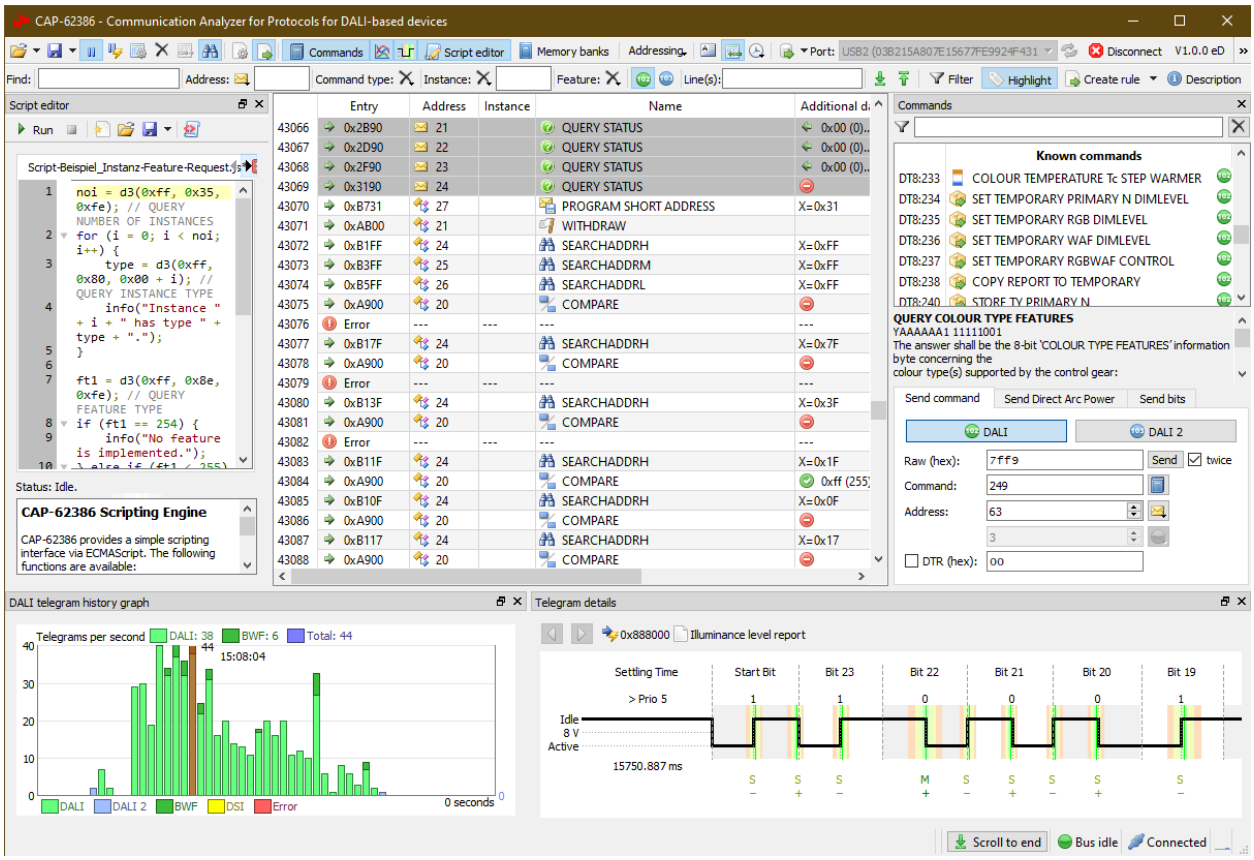
User manual

who Ingenieurgesellschaft mbH



User manual

version 2.00.00, valid from SW version 1.3.7 and higher

CAP-62386

Communication Analyzer for Protocols
for analyzing protocols according to IEC 62386

Company details

Copyright

Subject to change

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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we appreciate any information or suggestions for improving the documentation. We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in this user manual are generally protected by trademark or patent.

Table of contents

1 Provisions

1.1 Validity

This user manual is part of the product documentation for the analysis software “Communication Analyzer for Protocols” (in short: CAP-62386).

Version history		
Software	User manual	Translation
1.3.7	version 2.00.00	version 2.00.00

Further information

The data sheet and the product information on CAP-I-62386 can be found on our website under *Downloads > CAP-62386 and CAP-I-62386*.

The license agreement is displayed during the installation process. Additionally, the terms and conditions of the license can be found in the installation directory: *CAP-62386* > `who_CAP_license_de.rtf` (German) or *CAP-62386* > `who_CAP_license_int.rtf` (English) and in the relevant language in the Appendix of this document.

1.2 Naming conventions

Art	Langform	Kurzform
Manufacturer	who Ingenieurgesellschaft mbH	who mbH
Software	Communication Analyzer for Protocols	CAP-62386

The short versions are used hereinafter.

1.3 Copyright

1.4 Subject to change

who mbH reserves the right to make changes to this user manual without advance notification. All rights of who mbH are reserved in the event of a patent or utility model protection being granted. No reference is made to potential patent rights of third-party products.

1.5 Qualification of personnel

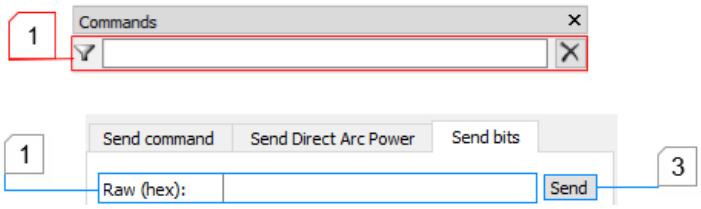
The product may only be installed, de-installed, commissioned and used by specialist personnel with sufficient knowledge in the field of building automation and DALI technology. They must be familiar with the DALI standard and the IEC 62386 standard. Prior knowledge of DALI programming is also required to use the product.

1.6 Intended use

The CAP-62386 analysis software according to IEC 62386 is intended for use with the CAP-I-62386 interface and for use in DALI networks. The software can be used to monitor, configure and analyze a DALI line.

1.7 Representation conventions

Illustration markups



In a graph, the lines and highlights are displayed in red.

If an explanation area of a graph contains another graph, the lines of the subordinate graph are displayed in dark blue and the respective highlights in yellow.

Numbering systems

100	Decimal representation in normal notation.
0x64	Hexadecimal representation in C notation.

Instruction

1. First-level step
2. First-level step
    a. Second level step, option 1
    b. Second level step, option 2

Results

→ Interim result

↪ Final result of an instruction

Lists

- Instruction options or unordered list

Information

> ***NOTE***
>
> Indicates supplementary information or tips.

> ***Further information***
>
> Indicates additional information or references to other sources of information.

Text markups

`.exe`	Code and names of files and file formats are displayed in a font with a standard character width. Example: `CAP-62386 1.3.7.0 Setup.exe`
Menu	Menu paths are displayed in italics. The “greater than” sign between two menu items indicates the relevant navigation sequence. Example: *Datei* > *Neu*
“Input“	Names of input, option and dialog boxes, dockers, tabs and other menu elements are displayed in italics and quotation marks. Example: *“Value”*
[Button]	Buttons and keys are displayed in bold and in square brackets. Example: **[OK]**
Visual quote	Text-image elements or text elements that visually reproduce an actual element of the user interface are displayed in narrow and small print. Example: Not connected
2 Live-Logging	Beneath a graph, the label associated with a number is displayed in bold light red type in a slightly enlarged font and thus used as a header for the subsequent explanation.
2 Rules for creating live log files	If an explanation area of a graph contains another graph, the respective title is displayed in bold dark blue type with a text indent.

2 Prerequisites

System prerequisites

Operating system:	Windows 7/8/10 Linux + macOS on request
Processor:	Minimum 1 GHz
Main memory:	Minimum 1 GB
Required memory space:	23 MB

Further prerequisites

A prerequisite for use of the software is the purchase of CAP-I-62386. By installing and using this software, you confirm that you have read the software end user license agreement and agree to the terms and conditions of the license (see under Licensing).

3 Safety

The software may only be installed and used by qualified personnel. When doing so, always comply with the applicable laws, standards, provisions and local regulations. Use the software solely for its intended purpose.

This user manual is an integral part of the software. Keep this user manual for future reference until the end of life of the software. Pass this manual on to subsequent owners and users of the software. Moreover, make sure that any subsequent additions are included in this user manual.

> ***NOTE***
>
> Ensure an uninterrupted power supply during the firmware update process.

4 Overview

4.1 Components

The product consists of three components: the software CAP-62386 described in this user manual, the CAP-I-62386 interface and the CAP-I-62386 server.

CAP-62386

The CAP-62386 software can be used to configure, address, monitor and analyze a DALI line. At least one interface must be connected to enable use.

CAP-I-62386

CAP-I-62386 is a USB DALI interface that CAP-62386 can use to establish a connection to a DALI line. To use it, connect it to a USB interface.

CAP-I-62386 server

The CAP-I-62386 server is a utility program that allows use of a CAP-I-62386 with several programs at the same time. The CAP-I-62386 server is installed with the software and started and terminated automatically.

4.2 Operating modes

The CAP-62386 software can be used in two operating modes: Single mode and multi mode.

4.2.1 Single mode

Single mode is the standard operating mode of CAP-62386. This operating mode is used if one or no interface is connected or if only one DALI line is to be read, configured and monitored.

When starting the software for the first time, single mode is executed automatically and an already connected interface is displayed and selected in the *“Port”* combo box automatically.

4.2.2 Multi mode

The multi mode can be optionally activated and deactivated.

In multi mode, several interfaces can be used at the same time or several DALI lines can be monitored, read or configured simultaneously.

When starting the CAP-62386 software for the first time, Single mode is executed automatically.

4.3 Features

The search function, the extensive telegram definitions and the display of all relevant information also enable users with limited knowledge of the DALI standard to work with CAP-62386.

The software enables the following options:

- Testing the functions, algorithms and reactions of one or several DALI devices during development
- Analyzing a DALI bus and straightforward preparation of its data
- Displaying and analyzing DALI protocols and the exact bit times of specific telegrams
- Analyzing even large quantities of DALI telegrams
- Conducting a problem analysis for DALI devices and DALI installations
- Executing complex sequences thanks to scripting functions
- Querying and performing certain parameterizations thanks to scripting functions
- Filtering, saving, exporting and accessing data

4.3.1 Read and monitor data

CAP-62386 is used to read and monitor the data of DALI buses.

Various options are available for doing so:

- Besides querying and parameterizing one or more devices, sending telegrams also ensures that the behavior and quality of these devices can be checked.
- Displaying and evaluating telegrams allows to test algorithms and the reactions of devices and to identify problems in a DALI installation.
- Analyzing and displaying the exact bit times of specific telegrams enables you to perform various diagnostic steps, such as checking the quality of the telegram and identifying collisions.
- The Log view allows to monitor and read telegrams received from one or several DALI buses.

4.3.2 Configure

CAP-62386 allows to configure various components. Besides the Operating modes, it is also possible to configure the rules, commands and display options.

For the log view, you can configure the log size based on the number of recent entries or the last few hours.

> ***Further information***
>
> Find out more about log configuration under “Log configuration” dialog box and about rule configuration under “Edit filter and mark rules” dialog box.

4.3.3 Program

CAP-62386 enables scripting functions. This allows to execute complex sequences, perform a variety of tests and diagnostics on individual devices and entire installations as well as query, perform and display specific parameterizations.

DALI scripts can be written and run as ECMAScripts. ECMAScripts allow to send telegrams and query information from DALI devices via query telegrams.

> ***Further information***
>
> Find out more about writing and running scripts under the “Script editor” docker.

4.3.4 Determine rules

CAP-62386 can be used to define rules for telegrams. Rules are used to display, hide or colorcode specific log entries. A rule defines one or several conditions that must be met for the rule to become active. Once the rule is active, the configured action is executed.

The rules for marking and filtering can also be used to analyze larger quantities of telegrams – specific telegram types or device telegrams can, e.g., be displayed, highlighted and hidden.

> ***Further information***
>
> Find out more about creating and managing rules under "Edit filter and mark rules" dialog box, Create rules and under Manage rules.

4.3.5 Export logs

CAP-62386 allows the export of log files in various file formats.

Sharing logs with other people enables you to document device or installation-specific reactions and to discuss and jointly analyze problems associated with a DALI installation or device.

> ***Further information***
>
> Find out more about the file formats and the procedure under Import/export logs.

5 Commissioning

5.1 Install

The current version of CAP-62386 can be found on our website under *Downloads* > *CAP-62386 and CAP-I-62386* in section *Software* > *“Current version”.*

1. Run the installation program after download.
   → A Windows dialog displays the following message:
   Do you want to allow this app from an unknown publisher to make changes to your device?
2. Confirm with **[Yes]** to hide the message.
3. Accept the license agreement and click **[Next >]**.
4. The software history is displayed. Click **[Next >]**.
5. Follow the installation instructions.

↪ CAP-62386 has been installed.

> ***Further information***
>
> Older versions of CAP-62386 can be found on our website under *Downloads* > *CAP-62386 and CAP-I-62386* in section *Software* > *“Older versions”.*

5.2 Start

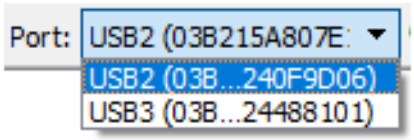
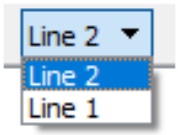
If the CAP-I-62386 interface is already connected, the software connects upon startup.

If CAP-I-62386 is to be connected after starting the software, proceed as follows:

1. Click **[Refresh]**.
   → The list of the *"Port"* combo box is updated.
2. Click and select the required interface.
3. Click **[Connect]**.

↪ The interface connection is established.

5.3 Select port/line

Port / Line selection	Operating mode	Description
	Single mode	All detected DALI interfaces are displayed in the combo box with the current USB number and serial number. Other interfaces (e.g. COM ports) might be displayed here for customized extensions.
	Multi mode	The combo box displays the available lines. The line is selected via the dropdown menu or via the "Provider Configuration" dialog box. The selected line is generally used for sending via the various functions. When running scripts, this is the line number preset at the start of script running.

6 Graphical User Interface

Below is a summary of the basic information elements, buttons and menu windows of the graphical user interface.

All default settings can be found under Factory Settings at the end of the user manual.

6.1 Operating concept

General buttons

CAP-62386 uses the following buttons as standard:

OK	Confirms changes or selections and closes windows.
Close	Closes a dialog box.
Cancel	Cancels changes and closes windows.

The Windows menu of the CAP-I-62386 server

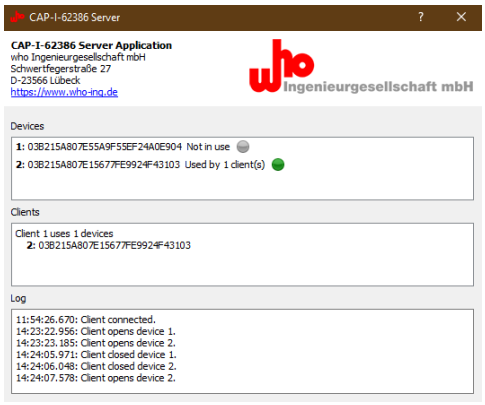
The CAP-I-62386 server displays an icon  featuring one ball for each connected interface in the notification area of the taskbar. If a question mark is displayed instead of a ball, no interface has been found.

The color of each ball indicates the status of the respective device:

- Gray: The interface is not currently being used.
- Green: The interface is being used, the bus is okay. When a telegram is received or sent, the ball lights up bright green.
- Red: The interface is being used but has detected a bus error.

Information in the main window

A click on the icon  or *“Show information window”* in the context menu (accessible by right-clicking the icon) opens the main window of the CAP-I-62386 server.



The main window displays the following information in three lists:

- *“Devices”* displays all the detected devices. After the serial number, a ball indicates the status of the devices and the number of clients currently using the devices.
- *“Clients”* displays the connected clients and the interfaces they are currently using by means of consecutive numbering.
- *“Log”* displays results in relation to the connection and disconnection of clients and interfaces along with a timestamp.

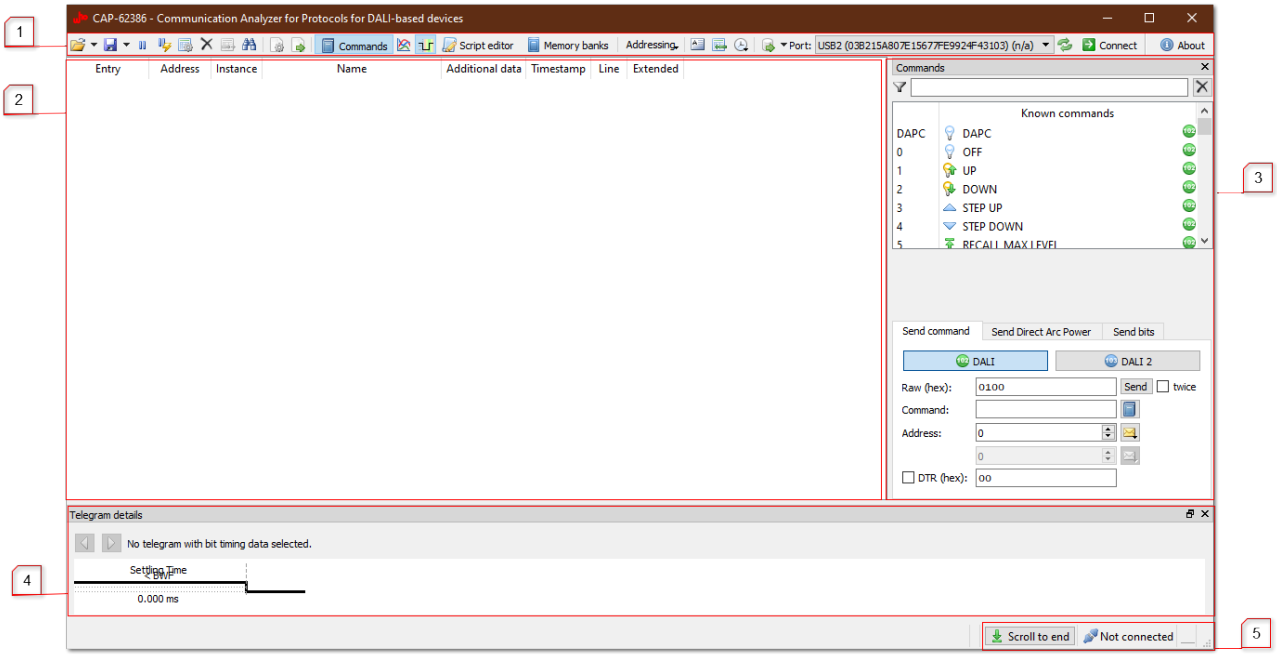
Closing the CAP-I-62386 server

The CAP-I-62386 server continues to run even if the main window is closed. The CAP-I-62386 server closes automatically after disconnection of the last connected client; alternatively, it can be closed by clicking *“Exit”* in the context menu of the icon  .

6.2 Home screen

When starting CAP-62386 for the first time, Single mode is executed automatically. The standard arrangement of the ribbon and the dockers opens: the home screen. The dockers can be opened and closed as required.

The home screen is divided into five sections:



1 Toolbar

Find out more about the buttons under Toolbar.

2 Log view

The Log view lists the log entries.

3 Commands definition window

The Commands definition window opens automatically in the home screen. The window can be closed and thus removed from the home screen.

4 Telegram details

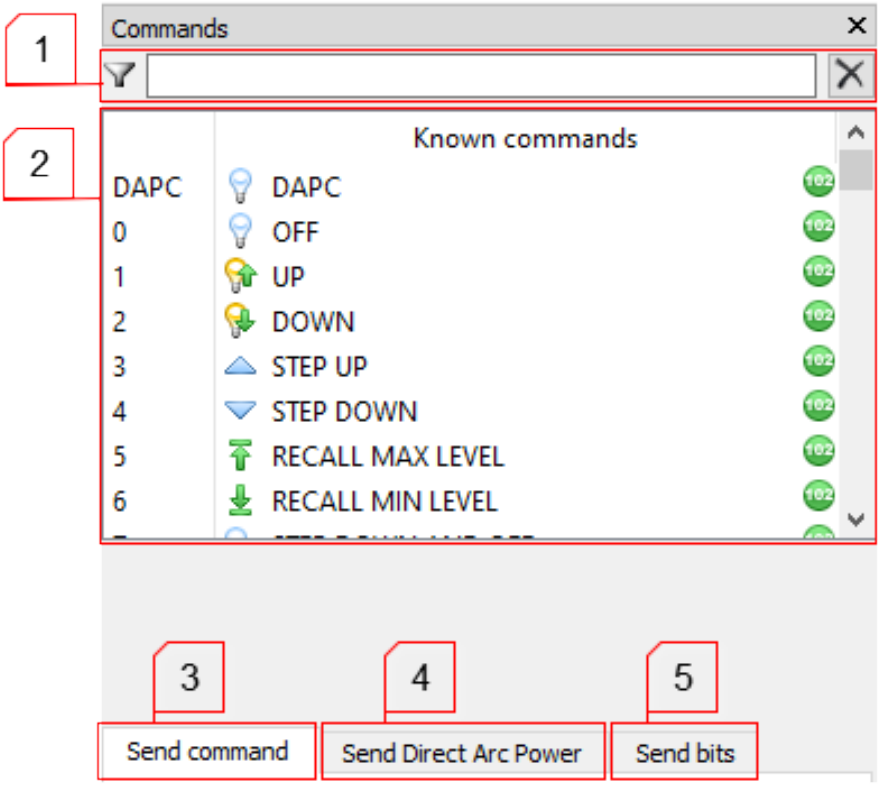
The telegram details section opens automatically in the home screen. The window can be closed and thus removed from the home screen.

5 Status bar

The Status bar displays the status indicators.

6.2.1 “Commands” docker

The *“Commands”* docker (hereinafter referred to as the commands window) opens automatically on the Home screen. Use **[Toggle command definitions]** in the Toolbar to open and close the box at any time. Commands can be defined and sent in the commands window.



1 **Search bar**

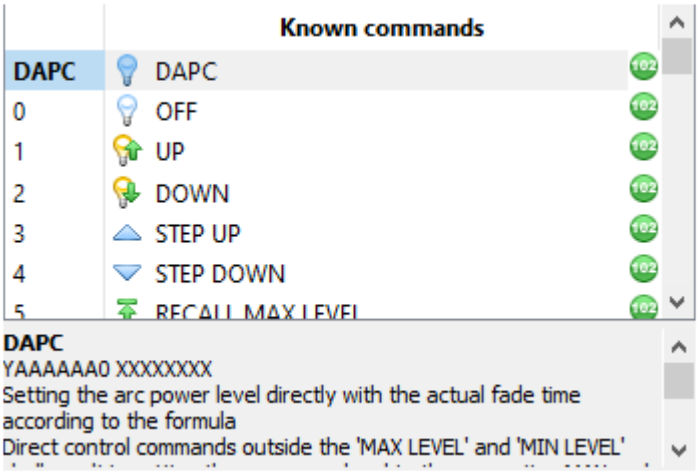
The command list can be searched and filtered here.

2 Command list

All the known commands are listed here. The green or blue icons on the right side indicate whether it is a DALI command or a DALI-2 command. The command number assigned to a command is shown on the left side: DAPC/0-DT8:255 for DALI commands and D0-F79 for DALI-2 commands.

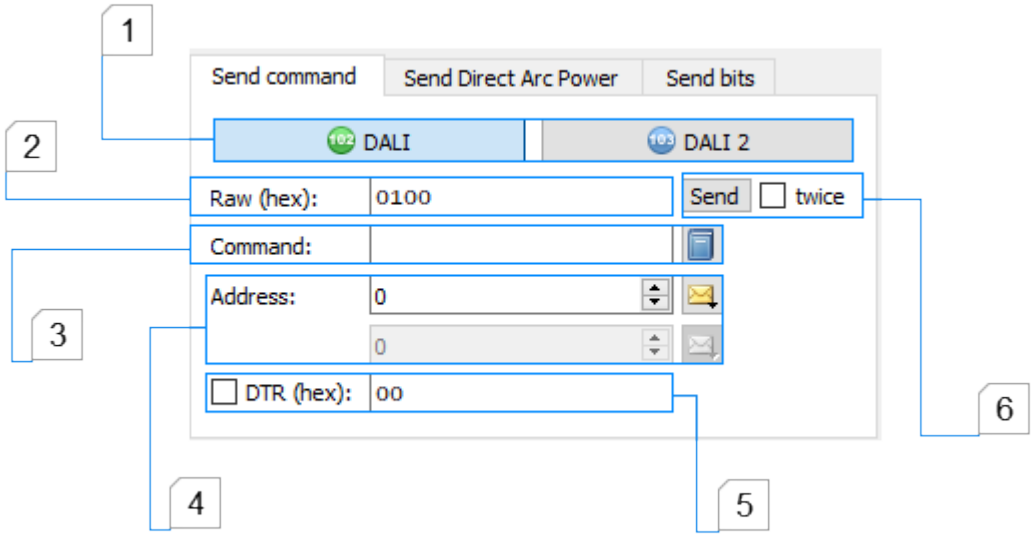
Double-click a command in the command list to transfer the command number, the standard type and the raw value of the selected command to the *"Send command"* tab or the *"Send Direct Arc Power"* tab; if necessary, the checkbox twice **[twice]** is activated or deactivated automatically by the selected command.

There is a description of the selected command below the command list:



3 "Send command" tab

Commands can be sent from here.



1 Standard selection

You must select between **[DALI]** and **[DALI 2]** here. The selected standard specifies the number of bytes: With **[DALI]**, there are 2 bytes; and with **[DALI 2]**, there are 3 bytes.

Details can be found under Factory Settings.

2 Raw value

The raw value of the command can be entered in hexadecimal, four-digit form (DALI) or in hexadecimal, six-digit form (DALI-2) in the *"Raw (hex)"* input box.

Details can be found under Factory Settings.

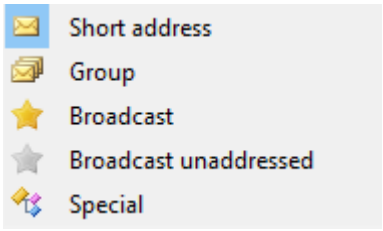
3 Command number

The command number according to the command list can be entered in the *"Command"* input box. If a command number is entered in the *"Command"* input box, you can jump to the searched command in the command list by clicking the button .

4 Address and instance byte

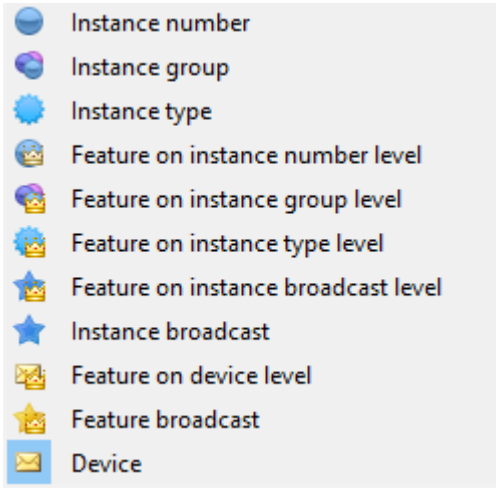
The address – and, with the DALI-2 standard, the instance byte as well – can be configured in the *"Address"* input box.

Use **[Short address]** to open a drop-down menu with the following address types:



With address type *"Short address"*, you can enter numbers in the range 0 ... 63; and with address type *"Group"*, you can enter numbers in the range 0 ... 15.

If DALI-2 is selected as the standard, clicking **[Device]** opens a drop-down menu for selecting the instance byte:



With the following instance byte types, you can enter numbers in the range 0 ... 31:

- *Instance number,*
- *Instance group,*
- *Instance type,*
- *Feature on instance number level,*
- *Feature on instance group level,*
- *Feature on instance type level.*

Details can be found under Factory Settings.

5 Data Transfer Register

With selection option *“DTR (hex)”* a command can be preceded by a data transfer register. The hexadecimal form applies for the input.

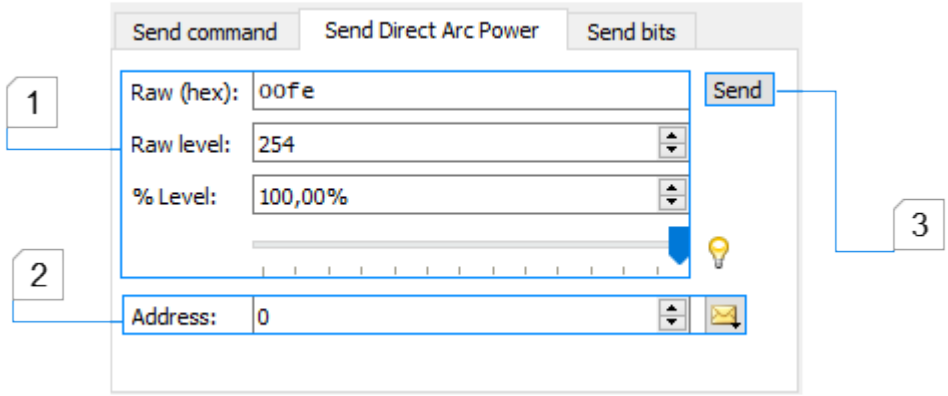
Details can be found under Factory Settings.

6 Send a command

Use Send **[Send]** to send a command. If ☑ twice **[twice]** is activated, it will be sent twice within 100 ms.

4 “Send Direct Arc Power” tab

DAP commands can be sent from here. The structure of these commands differs from regular commands, and they are, therefore, configured differently.



1 Enter the raw value

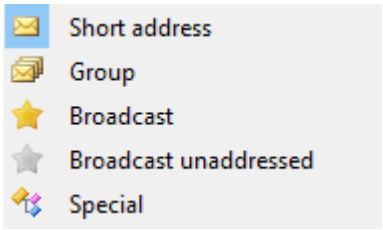
The raw value can be entered in various ways:

Input box	Description
“Raw (hex)”	Input of the raw value in hexadecimal, four-digit form.
“Raw level”	Input of the raw value on the DALI bus; input in the range 0 … 255 (255: MASK) possible.
“% Level”	Setting the input of the raw value as a percentage value in converted form.
“Slide bar”	Setting the input of the raw value using the slide bar.

Details can be found under Factory Settings.

2 Address

The address is configured via the *"Address"* input box. Use **[Short address]** to open a drop-down menu with the following address types:



With address type *"Short address"*, you can enter numbers in the range 0 ... 63; and with address type *"Group"*, you can enter numbers in the range 0 ... 15.

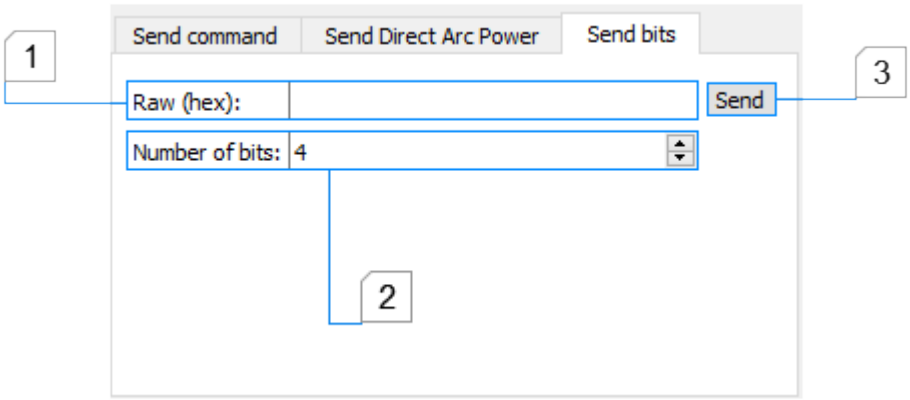
Details can be found under Factory Settings.

3 Send a command

Use **[Send]** to send a command.

5 "Send bits" tab

Bits can be sent from here, even if they – unlike regular commands – contain an unauthorized number of bits.



1 Enter the raw value

In the *"Raw (hex)"* input box, you can enter the raw value in hexadecimal, ten-digit form.

2 Set bits

In the *"Number of bits"* input box, you can enter the number of bits in the range 4 … 40.

Details can be found under Factory Settings.

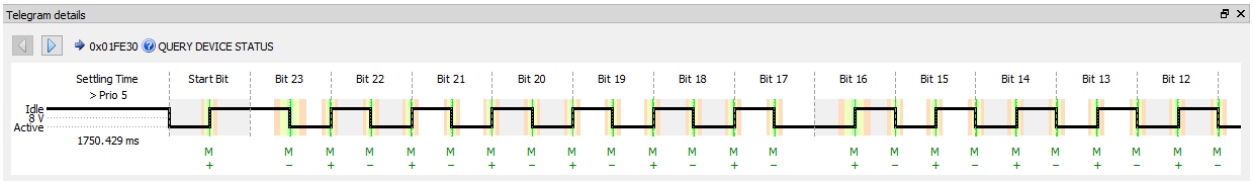
3 Send a command

Use Send **[Send]** to send a command.

6.2.2 “Telegram details” docker

The *“Telegram details”* docker opens automatically in the home screen. Use **[Show telegram details view]** in the toolbar to open and close the docker at any time. It allows to precisely analyze the time sequence of individual telegrams.

The box displays the bit times of a selected log entry as a diagram, the raw data of a telegram and the associated type icon. It also displays – if available – the icon and the hexadecimal telegram representation from the *“Entry”* column and the name from the *“Name”* column in the log view:



Operation

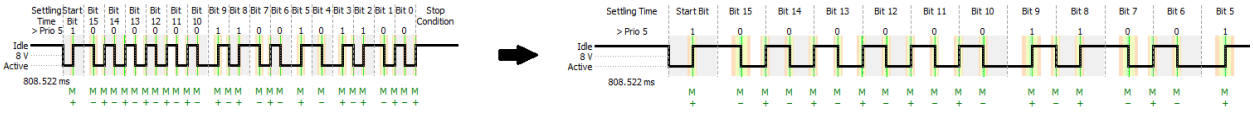
The diagram can be moved and resized as required. Further, the details can also be viewed in a summarized log entry.

Move

Grab the diagram with the mouse. Move the diagram to both sides.

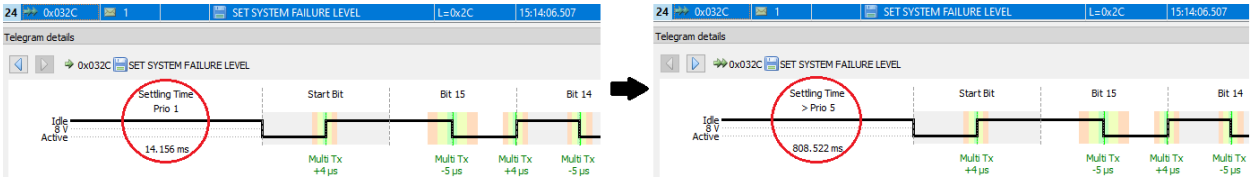
Zoom

Place the mouse on the diagram and move the scroll wheel. This allows to zoom in and out of the view.



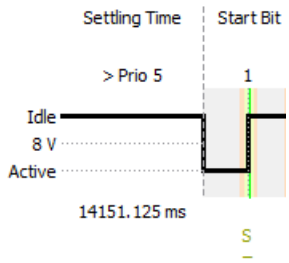
Toggle between summarized log entries

Use the arrow buttons  to toggle between the raw data of summarized double telegrams, query telegrams and backward telegrams.



You also have the following options for viewing telegram data:

Settling time



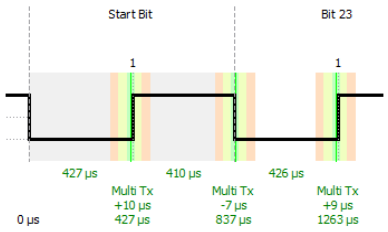
The settling time is the interval to the end of the previous telegram. At the start of a telegram, the settling time and its calculated priority are displayed; this is only relevant for consecutively sent telegrams.

Bit times

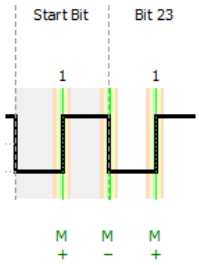
The diagram displays a digital time sequence of the bits. The bit times determined by CAP-I-62386 are shown. If no telegram with timing data has been selected, the following message is displayed: No telegram with bit timing data selected.

> ***NOTE***
>
> The determined bit times are subject to a circuit-related component tolerance.

Above the diagram, you can see the determined bit number as well as the start bit and the respective bit value (0 or 1). Below the diagram you can see the time intervals between the level changes; depending on the value, they refer to one or two half-bits. The quality of time compliance, the deviation from the optimum value and the total time elapsed since the start bit (at 0 µs) can be seen below the time intervals between the level changes:



All information below the diagram is only displayed above a certain zoom level. Only an abbreviated form of the quality is displayed (see table) below this zoom level. A plus or minus sign indicates whether the time is above or below the optimum value:



The quality of time compliance is shown as text below the diagram and in the form of colored bars in the background of the diagram. The levels are defined as a deviation from the optimum value for a half-bit of 416 µs.

The following levels are available:

Level	Abbreviation	Time	Text color	Bar color	Description
Multi Tx	M	400 … 433,3 µs	Dark green	Light green	Optimum timing for multi-master sender.
Single Tx	S	366,7 … 466,7 µs	Yellow green	Yellow-green	Timing for single-master sender.
Receiver	R	333,3 … 500 µs	Orange	Light red	Timing for receiver.
Grey area	!	bis 750 µs	Red	White/Gray	Gray area that is still permitted but which might be misinterpreted.
Collision	!!	–	Violet	–	Bit collision.

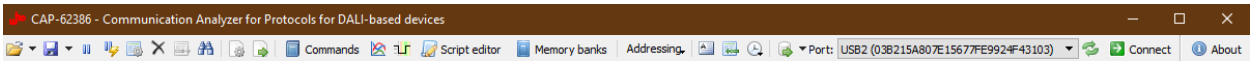
NOTE

Right-click the telegram details diagram to open the *"Save image as ..."* context menu and export the diagram in the formats `.png`, `.jpg`, `.xpm` and `.svg`.

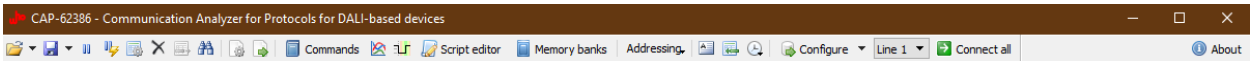
6.3 Toolbar

The toolbar contains all the main buttons for operating the software. It is also possible to toggle between the two operating modes here.

In single mode, the toolbar appears as follows:



In multi mode, the toolbar appears as follows:



The following buttons are available:

Element	Operating mode	Function
	Both	Imports a log (in binary format as standard). Details can be found under Import/Export logs.
	Both	Exports a log (in binary format as standard). Details can be found under Import/Export logs.
	Both	Pauses the reception of telegrams.
	Both	Automatically inserts a pause entry in idle mode.
	Both	Opens the log configuration. Details can be found under „Log configuration“ dialog box.
	Both	Deletes the current log list.
	Both	Deletes the marked log entries.
	Both	Opens or closes the search bar. Details can be found under „Find toolbar“ docker.
	Both	Opens the rule editor. Details can be found under „Edit filter and mark rules“ dialog box.
	Both	Switches all filter rules and all mark rules on or off.
Commands	Both	Opens or closes the Commands definition window. Details can be found under „Commands“ docker.
	Both	Opens or closes the DALI graph window. Details can be found under „DALI telegram history graph“ docker.
	Both	Opens or closes the telegram details window. Details can be found under „Telegram details“ docker.
Script editor	Both	Opens or closes the script editor. Details can be found under „Script editor“ docker.
Memory banks	Both	Opens or closes the memory bank configuration. Details can be found under „Memory banks“ docker.
Addressing	Both	Addresses DALI devices. Details can be found under „Addressing“ drop-down menu .
	Both	Activates or deactivates the display of tooltips for tablecells; tooltips display further details about a table cell.

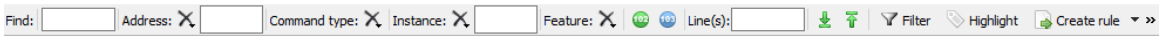
	Both	Activates or deactivates the grouping of double telegrams, query telegrams and backward telegrams.
	Both	Configures the timestamp display. Details can be found under „Time“ drop-down menu .
	Single	In the Provider Configuration, toggles from single mode to multi mode. Details can be found under „Provider Configuration“ dialog box.
Configure	Multi	Opens the Provider Configuration. You can configure the providers and toggle from single mode to multi mode here. Details can be found under „Provider Configuration“ dialog box und unter Configure interface in multi mode.
Port: USB1 () (n/	Single	Selects a port. Details can be found under Select port/line.
Line 1	Multi	Selects a line. An interface can be assigned to a line via the Provider Configuration. Details can be found under Select port/line and under Configure interface in multi mode.
	Single	Updates the interface list.
Connect	Single	Establishes the connection to a configured interface. Once the connection has been established, this button changes to **[Disconnect]**. It can be used to disconnect the connection to an interface.
Connect all	Multi	Establishes the connection to all configured interfaces. Once the connection has been established, this button changes to **[Disconnect all]**. It can be used to disconnect the connection to all interfaces.
About	Both	Displays information on CAP-62386, who mbH and the terms and conditions of the license.
»	Both	Displays hidden buttons in case the screen width is minimized.

6.3.1 Dockers

Various tasks can be executed in the Home screen. The individual tasks can be executed by clicking the buttons in the Toolbar. This opens dockers in the home screen for some of the buttons. They can be shown and hidden, undocked and moved.

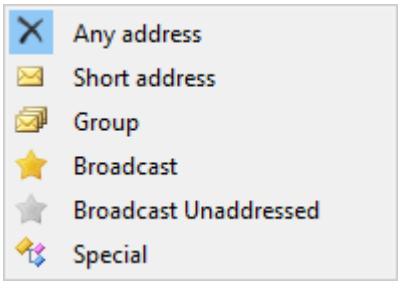
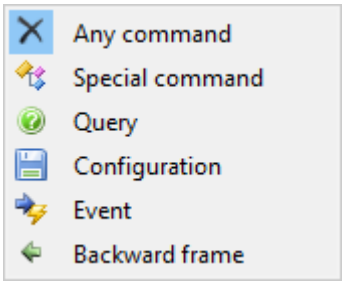
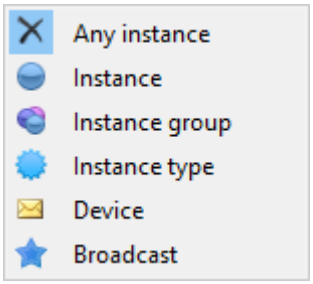
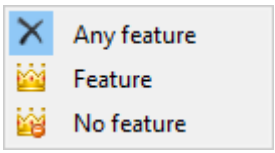
“Find toolbar” docker

Use **[Toggle find toolbar]** in the Toolbar to open or close the *“Find toolbar”* docker – hereinafter referred to as search bar. The search bar allows to search for entries in the log and to create filter and mark rules. It is displayed directly below the toolbar:



The search or filter details can be entered manually or selected from a drop-down menu. If the cross is selected (default setting), the filter is ignored. This enables a filter to be temporarily deactivated without having to remove the entry from the text box.

To guarantee a successful search, all the conditions or filters entered must apply.

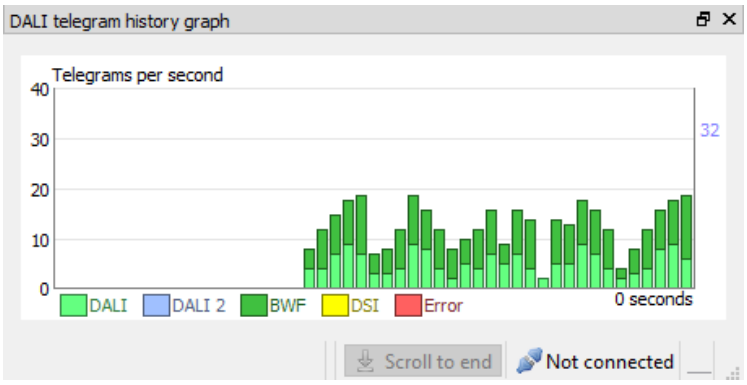
Element	Function	Description
Find:	Full text search	Searches all the columns; this is the quickest and easiest search option.
Address: ✕	Search according to address type	Click the cross ✕ to select an address type in order to search for it specifically:  Once an address type has been selected, an address can be entered in the text box. If the text box remains empty, any address of the correct type applies – find out more about the selection options under "Commands" docker.
Command type: ✕	Search according to command type	Click the cross ✕ to select a command type in order to search for certain types of telegrams: 
Instance: ✕	Search according to instance type	Click the cross ✕ to select a telegram instance in order to search for it specifically:  Once an instance addressing type has been selected, a number corresponding to the instance addressing type can be entered in the text box. If the text box remains empty, any address of the correct address type applies.
Feature: ✕	Search according to feature type	Click the cross ✕ to select a feature type in order to search for certain feature telegrams: 

	Filter according to standards	Filters for telegrams sent according to the selected standard. Several standards can be selected.
Line(s):	Search according to DALI lines	Searches for telegrams on a certain line.
	Up/Down	Allows to jump to the next log entry.
Filter	Filter function	Only displays entries that match the search conditions.
Highlight	Highlight	Highlights entries that match the search conditions gray.
Create rule	Creation of a rule	Creates a rule from the search conditions without filter actions and marking actions. Use the arrow next to the button to open the context menu. The filter actions and marking actions can be defined in this context menu: **Selection option** / **Description** Create highlight rule: A marking action can be created here by selecting a color. Create filter rule...: A filter action can be created here: ... showing matching entries shows only those entries to which the rule applies; ... hiding matching entries hides the entries to which the rule applies. Edit rules: Opens the rule editor. The newly created rule can be found in the rule editor.
Description	Description	Opens a pop-up window that displays the rule description.

“DALI telegram history graph” docker

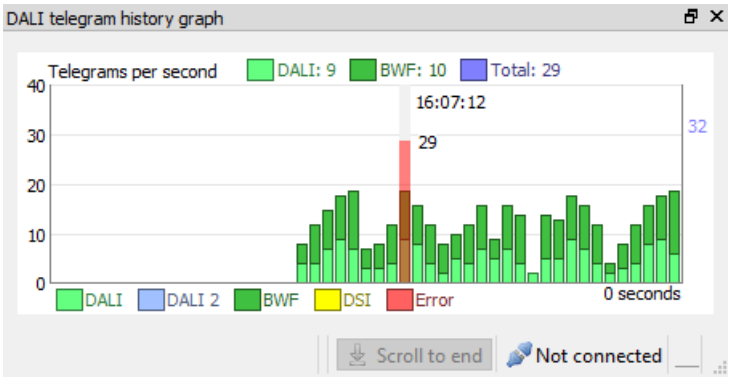
Use **[Show the recent DALI history graph]** in the Toolbar to open the *“DALI telegram history graph”* docker. The docker displays a graphical representation of recent telegrams. The display is updated automatically when loading logs.

A bar chart shows the telegram traffic at a rate of one bar per second. The height of a bar indicates the number of telegrams in the corresponding second.

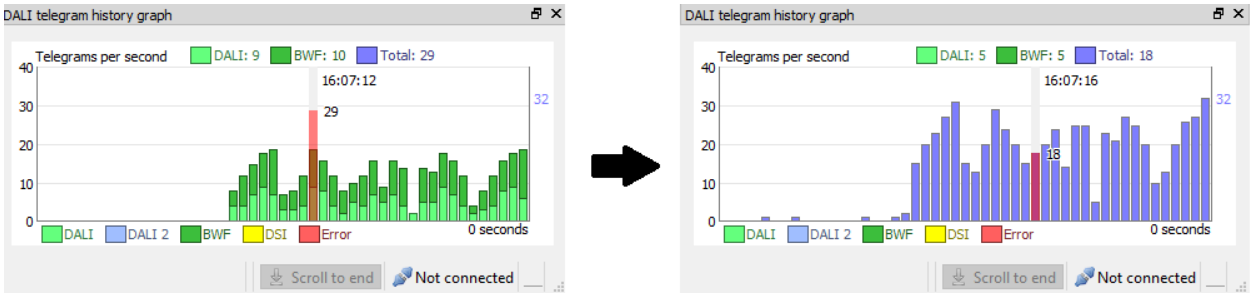


The different colors represent the varying telegram types. The respective color assignments can be found in the legend below the bar chart:

Additional information can be displayed for each bar by hovering over the corresponding bar with the mouse pointer; the bar is highlighted red and the timestamp of the corresponding second is shown. Additionally, the total number *(Total: ...)* of all telegrams and the proportions of the individual telegram types are shown above the bar chart:



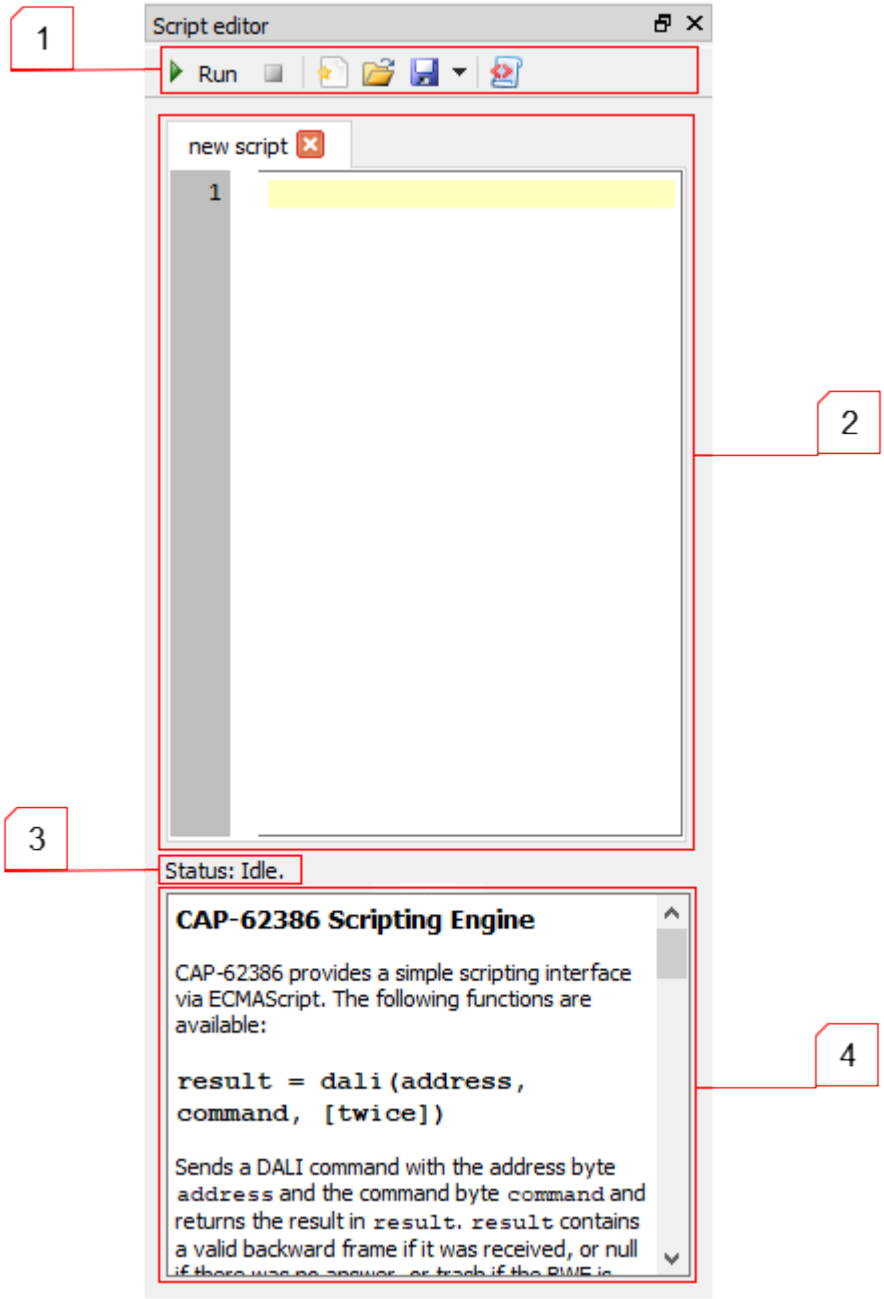
If varying telegram types are available, you can toggle between single-color bars (total load) and multi-color bars by clicking the bar chart:



Multi-color bars are the default setting.

“Script editor” docker

Use **[Script editor]** in the Toolbar to open the *“Script editor”* docker. The script editor can be used to write and run scripts for sending telegrams.



1 Toolbar

The tool bar of the script editor consists of the following buttons:

Element	Function	Remark
Run Pause Resume	Run the current script. Pause the running script. Resume the running script.	Use **[Run]** or **[F5]** to run the current script. When running the script, **[Run]** becomes the **[Pause]** button, which can be used to pause the script. If running is paused, **[Pause]** becomes the **[Resume]** button, which can be used to resume running the script.
	Cancel the running script.	Use **[Stop]** to cancel a running script.
	Create a script.	Use **[New script]** to create a new nameless script. When doing so, the editor content is deleted.
	Open a script file.	Use **[Load]** to open script files with the extension `.js`.
	Save the current script.	Use **[Save]** to save a script as a `.js` file. The arrow next to the button opens a drop-down menu. You can select between **[Save]** and **[Save as]** here: **[Save]** allows to save the file under the current script name. **[Save as]** allows to save the file under a new script name.
	Accept the current command from the command list.	Use **[Insert current command from definitions list]** to insert a configured command – see the *"Send command"* tab and the *"Send Direct ArcPower"* tab under "Commands" docker. This inserts a corresponding script call at the point where the text cursor is placed.

2 Script editing

The tab displays the name of the currently open script. In the editing box below the tab, you can create a script or edit an already existing script. As soon as any changes are made, an * is added to the script name in the tab.

> ***NOTE***
>
> The content of the script editor is saved automatically and is available the next time CAP-62386 is started, including any changes made during the last session. A manually unsaved script is indicated by the * after the script name.

3 Status display

The status display shows the status of the script.

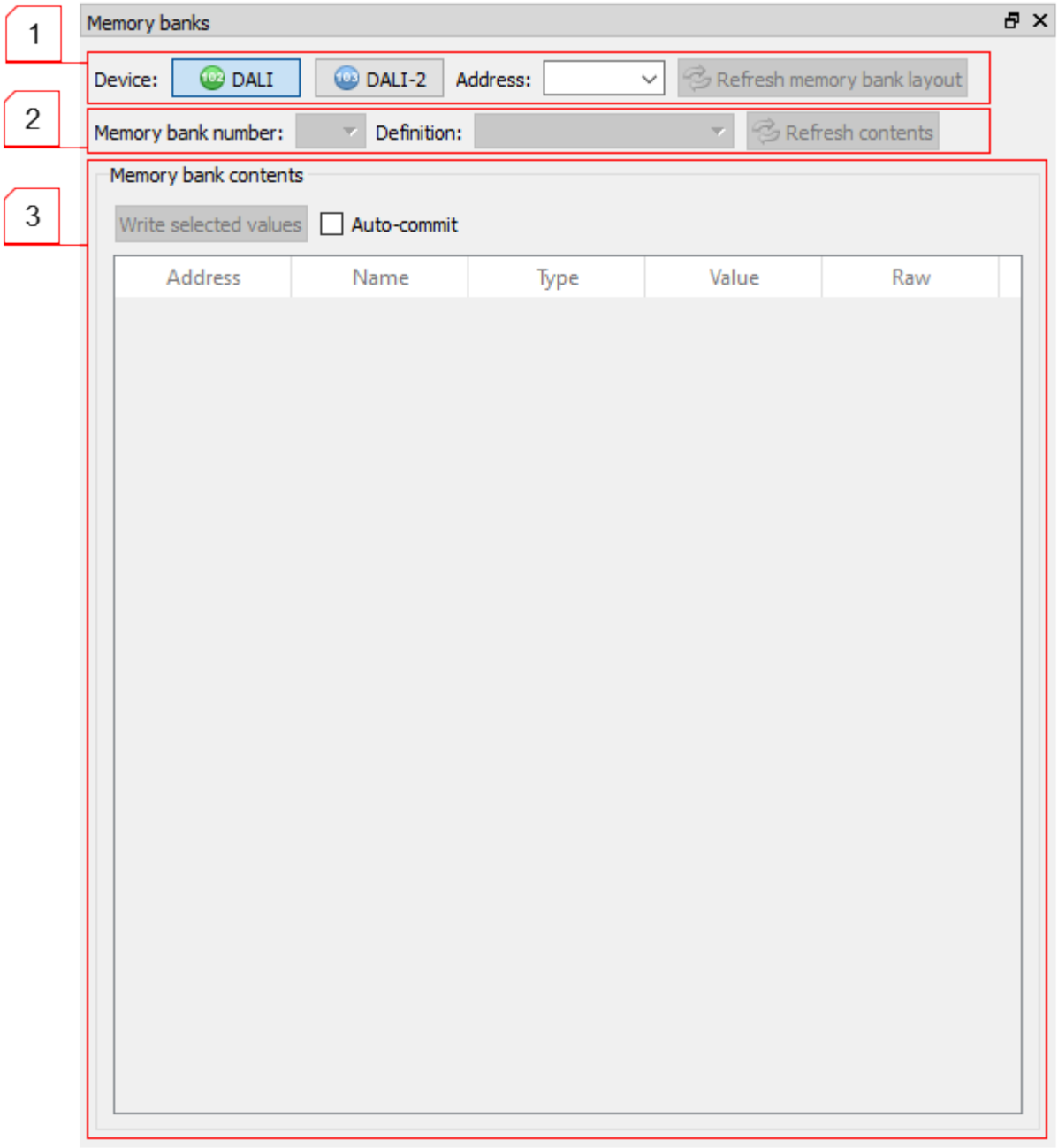
Designation	Description
Status: Idle.	The script is inactive or no script is open.
Status: Running.	The script is running.
Status: Line 29.	The script is paused. The colon is followed by the line number at which the scripted was paused.
Status: Script finished.	The script has been run fully.
Error at 2: Can't find variable:	An error has occurred. The number indicates the position of the error. The colon is followed by the error message.

4 Help box

The help box displays a description of the script commands.

“Memory banks” docker

Use **[Memory banks]** in the Toolbar to open the *“Memory banks”* docker. This docker allows to read and formulate the memory bank configuration and individual device values.



1 Device

In this section, you can select and enter the DALI standard (102 DALI or 103 DALI-2) and the short address of the device. The **[Refresh memory bank layout]** button allows to read the corresponding device.

2 Memory bank number

The *"Memory bank number"* combo box displays a list of the available memory banks.

If a memory bank has been selected, the *"Definition"* combo box displays a list of suitable definitions; the *"Default layout"* definition is always available and only defines the entries contained in each bank.

Use **[Refresh contents]** to read the content of the selected memory bank.

> ***NOTE***
>
> The *"Memory bank number"* combo box only displays the list of available memory banks if the layout of a device has been read successfully.
>
> If you have created your own memory bank definition, it is displayed in the *"Definition:..."* drop-down menu.

> ***Further information***
>
> A template and a description of the procedure for creating a memory bank definition can be found in the installation directory: *CAP-62386* > `CustomMemoryBanksTemplate.xml`.

3 Content of the memory bank

This section displays a list of the contents of the selected memory bank. The values are displayed according to the selected definition. The standard definition displays all values as single bytes; other definitions can also define greater values.

The list contains the following columns:

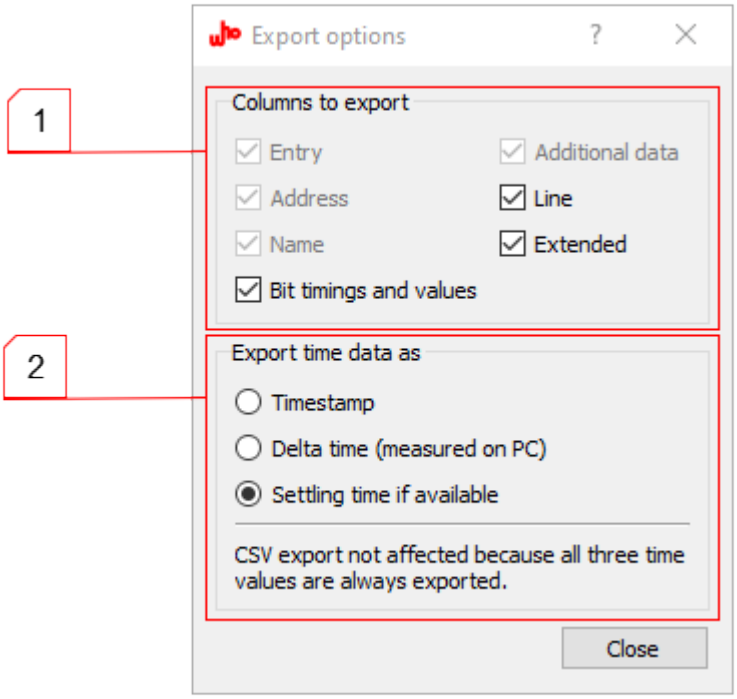
Designation	Description	Example
Address	Displays the address of the value within the memory bank.	0
Name	Display name of the value, if available in the definition.	Address of last accessible memory bank location
Type	Data type of the value: number, string, version.	Number, String, Version
Value	Interpreted value: a number (up to 8 bytes), a string or a version with two digits (1 or 2 bytes).	51234, Text, 2.3
Raw	Raw value of the bytes in hexadecimal format.	00, 0100, 1a, 0448d79fccc9

6.3.2 Dialog boxes

Various tasks can be executed in the Home screen. The individual tasks can be executed by clicking the buttons in the Toolbar. This opens dialog boxes for some of the buttons.

“Export options” dialog box

Use **[Export options]** in the drop-down menu of **[Save log]** to open the *“Export options”* dialog box – hereinafter referred to as export configuration. The dialog box allows to set the export configuration of the logs for the formats text, HTML and CSV.



1 Configuration of the columns

This section allows to configure the columns being exported.

Options	Description
Line; Extended	Activates the export of these columns.
Bit timings and values	This option is only possible for a `.csv` export. If activated, the exported `.csv` file additionally contains the *"Bit timings count"* and *"Bit timings and values"* columns, which indicate the bit times (in µs) similar to the bit timing display of individual telegrams.

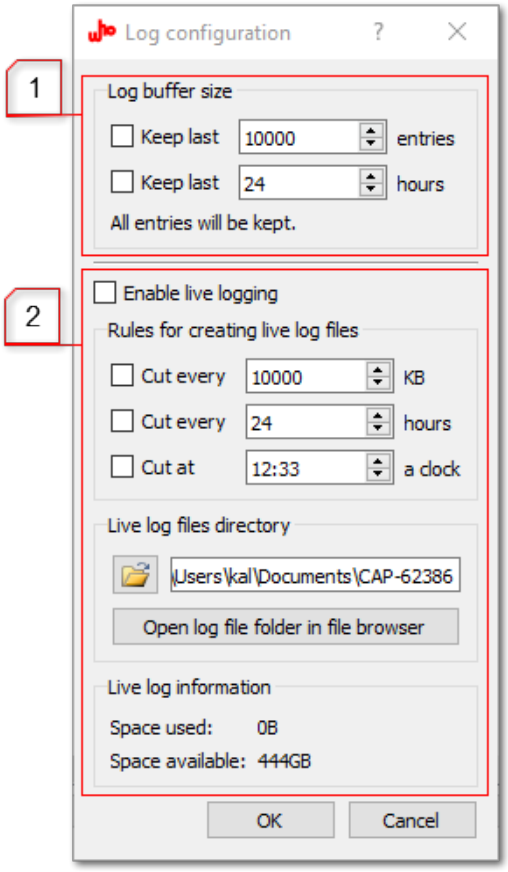
2 Configuration of the time display

The time display to be shown in the export formats text and HTML can be specified here. When exporting in `.csv` format, all three representation options are included automatically.

> ***Further information***
>
> Find out more about the export formats under Import/Export logs.

“Log configuration” dialog box

Use **[Configure view and live logging]** in the Toolbar to open the *“Log configuration”* dialogbox. The dialog box allows to configure the log size and live logging.

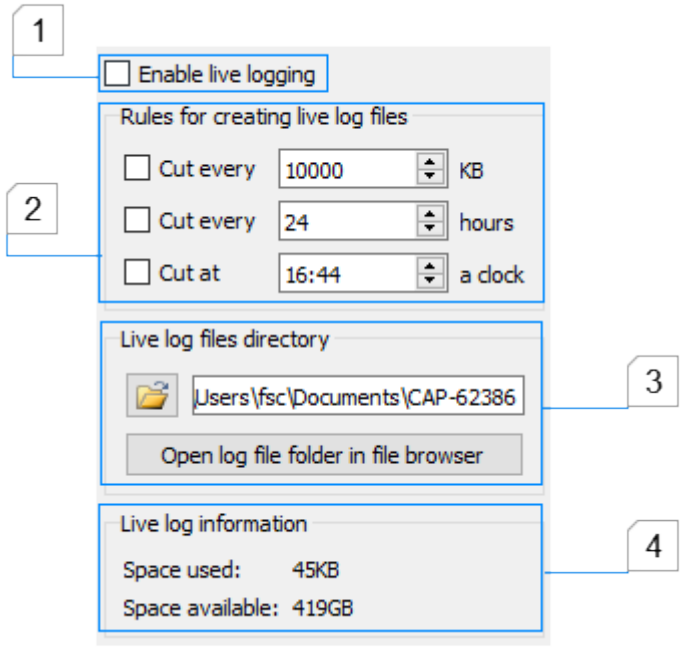


1 Log buffer size (configuration of the log size)

In this section, you can configure the size of the logs according to the number of entries or the number of past hours.

Option	Possible number range in integers	Description
Keep last X entries	0 … 1.000.000.000	If this option is activated, a maximum of the specified number of entries will be saved in the log. When new entries are received, older ones are deleted. Details can be found under Factory Settings.
Keep last X hours	0 … 1.000.000.000	If this option is activated, only entries that are younger than the specified time period are saved in the log. Older entries are deleted automatically. Details can be found under Factory Settings.

2 Live logging



1 Live Logging

Live logging can be activated via the *"Enable live logging"* option. If the software is in operation for a longer period of time, the live logging function allows log files to be written in real time.

This also serves to back up the data: If operation of CAP-62386 is interrupted, e.g. due to a crash or power outage, any log files saved up to that point are backed up. The log files are always saved in binary `.dali`

format to ensure that they can be opened and analyzed again in CAP-62386. To avoid oversized log files, the files can be edited using various options – see the following point *“Rules for creating live log files”*.

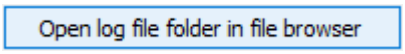
2 Rules for creating live log files

This section enables you to specify the size, frequency or exact time for cutting the log file. The following options are available for cutting the log files:

Option	Possible number range in integers	Description
Cut every X KB	0 … 1.000.000.000	The log file is cut once the set size hasbeen reached.
Cut every X hours	0 … 10.000	The log file is cut once the set time(in hours) has elapsed.
Cut at X o'clock	00:01 … 23:59	The log file is cut at the set time.

3 Live log files directory

In this section, you can configure the directory in which the log files are stored.

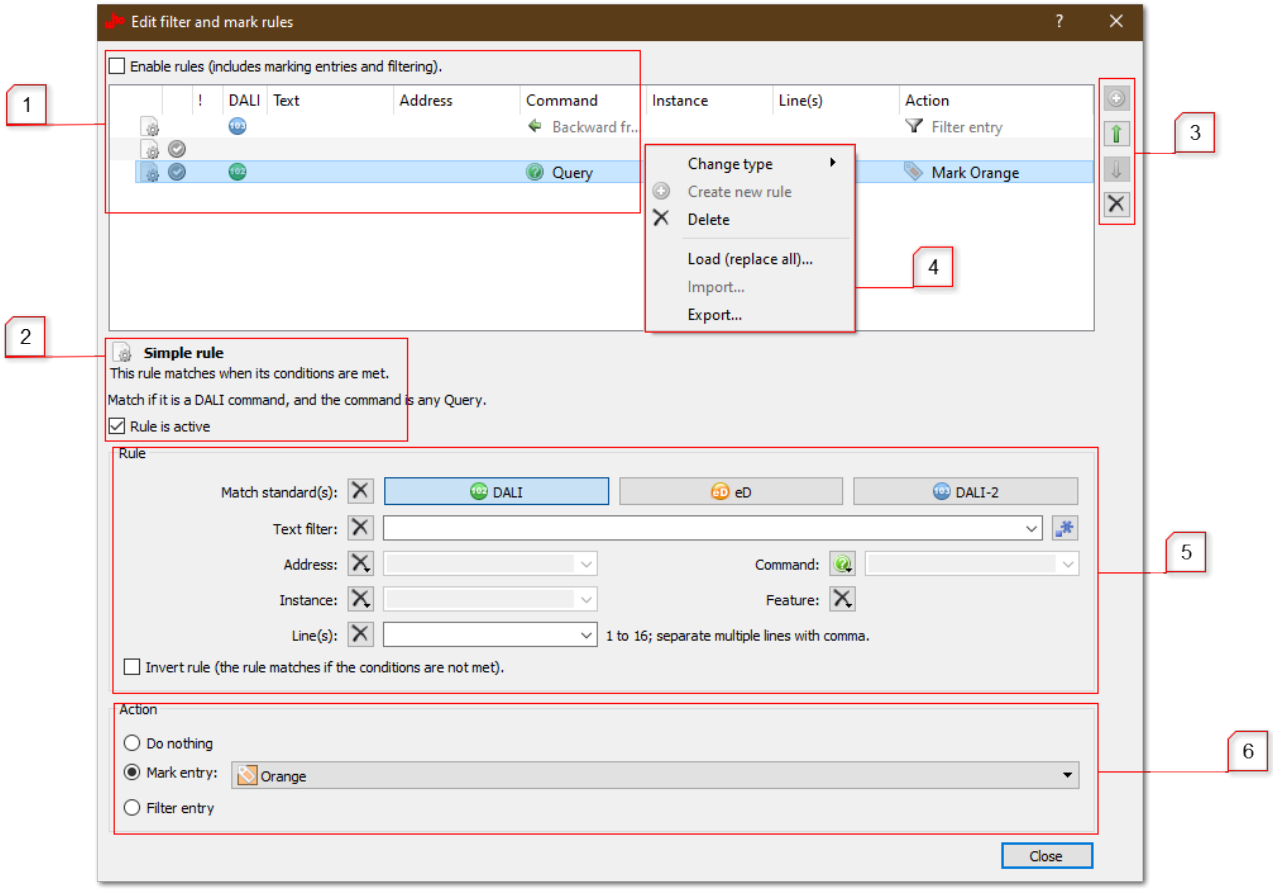
Element	Description
	Folder selection in a Windows dialog box.
	Opens the log folder in the standard file browser.

4 Live log information

This section shows how much storage space is used by the files in the configured directory (*“Space used”*) and how much storage space is still available on the drive (*“Space available”*).

“Edit filter and mark rules” dialog box

Use **[Edit filter und mark rules]** in the Toolbar to open the *“Edit filter and mark rules”* dialog box – hereinafter referred to as rule editor.



1 Rule list: Check and (de)activate all rules

All the existing rules and all the rules they contain are displayed here.

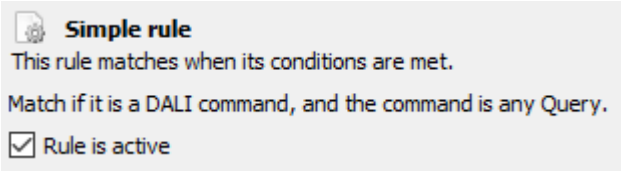
Rules to which other rules are subordinate (hereinafter: child rules) can be expanded. All the rules can be activated or deactivated using the *"Enable rules (includes marking entries and filtering)"* option located above the rule list.

The actual rule list contains the following columns:

Designation	Representation options	Description
(Type)		The icon refers to the rule type (see the following section *Rule overview*).
(Active)		A gray tick is displayed for an active rule.
!	 Inverted	A black and white ball labeled *"Inverted"* is displayed for an inverted rule.
DALI		If a rule is restricted to one or several DALI standards, the icons of the selected standards ( DALI standard;  DALI 2 standard) are displayed here.
Text	Text	If the rule contains a free text search, this text is displayed. If regular expressions are activated, the icon for regular expressions () is displayed in front of the text.
Address		A restriction according to the address type and, if applicable, the addressing number is displayed as an icon and a short text, similar to the *"Address"* column in the log view.
Command		A restriction according to the command type is displayed as an icon and a short text.
Instance		A restriction according to the instance addressing type and, if applicable, the addressing number is displayed as an icon and a short text, similar to the *"Instance"* column in the log view.
Line(s)	List of the lines	A restriction according to the lines is displayed as a text.
Action		The action performed when the rule is met is displayed with an icon and a text.

2 Rule overview: Check and manage individual rules

Below the rule list, there is a summary of a selected rule, including the rule type, the rule description and the rule conditions. Using the *"Rule is active"* option below the summary, the selected rules can be activated or deactivated:



There are four rule types:

Element	Meaning	Description
Simple rule	Simple rule	A stand-alone rule that cannot contain a child rule.
Container rule	Container rule	This rule is used to subgroup child rules. If this rule is deactivated, any child rules contained therein are also inactive. The conditions of the container rule must be met for child rules to be evaluated. Child rules automatically inherit the action defined in the container rule.
ALL rule	All rule	This rule applies if all of its active child rules apply. If the rule is deactivated, the child rules are also not evaluated. This rule can be used for an AND link of other rules.
ANY rule	Any rule	This rule applies if at least one of the contained child rules applies. If the rule is deactivated, the child rules are also not evaluated. This type of rule can be used for an OR link of other rules.

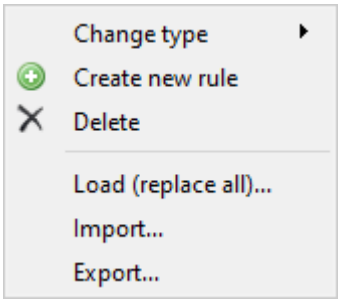
3 Ribbon: Create, delete and move rules

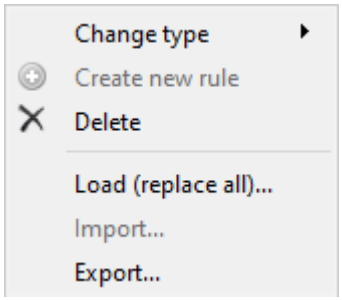
These buttons can be used to create a new rule or to move or delete rules that already exist.

4 Context menu: Create, delete/replace, export and import rules

Using the context menu of the rule editor, you can create new rules or import rules or manage or export rules that already exist.

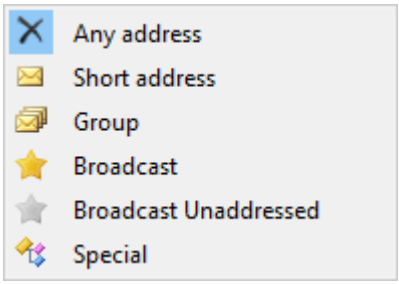
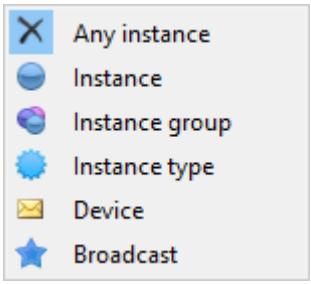
The context menu can be opened by right-clicking the empty area of the rule list (left image) or a selected rule (right image):

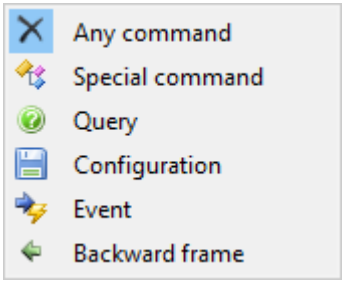


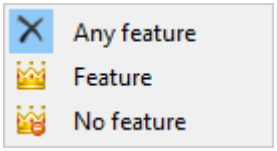


5 Rule configuration: Define rule conditions

The conditions of the selected rule can be defined here as follows:

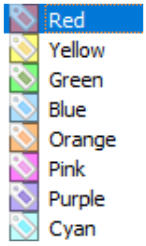
Element	Description
Match standard(s):	The standards to which the rule is to apply can be selected here: **[DALI]** or **[DALI 2].**
Text filter:	The text filter allows to perform a free text search for texts that can appear in any column. Using the button for regular expressions (), this filter can be changed to regular expressions. ***NOTE*** The activation of regular expressions may significantly impair filter performance, as the activation of regular expressions reduces the search performance and limits the search to just the *"Name"* column.
Address:	The address type can be defined here. Click to open a drop-down menu:  Once an address type has been selected, an address can be entered in the text box. If this field remains empty, any address of the correct address type applies.
Instance:	The instance addressing type can be defined here. Click to open a drop-down menu:  Once an instance addressing type has been selected, a number corresponding to the instance addressing type can be entered in the text box. If this field remains empty, any address of the correct address type applies.
Line(s):	The lines 1 to 16 can be entered here. Different lines must be separated by a comma.
Command:	Certain types of commands can be defined here. Click to open a drop-down menu:



Feature:	Feature addressing can be selected here. Click ✕ to open a drop-down menu: 
Invert rule	This option can be used to invert the rule. Inverting ensures that the rule only applies if the conditions are not met.

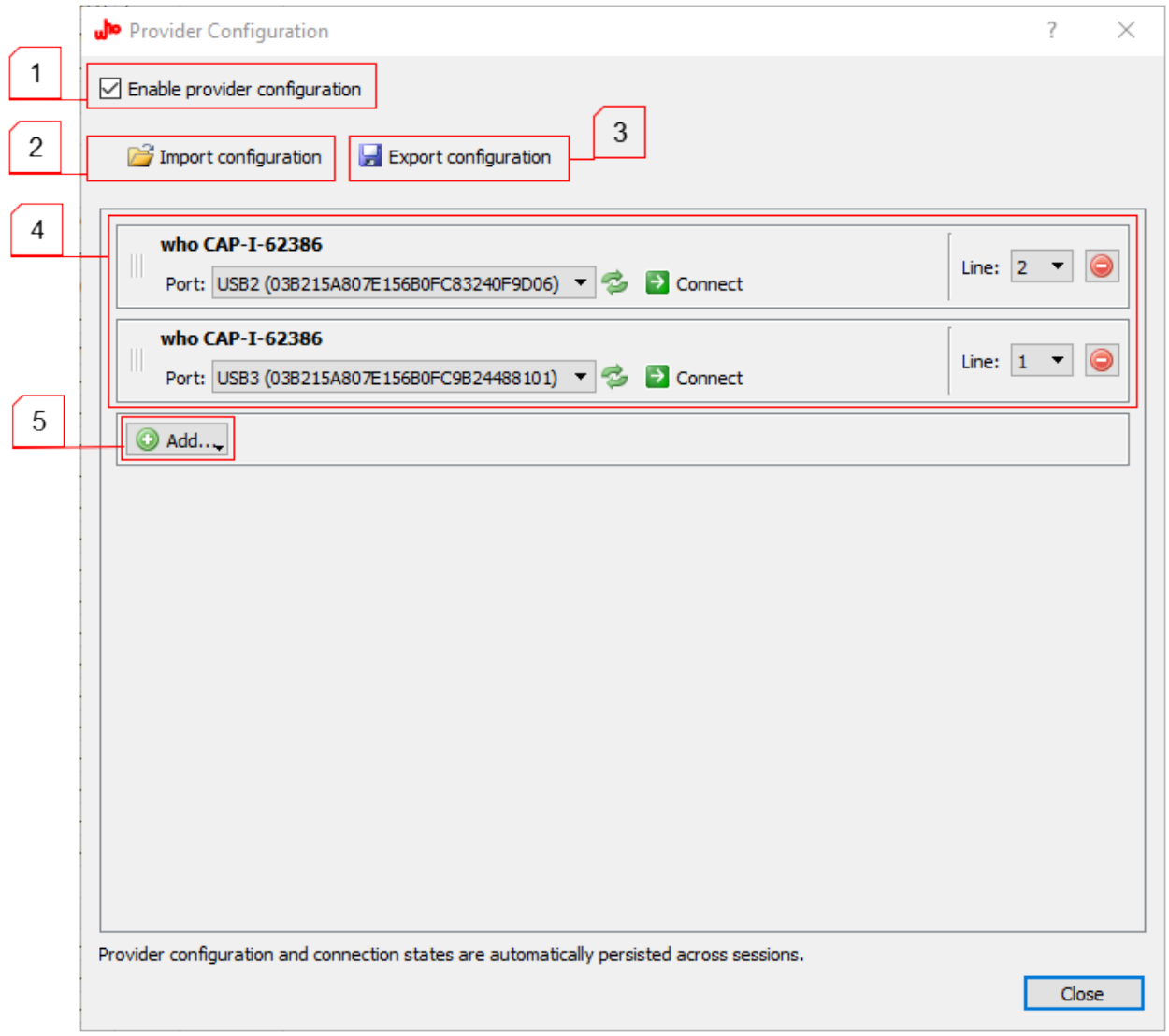
6 Rule actions: Define rule actions

The action triggered by the rule can be configured here as follows:

Element	Description
Do nothing	The rule does not trigger an action. This is useful for rules that are used in conjunction with other rules (e.g. ALL rules – see Manage rules).
Mark entry:	Log entries to which the rule applies are marked in the selected color. The color can be specified in a drop-down menu. 
Filter entry	Log entries to which the rule applies are not displayed in the log.

“Provider Configuration” dialog box

Use **[Open multi mode configuration]** in the Toolbar to open the *“Provider Configuration”* dialog box.



1 **(De)activate multi mode**

Click the option box to activate multi mode or deactivate multi mode.

2 **Import configuration**

Opens a configuration from a file – see Import/Export provider configurations.

3 Export configuration

Saves a configuration in a file – see Import/Export provider configurations.

4 Display configured interfaces

This section shows all the currently configured interfaces and the lines assigned to them (see Select port/line). The following options are available here:

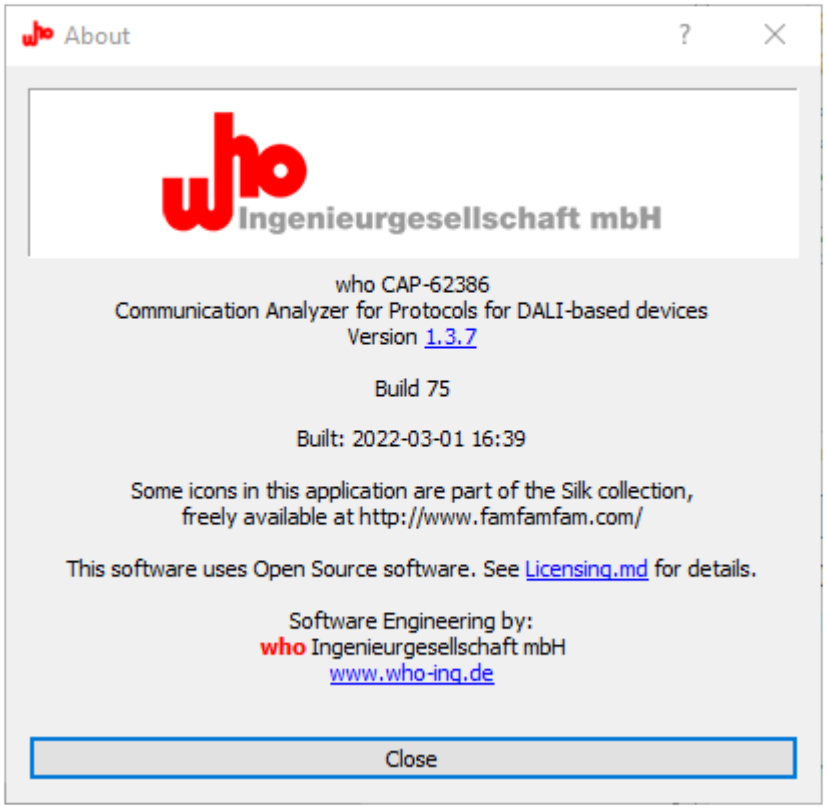
- Use  to update the *"Port"* combo box.
- Use  to establish a connection to a configured interface. Once the connection has been established, this button changes to  **[Disconnect]**. It can be used to disconnect the connection to an interface.
- Use  to remove a line.
- Use to move the configured interfaces up or down.

5 Multi mode: Add an interface

Use  **[Add…]** to open a drop-down menu. An interface can be selected and added to the list of currently configured interfaces.

“About” dialog box

Use **[About]** in the Toolbar to open the *“About”* dialog box. General information about who mbH and the CAP-62386 software can be found here.

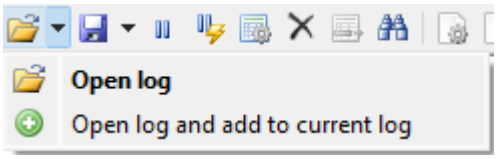


6.3.3 Drop-down menus

Various tasks can be executed in the home screen by clicking the buttons. This opens drop-down windows for some of the buttons.

“Open log” drop-down menu

Use **[Open log]** in the Toolbar to open the *“Open log”*drop-down window:

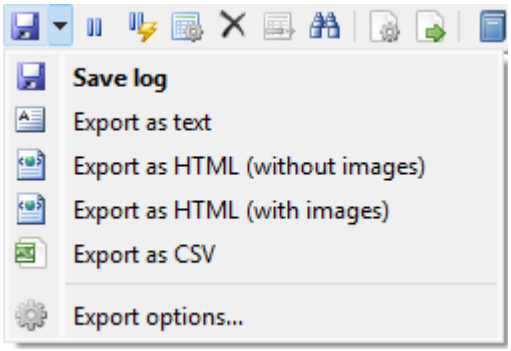


In this drop-down menu, you can select various options for importing logs.

> ***Further Information***
>
> Find out more about importing logs under Import/Export logs.

“Save log” drop-down menu

Use **[Save log]** in the Toolbar to open the *“Save log”*drop-down window:

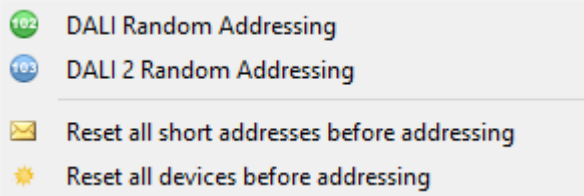


In this drop-down menu, you can select various options for exporting logs.

> ***Further Information***
>
> Find out more about exporting logs Import/Export logs.

“Addressing” drop-down menu

Use Addressing **[Addressing]** in the Toolbar to open a drop-down menu:

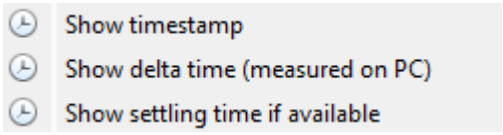


In this drop-down menu, you can select various options for addressing DALI devices.

Element	Description
DALI Random Addressing	Random addressing according to the DALI standard for actuators or operating devices.
DALI 2 Random Addressing	Random addressing according to the DALI-2 standard for sensors or control devices.
Reset all short addresses before addressing	If the option is activated, the short addresses of all devices are deleted before random addressing is executed. If it is deactivated, already existing short addresses are queried.
Reset all devices before addressing	If this option is activated, all devices are reset. Already existing short addresses are not reset.

“Time” drop-down menu

There are three representation options for the time in the “Timestamp” column. They can be selected via **[Time setting]** in the toolbar, which opens the following drop-down menu:



You can choose from the following options in this drop-down menu:

Option	Description
Show timestamp	Displays the timestamp in the *“Timestamp”* column. Example: 13:05:31.512
Show delta time (measured on PC)	Displays the time interval to the previous entry. The measurement is performed on the PC and may therefore deviate from the actual time measured on the DALI bus. Allows a display for all the entries. Example: +11654.000ms
Show settling time if available	Displays the settling time if available. This time is measured by CAP-I-62386 and is therefore more precise than the interval measured on the PC. Additionally, the bar color indicates a priority according to the DALI standard. If the settling time is not available, a timestamp is shown. Example: 5+ (+ 18051.305ms)

6.4 Log view

CAP-62386 logs the incoming and sent telegrams. The log list consists of eight columns in which context-related information can be found.

6.4.1 „Entry“ column

The *„Entry“* column displays the telegram type (query telegram, backward telegram, forward telegram, double telegram), the standard type, events and the hexadecimal telegram representation. Additional information is provided by the text next to the icon.

If tooltips have been activated and the mouse hovers over the hexadecimal telegram representation, you can also see the binary telegram representation.

Exemplary indicators	Short description of examples
0x888049	DALI-2 event telegram with hexadecimal data
0x01FE30	DALI-2 forward telegram with hexadecimal data
0xA100	DALI forward telegram with hexadecimal data
0xF1	DALI backward telegram with hexadecimal data
0x3981	DALI double telegram with hexadecimal data

6.4.2 „Address“ column

The *„Address“* column displays the addressing type and the address of a telegram. The full information is only available in the text next to the icon.

Exemplary indicators	Short description of examples
0	Short address with corresponding number
4	Group address with corresponding number
	Broadcast addressed telegram
	Broadcast unaddressed-addressed telegram
16	Special telegram with corresponding number

6.4.3 „Instance“ column

The *„Instance“* column displays the instance type and the address of a telegram. The full information is only available in the text next to the icon.

Exemplary indicators	Short description of examples
0	Instance addressing with corresponding number
G6	Instance group addressing with corresponding number
4	Instance type addressing with corresponding number
	Instance broadcast-addressed telegram
2	Feature instance addressing with corresponding number

6.4.4 „Name“ column

The *“Name”* column displays indicators for the interface connection and the bus status, the command type and events.

Exemplary indicators	Short description of examples
POWER NOTIFICATION	Forward telegram
Illuminance level report	Forward telegram
Paused since 15:19:58.501	Timestamp since last communication
Paused from 14:53:30.091 to 14:53:47.387	Time period without communication
Backward frame	Backward telegram in response to a query telegram
Programmed 0 addresses.	Information on the number of addressed devices in response to an addressing call

Representation of interface connection

The *“Name”* column displays the connection status of one or several interfaces as follows.

Element	Meaning	Description
Interface connected	Connected	The connection has been established.
Interface disconnected	Not connected	The connection has been disconnected.
Interface lost	Connection lost	The connection to an interface has been lost.

Representation of bus status

The *“Name”* column displays the bus supply status as follows.

Element	Operating mode	Description
Bus idle	Both	Log view: The bus supply is active.
Bus down	Both	Log view: The bus supply is inactive (or short circuit).
Bus down (system failure)	Both	Log view: The bus supply has been inactive for at least 500 ms (or short circuit). DALI actuators now switch to the system failure level.

6.4.5 „Additional data“ column

The *„Additional data“* column displays additional data.

Exemplary indicators	Short description of examples
	Backward telegram in the form of “Dali YES”
	Missing backward telegram in the form of “Dali NO”

6.4.6 „Timestamp“ column

The *„Timestamp“* column displays the time representation.

Exemplary indicators	Short description of examples
+11654.000ms	Time interval since the previous entry
13:05:31.512	Timestamp
 5+ (+ 18051.305ms)	Settling time with priority according to the DALI standard

Further Information

Find out more about the representation options for the time in the *“Timestamp”* column under the “Time” drop-down menu.

6.4.7 „Line“ column

The *„Line“* column displays the affected line.

Exemplary indicators	Short description of examples
2	Line number 2
1	Line number 1

6.4.8 „Extended“ column

The *„Extended“* column displays additional telegram data.

Exemplary indicators	Short description of examples
Good timing	Quality of bit time compliance of a telegram

6.4.9 Telegram grouping

Double telegrams can be grouped via **[Group sequences]**. If grouping is active, the button changes to .

If grouping is active, double telegrams are combined into one line:

	Entry	Address	Instance	Name	Additional data	Timestamp	Line	Extended
25	0x81A0	0		QUERY ACTUAL LEVEL	0xfe (254)	5+ (+1413.666ms)	-	Good timing

With grouped double telegrams, a green left-pointing arrow in the *"Additional data"* column of the query telegram indicates the receipt of a valid backward telegram. In this case, the information on the backward telegram can be found to the right of the left-pointing arrow in the *"Additional data"* column.

If grouping is not active, double telegrams appear in two consecutive lines:

	Entry	Address	Instance	Name	Additional data	Timestamp	Line	Extended
30	0x81A0	0		QUERY ACTUAL LEVEL		5+ (+1413.666ms)	-	Good timing
31	0xFE			Backward frame	0xfe (254)	BWF (+7.830ms)		

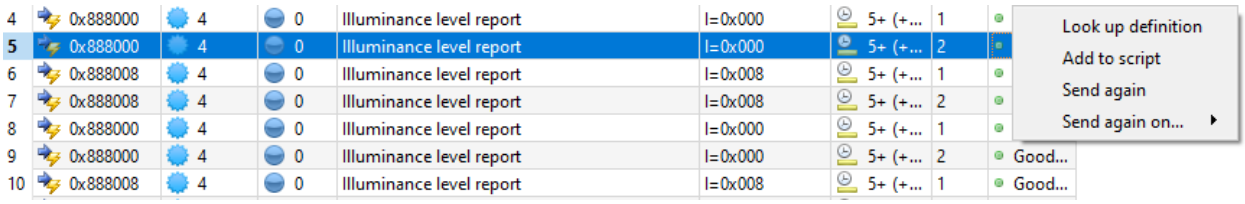
With ungrouped double telegrams, a gray left-pointing arrow in the *"Additional data"* column of the query telegram indicates the receipt of a valid backward telegram. In this case, the information on the backward telegram can be found in the next line in the *"Additional data"* column.

If a backward telegram is expected but not received, a *"Dali NO"* icon is displayed.

> ***Further information***
>
> Find out more about grouping new incoming telegrams and about grouping already received telegrams under Group telegrams.

6.4.10 Context menu

Open the context menu of the log view by right-clicking a marked entry:



It contains the following functions:

Element	Description
Look up definition	This function allows to display the definition of a telegram in the definition window. This only works with known telegrams that are also contained in the definition window.
Add to script	This function allows to insert the selected telegrams into the open script editor window.
Send again	This function allows to resend the selected telegrams in the same sequence. The time interval is not repeated.
Send again on...	This function allows to resend the selected telegrams on a specific line. A drop-down menu opens for line selection: Line 1 Line 2 Line 3

6.4.11 Automatic scrolling

The log list scrolls automatically with incoming telegrams, thereby allowing you to see new incoming messages immediately. If you scroll upward, the log view stops. There are two options for resuming automatic scrolling:

- manual scrolling to the end,
- the button **[Scroll to end]** in der Status bar.

6.5 Status bar

The status bar provides indicators for the interface connection and the bus status as well as other options.

Representation of interface connection

The status bar displays the status of the interface connection as follows.

Element	Operating mode	Meaning	Description
Connecting...		Connecting...	The connection is being established.
Not connected.	Single	Not connected	The connection to the configured interface has not yet been established.
Connected.	Single	Connected	The connection has been established.
Connection error	Single	Connection error	An error occurred during connection.
Lines: 1: 2: None connected.	Multi	Not connected	The connection to line 1 and 2 has not yet been established.
Lines: 1: 2: Connected.	Multi	Fully connected	The connection to line 1 and 2 has been established.
Lines: 1: 2: 1/2 connected.	Multi	One of two devices connected	The connection to line 1 has been established, there is no connection to line 2.
Lines: 1: 2: None connected.	Multi	Connection error	An error occurred during connection.
No (suitable) device found		No device	The connection has been established but the interface is not available or not suitable.

Representation of bus status

The status bar displays the bus supply status as follows.

Element	Operating mode	Description
Bus idle	Single	The bus supply is active.
	Multi	
Bus down	Single	The bus supply is inactive or a short circuit has occurred.
	Multi	
Bus down (system failure)	Single	The bus supply has been inactive for at least 500 ms (or short circuit). DALI actuators now switch to the system failure level.
	Multi	

Further representations

The status bar additionally offers the following options and indicators:

Element	Description
[Scroll to end]	Jumps to the end of the log list. This button is grayed out when automatic scrolling is active and becomes visible when scrolling manually in the log list.
Showing 396 of 401 entries	Displays how many entries are shown or hidden when a filter action is active.
	The live logging function has been activated – see the "Log configuration" dialog box.
Selected time range: 28224ms	Displays the time period between the first and the last telegram if you have selected two log entries.

7 Operation

Below are instructions on how to execute basic tasks in the graphical user interface.

7.1 Create, configure and manage

7.1.1 Configure interface in multi mode

In multi mode, you can use and configure several interfaces at the same time.

Activate multi mode

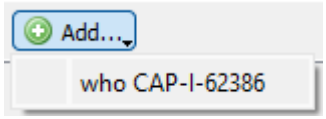
1. Open the Provider Configuration.
2. Click the Enable provider configuration *"Enable provider configuration"* option box.

↪ Multi mode is activated.

Add interface in multi mode

1. Open the Provider Configuration.
2. Click **[Add…]**.

→ A drop-down menu opens.



2. Select the interface type from the drop-down menu

↪ The interface is added to the list of configured interfaces.

7.1.2 Create rules

Use the following steps to create new rules: temporary rules via the search bar, permanent rules via the rule editor or subordinate rules (hereinafter referred to as child rules) via the rule editor.

Create permanent rules in the rule editor

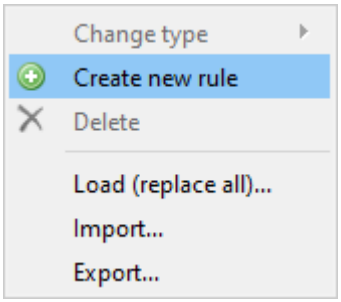
1. Open the rule editor.
2. There are two options for adding a new rule:

    a. Click **[Add…]**.

    or

    b. Open the context menu by right-clicking the empty area of the list.

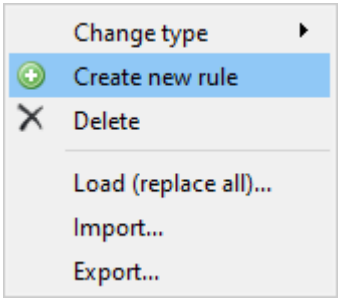
3. Select the *"Create new rule"* option.



↪ A new rule has been created.

Create child rules in the rule editor

1. Open the rule editor.
2. Open the context menu by right-clicking the rule into which a child rule is to be integrated.
3. Select the “Create new rule” option.

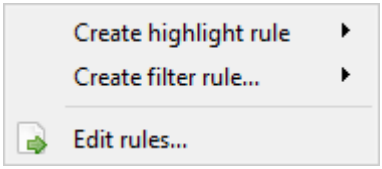


↪ A new rule has been created.

> ***NOTE***
>
> To create a child rule, the parent rule must correspond to the rule type *“Container rule”*, *“ALL rule”* or *“ANY rule”* – see “Edit filter and mark rules” dialog box in section *Rule overview*.

Create temporary rules via the search bar

1. Open the search bar.
2. Click the arrow on the button **[Create rule]**.
   → A drop-down menu opens.



3. Click **[Create highlight rule]** or **[Create filter rule…]**.

↪ A temporary rule has been created.

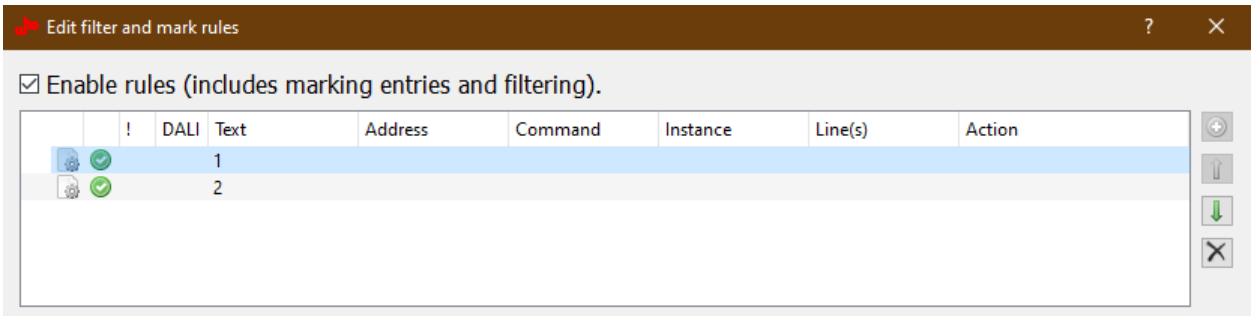
> ***NOTE***
>
> Temporary rules are not displayed in the rule editor.

7.1.3 Manage rules

Use the following steps to manage existing rules. Rules can be imported and exported, moved, deleted, configured or even be changed in their rule type (see “Edit filter and mark rules” dialog box in section *Rule overview*).

Move rules

1. Open the rule editor.
2. Select a rule from the rule list.



3. There are two options for moving a selected rule:

   a. Click the green arrows ⇧ ⇩ to move a rule.

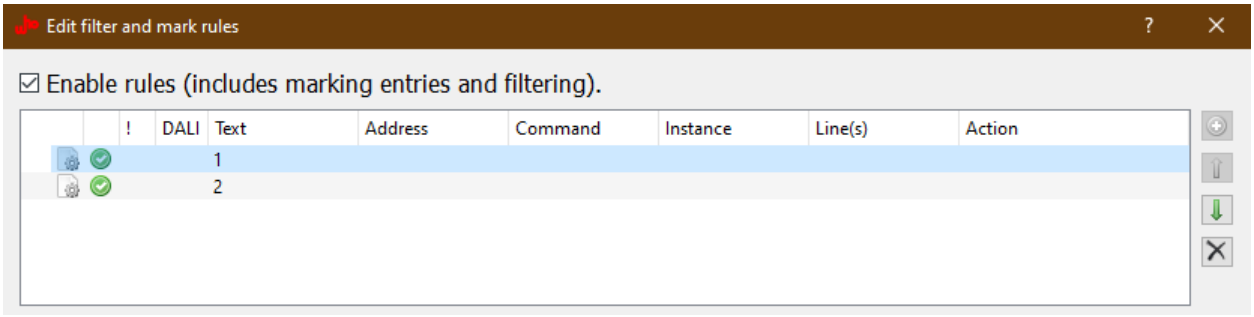
   or

   b. Press and hold the left mouse button. Drag the rule to a new location. Release the mouse button.

↪ The rule has been moved.

Delete rules

1. Open the rule editor.
2. Select a rule from the rule list.

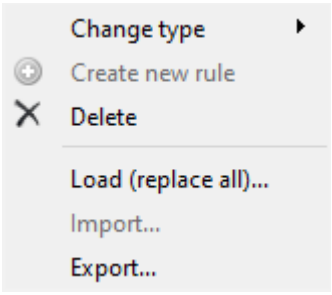


3. Select one of the following options:

   a. Click the cross ✕ in the right ribbon to delete the rule.

   or

   b. Open the context menu by right-clicking the selected rule.



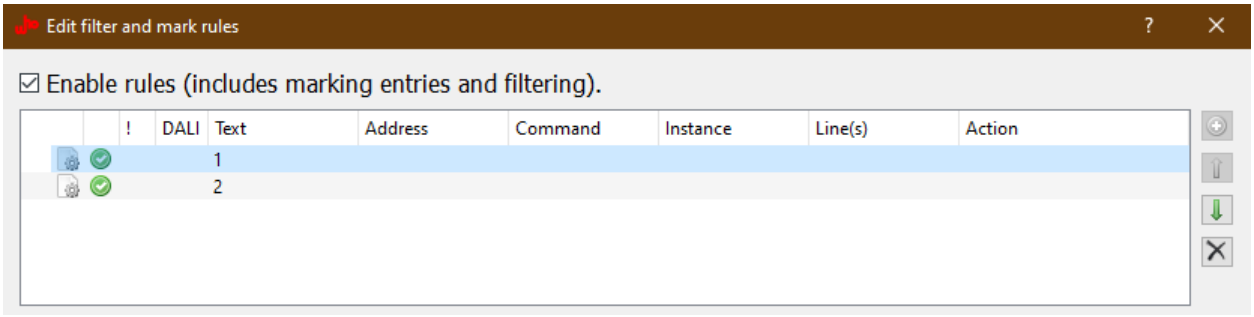
   → A drop-down menu opens.

      b1. Click the *"Delete"* option.

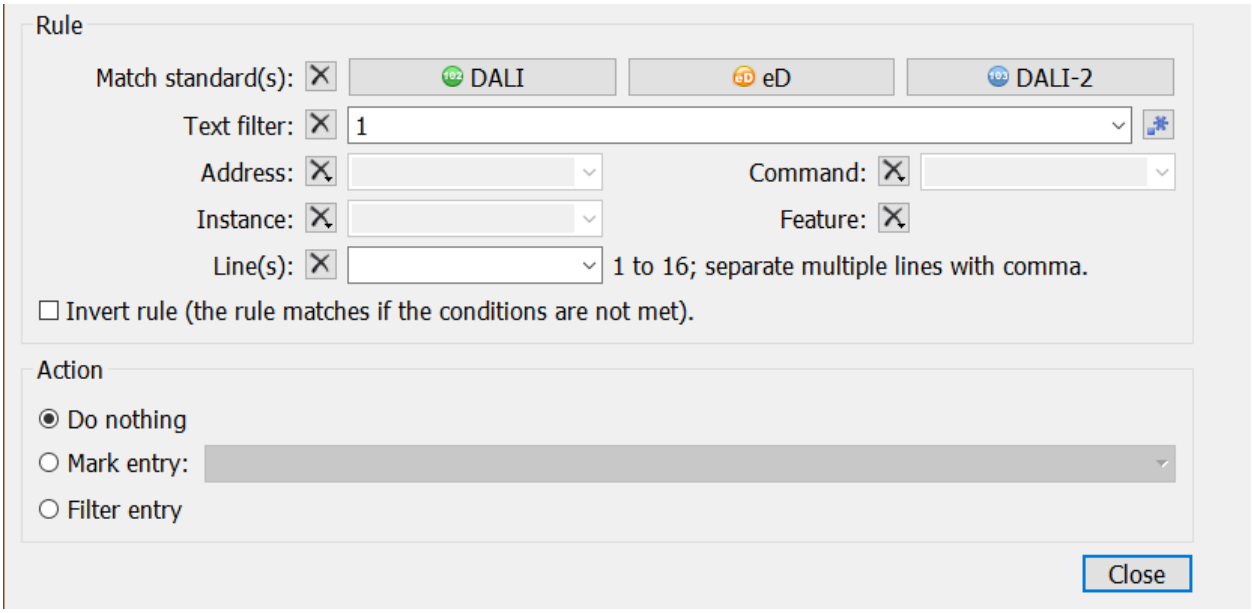
↪ The rule has been deleted.

Configure rules

1. Open the rule editor.
2. Select a rule to be configured from the rule list.



3. Execute the required configuration.



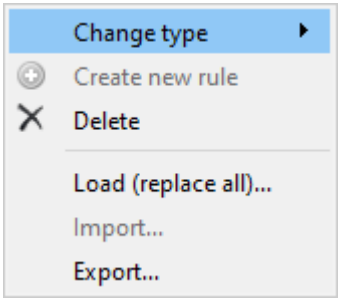
4. Confirm the configuration by clicking **[Close]**.

↪ The rule has been configured.

> ***Further information***
>
> Find out more about configuring rules under "Edit filter and mark rules" dialog box.

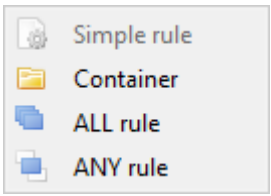
Change the rule type

1. Open the rule editor.
2. Open the context menu by right-clicking the rule to be changed.
3. Click the *"Change type"* option.



→ A drop-down menu opens.

4. Select the rule type (the grayed-out option is the current rule type).



↪ The rule type has been changed.

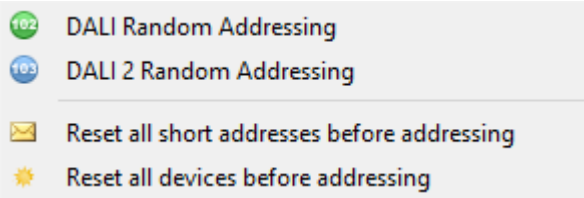
7.2 Address and monitor

7.2.1 Address and reset DALI devices

Use the following steps to address DALI devices, terminate ongoing addressing processes or reset DALI devices to be addressed or their short addresses before addressing.

Start addressing process

1. Navigate to the Toolbar.
2. Click **[Addressing]**.
   → The *"Addressing"*drop-down menu opens.

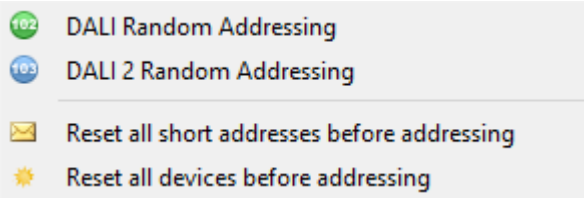


3. Select one of the following menu options:
   a. **[DALI Random Addressing]**
   b. **[DALI 2 Random Addressing]**

↪ The selected DALI devices are addressed.

Terminate addressing process

1. Navigate to the Toolbar.
2. Click **[Addressing]**.
   → The *"Addressing"*drop-down menu opens.

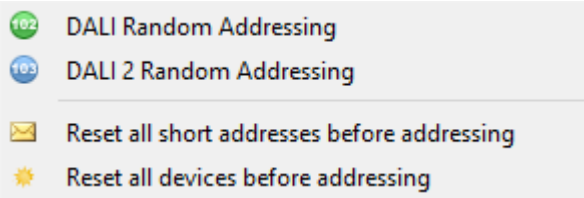


3. Select one of the following options:
   a. **[DALI Random Addressing]**
   b. **[DALI 2 Random Addressing]**

↪ The addressing process of the selected DALI devices is terminated.

Reset DALI devices

1. Navigate to the Toolbar.
2. Click **[Addressing]**.
   → The *"Addressing"*drop-down menu opens.



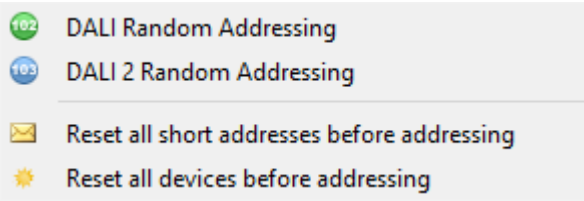
3. Click **[Reset all devices before addressing]**.

↪ All DALI devices are reset. The icon is highlighted blue.

> ***NOTE***
>
> Already existing short addresses are not reset when resetting the DALI devices.

Reset short addresses of DALI devices

1. Navigate to the Toolbar.
2. Click **[Addressing]**.
   → The *"Addressing"*drop-down menu opens.



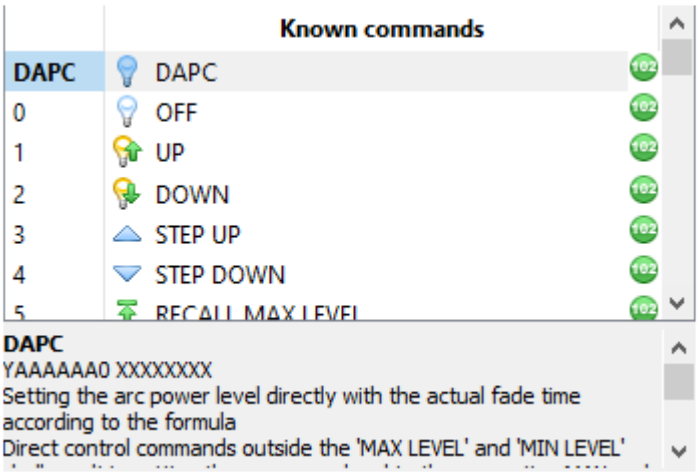
3. Click **[Reset all short addresses before addressing]**.

↪ The short addresses of all DALI devices are reset. The icon is highlighted blue.

> ***NOTE***
>
> As long as the **[Reset all short addresses before addressing]** option has not been activated, already existing short addresses are queried.

7.2.2 Send commands

1. Open the commands window.
2. Navigate to the required command in the command list or filter for the required command in the search bar.



3. Double-click the required command to select it.
→ The standard type, the command number and the raw value are transferred to the *"Send command"* tab or the *"Send Direct Arc Power"* tab.

→ Depending on the selected command, the checkbox ☑ twice **[twice]** is activated or deactivated automatically.

4. Configure the remaining settings as required.
5. Click **[Send]**.

↪ The command has been sent.

7.2.3 Group telegrams

Group new incoming telegrams

1. Navigate to the toolbar.
2. Activate telegram grouping by clicking **[Group sequences]**.

↪ Telegrams are grouped from now on.

Group previously received telegrams

1. Save the log in binary `.dali` format using **[Save Log]** – see Import/Export logs.
2. Navigate to the toolbar.
3. Activate telegram grouping by clicking **[Group sequences]**.
4. Open the saved log using **[Open Log]**.

↪ Grouping is applied to the existing log.

> ***NOTE***
>
> The grouping of double telegrams as well as the display of a backward telegram in the *"Additional data"* column of the query double telegram only occurs if the backward telegram is received twice within 100 ms and no other telegram has been received during this time period.
>
> A different representation applies to ungrouped double telegrams than to grouped double telegrams – see Telegram grouping.

7.3 Import and export

7.3.1 Import/Export provider configurations

Import provider configurations

1. Open the Provider Configuration.
2. Click **[Import configuration]**.
   → The standard file dialog opens.
3. Select a file with the extension `.prc`.
4. Click **[Open]**.

↪ The selected configuration file is imported and opened.

Export provider configurations

1. Open the Provider Configuration.
2. Click **[Export configuration]**.
   → The standard file dialog opens.
3. Select a storage location.
4. Enter a file name in the *"File name"* input box.
5. Make sure that the *"Provider configuration file (*.prc)"* option is selected in the *"File type"* drop-down menu.
6. Click **[Save]**.

↪ The configuration has been exported and saved.

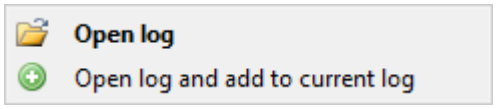
> ***NOTE***
>
> The current configuration is always saved in your user directory and opens automatically the next time CAP-62386 is started.

7.3.2 Import/export logs

You can import logs and export existing logs with the following steps.

Import logs

1. Click the arrow next to **[Open log]** in the toolbar.
→ A drop-down menu opens.



In this drop-down menu, you can select various options:

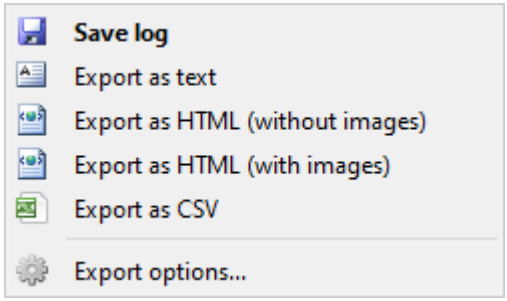
Element	Function
Open log	Opens a binary log (`.dali`-file).
Open log and add to current log	Opens a binary log and adds it to the current log.

2. Select one of the following options:
    a. **[Open log]** or
    b. **[Open log and add to current log]**
    → The standard file dialog opens.
3. Navigate to the storage location of the rule file being opened/imported.
4. Select the required file with the file extension `.dali`.
→ A binary log opens and, depending on your selection in step 2, performs one of the following two tasks:
    a. If you have selected 2a: The log overwrites the current log.
    b. If you have selected 2b: The log is added to the currently visible log.

↪ The log file has been imported successfully.

Export logs

1. Click the arrow next to **[Save log]** in the Toolbar.
→ A drop-down menu opens.



2. Select one of the following options:
    a. **[Save log]**
    b. **[Export as text]**
    c. **[Export as HTML (without images)]**
    d. **[Export as HTML (with images)]**
    e. **[Export as CSV]**
    → The standard file dialog opens.
3. Navigate to the required storage location
4. Enter a file name in the *"File name"* input box.
5. Click **[Speichern]**.

↪ The log file has been exported successfully.

The following export formats can be selected:

Element	Function	File format
Save log	The binary `.dali` file is used to generally save and load a log in CAP-62386.	`.dali` format (default setting)
Export as text	The exported file presents the log in a very simple manner.	`.log` text file format for displaying in text editors
Export as HTML (without images)	The exported file displays the log in tabular form, with command definitions and remarks about them, but without icons.	`.html` file for displaying in the browser
Export as HTML (with images)	The exported file displays the log in tabular form, with command definitions, with remarks about them and with icons.	`.html` file for displaying in the browser
Export as CSV	The exported file displays the log in tabular form, with command definitions, but without icons and remarks about the command definitions.	`.csv` file for displaying in table calculation programs
Export options...	The dialog box allows configuration of the log export formats.	

NOTE

Only files (with file extension `.dali`) saved with the standard function **[Save Log]** can be reopened with CAP-62386. All other formats can be exported but not reopened with CAP-62386.

NOTE

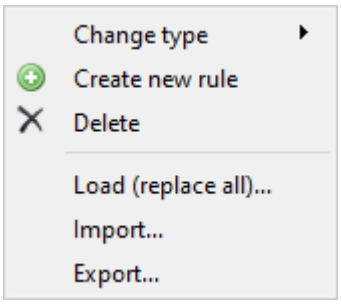
If an export format with graph export is selected, the icons are stored in a folder called “CAP-62386-Icons” at the storage location. When forwarding the log, this folder also needs to be copied. When saving various logs at the same location, the number of icons in this folder increases accordingly.

7.3.3 Import/export rules

You can import rules and export existing rules with the following steps.

Import rules and add to the rule list

1. Open the rule editor.
2. Open the context menu by right-clicking the empty area of the rule list.
3. Click the *"Import"* option.



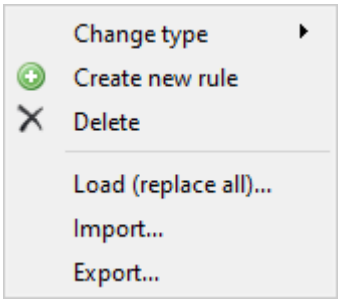
→ The standard file dialog opens.

4. Navigate to the storage location of the rule file being imported.
5. Select the required file with the file extension `.rules`.

↪ The rules have been imported successfully.

Import rules and replace existing rules

1. Open the rule editor.
2. Open the context menu by right-clicking the empty area of the rule list.
3. Click the *"Load (replace all)"* option.



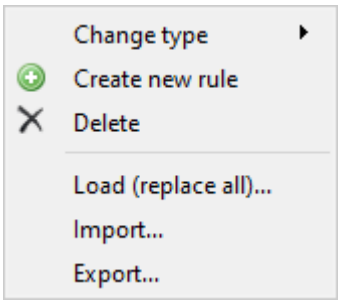
→ The standard file dialog opens.

4. Navigate to the storage location of the rule file being imported.
5. Select the required file with the file extension `.rules`.

↪ The existing rules have been replaced successfully.

Export rules

1. Open the rule editor.
2. Open the context menu by right-clicking the empty area of the rule list.
3. Click the *"Export"* option.



→ The standard file dialog opens.

4. Navigate to the required storage location.
5. Enter a file name in the *"File name"* input box.
6. Click **[Save]**.

↪ The rules have been exported successfully.

8 Appendix

8.1 Factory Settings

Chapter	Menu section	Option	Factory setting
"Log configuration" dialog box	*"Log buffer size"*	Keep last X entries	10000
	"Log buffer size	Keep last X hours	24
	"Rules for creating log files"	Cut every X KB	10000
	"Rules for creating log files"	Cut every X hours	24
	"Rules for creating log files"	Cut at X o'clock	12:33
"Commands" docker	*"Send command"*	Standard selection	[DALI]
	"Send command" > *DALI*	Raw (hex)	0100
	"Send command" > *DALI-2*	Raw (hex)	01fe00
	"Send command" > *DALI / DALI-2*	*"Address:"* > **[Short address]** > … **[Short address]** **[Group]**	0
	"Send command" > *DALI-2*	*"Instance:"* > **[Device]** > … **[Instance number]** **[Instance group]** **[Instance type]** **[Feature on instance number level]** **[Feature on instance group level]** **[Feature on instance type level]**	0
	"Send command"	DTR (hex)	00
	"Send Direct Arc Power"	Raw (hex)	00fe
	"Send Direct Arc Power"	Raw level	254
	"Send Direct Arc Power"	% Level	100,00 %
	"Send Direct Arc Power"	Slide bar	Right end
	"Send Direct Arc Power"	*"Address:"* > **[Short address]** > … **[Short address]** **[Group]**	0
	"Send bits"	Number of bits	4

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