

CANsignal Suite

Light — step by step

Red numbers on each picture match the steps under that picture. Follow the steps in order. This book shows only the screens in the Light edition.

This guide is for the Light edition only.

After the licence is activated, Light works offline. One licence runs on one computer. Move Application can move that licence to a different computer.

You can add 15 signal generators and 15 other visual instruments. Text boxes are unlimited and are not counted.

These screens are not in Light: Python Studio, CAN AI, Dashboard Builder, EDS validation, EDS compare, EDS quality, compliance, and device commissioning. They are not shown in this guide.

Live Graphs, Trace, Object Dictionary, SDO, PDO, the simulator, and hardware or Virtual bus connect are included.

Install

1. Pay for Light on the website. The licence and the download stay hidden until the payment has succeeded. A return message alone is not enough.
2. After the payment succeeds, the licence and the download appear on that same page. The same licence and link are emailed to you.
3. Click Download. The file saves in the browser you already have open. It does not open a storage website.
4. Unzip the download. Run the Light setup. Windows asks for administrator approval.
5. Leave Kvaser, PEAK, and VSCOM unticked unless you want those drivers installed now.
6. Paste the Light key from the email when the setup asks for it. The setup checks it online before it finishes.
7. Open CANsignal Suite. After this activation, Light can be used offline. Move Application is the way to change computers later.

First session, in order

1. Open the program. You should see the start page in chapter 1.
2. Click the blue Connect button. Choose Virtual bus and 500 kbps, then click Connect. Chapter 2 shows those three controls.
3. Click Import EDS and choose your .eds file.
4. Open Object Dictionary. Click Read All. Star the registers you want. Click Favorites. Chapter 3.
5. Open the simulated node, click Visual, click Unlock, then add instruments until you reach 15. Text boxes do not count. Chapter 4.
6. Open Live Graphs and tick one register. Chapter 5.
7. Open Trace and click Start. Chapter 6. Light does not include Dashboard Builder. Stay on Live Graphs for plots.

Words used later

EDS — the device file. It lists the registers. Import it before you expect a register list.

Node — one device on the bus. It has a node number.

Register — one row in the Object Dictionary. A signal generator or a graph uses a register.

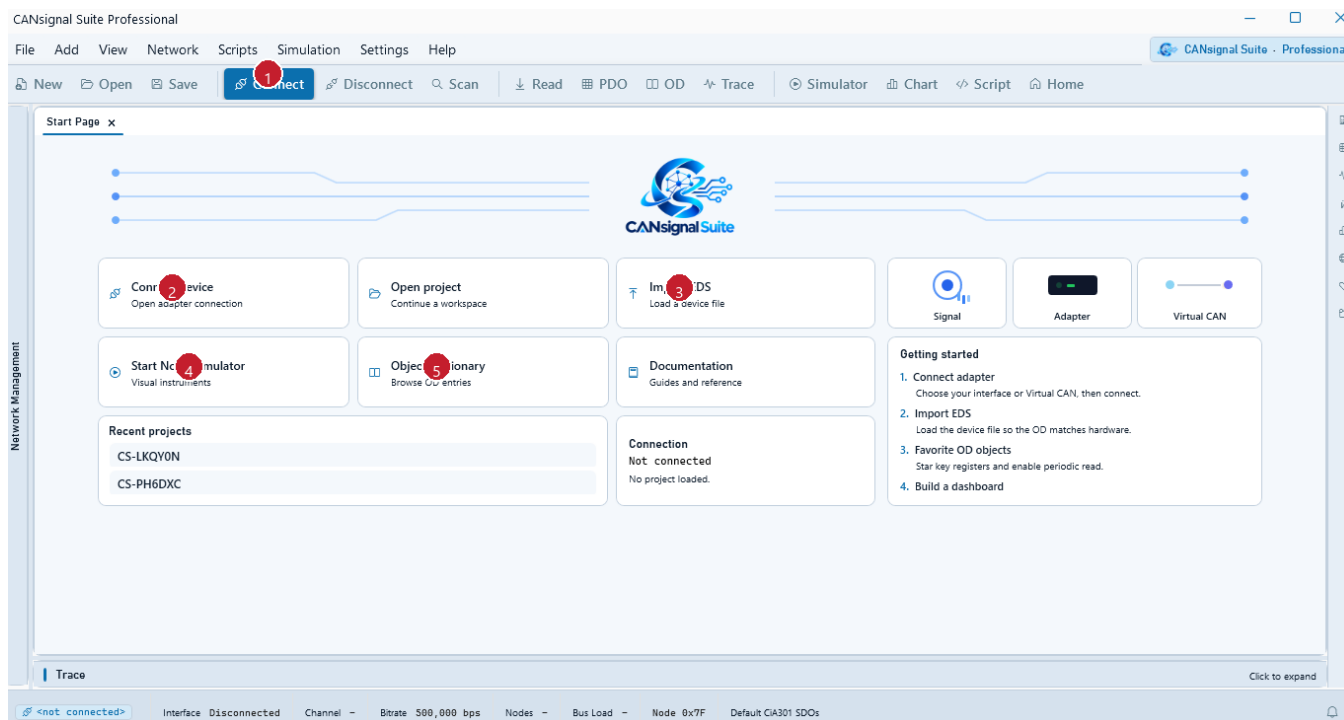
Bitrate — the speed of the bus. Every device on that bus must use the same speed.

SDO — read or write one register.

PDO — a group of registers sent together.

1. Start page

This is the first screen after the program opens. Use it to connect, open a saved project, or import the device file (EDS).

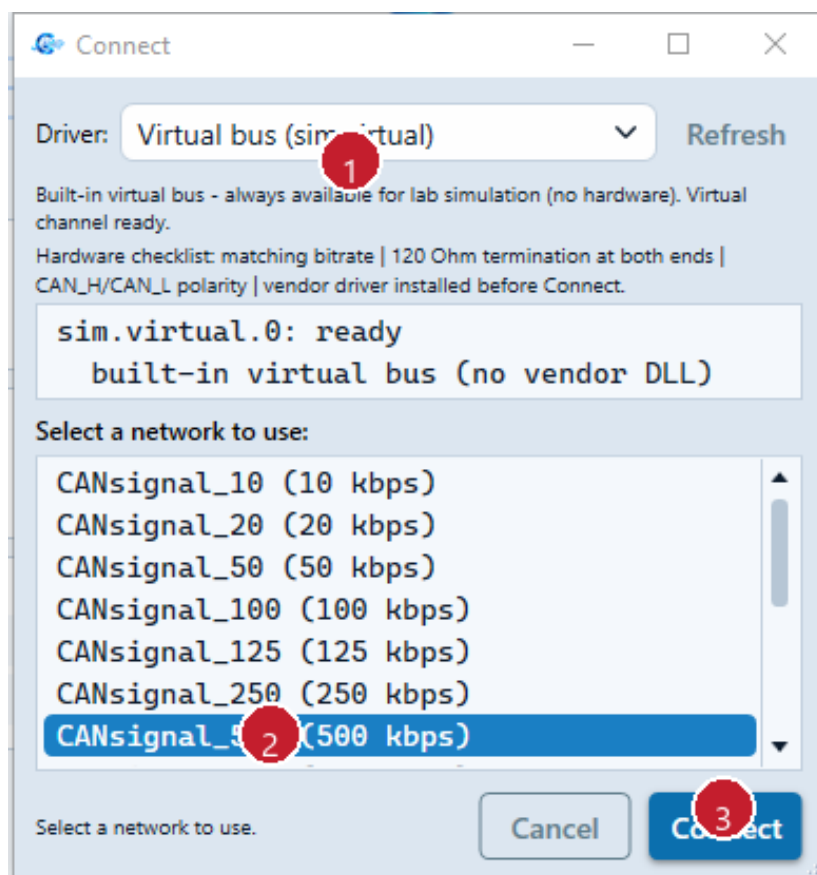


Do these steps

1. Click the blue Connect button in the top toolbar. The Connect window opens. That is the normal way to join the bus.
2. Connect device does the same job as the blue Connect button. Use either one.
3. Import EDS opens a file picker. Choose the .eds file that belongs to your device. Until this file is loaded, the register list stays empty.
4. Start Node Simulator opens the simulated node. You add meters and signal generators there. Do this after the EDS is imported.
5. Object Dictionary opens the register list. Star the registers you care about, then come back here.

2. Connect to the bus

No hardware is required for a first test. Virtual bus is built in.



Do these steps

1. Open the Driver list. For a desk test with no adapter, choose Virtual bus (sim.virtual). Kvaser, PEAK, and VSCOM appear here only after their driver is installed. The setup leaves those driver boxes unticked unless you tick them.
2. Click one bitrate. 500 kbps (CANsignal_500) is the usual choice. Every device on the same bus must use the same bitrate.
3. Click Connect. The window closes. The status bar at the bottom of the main window changes from Disconnected to the adapter name. If it stays disconnected, the bitrate or the driver does not match.

3. Object Dictionary

This list is the device. Each row is one register from the EDS file. Nothing here is invented by the software.

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File Add View Network Scripts Simulation Settings Help

New Open Save Connect Disconnect Scan Read PDO OD Trace Simulator Chart Script Home

Start Page x Python Studio x Simulated Node 1 x OD N1 x

1 All Rate 500 · 26-50 Search... 3 Node N1 EDS 90035_v2.07_RevB.e 51 match | 6,115 total. Columns Export 4 Import EDS

Object Dictionary 2 Favorites

Rd	Wr	Per	Name	Value	Raw Data	Status
[0x2000,0x00]			Valve Class	87 (0x57)		
[0x2010,0x00]			Static Pressure Table Status	64911 (0xFD8F)		OK
[0x2011,0x00]			Static Pressure Table Control	64819 (0xFD33)		OK
[0x2013,0x00]			Static Pressure Table Pressure Increment Process Value	64790 (0xFD16)		OK
[0x2014,0x00]			Static Pressure Table Name	64426 (0xFBAA)		OK
[0x2020,0x00]			Flow Table	64387 (0xFB83)		OK
[0x2021,0x00]			Flow Table	64297 (0xFB29)		OK
[0x2022,0x00]			Flow Table	64237 (0xFAED)		OK
[0x2023,0x00]			Flow Table	64157 (0xFA9D)		OK
[0x2024,0x00]			Flow Table	64066 (0xFA42)		OK
[0x202A,0x00]			Flow Table	64000 (0xFA00)		OK
[0x202B,0x00]			Flow Table	63908 (0xF9A4)		OK

Trace Click to expand

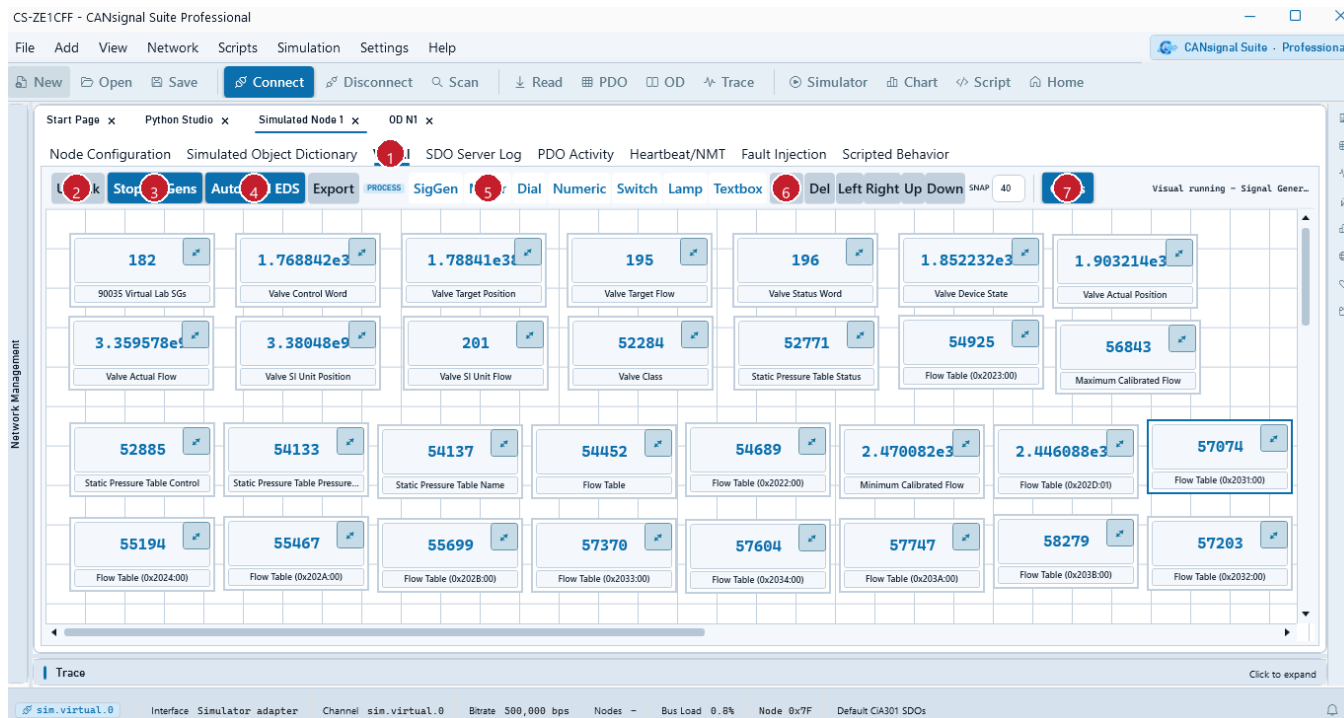
sim.virtual.0 Interface Simulator adapter Channel sim.virtual.0 Btrate 500,000 bps Nodes ~ Bus Load 1.6% Node 0x7F Default CiA301 SDOs

Do these steps

1. Click Read All. The program reads the registers that are shown. Wait until the Value column fills. If a row stays blank, that object was not read.
2. Click Favorites. The list shrinks to the registers you have starred. Use this view while you work so you are not scrolling through thousands of rows.
3. Type part of a name in Search if you cannot find a register. The Node and EDS boxes above the table must match the device you connected.
4. Import EDS if this list is empty. Pick the .eds file for this device. Export saves a copy of what you are looking at.
5. Click the star on a row to keep that register. Favorites shows only starred rows. Read All and the star are the two actions you will use most.

4. Visual instruments

This edition allows 15 instruments. Text boxes are extra and are not counted. Dashboard Builder, Python, CAN AI, EDS validation, EDS compare, EDS quality, compliance, and device commissioning are not in Light.

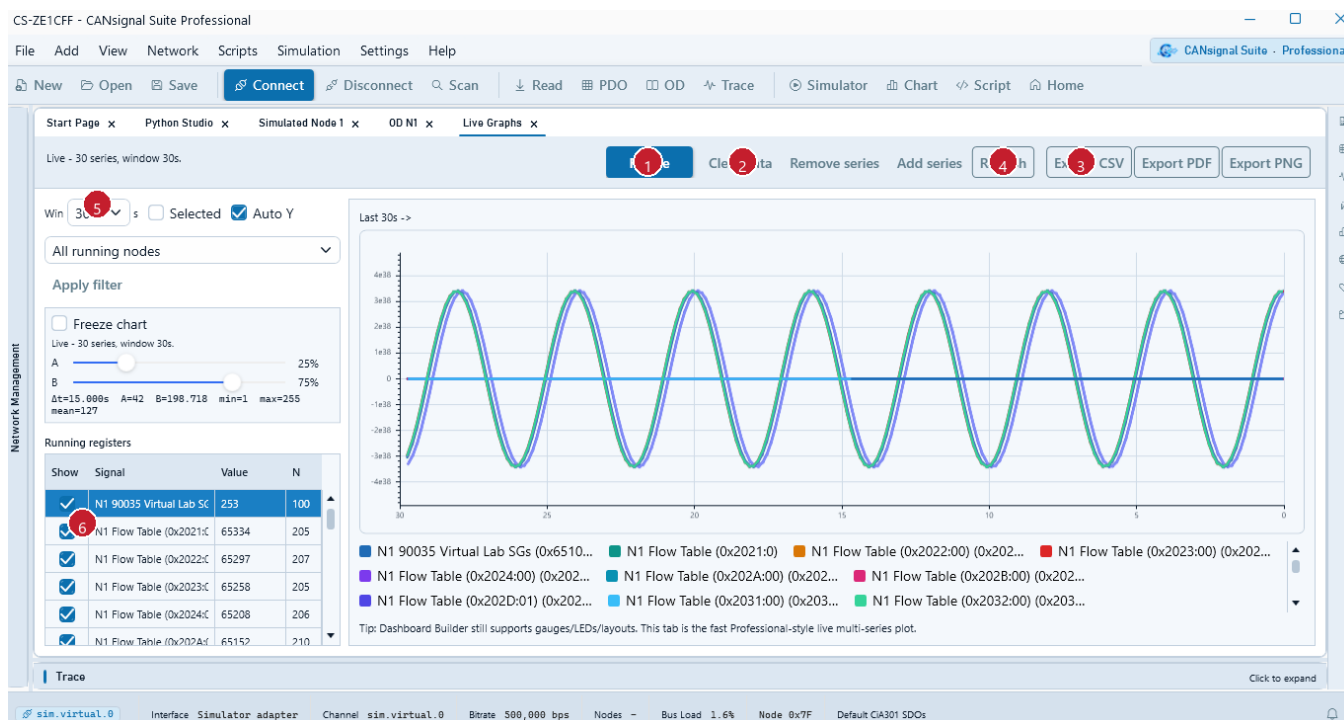


Do these steps

1. Open the simulated node and click the Visual tab. The cards under the toolbar are the instruments.
2. If the toolbar is grey, click Unlock. You cannot add or move instruments while the layout is locked.
3. Stop SigGens stops every signal generator. The other instruments stay on the page. Use this when you want the numbers to stop changing.
4. Auto-add EDS places one signal generator for each favorite register, up to this edition's limit. Star the registers first, or it has nothing to add.
5. Click SigGen, Meter, Dial, Numeric, Switch, or Lamp to add that instrument by hand. A signal generator writes a changing value. A meter, dial, or numeric only displays a value.
6. Textbox adds a label. Text boxes do not count toward the instrument limit.
7. Cards switches the layout. Drag an instrument to move it. Edit changes the selected card. Del removes it.

5. Live Graphs

This is the fast plot. It is not Dashboard Builder. Dashboard Builder is a separate Professional screen.



Do these steps

1. Click Freeze to hold the picture still. Click it again to let the lines move.
2. Clear data wipes the lines. Remove series deletes the selected line. Add series adds another register to the plot.
3. Export CSV, Export PDF, or Export PNG saves what is on the graph. Do this while the picture shows the moment you want to keep.
4. Click Refresh if the lines look stuck after you changed a signal.
5. The Win box is how many seconds of data stay on the graph. 30 seconds is a good start.
6. Tick a row in the signal list to show that register. Untick it to hide it. The line colour matches the row.

6. Trace

Trace is the list of frames on the bus. You can open more than one Trace window.

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File Add View Network Scripts Simulation Settings Help

New Open Save **Connect** Disconnect Scan Read PDO OD Trace Simulator Chart Script Home

Start Page x Python Studio x Simulated Node 1 x OD N1 x PDO Mapping Editor x SDO Client x **Trace 1 x**

1 2 3 More View Relativ CAN ID Node Search 4 Errors Apply Clear Filter 5 14,1 6 mes

Time	Cnt	Relative ms	ID	Flags	Msg Type	Node	Details	Process Data	Data (Hex)	Data (Text)	Data (Decimal)
16:36:05.678867	14060	4.229	0x6F6	-	SimBus 0x6F6	-	SimBus 0x6F6	-	A5 30 01 1E 10 20 32 00		
16:36:05.683701	14061	4.834	0x6F6	-	SimBus 0x6F6	-	SimBus 0x6F6	-	A5 30 01 1E 11 20 33 00		
16:36:05.689664	14062	5.963	0x6F6	-	SimBus 0x6F6	-	SimBus 0x6F6	-	A5 30 01 1E 12 20 34 00		
16:36:05.693563	14063	3.899	0x6F6	-	SimBus 0x6F6	-	SimBus 0x6F6	-	A5 30 01 1E 13 20 3A 00		
16:36:05.693806	14064	0.323	0x181	-	TPD01 node 1	1	TPD01 node 1	-	E3 C5 0B B4 0A 7F		
16:36:05.695846	14065	1.960	0x181	-	TPD01 node 1	1	TPD01 node 1	-	E3 E3 0B B4 0A 7F		
16:36:05.696703	14066	0.857	0x6F6	-	SimBus 0x6F6	-	SimBus 0x6F6	-	A5 30 01 1E 14 20 3B 00		
16:36:05.697690	14067	0.987	0x181	-	TPD01 node 1	1	TPD01 node 1	-	E3 E3 E1 72 45 7F		
16:36:05.699111	14068	1.421	0x281	-	TPD02 node 1	1	TPD02 node 1	-	E3 E3 EA C9 41 7F		
16:36:05.703291	14069	4.181	0x6F6	-	SimBus 0x6F6	-	SimBus 0x6F6	-	A5 30 01 1E 15 65 10 01		

Raw frame Decoded protocol details Object reference Notes / bookmarks

☐ Bookmarked

Trace Click to expand

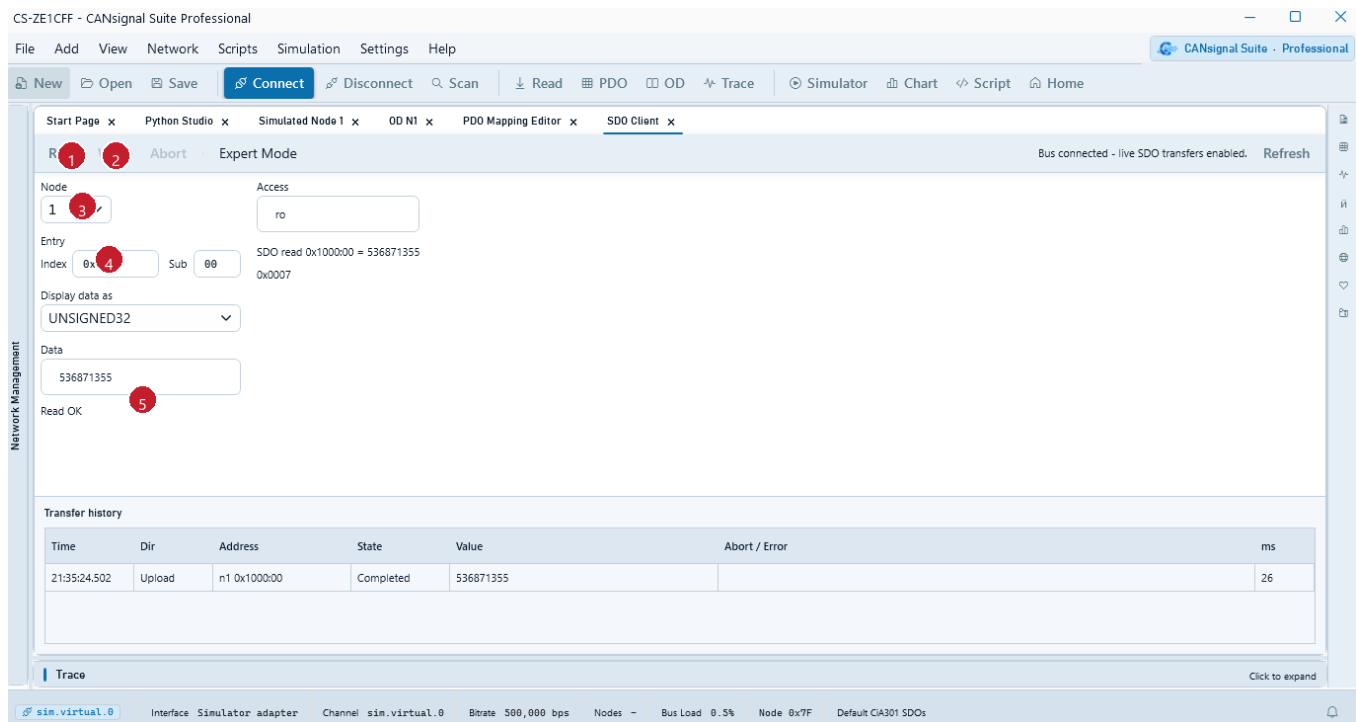
sim.virtual.0 Interface Simulator adapter Channel sim.virtual.0 Btrate 500,000 bps Nodes ~ Bus Load 0.3% Node 0x7F Default C1A301 SDOs

Do these steps

1. Click Start. Frames begin to fill the table. If the table stays empty, you are not connected or nothing is transmitting.
2. Click Stop to end the capture. The rows stay on screen so you can read them.
3. Click Pause to freeze the list without ending the capture. Click Start again to continue.
4. Type a CAN ID, a node, or a word in Search, then click Apply. Clear removes that filter.
5. Click Filters for the longer filter window. Errors shows only the rows marked as errors.
6. The number at the right is how many frames are in this window. Click a row to see the raw frame and the decoded details in the boxes underneath.

7. SDO Client

SDO reads or writes one register on a node that is already connected.

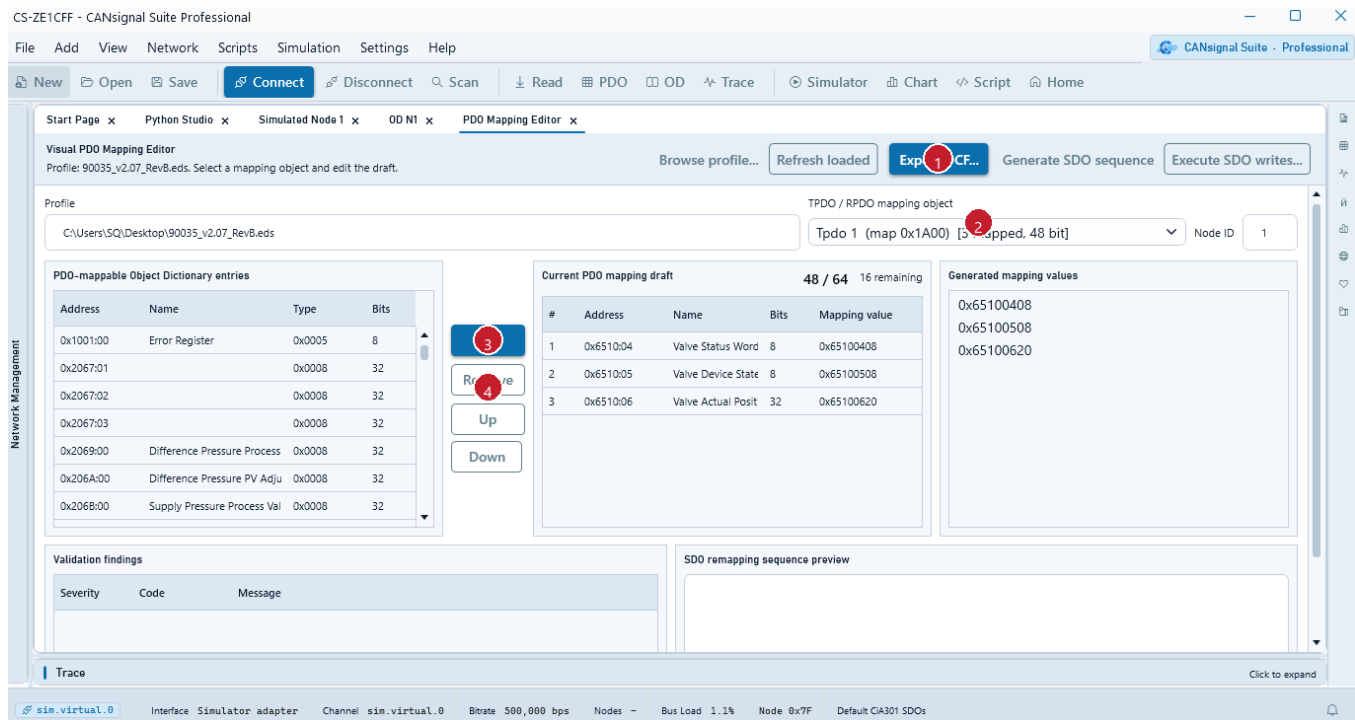


Do these steps

1. Click Read when you only want the current value. The bus must already be connected.
2. Click Write only when you mean to change the device. Abort stops a transfer that is still running.
3. Set the node number to the node you want. A wrong node number reads a different device, or nothing.
4. Type the index and sub-index from the Object Dictionary. Those two numbers pick the register.
5. The value and its type appear here. The history under the form lists what you already read or wrote.

8. PDO Mapping

PDO mapping decides which registers travel inside each PDO. Change it only when you intend to change the device.



Do these steps

1. Export DCF saves a description of the mapping. Generate the SDO sequence if you want the writes listed before you send them. Write sends those changes to a connected node.
2. Choose TPDO or RPDO, then choose the node. TPDO is data the node sends. RPDO is data the node receives.
3. Select an object in the list and add it to the mapping. Watch the bit budget. If the bar is full, another object will not fit.
4. Remove takes the selected object out. Up and Down change the order. The bit budget above the draft shows whether the PDO is still valid.

9. PDO Monitor

PDO Monitor shows the live values inside PDOs. A warning means the mapping needs a look. The software does not invent values.

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File Add View Network Scripts Simulation Settings Help

New Open Save **Connect** Disconnect Scan Read PDO OD Trace Simulator Chart Script Home

Start Page x Simulated Node 1 x **PDO Monitor x**

1 90035_v2.07_RevB.eds Type All Source All Bus connected - live PDO decoding enabled. 2 Refresh

PDO configuration

Type	PDO	COB-ID	Mapped	Status
TPDO	First	0x181	3	Valid
TPDO	Second	0x281	3	Valid
TPDO	Third	0x381	0	Valid (1 warning(s))
TPDO	Fourth	0x481	0	Valid (1 warning(s))
RPDO	First	0x201	2	Valid
RPDO	Second	0x301	2	Valid

Validation findings

PDO	Severity	Message
TPDO3	Warning	PDO is disabled: COB-ID bit 31 (invalid/disabled) is set at 0x1802sub1 (0xC0000361).
TPDO4	Warning	PDO is disabled: COB-ID bit 31 (invalid/disabled) is set at 0x1803sub1 (0xC0000481).
RPDO3	Warning	PDO is disabled: COB-ID bit 31 (invalid/disabled) is set at 0x1402sub1 (0xC0000401).
RPDO4	Warning	PDO is disabled: COB-ID bit 31 (invalid/disabled) is set at 0x1403sub1 (0xC0000501).

Live signals Decoded signal

Decoded 3 signal(s).

Address	Name	Value	Status
0x6510:0x04	Valve Status Word	10	OD updated
0x6510:0x05	Valve Device State	9	OD updated
0x6510:0x07	Valve Actual Flow	-3.1855871E+38	OD updated

Raw PDO frames Decode selected

Capture paused. Click Refresh to resume.

Time	COB-ID	Len	Data
21:39:36.942	0x181	6	0A 09 80 A0 6D FF
21:39:36.942	0x281	6	0A 09 2D A8 6F FF
21:39:36.942	0x181	6	0A 09 80 A0 6D FF
21:39:36.942	0x281	6	0A 09 2D A8 6F FF
21:39:37.142	0x181	6	83 09 80 A0 6D FF

Trace Click to expand

sim.virtual.0 Interface Simulator adapter Channel sim.virtual.0 Btrate 500,000 bps Nodes ~ Bus Load 1.2% Node 0x7F Default CIA301 SDOs

Do these steps

1. Set the node, the EDS, and the type. Source filters which PDO you are watching.
2. Click Refresh. The table reloads from the frames that are actually on the bus.
3. Read the validation line. A warning means this mapping should be checked. It does not mean the program created data.
4. The lower area shows the decoded signals. The raw frame is on the right of that area.

10. Network Explorer

Network Explorer asks who is on the bus and lists the nodes that answer.

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File Add View Network Scripts Simulation Settings Help

New Open Save Connect Disconnect Scan Read PDO OD Trace Simulator Chart Script Home

Start Page x Simulated Node 1 x Network Explorer x

Discovery updated - 1 node(s), 1 finding(s). New session Heartbeat Boot-up LSS Fast Scan Read Identity **Manual Scan** Refresh flags Clear

Network overview

Manual scan from 1 to 16 Nodes: 1 Findings: 1 Discovery updated - 1 node(s), 1 finding(s).

Node ID	Device	Vendor	Product	Revision	Heartbeat	State	EDS Match	Online Status	Flags
1	Chemical Injection Valve	0x00000132	0x00015FB3	0x00020007	Operational	Operational	No match	Online	Unknown mfg

Findings (duplicates / missing heartbeat / unsupported / unknown manufacturer)

UNK_MFG: Node 1: Vendor-ID 0x00000132 has no EDS vendor name in project candidates.

Trace Click to expand

sim.virtual.0 Interface Simulator adapter Channel sim.virtual.0 Btrate 500,000 bps Nodes ~ Bus Load 0.5% Node 0x7F Default C1A301 SDOs

Do these steps

1. Click Manual Scan. LSS Fast Scan is for an unconfigured device and is covered in the LSS chapter. Read Identity asks one node for its identity.
2. The blue circle is a node that answered. The number inside is how many nodes were found.
3. Read the table: vendor, product, heartbeat, state, and whether an EDS matches. No match means you still need to import the EDS for that device.

11. Heartbeat Monitor

Heartbeat times come from frames the program received. They are not estimated.

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File Add View Network Scripts Simulation Settings Help

New Open Save Connect Disconnect Scan Read PDO OD Trace Simulator Chart Script Home

Start Page x Simulated Node 1 x Heartbeat Monitor x

Heartbeat Monitor
Heartbeat Monitor - values come from actual received frames only (intervals are never estimated).

Refresh Export history Export statistics Clear

Nodes: 1 Online: 1 Offline: 0 Last alert: -

Nodes (actual RX only)

Node ID	State	Last Heartbeat	Average Interval	Missed Count	Online Duration	Offline Duration	Status	RX	Fail streak
1	Operational	2141:27.990	1000.0 ms	0	11m 27s	0s	Received	689	0

Event history

Time	Node	Kind	Message
2141:27.990	1	Received	Heartbeat node 1: Operational (measured interval=1006.08 ms)
2141:26.984	1	Received	Heartbeat node 1: Operational (measured interval=1000.26 ms)
2141:25.983	1	Received	Heartbeat node 1: Operational (measured interval=998.88 ms)
2141:23.991	1	Received	Heartbeat node 1: Operational (measured interval=1006.04 ms)
2141:21.988	1	Received	Heartbeat node 1: Operational (measured interval=1002.37 ms)

Trace

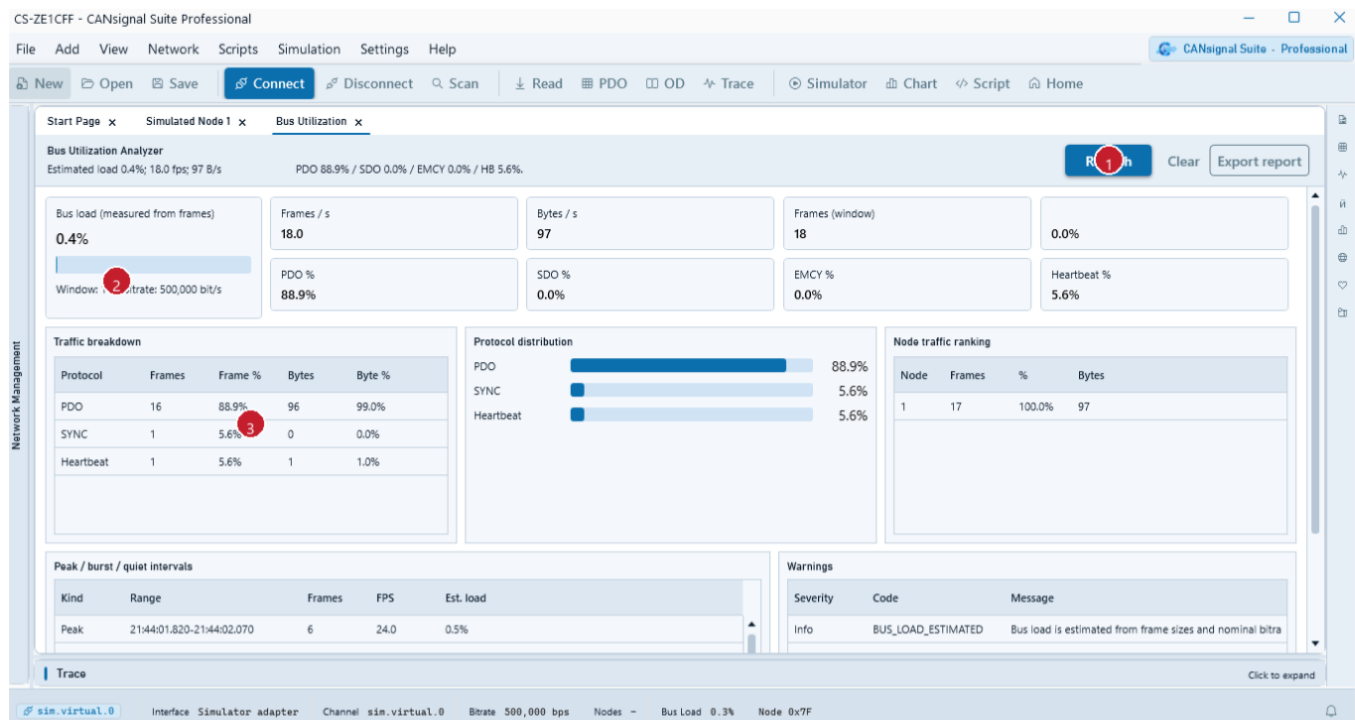
sim.virtual.0 Interface Simulator adapter Channel sim.virtual.0 Btrate 500,000 bps Nodes ~ Bus Load 0.5% Node 0x7F Default CIA301 SDOs

Do these steps

1. Click Refresh to reload. Export history or Export statistics saves the table. Clear removes the rows from the screen.
2. Each row is one node: online or not, last heartbeat, missed count, and how long it has been online. The history under the table is the same events, one line at a time.

12. Bus Utilization

This screen shows how busy the bus is, and which kind of frame is using it.



Do these steps

1. Click Refresh to recalculate. Clear resets the counters. Export report saves the page.
2. Read the load cards first. Bus load is the share of the bitrate that is in use. Frames/s is how fast frames are arriving.
3. The breakdown shows PDO, SDO, and heartbeat as separate shares. Use it when the bus is busy and you need to see who is talking.

13. Network Diagnostics

One page for node health, bus health, PDO, and SDO. Send to AI Assistant is not part of this edition.

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File Add View Network Scripts Simulation Settings Help

New Open Save Connect Disconnect Scan Read PDO OD Trace Simulator Chart Script Home

Start Page x Simulated Node 1 x Network Diagnostics x

CANsignal Network Diagnostics Center

1 active finding(s): 0 critical, 1 warning.

Refresh Open node Export report Send to AI Assistant Acknowledge

Healthy Nodes
0
Info
Online nodes without active findings

Warning Nodes
1
Warning
Nodes with warning-level findings

Critical Nodes
0
Info
Nodes with critical findings

Bus Health
OK
Info
load=0.4% fps=18
connected=True

Heartbeat Health
OK
Info
1 monitored; timedOut=0

PDO Health
OK
Info
invalidMappings=0;
invalidCobids=0

SDO Health
OK
Info
timeoutClusters=15

Status: **Warning** Healthy: 0 Warning: 1 Critical: 0

Findings (real evidence only)

Severity	Possible Cause	Area	Title	Node	PDO	Evidence	Action
Warning	No	Nodes	Unsupported / unmatched device	1	-	No EDS candidate matches Vendor=0x0000132 Product=00015FB3 for node 1.	Import a matching EDS/DCF or verify the dev

Selected finding

Trace Click to expand

sim.virtual.0 Interface Simulator adapter Channel sim.virtual.0 Btrate 500,000 bps Nodes ~ Bus Load 0.3% Node 0x7F Default C1A301 SDOs

Do these steps

1. Click Refresh. The cards update from the current bus.
2. Read the finding row. It names the node and a next step, such as importing the matching EDS. The program does not invent a finding when no rule matched.

14. Bus Health

A short status. An empty list means no health rule matched. That is a real result, not a missing page.

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File Add View Network Scripts Simulation Settings Help

New Open Save **Connect** Disconnect Scan Read PDO OD Trace Simulator Chart Script Home

Start Page x Simulated Node 1 x **Bus Health x**

Bus Health Monitor
No active bus health findings from current statistics, diagnostics, and protocol observations.

Refresh Acknowledge Acknowledge all Clear acks Export HTML Export CSV Export JSON Export Text

Status Normal Normal	Active 0	Warnings 0	Critical 0
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Severity **All** Node **2** Protocol **All**

Findings

No bus health findings
Findings appear when real bus statistics, protocol events, or adapter diagnostics match a health rule. Nothing is invented.

Explanation	Evidence	Suggested fix

Trace Click to expand

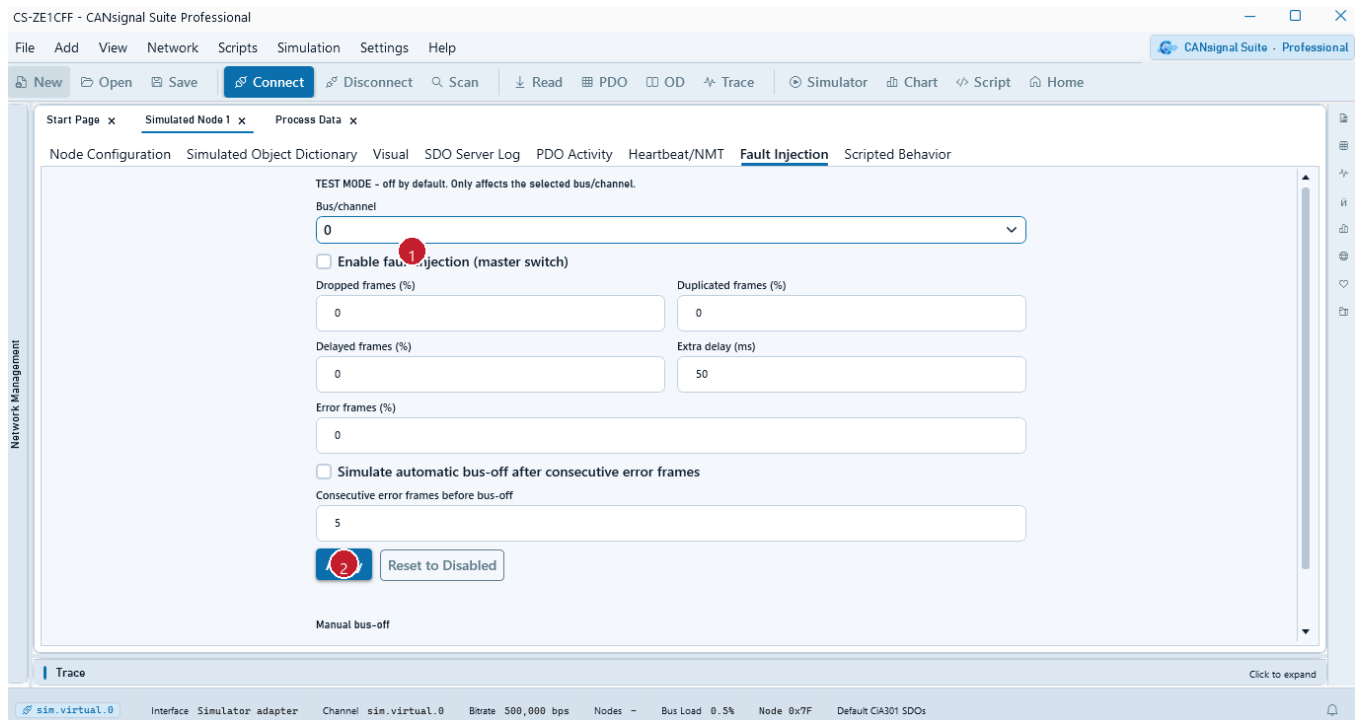
sim.virtual.0 Interface Simulator adapter Channel sim.virtual.0 Btrate 500,000 bps Nodes ~ Bus Load 0.4% Node 0x7F Default C1A301 SDOs

Do these steps

1. Click Refresh. Acknowledge marks one finding as seen. Acknowledge all does that for every row. Export saves the page.
2. Read Status, Active, Warnings, and Critical. If the findings area says there are none, no rule matched the frames that were received.

15. Fault injection

This is a test tool. It drops, delays, or copies frames on the channel you select. Do not turn it on for a live vehicle or a production machine.

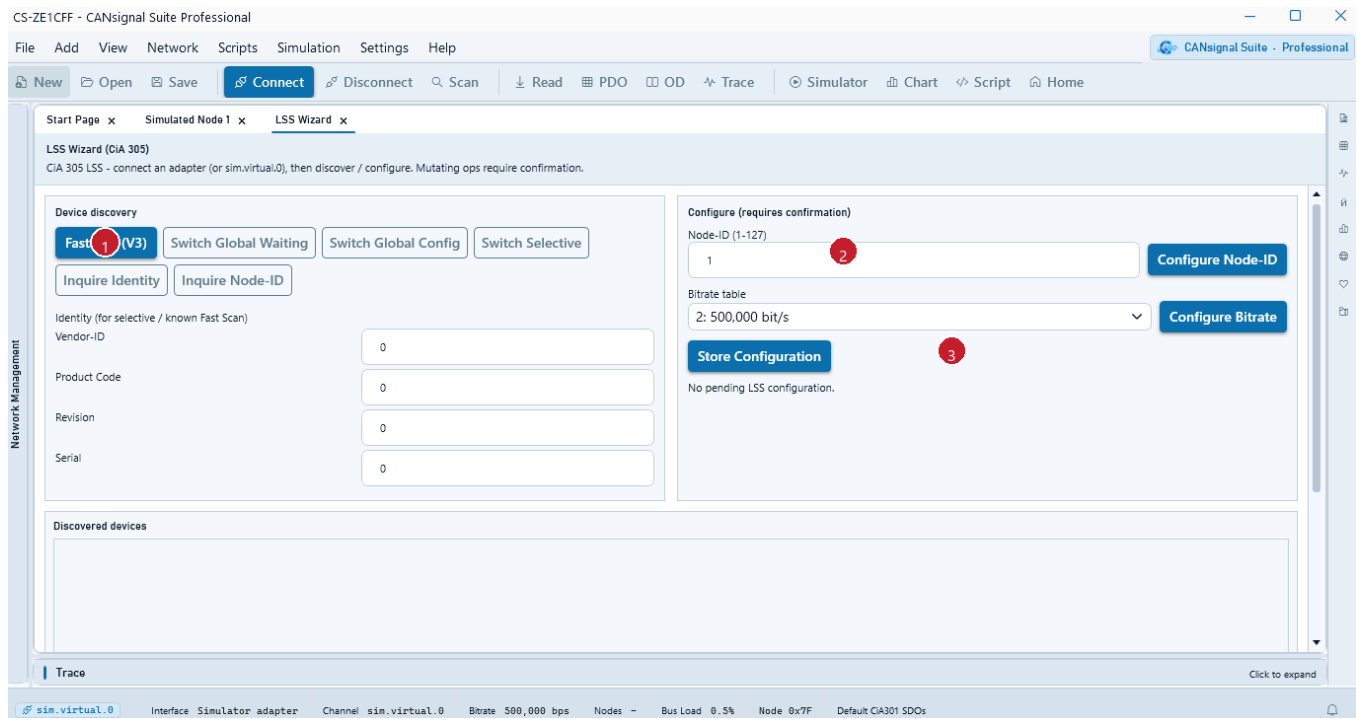


Do these steps

1. Leave the master switch off until you mean to run the test. Choose drop, delay, or duplicate, and choose the virtual or bench channel.
2. Click Apply to start that fault. Click Reset to turn it off. Disabled means frames are no longer being changed by this page.

16. LSS Wizard

LSS gives a node ID or a bitrate to a device that is not configured yet. Store makes the change stay after power is removed.



Do these steps

1. Click Fastscan or Identity inquiry. These look for an unconfigured device. If nothing is found, the device is already configured or it is not on this bus.
2. Type the node ID you want to assign.
3. Click Configure bitrate or Configure node ID, then Store configuration. Until you click Store, the new setting can disappear at the next power cycle.