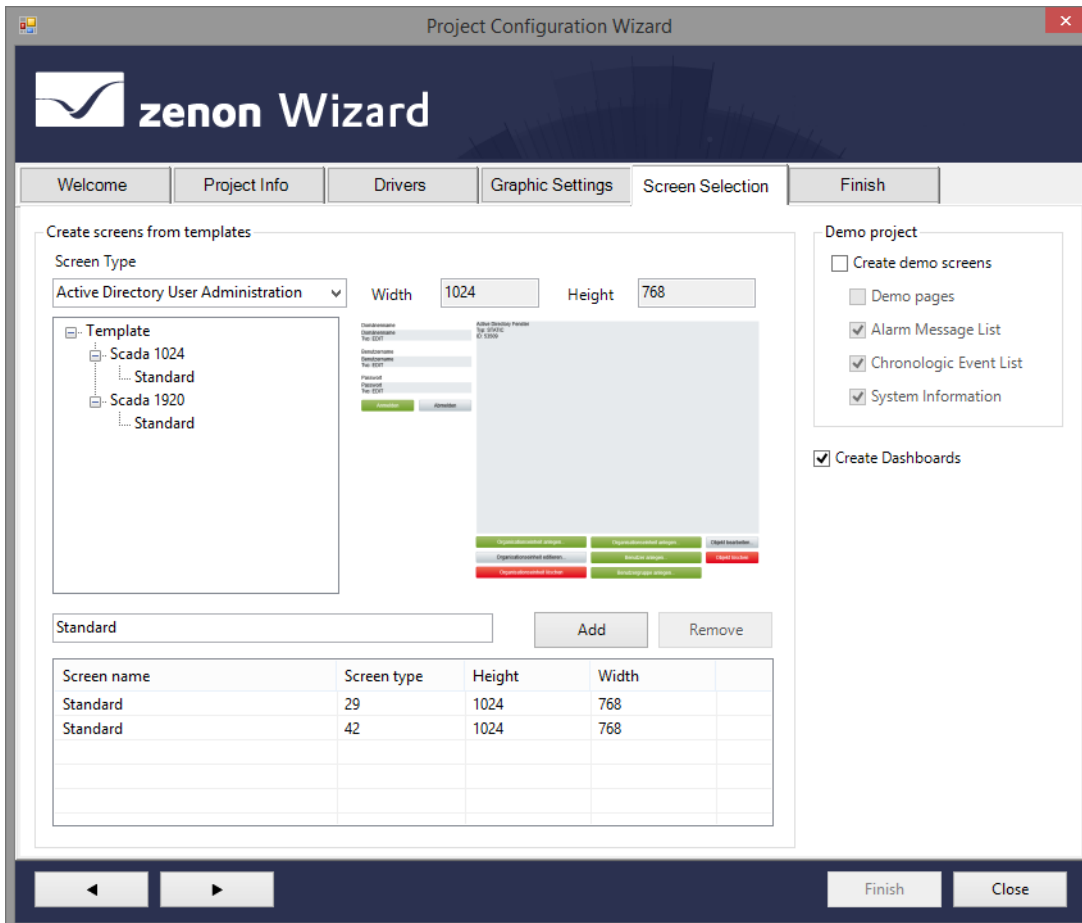Settings for touch operation in zenon Runtime.

Parameter	Description
Multi-Touch	**Multi-Touch active** Checkbox for the application of Multi-Touch. ▸ `Active:` Multi-Touch can be used. Flicks (short swipe) and right click (touch and hold) are deactivated. Requirements: All corresponding driver and devices are available. The device must be connected and switched on. ▸ `Inactive:` no Multi-Touch operation in the zenon Runtime. More in the online help.
Cursor visible	**Cursor visible** Checkbox for the behavior of the mouse pointer in zenon Runtime. ▸ `Active:` The mouse pointer is visible in Runtime. ▸ `Inactive:` The mouse pointer will not be displayed during Runtime For projects with a touchscreen, the display of the mouse pointer can be considered to be distracting and can be switched off with this property. Default: `active` Attention: This setting only has an effect on zenon, not on Windows standard elements such as title bars, menus, scroll bars, etc. For Windows elements, the mouse pointer must be deactivated in the operating system directly. More in the online help.
Automatic keyboard	**Automatic keyboard** Checkbox for the activation of an automatic keyboard in zenon Runtime for projects with a touchscreen. ▸ `Active:` A keyboard screen is automatically called if input is necessary (for example to write a setpoint value or to log in). ▸ `Inactive:` No keyboard screen is opened. Default: `Inactive` More in the online help.
Create keyboard screen	`Checkbox for automatic configuration of a keyboard screen.` ▸ `Active:`

	Creates **DIALOGKBD** for alphanumeric input and **SETVALUEKBD** for numeric input. For details see chapter Create screen of type keyboard. For it to be used in the Runtime, you must activate the option **Automatic Keyboard**. ▸ `Inactive:` No configuration of a keyboard screen. None
Keybooard size (%)	Defines in which size - in percent, starting from the original size - the automatic keyboard should be displayed in the Runtime. Minimum: `50 %` Maximum: `300 %` Default: `100 %` More in the online help.

Screen Selection

On this tab you can select screens which should be created in the project.

Attention: By default, the screen switch functions to the selected screens are configured with the standard settings. No special settings such as filter, variables, etc. are made. If dashboard screens are created in a new project, a button with a linked screen switching function is created in the Navigation screen. In a pre-existing project, only the screen switching function is created; it is not linked to a button.

CREATE SCREENS FROM TEMPLATES

Area for setting parameters of zenon screens that are created automatically in the zenon project when the wizard is executed.

Parameter	Description
Screen types	Selection of the screen types for automatic configuration when the wizard is executed.
	Selection of the screen type from drop-down list.
List of possible templates	Selection of the template for the screen. Size and preview are displayed.
Width	Width of the screen. This value is pre-set in the template and cannot be changed.
Height	Height of the screen. This value is pre-set in the template and cannot be changed.
Screen preview	Preview of the selected template of the selected screen type.
Eingabefeld Name	Input field for naming the screen in the zenon Editor.
Add	Adds screen with the selected name to `list of screens`.
Remove	Removes selected screen from `list of screens`.
Screens list	List of all selected screens with `name`, `screen type` and `size`.
	A maximum of 14 screens can be created. If the maximum number of screens has been reached, this is shown with a dialog.

DEMO PROJECT

Settings for the automatic configuration of an example project when the wizard is executed.

Parameter	Description
Create demo screens	Checkbox for the activation of automatic project configuration when the wizard is executed for an example project that can be executed in zenon Runtime.
	Active: When the wizard is executed, corresponding screens are configured in the zenon Editor and the appearance of the demo project is created, as well as linked automatically for linking in Runtime.
	Selection of the demo screens by means of checkbox:
	▸ Demo pages: Example pages (are always created)
	▸ Alarm message list: AML
	▸ Chronologic event list: CEL
	▸ System information: Pages with system information, number depending on the resolution
Create Dashboards	Checkbox for the activation of the automatic configuration of corresponding diagnosis screens when the wizard is executed.
	▸ Active: Checkbox for the activation of automatic configuration of corresponding diagnosis screens and variables when the wizard is executed. In addition, the created screens are linked for display in Runtime in the navigation of the example project.
	▸ Inactive: No configuration of diagnosis screens.

Dashboards - Diagnosis screens

All four areas are shown in one screen in the complete display of the dashboard in Runtime:

▸ Clicking on the **Details...** button in a sub-section calls up a new screen with further information in relation to the respective topic.

▸ Clicking on the **photo camera** symbol (top right) creates a screenshot and copies it to the clipboard.

▶   Clicking on the **Dashboard** tab in the navigation bar switches to the dashboard overview page.
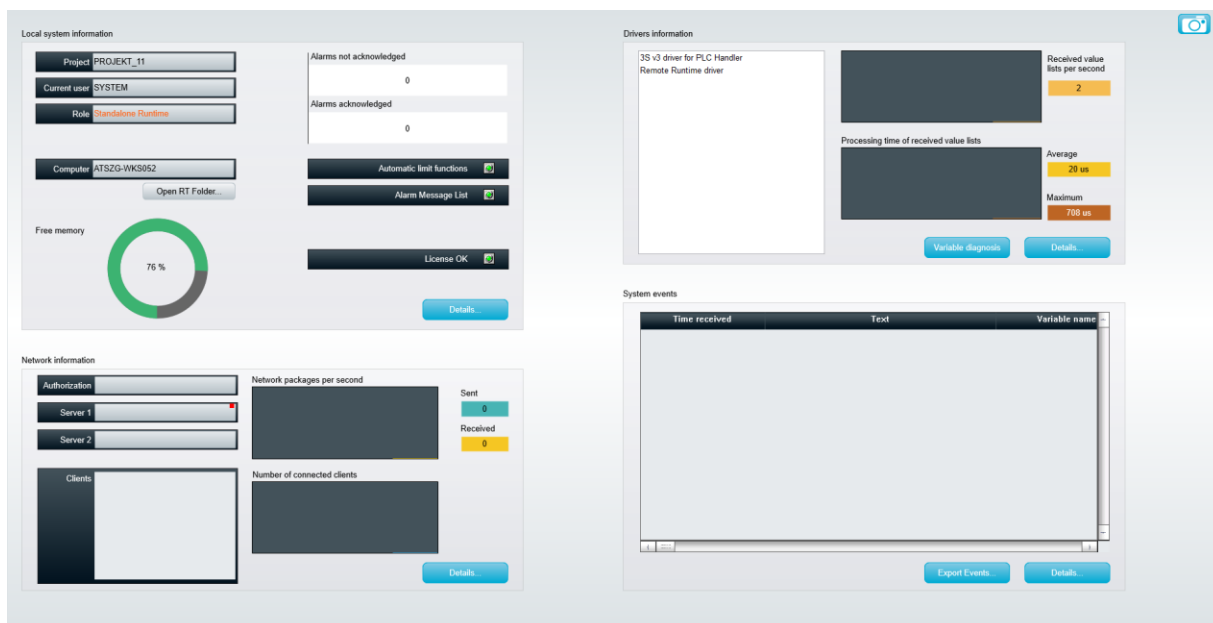
The information is divided into the following areas:

▶   **Local system information**
Screen with system information and information about save locations of the executing computer.

▶   **Network information**
Screen with network information from the executing computer.

▶   **Drivers information**
Screen with information in relation to the drivers. Selection of the drivers from a list.
In addition, with the **Variable diagnosis** button, it is possible to link a **variable diagnosis** screen.

▶   **System events**
Switch to Chronological Event List.
In addition, the events can be exported to a file. For this export click on the button **Export Events…**

AVAILABLE MONITOR RESOLUTIONS

The **Dashboard** screen template is available for the following screen resolutions:

▶   1280 x 960

▶   1280 x 1024

▶   1920 x 1080

Finish

On this tab the project is created.
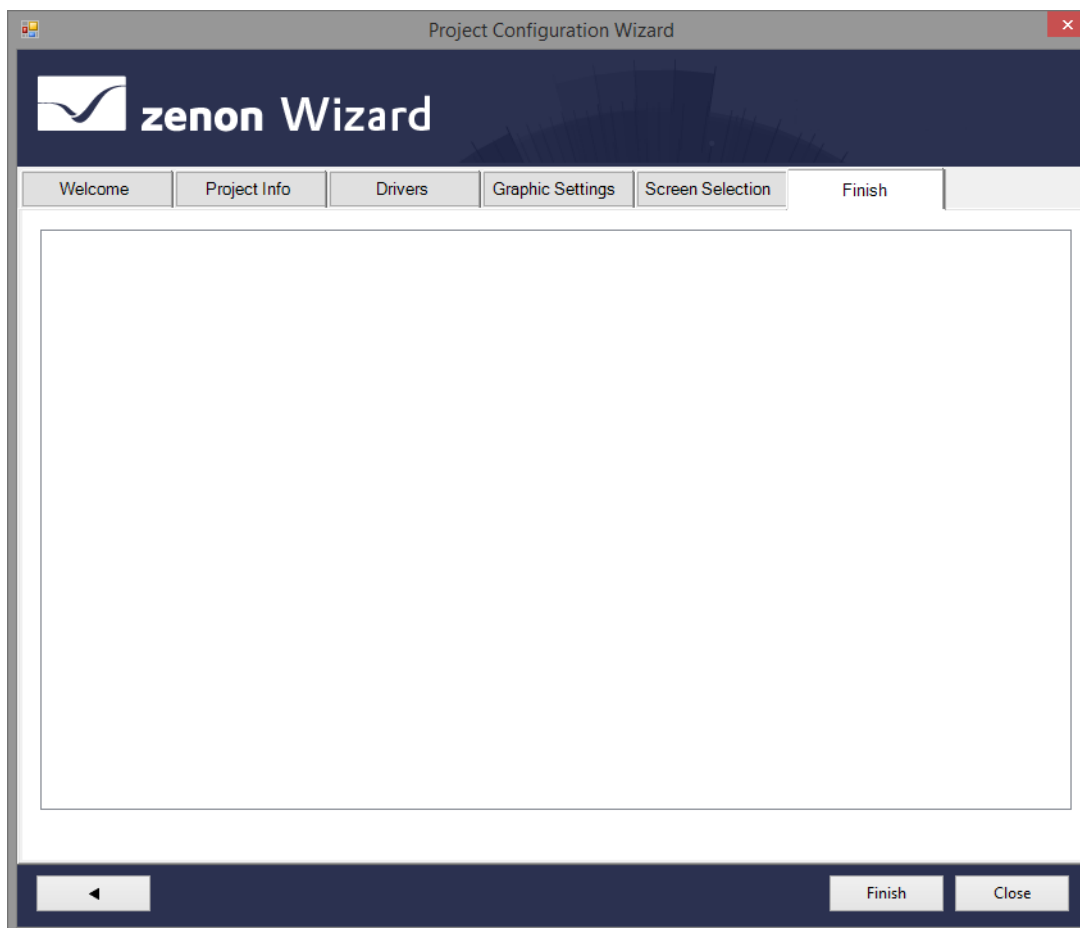
▶ The first time the wizard is used:

   Click on button **Finish** to create the project according to the settings on the tabs. The wizard remains open for further configuration. To close the wizard, click on button **Close**.

▶ Subsequent times the wizard is used:

   Click on the **Overwrite** button to apply the changes according to the settings in the tabs in the project. The wizard remains open for further configuration. To close the wizard, click on button **Close**.

Examples in the Runtime

Below you will find two example how your entry in the wizard effects the display in the Runtime.

▶ Example 1: (on page 464) With the **Create demo screens** (on page 458) options active.

▶ Example 2: (on page 466) Without example screens.

> ### 🔍 Information
>
> *The screenshots for this theme are only available in English.*

With demo screens

Start page:

Navigation:

SIMUL information:
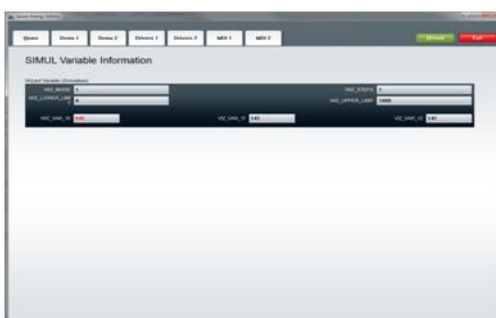
Report Viewer:

AML:
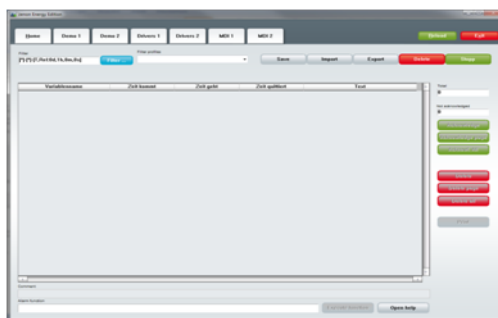
CEL:
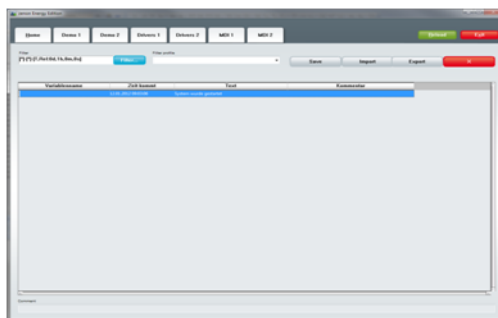
SystemInfo_1 (for each screen resolution 1-3 screens):
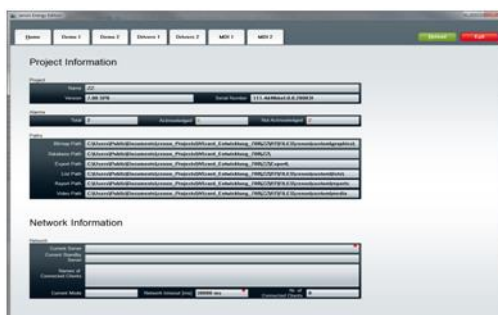
SystemInfo_2 (1280x1024):

Driver:
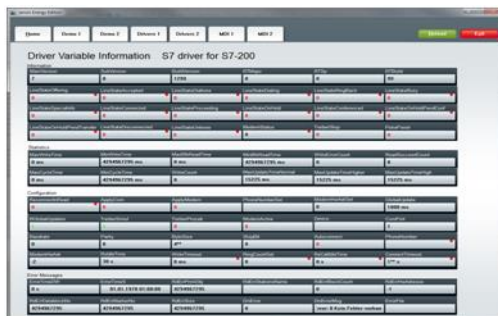
Without demo screens

Start page:
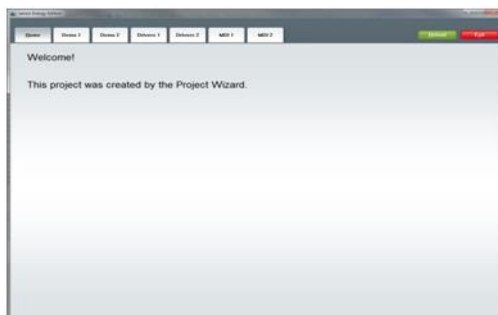
Navigation:

3.7.3   Documentation wizard

This wizard leads you through the steps needed to create a HTML document of the active project.

It can be defined, which modules should be included in the documentation and which not.

The wizard can be edited.

3.8   Variables

Wizards for variables.

3.8.1   Everywhere Essentials QR Code Generator

The **Everywhere Essentials QR Code Generatorwizard** is for creating QR codes that can be visualized with the **Everywhere Essentials QR Data App**.

> 💡 **Information**
>
> The wizard needs the Everywhere Server for visualization (payable).
>
> You can find further information on this in the mobile applications for zenon manual in the Everywhere Server by zenon and Everywhere Essentials QR data app chapters.

Possible content of the QR code:

- ▶ Project name
- ▶ Variable name

- A certain variable

- Several variables linked to an equipment group

▶ Connection data to the Everywhere Server

👍 **Hint**

▶ Use the Everywhere Server in order to be able to use your project configuration for the mobile applications of zenon.

▶ Use the equipment model in the zenon Editor in order to link variables (such as for key figures or alarm messages) with an equipment group.

▶ Create a QR code for this equipment group with the **Everywhere Essentials QR Code Generator**.

▶ Print out this QR code and place it on the device.

▶ Scan the QR code on site with the **Everywhere Essentials QR Data App** to visualize real-time data.

▶

Install and call up wizard

The **Everywhere Essentials QR Code Generator** is automatically installed as part of the zenon standard installation.

WIZARD DISPLAY IN THE ZENON EDITOR

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]`.

STARTING THE WIZARD

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.
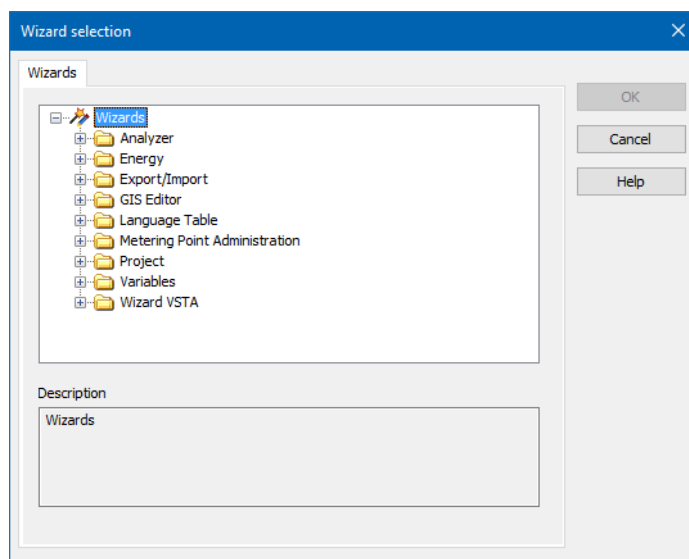
2. Select the folder **Variables**.

3. There, click on **Everywhere Essentials QR Code Generator**.
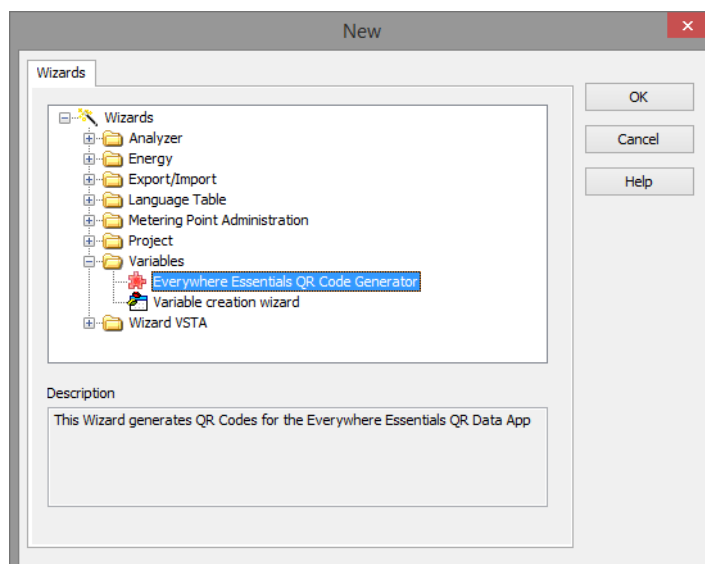
4. Click on **OK**.

The wizard starts with the start window.

> 💡 **Information**
>
> The **Everywhere Essentials QR Code Generator** is only available in English.

Start window

The **Welcome** tab provides a brief overview of the functionality of the wizard.

Note: The wizard is only available in English.
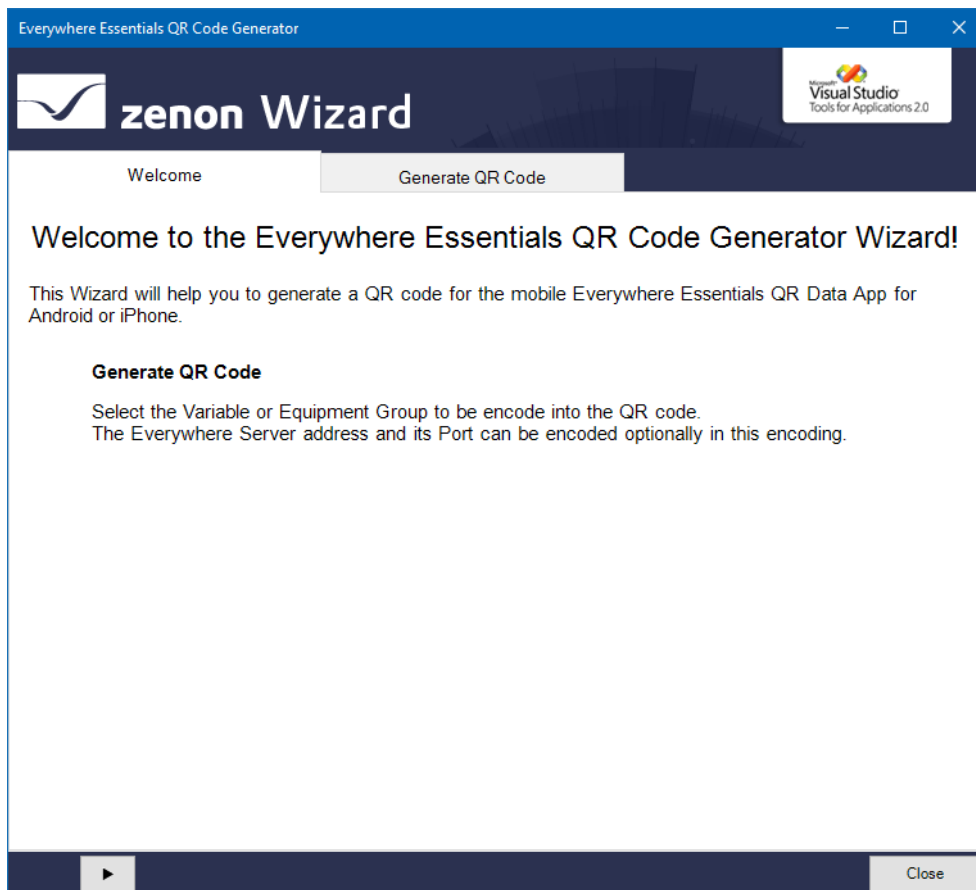
NAVIGATION

Navigation through the wizard is by clicking on the individual tabs, or with the mouse clicking on the arrow keys.

Clicking on the **Close** button closes the wizard. A dialog is called up before the wizard is closed.
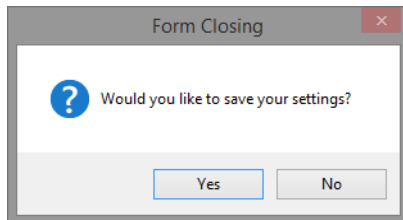
Parameter	Description
Yes	Closes the wizard. Configured settings are retained when the wizard is restarted.
No	Closes the wizard. Existing project configurations are not saved.

Configuration

You configure the content of the QR code in the **Generate QR Code** tab.

Content of the QR code:

▶ Either:
A variable from the current project.

▶ Or:
An equipment group of the equipment model in the global project or the current project.
The variables linked to the equipment group are displayed in the **Everywhere Essentials QR Data App**.

▶ Optional: Connection parameters to the Everywhere Server.

Behavior in the **Everywhere Essentials QR Data App**:

- No connection parameters contained in the QR code:

  The app attempts to establish a connection to the Everywhere Server with the existing connection profiles.

- QR code includes connection parameters:

  The app established a connection to the Everywhere Server with the parameters entered in the wizard. In the app, a dialog to enter the user name and password is called up when the connection is established.

Generate QR Code

VARIABLE/EQUIPMENT GROUP

Parameter	Description
Variable **Equipment Group**	Option field to select the preview list: ▶ **Variable** Shows the variable list of the active zenon project. ▶ **Equipment Group** Shows the equipment model of the global project (if available) and the equipment model of the active zenon project.

EVERYWHERE SERVER

The connection parameters to the Everywhere Server can be configured facultative via the setting **Everywhere Server**.

This information is, if configured, also encoded in the QR code.

Parameter	Description
Encode connection details	Activates the coding of the connection parameters in the QR code.
URL	Name of the Everywhere Server to which a connection is to be created.
Port	Port address for the connection to the Everywhere Server. Note: Entries outside the valid entry range are automatically corrected to the value `65536`.

PREVIEW

Shows a preview screen of the QR codes of your project configuration.
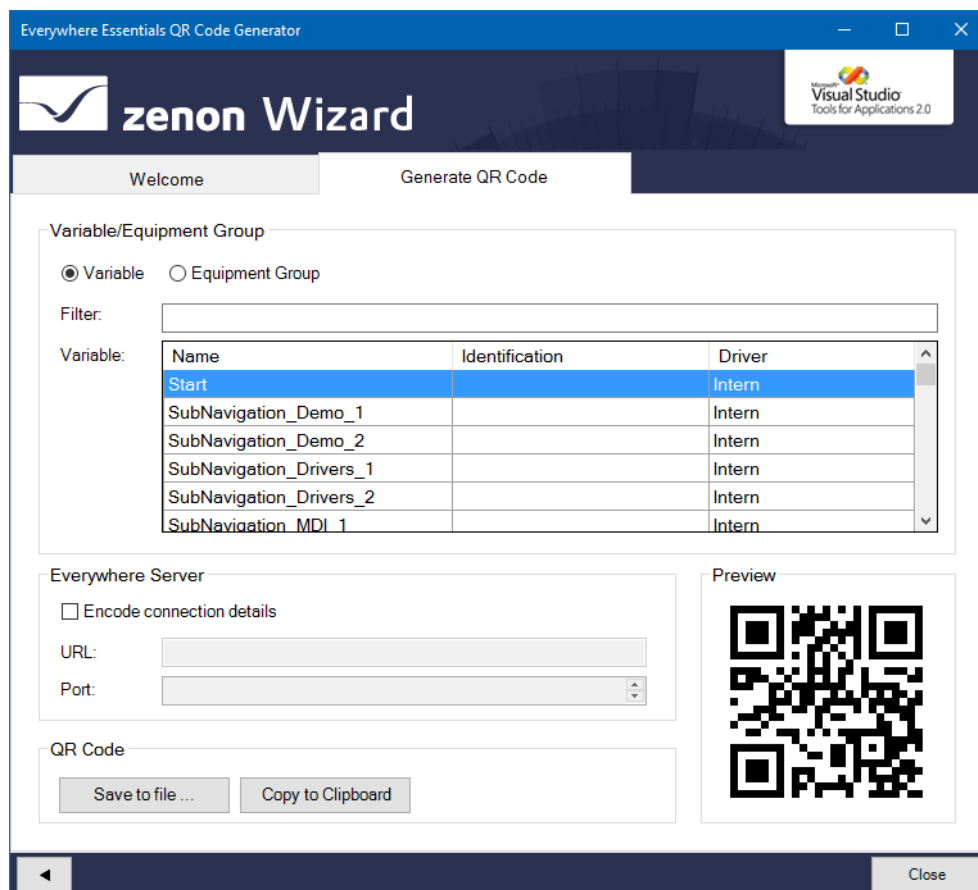
QR CODE

Parameter	Description
Save to file	The currently-displayed QR code is saved as a .png file.
Copy to Clipboard	Copies the displayed QR code to the clipboard.

Variable

If the "„Variable" option field has been selected, the variable list of the active project is displayed.

▶ The information of the selected variable is encoded in the QR code.

▶ The QR code is updated in the preview directly.

Parameter	Description
Equipment Group	Option field to switch to the equipment model view.
Filter	Filters the entries in the variable overview. Filtering is only carried out for the variable name.
	The text entered here corresponds to the `contains` condition.
Variable	Overview of all variables of the current project.
	The list can be sorted by clicking on the column heading. Another click reverses the sorting order. The sorting direction is shown with an arrow. The column width can be freely changed with a right-click.
	▶ `Name`
	Variable name. It corresponds to the **Name** property in the Editor.
	▶ `Identification`
	Identification of the variable. It corresponds to the **Identification** property in the Editor.
	▶ `Driver`
	Driver name. It corresponds to the **Identification** property in the Editor.

Equipment Group

If the "**Equipment Group**" option field has been selected, the equipment model of the current project configuration is displayed.

▶ The following is displayed:

- The equipment model of the global project (if present)
- The equipment model of the active project.

▶ The variables linked to the selected equipment group are encoded in the QR code.

▶ The QR code is updated in the preview directly.
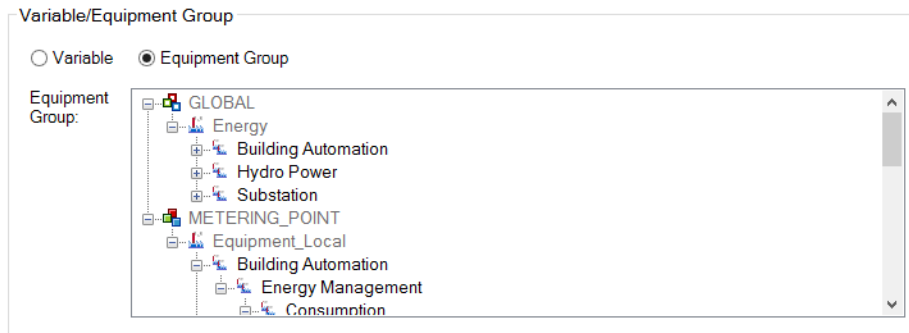
Equipment models of the global project are only offered for selection if there are no equipment models with the same name in the active project. If there are models with identical names, this is visualized with a warning symbol (yellow triangle) and a tool tip. The equipment model of the global project is grayed out.
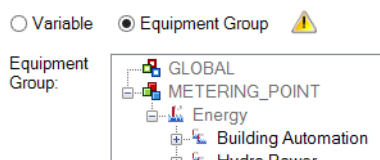
If you move the mouse over the warning signal, you receive the following error message in a tool tip:

```
The following Equipment Model(s) from the Global Project will be ignored! There
is at least one Equipment Model with the same name in the local Project:

- [model name in the local project]
```

3.8.2 Variable creation wizard

This wizard serves to create many variables quickly.

> ⚠ **Attention**
>
> *This wizard does not support distributed engineering and is not available in multiuser projects.*
>
> *This wizard serves as an example; not all drivers are supported.*

4. Create and adapt wizards

Wizards are common VBA forms that contain certain functions in the code part. As a result of this, the formulas are recognized as zenon wizard.
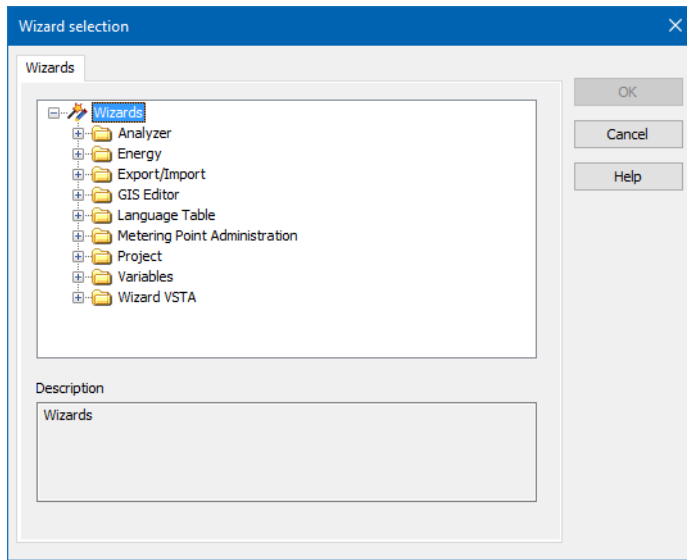
The wizards supplied with zenon can form the basis of your own wizards.

Your own wizards can be stored in your own folders. All required information must be entered into the file named **wizards.ini** (on page 485). This can be included when the wizard is updated (on page 483).

VBA AND VSTA WIZARDS

To create wizards the following information is necessary for VBA and VSTA (on page 479):

▶ Name

▶ Description

▶ Category

▶ Display in the dialog

▶ Version number

These functions are read by zenon in order to identify forms as wizards and to display corresponding information in the wizard dialog.

> ⚠ **Attention**
>
> *Commas (,) are not permitted in the (`GetWizard...`) wizard fields!*
> *If a comma is nevertheless used in one of the wizard fields, the wizard is not displayed in the zenon Editor in the wizard dialog.*

The demo wizard offers an empty template that can be individually adapted. For details on creating VSTA wizards see chapter Details VSTA wizards (on page 479).

NAME

States the wizard name as it is displayed in the dialog for the wizard.

Example: **VSTA project wizard**

VBA	VSTA (on page 479)

```Public Function GetWizardName() As String```
```GetWizardName = "Project-Wizard"```
```End Function```
	GetWizardName (Type string)

DESCRIPTION

Contains the description of the wizard as it is displayed in area "**Descripton**" of the dialog.

Example: **This wizard creates a simple zenon Project (V.1)**

VBA	VSTA (on page 479)

```Public Function GetWizardInfo() As String```
```GetWizardInfo = "Wizard for creation of a project"```
```End Function```
	GetWizardInfo (Type string)

CATEGORY

States the category in which the wizard is sorted.

For example: **Project**

Note: You can use existing categories. VBA and VSTA wizards can be sorted in the same category.

VBA	VSTA (on page 479)

```Public Function GetWizardCategory() As String```
```GetWizardCategory = "Project"```
```End Function```
	GetWizardCategory (Type string)

Create and adapt wizards

DISPLAY IN THE DIALOG

Defines whether the wizards is displayed in the dialog. With this you can hide a wizard without deleting all functions or removing them from the add-in:

= `true`: is displayed

= `false`: is hidden

VBA	VSTA (on page 479)

`Public Function IsZenOnWizard() As Boolean`
`IsZenOnWizard = True`
`End Function`
	IsZenOnWizard (Type bool)

VERSION NUMBER

States the version number which is displayed at the description. The version number is used to manage the update of the wizards.

Example: **(V.1)**

Note: Within a wizard class there must not be different functions with the same name. This is also true when they report back different parameters.

VBA	VSTA (on page 479)

`Public Function GetWizardVersion() As Integer`
`GetWizardVersion = 6`
`End Function`
	GetWizardVersion (Type int)

4.1   Details VSTA Wizard

VSTA WIZARD

```
#region Wizard_Identification

/// <summary>
/// This Static method returns the name of the wizard,
/// which will be displayed in the wizard-tree.
/// </summary>
/// <returns></returns>

static public string GetWizardName()
{
    string strValue = "Name of the wizard";
```

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```
      return strValue;
   }

   /// <summary>
   /// This Static method returns the description of the wizard,
   /// which will be displayed at the bottom of the wizard-dialog.
   /// </summary>/// <returns></returns>
   static public string GetWizardInfo()
   {
      string strValue = "A more detailed description of the wizard.";
      return strValue;
   }

   /// <summary>
   /// This static method returns the category name of the wizard,
   /// which will be used as node-name in the wizards-tree.
   /// </summary>
   /// <returns></returns>

   static public string GetWizardCategory()
   {
      string strValue = "Wizard category";
      return strValue;
   }

   /// <summary>
   /// This static method returns a bool which can be used to "switch" the wizard
   /// on/off in the wizard dialog (false=wizard is not shown in the tree).
   /// </summary>
   /// <returns></returns>

   static public bool IsZenOnWizard()
   {
      bool bValue=true;
   }   return bValue;

   /// <summary>
   /// This static method returns the version of the wizard.
   /// Indicated at the bottom of the wizard-dialog.
   /// </summary>
   /// <returns>wizard version</returns>

   static public int GetWizardVersion()
   {
      int nValue = 1;
      return nValue;
   }

   /// <summary>
   /// This method is called when the wizard has been selected in the
   /// wizard dialog and confirmed with "OK".
   /// </summary>
```

```
public void StartWizard()
{
    this.Show();
}
#endregion
```

VB.NET

```vbnet
'This shared method returns the name of the wizard,
'which will be displayed in the wizard-tree.

Public Shared Function GetWizardName() As String
    GetWizardName = "Name of the wizard"
End Function

'This shared method returns the description of the wizard,
'which will be displayed at the bottom of the wizard-dialog.

Public Shared Function GetWizardInfo() As String
    GetWizardInfo = "A more detailed description of the wizard."
End Function

'This shared method returns the category name of the wizard,
'which will be used as node-name in the wizards-tree.

Public Shared Function GetWizardCategory() As String
    GetWizardCategory = "Wizard category"
End Function

'This shared method returns a bool which can be used to "switch" the wizard
'on/off in the wizard dialog (false=wizard is not shown in the tree).

Public Shared Function IsZenOnWizard() As Boolean
    IsZenOnWizard = True
End Function

'This shared method returns the version of the wizard.
'Indicated at the bottom of the wizard-dialog.

Public Shared Function GetWizardVersion() As Integer
    GetWizardVersion = 1
End Function

'This method is called when the wizard has been selected in the
'wizard dialog and confirmed with "OK".

Public Sub StartWizard()
    Me.Show()
End Sub
```

C# WORKSPACE

For the Editor to create an instance of the VSTA class dynamically, you must add an additional function to the "Default" Workspace Code. This code segment must exist so that the wizard is displayed after selection in the dialog. This code segment should not be modified!

```csharp
#region Wizard

/// <summary>
/// This Routine Enables the Dynamic creation of VSTA-Wizards.
/// </summary>
/// <param name="strClassname"></param>
public void StartWizard(string strClassname)
{

    //Retrieve the ClassType by its Typename:

    Type t = Type.GetType(strClassname);
    if(t!=null)
    {

        //Since the ClassType has been found, let's create it.
        //The wizard from ClassType %strClassname% is required
        //to have a Constructor with ZenWorkspace Parameter!

        object[] Params = new object[] { this.ZenWorkspace };
        object Wizard = Activator.CreateInstance(t, Params);
        if (Wizard != null)
        {
            t.InvokeMember("StartWizard", BindingFlags.Public | BindingFlags.Instance |
BindingFlags.InvokeMethod, null, Wizard, null);
        }
    }
}
#endregion
```

And for the VB.Net workspace like this:
```vbnet
'This Routine Enables the Dynamic creation of VSTA-Wizards,
'and should not be modified or removed!
Public Sub StartWizard(ByVal strClassname As String)
Dim obClassType As Type
Dim obWizard As Object
Dim obParams(0) As Object
    obClassType = Type.GetType(strClassname)
    If (Not obClassType Is Nothing) Then
        obParams(0) = Me.ZenWorkspace
        obWizard = Activator.CreateInstance(obClassType, obParams)
        If (Not obWizard Is Nothing) Then
            obClassType.InvokeMember("StartWizard",
System.Reflection.BindingFlags.Public Or System.Reflection.BindingFlags.Instance Or
ystem.Reflection.BindingFlags.InvokeMethod, obWizard, Nothing, Nothing)
        End If
```

```
    End If
End Sub
```

5. Update wizards

When installing a zenon Service Pack, a wizard update is automatically offered. Existing wizards are not overwritten by the setup. It can therefore be necessary for the wizards to be manually imported and updated.

> ⚠ **Attention**
>
> *This information is only applicable for wizards that were programmed in* **C#**. *That is all wizards that are shown in the Update wizards window.*
>
> *This information does not apply to wizards that were programmed in* **.Net**, *such as.*
>
> ▸ Analyzer Wizards
>
> ▸ Sankey Wizard
>
> **.Net** *Wizards are integrated by means of a DLL and automatically kept up to date with the updates of zenon. The update can, if required, also be carried out manually via the build file contained in the zenon Analyzer installation medium for zenon.*

REQUEST UPDATE

An update can also be initiated manually at any time by selecting the **Update Editor add-ins** entry in the **Extras** menu.

Parameter	Description
Wizard list	Lists all VBA wizards and VSTA wizards present in the add-in that is running.
▸ **Name**	Name of the wizard.
▸ **Object name**	VBA/VSTA object name.
▸ **Previous Version**	Version currently being used.
▸ **Create**	Version that it is being updated to.
▸ **Information**	Status information and information on the pending action: ▸ New: Wizard does not exist in the VBA file.

	▸ Changed: A new version is available. ▸ No longer supported: The existing wizard is obsolete and will be deleted.	
▸ **Type**	VBA or VSTA	
▸ **User-specific**	wizard was created or changed by the user	
Data source	Possibility of defining your own folder for your own wizards. The save location of the individual **wizards.ini** (on page 485) is entered. The entries for this are saved in zenon.ini in the **[VSTA]** section or **[VBA]** as WIZARDPATH=.	
Additional folder for VSTA wizards	Individual save location for your own VSTA wizards.	
Additional folder for VBA wizards	Individual save location for your own VBA wizards.	
Remember me again	The dialog will open again when the Editor is next started.	
Start update	The wizards selected in the wizard list are updated.	
Cancel	The dialog is ended without updating and is only offered again after the next installation of a Service Pack.	

MAKE SURE THAT YOU ARE UP TO DATE

As objects which are not instanced at the time the dialog is opened are not checked, some objects are always offered for update. This makes sure that you do not work with out-of-date versions. The versions displayed in the update dialog is only used as information for the Consulting and Development departments.

DISTRIBUTE WIZARDS THROUGHOUT THE COMPANY

If you have written your own wizards and would also like to make these available to other users, then you can also use this method.
To do this, you export the wizard from your VBA/VBA development environment and ideally place the export files in an approved network drive. ini files serve to control the imports. These must be created accordingly and also stored in the network.
You can find a description of the files here: For VBA (on page 488) and for VSTA (on page 486).

Now you only need to show your colleagues the location where it is saved and the wizards can easily import these into your Editor. If you have changed or new wizards, you only need to export the new status, store it and increase the version number. You can therefore easily distribute wizards in your company.

POSSIBLE ERRORS WHEN UPDATING VSTA WIZARDS

Error	Possible causes
No VSTA wizards are displayed in the update dialog	▸ Only wizards that are in the add-in at the time are listed. If VSTA wizards are not shown, the VSTA add-in must be activated with the Start Editor. To do this, in zenon6.ini, in the **[VSTA]** section, set **LOADED=** to `1`. ▸ If the workspace cannot be compiled due to errors in the code, no wizards are listed. You can read how the original wizards are recovered in the **Recover original wizards** section.
A particular wizard is not displayed.	▸ The wizard does not support the required methods. ▸ The workspace was not yet compiled after the wizard was implemented; the add-in that is running does not contain the wizard.
Self-created wizards are not displayed.	▸ The configured path is incorrect. ▸ The **wizards.ini** in the path configured is obsolete or defective.

RECOVERING ORIGINAL WIZARDS

If wizards are not displayed in the list of the wizards, you can recover the original wizards. To do this:

1. End the zenon Editor.

2. Navigate to the folder: `%ProgramData%\COPA-DATA\zenonxxx\VSTAWorkspace` (xxx stands for the zenon version)

3. Rename the complete folder.

4. Restart the Editor.

   The folder and the wizards are recreated.

5.1   wizards.ini

Creation of the INI file for administering the wizard in VSTA and VBA.

> 💡 **Information**
>
> *This documentation is only available in English.*

5.1.1   VSTA wizards.ini

[DEFAULT]: Contains global settings

COUNT: Amount of wizards included in the INI (must be modified when adding/removing a wizard to the ini

[MYWORKSPACE] Contains settings for the Workspace.cs

VERSION: Current version

[WIZARD_X]: Contains settings of a wizard:

NAME: Name as indicated in the update dialog

CLASSNAME: Name of the form class representing the wizard.

VERSION: Version number

PATH:path-expansion to location of the files.

DELETE: 1 when the wizard is to be removed from the workspace

FILES: The amount of files included in this wizard

FILE_X: The name of a file included in the wizard

TYPE_X: The type of the file (required for the Form.cs and Resx file)

DEP_X: The name of a file on which this file depends

EXAMPLE

```
[DEFAULT]
COUNT=3

[MYWORKSPACE]
VERSION=1

[WIZARD_1]
NAME=Import-Wizard
CLASSNAME=Wizard_Exportxml
VERSION=3
PATH=\Wizard_Exportxml
DELETE=0
FILES=3
FILE_1=Wizard_Exportxml.cs
TYPE_1=Form
FILE_2=Wizard_Exportxml.Designer.cs
```

```
DEP_2=Wizard_Exportxml.cs
FILE_3=Wizard_Exportxml.resx
DEP_3=Wizard_Exportxml.cs
TYPE_3=EmbeddedResource


[WIZARD_2]
NAME=Wizard_Project
CLASSNAME=Wizard_Project
VERSION=1
PATH=\Wizard_Project
DELETE=0
FILES=3
FILE_1=Wizard_Project.cs
TYPE_1=Form
FILE_2=Wizard_Project.Designer.cs
DEP_2=Wizard_Project.cs
FILE_3=Wizard_Project.resx
DEP_3=Wizard_Project.cs
TYPE_3=EmbeddedResource


[WIZARD_3]
NAME=Demo Wizard
CLASSNAME=Wizard_Demo
VERSION=1
PATH=\Wizard_Demo
DELETE=0
FILES=3
FILE_1=Wizard_Demo.cs
TYPE_1=Form
FILE_2=Wizard_Demo.Designer.cs
DEP_2=Wizard_Demo.cs
FILE_3=Wizard_Demo.resx
DEP_3=Wizard_Demo.cs
TYPE_3=EmbeddedResource
```

5.1.2   VBA wizards.ini

```
[DEFAULT]: Contains global settings
COUNT: Amount of wizards included in the INI (must be modified when adding/removing a wizard
to the ini
[MYWORKSPACE] Contains settings for the Workspace.cs
VERSION: Current version
[WIZARD_X]: Contains settings of a wizard:
NAME: Name as indicated in the update dialog
VERSION: Current version
PATH:path-expansion to location of the files.
VB_NAME: Name of the VBA object representing the wizard.
VB_TYPE: 0=form, 1=class
DELETE: 1 when the wizard is to be removed from the workspace
```

EXAMPLE

```
[DEFAULT
COUNT=3


[MYWORKSPACE]
VERSION=3


[WIZARD_1]
NAME=Wizard for creating variables
VERSION=8
PATH=\CreateVariables\frmCreateVariables.frm
VB_NAME=frmCreateVariables
VB_TYPE=0
DELETE=0


[WIZARD_2]
NAME=Document Wizard
VERSION=12
PATH=\DocuWizard\frmDocuWizardEx.frm
VB_NAME=frmDocuWizardEx
VB_TYPE=0
DELETE=0
```

```
[WIZARD_3]
NAME=Import-Wizard
VERSION=3
PATH=\ImportWizard\frmImportWizard.frm
VB_NAME=frmImportWizard
VB_TYPE=0
DELETE=1
```

5.1.3   Required methods for updating

Example of methods that are required for the wizard to be displayed in the update dialog:

VBA

```
'The following methods define the form as a control system wizard. If IsZenOnWizard is set
to false,
'the wizard does not appear in the Wizard dialog and does not influence the wizard update
dialog.
Public Function GetWizardName() As String
    GetWizardName = "Empty Wizard"
End Function
Public Function GetWizardInfo() As String
    GetWizardInfo = "<TODO: Add description here>"
End Function
Public Function GetWizardCategory() As String
    GetWizardCategory = "<TODO: Add category-information here>"
End Function
Public Function IsZenOnWizard() As Boolean
    IsZenonWizard = False
End Function
Public Function GetWizardVersion() As Integer
    GetWizardVersion = 6
End Function
```

VSTA

```
#region Wizard_Identification
```

```csharp
/// <summary>
/// This Static method returns the name of the wizard,
/// which will be displayed in the wizard-tree.
/// </summary>
/// <returns></returns>
static public string GetWizardName()
{
    string strValue = "Demo Wizard";
    return strValue;
}
/// <summary>
/// This Static method returns the description of the wizard,
/// which will be displayed at the bottom of the wizard-dialog.
</summary>/// <returns></returns>
static public string GetWizardInfo()
{
    string strValue = "This is our Demo Wizard";
    return strValue;
}
/// <summary>
/// This static method returns the category name of the wizard,
/// which will be used as node-name in the wizards-tree.
/// </summary>
/// <returns></returns>
static public string GetWizardCategory()
{
    string strValue = "Wizard VSTA";
    return strValue;
}
/// <summary>
/// This static method returns a bool which can be used to "switch" the wizard
/// on/off in the wizard dialog (false=wizard is not shown in the tree).
/// </summary>
/// <returns></returns>
static public bool IsZenOnWizard()
{
    bool bValue = false;
    return bValue;
}
```

```
/// <summary>
/// This static method returns the version of the wizard.
/// Indicated at the bottom of the wizard-dialog.
/// </summary>
/// <returns>wizard version</returns>
static public int GetWizardVersion()
{
    int nValue = 1;
    return nValue;
}
/// <summary>
/// This method is called when the wizard has been selected in the
/// wizard dialog and confirmed with "OK".
/// </summary>
public void StartWizard()
{
    this.Show();
}
        #endregion
```