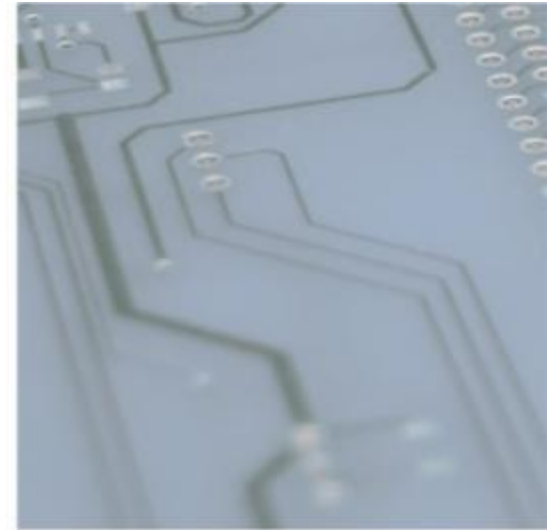
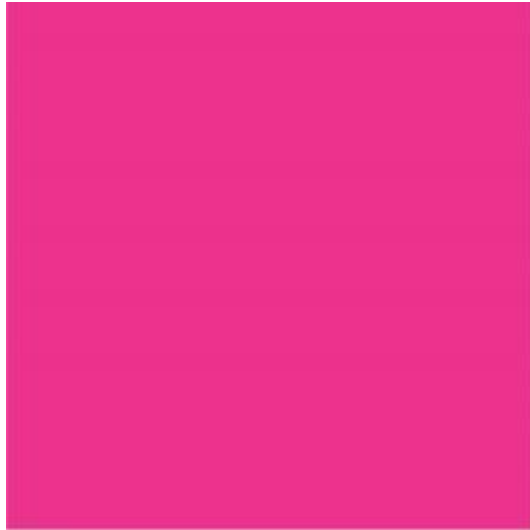


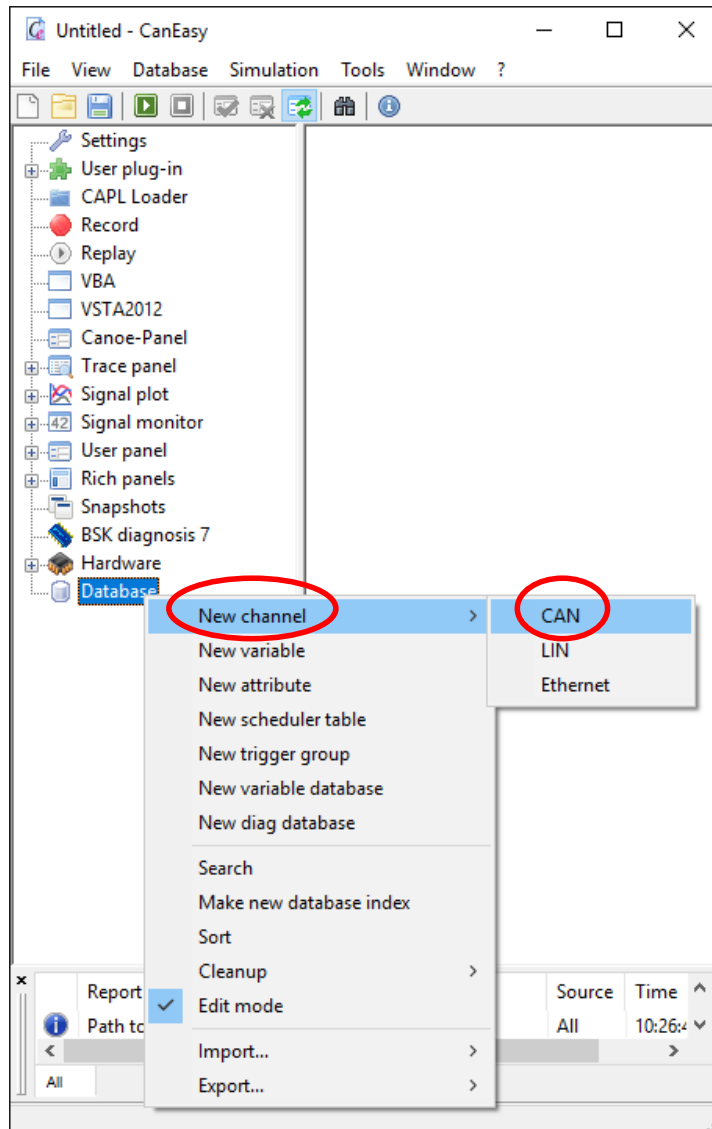
CanEasy

– Creating a database



- Use CanEasy to quickly and easily modify your communication matrix
- With the help of the integrated editors, CanEasy is also useful to create a new database
- Of course you can also import, modify and export your communication matrix
- The following pages show how to create a database and shows useful editors of CanEasy

Create a channel



- You can create a new channel via the database context menu

Database

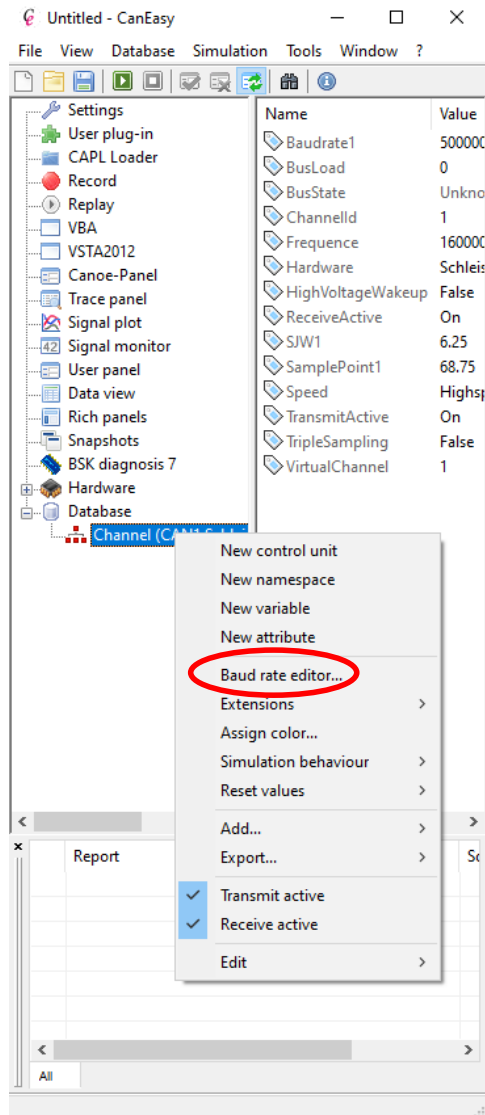
→ *New channel*

→ *CAN*

- Or directly import your communication matrix

Channel

Select baud rate editor



- Select
→ *Baud rate editor*
from the channels
context menu

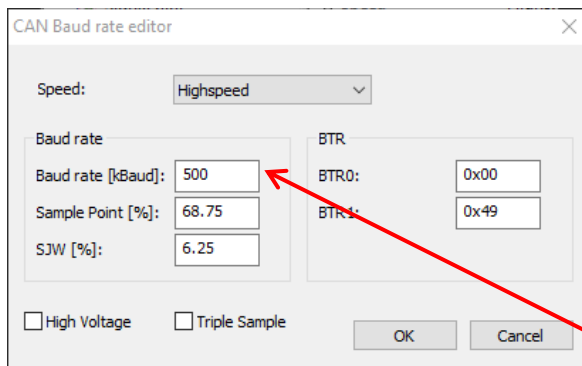
Channel

Baud rate editor

- The desired baud rate can be configured
- Possible BTR values can be selected from the list

To configure the baud rate you can use the following procedure:

Input Baud rate



CAN Baud rate editor

Speed: Highspeed

Baud rate

Baud rate [kBaud]: 500

Sample Point [%]: 68.75

SJW [%]: 6.25

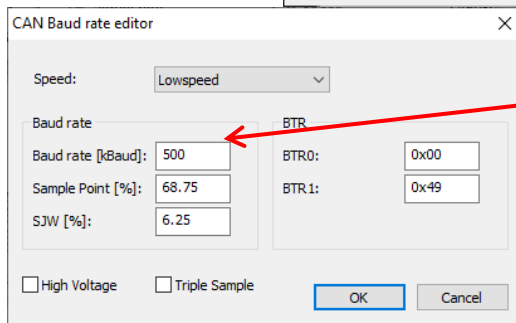
BTR

BTR0: 0x00

BTR1: 0x49

☐ High Voltage ☐ Triple Sample

OK Cancel



CAN Baud rate editor

Speed: Lowspeed

Baud rate

Baud rate [kBaud]: 500

Sample Point [%]: 68.75

SJW [%]: 6.25

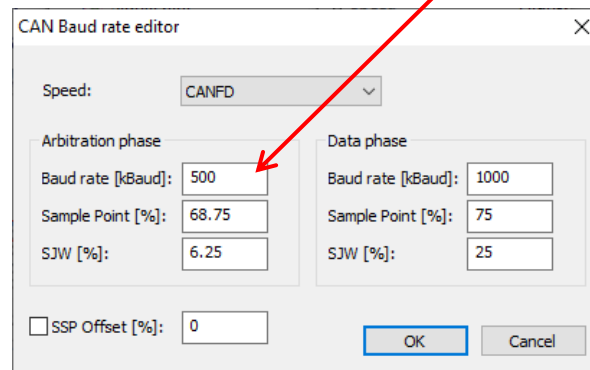
BTR

BTR0: 0x00

BTR1: 0x49

☐ High Voltage ☐ Triple Sample

OK Cancel



CAN Baud rate editor

Speed: CANFD

Arbitration phase

Baud rate [kBaud]: 500

Sample Point [%]: 68.75

SJW [%]: 6.25

Data phase

Baud rate [kBaud]: 1000

Sample Point [%]: 75

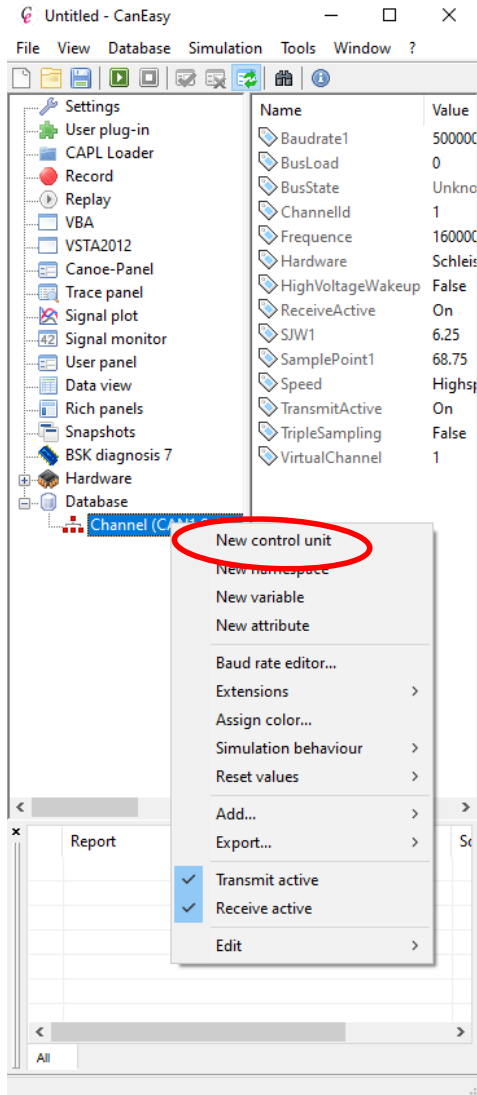
SJW [%]: 25

☐ SSP Offset [%]: 0

OK Cancel

Channel

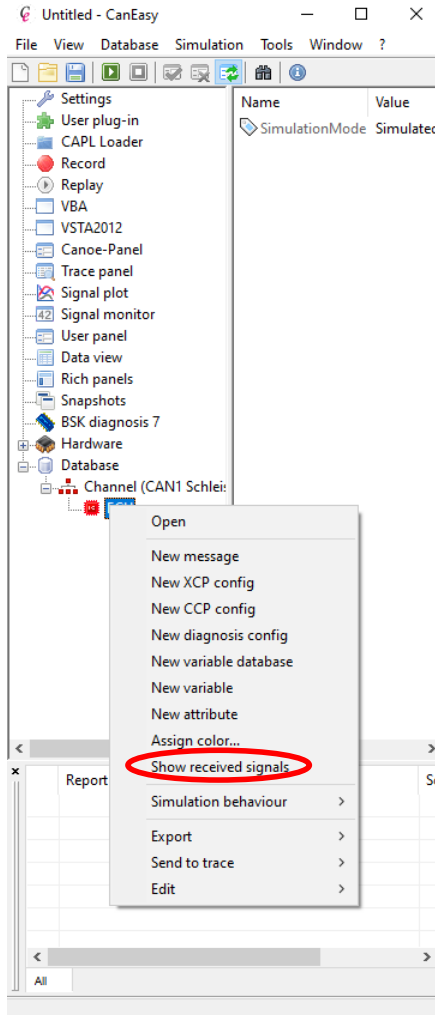
Create a new control unit



- Select
→ *New control unit*
from the channel
context menu

Control unit

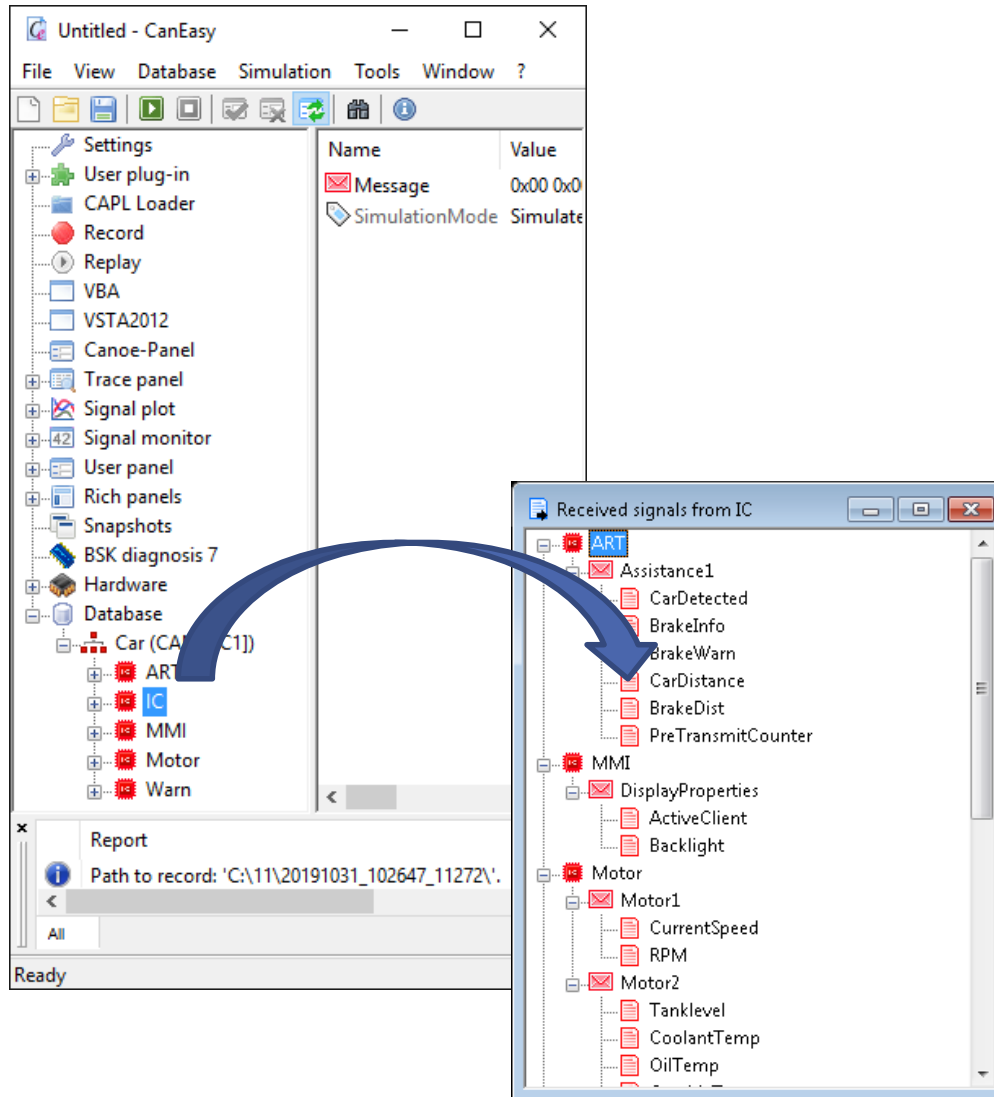
Signal receiver editor



- Select
→ *Show received signals*
from the ECU context
menu

Control unit

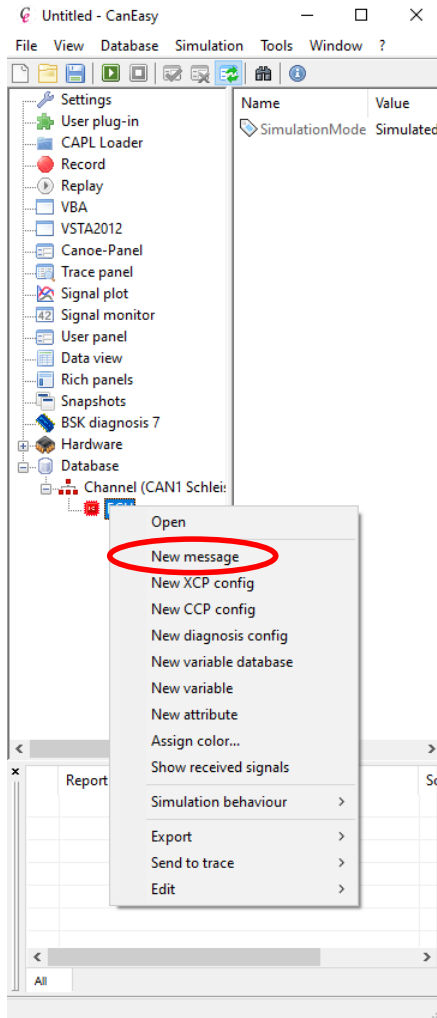
Signal receiver editor



- You can Drag & Drop any database element
- The ECU will be set as receiver to all containing signals
- If you remove a signal, the ECU will be automatically removed from the receiver list

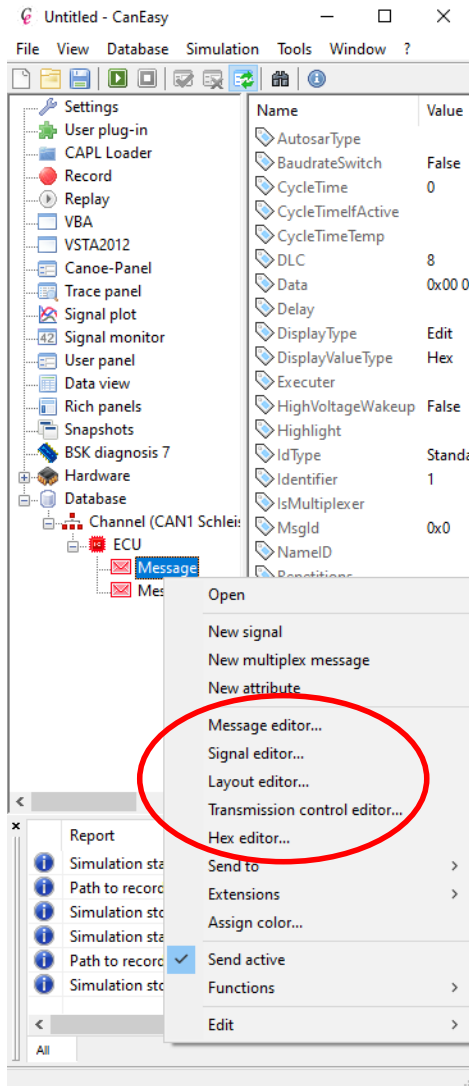
Control unit

Create a new message



- Select
→ *New message*
from the ECU context
menu

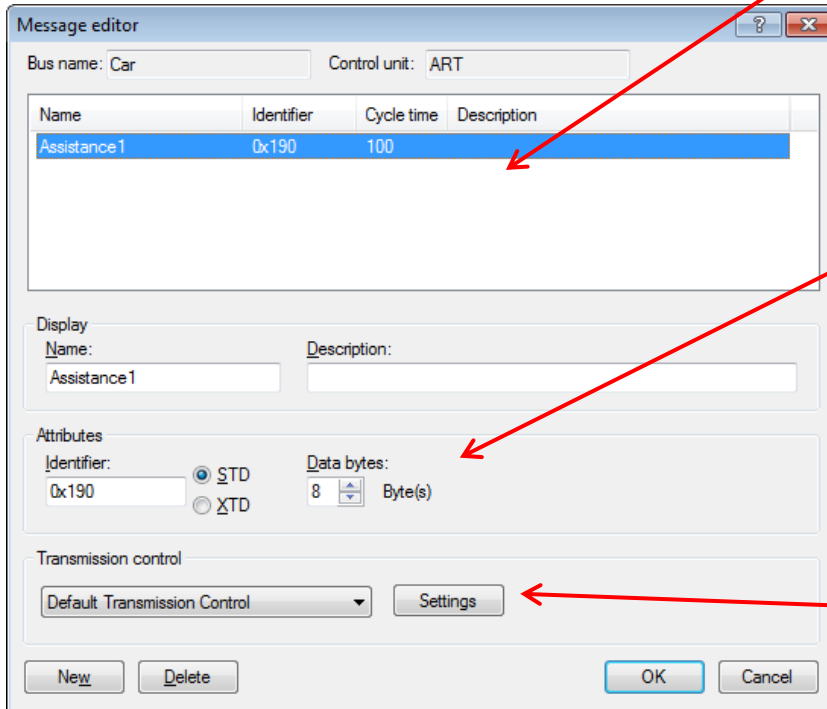
Message Available editors



- You can open all available editors via the context menu of the message
- Select
 - *Message editor*
 - *Signal editor...*
 - *Layout editor...*
 - *Transmission control editor*
 - *Hex editor*

Message

Using message editor



The screenshot shows the 'Message editor' window. At the top, 'Bus name' is 'Car' and 'Control unit' is 'ART'. Below is a table with columns 'Name', 'Identifier', 'Cycle time', and 'Description'. The first row, 'Assistance1', '0x190', '100', is selected. Below the table, the 'Display' section has 'Name' as 'Assistance1' and an empty 'Description' field. The 'Attributes' section shows 'Identifier' as '0x190', with 'STD' selected and 'XTD' unselected. 'Data bytes' is set to '8' Byte(s). The 'Transmission control' section has a dropdown set to 'Default Transmission Control' and a 'Settings' button. At the bottom are 'New', 'Delete', 'OK', and 'Cancel' buttons. Red arrows point from the table row, the 'Data bytes' field, and the 'Settings' button to the corresponding list items on the right.

Name	Identifier	Cycle time	Description
Assistance1	0x190	100	

Display
Name: Assistance1
Description:

Attributes
Identifier: 0x190
☒ STD ☐ XTD
Data bytes: 8 Byte(s)

Transmission control
Default Transmission Control
Settings

New Delete OK Cancel

- List of message sent by control units
 - Message name
 - Description
- Settings for the selected message
 - Identifier [Standard/Extended]
 - Payload length
- Transmission-Control
 - Opens editor to setup the transmission behavior

Cycle time T1, T2:

Time interval
used for cyclical
sending of
messages.

Start delay:

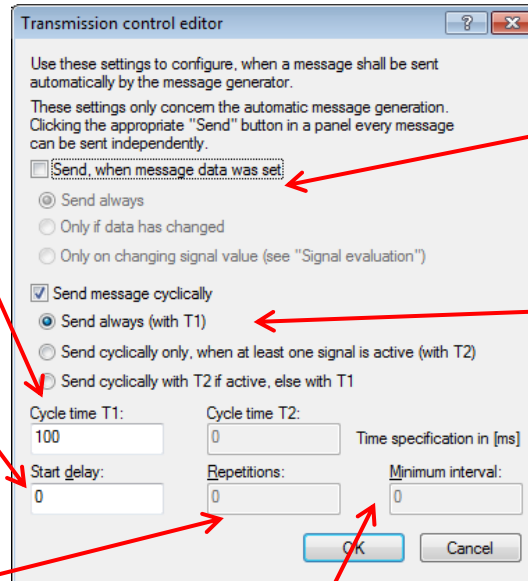
Delay before the
message is sent

Repetitions:

Specifies how
often a message is
sent.

Minimum interval:

Separation time between messages



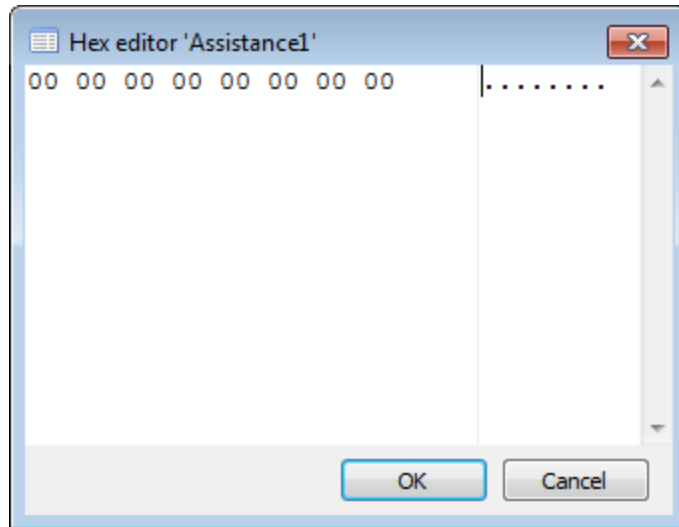
The screenshot shows the 'Transmission control editor' dialog box. It contains the following settings:

- ☐ Send, when message data was set! (highlighted with a red arrow)
- ☒ Send always
- ☐ Only if data has changed
- ☐ Only on changing signal value (see "Signal evaluation")
- ☒ Send message cyclically
 - ☒ Send always (with T1) (highlighted with a red arrow)
 - ☐ Send cyclically only, when at least one signal is active (with T2)
 - ☐ Send cyclically with T2 if active, else with T1
- Cycle time T1: 100
- Cycle time T2: 0
- Time specification in [ms]
- Start delay: 0
- Repetitions: 0 (highlighted with a red arrow)
- Minimum interval: 0
- OK button
- Cancel button

■ Send, if message data
was set

■ Send message
cyclically

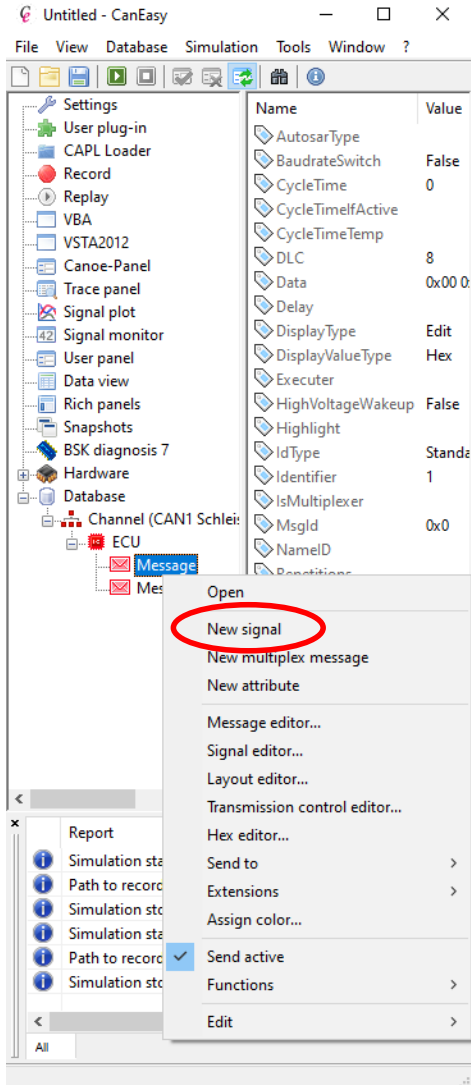
Message Hex editor



- Allows changing of hexadecimal values
- On the right side you will see a text representation

Message

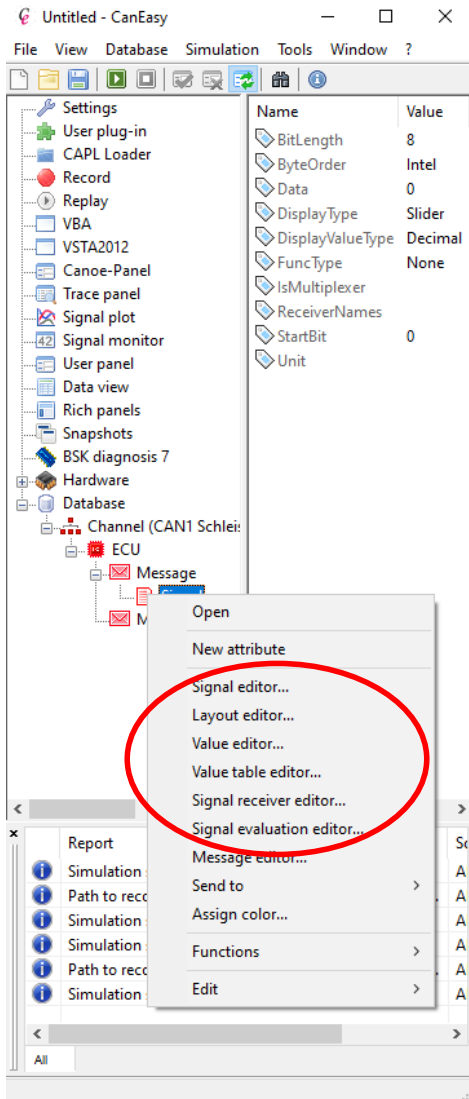
Create a new signal



- Select
→ *New signal*
from the message
context menu

Signal

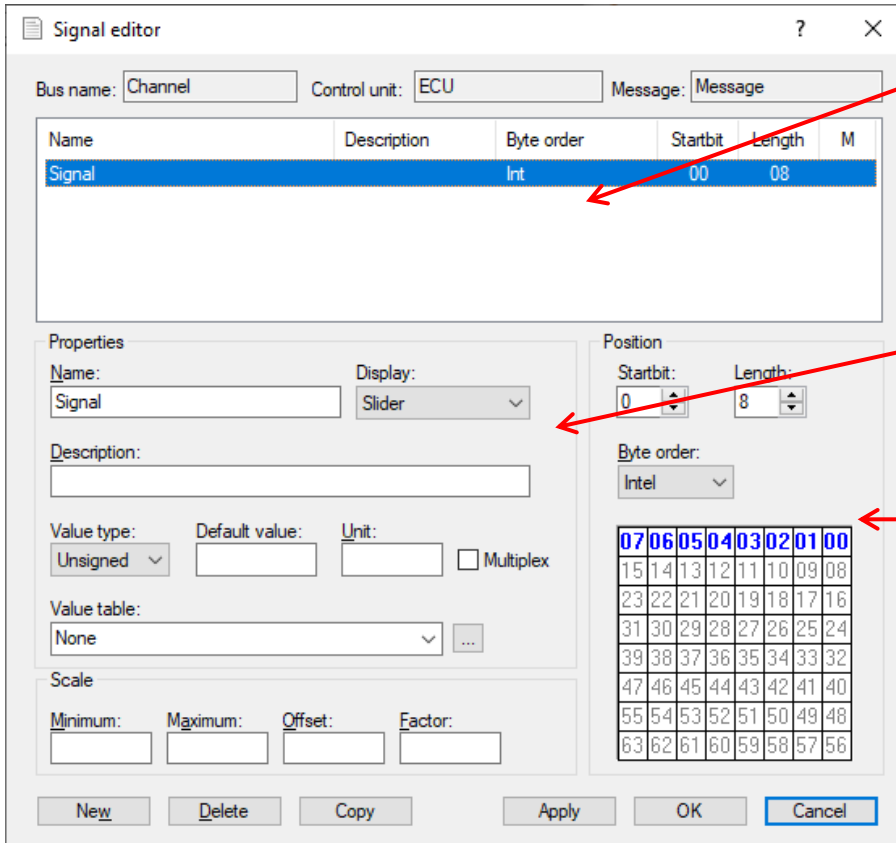
Available editors



- Select Signal
 - *Signal editor*
 - *Layout editor*
 - *Value editor*
 - *Value table editor*
 - *Signal receiver editor*
 - *Signal evaluation editor*
- from the signals context menu

Signal

Using signal editor



Name	Description	Byte order	Startbit	Length	M
Signal		Int	00	08	

Properties

Name: Signal Display: Slider

Description:

Value type: Unsigned Default value: Unit: ☐ Multiplex

Value table: None

Scale

Minimum: Maximum: Offset: Factor:

Position

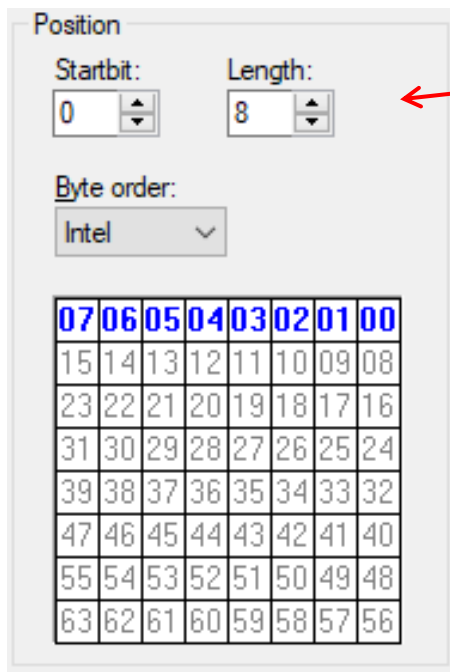
Startbit: 0 Length: 8

Byte order: Intel

07	06	05	04	03	02	01	00
15	14	13	12	11	10	09	08
23	22	21	20	19	18	17	16
31	30	29	28	27	26	25	24
39	38	37	36	35	34	33	32
47	46	45	44	43	42	41	40
55	54	53	52	51	50	49	48
63	62	61	60	59	58	57	56

- List of signals contained in the message
- Settings of the selected signal
- Assignment of the bits by the selected signal (blue) within the message

- Assignment of signal bits
- The order corresponds to the selected byte sequences
 - Intel or Motorola
- Bits that are used by more than one signal are displayed in red



Position

Startbit: Length:

Byte order:

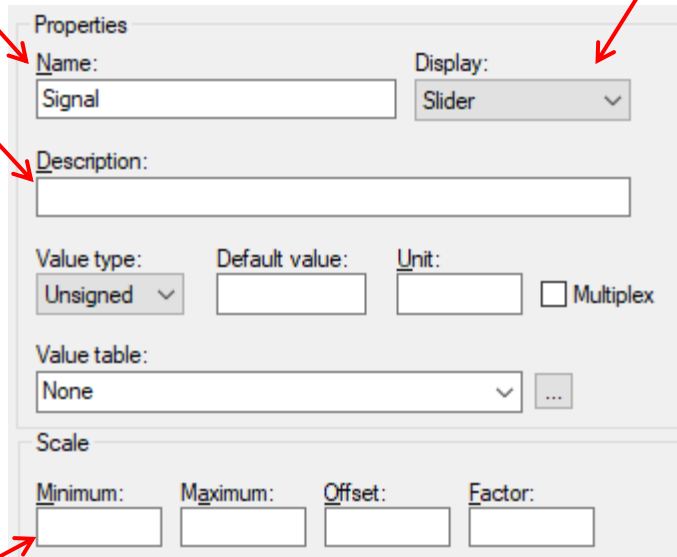
07	06	05	04	03	02	01	00
15	14	13	12	11	10	09	08
23	22	21	20	19	18	17	16
31	30	29	28	27	26	25	24
39	38	37	36	35	34	33	32
47	46	45	44	43	42	41	40
55	54	53	52	51	50	49	48
63	62	61	60	59	58	57	56

- The currently selected signal can be configured via the "Attributes" controls

Signal

Using signal editor "View"

- Name of the signal
- Description of the signal
- Display dropdown list with the following options:
 - Checkbox
 - Slider
 - Edit
 - Combobox



The screenshot shows the 'Properties' dialog box for a signal. It has several sections: 'Name' with a text field containing 'Signal', 'Display' with a dropdown menu showing 'Slider', 'Description' with a text area, 'Value type' with a dropdown showing 'Unsigned', 'Default value' with a text field, 'Unit' with a text field, a 'Multiplex' checkbox, 'Value table' with a dropdown showing 'None' and an ellipsis button, and a 'Scale' section with four text fields: 'Minimum', 'Maximum', 'Offset', and 'Factor'. Red arrows point from the list items to these specific fields: from 'Name of the signal' to the 'Name' field, from 'Description of the signal' to the 'Description' text area, from 'Display dropdown list' to the 'Display' dropdown, and from the 'Scale' section header to the 'Minimum' field.

- In the "Scale" section, the following settings can be made:
- Minimum/Maximum (used by display type "Slider")
 - Factor/Offset (used to convert value to physical value)
 - Unit (e.g. displayed in plot and trace)

Signal Layout editor

Layout editor: Assistance1

Name	Description	Byte order	Startbit	Length
CarDetected	vehicle ahead detected	Intel	0	1
BrakeInfo	braking distance to short	Intel	8	1
BrakeWarn	brake distance critical	Intel	16	1
CarDistance	vehicle distance	Intel	24	8
BrakeDist	actual brake distance	Intel	32	8

	7	6	5	4	3	2	1	0	
0	7	6	5	4	3	2	1	0	
1	15	14	13	12	11	10	9	8	
2	23	22	21	20	19	18	17	16	
3	31	30	29	28	27	26	25	24	
4	39	38	37	36	35	34	33	32	
5	47	46	45	44	43	42	41	40	
6	55	54	53	52	51	50	49	48	
7	63	62	61	60	59	58	57	56	

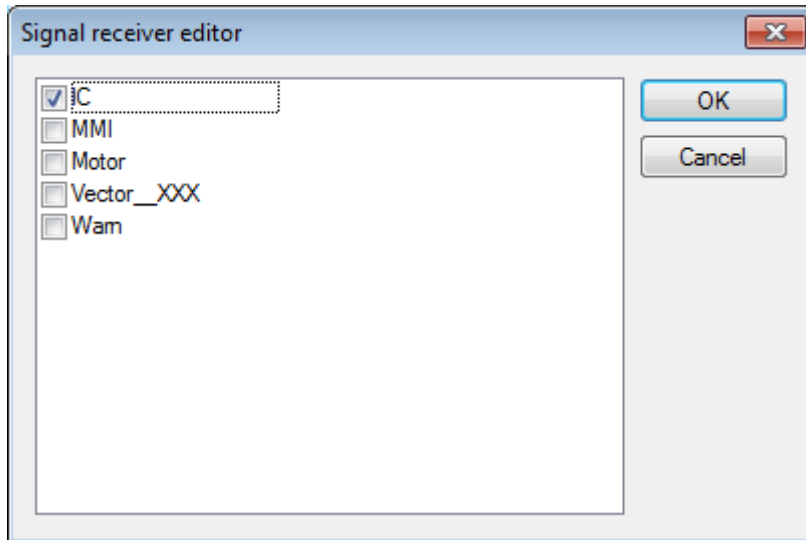
☒ Show overlapping area

Arrange signals OK Cancel Apply

- The layout editor allows changing setting position of signals and struct elements.
- It modifies startbit, bitlength and byte order
- Modify position by drag & drop

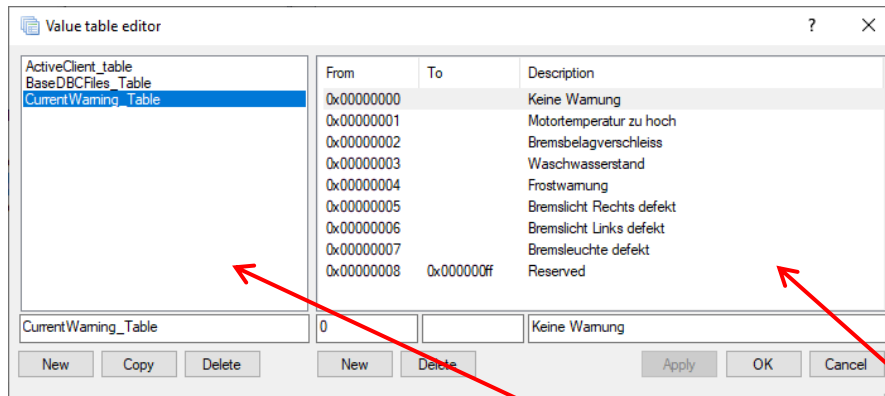
Signal

Signal receiver editor



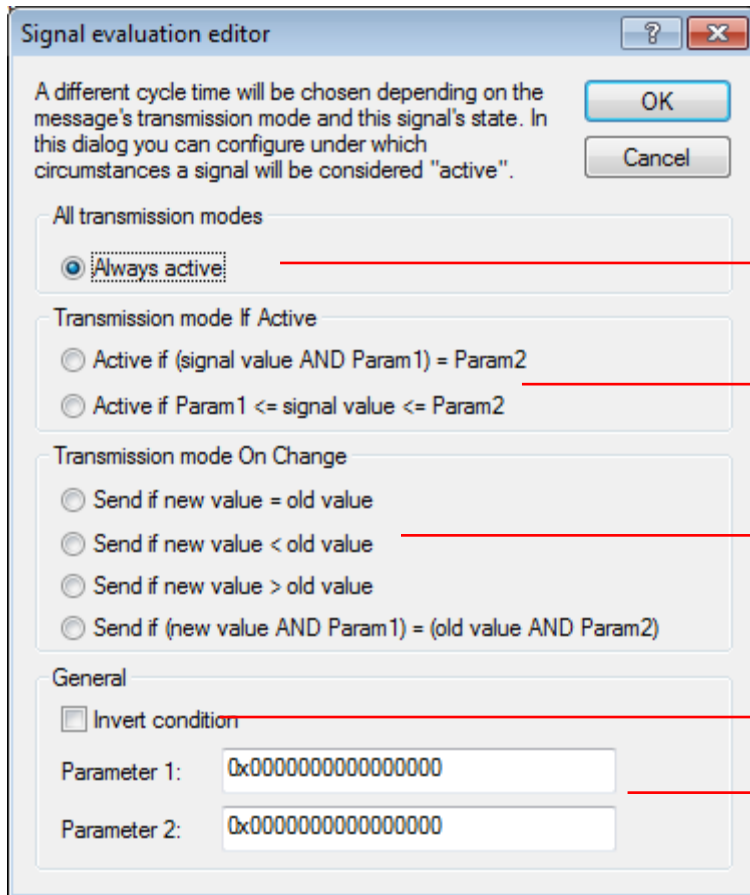
- The signal receiver editor determines which control unit receives the signal
- Selecting multiple ECUs is possible.

Value tables editor



- Value tables apply to all signals of the data base using the representation type "Combobox"
- Content of the selected value table
- List of value tables

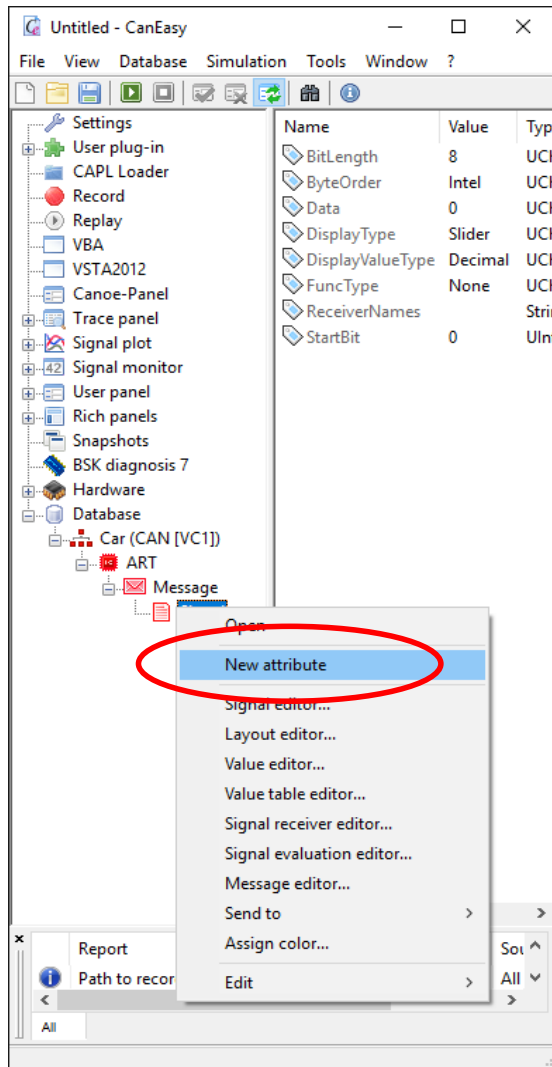
Signal evaluation editor



The screenshot shows the 'Signal evaluation editor' dialog box. It has a title bar with a question mark and a close button. The main text explains that the cycle time is chosen based on the message's transmission mode and the signal's state, and that the user can configure circumstances under which a signal will be considered 'active'. There are 'OK' and 'Cancel' buttons. The dialog is divided into several sections: 'All transmission modes' with a radio button for 'Always active'; 'Transmission mode If Active' with two radio button options: 'Active if (signal value AND Param1) = Param2' and 'Active if Param1 <= signal value <= Param2'; 'Transmission mode On Change' with four radio button options: 'Send if new value = old value', 'Send if new value < old value', 'Send if new value > old value', and 'Send if (new value AND Param1) = (old value AND Param2)'; and a 'General' section with a checkbox for 'Invert condition' and two text input fields for 'Parameter 1' and 'Parameter 2', both containing the hexadecimal value '0x0000000000000000'.

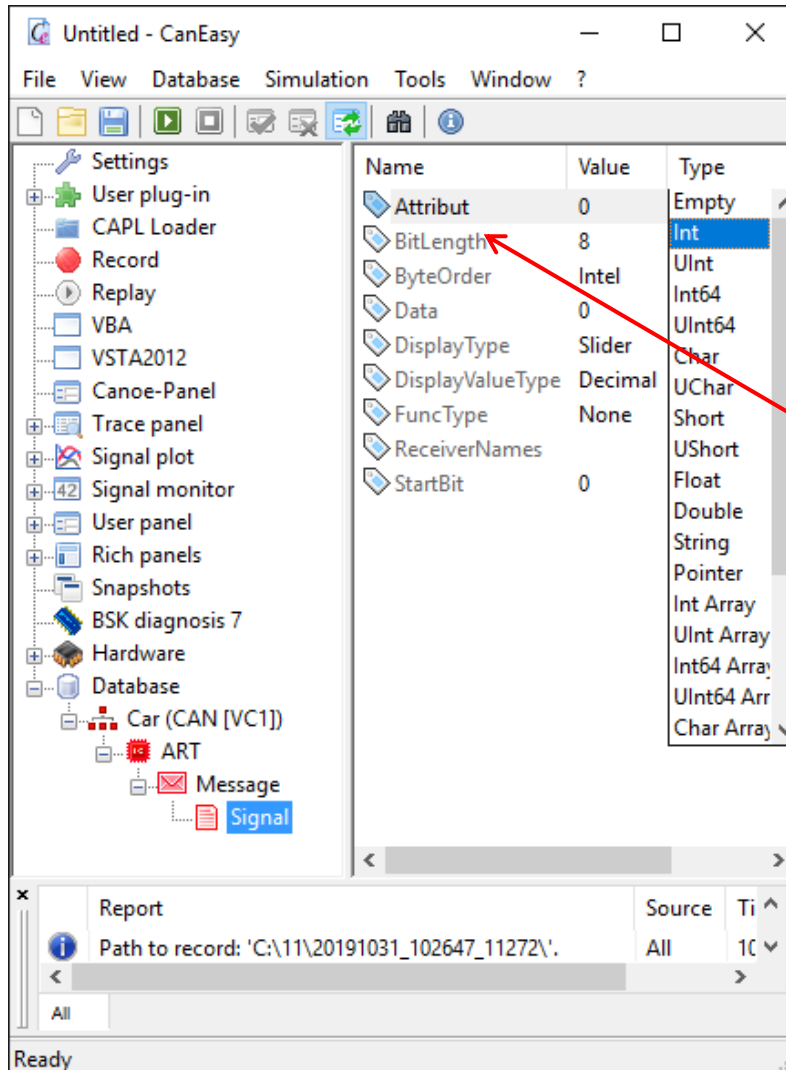
- Message is active if at least one signal is active
- Signal is always active
- Signal is active compared with parameters
- Signal is active compared with old value
- Invert active state
- Parameters to be compared with signal value

Create a new attribute



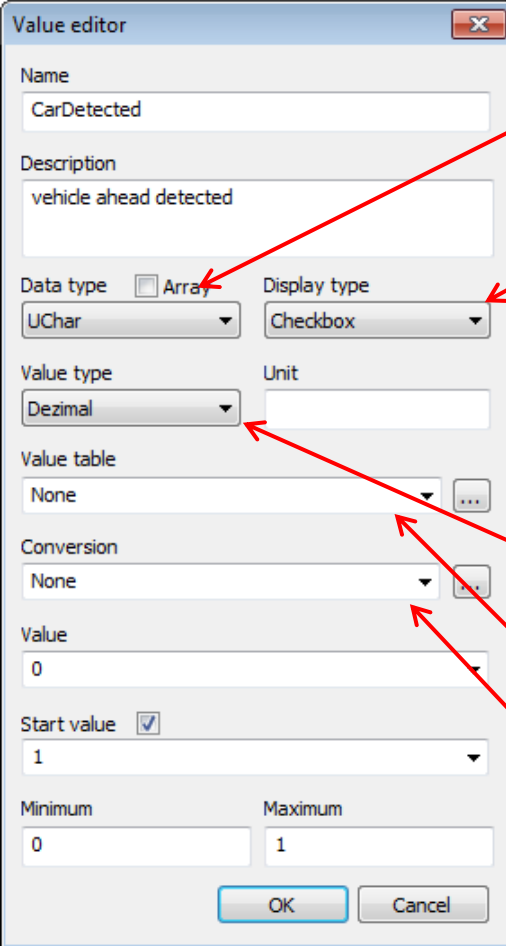
- Select
→ *New attribute*
from the signal context
menu

Attribute List view



- Values inside the list view can be edited directly or via the value editor

Attribute Value editor



The 'Value editor' dialog box contains the following fields and controls:

- Name:** Text field containing 'CarDetected'.
- Description:** Text field containing 'vehicle ahead detected'.
- Data type:** Dropdown menu showing 'UChar'. A red arrow points to this field.
- Array:** A checkbox that is currently unchecked.
- Display type:** Dropdown menu showing 'Checkbox'. A red arrow points to this field.
- Value type:** Dropdown menu showing 'Dezimal'. A red arrow points to this field.
- Unit:** Empty text field.
- Value table:** Dropdown menu showing 'None'. A red arrow points to this field.
- Conversion:** Dropdown menu showing 'None'. A red arrow points to this field.
- Value:** Text field containing '0'. A red arrow points to this field.
- Start value:** A checked checkbox and a dropdown menu showing '1'.
- Minimum:** Text field containing '0'.
- Maximum:** Text field containing '1'.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

- Values can have different data types (e.g. UChar, UInt32, ..)
- Display type:
 - Checkbox
 - Slider
 - Edit
 - Combobox
- The value type is decimal or hexadecimal
- Select value table
- Select conversion

Thank you for your attention!
