zenon manual

Functions

v.7.10

COPA·DATA
do it your way

Contents

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. Functions

The user can influence zenon via user-defined project functions. All functions used in a project are based on the existing system functions. These are pre-defined macros that are easy to use and parameterize by the user.
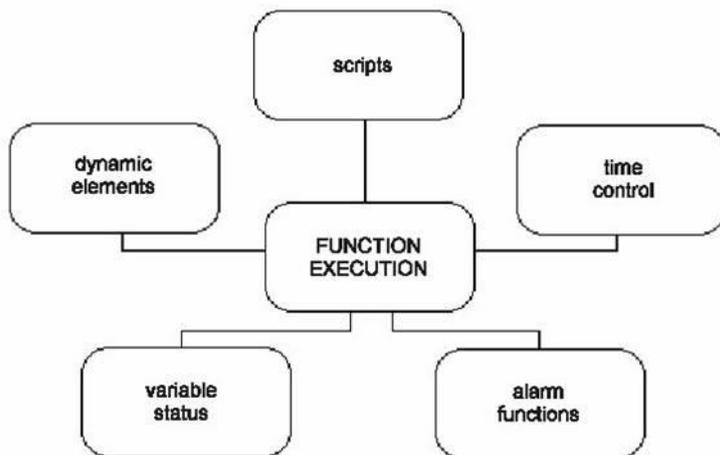
> **License information**
>
> *Part of the standard license of the Editor and Runtime.*

PROJECT MANAGER CONTEXT MENU

Menu item	Action
Function new	Opens the wizard for creating a new function.
Export XML all...	Exports all entries as an XML file.
Import XML...	Imports entries from an XML file.
Display unused functions	Creates a project analysis for unused functions in the current project and displays it as result list in an own window.
Open in new window...	Opens a new window in order to view and edit the function. (Default: at the bottom of the Editor.)
Editor profile	Opens the drop-down list that includes pre-defined editor profiles.
Help	Opens the online help.

2.1 Overview functions in zenon

Functions are sorted in the following groups:

- ▶ AML and CEL (on page 7)
- ▶ Application (on page 9)
- ▶ Historian (on page 10)
- ▶ Batch Control (on page 11)
- ▶ User administration (on page 11)
- ▶ Screens (on page 12)
- ▶ Error detection in the electric network (on page 13)
- ▶ Message Control (on page 13)
- ▶ Network (on page 14)
- ▶ Report Generator (on page 14)
- ▶ Recipes (on page 15)

2.1.1   AML and CEL

This group contains functions for the handling of the alarm message list (AML) and the Chronological Event List (CEL).

Function	Description
Alarms: acknowledge flashing	This function acknowledges the flashing of all elements of the currently open screen of a selected frame.
Alarms: delete	This function deletes filtered alarms.
Alarms: acknowledge	This function acknowledges filtered alarms.
Alarm/event group log in/log off	This function switches on/off the connection to the PLC for a selected alarm/event group.
Active alarm message list	This function activates the entire alarm message list.
Alarm Message List active/inactive	This function activates/deactivates the entire alarm message list.
Alarm Message List inactive	This function deactivates the entire alarm message list.
Activate/deactivate alarm message list / alarm/event groups / alarm/event classes	This function activates/deactivates an alarm/event group, an alarm/event class or the entire Alarm Message List.
Export AML	This function exports filtered entries of the alarm message list to an external format.
Save AML and CEL ring buffer	This function saves current alarms and events to file ALARM.BIN and CEL.BIN and values from the mathematics variables (counter) in file SY_MA32.BIN.
Export CEL	This function exports filtered entries of the Chronologic Event List (CEL) to an external format.
Print AML or CEL	This function prints selected entries of the alarm list (AML) or the Chronological Event List (CEL).
Create IPA document	This function creates an IPA report and writes it to an HTML file or prints it out.
Switch online-printing on/off	This function switches on/off online printing of the alarm message list or the Chronological Event List (CEL).
Online printing start new page	In activated online printing this function finishes a page and starts a new one. The page number is reset to 1
Switch online printer	This function switches the online printing to a selected printer. Optionally, a dialog for the user can be opened before that.

2.1.2   Application

This group contains functions for the handling of project settings.

Function	Description
Select printer (on page 22)	This function opens a dialog in which the user can select printers for the different print tasks.
Start EMS	This function starts the optimization for a selected service area in the EMS module. This function is only carried out on the server.
Stop EMS	This function stops the optimization for a selected service area in the EMS module. This function is only carried out on the server.
Print Extended Trend diagram	With the help of this function you can print diagrams of the extended trend or save them in a file (JPG or BMP) without opening the screen Extended Trend.
Switch palette	Creates a function in order to switch between palettes in the Runtime.
Functions active at limit (on page 22)	This function activates the function administration. Automatically executed functions (e.g. via time control, limit violation, etc.) are executed.
Functions active/inactive at limit (on page 23)	This function switches the function administration on or off. Automatically executed functions (e.g. via time control, limit violation, etc.) are not executed.
Functions inactive at limit (on page 22)	This function switches the function administration off. Automatically executed functions (e.g. via time control, limit violation, etc.) are not executed.
Open help	This function opens a selected help page from a CHM file.
Reload project online (on page 23)	This function reloads only changed or all Runtime files.
Determine open maintenances	This function sends currently open maintenances from the IMM to status variables.
PFS - execute user-defined event	This function executes a PFS event previously created by a user.
Simulate right click (on page 24)	This function interprets the next mouse click as a right click.
Save remanent data (on page 24)	Allows to the save the data of the configured modules. The choices are: AML ring buffer, CEL ring buffer, system driver and

	mathematics driver, internal driver, remanent images of all drivers, locking of the command.
Exit Runtime (on page 23)	This function closes the zenon Runtime.
S7 Graph heuristics	This function makes it possible to carry out the S7 Graph heuristics without the screen S7 Graph being active.
Execute SAP function	Enables call up of a SAP function in the Runtime.
Language change	This function switches to a selected language in multi-lingual projects.
Topology - Shoret circuit detection	Call up of the short circuit detection.
Topology - LoadShedding	Determines the supply state of the topological devices and depicts them on variables.

2.1.3   Historian

This group contains functions for the optional module Historian.

Function	Description
Archive: Stop	This function stops a selected archive of the optional module Historian.
Index archive	This function indexes archives.
Archive: Start	This function starts a selected archive of the optional module Historian.
Export archives	This function exports filtered archive entries of the optional module Historian to an external format.
Display open archives	This function displays a list of running archives of the optional module Historian.

2.1.4 Batch Control

This group contains functions for the Batch Control.

Function	Description
Execute recipe command change or mode change	You can send control commands to the batch execution with this function
Create control recipe function	With the help of this function, a pre-defined control recipe can be created in the Editor by means of a button in Runtime.

2.1.5 User administration

This group contains functions for the User administration.

Function	Description
Change user	This function opens a dialog, where a logged-in administrator can create, edit or delete users.
Log in with dialog	This function opens the standard login dialog.
Login without password	This function logs in a selected user without asking for his password.
Log out	This function logs out the currently logged in user.
Change password	This function opens a dialog, where the currently logged in user can change his password.

2.1.6   Screens

This group contains functions for the handling of Screens.

Function	Description
ALC source colors	Function for the configuration of the ALC source colors for the error detection in electric grids.
Screen with index	This function opens a screen with a name containing a selected variable.
Close screen	This function closes a selected screen.
Screen: Return to last	This function returns to the previously opened screen of the selected frame.
Screen: Move center	This function scrolls or zooms in a worldview screen.
Screen switch	This function opens a selected screen. Optionally, a dialog for the user can be opened before that. Note: Without dialog the function is carried out with the highest priority (1). If a dialog is called up before the execution, the priority is downgraded to high (2).
Activate input to the element with the focus	This function executed the functionality of the element, which currently has the input focus.
Set focus to frame	This function sets the input focus to the currently open screen of a selected frame. This allows to create projects with pure keyboard operation.
Move focus	This function sets the input focus to a certain element on the picture, whose frame currently has the focus.
Take focus away from frame	This function takes the input focus away from the currently open screen of a selected frame. This allows to create projects with pure keyboard operation.
Show menu	This function opens or closes a selected main menu. Optionally, a dialog for the user can be opened before that.
Monitor assign	This function assigns a selected virtual monitor to a selected real monitor. Optionally, a dialog for the user can be opened before that.
Runtime profiles	Creates a function with which the profile administration can be opened, a profile can be created or loaded in the Runtime
Close frame	This function closes the currently open screen of a selected frame.
Setpoint input for keyboard	This function sets a predefined value or writes a predefined value in the

screen	keyboard screen type.
Show overview window	This function opens an overview window. With this you can simulate a multi-monitor system on a one-monitor system.

2.1.7 Error detection in electric grids

Contains functions for the error detection in electric grids.

Function	Description
Acknowledge ground fault message	Function for acknowledging an earth fault message. Opens the dialog for selecting a variable.
Stop search for ground fault	Function for closing the search for earth fault.
Start search for ground fault	Function for starting the search for earth fault.
Acknowledge short-circuit message	Function for acknowledging a short-circuit message. Opens the dialog for selecting a variable.

2.1.8 Message Control

This group contains functions for the optional module Message Control.

Function	Description
Save current queue	In the Runtime saves the current message queue.
Group/class/area/equipment suppressed	Makes it possible to suppress the sending of messages for certain alarms.
Send a Message	Creates a function for sending messages.
Send Message: activate	Activates Message Control in the Runtime for the activated project.
Send Message: deactivate	Deactivates Message Control in the Runtime for the activated project.

2.1.9 Network

This group contains functions for the handling of a Network.

Function	Description
Authorization in network	This function fetches or releases the authorization in a network.
Redundancy switch	This function exchanges the server and the standby server of the project.

2.1.10 Report Generator

This group contains functions for the optional module Report Generator.

Function	Description
Print report	This function prints a selected report of the optional module Report Generator.
Report: execute	This function executes a selected report of the optional module Report Generator.
Export Report	This function exports a selected report of the optional module Report Generator to an external format.

2.1.11   Recipes

This group contains functions for the handling of Standard Recipes and recipes of the optional module Recipegroup Manager.

Function	Description
Recipe Group Manager	This function writes, reads, copies, imports or exports a selected recipe of the optional module Recipegroup Manager (RGM). Optionally, a dialog for the user can be opened before that.
Standard Recipe	This function writes, reads, copies, imports or exports a selected standard recipe. Optionally, a dialog for the user can be opened before that.
Standard recipe single directly	This function sends the values of a selected standard recipe to the PLC.
Standard recipe single with dialog	This function opens a dialog, where the user can change and execute a standard recipe.
Standard recipe single with online dialog	This function opens a dialog, where the user can select and execute and/or edit a standard recipe.

2.1.12   Script

This group contains functions for the handling of Scripts.

Function	Description
Script: execute	This function executes a selected script.
Script: select online	This function opens a dialog in which the user can select and execute a script.

2.1.13 Variable

This group contains functions for the handling of Variables.

Function	Description
Export data	This function exports values of selected variables saved on the hard disk (*.HDD) to an external format.
Read a dBase-file	This function reads a selected dBase file and executes it as a recipe.
Print current values	This function prints current values of selected variables.
Unit conversion	Switches from basic unit to conversion unit.
Trend-Values off	This function switches hard disk data storage off. HDD files are not written.
Trend-Values on	This function switches hard disk data storage on. HDD files are written.
Trend-values on/off	This function switches hard disk data storage on or off. HDD files are (not) written.
Send value to hardware	This function sends a new value for a selected variable to the PLC.
Driver Commands	This function sends a selected command to a selected driver. Optionally, a dialog for the user can be opened before that.
Transfer simulation image to standby	Is only carried out at the Standby. Demands an image for the selected drivers from the server when it is executed. The driver has 5 seconds of time for this.
Write time to variable	This function reads the system time of the operating system and writes it to a string variable in the PLC. This way, the system time of the PLC can be synchronized with the operating system.
Read time from variable	This function reads the time from a string variable of the PLC and sets the system time of the operating system accordingly. This way, the system time of the PLC can be synchronized with the operating system.

2.1.14   VBA

This group contains functions for the handling of VBA (on page 5) macros.

Function	Description
Open PCE editor	This function opens the editor of the optional module Process Control Engine (PCE).
Open VBA editor	This function (on page 5)opens the VBA editor.
Execute VBA macro	This function executes a selected VBA macro. **Attention:** The VBA Event `project inactive` is carried out by script `AUTO_END_xxx`. Therefore zenon function `Execute VBA macro` is no longer executed in scripts as VBA is not running at this time. VBA macros which should be carried out in "AUTOEND" must be called via Project.Inactive.
Show VBA macro dialog	This function opens the VBA macro dialog.

2.1.15   VSTA

This group contains functions for the handling of VSTA.

Function	Description
Open VSTA editor	This function opens the VSTA editor.
Execute VSTA macro	This function executes a selected VSTA macro.
Show VSTA macro dialog	This function opens the VSTA macro dialog.

2.1.16   Windows

This group contains functions for the handling of operating system functionality.

Function	Description
Play audio file (on page 25)	This function plays a selected audio file (*.wav) once.
File operations (on page 26)	This function copies, deletes or moves selected files. Optionally, a dialog for the user can be opened before that.
Start continuous tone (on page 28)	This function plays a selected audio file (*.wav) continuously.
Stop continuous tone (on page 28)	This function stops the continuous playing of a audio file (*.wav).
Window to the background (on page 30)	This function switches the zenon Runtime to the background.
Window to foreground (on page 31)	This function switches the zenon Runtime to the foreground.
Print screenshot (on page 28)	This function prints either the current screen or the currently open screen of a selected frame. Optionally the print-out can be routed to a fax.
Start program (on page 32)	This function starts an external program. Transfer parameters can be defined. Optionally, a dialog for the user can be opened before that.

## 2.2   Function detail view toolbar and context menu

CONTEXT MENU

Menu item	Action
Function new	Opens the dialog for creating a new function.
Parameters	Opens the dialog for entering the parameter.
Copy	Copies selected entries to the clipboard.
Paste	Pastes the contents of the clipboard. If an entry with the same name already exists, the content is pasted as "Copy of".
Delete	Deletes selected entries.
Export selected XML	Exports selected entries as an XML file.
Import XML	Imports XML files.
Function use...	Creates a project analysis for selected functions in the current project and displays it as result list in an own window.
Remove all filters	Removes all filter settings.
Edit selected cell	Opens the selected cell for editing. The binocular symbol in the header shows which cell has been selected in a highlighted line.
Replace text in selected column	Opens the dialog for searching and replacing texts.
Properties	Opens the **Properties** window for the selected entry.
Help	Opens the online help.

2.3   Engineering in the Editor

2.3.1   Creating and editing functions

CREATE NEW FUNCTION:

In the context menu of the entry 'Functions' in the Project Manager the following commands are available:
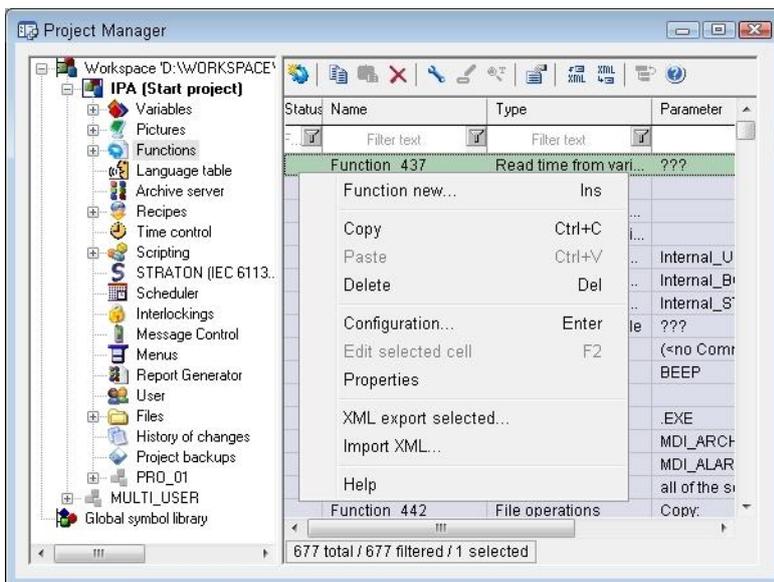
Parameters	Description
Function new ...	A new function is created and can be defined in the properties window.
Script new	A new Script (bundle of functions) is created.
Export XML all...	Export all functions to an XML file See chapter Import/Export.
Import XML ...	Import functions from an XML file. See chapter Import/Export.
Open in new window ...	Opens the detailview of the functions in a new window.
Profile	See chapter Profiles.

2.3.2   Selecting a function

In order to create a new function, select the entry 'Function new'. The function selection dialog opens. If a function is selected, you will find a dialog help in the lower part of the dialog. There the selected function is explained. You will find more information in the chapter Overview functions (on page 6).
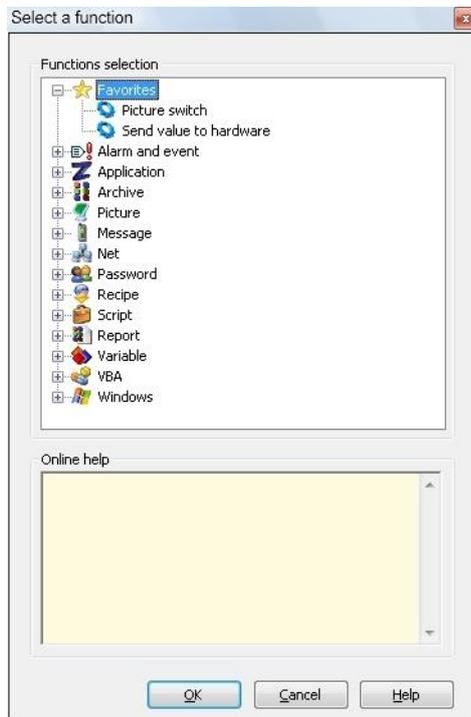
A function is created after you have selected it and confirmed with ок. The parameters of this new function can now be defined in the properties window.

If you press the 'Help' button after the selection, you will be forwarded directly to the corresponding function in the online help.

Similar to the properties window also here an individually definable favourite view is available. The section 'Favourites' is always at the top of the list. As a default it contains the functions 'Screen switch' and 'Send value to hardware'. Any function can be added to or removed from the favourites with the context menu or by Drag&Drop.

If a function is selected, you will find a dialog help in the lower part of the dialog. You will find more information on the single functions in the chapter Overview functions (on page 6).

2.3.3 Deleting functions

In order to delete a function, the function has to be selected in the detail view and deleted with the DEL key.

2.3.4 Inserting functions from other projects

It is possible to insert functions from other projects of the same workspace.

This is possible for screens (Screen Start-end Function, Buttons), limits, time control, scheduler, scripts, menus, projects (automatic function execution, archive).

2.4 System functions

2.4.1 Application - Functions

General zenon functions

Select printer

The printers for the different lists are generally defined in the Standard Configuration.

This function is used to change the printer selection during online operation. This function needs no parameters.

The settings of the printers are done as described in the chapter Configuration/Standard/Printer.

Functions with active limit values

With this function you activate the administration of the limit functions in the Runtime.

Functions with inactive limit values

With this function you deactivate the administration of the limit functions in the Runtime.

Function at limit active/inactive

With this function you can switch limit functions between states 0 and 1 in the Runtime. The status stored in the `zenon6.ini` file will be loaded when the Runtime is started:

```
[FUNKTIONEN]
```

ON=0 -> inactive

ON=1 -> active

Reload

This function loads changed Runtime files, without having to restart the Runtime.

> 💡 Info
>
> *If the names of the server or standby server are changed in the Editor, these cannot be loaded subsequently. They are only updated by restarting Runtime.*
>
> ⚠️ **Attention**
>
> *Graphics files of type **PNG** cannot be overwritten when the Runtime is running.*
>
> **Background:** *The Runtime protects opened `.png` files against overwriting.*
>
> **Solution:** *Before the Remote Transport is initiated, it must be ensured that the screen with the *.png file is not being displayed in Runtime and that the file is also not used by another program. This also applies for the reloading of amended Runtime files. The Runtime sync in the network does not work for this screen if this is switched on a zenon computer that is involved in the process (standby server, client).*

Exit program

This function is used to exit th Runtime in a defined way (logging in CEL, close the archives, execute the AUTOEND script etc.).

No transfer parameters are needed.

> ⚠ **Attention**
>
> ▸ The VBA Event **project inactive** is carried out by script **AUTO_END_xxx**. Therefore zenon function **Execute VBA macro** is no longer executed in scripts as VBA is not running at this time. VBA macros which should be carried out in "AUTO_END" must be called via Project.Inactive.
>
> ▸ Cyclical archives must not be given in the `AUTOEND` script.

Simulate right mouseclick

After executing this function in the Runtime the next mouse click or the next touch on the touchscreen is interpreted as a click with the right mouse button.

With this function it is possible to use context menus also on touchscreens.

No transfer parameters are needed.

Save remanent data

Function `Save remanent data` makes it possible to save remanent data at any time in the Runtime. The function can be imported and exported. In order to configure the function:

1. select New Function

2. navigate to node Applications

3. select `Save remanent data`

4. the dialog for the selection of the modules opens.
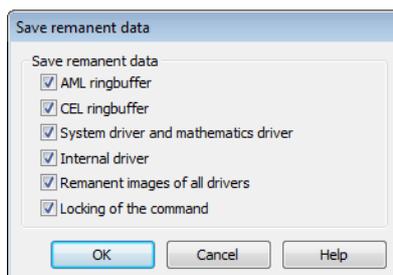
Module	Description
`AML ringbuffer`	`Active:` AML ring buffer is saved.
`CEL ringbuffer`	`Active:` CEL ring buffer is saved.
`System driver and mathematics driver`	`Active:` Data of the system driver and of the mathematics driver are saved.
`Internal driver`	`Active:` Data of the internal driver are saved.
`Remanent images of all drivers`	`Active:` Data of all drivers are saved.

`Locking`
 	
`of the command`
	`Active:` Data of the locking of the command are saved.

If errors occur during the saving process, they are written to the error protocol.

> ### 💡 Info
>
> *If the Runtime runs in simulation mode (project simulation active), function* `Save remanent data` *does not save values from the following drivers:*
>
> ▸ Internal driver
>
> ▸ mathematics driver
>
> ▸ system driver

2.4.2   Windows - Functions

Function which trigger something in the operating system.

Play audio file

This function is used to play the indicated audio file (*.wav) once whenever the function is called in the Runtime. Provide the audio file as transfer parameter.

File Operations

This function is used to perform a defined file operation during runtime (copying, moving and deleting).

Give the file operation and the file parameters as the transfer parameters. This function is configured via an input dialog.
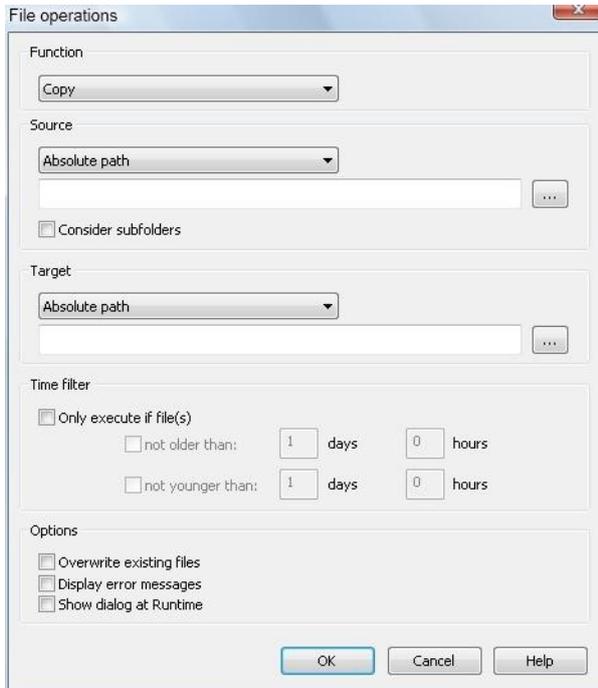
POSSIBLE FILE OPERATIONS:

Parameters	Description
Copy	copies files from one name and path to a new name and path. Transfer parameters are considered.
Move	Moves files from one name and path to a new name and path and deletes them in source path. Transfer parameters are considered.
Delete	Delete files. Transfer parameters are considered.

If the given source cannot be found (file or path is not present or incorrect), the function will not be executed. By default, no error message is generated. You can also force an error message via the options; we do not recommend this, as this might block the runtime or the processing of other functions.

Additional options can be configured after the file operation is defined.

Parameters	Description
Source/Target	Enter the path to source and target. You can also use wild cards (*) for source and target. (Wildcards are only allowed as prefix or suffix; e.g. *xxx or xxx*.) There are three ways of defining a path: ▸ absolute (You can also use the button '...' next to the text field). ▸ relative according to runtime folder (Link: more about the runtime folder) ▸ relative according to the data folder. (Link: more about the data folder). For example: **absolute:** Source `C:\temp\datenbank.mdb` to target `D:\backup\` -> The file 'database.mdb'is copied to the directory `D:\backup\`. In order for the copying to work, the target directory must already exist and it must be followed by a backslash. **relative:** relative according to the data directory: '*.aml' to target `D:\backup\` copies all files of the alarm list to the folder `D:\backup\`. **Rename files**: It is possible to rename single files. For example: `C:\temp\datenbank.mdb` to target `D:\backup\backupdb.mdb` copies the file `datenbank.mdb` to the directory `D:\backup\` and renames it to `backupdb.mdb`. Renaming several files simultaneously with wild cards is not possible.
Consider subfolders	Looks for files also in the sub folder of the source path and creates that tree structure in the target directory.
Overwrite existing files	If the source file already exists in the destination directory, it will be overwritten by the new file.
Display error messages	If copying or moving file is not possible, an error message is displayed as system message We do not recommend to activate this option, as it may block the runtime or the processing of other functions.
Show dialog at Runtime	Before the function is executed in online operation, a dialog box is loaded, which allows to adjust parameters (file operation, source, target etc.). The modified settings remain during the runtime of the online operation. In this dialog box, the option dialog box before execution is missing.
Only execute if	File operation is executed only when time criterion was defined (days,

file(s)	hours).
older than	The file must be older than the entered time. '1 day' always means 24 hours after execution time.
newer than	The file must be more up to date than the entered time. '1 day' always means 24 hours after execution time. Note: 'not older than' must be bigger than 'not younger than'.

Start continuous tone

By using this function the defined audio file (*.wav) is played repeatedly in the Runtime via a function call until function `stop continuous tone` is executed. Provide the audio file as transfer parameter.

Stop continuous tone

This function stops the repeated playing of an audio file (*.wav) which has been started via function `Start continuous tone`.

Print screenshot

This function is used to make a screenshot of the entire screen or of frames (process screens, lists, trend curves, etc.) in the Runtime. Frames are selected with a doubleclick.

Give the frame and the additional options as the transfer parameters. This function is configured via the following dialog.

Property	Description
`Selected print area`	Display of the selected area.
Define print area	Selection of the area which should be printed.
`Total screen area`	Prints screenshot of the whole screen. For multi-monitor systems the contents of the standard monitor is printed.
`Frames list`	Only available if the `Total screen area` property is inactive. Select the desired frame via double click. It is displayed in field `Selected print area`. Note: If the selected frame is not active during Runtime, nothing is printed.
`Monitor`	Only available if a frame has been selected and the `Total screen area` property is inactive. Select the desired monitor from the drop-down list: • All • Current monitor • Designated virtual monitor Note: If you have selected a frame which covers more than one screen, you must select `current monitor` in order to print the whole frame.
`Print options`	
`With margin`	At printing a margin is left for tacking.
`Inverted`	Reverses bright/dark areas.
`Fax`	The hardcopy is rerouted to the fax. For this you must select a fax device as printer for screenshots in the Printer settings.

Window to the background

With this function the zenon window is switched to the background in the Runtime. The entry SYSKEY in the file `project.ini` is not regarded. The selection of other applications (program manager) is possible.

[DEFAULT]	
...	
SYSKEY=	0 - system keys active
	1 - system keys blocked (default)

No transfer parameters are needed.

To the foreground

With this function the zenon window is switched to the foreground in the Runtime. All other applications are switched to the background (Exception: Applications with the property always in the foreground). The entry SYSKEY in the file project.ini is regarded.

Entry	Meaning
[DEFAULT]	
SYSKEY=	0 - system keys active
	1 - system keys blocked (default)

No transfer parameters are needed.

> 💡 **Info**
>
> *At moving the Runtime to the foreground the Runtime window is defined as the topmost window. At this the alarm status line is covered. In order to get the alarm status line back to the foreground, you can:*
>
> ▸ activate the system keys (deactivate project settting Lock system keys) and get back the alarm status line via Alt+Tab to the foreground
>
> ▸ activate the Windows task bar and click un window **Status**
>
> ▸ move the Runtime back to the background
>
> ▸ restart the Runtime

Start program

This function is used to execute an external program (*.exe) from the Runtime. On executing the function transfer parameters for the application to start can be defined.

Give the program file (*.EXE) as the transfer parameter. This function is configured via an input dialog.

Configurable options are:

Parameters	Description
Name	name of file which will be executed; search and select via button is possible
Parameters	transfer parameter for program
Show this dialog in the Runtime	changes program and parameter during online operation when function is called

The program is selected via a dialog mask.

For the start of a program it has to be in a search path (system environment under Windows NT). User-defined programs (Visual Basic) should be stored in the installation path of zenon.

When the Alarm Message List is active and an alarm in the list has been selected, the call of the variables' name can be transferred as a parameter (for external database information systems). The parameter is transferred as a key word.

Parameters	Description
`@alarm.name`	Name of the variable
`@alarm.unit`	unit of the variable
`@alarm.value`	value, which violated a limit
`@alarm.stext`	limit text
`@alarm.ctime`	time comes (value in seconds since 1.1.1970)
`@alarm.ctimemilli`	with milliseconds
`@alarm.gtime`	Time cleared
`@alarm.gtimemilli`	with milliseconds
`@alarm.qtime`	Time acknowledged
`@alarm.user`	user, who quitted
`@alarm.identification`	Identification of the variable

If no Alarm Message List is open, or several or no alarms are selected, no transfer parameters are generated. If several Alarm Message Lists are displayed (global or selective list), the entry of the first found list is used.

When the Chronologic Event list is active and an entry in the list has been selected, the call of the variables' name can be transferred as a parameter (for external database information systems). The parameter is transferred as a key word.

Parameters	Description
@cel.name	Name of the variable
@cel.unit	unit of the variable (only if a variable is linked)
@cel.value	value, which violated a limit (only if limit entry)
@cel.stext	limit text
@cel.ctime	time comes (value in seconds since 1.1.1970)
@cel.ctimemilli	with milliseconds
@cel.user	user, who quitted
@cel.identificatio n	Identification of the variable

If no Chronologic Event List is open, or several or no entries are selected, no transfer parameters are generated. If several Chronologic Event Lists are open (global or selective list), the entry of the first found list is used.

Additional parameters are:

@screen	screen from within which the function was executed

This function is used to to consider the effects of the started program on the system as a whole (required resources, multitasking, program stability, etc.).

2.5   Execution sequence during Runtime

The execution of functions in the Runtime is done according to a 3 priority levels:

- ▶   Priority 1: Immediate (it is executed immediately)

- ▶   Priority 2: High (a dialog is displayed before it is executed)

- ▶   Priority 3: Low

If for a function with priority 1 a dialog is displayed before the function is carried out, the priority is set to 2.

Within one project all functions of one script are in the same queue. In one script all functions of the same priority level are executed. These functions are executed one after the other.

Example

Via a script a screen arrangement with screens of different projects is activated via function `Screen Switch`. *This arrangement depends on the sequence of execution (screens above other screens).*

PRIORITY OF THE EXECUTION IN THE RUNTIME

Function groups	Functions	Priority
AML and CEL	Controlling the AML and CEL administration	
	▶ Alarms: acknowledge flashing	1
	▶ Alarms: delete	1
	▶ Alarms: Acknowledge	1
	▶ Alarm/event group log in/log off	1
	▶ Active alarm message list	1
	▶ Alarm Message List active/inactive	1
	▶ Alarm Message list inactive	1
	▶ Activate/deactivate Alarm Message List, alarm/event groups, alarm/event classes	1
	▶ Save AML and CEL ring buffer	1
	▶ Print AML or CEL	3
	▶ Export alarms	2
	▶ Export CEL	2
	▶ Create/print IPA document	1
	▶ Switch online printing on/off	1
	▶ Start online printing on a new page	?
	▶ Switch online printer	3
Application (on page 22)	Call applications	
	▶ Select printer	3
	▶ Print extended trend diagram	1
	▶ Switch color palette	2
	▶ Functions with inactive/active limit values	1
	▶ Function at limit active	1
	▶ Function at limit inactive	1

	▶ Open Help	3
	▶ Reload	1
	▶ Determine open maintenances	3
	▶ Execute PFS event	1
	▶ Exit program	3
	▶ Simulate right mouseclick	3
	▶ Save remanent data	1
	▶ Analyze S7 Graph heuristics	1
	▶ Switch simulation on/off	1
	▶ Language change	2
Historian	control of archives	1
	▶ Archive: Stop	1
	▶ Index Archive	1
	▶ Archive: Start	1
	▶ Archive: List of active archives	2
	▶ Export archives	1
User administration	User administration	
	▶ Change user	3
	▶ Log in with dialog	2
	▶ Login without password	2
	▶ Logout	2
	▶ Change password	2
Screens	Select and control screens	
	▶ Change ALC source color	1
	▶ Indexed screen	1
	▶ Screen : close	2

	▸ Screen: Return to last	1
	▸ Screen: Move center	1
	▸ Screen switch	1
	▸ Focus: Activate input to the element with the focus	1
	▸ Focus: set to frame	1
	▸ Move focus	1
	▸ Focus: Delete from frame	1
	▸ Show menu	1
	▸ Monitor assign	1
	▸ Runtime profiles	1
	▸ Close the frame	1
	▸ Overview Window	1
Error detection in the electric network		
	▸ Acknowledge ground fault message	1
	▸ End ground fault search	1
	▸ Start ground fault search	1
	▸ Acknowledge ground fault message	1
Message Control	sending of messages (Message Control)	
	▸ `Save current queue`	1
	▸ `Group/class/area/equipment suppressed`	1
	▸ `Send a Message`	1
	▸ `Send Message: activate`	1
	▸ `Send Message: deactivate`	1
Network	Network - Functions	

	▶ Authorization in network	1
	▶ Redundancy switch	1
Report Generator	Functions for reports	
	▶ Print report	2
	▶ Export report	2
	▶ Execute report	2
Recipes	operating recipes	
	▶ Recipe Group Manager	2
	▶ Standard Recipe	2
	▶ Standard recipe single directly	2
	▶ Standard recipe single with dialog	2
	▶ Standard recipe single with online dialog	2
Script	Execute functional blocks (scripts)	
	▶ Script: Execute	1
	▶ Script: Select online	2
Variable	Functions for variables	
	▶ Export data	3
	▶ Read a dBase-file	2
	▶ Print current values	2
	▶ Unit conversion	2
	▶ Trend-Values on	1
	▶ Trend-Values off	1
	▶ Trend-values on/off	1
	▶ Send value to hardware	1
	▶ Driver Commands	2
	▶ Transfer simulation image to standby	1

	▶	Write time to variable	1
	▶	Read time from variable	1
VBA	VBA - Functions		
	▶	Open PCE editor	3
	▶	Open VBA Editor	3
	▶	Execute VBA Macro	3
	▶	Show VBA macro dialog	3
VSTA	VSTA functions		
	▶	Open VSTA editor	3
	▶	Execute VSTA macro	3
	▶	Show VSTA macro dialog	3
Windows (on page 25)			
	▶	Play audio file	2
	▶	File operations	3
	▶	Start continuous tone	1
	▶	Stop continuous tone	1
	▶	Window to the background	2
	▶	To the foreground	2
	▶	Print screenshot	2
	▶	Start program	2