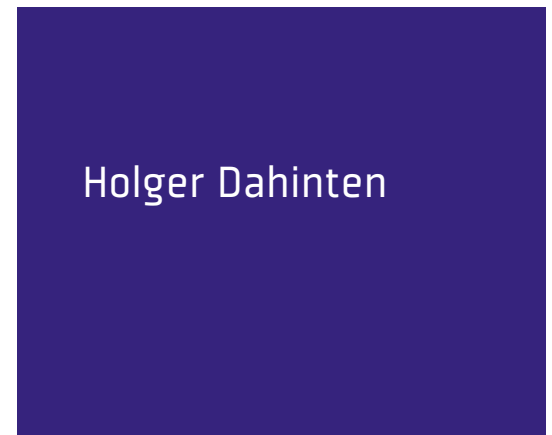
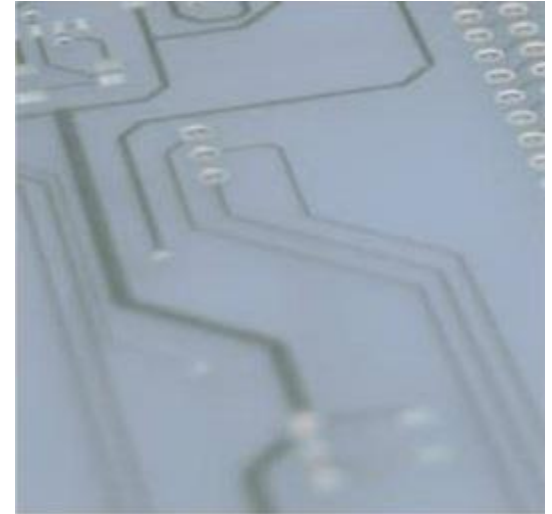
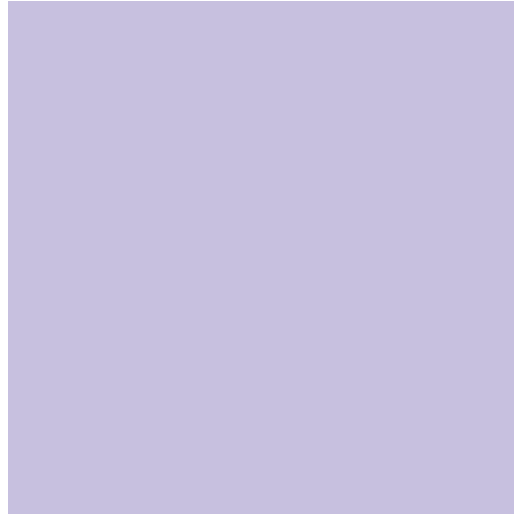
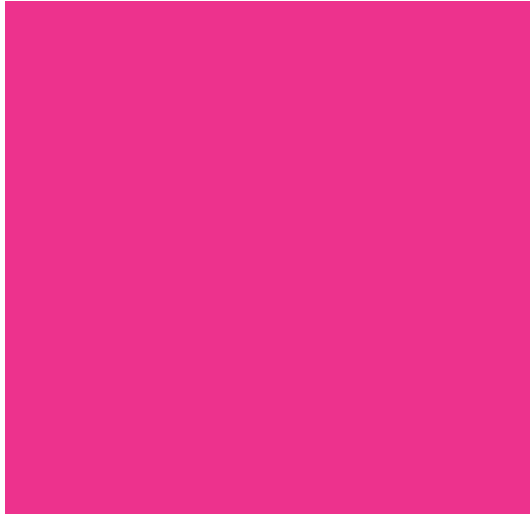


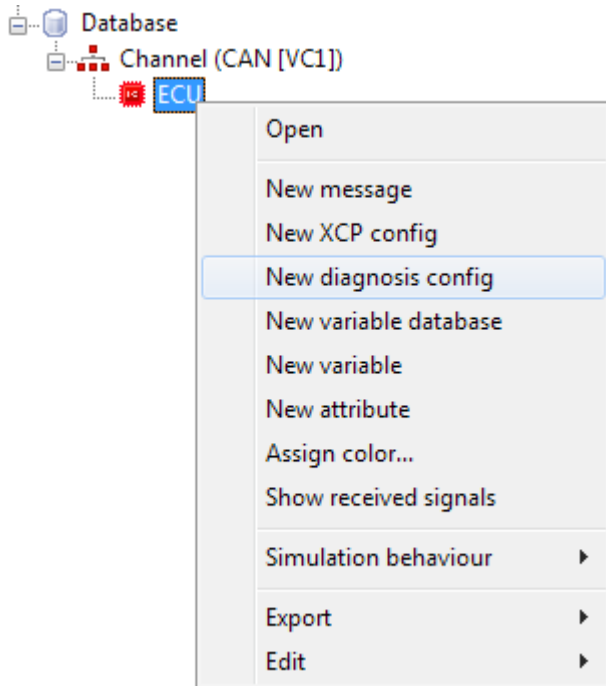
CanEasy Diagnostic services



Holger Dahinten

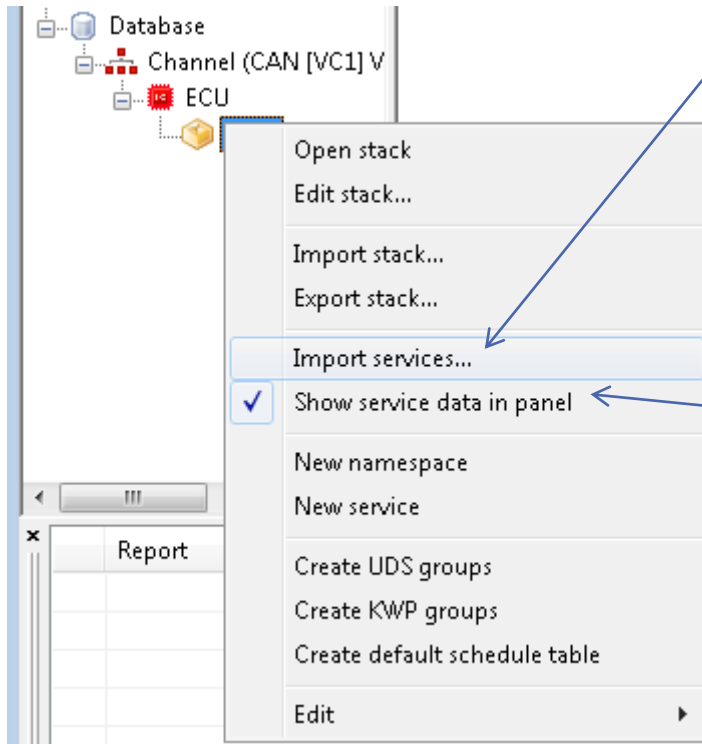
- Starting with version 5.5 CanEasy can import CDD and ODX files
 - Diagnostic services:
 - can be executed manually
 - can be automated via scheduler or VBA
 - Diagnostic service parameters:
 - are recorded
 - can be used within plot windows
 - New diagnostic services or missing parameters can be directly added in CanEasy
 - Diagnostic services or parameters can be quickly found using the search window
 - Custom panels can be easily create by drag & drop diagnostic services to “User panel”
-

Create a new diagnosis configuration



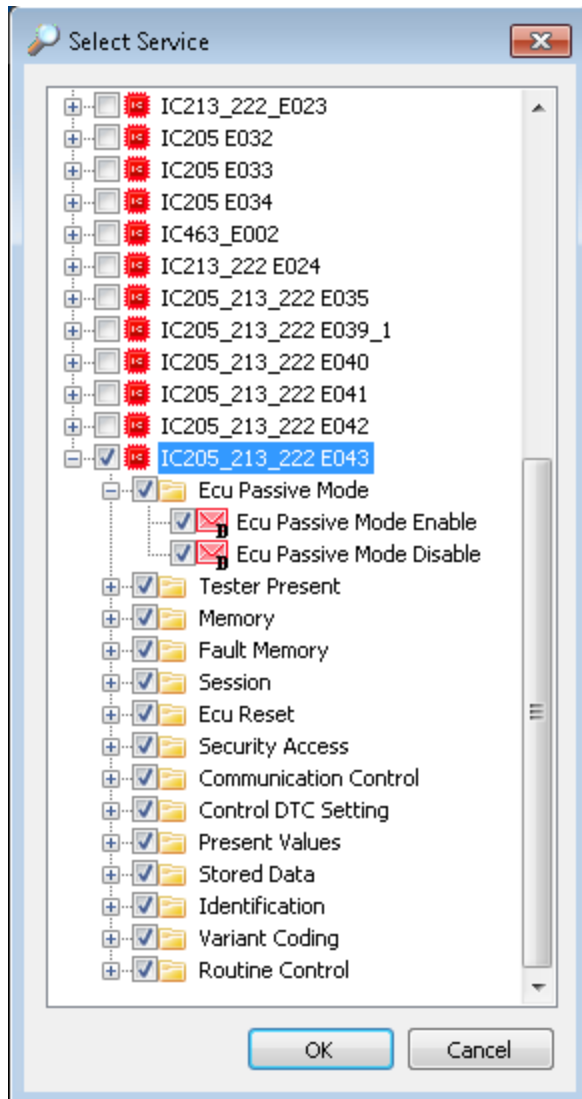
- To use diagnostic services you first need to create a diagnosis configuration under the ECU
- Every ECU can have its own configuration which mainly defines the diagnosis communication parameters
- You can run diagnostic services parallel with multiple ECUs

Import Services (CDD/ODX)



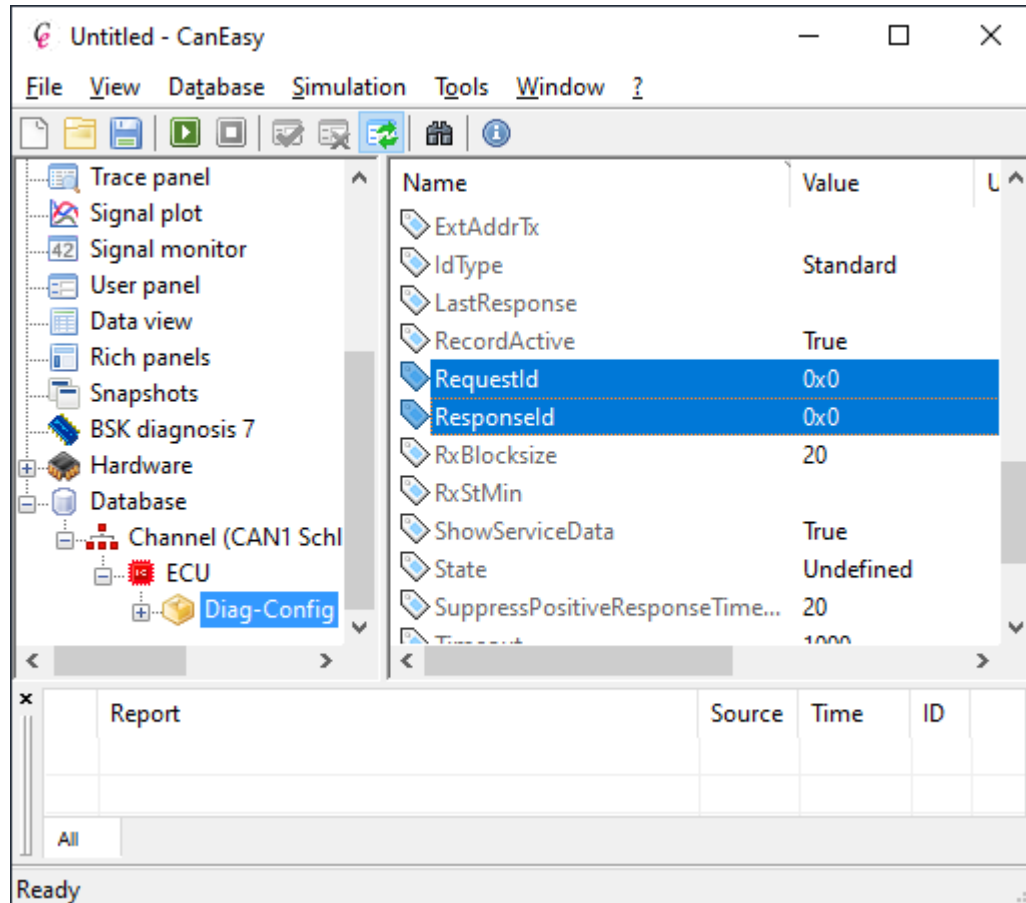
- Using the context menu of the diagnosis configuration you can import diagnosis files like CDD or ODX
- If you don't want to see the payload of request and response messages you can deactivate the "Show service data in panel"

Select variant or single services



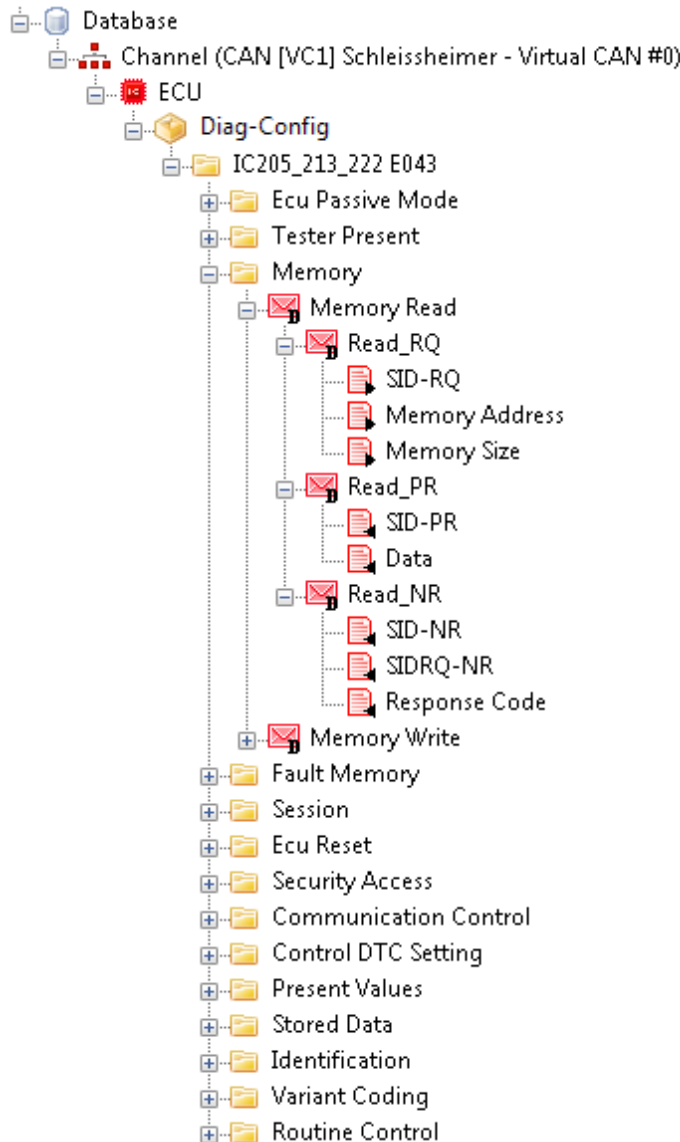
- Before using the diagnostic services you need to select the ECU variant you want to import from the CDD or ODX file
- You can also import only some service groups or just the services you need
- Activating an entry automatically selects all contained items

Overwrite physical CAN IDs



- If the CAN-ID's are not detected during import you have to set them manually
- Setup the physical CAN-IDs to be used

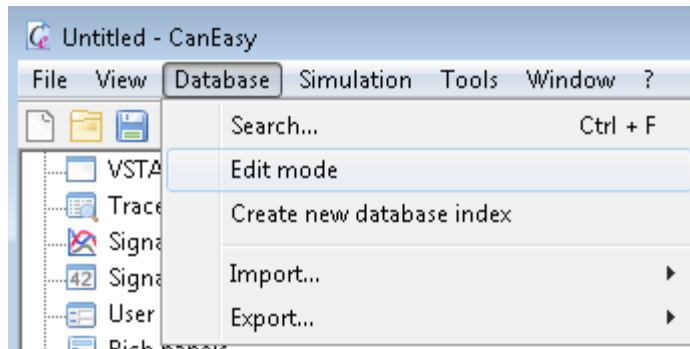
Complete service structure



Hex Value	Description
0x23	SID-RQ
0x0	Memory Address
0x00	Memory Size
0x63	SID-PR
0x00	Data
0x7f	SID-NR
35	SIDRQ-NR
0	Response Code

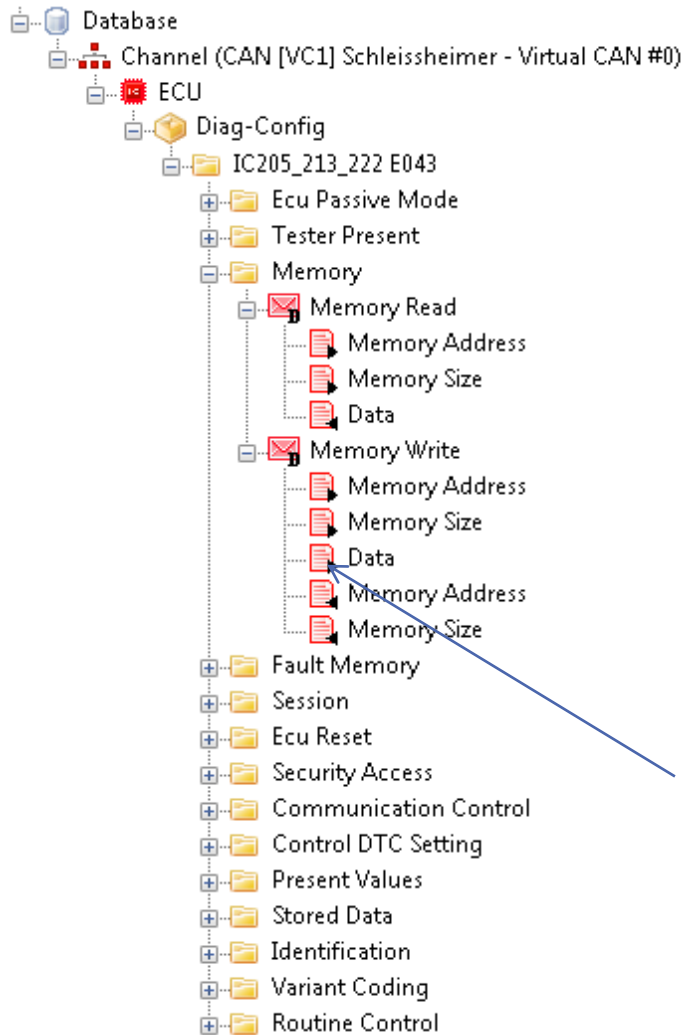
- After import you see all diagnostic groups, services and parameters
- Use double click on a diagnostic service to open a panel to enter parameters and to send the service manually

Switch to simple service structure



- Use the database "Edit mode" to switch between simple simulation view and more complex edit view
- Deactivating the "Edit mode" you see only editable parameters (see property "Const")
- Also the request and response entries are removed
- Activating the "Edit mode" you can change the complete content (payload, SIDs, ...)

Simplified service structure



Memory Read

Memory Read

23 00 00 00 00 00

Response

Undefined

0x0 Memory Address

0x00 Memory Size

0x00 Data

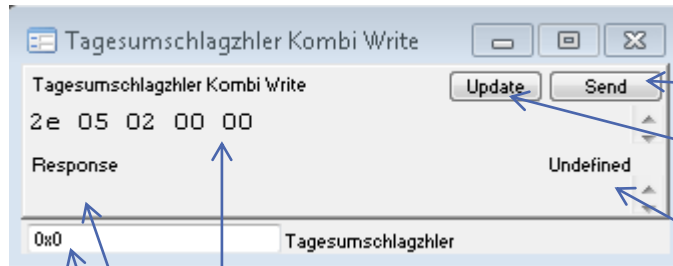
- Request and response parameter are at the same level under the service
- You can see the direction of parameters via the arrow overlay icon



request parameter












response parameter

Working with panel



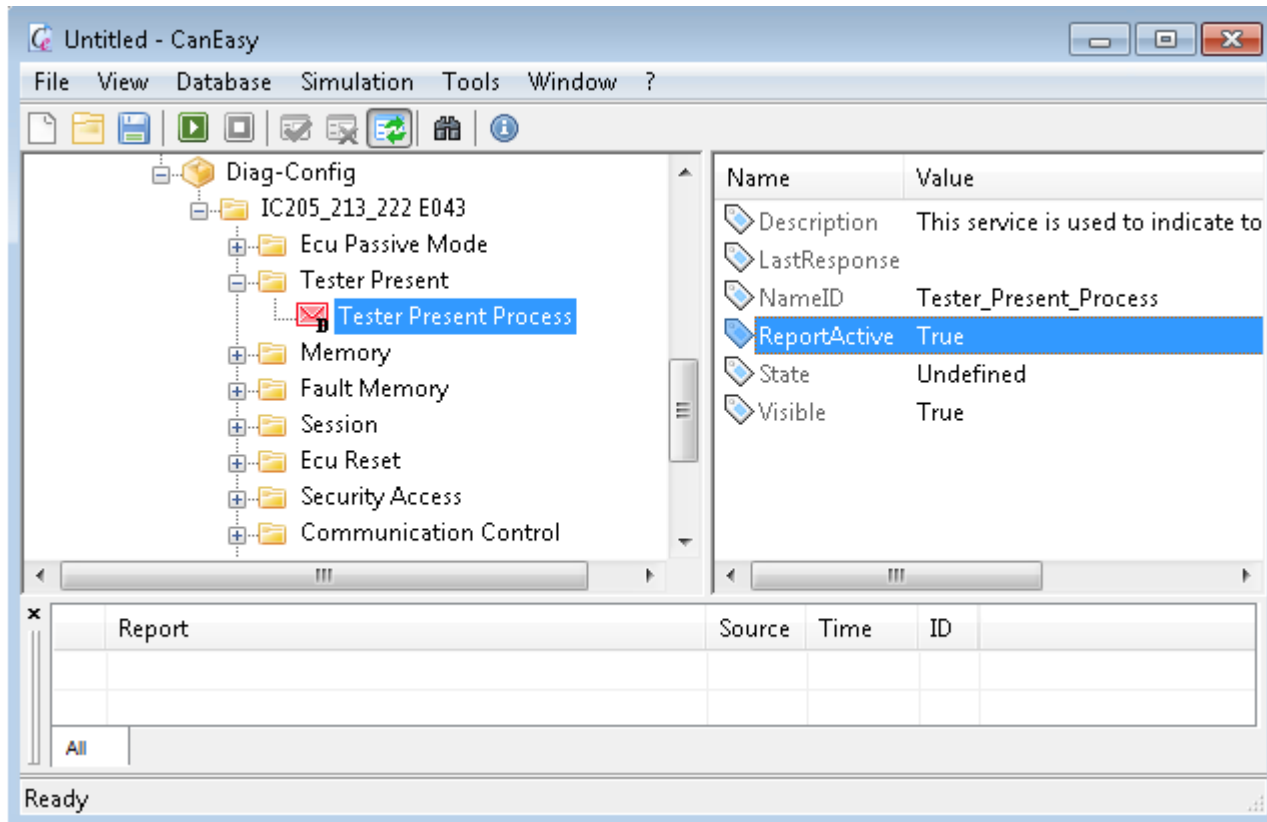
- Use the “Send” button to manually send the service
 - Use the “Update” button for Read/Write services to take the payload from the read response
 - See the state of the request:
 - **Undefined**
request was not sent yet
 - **Pending**
waiting for response
 - **Error**
no acknowledge was received
 - **Timeout**
no response was received
 - **Ok**
positive response was received
-
- Payload can be modified only in “Edit mode”
 - The last response is shown below the request
 - Request parameters can be changed
 - Response parameters are read only

Diagnosis report

Report	
	Tx: 10 03 (Extended Start)
	=> Rx: 50 03 00 14 00 C8
	P2_CAN_ECU_max: 0x14
	P2s_CAN_ECU_max: 0xc8
	Tx: 31 01 03 03 00 (Displaytest Start)
	Testbildnummer: 0x00 : white
	=> Rx: 71 01 03 03
	Tx: 31 01 03 03 00 00 (Displaytest Start)
	Testbildnummer: 0x00 : white
	=> Rx: 7F 31 13
	Response Code: 19

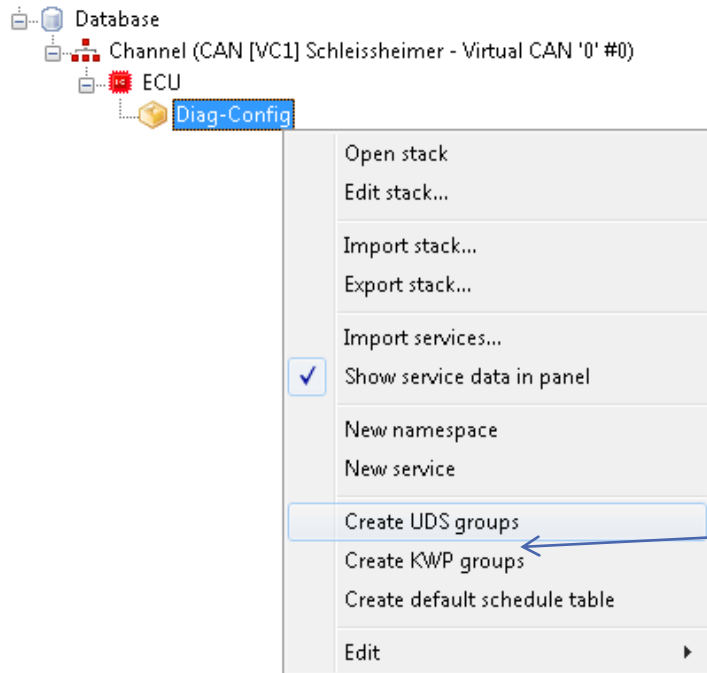
- Taking a look at the report window of CanEasy you get information about all transmitted services
 - Payload of request and response
 - Request and response parameter values
 - Information about timeout or error
- Undock the report window if you want to see a larger history

Deactivate diagnosis report



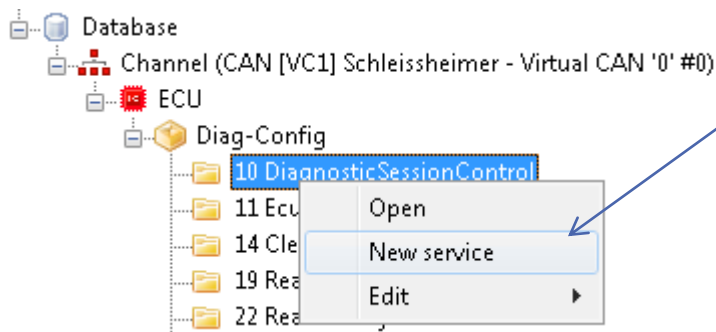
- If you don't want to see outputs in the report window (e.g. cyclic services, ...) you can do this by changing the property "ReportActive"

Create services manually



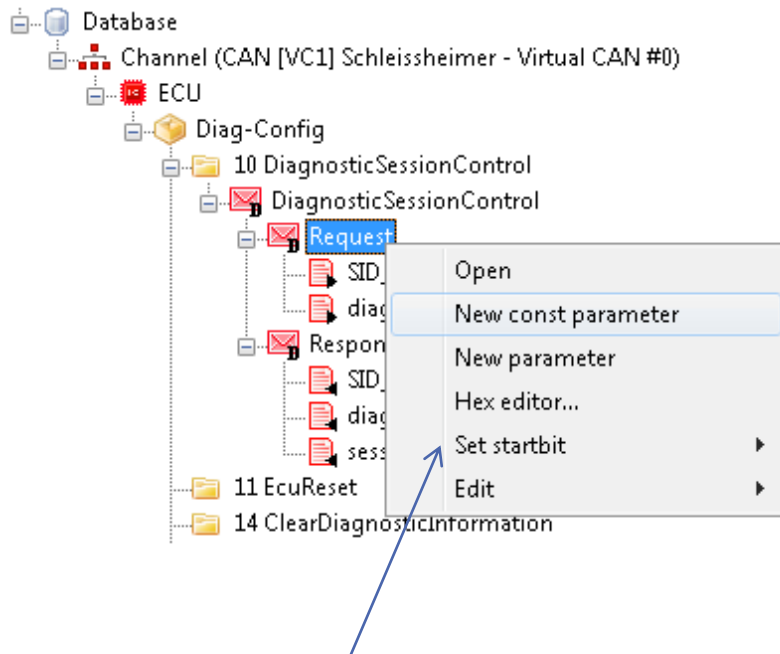
- If you don't have a CDD or ODX file or there are some missing diagnostic services or parameters you can create them directly in CanEasy

- Creates all known UDS or KWP groups



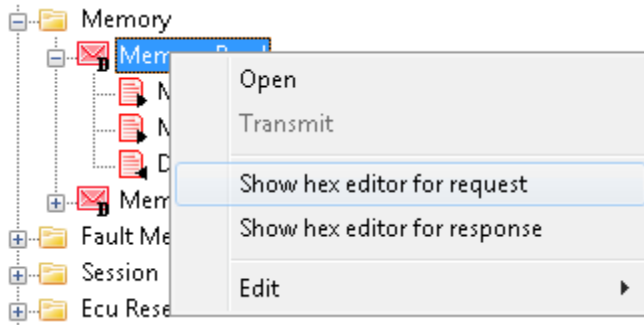
- Within the group you can create the services
- Within the services you can create new parameters

Create service parameter

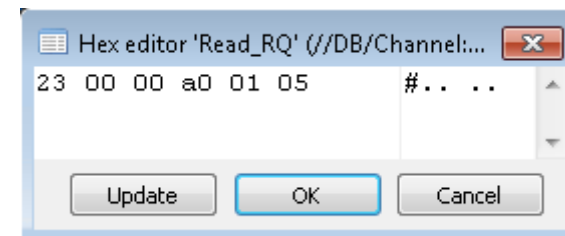
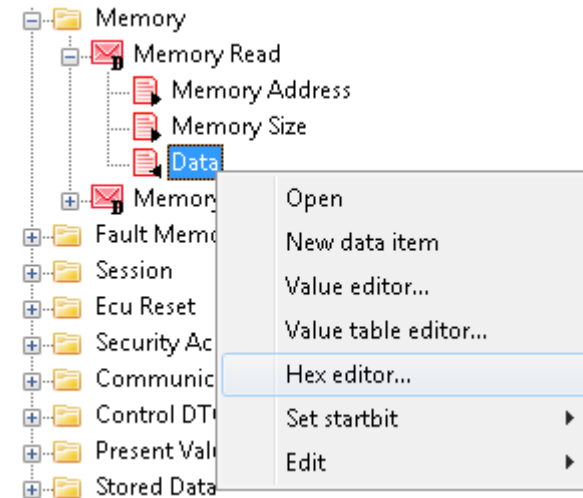


- Creating a service parameter you can decide between const (read only) or normal parameters
- Inside of service parameters you can create child parameters to build up structured data
- To setup new parameters you need to set the property BitLength, StartBit and ByteOrder
- Automatically setup up the startbit for Intel or Motorola byte order

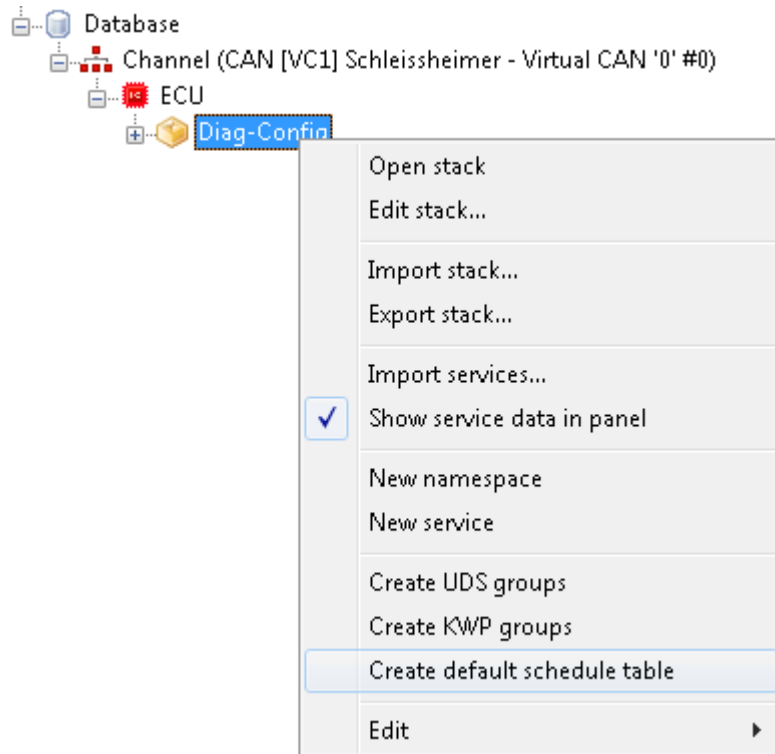
Working with hex editor



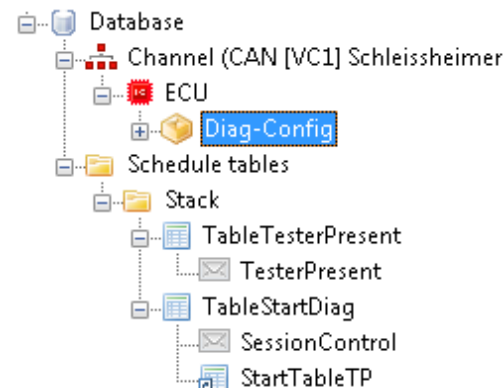
- Open the hex editor to see data/payload in a separate window
- The hex editor can be opened for the request, the response or for every service parameter



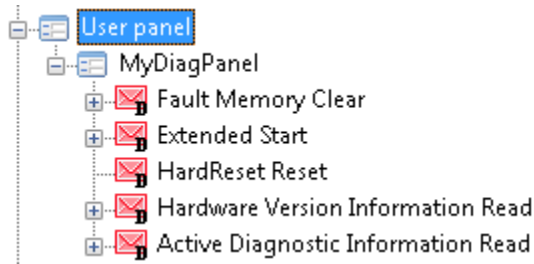
Tester present and session control



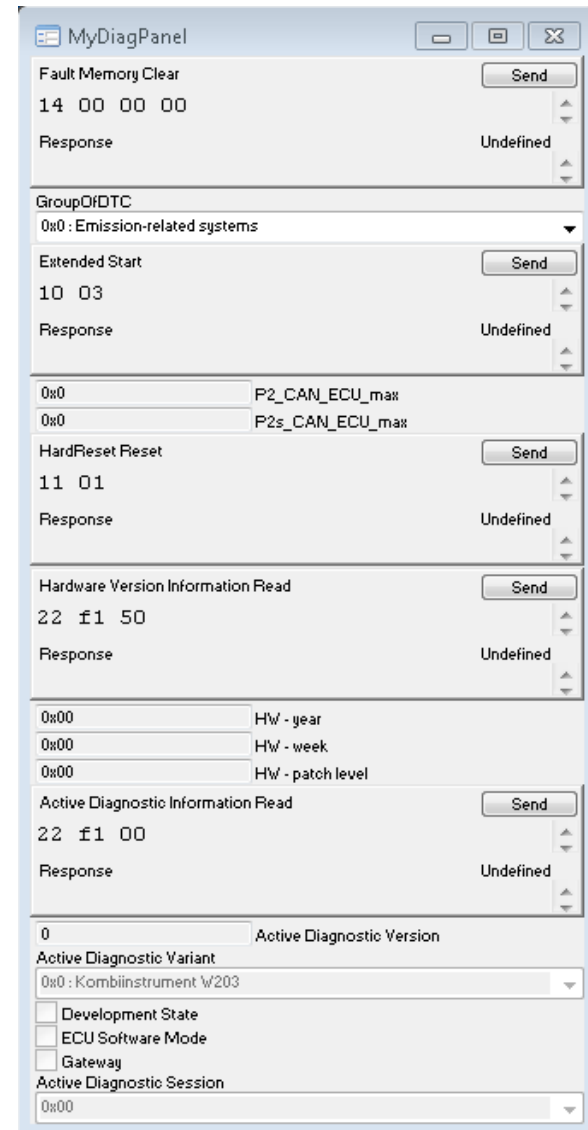
- To automate tester present and session control you can create a default scheduler table
- The table **TableStartDiag** is executed on simulation start, changes the session and starts the table **TableTesterPresent** to transmit the tester present cyclically



Create user panels

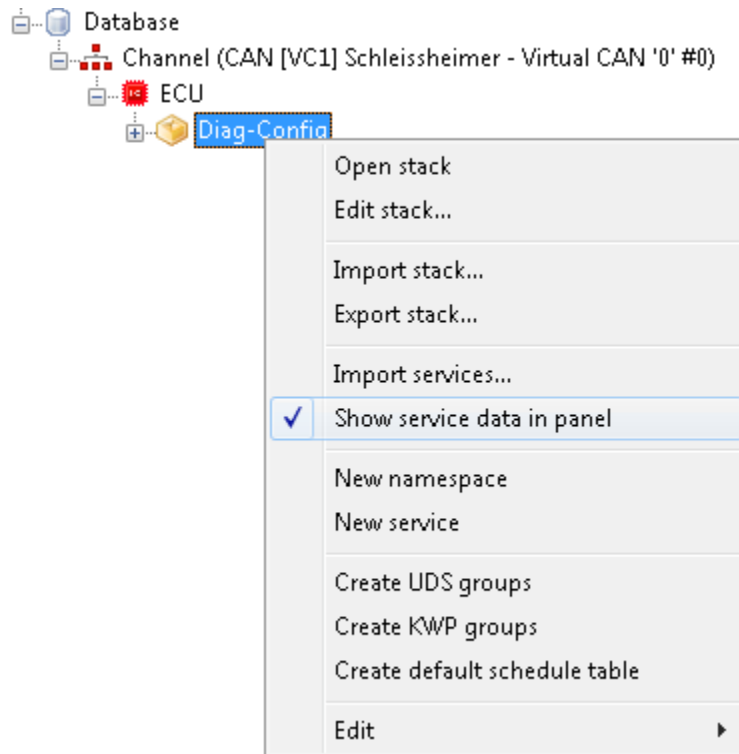


- Drag & drop diagnostic services or single parameters to the "User panel" to create a panel that contains services you often need
- Response parameters are read only
- Changing payload works only with activated "Edit mode"

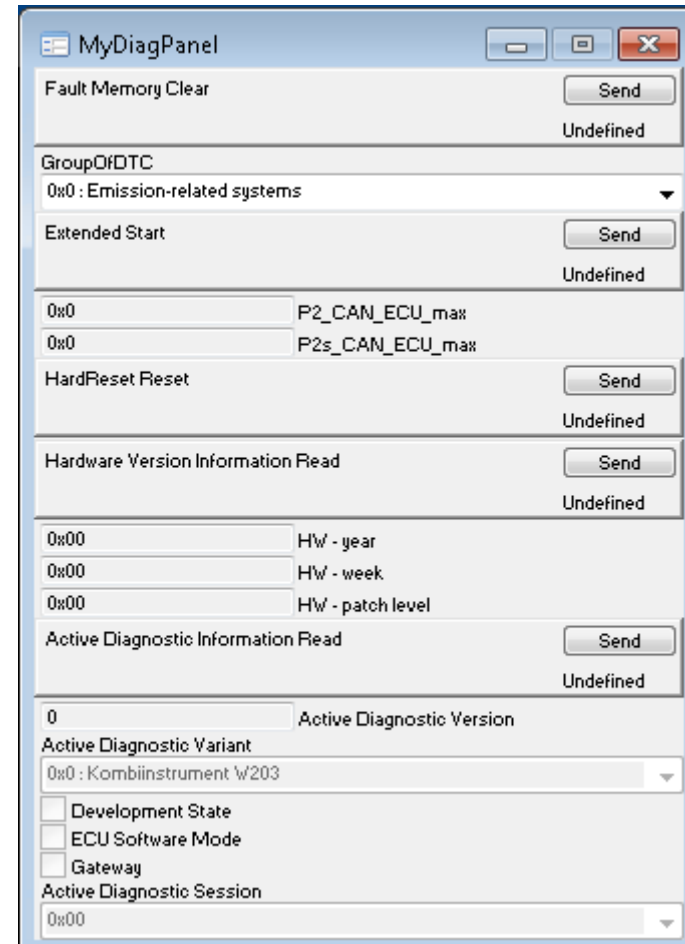


Service	Value	Response
Fault Memory Clear	14 00 00 00	Undefined
Extended Start	10 03	Undefined
HardReset Reset	11 01	Undefined
Hardware Version Information Read	22 f1 50	Undefined
Active Diagnostic Information Read	22 f1 00	Undefined
Active Diagnostic Variant	0x0: Kombiinstrument w/203	Undefined

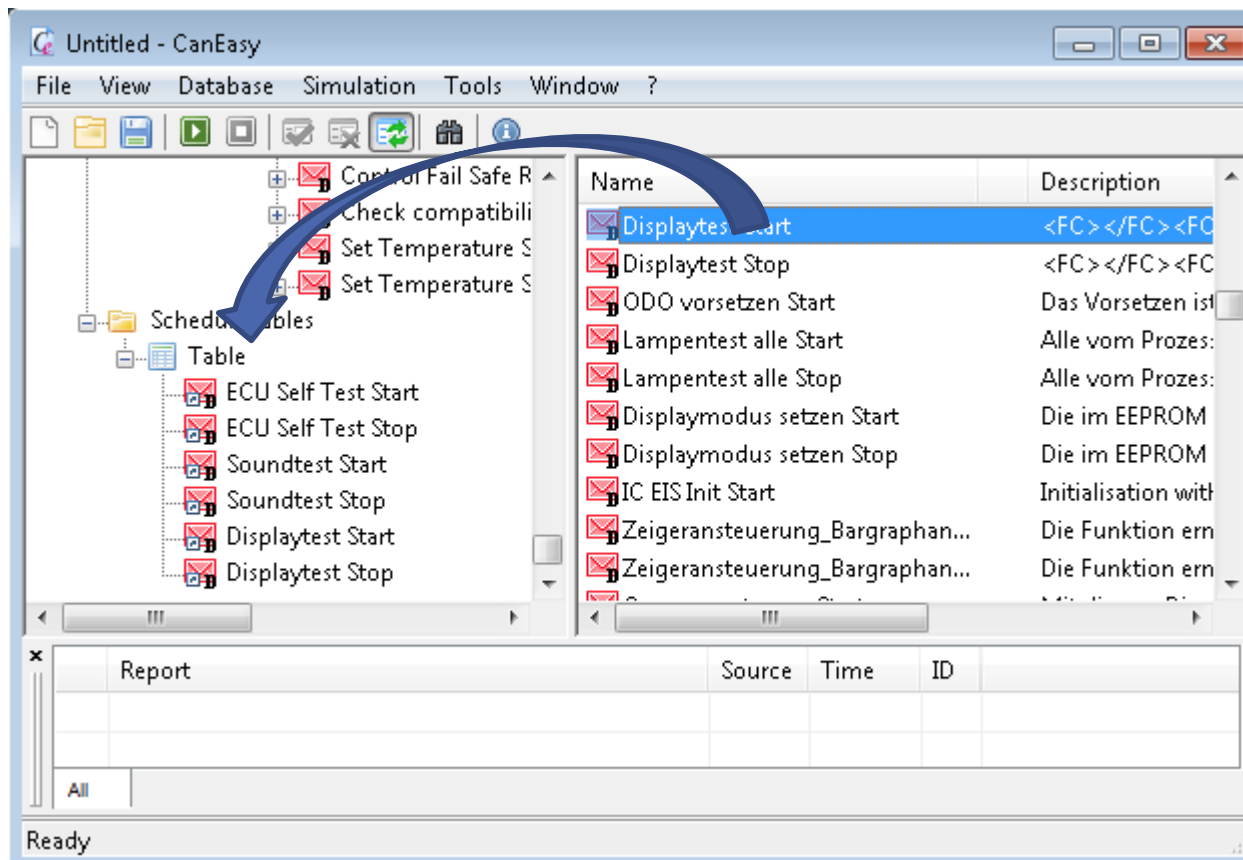
Hide payload in panels



- Use the setting "Show service data in panel" to hide the payload and to get smaller panels



Automate requests with Scheduler



- If you need a sequence of services just drag & drop them to a scheduler table

Thank you for your attention!
