

LiftApp ToolBox Software User Manual



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1 Versioning

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5 About this Manual

The LiftApp Toolbox User Manual is the official guide for the installation, updating and using this software. This volume contains general information on use and procedures for installation and usage, as well as helpful troubleshooting tips.

6 About the Examples

Except as noted, all examples refer to the Toolbox software featuring standard parameters. Real installations may be different and require more and specific handling.

7 Error Reports

In a complex technical manual, errors are often found after publication. When errors in this manual are found, they will be corrected in a subsequent version. Updates will be published via the company's homepage.

Bug reports can be sent to us by e-mail. Submitted reports must be clear, complete and concise. Reports must include an e-mail address and enough information, so that the bug can quickly be verified from the report. So please describe the bug and the steps that produce it.

8 Abstract

The THOR lift controllers are exciting high-performance microcomputers with superb user interface and multitasking capabilities. Their technologically advanced hardware is designed around a modern Embedded Linux[®] system and sophisticated custom hardware design. Thor's unique system software provides technicians with unparalleled power, flexibility and convenience in designing state-of-the-art lift applications.

This manual is the defined source of information on the functions and parameters in THOR's Toolbox software (LiftAppToolbox), a software companion to the lift controller.

Written by the technical experts of THOR Engineering, this manual is an essential reference tool for all lift engineers and technicians that want to take full advantage of THOR's impressive capabilities.

9 Abbreviations, signs & symbols



This icon is used to highlight information and notes.



This icon is used to accentuate warnings.



This icon is used to emphasis restrictions, limitations or faults.



This icon is used to highlight risks or threats.



This icon is used to highlight helpful hints.



This icon is used to highlight information about safety requirements given.

The used icons have been licensed from Axialis IconWorkshop™.

- In this manual the term 'lift' is used rather than 'elevator'.
- The term 'LiftApp' is used to refer to the lift controller application software.
- The term 'LiftApp Toolbox' or simplified 'Toolbox' is used to refer to the PC software, used as a companion to the CANopen 417 lift controller.
- The term 'OS' is used to refer to the Embedded Linux® operating system.
- The term 'THOR NX-T' or simply 'THOR' refers to the unit made from the reference hardware and reference software package.

10 Purpose and Intended Use

The LiftApp Toolbox is a companion software used together with the THOR NX-T lift controller and is specially made for lift/elevator applications only. To ensure safe operation, the device shall only be operated in accordance with the instructions given. You may use this software with other CANopen 417 products on your own risk.

11 Safety Information

Before commissioning, assembling and/or maintaining this unit, read the safety instructions carefully and pay extra attention to any warning label attached to the cabinet or units itself.

- Make sure that the warning labels are not hidden or damaged.
- Replace any missing or damaged warning label.

This software may only be installed, updated and operated in conjunction with this documentation. Commissioning, installing and operation of the software shall only be done by qualified employees, having an electrical engineering qualification.

Qualified employees, in the sense of the safety instructions in this documentation, are further persons, who have the authorization to put devices, systems and electrical circuits, according to the standards of safety engineering, into operation.



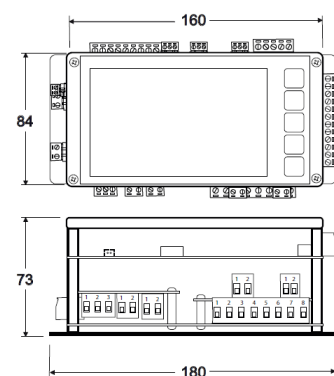
12 Hardware

Information about the THOR reference hardware can be found in SafeLine's THOR NX-T manual.

The Hardware Manual contains information about operating voltages, temperature ranges, terminals and mechanical parameters as well as some example circuit schematics and wiring diagrams.

<https://www.thor.engineering/documentation.html>

SafeLine **THOR NX-T** MANUAL



THOR v1.00 EN
07.2017

www.safeline-group.com



13 Installation of the Toolbox software

Two versions of this software package are available.

- An Installer version, that you can permanently install on your PC.
- A portable version, that you can run directly from your USB-stick. Just unpack the ZIP completely to your stick and double click the executable.

The Toolbox needs at least Windows®10 to run and operate. You may run it on older operating system versions on your own risk.



13.1 Installer Version

The Installer version is shipped in the form of a MSI (Microsoft® Installer) file. It is digitally signed in order to make it easy to check the authenticity of the file after downloading. In order to install the software to your PC, you will need administrative rights, allowing you to install software.

http://www.thor.engineering/updates/LiftApp_Toolbox_Setup.msi



13.2 Portable Version

The portable version is downloaded as a simple ZIP archive file. Unzip the complete archive to your desktop or USB mass storage. In that folder you will find a couple of sub-folder and one single executable file. That file has been digitally signed in order to check the file being authentic and unhampered. Double click that file in order to start the Toolbox. This also makes it easier for Virus Scanners to render the file to be harmless.

http://www.thor.engineering/updates/LiftAppToolBox_Portable.zip



14 Updating the Software

Usually available update for the portable and the Installer Versions are not automatically downloaded. Instead the user is informed automatically that an update is available and can decide on his own, when he wants to install the software.

To check for updates, the Toolbox will after startup connect to the update server. This might fail in company environment, if a Firewall, Proxy Server or other security software will block this attempt to connect to an external server, due to safety or company policies.

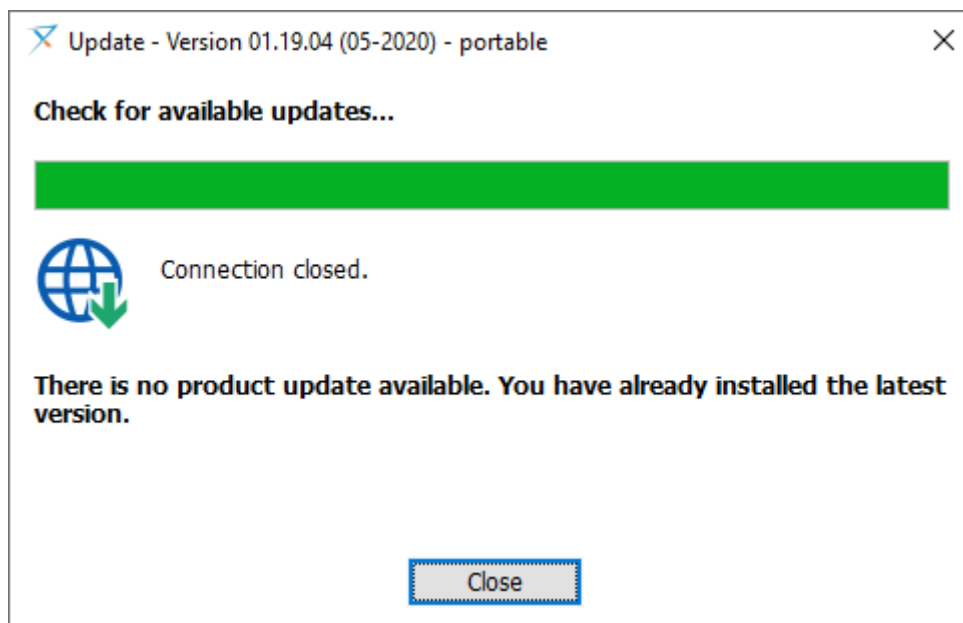
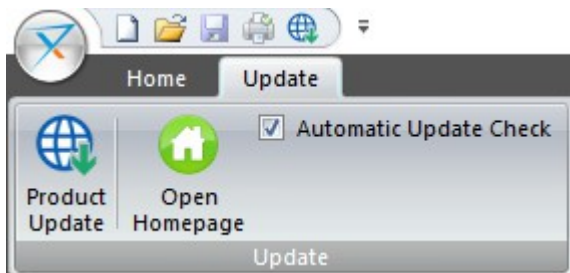


Figure 1: Checking for updates

In that case ask your network administration for adding a firewall exception or you may check manually for updates then. You can at any time also download the latest version manually.

<https://www.thor.engineering/downloads.html>



15 Buying and installing the PC CAN-USB-Adapter

The Toolbox is usually used together with a USB-CAN-Adapter in order to connect the Laptop to the lift's CANopen bus system. There are currently three USB-Adapter brands supported. When ordering them, please double check to order the right version, as they differ in the required software application interface (API).



We highly recommend to use only galvanically isolated units, in order to protect the lift and your laptop. Do **not** use non-galvanic isolated units.

IXXAT (HMS)

Name	Ordering Number
USB-to-CAN V2 Compact SUB-D9	1.01.0281.12001
USB-to-CAN V2 Compact RJ-45	1.01.0281.12002

IXXAT VCI Driver Package Download

https://www.ixxat.com/docs/librariesprovider8/ixxat-english-new/pc-can-interfaces/windows-drivers/vci-v4-windows-10-8-7-xp-sp2.zip?sfvrsn=9ceb48d7_10

PEAK

Name	Ordering Number
PCAN-USB (isolated)	IPEH-002022

PEAK Driver Package Download

<https://www.peak-system.com/quick/DrvSetup>

SYSTEC

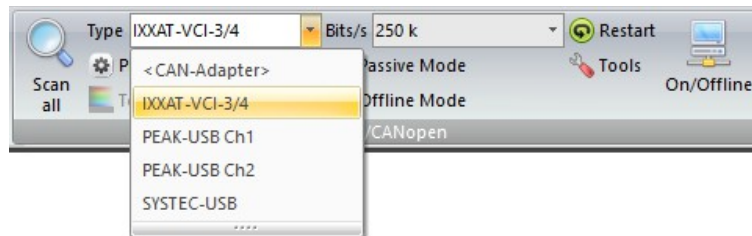
Name	Ordering Number
sysWORXX USB-CANmodul1	3204001-01

SYSTEC Driver Package Download

https://www.systec-electronic.com/fileadmin/Redakteur/Unternehmen/Support/Downloadbereich/Treiber/SO-387_V6.05.ZIP

16 Setting up the PC CAN-USB-Adapter

Once you have bought a USB-CAN-Adapter and have installed the driver and software package that comes with the unit, you have to tell the Toolbox which adapter shall be used.



Depending on which adapter brand you use a dialog might pop-up, made by the vendor/manufacturer of the adapter, where you have to select further properties, options or simply have to click on the unit you want to use – even if you may have just installed one single unit.

16.1 Bit-Rate

The bit-rate used for the THOR-NXT units is 250 kBit/s. This might be different for other lift controller brands.

16.2 Passive Mode

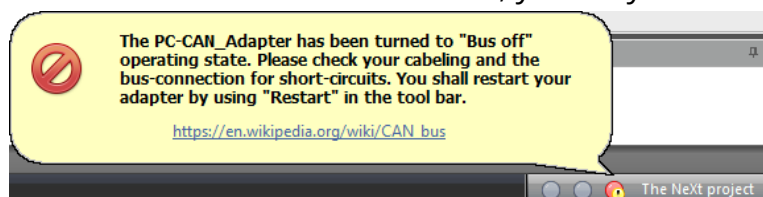
The passive mode is rarely used and will render the CAN adapter to be a 'listen only' device. Ensure this parameter to be **off** for normal operation.

16.3 Offline Mode

The offline mode is used, when you want to change CANopen objects just locally in your work file, but not on the real hardware. Ensure this parameter to be off for normal operation.

16.4 Restarting the Adapter

If the CAN adapter has run into a 'Error Passive' or 'Bus Off' situation, you may have to restart it manually. You will usually be notified about this with a balloon like tool tip.

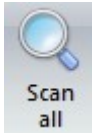




17 Scan a CANopen lift network

When being connected to a CANopen lift installation, pressing the dedicated symbol, will start scanning the network.

There are two ways of starting a scan...



Using this button will scan all nodes, that can be found at the CANbus, including nodes having the heartbeat turned off.



To speed up the process, you may consider using the dedicated scan-icon at the node-list bar. This will engage scanning the network for nodes, but will limit the scan to nodes, that are 'visible', having their heartbeat turned on. The heartbeat protocol is mandatory for CANopen Lift applications, so you usually might want to use this button for a network scan.

CANopen	
Node	State (NMT)
1	NMT state operational Online: Thor@NX-T2
12	NMT state operational Online: LXC



Object Dictionary of Node 1			
Device NX-T2 Lift Controller made by Thor Engineering GmbH mapped featuring the EDS-File 'NX-T2.ed5'			
→ Write objects → Store parameters → Reset node → Select EDS			
Some objects are protected against unintended write access. Access may require a password input.			
Object/Name	Multiplexer	Object-/Datatype	Value
Device Type	0x1000	VAR/UNSIGNED32	417 (0x000001A1)
Error Register	0x1001	VAR/UNSIGNED8	0
Manufacturer Status Register	0x1002	VAR/UNSIGNED32	0
Pre-defined Error Field	0x1003:00	ARRAY/UNSIGNED8	1
Error #1	0x1003:01	ARRAY/UNSIGNED32	0
Manufacturer Device Name	0x1008	VAR/VISIBLE STRING	Thor@NX-T2
Manufacturer Hardware Version	0x1009	VAR/VISIBLE STRING	NX-T2
Manufacturer Software Version	0x100A	VAR/VISIBLE STRING	01.21.05

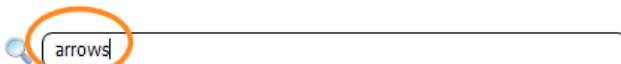
Once you have scanned a node, you can browse through the parameters by scrolling the list. To make it easier to find a particular one, you may want to use the 'Search' function.



Object Dictionary of Node 19

Device FDTx Display made by SafeLine Sweden AB mapped featuring the EDS-File 'FDTx.ed5' Version 1, Serial Number 11.

→ Write objects → Store parameters → Reset node → Select EDS



Object/Name	Multiplexer	Object-/Datatype	Value	Comment
▶ Arrow parameters	0x4406:00	RECORD/UNSIGNED8	3	
Use standard arrows	0x4406:01	RECORD/UNSIGNED8	1 (0x01)	
Arrow UP color	0x4406:02	RECORD/UNSIGNED32	16777215 (0x00FFFFFF)	
Arrow DOWN color	0x4406:03	RECORD/UNSIGNED32	16777215 (0x00FFFFFF)	



If the parameters (objects) have been marked with a 'pen' icon, they can be modified.

Depending on the type of object, the Toolbox might present dedicated dialogues in order to change the value more easily.

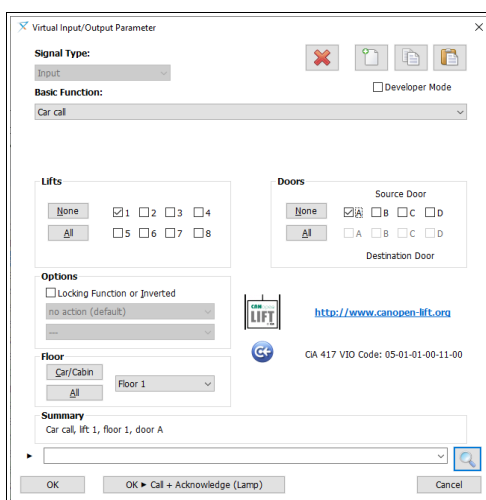
In this example below some 'bool' objects of a Leo5 unit are presented as 'switches'.

Object/Name	Multiplexer	Object-/Datatype	Value
► Car display settings	0x4415:00	RECORD/UNSIGNED8	9
· Show fixed icons	0x4415:01	RECORD/BOOLEAN	<input checked="" type="checkbox"/> TRUE
· Show fixed text	0x4415:02	RECORD/BOOLEAN	<input checked="" type="checkbox"/> TRUE
· Show VIO icons	0x4415:03	RECORD/BOOLEAN	<input checked="" type="checkbox"/> TRUE
· Show logo	0x4415:04	RECORD/BOOLEAN	<input checked="" type="checkbox"/> TRUE
· Show direction arrows	0x4415:05	RECORD/BOOLEAN	<input checked="" type="checkbox"/> TRUE
· Show door animation	0x4415:06	RECORD/BOOLEAN	<input checked="" type="checkbox"/> TRUE
· Show arrows on top	0x4415:07	RECORD/BOOLEAN	<input type="checkbox"/> FALSE
· Show next stop	0x4415:08	RECORD/BOOLEAN	<input type="checkbox"/> FALSE
· Show lift fault code	0x4415:09	RECORD/BOOLEAN	<input checked="" type="checkbox"/> TRUE

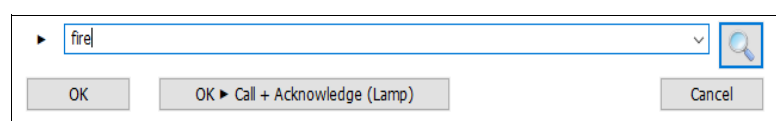
For virtual inputs or output functions, a dedicated dialogue is available, making it easier to change them. In the comment column, you will find a summary, describing the input or output function in detail.

Object/Name	Multiplexer	Object-/Datatype	Value	Comment
► Virtual input	0x6100:00	ARRAY/UNSIGNED8	16	
· Virtual input - #1 [IO1]	0x6100:01	ARRAY/UNSIGNED48	05 01 01 00 11 00	Car call, lift 1, floor 1, door A
· Virtual input - #2 [IO2]	0x6100:02	ARRAY/UNSIGNED48	05 02 01 00 11 00	Car call, lift 1, floor 2, door A
· Virtual input - #3 [IO3]	0x6100:03	ARRAY/UNSIGNED48	05 03 01 00 01 00	Car call, lift 1, floor 3, door A
· Virtual input - #4 [IO4]	0x6100:04	ARRAY/UNSIGNED48	05 04 01 00 01 00	Car call, lift 1, floor 4, door A
· Virtual input - #5 [IO5]	0x6100:05	ARRAY/UNSIGNED48	05 05 01 00 01 00	Car call, lift 1, floor 5, door A
· Virtual input - #6 [IO6]	0x6100:06	ARRAY/UNSIGNED48	05 06 01 00 01 00	Car call, lift 1, floor 6, door A
· Virtual input - #7 [IO7]	0x6100:07	ARRAY/UNSIGNED48	05 07 01 00 01 00	Car call, lift 1, floor 7, door A
· Virtual input - #8 [IO8]	0x6100:08	ARRAY/UNSIGNED48	05 08 01 00 11 00	Car call, lift 1, floor 8, door A
· Virtual input - #9 [IO9]	0x6100:09	ARRAY/UNSIGNED48	00 00 02 00 00 00	off
· Virtual input - #10 [IO10]	0x6100:0A	ARRAY/UNSIGNED48	00 00 02 00 00 00	off
· Virtual input - #11 [IO11]	0x6100:0B	ARRAY/UNSIGNED48	00 00 02 00 00 00	off
· Virtual input - #12 [IO12]	0x6100:0C	ARRAY/UNSIGNED48	00 00 00 00 00 00	off
· Virtual input - #13 [IO13]	0x6100:0D	ARRAY/UNSIGNED48	00 00 02 00 00 00	off
· Virtual input - #14 [IO14]	0x6100:0E	ARRAY/UNSIGNED48	00 00 02 00 00 00	off
· Virtual input - #15 [IO15]	0x6100:0F	ARRAY/UNSIGNED48	0E 0F 01 FF FF 00	VIP service, lift 1, all floors, all doors
· Virtual input - #16	0x6100:10	ARRAY/UNSIGNED48	00 00 02 00 00 00	off

In order to change an input or output, click on the 'gear' icon. A dialogue will open.



This dialogue provides a 'Search' function on the bottom of the dialog, making it easier to find the input or output function, you are searching for. If parameterize a call function on a unit that have combined input+output terminals, so called 'Call Terminals', you can alter the call input and lamp output in one go, clicking on the dedicated button.



17.1 Node-Id's in the CANbus system

In order to change the node-id of a given node, double check that the new node-id does not already exist. The Toolbox will check as well, but simply ensure not to create a node-id conflict.

17.1.1 Node-Id Recommendation for CAN1

There is actually a schema on how the node-id should be setup. It is just a recommendation, but helps making life easier. There is a list for CAN1 and CAN2.

CAN1 – the CAN that interconnects the car/inverter/encoder/load measuring

1	Lift Controller
2	Drive Unit (Inverter/Hydraulic Block)
3	Reserved for further use.
4	Position Encoder (Rotary or Linearly)
5	Reserved for a secondary position encoder – not used yet.
6	Reserved for further use.
7	Door Unit, door A
8	Door Unit, door B
9	Door Unit, door C
10	Communication gateway of any sort
11	Reserved for further use.
12	Car Top IO/O panel, for example in an inspection box.
13	Load Measuring device
14	Energy Measuring device
15	Emergency Phone unit
16..20	Car I/O panel for calls or other signals
21...101	Reserved for further use.
102	Regenerative feedback unit
103	Generic Monitoring or Supervision unit of some sort.
104	Smart Power supply or Energy Storage system
105...119	Free for generic purpose usage.

120...124	Reserved for further use.
125	This node-Id is usually used for I/O units being on stock and in need of a proper node-id. So don't use this one in a real installation.
126	CANopen Bootloader, used on a firmware update. Keep that number unused on real lift installations.
127	CANopen Diagnostics Tool. Keep that number unused on real lift installations.

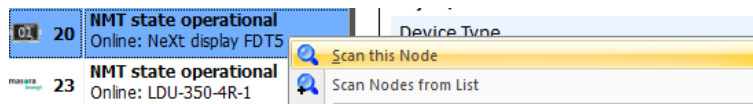
CAN2 – the CAN that interconnects the landing calls and floor displays and other lift controller together to a lift team or lift group.

1...8	Lift Controller Team 1...8
9...16	Data remote transmission units
17...20	Reserved for further use.
21...84	Floor I/O panel units and displays.
85...101	Free for generic purpose usage.
102	Regenerative feedback unit.
103	Monitoring unit.
104	Smart Power supply or Energy Storage system
105...119	Free for generic purpose usage.
120...124	Reserved for further use.
125	This node-Id is usually used for I/O units being on stock and in need of a proper node-id. So don't use this one in a real installation.
126	CANopen Bootloader, used on a firmware update. Keep that number unused on real lift installations.
127	CANopen Diagnostics Tool. Keep that number unused on real lift installations.

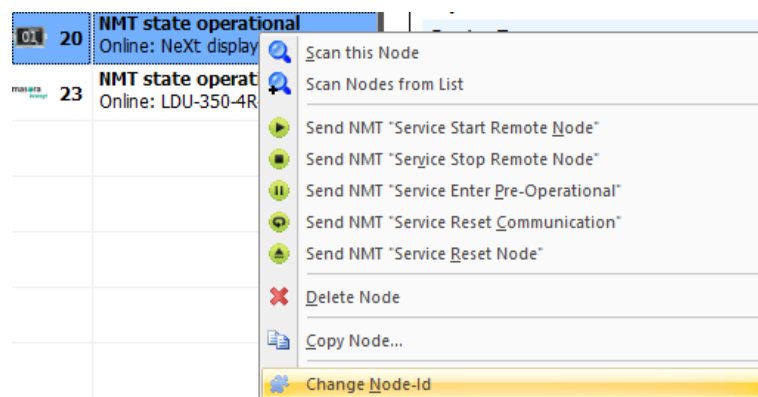
17.2 Changing the Node-Id of an Unit

In order to change a node-id....

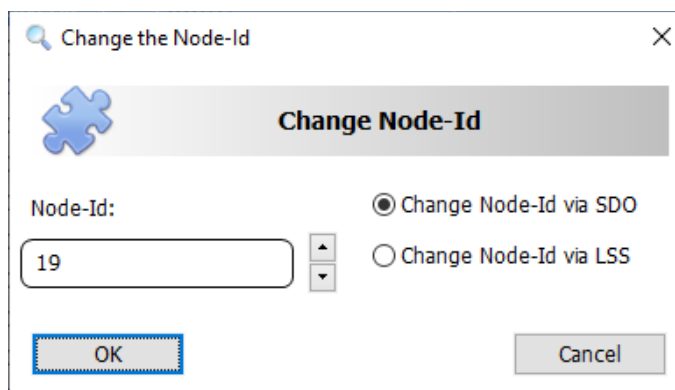
- Scan the given node first.



- Select 'Change Node-ID'.



- A new dialogue will pop open.



This dialogue will let you adjust the node-id and also select the method of how the node-id shall be altered. While some units support LSS most will use SDO...

- LSS (Layer Setting Services) *[some units will support this]*
- SDO (Service Data Objects) *[many units do support this]*

You may look that up in the manufacturer manual or simply try it out.



18 Electronic Data Sheets / EDS Files

When scanning the network, the Toolbox will try to match the node found at the bus with an electronic data sheet file. For doing this, the Toolbox will read the objects 0x1018 '*Identity*' sub index 1 '*Vendor-Id*' and sub index 2 '*Product Code*' and match that against the [Device Info] field of the EDS files, that the Toolbox had been shipped with.

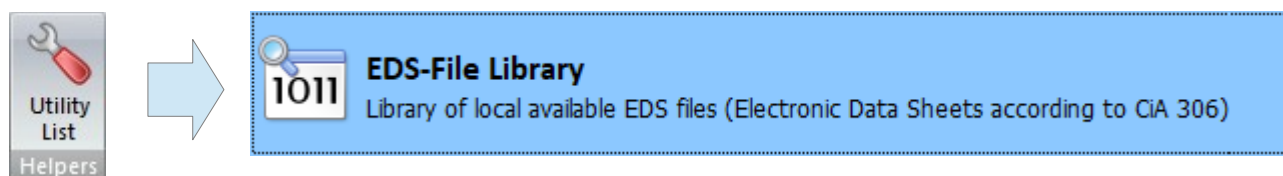
Node at the bus

► Identity Object	0x1018:00	RECORD/UNSIGNED8	4
· Vendor-Id	0x1018:01	RECORD/IDENTITY	0x000002B2
· Product Code	0x1018:02	RECORD/IDENTITY	0x00000010

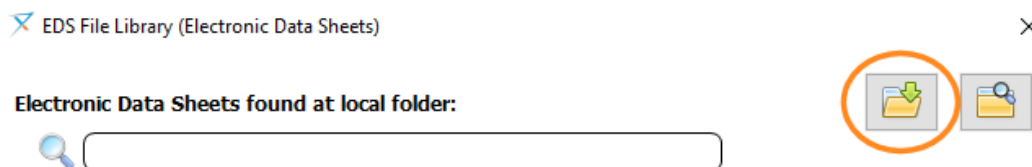
EDS-file on the laptop

```
[DeviceInfo]
VendorName=Safeline Sweden AB
VendorNumber=0x2B2
ProductName=LXC
ProductNumber=0x00000010
```

You can find all pre-installed EDS-files in the EDS-file library. You can open that collection of files, using the 'Utility List button' and then click on 'EDS-Library'.



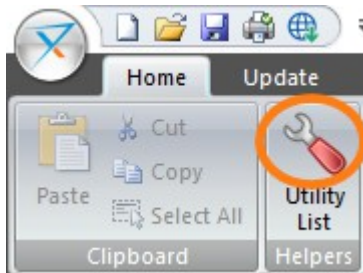
In the 'EDS Library Dialogue' you can also import other or newer EDS-files from the manufacturer of choice.



18.1 Adding and updating EDS-Files

You can update or add new EDS-files, simply by importing them to the EDS-Library. The EDS-library is basically just a folder in the Toolbox installation, holding all the EDS files. EDS-files are text based file, using Microsoft® Ini-File format.

You open the Library by clicking the '*Utility List*' button and then select 'EDS Library'.



EDS-File Library

Library of local available EDS files (Electronic Data Sheets according to CiA 306)



Figure 2: EDS Library View



On top of the EDS-Library dialogue you will find a '*Search*' field, making it easier to find the right data sheet.

19 CANopen-Monitor

The CANopen monitor is a logger for messages sent through the CANopen bus system. It presents the known messages in clear readable text, making it easier to see what inputs, outputs, status word and control words are transmitted over the bus.

```
Door command, close with limit force, Motion detector disabled, Finger protector enabled, Door lock disabled
Door command, close with limit force, Motion detector disabled, Finger protector enabled, Door lock disabled
Door open request acknowledge, cabin/car, door A, off <0E-09-01-00-01-00>
Door open request acknowledge, all floors, door A, off <0E-09-01-FF-01-00>
Door closing buzzer signal, cabin/car, door A-B-C-D, off <B2-1B-01-00-0F-00>
Door closing buzzer signal, all floors, door A-B-C-D, off <B2-1B-01-FF-0F-00>
Door is moving, cabin/car, door A, off <B2-01-01-00-01-00>
Door is moving, all floors, door A, off <B2-01-01-FF-01-00>
Car door fully closed, cabin/car, door A, on <B2-10-01-00-01-01>
Car door fully closed, floor 2, door A, on <B2-10-01-02-01-01>
Door status, closed without torque, door A, word 0x1001_
```

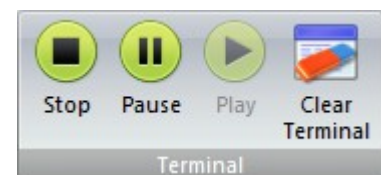
Figure 3: CANopen Monitor (Logger)

The time stamp that introduces each message, contains the PC system time and (in square brackets) the time stamp of the USB-CAN adapter which is rendered to be far more accurate.

```
29.05.2020/08:15:30.004[RX11075]
29.05.2020/08:15:30.004[RX11075]
29.05.2020/08:15:30.004[RX11075]
29.05.2020/08:15:30.004[RX11076]
29.05.2020/08:15:30.004[RX11076]
29.05.2020/08:15:30.023[RX11095]
29.05.2020/08:15:30.102[RX11175]
29.05.2020/08:15:30.108[RX11175]
29.05.2020/08:15:30.202[RX11275]
29.05.2020/08:15:30.208[RX11275]
29.05.2020/08:15:30.484[RX11555]
```

The 'tick count' of the USB-CAN-Adapter, that is shown in square brackets, is in milliseconds and will wrap over at some point.

The logger can be paused at any time in order to be able to scroll and copy text to the clipboard.



19.1 Filtering

By default the filters had been set for usual diagnostics work on a lift. But you might want to turn off components, like the door status and control word or the drive or load measuring units. Or you might want to do it the other way around and only check for messages from a sub-system of the lift.

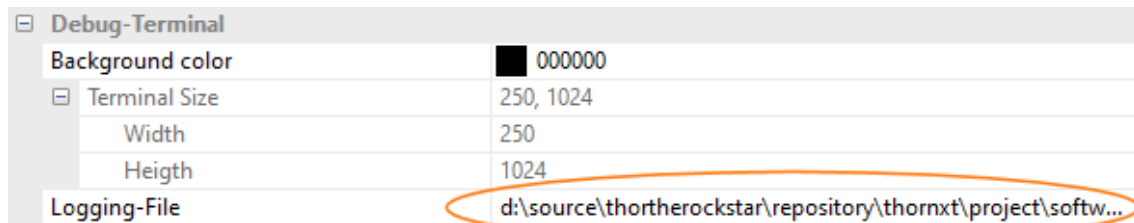


Logging the complete SDO (Service Data Objects) may slow down the Toolbox. So you may want to activate that kind of logging, only when deep searching for an issue, usually together with an engineer of the lift controller manufacturer or the manufacturer of some components, like the door machine or the drive unit.

CANopen Event Filters	
Inputs (Lift)	
Show lift input events	True
Outputs (Lift)	
Show lift output events	True
Calls (Lift)	
Show lift calls	True
Positioning Unit (Absolute Encoder)	
Show position values	False
Show changes only	True
Position Supervisor Unit (PSU)	
Show position supervisor values	True
Show changes only	True

19.2 Logging into a text file

The content of the CANopen-Monitor is logged into a file in the background. The file in question can be selected in the property window on the right side.



The maximum file size is 250 MB. If the file has reached that size, it will be renamed to a '.bak' file and a new text file will be created.

20 Switchboard - Virtual inputs and outputs

Often it can be useful to be able to setup some output or input functions virtually, without using real hardware. To do that, you might want to use the 'Switchboard' build-into the Toolbox application.

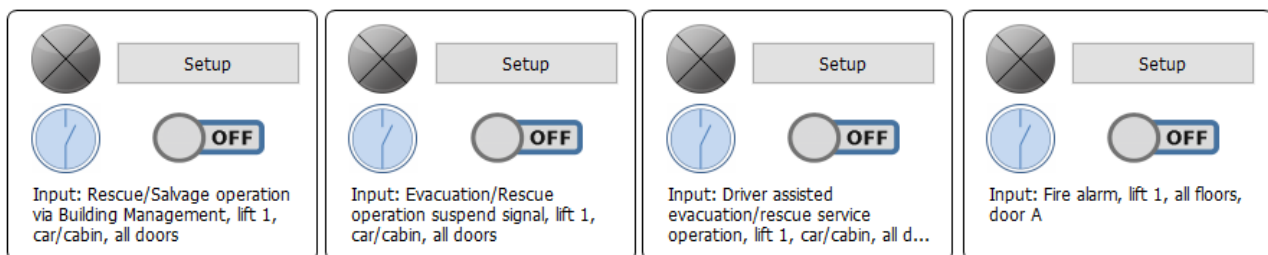


Figure 4: CANopen Switchboard

Once you have setup a input & output set, you might want to save that for later usage. Actually The Toolbox is always automatically saving and loading your last set of inputs & outputs, but you might find it useful to store a 'Scenery' for a specific purpose as an file anyway.

Node-Id [1...127]:

Setup the type and function of the virtual terminal and use the 'big switch' to turn it on or off. Inputs will be turned on/off by a mouse click but if rendered to be an output the switch will reflect the current output's state.

Signal Type:

Basic Function:

Status/controller signals

Sub Function:

Rescue/Salvage operation via Building Management (BMS)

21 Debug-Terminal

The debug terminal is usually used by developers in order to connect to their units via a serial debug adapter or a network connection. It is basically a fancy VT52 terminal that support ANSI-control sequences for color and font attributes as well.

```
>>> - Thor's command line interface - <<<

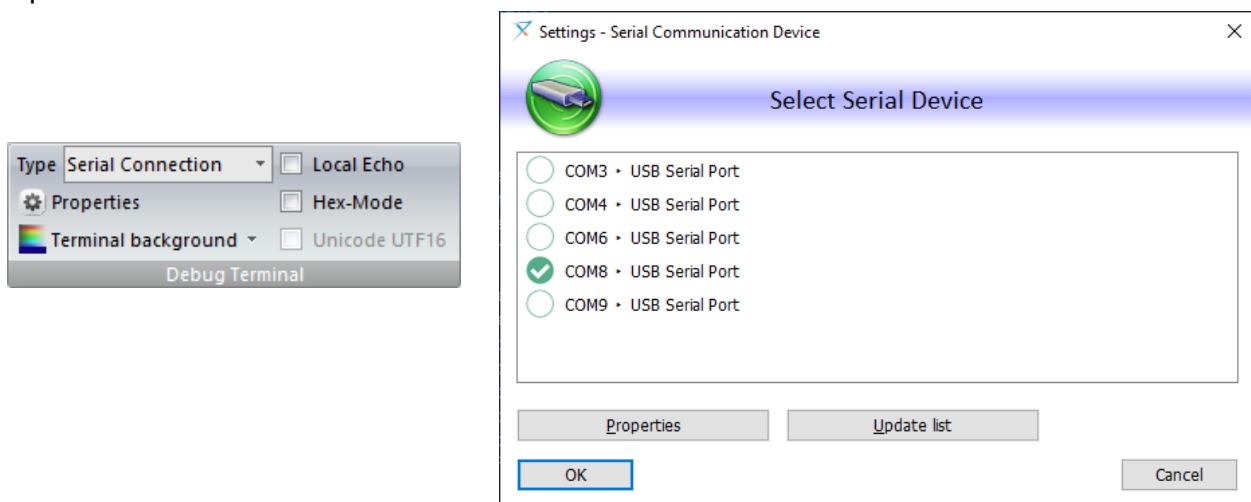
h          Print this help page
v          Print app version information
u          Print application resource usage
w          Print watchdog information table
lh         Print System Health
lp         Print lift pilot states
ld         Print lift doors states
lv         Print lift drives states
lt         Print lift team states
lz         Print Safety Circuit (SMZ) states
lw         Print Pawl Device states
y          Cause self test of the Safety Circuit (SMZ)
k          Re-initialization of the display/screen
vb         Turn verbose on/off
g          Calculate SHA256 value of the application binary
rr         Reset lift application
is/c/i [mod func (doors)] Set/Clear/Impuls input by module and function.
cs/cg [idx:sub (value)]  Set/Get a value from an object dictionary item.
sp/sj[file name]         Take a screen shot and save it as PNG/JPG file.
xx          Exit lift application

- All numerical values have to be entered hexadecimal without the '0x' prefix.
- Use the '@' character as prefix to any command.

# _
```

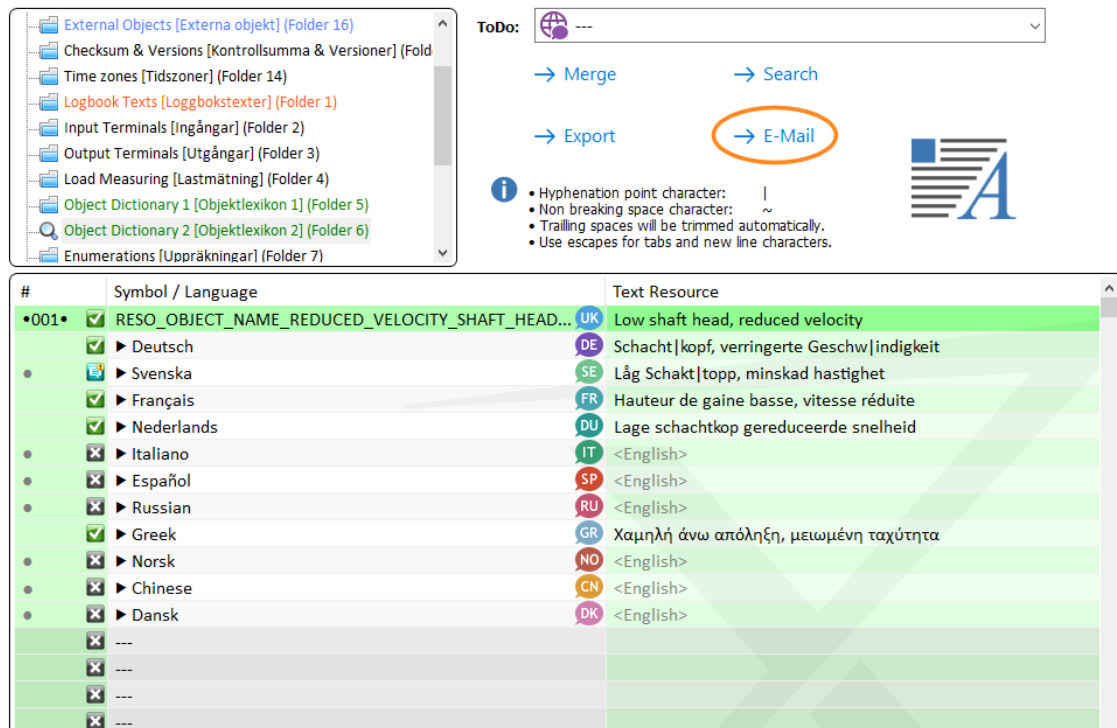
Figure 5: Debug Terminal

So, unless you are developing your very own CANopen lift component, you will usually skip on this one.

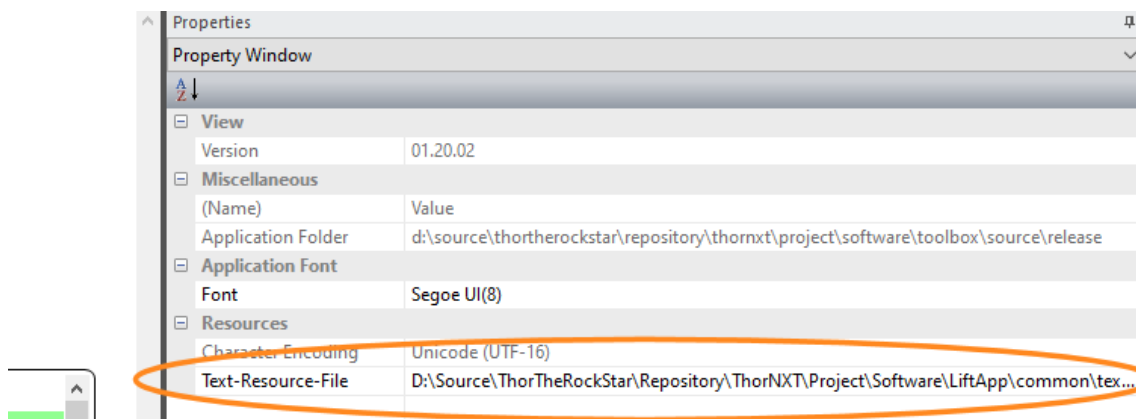


22 Text Resources

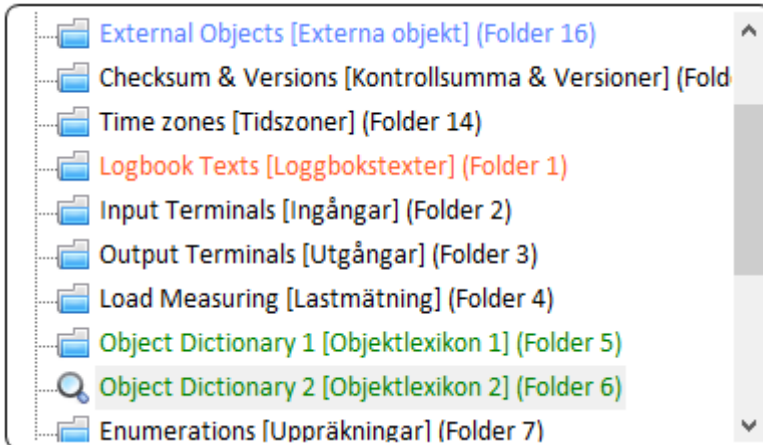
This might be an interesting page for you. This contains actually all the text resource blocks used to make THOR's user interface. So if you want to help translating it to your own language or want to fix mistakes in the already translated text resources, feel free to change texts and then e-mail the result to us.



You might use the build-in E-Mail function which should open your favorite e-mail client on your computer, like Thunderbird® or Outlook®. That might not work for several reasons. So, as an alternative, you might simply want to drop as the file via e-mail or Dropbox® or other File Sharing product. You will find the text resource file location right here.



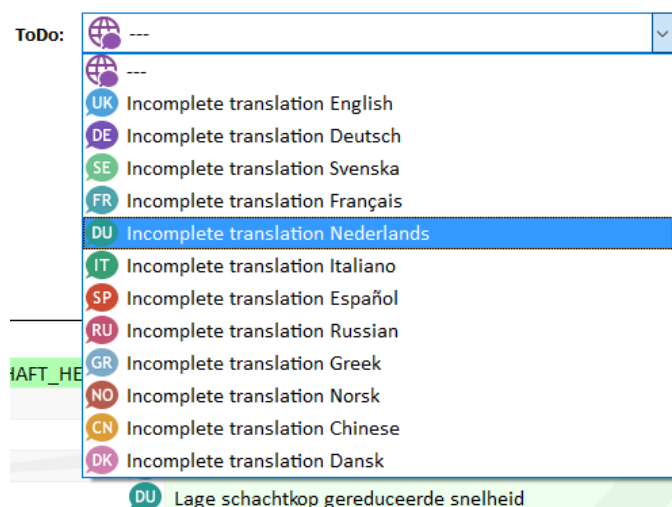
i On the top left you will find the text groups. Some text resources, like logbook (history) items have to be in the dedicated group and are not allowed to be somewhere else.



On the right next to it, you find the 'TODO' filter. As THOR's UI is made from such a large amount of text blocks, it is quite helpful, to actually use the filter in order to hide all text blocks, that are already translated.

By selecting your language of choice, all text blocks will be hidden, that have been set to 'green' in the selected language.

#	Symbol / Language
•001•	✓ REO_OBJECT
	✓ ▶ Deutsch
•	▶ Svenska
	✓ ▶ Français
	✓ ▶ Nederlands
•	✗ ▶ Italiano
•	✗ ▶ Español
•	✗ ▶ Russian
	✓ ▶ Greek
•	✗ ▶ Norsk
•	✗ ▶ Chinese
•	✗ ▶ Dansk



Which brings us to the meaning of those symbols. If you have translated an item, you usually simply set it to 'green', indicating that it is an approved translation.

To help with the translation, the Toolbox supports Google® and DeepL® translation services. So, when double-clicking an text line, you might want to click on 'Web Translate' and then fix the translation in order to be 'native'.

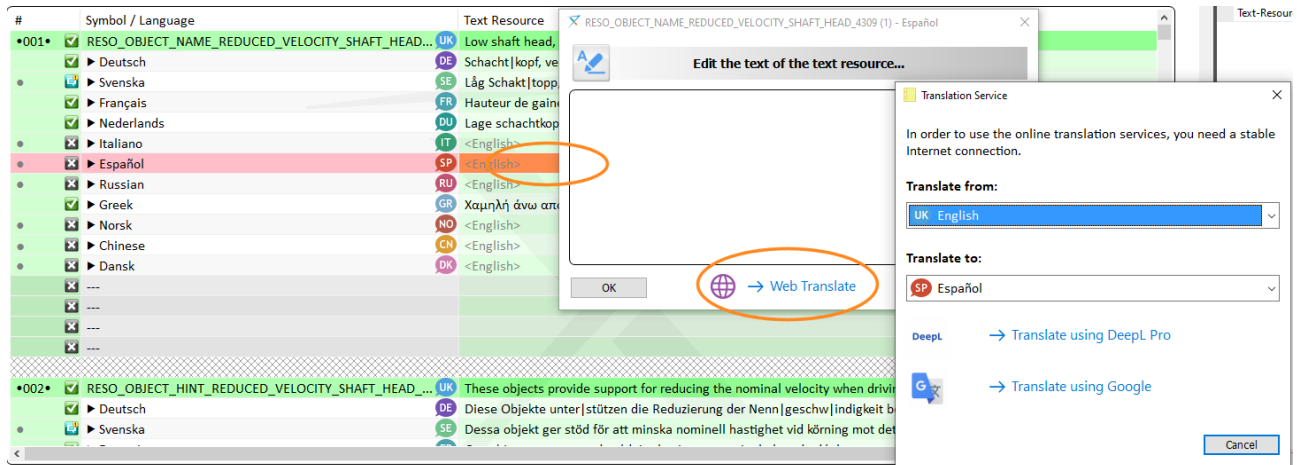
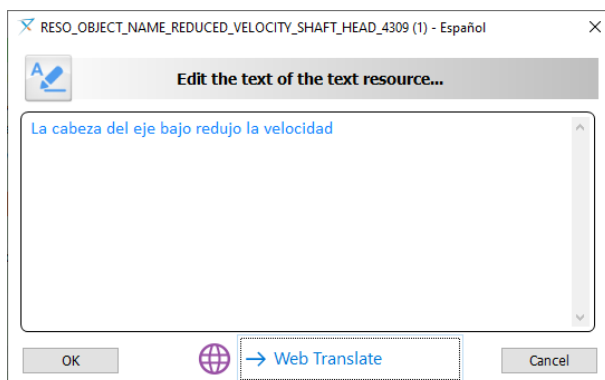


Figure 6: Text Resource View

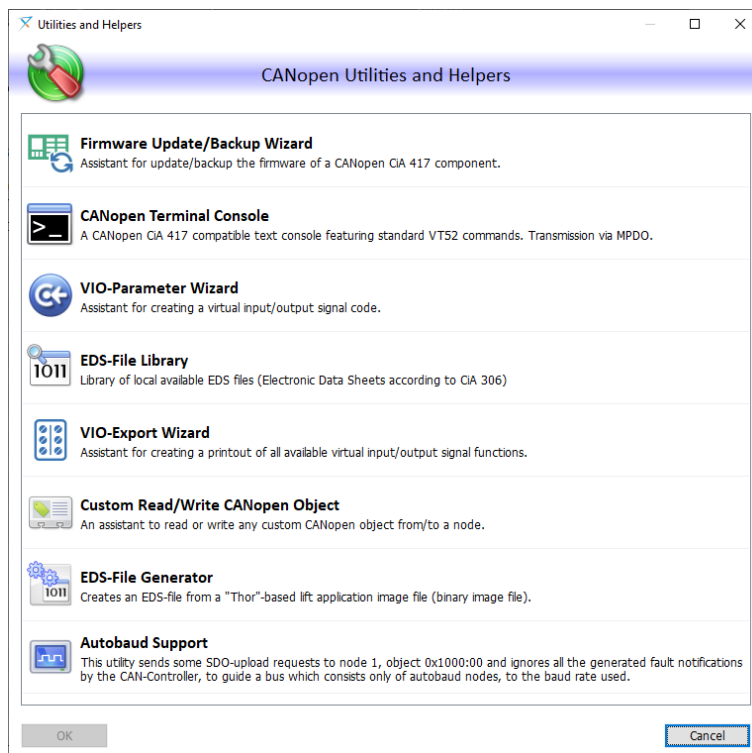
The machine translated result is shown blue tinted.



You might want to fix that to 'real native and correct text' as the KI based translation is often getting the context wrong or does not use the right technical terms.

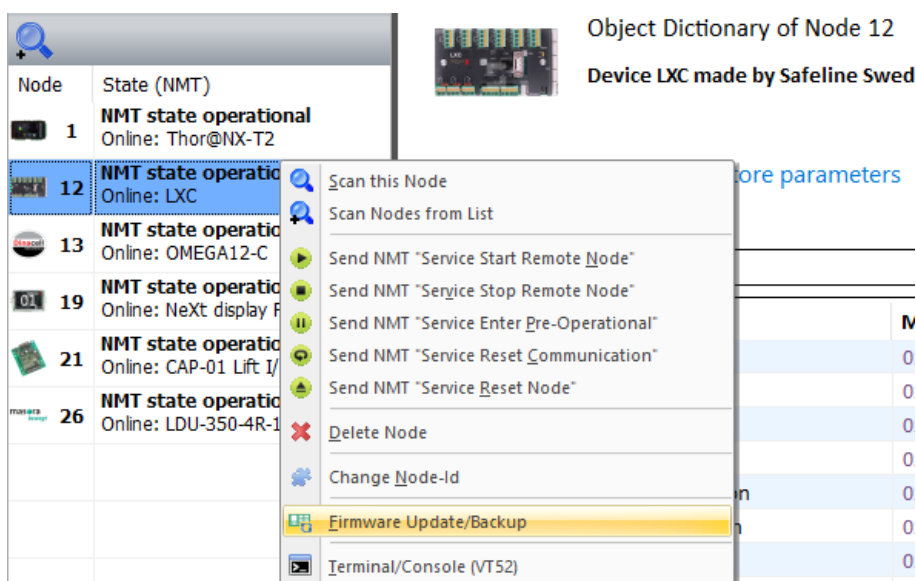
23 The Utility List

This is actually a dialogue presenting some handy utilities, that can be used in the field. You will find a CANopen Text Console here or a CANopen Firmware Update tool.



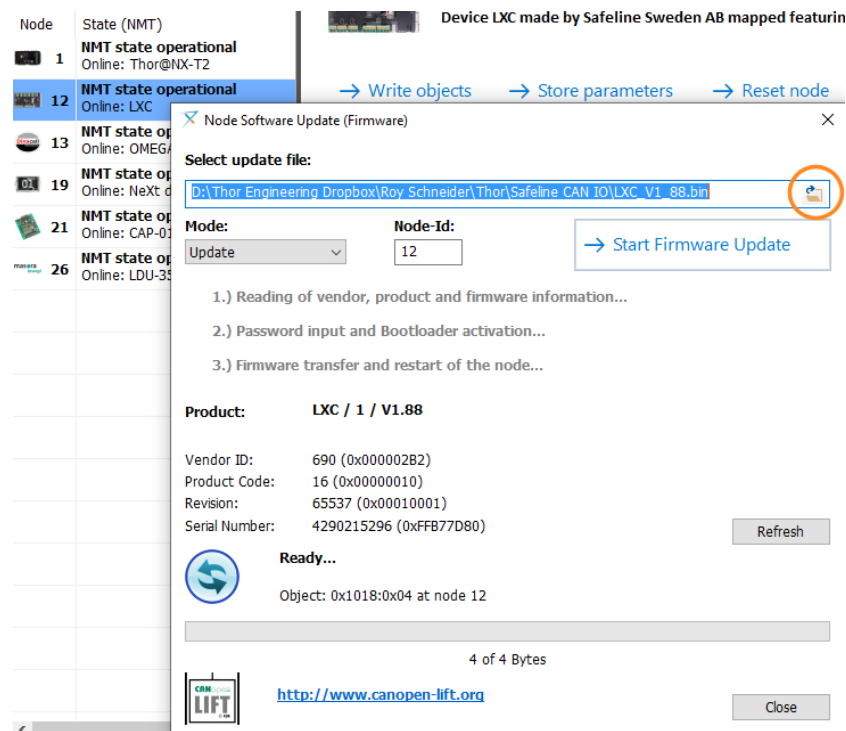
23.1 Firmware Update/Backup Wizard

This assistant can also be opened directly via the context menu of a scanned node in the node list dialogue. In this example we open the update dialogue for node 12.



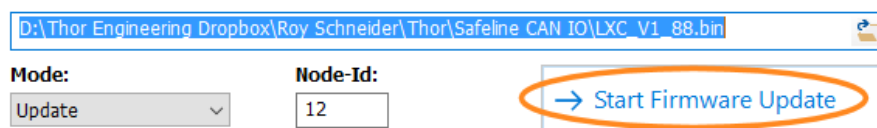
Once the dialogue has been opened, you can select the firmware file, that you got from the manufacturer in order to transmit it to the unit.

Double check that the firmware is actually really for the unit in question. In this example we update an older LXC unit to an up-to-date firmware.

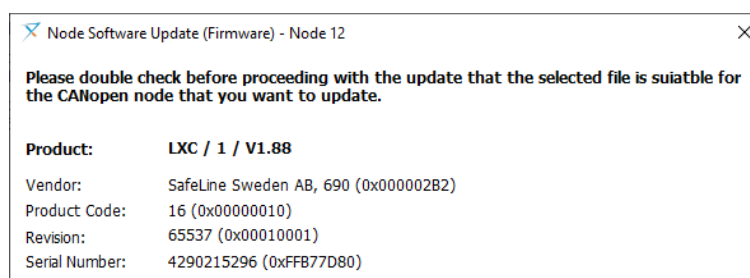


Use the highlighted icon in order to browse your file system and select the firmware binary. When having selected the right file, click on 'Start Firmware update' in order to start the process.

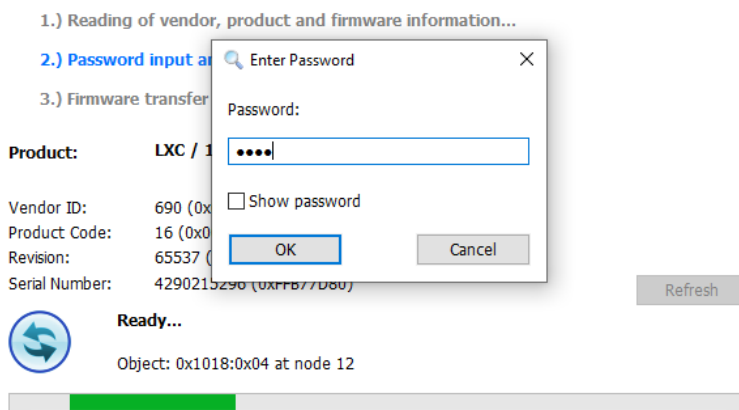
Select update file:



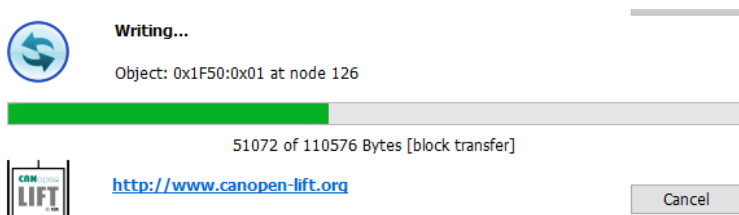
In the next dialogue you have a last chance to check if the firmware is for the unit.



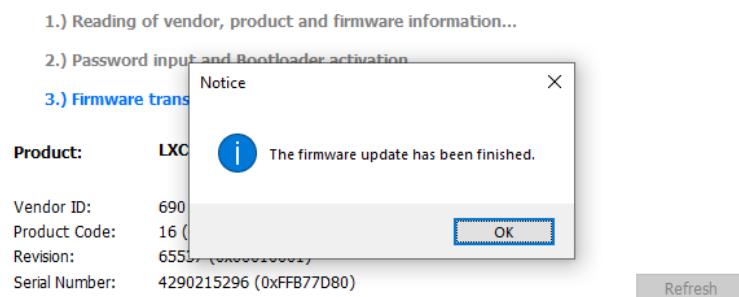
Finally click on 'OK' to start the update. If the unit requires a password or pass-code, you will usually have got that from the manufacturer of the unit. For CANopen products, made by SafeLine, like the IOx/LeoX or LXC series, this will usually be '1000'.



On the bottom of the dialogue you will see the progress of transferring the firmware binary data to the unit.

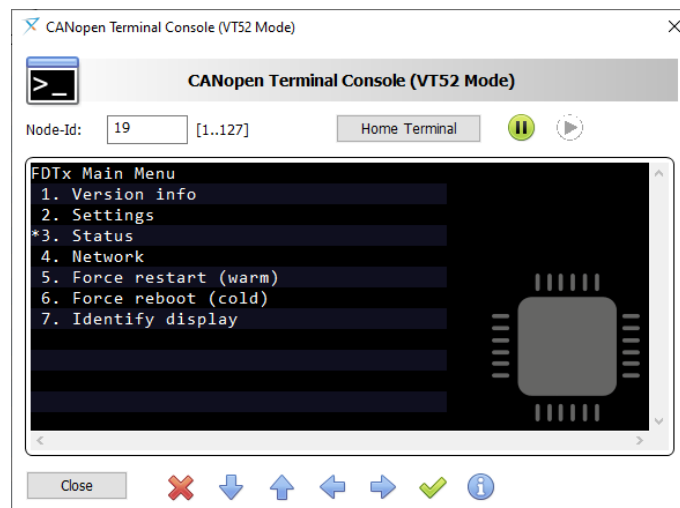


i When finished, the assistant should respond with a message, indicating that the process was successful or has been failed.

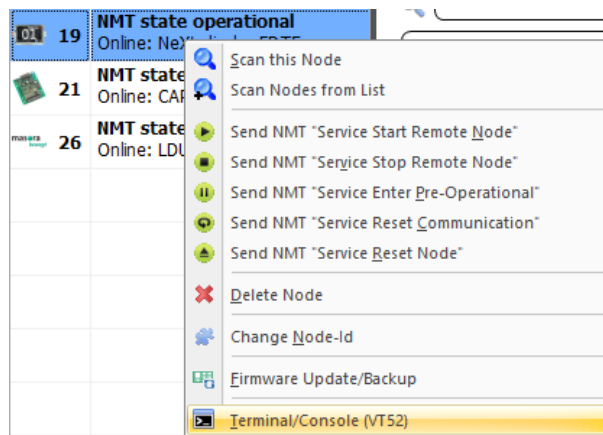


23.2 The CANopen Terminal Console

Every CANopen device may implement a simple text based user interface, that can provide information about the firmware, messages, warnings or faults. They can have more detail than the standardized messages that are transmitted via the bus system otherwise.



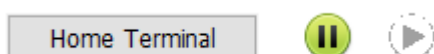
You can open the console directly via the context menu of a specific node.



Beside the control buttons on the bottom of the dialogue, you may want to use all of the keys of your keyboard as well.

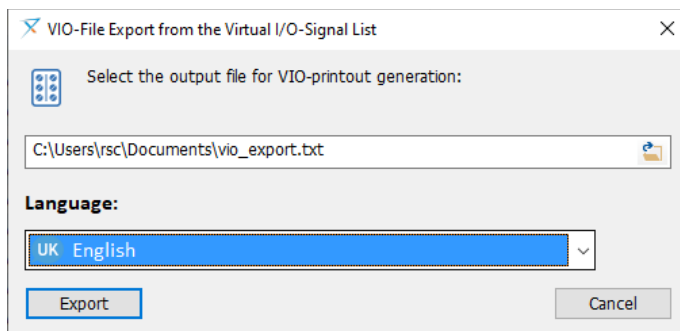


If you need to pause the terminal output or clear the screen (Home Terminal), you find the dedicated buttons above the terminal display.



23.3 VIO-Export Wizard

This small tool creates a list of all supported inputs or output functions in the selected language as a plain text file.



```

Input Function
=====

Generic input

- Terminal x

Hall call

- Up
- Down
- No direction
- Up [extra]
- Down [extra]
- No direction [extra]

Low priority hall call

- Up
- Down
- No direction
- Up [extra]
- Down [extra]
- No direction [extra]

```

This tool is not so important anymore, since the Toolbox but also THOR have meanwhile a 'Search' function build-in, making it easier to find the signal function.

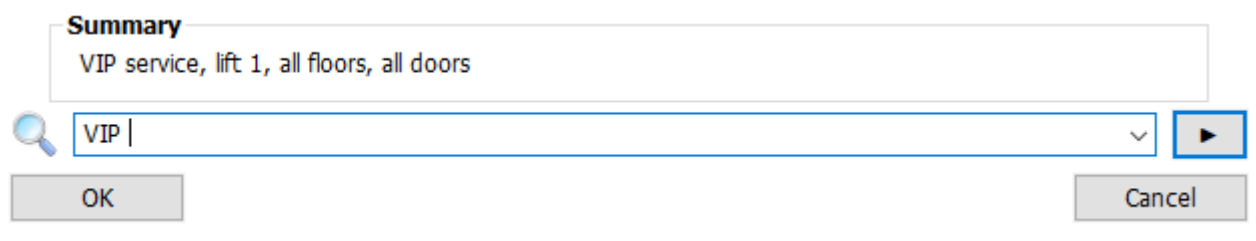


Figure 7: Search function in Toolbox's VIO dialogue

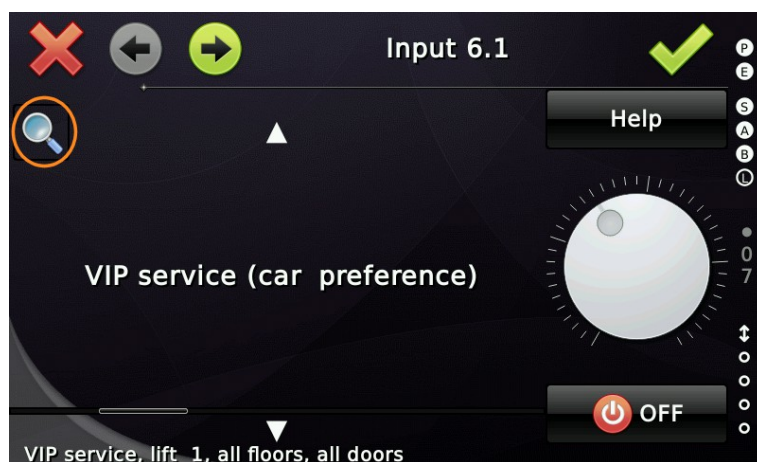


Figure 8: Search function in the THOR user interface

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