

BACeye Extensions for BACnet/SC MANUAL



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#### 1 Introduction

#### Notation and symbols used

Notice		
The following notation and symbols are used in this manual.		
<buttons></buttons>	The notation <button> is used for buttons that must be mentioned in the running text.</button>	
Remove data value	Graphic symbols are also used for buttons where suitable.	
Network commands as well as file and product names	Network commands, such as traceroute or ping, are written in italics. The same applies to file and product names.	
Menu names and paths	Menu functions are defined in the form: MAIN MENU / SUBMENU / to be localized.	
Screenshots	The images used show the software running under a Microsoft Windows 10 installation.	

Licensing

Licensing requires a **product key**, which is provided with the purchase of the software.

**Copyright protection** 

This document is protected by copyright. Reproduction, reprinting, even of extracts, as well as reproduction of the images, even in a modified state, is only permitted with the written consent of the manufacturer.

Warranty

This manual must be read carefully before installing and commissioning the software. The warranty entitlement lapses if the software is installed by untrained personnel.



#### **Limitation of liability**

All information and notes in this manual were compiled taking the applicable standards and regulations, best engineering practice and the manufacturer's extensive knowledge and experience into consideration.

The manufacturer assumes no liability for indirect and direct damage due to:

- Ignorance of this manual
- Improper use
- Use of untrained personnel
- Damage due to incorrect installation
- Unauthorised modifications to the software
- Use of non-approved components

The obligations agreed in the delivery contract, the general terms and conditions as well as the manufacturer's delivery conditions and the legal regulations applicable at the time of the conclusion of the contract apply.

#### Registered trademarks

Trademarks and product names of various companies will be used in this manual. These names are the registered trademarks of their respective manufacturers and will not be mentioned separately in this manual:

Microsoft Windows®

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BACnet und ASHRAE®

are registered trademarks of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, INC. (ASHRAEI).

#### **Target group**

This manual is intended exclusively for specialist personnel who are familiar with network configuration in Ethernet and BACnet/SC.

#### Intended use

BACeye/SC is intended exclusively as a network explorer in BACnet networks.



# 2 Safety

#### General

The software itself does not pose any direct hazards. However, when used in BACnet networks, it is capable of severely disrupting the interaction of network components.



#### Warning

#### Misconfiguration of hardware and software!

Faulty configuration of hardware and software can cause malfunctions in the building infrastructure on network components, sensors or actuators, **for example**:

- Monitoring devices, such as fire alarm or intrusion detection systems, are deactivated.
- Machines and fans start up unexpectedly.
- Gate valves and other valves open or close unintentionally.

Under certain circumstances, this can lead to serious injuries or death.

The software should therefore only be used by qualified personnel who are familiar with the network configuration in Ethernet, BACnet/SC and other fieldbus systems!



# 3 Classification and purpose

Classification BACeye/SC works on windows-based hardware platforms as a

network explorer.

**Purpose** BACeye/SC is used as a network explorer for BACnet networks and

can read and write to display and influence the behavior of devices in

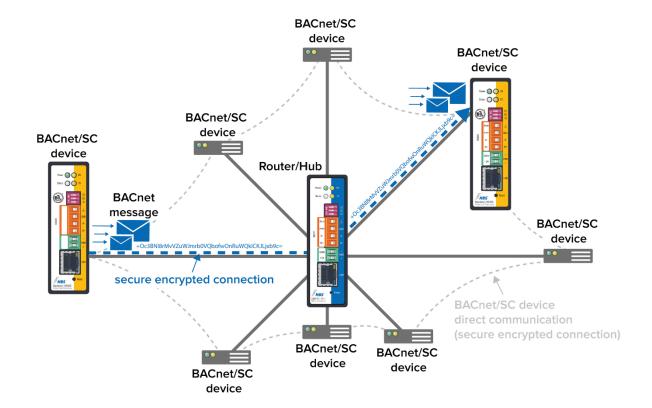
these networks.

**BACnet/SC extensions** BACeye/SC also supports the standard for BACnet Secure Connect.

BACeye/SC can thus visualize and control BACnet components that

support BACnet up to revision 22.

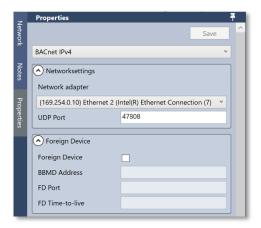
#### Schematic structure of a typical BACnet/SC network



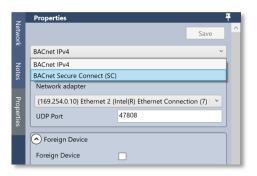


# 4 Network configuration

To operate BACeye in BACnet/SC environments, the network connection must first be configured accordingly. The following settings must be made in the <Properties> tab.



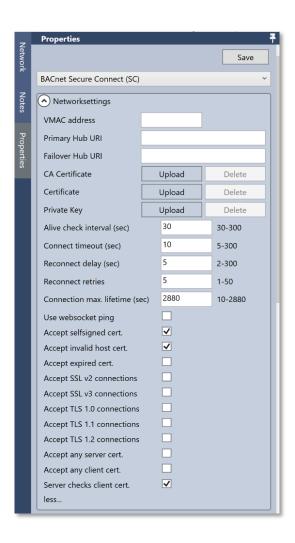
First, the appropriate network adapter must be selected.



After that, the configuration can be changed from BACnet IPv4 to <BACnet Secure Connect> can be changed.

This makes the following configuration parameters for BACnet/SC accessible.





#### **Secure Connect configuration parameters**

Virtual MAC address e.g. 00-80-41-ae-fd-7e

Primary Hub-URL

e.g.

Failover HUB-URL

e.g.

**CA Certificate** 

e.g. Certificate of a Certificate Authority

Certificate

e.g. internal certificate of the organization

Private Key

e.g.

Interval for connection test (30-300)

e.g. 30 sec (default)

Connection-Timeout (5-300)

e.g. 10 sec (default)

Connection pause (2-300)

e.g. 5 (default)

Connection trials (1-50)

e.g. 5 (default)

Maximum connection time (10-2880)

e.g. 2880 sec (default)



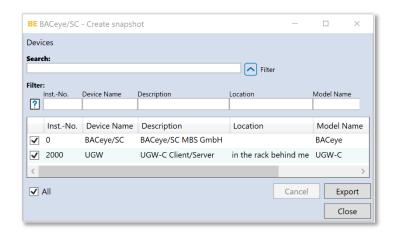
### 5 Create snapshots

General

In addition to the previous export functions of BACeye, BACeye/SC now also offers the possibility of taking snapshots of data points of the devices in the network and exporting them as an XML file.

**Export snapshot** 

The selection window is called up via the menu items DATATRANSFER / SNAPSHOT...



After clicking <Export>, the selection of the location and the naming of the XML file is possible.

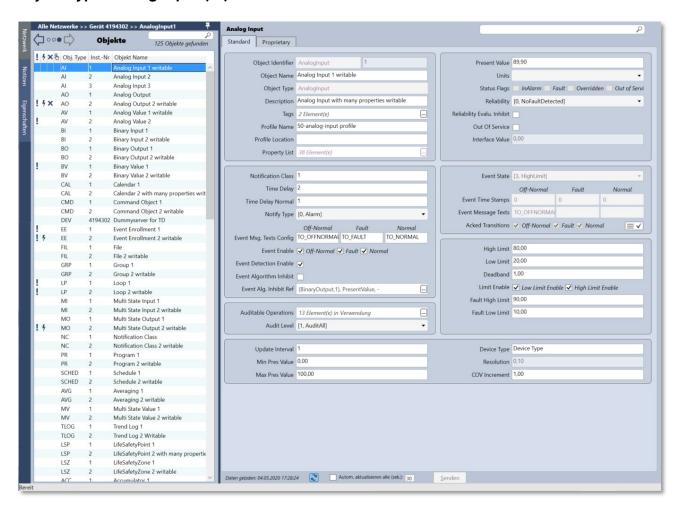
Clicking <Save> starts exporting the snapshot to an XML file.

# Extract from exported XML file



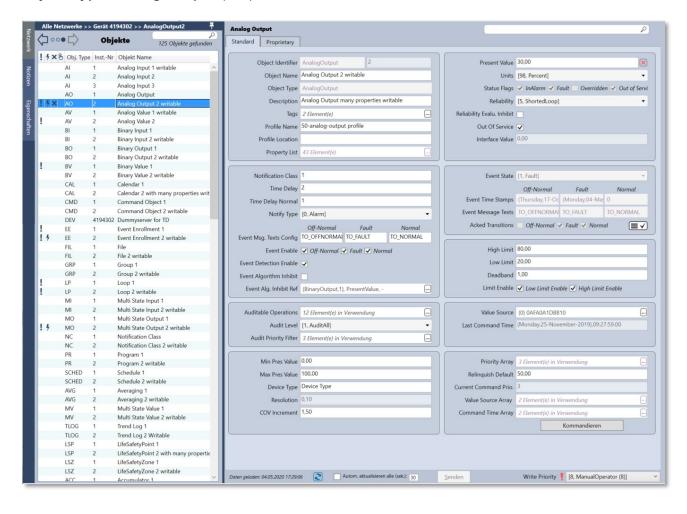
# 6 Examples with BACnet Rev. 22 capable devices

#### **Object Type Analog Input (AI)**



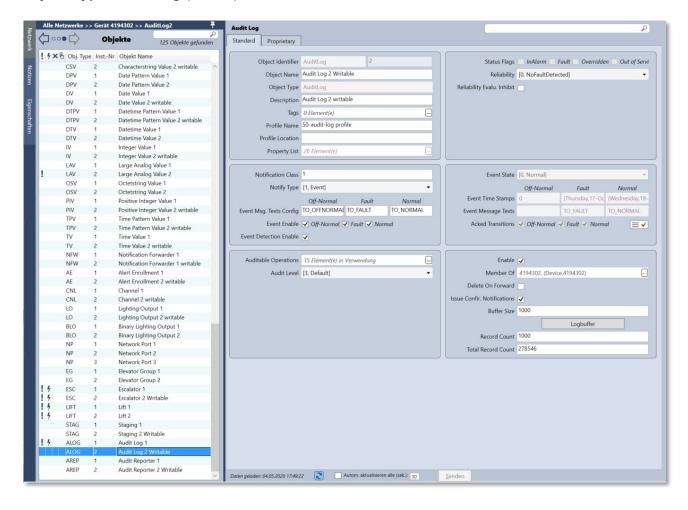


#### **Object Type Analog Output (AO)**



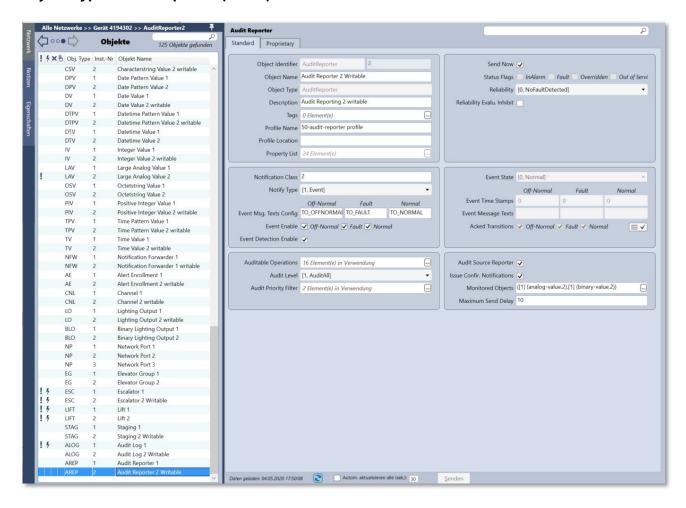


#### **Object Type Audit Log (ALOG)**



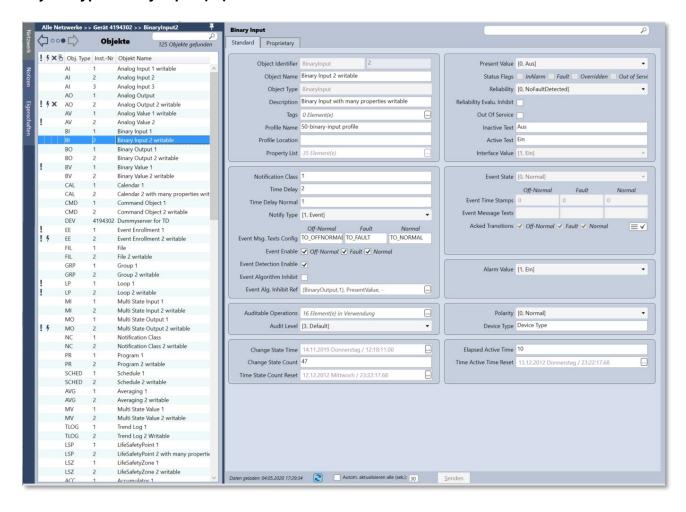


#### **Object Type Audit Reporter (AREP)**



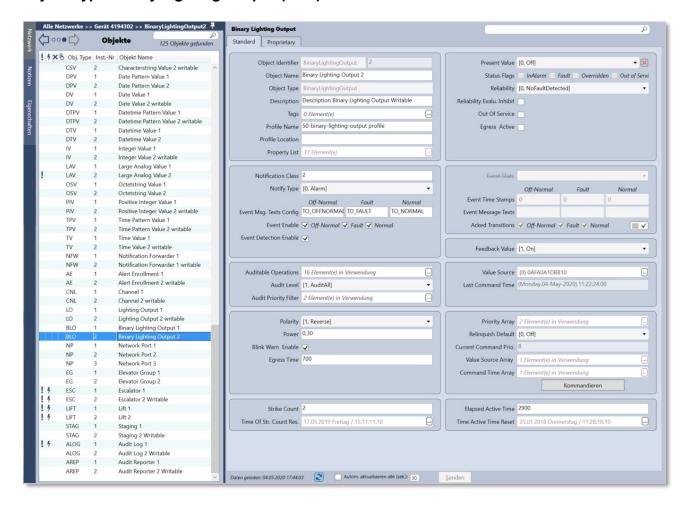


#### **Object Type Binary Input (BI)**



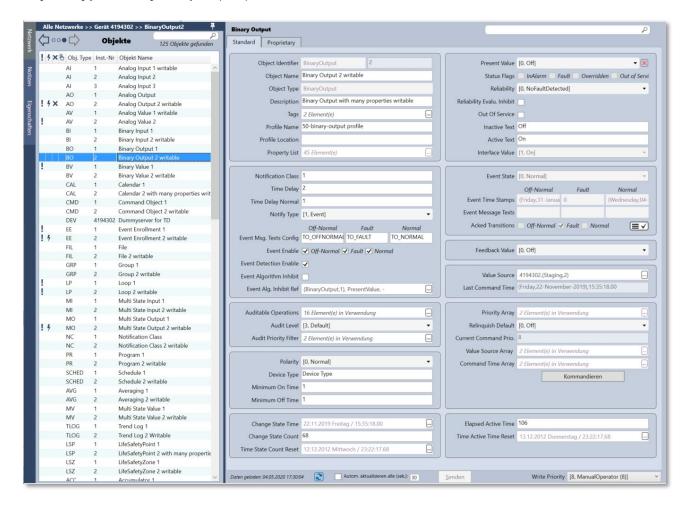


#### **Object Type Binary Lighting Output (BLO)**



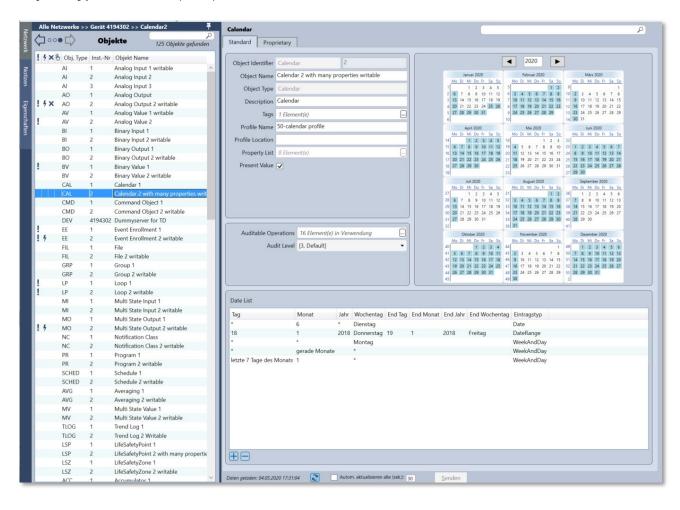


#### **Object Type Binary Output (BO)**



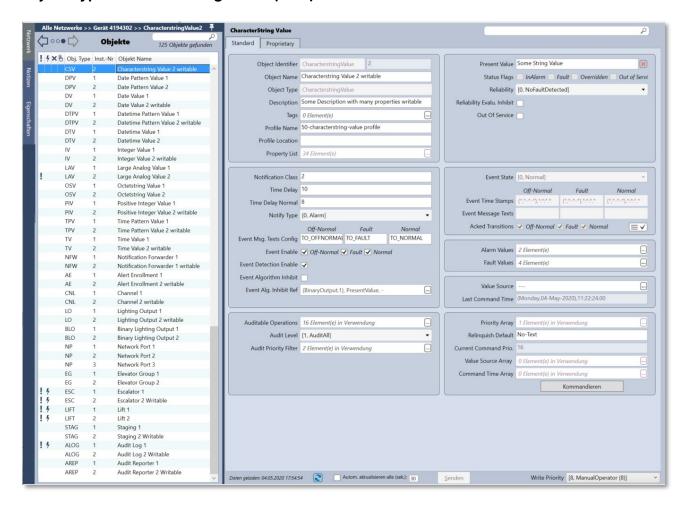


#### **Object Type Calendar (CAL)**



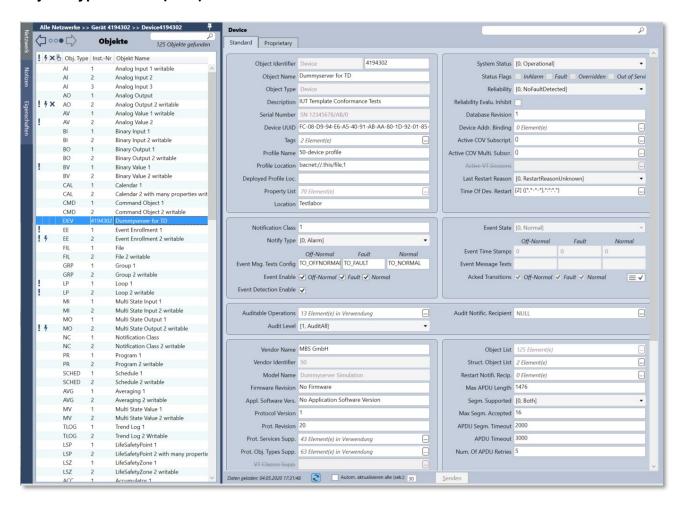


#### **Object Type Characterstring Value (CSV)**



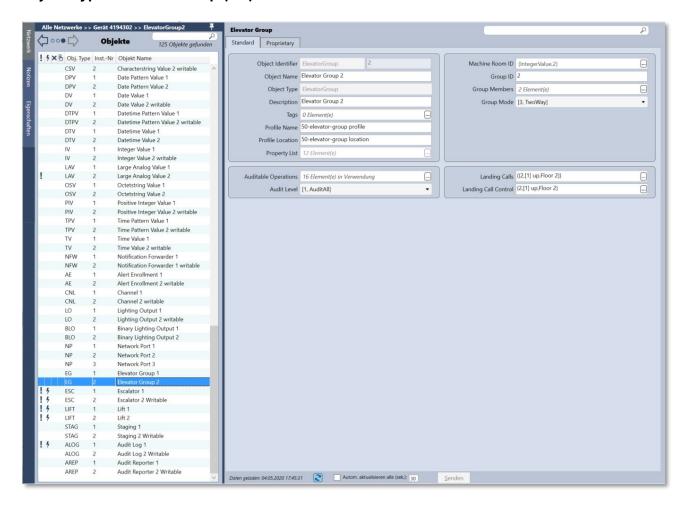


#### **Object Type Device (DEV)**



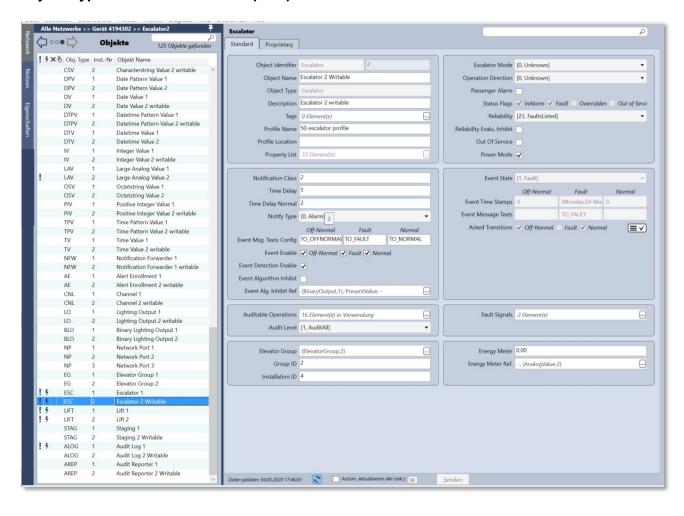


### **Object Type Elevator Group (EG)**



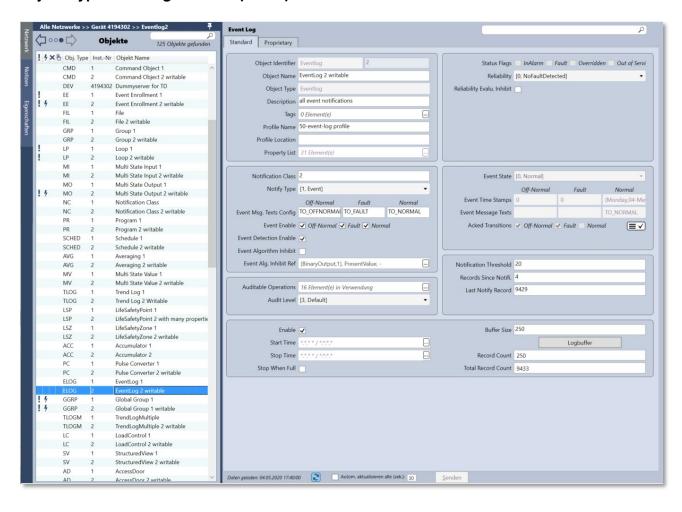


#### **Object Type Escalator writeable (ESC)**



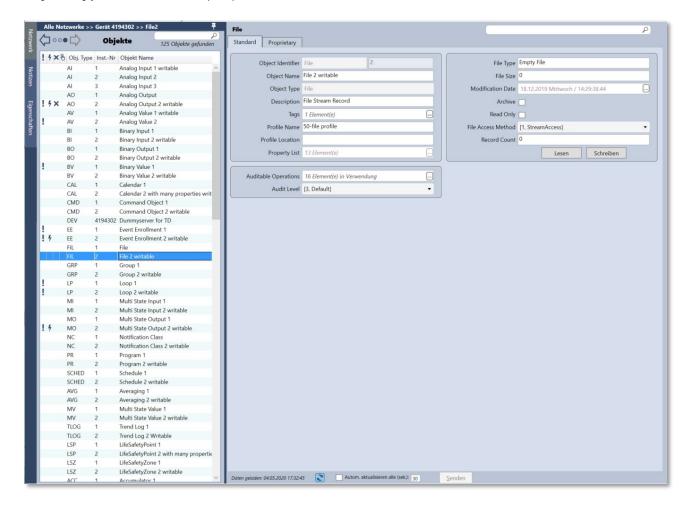


#### **Object Type Eventlog writable (ELOG)**



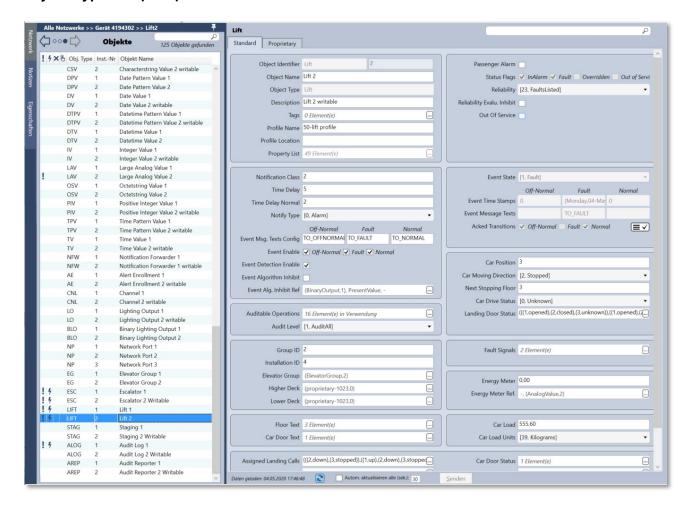


### **Object Type File writable (FIL)**



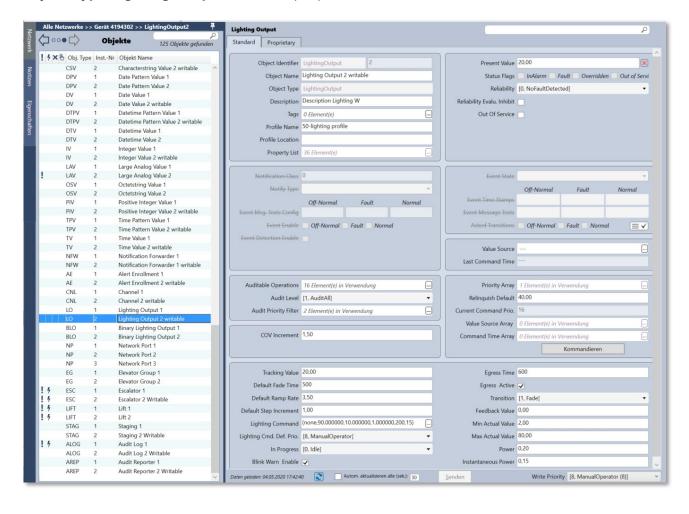


#### **Object Type Lift (LIFT)**



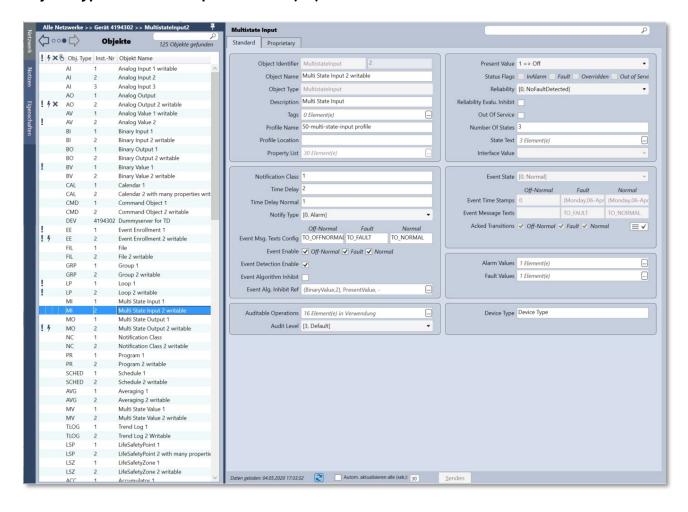


#### **Object Type Lighting Output writable (LO)**



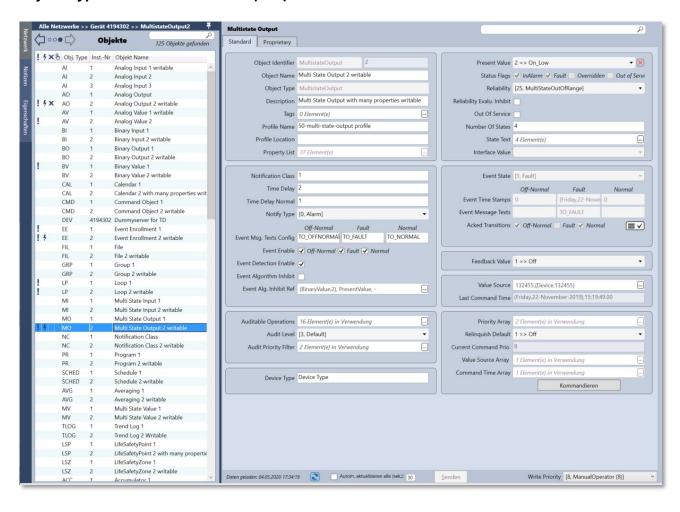


#### **Object Type Multistate Input writable (MI)**



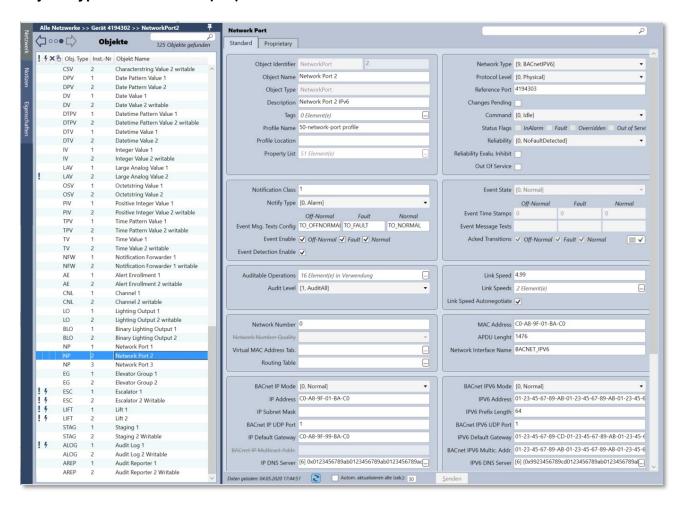


#### **Object Type Multi State writable (MO)**



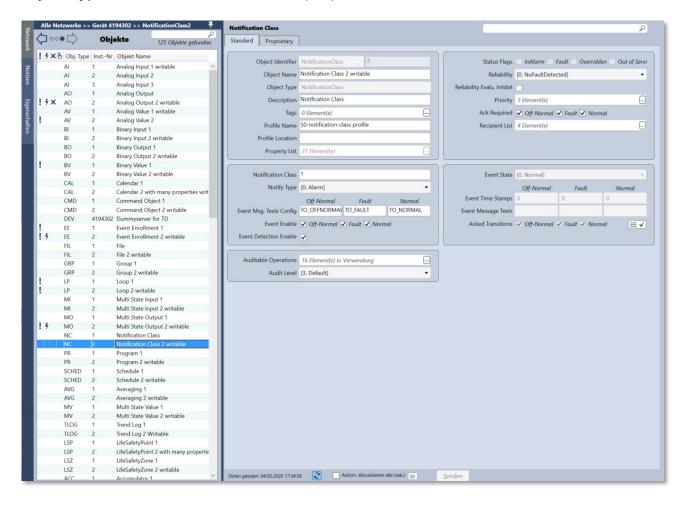


#### **Object Type Network Port (NP)**



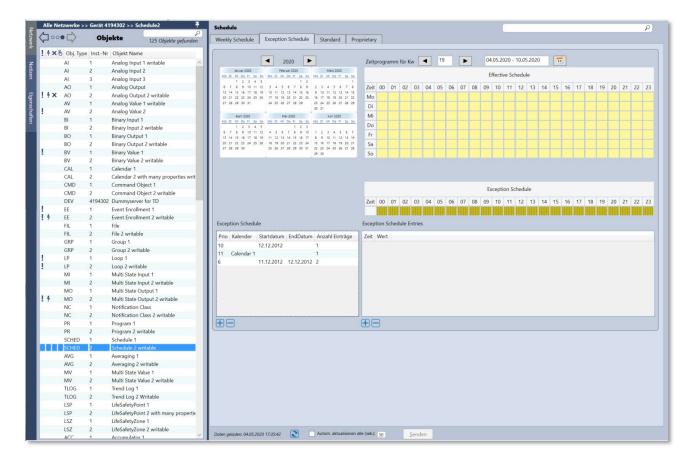


# **Object Type Notification Class writable (NC)**



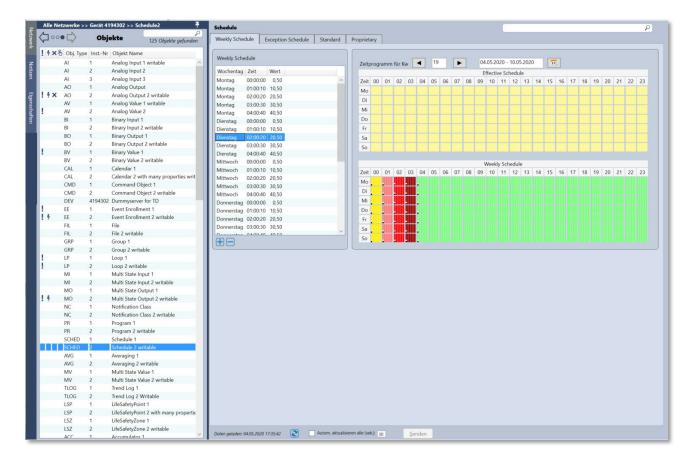


#### **Object Type Schedule writable (SCHED)**



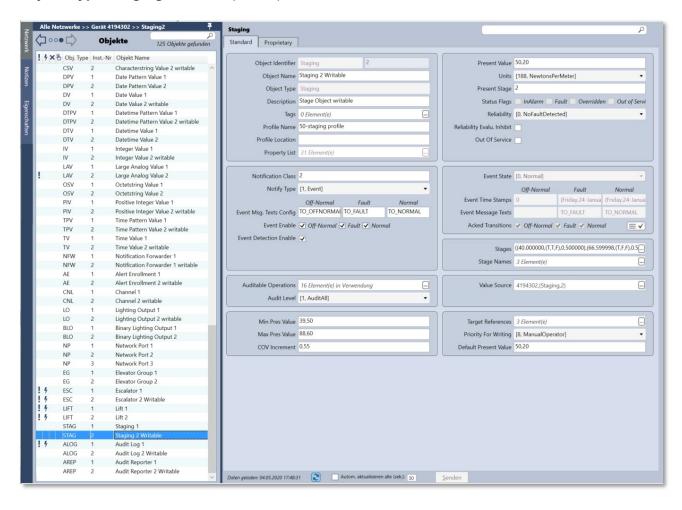


#### **Object Type Schedule writable (SCHED)**



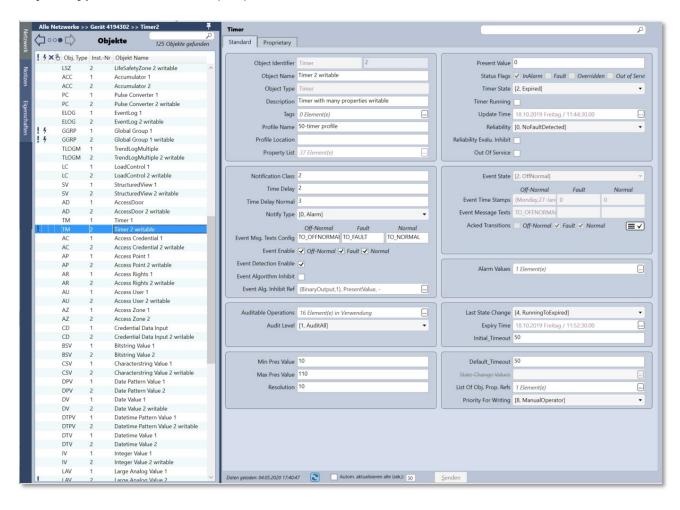


#### **Object Type Staging writable (STAG)**



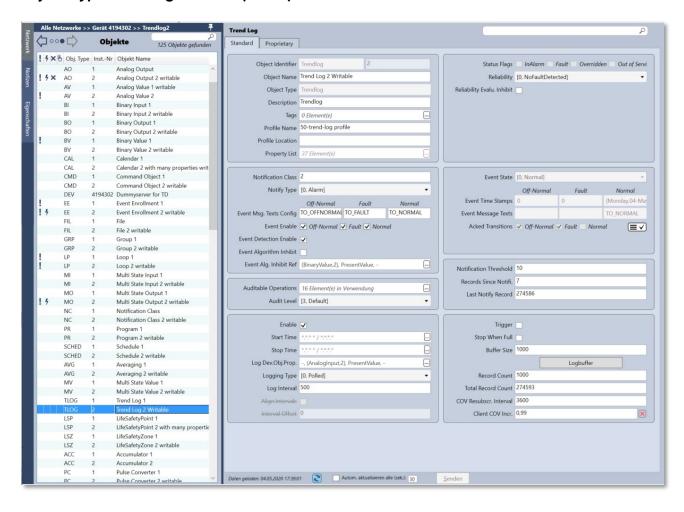


#### **Object Type Timer writable (TM)**





#### **Object Type Trendlog writable (TLOG)**





# 7 Product support

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Telephone	+49 21 51 72 94-0	
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	wiki.mbs-software.info	
Service times	Monday to Friday: 8:30 to 12:00 Uhr 13:00 to 17:00 Uhr	