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1. Welcome to COPA-DATA help

GENERAL HELP

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

PROJECT SUPPORT

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

LICENSES AND MODULES

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

2. Chronological Event List (CEL)

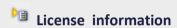
In the Chronological Event List (CEL) system events and user inputs can be logged, e.g.:

- ▶ Acknowledge alarm
- ▶ Delete alarm
- Set value



- ▶ Write recipe
- ▶ Change recipe
- Archive data
- User action
- Network action

The entries are made in the language in which the zenon Runtime runs.



Part of the standard license of the Editor and Runtime.

2.1 Engineer CEL

The handling of the Chronological Event List is carried out via screens of type Chronological Event List and Chronological Event List Filter in the Runtime.

EDITOR

To display and filter events in the Runtime, you must do the following in the Editor:

▶ engineer a screen of type Chronological Event List (on page 6)

In addition you can:

- control the display of events via filter (on page 32)
- ▶ with a screen of type Chronological Event List Filter (on page 12) adapt the available filter in the Runtime

RUNTIME

For the operation in the Runtime (on page 114) the following is used:

- ► Screen switch CEL (on page 96)
- Screen switch CEL filter (on page 98)



- ▶ die zenon CEL functions (on page 89)
- ▶ Use screen of type CEL Filter (on page 121)

2.1.1 Create screen of type CEL

A screen of type Chronological Event List makes is possible to log and display system events and user operations in the Runtime. Which entries are displayed is defined via the engineering. The display can be changed by filters (on page 32) in the engineering and in the Runtime. Functions make it possible to export and print the displayed events.

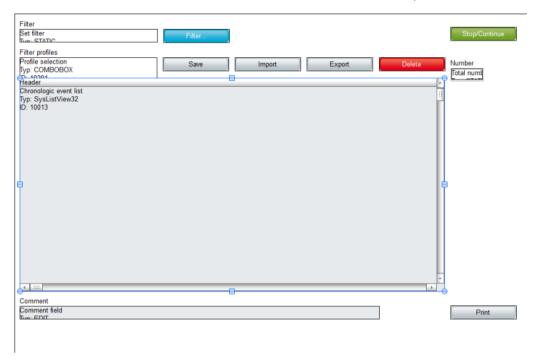
CREATE A SCREEN OF TYPE CHRONOLOGICAL EVENT LIST

To create a screen of type Chronological Event List:

- 1. Select, in the toolbar or in the context menu of the screens node, the New Screen command
- 2. An standard empty screen is opened
- 3. Change the screen type in the detail view; to do this:
 - a) click on standard in the screen type column
 - b) Select chronological Event List from the drop down list
 - c) do not select the main frame if you want to close the screen in the Runtime via button close
- 4. click in the screen
- 5. Select the control elements menu item in the menu bar
- 6. Click on Add template in the drop-down list
- 7. The standard elements are inserted
- 8. Select additional elements as required and insert them into the desired place on the screen



9. create a screen switch function, in order to be able to call up the CEL in the Runtime





Parameter	Description
Add template	Opens the dialog for selecting a template for the screen type.
	Templates are shipped together with zenon and can also be created by the user.
	Templates add pre-defined control elements to pre- defined locations in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and dragged onto the screen. Elements can be moved on the screen and arranged individually.
Chronologic event list	Display field for the list with its events. The appearance is configurable (on page 10). Columns are defined via the Column settings (on page 60) filter in screen switching or via the Column settings CEL property in the Chronologic event list group.
Display: Set filter	Displays the currently selected filter.
Filter	Opens the filter dialog (on page 32).
Sort	After calling up the CEL in the Runtime, new entries are not sorted in chronological order but added to the bottom of the list.
	Click on the button to newly sort the list.
	To help you differentiate between sorted and unsorted entries you can assigned different colors via properties sorted text and unsorted text.
Show relative times	Active: The relative times are displayed without the focus being lost in the selected entry.
Stop/Continue	Controls adding new events to the list while it is displayed:
	Stop: No new entries are added to the list. The button changes its caption to Next.
	Next: New entries are added to the list. The button changes its caption to Stop. To sort the new entries chronologically, you must click on button Sort.
Close	Ends the display of the Chronological Event List and closes



	the screen and the frame.
	the series and the manner
	In order that after the closing the screen which was
	opened before is displayed, you must engineer the screen
	of type CEL with its own frame.
Print	Prints list (on page 129) as it is currently displayed.
Print with dialog	Opens printer settings before printing.
Text: Total number	Adds text "Total" in the Runtime. Must be followed by list
	field Total number.
Total number	Number of all events in the list
10tal number	Number of all events in the list
Info: Status CEL	In the Runtime displayed the state of the CEL.
	active: Events are logged depending of the settings
	(on page 28) in the project
	inactive: Events are not logged
	You define the status with the help of property CEL
	active. Changes take effect after restarting the
	Runtime.
Text: Comment field	Adds text "comment" in the Runtime. Must be followed
	by list field Comment field.
Comment field	List field for entering a freely definable text by the user
	for the selected event.
	As soon as the field loses focus, the text is taken over. To
	display the text in the CEL, you must activate column
	comment in the column definition (on page 60).
Button Stop/Continue	
baccon Scop/Continue	
Navigation	Controls elements of the list.
▶ Line up	Scrolls one line up.
▶ Line down	Scrolls one line down.
Column right	Scrolls one column to the right.
Column left	Scrolls one column to the left.
Page up	Scrolls one page up.
> Page down	Scrolls one page down.
	



▶ Page right	Scrolls one page to the right.
▶ Page left	Scrolls one page to the left.
Filter profiles	Filter settings that can be saved by the user in Runtime.
Profile selection	Select profile from list.
> Save	Saves an online setting in a profile.
<pre>Delete</pre>	Deletes selected profile.

Info

The current filter is displayed the in the **Show filter** control element.

For a:

- ▶ Text filter, the expression [Txt] is displayed
- Relative time filter is displayed as a print-out with the following scheme:

[T,Rel:%dd,%dh,%dm;%ds]

Example: [T,Rel:1d,0h,0m,0s] corresponds to a day.

Customize CEL look

The table view of the Chronological Event List can be customized individually:

SCROLL BAR, HEADER AND GRID

To define the size and appearance of scroll bars, the header or grids for the the report:

- 1. In project properties, select the Extended graphical settings property in the Representation group
- 2. define the desired properties in groups Scroll bars and Header and grid for element Chronological Event List in the screen



Info

If you select Graphics files for property Display style, all elements for which no graphics file is selected are displayed with color gradient. You cannot use transparent graphics for control elements for lists.

SORT IN THE RUNTIME

To mark the column which is relevant for the sorting in the Runtime and to define the sorting order, engineer graphical elements for the header:

- 1. for property Display style select value Graphics files
- 2. link properties Sort ascending and Sort descending each with a graphics file
- 3. in the Runtime the selected graphic for the corresponding sorting order is displayed in the column which is relevant for the sorting
- 4. Click on the graphic in order to change the sorting order
- 5. Click on header in order to activate the column for sorting

Note: In the case of sorting according to time stamp, entries with the same time stamp are also sorted according to the time of creation.

OPERATE HEADER IN THE RUNTIME

You can enable users to operate the header in the Runtime. With this an individual adjustment of the display in the Runtime is possible:

- Move columns
- ▶ Change size
- Changing sorting.

To do this, navigate to Chronologic event list group in the settings and select, in the Header CEL property, Operable headers. Alternatively, you can also switch the header to inoperable or invisible here.

These settings apply for all headers in the project.





💡 Info

You can prevent the operability and the visibility of the header for each screen of type Chronological Event List by deactivating property Show header or Make header editable for the tabular view.

PREVIEW

By activating the Extended graphical settings property in the Editor, the header and scroll bars can be previewed. This way, details such as color fill effects, light effects or grids can be configured more easily.

Attention: As the size of the scroll bars equals their size in the Runtime, the total size of the list in the Editor can vary from the size in the Runtime. This is also true for the size of the header and the font of the header.

2.1.2 Create a screen of the type CEL Filter

It is possible to adjust filter settings for the Chronological Event List in Runtime with the help of the Chronological Event List Filter screen. Only the filter elements that are actually required are configured and provided to the user The appearance can also be freely defined and thus adapted to different end devices. All filter settings that are available in the filter (on page 32) for the function to switch the screen to the Chronological Event List screen (on page 96) can be configured.

Therefore:

- Only the filter elements that are actually required are configured and provided to the user
- The user only has these filters displayed and has an overview
- The appearance can be freely defined and can, for example, ensure ease of use by means of a touch screen.

For details of use in the Runtime, see Using the CEL Filter (on page 121) chapter.

For the definition of filter criteria, see Filter screen switch CEL Filter (on page 68) chapter.



Attention

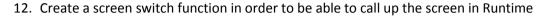
Screens of type Alarm Message List Filter, Chronological Event List Filter and Time Filter must be engineered with an own frame. If they use the same frame as other screens, all screens based on this frame are closed when the screen is closed.

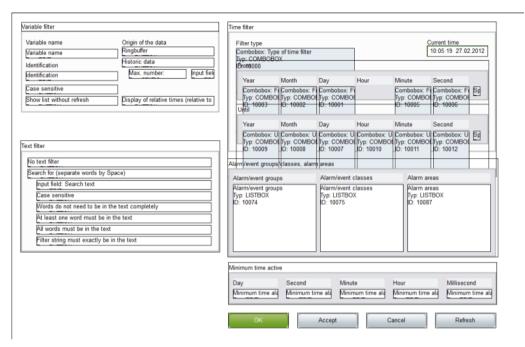
CREATE A SCREEN OF TYPE CHRONOLOGICAL EVENT LIST FILTER

To create a screen of type Chronological Event List Filter:

- 1. Select, in the toolbar or in the context menu of the screens node, the New Screen command
- 2. An standard empty screen is opened
- 3. Change the screen type in the detail view; to do this:
 - a) click on standard in the screen type column
 - b) Select Chronological Event List Filter from the drop-down list
- 4. select your own frame (CEL filter cannot be based on the same frame as other screens)
- 5. Click in the screen.
- 6. Select the control elements menu item in the menu bar
- 7. Click on Add template in the drop-down list
- the dialog for selecting a template is opened
- 9. select the desired template
- 10. Select additional elements as required and insert them into the desired place on the screen
- 11. Name the screen according to the selected filter To do this:
 - a) Click on the screen name in the detail view in the name column
 - b) Select a suitable pre-defined name from the drop-down list it give it a name of your own







ELEMENTS

The screen of type Chronological Event List Filter can contain the following control and display elements.



Element	Description
Add template	Opens the dialog for selecting a template for the screen type.
	Templates are shipped together with zenon and can also be created by the user.
	Templates add pre-defined control elements to pre- defined locations in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and dragged onto the screen. Elements can be moved on the screen and arranged individually.
General filters	Drop-down list of different general filters.
Insert all elements: General filters	Inserts all elements from the area of general filters into pre-defined places. Elements can be arranged individually.
Variable filter	Alarms of which variables are displayed:
▶ Variable name	Filter according to names of variables.
▶ Identification	Filter according to identification of variables.
▶ Case sensitive	Note capitalization when filtering the variables.
Origin of the data	Where does the data come from:
▶ Ringbuffer	From the ring buffer (on page 88).
▶ Historic data	From an archive.
▶ Text: Max. number:	Text for Maximum number input field
▶ Input field: Max. number:	Input of the maximum alarms to be displayed when historical alarms are displayed.
	0: displays all
Runtime settings	
▶ Show list without refresh	Switches the AML in stopped state. New alarms are not added.
▶ Show relative times	Switches between the normal display and the relative-time display without the entries losing focus.



	Relative time: All entries are displayed in temporally distance to the selected entry. The stated time is the time difference which has passed since the selected event. The selected entry automatically receives time stamp 0. The other events have a: • positive time difference to the selected entry if they occurred later • negative time difference to the selected entry if they occurred earlier
Alarm/event groups/alarm/event classes/alarm areas	List field for grouped display:
▶ Alarm/event groups	Alarm/event groups
▶ Alarm/event classes	Alarm/event classes
▶ Alarm areas	Alarm areas



Time filter	Drop-down list of different time filters (on page 76).
Insert all elements	Opens drop-down list to select pre-defined elements for certain time periods.
Absolute period of time: classic display	Elements for the absolute time period in classic display.
Absolute period of time: compact display	Elements for the absolute time period in compact display.
Relative period of time	Elements for the relative time period.
Starting at HH:MM:SS	Elements for a time period from a defined time.
Starting on day at HH:MM:SS	Elements for a time period from a defined day at a defined time.
Starting on day, month at HH:MM:SS	Elements for a time period from a defined day in a defined month at a defined time.
Time period: 1 or 2 weeks	Elements for a time period over one or two weeks.
Time period: one day	Elements for a time period of one day.
Time period: one month	Elements for a time period of one month.
Time period: one year	Elements for a time period of one year.
Time period: 15/30/60 minutes	Elements for a time period of 15, 30 or 60 minutes.
Insert all elements (Touch)	Opens the drop-down list to select pre-defined elements for certain time periods, which have been optimized for touch operation. Like Insert all elements, the following are available:
	 Absolute period of time: classic display Relative period of time
	Starting at HH:MM:SS
	Starting on day at HH:MM:SS
	Starting on day, month at HH:MM:SS
	Time period: 1 or 2 weeks
	Time period: one day
	Time period: one month



Time period: one year
Time period: 15/30/60 minutes



Labeling: Time filter type	Labeling for time filter type.
Combobox: Time filter type	Combobox: Time filter type
Display: Time filter type	Field for time filter type display.
Time filter options	Buttons that show or hide certain elements in Runtime: No filter
	Absolute time filter
	▶ Relative time filter
	Starting on day, month at HH:MM:SS
	Starting on day at HH:MM:SS
	Time period 1 week
	Time period 2 weeks
	Time period 1 day
	Time period 1 month
	Time period 1 year
	Time period 15 minutes
	Time period 30 minutes
	Time period 60 minutes
Time from	Fields and labeling for stating "from" time.
	Labeling: From year
	Combo box: From year
	Labeling: From month
	Combo box: From month
	Labeling: From day
	Combo box: From day
	Labeling: From hour
	Combo box: From hour
	▶ Labeling: From minute



Combo box: From minute
▶ Labeling: From second
Combo box: From second
▶ Spin control From



Time to	Fields and labeling for stating "to" time.
	▶ Labeling: Until year
	Combo box: Until year
	Labeling: Until month
	Combo box: Until month
	▶ Labeling: Until day
	Combo box: Until day
	Labeling: Until hour
	Combo box: Until hour
	▶ Labeling: Until minute
	Combo box: Until minute
	▶ Labeling: Until second
	Combo box: Until second
	▶ Spin control Until
Time from (Touch)	Fields and labeling for stating "from" time, optimized for touch operation.
	▶ Labeling: From year
	Combo box: From year
	▶ Labeling: From month
	Combo box: From month
	▶ Labeling: From day
	Combo box: From day
	▶ Labeling: From hour
	Combo box: From hour
	▶ Labeling: From minute
	Combo box: From minute
	Labeling: From second



Combo box: From second
▶ Spin control From



Time to (Touch)	Fields and labeling for stating "to" time, optimized for
	touch operation.
	▶ Labeling: Until year
	Combo box: Until year
	Labeling: Until month
	Combo box: Until month
	Labeling: Until day
	Combo box: Until day
	Labeling: Until hour
	Combo box: Until hour
	Labeling: Until minute
	Combo box: Until minute
	Labeling: Until second
	Combo box: Until second
	▶ Spin control Until
Absolute time filter	Fields and labeling for stating absolute time filter.
	Labeling: From
	Calendar display: From date
	Date display: From date
	Time display: From time
	▶ Labeling: Until
	Calendar display: Until date
	Date display: Until date
	Time display: To time
Time period	Fields and labeling for stating time periods.
	Labeling: From year
	l I



Labeling: From month
Combo box: From month
Labeling: From day
Combo box: From day
▶ Label: Start time
Combo box: Start time
▶ Labeling: Week
Combo box: Week



Time period (Touch)	Fields and labeling for stating "from" time, optimized for touch operation. Labeling: From year Button: From year (up) Touchbox: From year (down) Labeling: From month Button: From month (up) Touchbox: From month Button: From month (down) Labeling: From day Button: From day (up) Touchbox: From day Button: From day (down) Labeling: Start time Button: Start time (up) Touchbox: Start time (down) Labeling: Week Button: Week (up) Touchbox: Week
	Touchbox: WeekButton: Week (down)
Text filter	Drop-down list of different text filters.
Insert all elements: Text filter	Inserts all elements for text filters.
No text filter	Radio button to deselect text filter.



Search for (separate words by Space)	Radio button to activate the search
Text: Search text	Labeling for search field.
Input field: Search text	Field for input of search term.
Options	Search options
▶ Case sensitive	Capitalization must be noted.
▶ Words do not need to be in the text completely	Fragments can also be searched for.
▶ At least one word must be in the text	At least one search term from several must be in the result.
▶ All words must be in the text	All search terms must be included in the result.
▶ Filter string must exactly be in the text	Exact text from the input field must be contained in the result.
OK	Accept inputs and close screen.
Cancel	Reject inputs and close screen.
Accept	Accept inputs and leave screen open for further inputs.
Update	Refresh screen.



FILTER SCREENS

Filter screens make it possible to transfer a preset filter from one screen to another. The filter of the source screen is set using the target screen. The screens can also be of a different screen type.



Attention

In order for the time to be taken from the screen to be called up in Runtime, the following time range must be selected in the Editor for the screen switching function for the Alarm Message List or the Chronological Event List in the time filter: Set filter at time filter type

CALL DEFINITION

The following requirements must be met for the set filters to be used:

- 1. Set filter for time filter type is selected as a time period for the time filter.
- 2. The Screen (Alarm Message List Filter, Chronological Event List filter Of Time Filter screens) are activated using a button or a combined element. Only in this way can the relationship between filter screen and source screen be maintained.
- 3. The source screen and filter screen must be configured on different frames or monitors. The filter for the filter screen can only be updated if the source screen is open. This is only possible if both screens do not use the same frame or the same monitor.
- 4. The screen to be called up must be compatible with the filter screen to be called up (see table).



Source screen	AML filter	CEL filter	Time filter
Archive revision	Т	Т	Т
Extended trend	Т	Т	Т
Time filter	Т	Т	Х
Alarm Message List Filter	Х	С	Т
Chronological Event List Filter	С	X	Т
Alarm Message List	Х	С	Т
Chronologic event list	С	Х	Т

Key:

- C: Common settings are updated.
- T: Time settings are updated.
- X: All settings are updated.



Info

No filtering

The filter screen is not filtered, but opened with the configured values, if:

- One of the conditions 1 to 3 is not met or
- The Screen to call up setting is not activated for the Screen switching function or
- The screen is not called up via a screen element

In this case, the Accept, Close and Update buttons are grayed out in Runtime and have no function.

Define events for CEL 2.1.3

Which events are logged in the Chronological Event List is defined via:



- 1. Properties of group Logging in node Chronologic event list in the project settings
 - Delete alarms
 - Alarm acknowledgement
 - Function Set SV
 - Send recipes
 - Change recipes
 - Archive data
 - Archive evacuation [h]
- 2. Properties of the variables
 - AML/CEL in group Limits
 - Group Logging in CEL in node Write set value

LOG SET VALUE CHANGES

Set value changes are possible via different mechanisms. These are logged in the CEL according to the settings and the module.



Parameter	Description
Logging of set value write set value	You can define the logging of set value changes for every variable. For this the following options are available at property Logging in group Write set value:
	All: All changes via dynamic elements and function write set value are logged.
	Nothing: Changes are not logged. Only via dynamic elements: Logs only write set value via dynamic elements but not via function Write set value.
Old and new value	With property Old and new value you define whether only new or also old values are written in the protocol.
	This property affects write set value via:
	dynamic element
	• function Write set value
	write set value via VBA
Write set value via VBA	If function Setting values with VBA is activated, set value changes via VBA are logged in the CEL.
Standard recipes and Recipegroup Manager	For the standard recipes and the recipegroup manager the logging is controlled via the properties of group Logging in node Chronologic event list.
PFS/Scheduler	The Production & Facility Scheduler and the Scheduler log all set value changes in the CEL. This setting cannot be changed.
	Note: Only new value is logged. Property Chronologic event list is not considered.

Check write set value

When writing values, the value receives a status bit that is has been written. If the writting process is successful, the corresponding status bit is set:

► WR-ACK

The driver received a value for writing.

► WR-SUC



Value 1: Writing successful.

Value 0: Writing not successful. The value could not be written.



Info

In case of reload or Server-Standby switch, the currently active responses or writing affirmations are discarded.

This status combination are active until the next value change is triggered. Then both states are set to $\,0\,$ until the writing action is finished. For evaluation the following bit combination must be requested in the reaction matrix:

WR-ACK, WR-SUC

Result:

- WR-ACK 1, WR-SUC 1: Writing action successful.
- WR-ACK 1, WR-SUC 0: Writing action not successful.



Attention

The mechanism only shows, that the writing action was successful (or not successful) to the PLC. This does not mean, that the value has indeed been changed in the PLC, since the PLC can reset/overwrite the value immediately. (For example for writing the outputs or the transient bits which are only set for a short time.)

MODULES

This mechanism can be used in the following modules:

- ▶ function write set value: Activate option Wait for writing confirmation in the configuration dialog of the function.
- Standard recipes: Activate property Write synchronously .
- Recipegroup Manager: Activate property Write synchronously.

ENTRY IN CEL

Function Write set value



For the entry in the CEL you must activate property Function Set SV in node Chronologic event list in the project settings. After this the positive or negative response the execution of the function is written to the CEL.

▶ <u>Standard recipes and Recipegroup Manager</u>

For the entry in the CEL a system driver variable is used which is set to 1 when a recipe is written successfully. A global variable is evaluated on the Server, a local variable on every Client in order to determine when the recipe executed last was written completely. With this variables a CEL entry can be created via limit or reaction matrix. The query is carried out via a multi analog or a multi binary reaction matrix.

Length static limit text CEL

Via property Length static limit texts CEL you define how many characters may be used for the message text in the CEL. For each CEL file the allowed number of characters of the message texts is saved in the header. The change of this property take effect when a new CEL file is created.

Note: For dBase export the length is limited to 254 characters.

CEL.BIN AND NETWORK

In file CEL.BIN message texts are saved as variables with variable length and are transferred as such in the network. This means that CEL entries from the ring buffer are not limited in the length independent of property Length static limit texts CEL.

2.1.4 CEL engineering via filter

You can engineer the display of the events in the Runtime via filters. For this you have several possibilities:

- Define information which is displayed in the CEL in the Runtime:
 With this you define what information is displayed together with an event.
 For details see: Column settings for Chronological Event List (on page 33)
- Filter event for CEL at call up and modify in the Runtime:With this you define filter and give the operator at the machine the possibility to create own



filters.

For details see: Filters for screen switch CEL (on page 38).

3. Fixed filters for the Runtime:

With this you create filters which are tailor-made for the actual use and hide unnecessary filter criteria

For details see: Filters for screen switch CEL filter (on page 68).

Column settings for Chronological Event List

Parameter	Description
Columns	In the list field of this tab all available column types are displayed.
	You can change the sequence of column types by dragging & dropping in the list field:
	Click in the Column type column
	Move the individual entries as desired
	Alternatively, you can adjust the sequence with the Move selected entry up and Move selected entry down.
► Checkbox:	Select which column types are displayed.
Description:	Free text entry for a description of the column.
	Change description: left-click on the corresponding area. Enter the desired value in the editing field.
	Note: for column descriptions, zenon language switching is available.
Column width:	Defines the width of the column in characters.
	Change column width: left-click on the corresponding area. Enter the desired value in the editing field. -1 Width is calculated in Runtime using average character width
	Note: For compatibility reasons, the columns with widths that could not be changed in earlier zenon versions (date and time), have the value -1 .



Display	For column types
Display:	For column types
	▶ Alarm/event class symbol
	▶ Alarm/event group symbol
	▶ Alarm status
	Actual form of display can be selected in Runtime. Select the desired form from the drop-down list.
Move selected entry up	Moves selected entry up one place.
Move selected entry down	Moves selected entry down one place.
Preview field	Displays the columns defined in the list field in the width displayed there.
	You can also adjust the column widths here by left clicking on the right end of a column, holding down the mouse button and moving the mouse to the left or right accordingly.
Table settings	
Sort descending	Sorts the entries in the list according to the Time received column in decreasing order. These settings apply for showing a screen. You can change the sorting order in Runtime by clicking on the column header. The sorting sequence currently being used is shown by an arrow on the column header.
Display grid	shows a grid when the list is displayed in Runtime.
Use alternating background colors	Uses line color 1 and line color 2 alternately as background colors for the list in Runtime.
▶ Row color 1	Color that is used as a background color in in the list Runtime for all uneven numbers (1, 3, 5 etc.), if you have activated Alternating Background Colors.
▶ Row color 2	Color that is used as a background color in in the list Runtime for all even numbers (2, 4, 6 etc.), if you have activated Alternating Background Colors.



Display in the time columns	
Time	Displays the time for a list entry in the following form: HH:MM:SS
Date	Displays the date for a list entry in the following form: TT:MM:YYYY
milliseconds	Expands the time entry by milliseconds. Note: Must be activated if milliseconds are to be provided in exports or print-outs.

Which pieces of information are displayed in the CEL in the Runtime, you can define in the column settings. You configure these for a screen switching function in the filter criteria or directly in the properties of the Alarm Message List in the project:

- open the Chronologic event list node in the project project properties
- 2. click on property Column settings CEL
- 3. the dialog for the column setting is opened
- 4. Note: For calculating the column width the average character width of the selected font is used.



In project settings, you can set a default setting for the sequence and size of columns using the Column settings AML property or the Column settings CEL property. If you create a new screen switching function from an Alarm Message List screen or Chronological Event List screen, this setting is used as a default. The setting is stored in the project.ini file.

Info

In project settings, you can set a default setting for the sequence and size of columns using the Column settings AML property or the Column settings CEL property. If you create a new screen switching function from an Alarm Message List screen or Chronological Event List screen, this setting is used as a default. The setting is stored in the project.ini file.



Parameter	Description
Columns	In the list field of this tab all available column types are displayed. You can change the sequence of column types by dragging & dropping in the list field: Click in the Column type column Move the individual entries as desired
	Alternatively, you can adjust the sequence with the Move selected entry up and Move selected entry down.
Checkbox:	Select which column types are displayed.
Description:	Free text entry for a description of the column. Change description: left-click on the corresponding area. Enter the desired value in the editing field. Note: for column descriptions, zenon language switching is available.
Column width:	Defines the width of the column in characters. Change column width: left-click on the corresponding area. Enter the desired value in the editing field. -1 Width is calculated in Runtime using average character width Note: For compatibility reasons, the columns with widths that could not be changed in earlier zenon versions (date and time), have the value -1.
▶ Display:	For column types Alarm/event class symbol Alarm/event group symbol Alarm status Actual form of display can be selected in Runtime. Select the desired form from the drop-down list.



Move selected entry up	Moves selected entry up one place.
Move selected entry down	Moves selected entry down one place.
Preview field	Displays the columns defined in the list field in the width displayed there.
	You can also adjust the column widths here by left clicking on the right end of a column, holding down the mouse button and moving the mouse to the left or right accordingly.
Table settings	
Sort descending	Sorts the entries in the list according to the Time received column in decreasing order. These settings apply for showing a screen. You can change the sorting order in Runtime by clicking on the column header. The sorting sequence currently being used is shown by an arrow on the column header.
Display grid	shows a grid when the list is displayed in Runtime.
Use alternating background colors	Uses line color 1 and line color 2 alternately as background colors for the list in Runtime.
▶ Row color 1	Color that is used as a background color in in the list Runtime for all uneven numbers (1, 3, 5 etc.), if you have activated Alternating Background Colors.
▶ Row color 2	Color that is used as a background color in in the list Runtime for all even numbers (2, 4, 6 etc.), if you have activated Alternating Background Colors.
Display in the time columns	
Time	Displays the time for a list entry in the following form: HH:MM:SS
Date	Displays the date for a list entry in the following form: TT:MM:YYYY
milliseconds	Expands the time entry by milliseconds.
	Note: Must be activated if milliseconds are to be provided in exports or print-outs.

Hint: If you activate the automatic keyboard in Runtime, it is turned on when an editing field appears. You can also use this to configure the columns if you are using a computer without a keyboard.



Attention

The column width is given in characters and is dependent on the font used. If the column width is not a multiple of the character width of the used font, the actual column width can differ from the set column width. This can result in the text being cut of or an empty space being created.

Solution: Use proportional fonts, such as 'Courier New', for example.

Filters for screen switch CEL

With filters you define which events should be displayed in the Runtime and which should be hidden. Filter can be defined in the Editor and - depending on the settings in the Editor - in the Runtime.

To tailer the filter selection in the Runtime to the needs of the operator, use screen of type Chronological Event List Filter (on page 12) instead of Chronological Event List (on page 6).

To create a screen switch to a screen of type Chronological Event List:

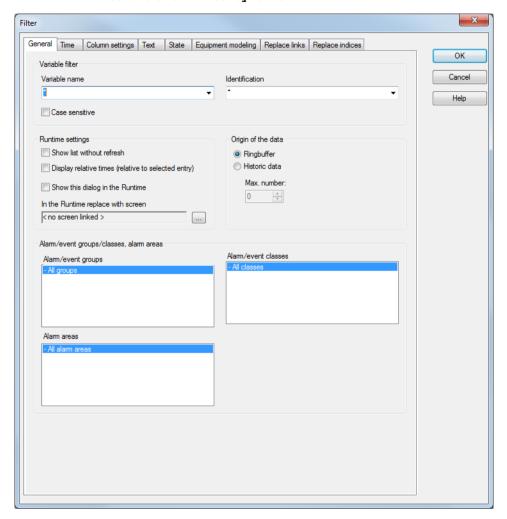
- engineer a function screen switch to a screen of type Chronological Event List
- 2. the filter dialog is opened and offers several tabs with filter criteria:
 - General (on page 39)
 - Time (on page 42)
 - Column settings (on page 60)
 - Text (on page 64)
 - State (on page 66)
 - Project (on page 67) (only available in the integration project of the multi-project administration.)
 - Equipment modeling (on page 67)

If linked variables or indexes are available, the following tabs can be displayed as an option.

- Replace links
- Replace indices



• For details see in chapter screens sections Replace links of variables and functions and Linked symbols.



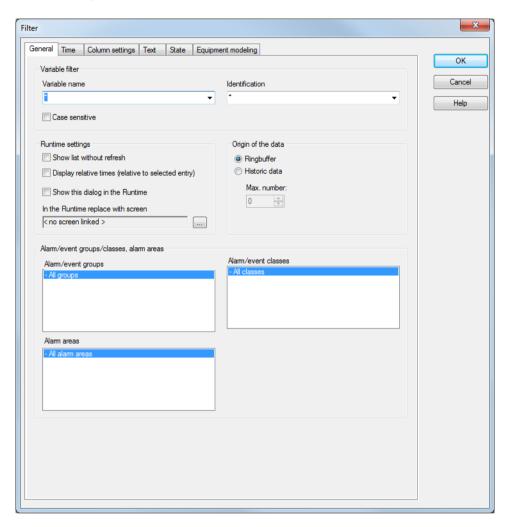
General

With the general filter you define which events are displayed and what kind of access you have to the settings in the Runtime. To this you differentiate events according to:

- ► Type
- Origin of the data
- Variables
- ► Alarm/event groups, classes and alarm areas



The following properties are available:





Parameter	Description
Variable filter	Restrictions to events of certain variables
Variable name	Enter the name or part of the name of the variable you want to filter. Wild card * is possible.
	Note: Wild cards are only allowed as prefix or suffix, i.e. *xxx or xxx*
Identification	Enter the identification or part of the identification of the variables you want to filter. Wild card * is possible.
	Note: Wild cards are only allowed as prefix or suffix, i.e. *xxx or xxx*
Case sensitive	Active: Capitalization is recognized when filtering for variable name and/or identification.
Runtime settings	Behavior of the CEL in the Runtime
Show list without refresh	Active: As long as the list is displayed no new entries are added.
	(Not available for function Export CEL (on page 101).)
Display relative time	All entries are displayed in temporally distance to the selected entry.
	The stated time is the time difference which has passed since the selected event. The selected entry automatically receives time stamp 0. The other events have a:
	positive time difference to the selected entry if they occurred later
	negative time difference to the selected entry if they occurred earlier
Show this dialog in the Runtime	Active: Before every call of the screen the filter dialog is opened. The filter settings can be modified.
In the Runtime replace dialog with screen	Definition of a screen that is to be switched in Runtime instead of the dialog if the Offer this dialog in Runtime option is active. Only screens of the type CEL Filter or Time filter will be offered.
	Click the button and a dialog opens to select a screen.
	If the linked screen is not found in Runtime, a search is



	made for corresponding screens with specific names.
Origin of the data	Display current or current and historical events.
Ringbuffer	Active: Only data from the ring buffer (on page 88) are displayed.
Historical data Maximum number	Active: Data from the ring buffer and historical data from the CEL are displayed. The maximum number of the data which should be displayed includes the data from the ring buffer.
Alarm/event groups/classes and alarm areas	Selection of groups, classes and alarm area.
Alarm/event groups	From the existing alarm/event groups select the one from which alarms should be displayed.
Alarm/event classes	From the existing alarm/event classes select the one from which alarms should be displayed.
Alarm areas	From the existing alarm areas select the one from which alarms should be displayed.

Attention

Concerns zenon under Windows CE: CE systems on which the filter dialog should be displayed must have a screen resolution higher than 800*600 pixel for the dialog to be displayed completely.

Time

Time filters make it possible to limit the data to be displayed or exported. The time filters are very flexible to implement and can be pre-set in the editor or adjusted in Runtime.

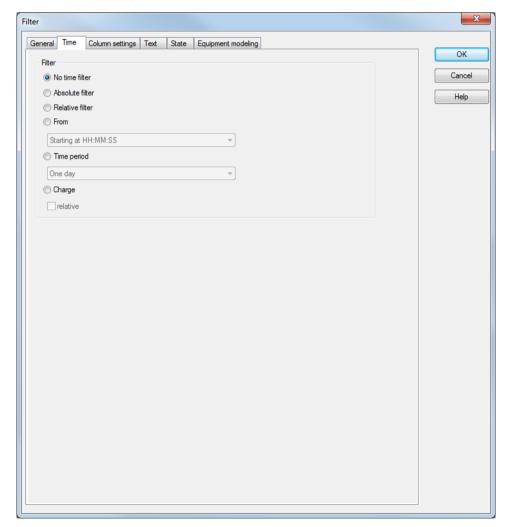
Note: Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.

The mechanisms described here are applicable for screen switching as well as export for:

Alarm Message List



- Archive revision
- ► Chronologic event list (on page 4)
- Extended trend
- ► Filter screens (on page 76)
- Report Generator
- ▶ Report Viewer
- ► Function Export Archives.



Time filtering can be carried out in two ways:

Define time period in the Editor
 Fixed time areas are used. A time period is given in the editor. It is only possible to filter



according to this time period in Runtime. Other filters - such as filtering according to variable name, alarm/event groups and alarm/event classes etc. can no longer be amended in Runtime.

2. Time filter amendable in Runtime Pre-defined times are used. The time filter is defined in the Editor and can be changed in Runtime as desired.



Info

If a screen that does not have a time filter is referenced, the time filters are deactivated.

For the setting Set filter for time filter type the option Display filter dialog in Runtime can be selected, but it is not available in runtime.

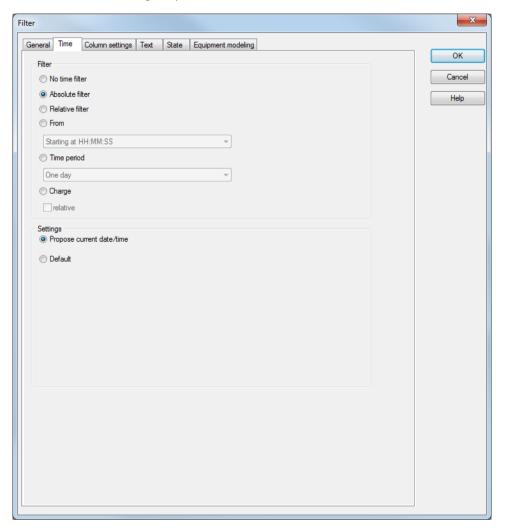
Time filter changeable in the Runtime (use pre-engineered times)

With this method, you stipulate a time filter in the Editor. This can be amended in Runtime before execution. To create the filter:

- 1. create a picture switch function.
- 2. The screen must have Filter and Display filter buttons
- 3. select the desired filter:
 - Absolute filter
 - Relative filter
- 4. Select, in the Specification Section, the Option Propose current date/time



5. The filter dialog is opened in Runtime with the current date and time





Parameters	Description	
Filter	Selection of the filter.	
No time filter	Active: No time filter is used.	
	Not available for Extended Trend	
Absolute filter	Active: A fixed period of time is entered in the editor. When the function is executed, the defined absolute time period is exactly used.	
	In the settings section, the corresponding options can be shown and configured (on page 51) there.	
	Note: Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.	
Relative period	Active: A relative time period is entered.	
of time	In the settings section, the corresponding options can be shown and configured (on page 54) there.	
	Attention: this filter is constantly updated.	
From	Active: A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.	
	Selection of the area mode from drop-down list:	
	Starting at HH:MM:SS	
	Starting on day at HH:MM:SS	
	Starting on day, month at HH:MM:SS	
	In the settings section, the corresponding options can be shown and configured (on page 56) there.	
	Attention: The start point of this filter is not updated automatically. Only the existing times are used when shown. The end time point is not defined with this filter, it is carried over.	
Time period	Active: A fixed time period is entered. Selection of the area mode from drop-down list:	
	▶ One day	
	▶ One week	
	▶ Two weeks	



	▶ One month
	▶ One Year
	▶ 15 minutes
	> 30 minutes
	▶ 60 minutes
	In the settings section, the corresponding options can be shown and configured (on page 58) there.
Lot	Active: The dialog for lot selection is shown in Runtime.
	only available for Extended Trend, archive revision and reports.
relative	Active: Display always starts from zero point. Enables several lots to be compared directly.
	Only for Extended Trend and only available if the Lot option is activated.
ОК	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes and closes the dialog.
Help	Opens the online help.

Define time period in the Editor

With this method, you enter a fixed time period into the editor, which is applied when the function is carried out in Runtime. You can then only define the start time in Runtime, but no further filter settings.

For example: You set a 30 minute time filter. In Runtime, you can now only set when this 30 minute time period is to start. However, you cannot change the filter to a day filter.



Attention

When using this type of filter, you can also no longer amend all other filters in Runtime that are available in the General tab. It is still possible to filter for text, status and equipment.

To create the filter:

- 1. create a picture switch function.
- The screen must have the Filter button to start the filter in Runtime



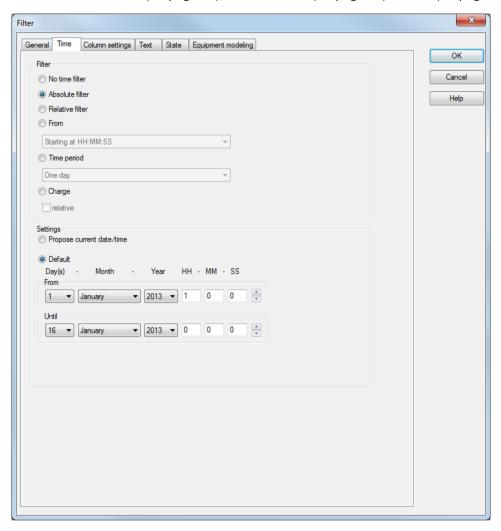
Hint: Activate the Offer this dialog in the Runtime option in the General tab in the filter dialog. This way you can amend the start time before the function is carried out. Do not have the filter displayed in Runtime when the function is turned on; this way the current time period is always used. If you have activated the Use last closed time period option, the previous time period is shown.

For example: You have set a 30 minute filter. It is 10.45 when the function is activated. If the Use last closed time period option is deactivated, the filter is set to the current time period 10:30:00 to 10:59:59. If the option is activated, the filter is set to the previous time period of 10:00:00 to 10:29:59.

- 3. select the desired filter:
 - Absolute filter
 - Relative filter



4. Configure the selected time period in the **specification** section of the desired time range (see Absolute filter (on page 51), Relative Filter (on page 54) and Ab (on page 56) sections)





Parameters	Description	
Filter	Selection of the filter.	
No time filter	Active: No time filter is used.	
	Not available for Extended Trend	
Absolute filter	Active: A fixed period of time is entered in the editor. When the function is executed, the defined absolute time period is exactly used.	
	In the settings section, the corresponding options can be shown and configured (on page 51) there.	
	Note: Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.	
Relative period	Active: A relative time period is entered.	
of time	In the settings section, the corresponding options can be shown and configured (on page 54) there.	
	Attention: this filter is constantly updated.	
From	Active: A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.	
	Selection of the area mode from drop-down list:	
	Starting at HH:MM:SS	
	Starting on day at HH:MM:SS	
	Starting on day, month at HH:MM:SS	
	In the settings section, the corresponding options can be shown and configured (on page 56) there.	
	Attention: The start point of this filter is not updated automatically. Only the existing times are used when shown.	
	The end time point is not defined with this filter, it is carried over.	
Time period	Active: A fixed time period is entered. Selection of the area mode from drop-down list:	
	▶ One day	
	▶ One week	
	▶ Two weeks	



	▶ One month	
	▶ One Year	
	▶ 15 minutes	
	> 30 minutes	
	▶ 60 minutes	
	In the settings section, the corresponding options can be shown and configured (on page 58) there.	
Lot	Active: The dialog for lot selection is shown in Runtime.	
	only available for Extended Trend, archive revision and reports.	
relative	Active: Display always starts from zero point. Enables several lots to be compared directly.	
	Only for Extended Trend and only available if the Lot option is activated.	
OK	Applies all changes on all tabs and closes the dialog.	
Cancel	Discards all changes and closes the dialog.	
Help	Opens the online help.	

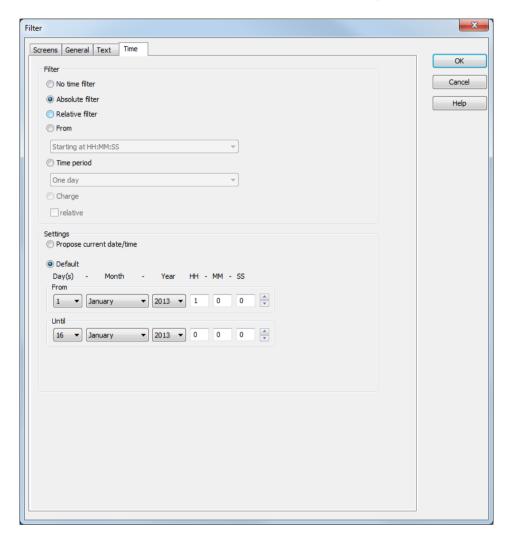
Absolute filter

You define a fixed time period with the absolute filter. When the function is executed, the defined absolute time period is exactly used. To set the filter:

- 1. Select, in the Filter section, the Absolute filter option
- 2. Configure the desired time in the **settings** section



Note: Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.





Parameter	Description
Settings	Configuration of the time filter.
Propose current date/time	Active: Time filter is displayed in Runtime.
Default	Active: The time filter is prescribed in the Editor. Only the start time can still be configured in Runtime.
From	Start time of the filter. Selection of day, month, year, hour, minute and second
Until	End time of the filter. Selection of day, month, year, hour, minute and second

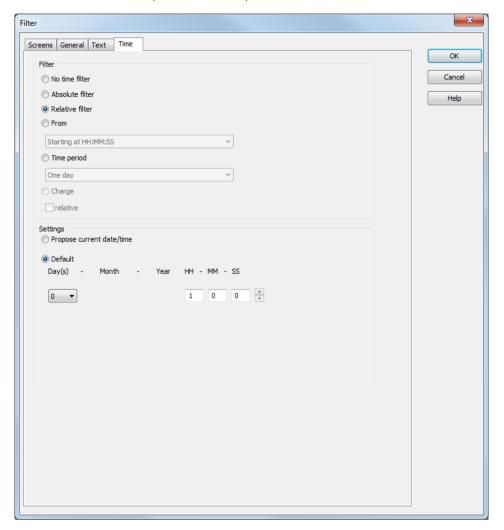
Example: If you want to see all alarms from January 1, 2011 to December 31, 2011, then you must enter the corresponding data at From and To.



Relative filter

A relative time period is entered.

Attention: This filter is updated constantly and continues to run.





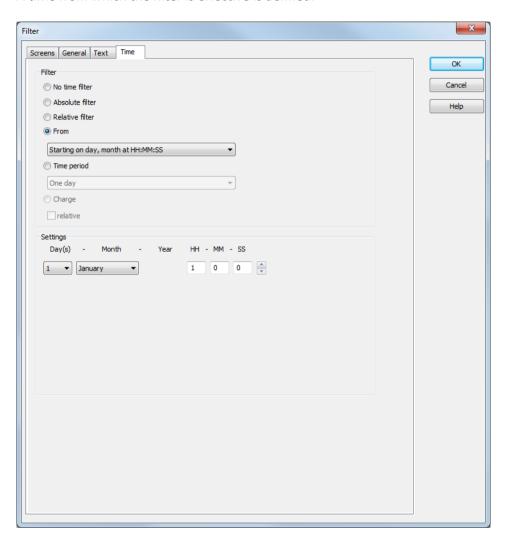
Parameter	Description
Settings	Configuration of the time filter.
Propose current date/time	Active: Time filter is displayed in Runtime.
Default	Active: The time filter is prescribed in the Editor. Only the start time can still be configured in Runtime. Selection of the relative time period in days, hours, minutes and seconds.

Example: You set up a relative time of 10 minutes and switch to an Alarm Message List Screen with this time filter at 12:00. Then you are shown the alarms from 11:50 to 12:00 when switching. If the Alarm Message List screen stays open, the filter is automatically updated. At 12:01, you see the alarms from 11:51-12:01 etc.



From

A time from which the filter is effective is defined.



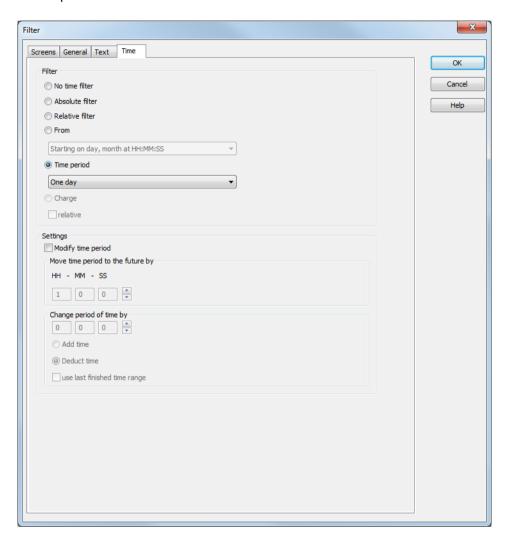


Parameter	Description
Settings	Configuration of the time filter.
[Date/Time]	Depending on the settings of the option, the time from which the filter is effective is configured here:
	▶ hour - minute - second
	▶ day - hour - minute - second
	▶ days - hour - minute - second
	Attention! The start point of this filter is not updated automatically. Only the existing times are used when shown, even if the screen remains open and 23:00:00 is reached. The end time point is not defined with this filter, it is carried over.
<pre>▶ hour - minute - second</pre>	A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.
	Example: You enter 23:00:00. If it is then 23:30 when executing the function, then it is filtered from 23:00:00 up to the current point in time. If it is 22:30 however, then filtering takes place from 23:00:00 on the previous day to the current point in time.
<pre>day - hour - minute - second</pre>	A day and time for the start of the filter are entered. If the time given has not been reached in the current month, the corresponding time from the previous month is used.
	Example: You enter day 5 - 23:00:00. If it is the 10th of the month at 23:30, then filtering takes place from the 5th of the month from 23:00:00 to the current time point. If, however, it is the 4th of the month, then filtering takes place from the 5th of the previous month to the current time point.
<pre>days - hour - minute - second</pre>	A month, day and time for the start of the filter are entered. If the time stated has not been reached in the current year, the corresponding time from the previous year is used.
	Example: You enter Month October, Day 5-23:00:00. If it is October 10th at 23:30, then filtering takes place from October 5th from 23:00:00 to the current time point. If, however, it is only October 4th, then filtering takes place from the 5th of the previous year to the current time point.



Time period

A time period in which the filter is effective is defined.





Parameter	Description
Settings	Configuration of the time filter.
Modify time period	Allows amendments to cycles, postponements and extensions of time periods.
	Active: Evaluation is carried out in accordance with the following rules:
	► First, the Use last finished time period option is evaluated.
	► After this, Change time period by is used.
	Move time period to the future by is then applied.
	Inactive: No changes to the time period are made.
	Attention: With version 7.10, filter actions on the basis of this function led to different results than those in the versions before.
Move time period to the future by	Active: The time period defined in the filter is postponed to the future. Given in hours - minutes - seconds.
	If a postponement that is the same or greater than the selected time period is set, a note to check the configuration is displayed.
Change period of time by	Active: The time period defined in the filter is modified. Given in hours - minutes - seconds.
	If a change and a postponement that are the same or greater than the selected time period is set, a note to check the configuration is displayed.
Add time	Active: The time stated in Change time period by is added to the time defined in the Time range option.
Deduct time	Active: The time stated in Change time period by is deducted from the time defined in the Time range option.
Use last finished time period	Active: The last finished time period is used.



Column settings

In this dialog you define which columns you want to display in what form, succession and sort order.

Note: All settings which you make in this tab are default settings for:

- Screen of type Alarm Message List
- Alarm Message List Screen
- Alarm status line
- Chronological Event List screen
- Screen Chronological Event List Filter

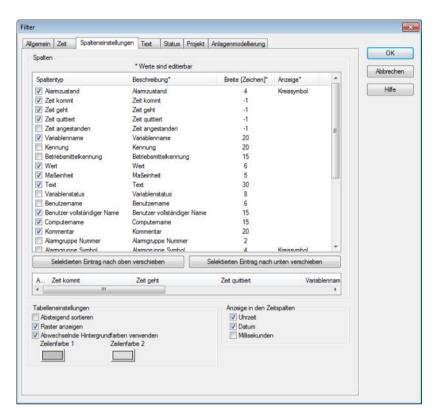
These default settings can be changed at the definition of each individual alarm function/CEL function.



Info

In project settings, you can set a default setting for the sequence and size of columns using the Column settings AML property or the Column settings CEL property. If you create a new screen switching function from an Alarm Message List screen or Chronological Event List screen, this setting is used as a default. The setting is stored in the project.ini file.





Parameter	Description
Columns	In the list field of this tab all available column types are displayed.
	You can change the sequence of column types by dragging & dropping in the list field:
	Click in the Column type column
	Move the individual entries as desired
	Alternatively, you can adjust the sequence with the Move
	selected entry up and Move selected entry down.
Checkbox:	Select which column types are displayed.
Description:	Free text entry for a description of the column.
	Change description: left-click on the corresponding area. Enter the desired value in the editing field.
	Note: for column descriptions, zenon language switching is available.
Column width:	Defines the width of the column in characters.
	Change column width: left-click on the corresponding area.



	Enter the desired value in the editing field. -1 Width is calculated in Runtime using average character width
	Note: For compatibility reasons, the columns with widths that could not be changed in earlier zenon versions (date and time), have the value -1 .
Display:	For column types
	▶ Alarm/event class symbol
	▶ Alarm/event group symbol
	▶ Alarm status
	Actual form of display can be selected in Runtime. Select the desired form from the drop-down list.
Move selected entry up	Moves selected entry up one place.
Move selected entry down	Moves selected entry down one place.
Preview field	Displays the columns defined in the list field in the width displayed there.
	You can also adjust the column widths here by left clicking on the right end of a column, holding down the mouse button and moving the mouse to the left or right accordingly.
Table settings	
Sort descending	Sorts the entries in the list according to the Time received column in decreasing order. These settings apply for showing a screen. You can change the sorting order in Runtime by clicking on the column header. The sorting sequence currently being used is shown by an arrow on the column header.
Display grid	shows a grid when the list is displayed in Runtime.
Use alternating background colors	Uses line color 1 and line color 2 alternately as background colors for the list in Runtime.
▶ Row color 1	Color that is used as a background color in in the list Runtime for all uneven numbers (1, 3, 5 etc.), if you have activated Alternating Background Colors.
▶ Row color 2	Color that is used as a background color in in the list Runtime for all even numbers (2, 4, 6 etc.), if you have activated Alternating Background Colors.



Display in the time columns	
Time	Displays the time for a list entry in the following form: HH:MM:SS
Date	Displays the date for a list entry in the following form: TT:MM:YYYY
milliseconds	Expands the time entry by milliseconds. Note: Must be activated if milliseconds are to be provided in exports or print-outs.

Hint: If you activate the automatic keyboard in Runtime, it is turned on when an editing field appears. You can also use this to configure the columns if you are using a computer without a keyboard.

Attention

The column width is given in characters and is dependent on the font used. If the column width is not a multiple of the character width of the used font, the actual column width can differ from the set column width. This can result in the text being cut of or an empty space being created.

Solution: Use proportional fonts, such as 'Courier New', for example.

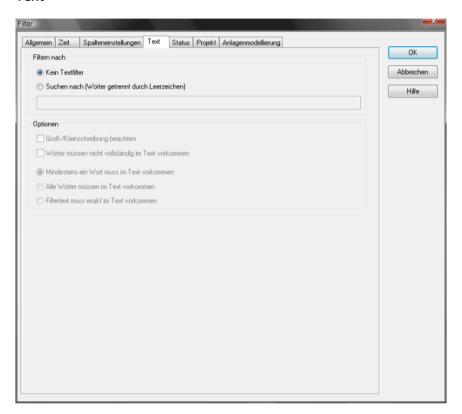


Info

If you engineered variables with measuring units, the measuring unit of the variable is displayed in the Chronological Event List. Prerequisite for this is that column type Unit is displayed.



Text



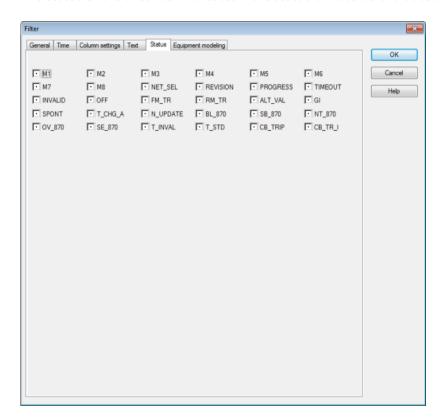


Parameters	Description
Filter according to	
No text filter	The text filter is not used.
Search for (words separated by	The text filter filter is used.
spaces)	Further options are activated.
Input field	Enter the corresponding words or character strings.
Options	
Note capitalization	Active: A distinction is made between upper case and lower case when filtering.
Words do not have to appear in the text in full	Active: Parts of words can also be taken into account during filtering.
At least one word must be present in the text	Active: At least one word of the search string has to be in the text.
All words must be present in the text	Active: All words must be present in the search string. In doing so, the sequence plays no role.
Filter text must appear in the text exactly	Active: The text must be exactly as defined in the search string.



State

The status of the checkbox indicates if the status bit is to be evaluated.



Status of checkbox	Description
Black dot	The status bit is not evaluated.
0	Only the entries where the status bit is set to false are displayed.
1	Only the entries where the status bit is set to true are displayed.



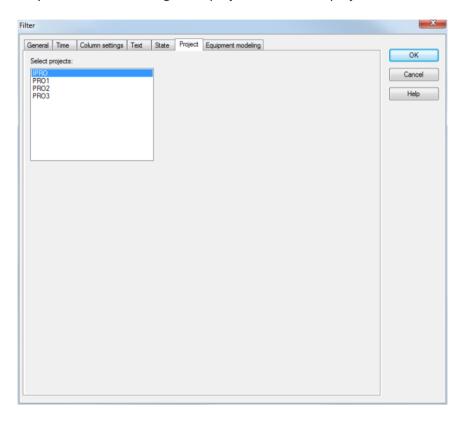
If the checkbox SPONT is set to 1, only the alarms are shown that are triggered by spontaneous values are displayed.

Hint: You can read details on status bits in the Status processing chapter.



Project

Selection of the projects which should be considered for the CEL. The filter for selecting sub-projects is only available in the integration project of the multi-project administration.



the selection from the integration project and all sub-projects is carried out via multi-select by pressing and holding key Ctrl and mouse click on the desired projects.

Equipment modeling

In the filter all already existing equipment models are displayed. Via the context menu or via tool bar, you can create new models and groups.

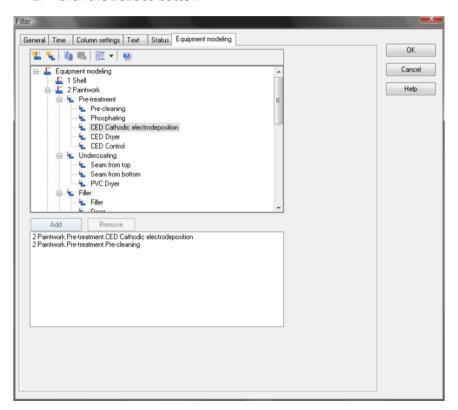
To add groups to the filter:

- 1. select the desired element
- 2. click on button Add
- 3. repeat the process until all necessary groups are available in the list (Multi-select is not possible)



To remove groups from the filter:

- Select the desired element
 (multiselect: Ctrl button or hold down the shift key and click on the desired element)
- 2. click the Delete button



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

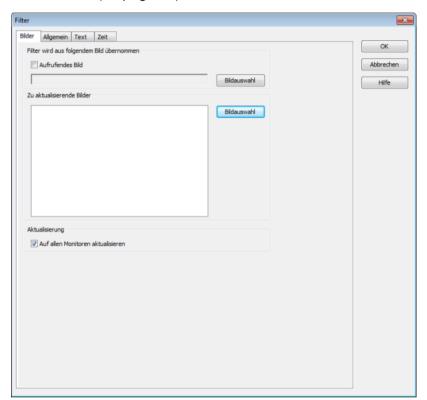
Filters for screen switch CEL filter

In order to engineer a screen of type Chronological Event List Filter:

 engineer a function screen switch to a screen of type Chronological Event List Filter (on page 12)



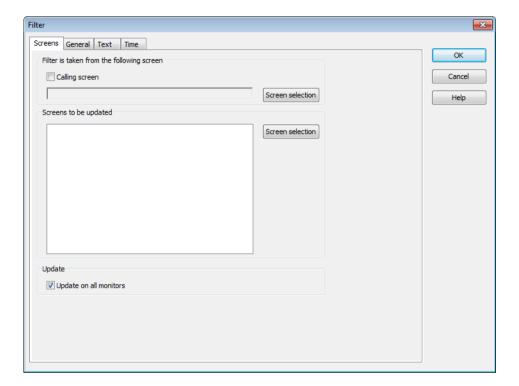
- 2. the filter is displayed with all tabs:
 - Screens (on page 70)
 - General (on page 71)
 - Text
 - Time (on page 76)





Screens

On this tab, you can define the screens which are to be updated by the picture filter.



The following settings are available:



Parameter	Description
Filter is taken from the following screen	
Calling screen	Active: The filter settings are take over from the screen from which the filter screen is called up. The screen button is grayed out. You cannot explicitly select a screen, because the filter is always updated from the calling screen with this setting. Note: Settings in the General, Text and Time tabs are locked.
Screen selection	Click on button opens the Screen selection dialog.
	Select the screen from which the filter - when clicking button Update during Runtime - should be read.
	Note: It therefore only makes sense to select a screen which can adopt or fill the screen filter.
	The screen selected is entered into the list of screens to be updated. If you delete it from the list, the next screen on the list is automatically entered here.
	Note: Not available if you have activated the Calling screen checkbox.
Screens to be updated	
Screen selection	Click the button to open dialog Screen selection of the filter screens. Select the desired screen.
Update	
Update on all monitors	Active: The screens from the list of the screens which must be updated are updated on all accessible monitors.

General

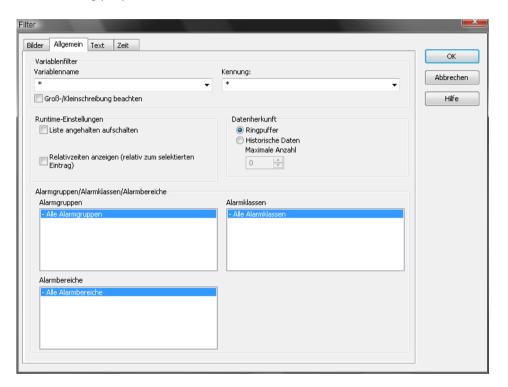
With the general filter you define which events are displayed and what kind of access you have to the settings in the Runtime. To this you differentiate events according to:

- ► Type
- Origin of the data
- ▶ Variables



► Alarm/event groups, classes and alarm areas

The following properties are available:





Parameter	Description
Variable filter	Restrictions to events of certain variables
Variable name	Enter the name or part of the name of the variable you want to filter. Wild card * is possible.
	Note: Wild cards are only allowed as prefix or suffix, i.e. *xxx or xxx*
Identification	Enter the identification or part of the identification of the variables you want to filter. Wild card * is possible.
	Note: Wild cards are only allowed as prefix or suffix, i.e. *xxx or xxx*
Case sensitive	Active: Capitalization is recognized when filtering for variable name and/or identification.
Origin of the data	Display current or current and historical events.
Ringbuffer	Active: Only data from the ring buffer (on page 88) are displayed.
Historical data Maximum number	Active: Data from the ring buffer and historical data from the CEL are displayed.
	The maximum number of the data which should be displayed includes the data from the ring buffer.
Runtime settings	Behavior of the CEL in the Runtime
Show list without refresh	Active: As long as the list is displayed no new entries are added.
	(Not available for function Export CEL.)
Show this dialog in the Runtime	Active: Before every call of the screen the filter dialog is opened. The filter settings can be modified.
Display relative time	All entries are displayed in temporally distance to the selected entry.
	The stated time is the time difference which has passed since the selected event. The selected entry automatically receives time stamp 0. The other events have a:
	positive time difference to the selected entry if they occurred later
	negative time difference to the selected entry if they



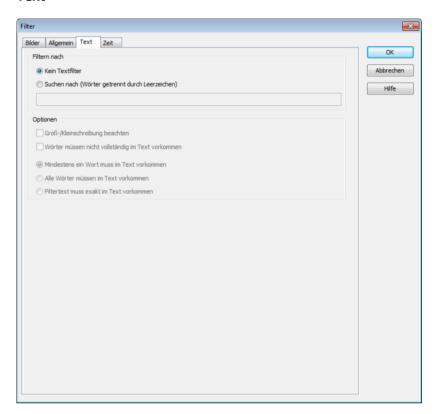
	occurred earlier
Alarm/event groups/classes and alarm areas	Selection of groups, classes and alarm area.
Alarm/event groups	From the existing alarm/event groups select the one from which alarms should be displayed.
Alarm/event classes	From the existing alarm/event classes select the one from which alarms should be displayed.
Alarm areas	From the existing alarm areas select the one from which alarms should be displayed.

Attention

Concerns zenon under Windows CE: CE systems on which the filter dialog should be displayed must have a screen resolution higher than 800*600 pixel for the dialog to be displayed completely.



Text



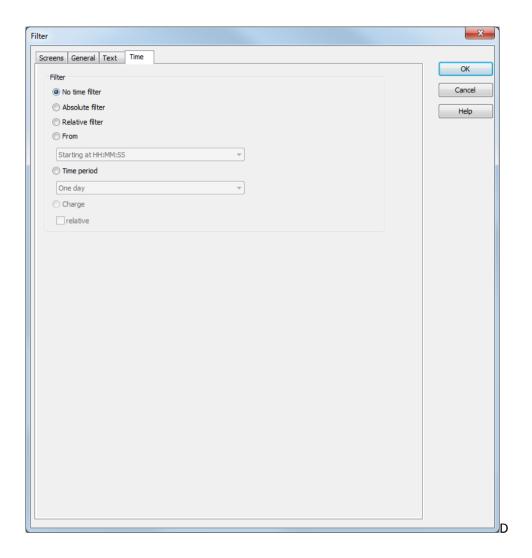


Parameters	Description
Filter according to	
No text filter	The text filter is not used.
Search for (words separated by	The text filter filter is used.
spaces)	Further options are activated.
Input field	Enter the corresponding words or character strings.
Options	
Note capitalization	Active: A distinction is made between upper case and lower case when filtering.
Words do not have to appear in the text in full	Active: Parts of words can also be taken into account during filtering.
At least one word must be present in the text	Active: At least one word of the search string has to be in the text.
All words must be present in the text	Active: All words must be present in the search string. In doing so, the sequence plays no role.
Filter text must appear in the text exactly	Active: The text must be exactly as defined in the search string.

Time

On this tab, you define the time period that is to be used when the filter screen is opened.





The following settings are available:



Parameters	Description
Filter	Selection of the filter.
No time filter	Active: No time filter is used.
	Not available for Extended Trend
Absolute filter	Active: A fixed period of time is entered in the editor. When the function is executed, the defined absolute time period is exactly used.
	In the settings section, the corresponding options can be shown and configured (on page 51) there.
	Note: Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.
Relative period	Active: A relative time period is entered.
of time	In the settings section, the corresponding options can be shown and configured (on page 54) there.
	Attention: this filter is constantly updated.
From	Active: A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.
	Selection of the area mode from drop-down list:
	Starting at HH:MM:SS
	Starting on day at HH:MM:SS
	Starting on day, month at HH:MM:SS
	In the settings section, the corresponding options can be shown and configured (on page 56) there.
	Attention: The start point of this filter is not updated automatically. Only the existing times are used when shown.
	The end time point is not defined with this filter, it is carried over.
Time period	Active: A fixed time period is entered. Selection of the area mode from drop-down list:
	▶ One day
	▶ One week
	▶ Two weeks



	▶ One month
	▶ One Year
	▶ 15 minutes
	▶ 30 minutes
	▶ 60 minutes
	In the settings section, the corresponding options can be shown and configured (on page 58) there.
Lot	Active: The dialog for lot selection is shown in Runtime.
	only available for Extended Trend, archive revision and reports.
relative	Active: Display always starts from zero point. Enables several lots to be compared directly.
	Only for Extended Trend and only available if the Lot option is activated.
OK	Applies all changes on all tabs and closes the dialog.
Cancel	Discards all changes and closes the dialog.
Help	Opens the online help.

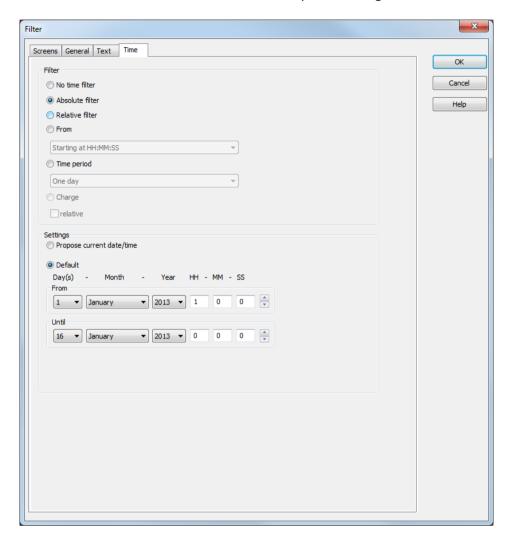
Absolute filter

You define a fixed time period with the absolute filter. When the function is executed, the defined absolute time period is exactly used. To set the filter:

- 1. Select, in the Filter section, the Absolute filter option
- 2. Configure the desired time in the settings section



Note: Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.





Parameter	Description
Settings	Configuration of the time filter.
Propose current date/time	Active: Time filter is displayed in Runtime.
Default	Active: The time filter is prescribed in the Editor. Only the start time can still be configured in Runtime.
From	Start time of the filter. Selection of day, month, year, hour, minute and second
Until	End time of the filter. Selection of day, month, year, hour, minute and second

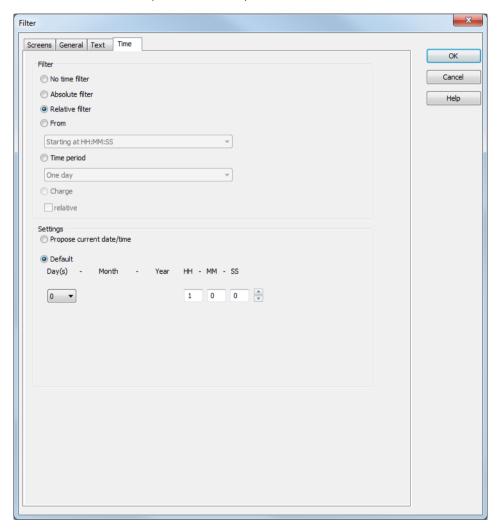
Example: If you want to see all alarms from January 1, 2011 to December 31, 2011, then you must enter the corresponding data at From and To.



Relative filter

A relative time period is entered.

Attention: This filter is updated constantly and continues to run.





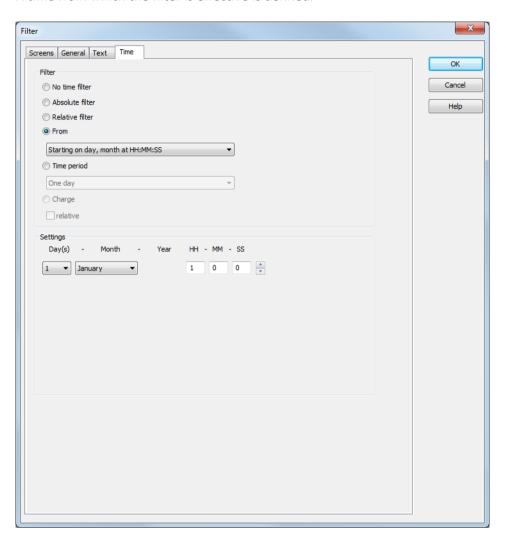
Parameter	Description
Settings	Configuration of the time filter.
Propose current date/time	Active: Time filter is displayed in Runtime.
Default	Active: The time filter is prescribed in the Editor. Only the start time can still be configured in Runtime. Selection of the relative time period in days, hours, minutes and seconds.

Example: You set up a relative time of 10 minutes and switch to an Alarm Message List Screen with this time filter at 12:00. Then you are shown the alarms from 11:50 to 12:00 when switching. If the Alarm Message List screen stays open, the filter is automatically updated. At 12:01, you see the alarms from 11:51-12:01 etc.



From

A time from which the filter is effective is defined.



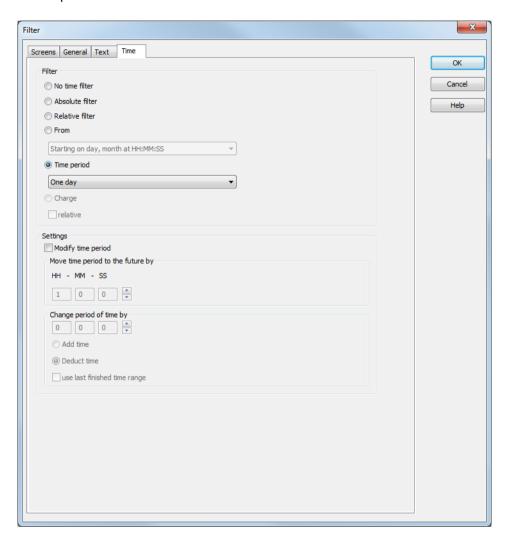


Parameter	Description
Settings	Configuration of the time filter.
[Date/Time]	Depending on the settings of the option, the time from which the filter is effective is configured here:
	▶ hour - minute - second
	<pre>→ day - hour - minute - second</pre>
	<pre>→ days - hour - minute - second</pre>
	Attention! The start point of this filter is not updated automatically. Only the existing times are used when shown, even if the screen remains open and 23:00:00 is reached. The end time point is not defined with this filter, it is carried over.
<pre>hour - minute - second</pre>	A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.
	Example: You enter 23:00:00. If it is then 23:30 when executing the function, then it is filtered from 23:00:00 up to the current point in time. If it is 22:30 however, then filtering takes place from 23:00:00 on the previous day to the current point in time.
<pre>day - hour - minute - second</pre>	A day and time for the start of the filter are entered. If the time given has not been reached in the current month, the corresponding time from the previous month is used.
	Example: You enter day 5 - 23:00:00. If it is the 10th of the month at 23:30, then filtering takes place from the 5th of the month from 23:00:00 to the current time point. If, however, it is the 4th of the month, then filtering takes place from the 5th of the previous month to the current time point.
<pre>days - hour - minute - second</pre>	A month, day and time for the start of the filter are entered. If the time stated has not been reached in the current year, the corresponding time from the previous year is used.
	Example: You enter Month October, Day 5-23:00:00. If it is October 10th at 23:30, then filtering takes place from October 5th from 23:00:00 to the current time point. If, however, it is only October 4th, then filtering takes place from the 5th of the previous year to the current time point.



Time period

A time period in which the filter is effective is defined.





Parameter	Description				
Settings	Configuration of the time filter.				
Modify time period	Allows amendments to cycles, postponements and extensions of time periods.				
	Active: Evaluation is carried out in accordance with the following rules:				
	► First, the Use last finished time period option is evaluated.				
	► After this, Change time period by is used.				
	Move time period to the future by is then applied.				
	Inactive: No changes to the time period are made.				
	Attention: With version 7.10, filter actions on the basis of this function led to different results than those in the versions before.				
Move time period to the future by	Active: The time period defined in the filter is postponed to the future. Given in hours - minutes - seconds.				
	If a postponement that is the same or greater than the selected time period is set, a note to check the configuration is displayed.				
Change period of time by	Active: The time period defined in the filter is modified. Given in hours - minutes - seconds.				
	If a change and a postponement that are the same or greater than the selected time period is set, a note to check the configuration is displayed.				
Add time	Active: The time stated in Change time period by is added to the time defined in the Time range option.				
Deduct time	Active: The time stated in Change time period by is deducted from the time defined in the Time range option.				
Use last finished time period	Active: The last finished time period is used.				



2.1.5 CEL ring buffer

Events are saved in a ring buffer (cel.bin) and in an event file (*.cel) in the Runtime folder as soon as the occur.

RINGBUFFER

The ring buffer contains all active events. These are managed via:

▶ Time received in millisecond as unique signature

SIZE OF THE RINGBUFFER

The size of the ring buffer must be large enough and is defined in the project settings with property Size of the ringbuffer.

In the Runtime old entries are kept in the list when the CEL screen is called up. As soon as new entries are added the number of the displayed entries can exceed the engineered size of the ring buffer. When the list is then called up again, the old entries are removed and the engineered size is adhered to. This behavior makes sure that no data is lost when the list is displayed.

Attention: The display of entries which exceed the defined values occupies additional memory. If the screen is called up again, the occupied memory is not freed but remains at the last peak.

SAVE RING BUFFER

The ring buffer is automatically saved as cel.bin when the Runtime is closed. If the Runtime is closed by an unexpected event such as a power outage, data loss occurs. To prevent this the ring buffer can be saved manually via property Save ringbuffer on change at every new entry or via function Save AML and CEL ring buffer (on page 100).

RESULT FILE

All alarms are written together with the ring buffer in an own CEL file (*.cel) at the same time. This file is created for every calendar day automatically and is managed via property Save CEL data. The name of the file consists of the letter c, followed by the date in from JJMMTT and the suffix .cel, e.g. c100623.cel. These files are created automatically for every day and must be evecuated or deleted by the user if the storage space is limited. *.cel files are saved in folder ...\Project folder\Computer name\Project name.



SYNCHRONIZING RING BUFFER AND ALARM FILE

Ring buffer and CEL file are synchronized. This synchronization is always carried out from the ring buffer to the CEL file.

SAVING PERIODS

The Chronological Event List *.cel is saved with every new entry.

The ring buffer (*.bin) is saved:

- when the Runtime is closed
- ▶ after every new entry if property Save ringbuffer on change is active
- when function Save AML and CEL memory buffer is carried out

Note: If option Save ringbuffer on change is deactivated, it is possible that the entries in the CEL and in the ring buffer do not match after a power outage.

2.2 **Functions**

Via functions the display and the handling of the CEL are controlled in the Runtime.



Attention

If functions are used in the network, regard their execution location (on page 89).

2.2.1 **Network functions**

If network functions are used, the place of execution must be noted:

For functions that are used in the network:

- The place of execution can be freely configured in some cases
- The place of execution is stipulated in some cases



Info

Scripts combine several functions. The place of execution then depends on the settings of the Execute script function. This setting overwrites the settings of the individual functions.

CONFIGURE PLACE OF EXECUTION

For functions where the place of execution can be freely configured, the corresponding parameters are available in the properties of the function. To define the place of execution:

- 1. navigate to the Execution group in the Properties.
- 2. Select the desired place of execution by checking the checkbox. Multiple selection is possible:
 - Current computer: Function will be executed on the current computer.
 - Server: Function will be executed on the server.
 - Standby: Function will be executed on the standby server.
 - Client: Function will be executed on all clients.

OVERVIEW OF FUNCTIONS IN THE NETWORK

The following table shows which functions are executed and where they are executed.

Key:

- Adjustable: Behavior can be configured
- +: Yes
- -: No
- O: Default
- If not adjustable, O identifies the place of execution:
 - Active computer
 - Server
 - Standby
 - Client



Function	Adjustabl e	Current	Serv er	Stand by	Cli
AML and CEL					
Alarms: acknowledge flashing	-	0			
Alarms: delete	-		0	0	
Alarms: acknowledge	-		О	0	
Alarm/event group log in/log off	-	0			
Activate/deactivate alarm message list / alarm/event groups / alarm/event classes	-		0	0	
Alarm Message List active	-		0		
Alarm Message List active/inactive	-		0		
Alarm Message List inactive	-		0		
Export AML	+	0			
Save AML and CEL memory buffer	-		0	0	
Export CEL	+	0			
Print AML or CEL	+	0			
Create/print IPA document	-		0		
Switch online printing on/off	-		0	0	
Online printing start new page	+	0			
Switch online printer	-		0		
Application					
Select printer	+	0			
Start EMS	-		0		
Stop EMS	-		0		
Print Extended Trend diagram	+	0			
Switch palette	+	0			
Functions active at limit	-		0	0	



Functions active/inactive at limit	-		0	0	
Functions inactive at limit	-		0	0	
Open help	+	0			
Reload project online	+	0			
Determine open maintenances	-		0		
PFS - execute user-defined event	+	0			
Activate/deactivate project simulation	-	0			
Simulate right click	+	0			
Save remanent data	+	0			
Exit Runtime	+	0			
Analyze S7 Graph heuristics	+	0			
Execute SAP function	+	0			
Language change	+	0			
Topology - Search for ground fault	-		0		
Topology - LoadShedding	-		0		
Historian					
Archive: Stop	-		0	0	
Index archive	-		0		
Archive: Start	-		0	0	
Export archives	-	0			
Display open archives	-		0	0	
User administration					
Change user	+	0			
Log in with dialog	+	0			
Login without password	+	0			
Log out	+	0			



Change password	-	О		
Screens				
Change ALC source color	+	0		
Screen with index	-	0		
Close screen	+	0		
Screen: Return to last	-	0		
Screen: Move center	+	0		
Screen switch	+	0		
Activate input to the element with the focus	+-	0		
Set focus to frame	+	0		
Move focus	-	0		
Take focus away from frame	+	0		
Show menu	+	0		
Monitor assign	+	0		
Runtime profiles	+	0		
Close frame	+	0		
Setpoint input for keyboard screen	-	0		
Show overview window	+	0		
Error detection in electric grids				
Acknowledge ground fault message	+	0		
Stop search for ground fault	+	0		
Start search for ground fault	+	0		
Acknowledge short-circuit message	+	0		
Message Control				
Note: Place of execution can be set freely in theory. Changes have no effect however. Message Control is always				



executed on the server.					
Show recipient-database	+	0			
Send a Message	+	0			
Send Message: activate	+	0			
Send Message: deactivate	+	0			
Network					
Authorization in network	+	0			
Redundancy switch	-			0	
Report Generator					
Print report	+				
Report: execute	+				
Export Report	+				
Recipes					
Recipegroup Manager	-	0			
Standard recipe	-	0			
Standard recipe single directly	+	0	0	0	О
Standard recipe single with dialog	-	О			
Standard recipe single with online dialog	-	0			
Script					
Script: execute	+	0			
Script: select online	+	0			
Variable					
Export data	-		0		
Read dBase file	+	0			
Print current values	+	0			
Unit conversion	+	0			



HD administration active	-		0	0	
HD administration inactive	-		0	0	
Trend values inactive/active	-		0	0	
Write set value	-		0		
Driver commands	-	0			
Transfer driver simulation image to the standby	-				0
Write time to variable	+	0			
Read time from variable	+	0			
VBA					
Open PCE editor	-		0		
Open VBA editor	+	0			
Execute VBA macro	+	0			
Show VBA macro dialog	+	0			
VSTA					
Open VSTA editor	+	0			
Execute VSTA macro	+	0			
Show VSTA macro dialog	+	0			
Windows					
Play audio file	+	0			
File operations	+	0			
Start continuous tone	+	0			
Stop continuous tone	+	0			
Window to the background	-	0			
Window to foreground	-	0			
Print screenshot	+	0			
Start program	+	0			
	I.	1		1	



2.2.2 Screen switch - CEL

In order to call up a screen of type Chronological Event List:

- 1. create a screen of type Chronological Event List (on page 6):
- 2. create a screen switch function for this screen
- 3. define the desired filter properties (on page 38)

In the Runtime you can modify the filter properties. Exception: In the Editor fixed time filter (on page 47) was defined.

ENGINEER SCREEN SWITCH

To create a screen switch to a screen of type CEL:

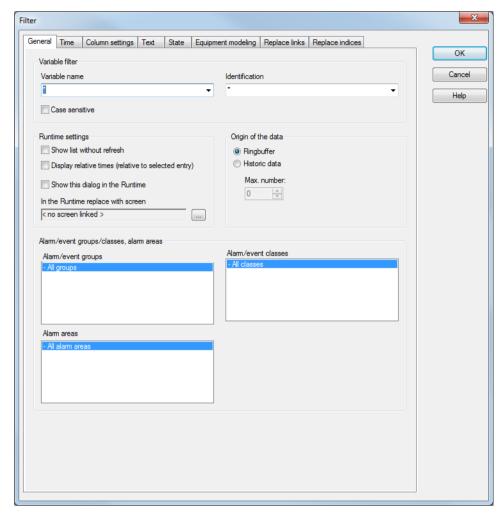
- 1. in the context menu of node function select command New function
- 2. click on screen switch
- 3. the dialog for the screen selection will be opened
- 4. select the screen of type CEL or create it in this dialog by clicking symbol New screen
- 5. the filter is displayed with all tabs:
 - General (on page 39)
 - Time (on page 42)
 - Column settings (on page 60)
 - Text (on page 64)
 - State (on page 66)
 - Project (on page 67) (only available in the integration project of the multi-project administration.)
 - Equipment modeling (on page 67)

If linked variables or indexes are available, the following tabs can be displayed as an option.

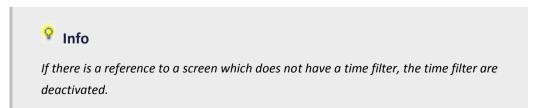
· Replace links



Replace indices



- 6. define the filters which should be pre-defined in the Runtime
- 7. confirm the settings and close the dialog by clicking ox
- 8. link the function with a button in order to call up the screen and to display the filter properties in the Runtime





2.2.3 Screen switch CEL Filter

In order to call up a screen of type Chronological Event List Filter in the Runtime:

- 1. create a screen of type Chronological Event List Filter (on page 12):
- 2. create a screen switch function for this screen
- 3. define the desired filter properties (on page 68)

In the Runtime the filter properties can only be controlled via the buttons defined in the screen.

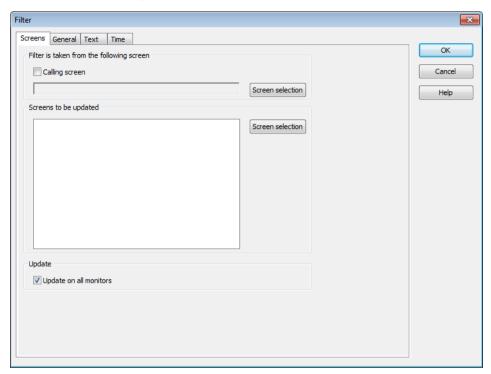
ENGINEER SCREEN SWITCH

To create a screen switch to a screen of type Chronological Event List Filter:

- 1. in the context menu of node function select command New function
- 2. click on screen switch
- 3. the dialog for the screen selection will be opened
- 4. select the screen of type Chronological Event List Filter or create it in this dialog by clicking symbol New screen
- 5. the filter is displayed with all tabs:
 - Screens (on page 70)
 - General (on page 71)
 - Text (on page 75)



Time (on page 76)



- 6. define the filters which should be pre-defined in the Runtime
- 7. confirm the settings and close the dialog by clicking ox
- 8. link the function with a button in order to call up the screen and to display the filter properties in the Runtime

2.2.4 Functions for Chronological Event List

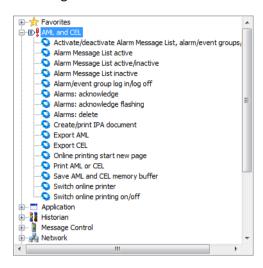
Different functions enable the handling of events in the Runtime.

To create a function for the Chronological Event List:

- 1. navigate to the Functions node
- 2. select New function in the context menu or from the tool bar
- 3. the dialog for selecting functions is opened



4. navigate to the AML/CEL node



- 5. select the desired function
- 6. configure the function if necessary
- 7. link the function to a button

Save AML and CEL memory buffer

With this function, the content of the ring buffer for alarms and events as well as the values of mathematical variables (counters) can be saved. The entries are saved in the following files:

File	Contents	The size can be set in Properties
ALARM.BIN	Alarms	Size of the ringbuffer
CEL.BIN	Chronological Event List entries	Size of the ringbuffer
SY_MA32.BIN	Values of mathematical variables (e.g. counters)	

To save the AML ring buffer:

- 1. Create a new function
- 2. Select Save AML and CEL ring buffer
- 3. link the function to a button



Export CEL

With this function you can export the saved events with filter options to a file or database in the Runtime.

To export CEL entries:

- 1. create a new function
- 2. select Export CEL
- 3. the dialog for selecting filter criteria opens
- 4. define the criteria for:
 - Export format (on page 101)
 - General (on page 39)
 - Time (on page 42)
 - Project (on page 67)
- 5. link the function to a button

Export format

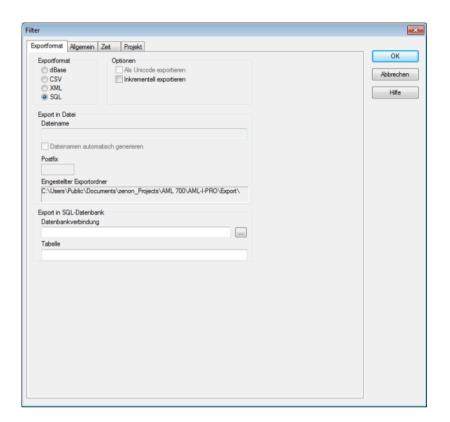
Exports are possible in various formats:

- ▶ dBase
- CSV
- ➤ XML
- ▶ SQL



The export to SQL is incremental. If there is already exported data, only new and amended data is exported.







Parameter	Description			
Export format	Selection of the file type. Possible formats:			
	▶ dBase: DBaseIV format (*.dbf):			
	▶ CSV			
	▶ XML			
	▶ SQL			
	Notes on dBase:			
	Filenames cannot be longer than eight characters.			
	Configured column width is used for export. If, for example, a value of 40 is set under Column settings, a maximum of 40 characters is then exported.			
	A maximum of 255 characters are exported.			
Options				
Export as unicode	An export to ASCII format is performed in Unicode			
Incremental export	Only differences since the last backup are exported.			
Export to file	Determining the file in which the export is saved.			
File name	Define file name individually.			
	A maximum of 32 alphanumeric characters including file suffix.			
	Note: Existing files with the same names are overwritten.			
Generate file name automatically	Active: The file name will be generated automatically from a short identifier, a date key and an individual automatic postfix. Inactive: The file name is entered by the user under Filename.			
	(existing files are not overwritten)			
	For details, see the next table: Coding name for automatic naming			
Postfix	Free, individual identification. Only available for Generate filename automatically.			
	Possible entries:			
	b dBase: 1 alphanumeric character			
	ASCII and XML: 32 alphanumeric characters			



Example	Display of the complete file name with automatic generation.
Set export folder	Display of the current export path configured in Project Properties. (Runtime folder property in the General/Name/Folder node.)
Export in SQL database	Parameters for export into a SQL database
Database connection	Configuration of the database connection. A click on the button opens the configuration dialog.
Table	Selection of the table that is to be written in.
General tab	General filter. See Alarm configuration using filters chapter, General section
Time tab	Time filter. See Alarm configuration using filters chapter, Time section.
Project	Project filter. Only available in the Integration project of multi-project administration. For configuration, see Alarm configuration using filters chapter, Project section.

CODING NAME FOR AUTOMATIC NAMING

Name	AJJMMTTP.XXX			
A	Short identification of the Alarm Message List			
JJMMTT	Date input:			
	YY: Year, two-digits			
	MM: Month, two-digits			
	DD: Day, two-digits			
P	Free, individual identification:			
	dBase: 1 alphanumeric character			
	ASCII and XML: 32 alphanumeric characters			
XXX	File ending:			
	▶ DBF: dBase			
	▶ TXT: CSV			



	•	XML: XML

FORMAL MATTERS

- ▶ Format of the line entries: Is taken from the settings of the Column settings AML and Column settings CEL property.
- Column separator: Semi-colon (;)



Attention

Milliseconds for printing or export

If, when printing or exporting the AML or CEL, the time in milliseconds is to be given, this property must be activated in the dialog for the column settings. To do this:

- ▶ Navigate to the Alarm Message list or Chronologic event list nodes in properties
- ▶ Click on the ... button of the Column settings AML or Column settings CEL property
- ▶ The dialog for the column settings is opened
- Activate the checkbox in front of the Milliseconds property

The additional setting must be made for both AML and CEL.

Notes SQL



Attention

Ensure that the provider configured in the connection is also available on the Runtime computer in Runtime.

Note: An SQL client is also installed with the zenon Editor. Because the zenon Runtime does not need an SQL Server, no SQL client is automatically installed. This can be downloaded from the Microsoft Download Area and must be installed individually.

Ensure you install the correct version when installing the provider. This must suit the zenon version being used. This means: If a 32-bit zenon Runtime is used, the provider must be 32-bit version, even if it is installed on a 64-bit operating system and even if the database itself is a 64-bit application.

Print AML or CEL

The saved events and their filter conditions can be output to a printer in Runtime with this function

To configure the function:

- 1. create a new function
- 2. select Print AML or CEL
- 3. the dialog for selecting the list opens



- Select Chronological Event List
- the dialog for selecting filter criteria opens
- 6. define the criteria for:
 - General (on page 39)
 - Time (on page 42)



- Font: Select the fonts defined in zenon
- 7. link the function to a button



Info

In the Runtime you cannot switch between CEL and AML. To print both lists, you must engineer two functions.

LINE LAYOUT

Date/Time received	Date/Time cleared	Date/Time acknowledged	Long text	Status text

The keywords which are available for the format file (BTB.FRM for online print and BTB G.FRM for offline print) and examples for their use can be found in chapter FRM configuration file (on page 132) and in section Operation in the Runtime (on page 114).

The FRM file has three parts:

Header: at the beginning of the page

List part: cyclic per line

► Footer: at the end of the page

PRINCIPLES

When editing FRM files regard the following:

- Separating the list parts:
 - Header and list part and list part and footer are separated by %%.

The separation marking must be used only once for the list and the footer.

- Attention: The last line must be followed by at least two empty paragraphs. Otherwise the footer is not printed!
- Positioning the individual entries:

Only empty characters can be used, no tabs.



► Editing the FRM file in a text editor:

Automatic line break must be deactivated otherwise undesired effects in the formatting may occur.

KEYWORDS

The setting for the page length is made in Project Properties under AML and CEL or via the ALARM.frm or ALAR G.frm file for the AML or BTB.frm and BTB G.frm for the CEL.

Please keep in mind:

- ► The number of the alarm entries per page results from the predetermined number of lines (e.g. Lines per page 72), less the lines used for header and footer text.
- ► The Use reactivated time option must be activated in order to be able to use the keywords that evaluate the reactivation (time, number).
- ► Free texts and keywords can be used in the formatting file. Key words can be used either in German or in English. The use of English key words is recommended.
- ▶ Not every key word is suitable for every kind of printing (AML, CEL, online, offline).

The following report contains key words in English and German and their field of application.

German	English	AML offlin e	CEL offlin e	AML online	CEL onlin e	Description	
Key words for the list part							
@BMKENNUNG	@RESOURCELAB EL	Х	х	х	X	Resources label	



@DATZEITKOMMT	@DTRECEIVED	Х	X	X	X	Time and Date when the alarm occurred
@DATZEITGEHT	@DTCLEARED	Х	-	x	-	Time and Date when the alarm ended
@DATZEITOK	@DTACK	Х	-	X	-	Time and Date when the alarm was acknowledged
@DATZEITREAKT	@DTREACTIVATE	X	-	X	-	Property Use reactivated time in the project properties must be activated.
@DATZEIT	@DTLASTEVENT	-	-	X	-	Time and date of alarm received or cleared or acknowledged or reactivated
@ZEIT	@TLASTEVENT	-	-	X	Х	Time of alarm received or cleared or acknowledged or reactivated
@ZEITOK	@ТАСК	Х	-	Х	-	only displays time of acknowledging
@ZTKOMMT	@TRECEIVED	Х	Х	Х	Х	only displays time of alarm received
@ZTGEHT	@TCLEARED	Х	-	X	-	only displays time of end of alarm
@ZTREAKT	@TREACTIVATE	Х	-	Х	-	only displays time of reactivating
@TIMELASTING	@TACTIVE	Х	-	Х	-	Time active (difference time received - time cleared)
@ANWENDUNG	@PROJECTNAME	х	Х	Х	Х	Project name
@KANALNAME	@VARNAME	Х	x	X	X	Variable name CEL: Only entries with variables
@AK	@ACLASSNR	х	Х	Х	Х	Alarm/event class name
@AG	@AGROUPNR	Х	Х	Х	Х	Alarm/event group number
@AGNAME	@AGROUPNAM	х	Х	Х	Х	Name of alarm/event group



	E					
@AKNAME	ACLASSNAME	х	Х	х	х	Name of alarm/event class
@TAGNR	@IDENTIFICATIO N	Х	X	Х	Х	Identification (company- specific label)
@AMELDUNG	@ТЕХТ	Х	Х	Х	Х	Alarm message text
@REAKTANZ	@NRREACTIVAT E	Х	-	Х	-	Number of reactivations
@STATUS	@STATUS	Х	Х	Х	Х	Status information as in Alarm Message List
@WERT	@VALUE	Х	Х	Х	Х	Variable value of alarm
@REAKTIONSTEXT	@COMMENT	x	X	X	X	Commentary from the Alarm Message List. If you use dynamic limit texts, this is only available if properties Long dynamic limit texts AML or Long dynamic limit texts CEL are activated.
@USER	@USERID	Х	Х	Х	Х	AML: User who acknowledged alarm.
@RECHNER	@COMPUTER	X	x	Х	х	AML: Computer on which alarm was acknowledged.
Key words for head	der and footer		'			
@ANWENDUNG	@PROJECTNAME	Х	Х	Х	Х	Project name
@SEITE	@PAGE	Х	Х	Х	Х	Page number
@HEADDATZEIT	@DTSYSTEM	Х	Х	Х	Х	System date and system time
@HEADDATUM	@DSYSTEM	х	Х	Х	Х	System date
@HEADZEIT	@TSYSTEM	х	Х	х	х	System time
@USER	@USERID	х	Х	х	х	User who prints
@USERNAME	@USERNAME	Х	x	X	Х	Full user name who triggered action
@RECHNER	@COMPUTER	Х	Х	Х	Х	Computer from which it is



				printed
[Text]	[Text]			Random text



Attention

Between the key words there must be enough space so that entries are not overwritten. In doing so, you make sure that long limit texts are also displayed correctly.

Example:

@TEXT

(spaces up to here)

MILLISECONDS SETTING



Attention

Milliseconds for printing or export

If, when printing or exporting the AML or CEL, the time in milliseconds is to be given, this property must be activated in the dialog for the column settings. To do this:

- ▶ Navigate to the Alarm Message list or Chronologic event list nodes in properties
- ▶ Click on the ... button of the Column settings AML or Column settings CEL property
- The dialog for the column settings is opened
- Activate the checkbox in front of the Milliseconds property

The additional setting must be made for both AML and CEL.

Switch online printing on/off

Online printing is set to a status when this function is used:

on: Switches online printing on



- ▶ off: Switches online printing off
- ▶ active/inactive: Switches online printing

To configure the function:

- 1. create a new function
- 2. Select Switch online printing on/off
- 3. the dialog for selecting the action opens



- 4. select the desired action
- 5. link the function to a button

Online printing start new page

With this function, you control the form feed in Runtime when printing online:

The configured footer will be printed onto the current page of the printout, and then the printout will advance to the beginning of a new page. The page counter will be reset to 1 and the header will be printed out.

To configure the function:

- 1. create a new function
- 2. Select Start online printing on a new page
- 3. link the function to a button

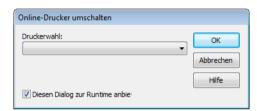
Switch online printer

With this function, the printer for online printing can be changed in Runtime.



To configure the function:

- 1. create a new function
- 2. Select Switch online printer
- 3. The dialog for selection of the user opens
- 4. Select the desired screen printer from the drop-down list
- 5. link the function to a button

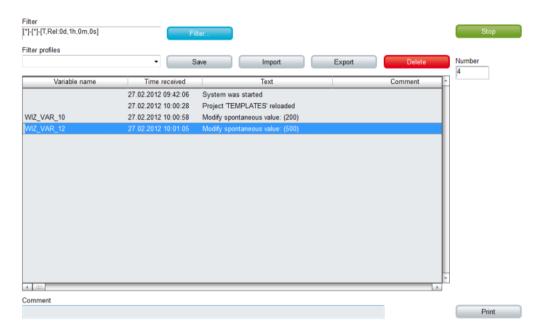


Parameters	Description
select printer	Selection of the desired printer from the drop-down list.
Show this dialog in the Runtime	Active: When this function is executed, the dialog is opened and the printer can be defined in Runtime.



2.3 Operating during Runtime

In the Runtime the Chronological Event List is called via a screen switch function (on page 96).



The available control elements and the look are engineered in the Editor (on page 5).



Parameter	Description
Add template	Opens the dialog for selecting a template for the screen type.
	Templates are shipped together with zenon and can also be created by the user.
	Templates add pre-defined control elements to pre- defined locations in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and dragged onto the screen. Elements can be moved on the screen and arranged individually.
Chronologic event list	Display field for the list with its events. The appearance is configurable (on page 10). Columns are defined via the Column settings (on page 60) filter in screen switching or via the Column settings CEL property in the Chronologic event list group.
Display: Set filter	Displays the currently selected filter.
Filter	Opens the filter dialog (on page 32).
Sort	After calling up the CEL in the Runtime, new entries are not sorted in chronological order but added to the bottom of the list.
	Click on the button to newly sort the list.
	To help you differentiate between sorted and unsorted entries you can assigned different colors via properties sorted text and unsorted text.
Show relative times	Active: The relative times are displayed without the focus being lost in the selected entry.
Stop/Continue	Controls adding new events to the list while it is displayed:
	Stop: No new entries are added to the list. The button changes its caption to Next.
	Next: New entries are added to the list. The button changes its caption to Stop. To sort the new entries chronologically, you must click on button Sort.
Close	Ends the display of the Chronological Event List and closes



	the screen and the frame.
	In order that after the closing the screen which was opened before is displayed, you must engineer the screen of type CEL with its own frame.
Print	Prints list (on page 129) as it is currently displayed.
Print with dialog	Opens printer settings before printing.
Text: Total number	Adds text "Total" in the Runtime. Must be followed by list field Total number.
Total number	Number of all events in the list
Info: Status CEL	In the Runtime displayed the state of the CEL.
	active: Events are logged depending of the settings (on page 28) in the project
	inactive: Events are not logged
	You define the status with the help of property CEL active. Changes take effect after restarting the Runtime.
Text: Comment field	Adds text "comment" in the Runtime. Must be followed by list field Comment field.
Comment field	List field for entering a freely definable text by the user for the selected event.
	As soon as the field loses focus, the text is taken over. To display the text in the CEL, you must activate column comment in the column definition (on page 60).
Button Stop/Continue	
Navigation	Controls elements of the list.
line up	Scrolls one line up.
▶ Line down	Scrolls one line down.
Column right	Scrolls one column to the right.
Column left	Scrolls one column to the left.
Page up	Scrolls one page up.
Page down	Scrolls one page down.



▶ Page right	Scrolls one page to the right.
▶ Page left	Scrolls one page to the left.
Filter profiles	Filter settings that can be saved by the user in Runtime.
<pre>Profile selection</pre>	Select profile from list.
▶ Save	Saves an online setting in a profile.
> Delete	Deletes selected profile.

Info

The current filter is displayed the in the **Show filter** control element.

For a:

- Text filter, the expression [Txt] is displayed
- Relative time filter is displayed as a print-out with the following scheme:

[T,Rel:%dd,%dh,%dm;%ds]

Example: [T,Rel:1d,0h,0m,0s] corresponds to a day.

CONFIGURATION OF THE DISPLAY

The type of information which is displayed in the Runtime, you can configure via the column setting of the CEL. You can reach the column setting via:

Project settings -> Chronologic event list -> Column settings CEL (only tab Column settings (on page 33))

or

► Function screen switch to a screen of type **AML** (all tabs (on page 38))

2.3.1 Filter CEL

Events can be filtered and displayed in the Runtime via:



- ▶ filter use in the Runtime
- screen switch with pre-defined filter to a screen of type CEL (on page 6)

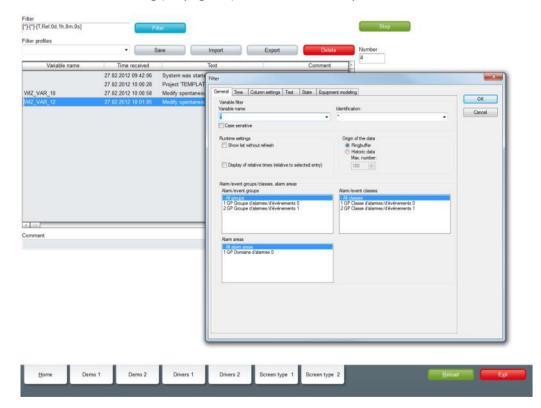
screen switch with filter for call up of a screen of type CEL (on page 6)

screen switch to a screen of type Chronological Event List Filter (on page 12)

FILTERING IN THE RUNTIME

In the screen of type CEL you can use filter in the Runtime. To filter the results displayed in the CEL:

- you must have engineered button Filter
- 2. click on the button
- 3. the filter dialog (on page 38) of the CEL will be opened



Set filter can be saved in profiles (on page 119).

SCREEN SWITCH TO A SCREEN OF TYPE CHRONOLOGICAL EVENT LIST

Results can be displayed in a pre-filtered way. To do this:



- 1. engineer a filter (on page 32) for function screen switch to a screen of type CEL (on page 96)
- 2. the CEL is displayed in a filtered way when called
- 3. if the option Display dialog in the Runtime is activated for the function, you can newly define the filter before the display
- 4. in the Runtime further filter settings are possible via button filter

SCREEN SWITCH TO A SCREEN OF TYPE ALARM MESSAGE LIST FILTER

To make only the filter available in the Runtime, which the user needs, you can use the screen of type Chronological Event List Filter (on page 12). To do this:

- 1. engineer a screen switch to a screen of type Chronological Event List Filter (on page 98)
- 2. call up the CEL via this function in the Runtime
- 3. the user has a tailor-made (on page 68) Alarm Message List

Filter profiles

Filter profiles are filter settings which can be saved and called up by the user in the Runtime.

To use filter profiles, you must engineer the following control elements:

Parameter	Description
Filter profiles	Profile administration
Profile selection	Select saved profile (drop-down list)
Save	Save settings as profile (button)
Delete	Delete profile (button x)

With this you can in the Runtime:

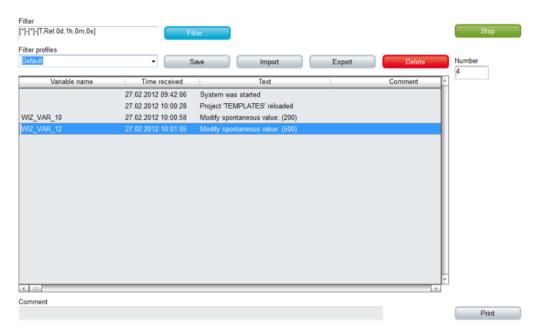
- save filters
- use saved filters
- delete filter profiles



SAVE A FILTER PROFILE

To create a filter profile:

- 1. define filter conditions in the Runtime
- 2. assign a name using property filter profiles
- 3. click on save



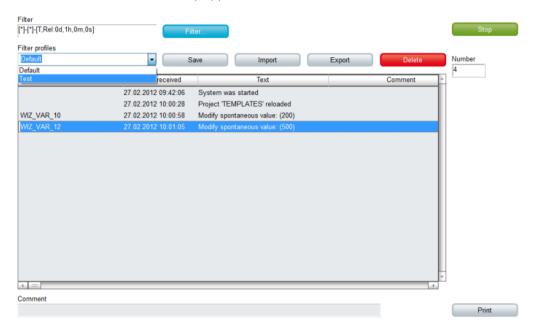
USE FILTER PROFILE

To use a filter profile:

1. select a filter from the drop-down list property filter profiles







DELETE FILTER PROFILE

To delete a filter profile:

- 1. select a filter from the drop-down list property filter profiles
- 2. click on button x
- 3. the profile is deleted
- 4. the deleted filter is still applied as long as a new filter is defined or selected

Use CEL filter

The screen of type Chronological Event List Filter (on page 12) enables you to make individual filter settings for the Alarm Message List in the Runtime. You can engineer all filter settings which are also available in the filter (on page 32) for function screen switch to the screen of type CEL (on page 96).

With this:

▶ only the necessary filters are engineered and made available to the user.



- ▶ the user sees only these filters; the overview is enhanced
- ▶ the look can be tailor-made and for example an easy touch screen operation is possible

FILTER SCREENS

Filter screens make it possible to transfer a preset filter from one screen to another. The filter of the source screen is set using the target screen. The screens can also be of a different screen type.



Attention

In order for the time to be taken from the screen to be called up in Runtime, the following time range must be selected in the Editor for the screen switching function for the Alarm Message List or the Chronological Event List in the time filter: Set filter at time filter type

CALL DEFINITION

The following requirements must be met for the set filters to be used:

- 1. Set filter for time filter type is selected as a time period for the time filter.
- 2. The Screen (Alarm Message List Filter, Chronological Event List filter Of Time Filter screens) are activated using a button or a combined element. Only in this way can the relationship between filter screen and source screen be maintained.
- 3. The source screen and filter screen must be configured on different frames or monitors. The filter for the filter screen can only be updated if the source screen is open. This is only possible if both screens do not use the same frame or the same monitor.
- 4. The screen to be called up must be compatible with the filter screen to be called up (see table).



Source screen	AML filter	CEL filter	Time filter
Archive revision	Т	Т	Т
Extended trend	Т	Т	Т
Time filter	Т	Т	х
Alarm Message List Filter	Х	С	Т
Chronological Event List Filter	С	X	Т
Alarm Message List	Х	С	Т
Chronologic event list	С	х	Т

Key:

- C: Common settings are updated.
- T: Time settings are updated.
- X: All settings are updated.



Info

No filtering

The filter screen is not filtered, but opened with the configured values, if:

- One of the conditions 1 to 3 is not met or
- The Screen to call up setting is not activated for the Screen switching function or
- The screen is not called up via a screen element

In this case, the Accept, Close and Update buttons are grayed out in Runtime and have no function.

UPDATE

When a filter screen is called up (Alarm Message List filter, Chronological Event List filter, time filter), the screens configured in the screen switching function are updated in two ways:

If the filter screen is called up via a screen element, the target screens on the same monitor as the source screen are updated.



▶ If the filter is called up in a different way or if the Update on all monitors setting is activated, all target screens configured are updated.

They are updated as soon as you click the Accept button or as soon as you closes the filter screen with the close close button. The cancel button discards the changes and closes the filter screen.

UPDATE FILTER SETTINGS

YOU UPDATE THE CURRENT FILTER SETTINGS FOR THE SOURCE SCREEN USING THE UPDATE BUTTON. IF THE FILTER SCREEN IS NOT CALLED UP BY A SCREEN ELEMENT OR IF THE CALLING SCREEN HAS NOT BEEN ACTIVATED, ALL MONITORS ARE SEARCHED FOR SCREENS THAT CAN BE USED FOR UPDATING. THE FIRST SCREEN THAT IS FOUND IS THEN THIS IS USED FOR UPDATING.

2.3.2 Print and export events

Entries in the CEL can be documented and archived via:

- ► CEL Print online (on page 125): each event is printed on a line printer when it is displayed in the list
- ▶ CEL Print offline (on page 129): the CEL is printed in the current state as completed list
- ► Export (on page 137) content of the CEL (filtered)

The print used for printouts is defined via menu File -> General configuration -> Standard.



Attention

A configuration file *.frm is used for the print-out:

- online: ALARM.frm
- offline: ALAR_G.frm.

This FRM file must be in the project tree in the File section in the Texts and formats folder.

Templates for FRM files can be found in the zenon installation folder in the FRM QRF subfolder. These can be inserted via the file in the Texts and formats section and edited there.

You can kind the key words for FRM files in the FRM configuration file (on page 132) chapter.

Online printing

At online printing each event with entry in the CEL is immediately sent to the printer.

Attention: The online printing takes place line by line in accordance with the ESC/P (Epson Standard for Printers) and demands an Epson compatible printer.

To online print entries from the CEL

- 1. define a printer
- navigate to the AML and CEL node in properties
- 3. Activate the propertyPrinting active
- 4. at property Printing for select Chronological Event List from the drop-down list
- 5. Define the number of lines with the Lines per page property (default: 72) 72:
- 6. configure BTB. frm (on page 132)
- 7. add file BTB.frm to node Files/texts and formats



CONTROL PRINT AND PRINTER IN THE RUNTIME

PAGE CHANGE

Form feed is carried out if:

- ▶ a page is fully written
- ▶ the Runtime is closed and online printing is active
- ▶ function Online printing start new page (on page 112) is executed

HALT PRINTING

To halt or to continue online printing:

► carry out function Switch online printer on/off (on page 111).

CHANGING AND SETTING UP A PRINTER

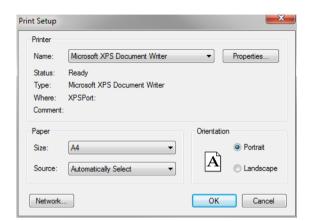
To change the printer in Runtime:

► Carry out the Switch online printer (on page 112) function

To set up the selected printer in Runtime:

- 1. Configure a Print with dialog control element for the screen
- 2. Click on the Print with dialog button in Runtime
- 3. The configuration dialog is opened







Parameters	Description
Printers	Settings for the printer.
Name:	Selection of the printer from the drop-down list. The list contains all printers configured in the operating system.
Properties	Opens printer configuration dialog.
Status:	Display printer state. For information only.
Type:	Display printer type. For information only
Location:	Display the location of the printer if configured. For information only.
Comment:	Display comment about printer if configured. For information only.
Paper	Configuration of the printout.
Size	Select paper format from drop-down list.
Source	Select paper feed from drop-down list.
Alignment	Select paper alignment. Possible parameter:
	Portrait Format
	Landscape format
Network	Opens dialog for selecting a printer in the netwok.
OK	Accepts configuration and closes dialog. With this printing is started in the Runtime.
Cancel	Discards configuration and closes the dialog. In the Runtime this also cancels the printout.

FORMATTING EXAMPLE

Engineering (on page 132) in BTB . ${\tt FRM}$:



Date: @DSYSTEM	Alarm inf. list/demo proj.	Time @TSYSTEM o'clock	Text
Date/Time received	Time cleared	Information text	Status text
%%			
@DTRECEIVED	@TCLEARED	@IDENTIFICATION	@ТЕХТ
%%			
	Page	@PAGE	

Printout on the printer

Date: 20.03.2011	Alarm inf. list/demo proj.	Time: 12:00 o'clock	Text
Date/Time received	Time cleared	Information text	Status text
20.03.2011 13:00:00	20.03.2011 1:03:59 PM	Message 1	Limit exceeded
20.03.2011 13:00:00	1:05:35 PM	Demo information	Limit 750 reached
20.03.2011 1:03:59 PM		Message 2	Limit
20.03.2011 1:11:23 PM		Message 3	off
20.03.2011 1:03:59 PM	1:12:45 PM	Demo information	off
	Page	1	

Offline printing

Offline printing means that the CEL is printed our as it is displayed at the moment in the Runtime. This print out is a snapshot including all set filters and their restrictions. The print out is carried out regardless of whether the variables concerned having option print.

PRINT

To print the CEL offline:

1. define a printer



- 2. configure BTB_G.frm (on page 132)
- 3. add file BTB_G.frm to node Files/texts and formats
- 4. in the Runtime click button print or print with dialog.

SET UP AND CHANGE PRINTER

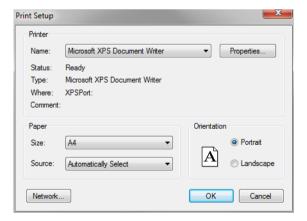
CHANGING AND SETTING UP A PRINTER

To change the printer in Runtime:

► Carry out the Switch online printer (on page 112) function

To set up the selected printer in Runtime:

- 1. Configure a Print with dialog control element for the screen
- 2. Click on the Print with dialog button in Runtime
- 3. The configuration dialog is opened





Parameters	Description						
Printers	Settings for the printer.						
Name:	Selection of the printer from the drop-down list. The list contains all printers configured in the operating system.						
Properties	Opens printer configuration dialog.						
Status:	Display printer state. For information only.						
Type:	Display printer type. For information only						
Location:	Display the location of the printer if configured. For information only.						
Comment:	Display comment about printer if configured. For information only.						
Paper	Configuration of the printout.						
Size	Select paper format from drop-down list.						
Source	Select paper feed from drop-down list.						
Alignment	Select paper alignment. Possible parameter:						
	Portrait Format						
	Landscape format						
Network	Opens dialog for selecting a printer in the netwok.						
OK	Accepts configuration and closes dialog. With this printing is started in the Runtime.						
Cancel	Discards configuration and closes the dialog. In the Runtime this also cancels the printout.						

FORMATTING EXAMPLE

Configuration in BTB_G.FRM:



Date: @DSYSTEM	Closed Alarm Message List Demo Project	Time @TSYSTEM o'clock	Text
Date/Time received	Time cleared	Information text	Status text
%%			
@DTRECEIVED	@TCLEARED	@IDENTIFICATION	@ТЕХТ
%%			
	Page	@PAGE	

Printout on the printer

Date: 20.03.2011	Closed Alarm Message List Demo Project	Time: 12:00 o'clock	Text
Date/Time received	Time cleared	Information text	Status text
20.03.2011 13:00:00	20.03.2011 1:03:59 PM	Message 1	Limit exceeded
20.03.2011 13:00:00	1:05:35 PM	Demo information	Limit 750 reached
20.03.2011 1:03:59 PM		Message 2	Limit
20.03.2011 1:11:23 PM		Message 3	off
20.03.2011 1:03:59 PM	1:12:45 PM	Demo information	off
	Page	1	

FRM configuration file

FRM files (format files) are configuration files for printing out lists.

An FRM file has three parts:

► Header: at the beginning of the page

► List: cyclic per line

► Footer: at the end of the page



BASIC PRINCIPLES

Note, when editing FRM files:

- ► <u>Separation of list parts:</u>
 - Header and list part and list part and footer are separated by %%.

This separation marking must be used only once for the list part and the base part.

- Attention: There must be at least two empty paragraphs after the last line.
 Otherwise the footer is not printed!
- Positioning of the individual entries:

Only empty characters can be used, no tabs.

► Editing the FRM file in a text editor:

Automatic line break must be deactivated, otherwise unwanted effects can occur in the formatting.

KEY WORDS

The setting for the page length is made in Project Properties under AML and CEL or via the ALARM.frm or ALAR G.frm file for the AML or BTB.frm and BTB_G.frm for the CEL.

Please keep in mind:

- ► The number of the alarm entries per page results from the predetermined number of lines (e.g. Lines per page 72), less the lines used for header and footer text.
- ► The Use reactivated time option must be activated in order to be able to use the keywords that evaluate the reactivation (time, number).
- ► Free texts and keywords can be used in the formatting file. Key words can be used either in German or in English. The use of English key words is recommended.
- ▶ Not every key word is suitable for every kind of printing (AML, CEL, online, offline).

The following report contains key words in English and German and their field of application.



German	English	AML offlin e	CEL offlin e	AML online	CEL onlin e	Description
Key words for the list part						
@BMKENNUNG	@RESOURCELAB EL	Х	Х	Х	х	Resources label



@DATZEITKOMMT	@DTRECEIVED	х	X	X	Х	Time and Date when the alarm occurred
@DATZEITGEHT	@DTCLEARED	х	-	х	-	Time and Date when the alarm ended
@DATZEITOK	@DTACK	х	-	х	-	Time and Date when the alarm was acknowledged
@DATZEITREAKT	@DTREACTIVATE	х	-	x	-	Time and Date of reactivating: Property Use reactivated time in the project properties must be activated.
@DATZEIT	@DTLASTEVENT	-	-	X	-	Time and date of alarm received or cleared or acknowledged or reactivated
@ZEIT	@TLASTEVENT	-	-	X	x	Time of alarm received or cleared or acknowledged or reactivated
@ZEITOK	@ТАСК	х	-	х	-	only displays time of acknowledging
@ZTKOMMT	@TRECEIVED	х	X	Х	х	only displays time of alarm received
@ZTGEHT	@TCLEARED	х	-	Х	-	only displays time of end of alarm
@ZTREAKT	@TREACTIVATE	х	-	Х	-	only displays time of reactivating
@TIMELASTING	@TACTIVE	Х	-	Х	-	Time active (difference time received - time cleared)
@ANWENDUNG	@PROJECTNAME	х	Х	Х	х	Project name
@KANALNAME	@VARNAME	x	Х	х	Х	Variable name CEL: Only entries with variables
@AK	@ACLASSNR	Х	Х	Х	Х	Alarm/event class name
@AG	@AGROUPNR	х	Х	Х	Х	Alarm/event group number
@AGNAME	@AGROUPNAM	Х	Х	Х	Х	Name of alarm/event group



	E					
@AKNAME	ACLASSNAME	х	Х	Х	Х	Name of alarm/event class
@TAGNR	@IDENTIFICATIO N	Х	Х	Х	X	Identification (company- specific label)
@AMELDUNG	@ТЕХТ	Х	Х	Х	Х	Alarm message text
@REAKTANZ	@NRREACTIVAT E	Х	-	Х	-	Number of reactivations
@STATUS	@STATUS	Х	Х	Х	Х	Status information as in Alarm Message List
@WERT	@VALUE	Х	Х	Х	Х	Variable value of alarm
@REAKTIONSTEXT	@COMMENT	х	X	X	X	Commentary from the Alarm Message List. If you use dynamic limit texts, this is only available if properties Long dynamic limit texts AML or Long dynamic limit texts CEL are activated.
@USER	@USERID	Х	Х	Х	Х	AML: User who acknowledged alarm.
@RECHNER	@COMPUTER	X	Х	х	Х	AML: Computer on which alarm was acknowledged.
Key words for head	der and footer					
@ANWENDUNG	@PROJECTNAME	Х	Х	Х	Х	Project name
@SEITE	@PAGE	Х	Х	Х	Х	Page number
@HEADDATZEIT	@DTSYSTEM	Х	Х	Х	Х	System date and system time
@HEADDATUM	@DSYSTEM	х	Х	Х	х	System date
@HEADZEIT	@TSYSTEM	х	Х	Х	х	System time
@USER	@USERID	х	Х	Х	х	User who prints
@USERNAME	@USERNAME	Х	Х	x	Х	Full user name who triggered action
@RECHNER	@COMPUTER	Х	Х	Х	Х	Computer from which it is



				printed
[Text]	[Text]			Random text



Attention

Between the key words there must be enough space so that entries are not overwritten. In doing so, you make sure that long limit texts are also displayed correctly.

Example:

@TEXT

(spaces up to here)

Export events

Entries in the CEL can be exported to different formats:

- dBase
- CSV
- XML
- SQL

EXPORT

To export entries from the CEL

- 1. create function Export CEL (on page 101)
- 2. link the function to a button
- 3. execute the function in the Runtime



The export to SQL is incremental. If there is already exported data, only new and amended data is exported.

