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blue PiraT2

CCP User Guide

Version 1.9.1 - 29.01.2014

Telemotive AG

Index

1. LICENSE AGREEMENT 2
2. PRODUCT LIABILITY 3
3. Overwiev 4
4. System requirements 4
5. System overview / description 5
5.1. Setup / configuration: 5
5.2. Operating / Data recording: 5
5.3. Download / Conversion: 5
6. Setup / configuration 6
7. Operating / data recording 14
8. Download / conversion 16
9. Contact 20

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3. Overwiev

The following document describes the usage of CAN Calibration Protocol (CCP) feature of the blue PiraT2.

For further descriptions please refer to the general or feature user guides.

This document refers to the blue PiraT2 firmware 01.09.01 and the blue PiraT2 client version 1.9.1. Some features depend on data logger model, installed licenses or may not be available in older versions.

Software updates are frequently available in the blue PiraT Service Center (you will find a link at the end of the document).

Please make sure that you are using the current software.

4. System requirements

Control Unit

A computer with a Microsoft Windows operating system is used for establishing a connection and to configure the devices. It also allows to save the recorded data and to use them offline.

blue PiraT2

The blue PiraT2 is an optimized data logger developed by Telemotive AG. The communication of bus systems and control units is very important data and can be monitored and recorded very precisely with the blue PiraT2. The collected data can be transmitted from the data logger via Ethernet. The data can be analyzed for example on a computer.

CCP License

For using the CCP feature, a license file must be installed for each blue Pirat2.

A2L file

This file defines parameters which are necessary to set up a communication between the blue PiraT2 and an ECU. Each control unit has its own A2L file, so it cannot be provided by Telemotive AG. Please contact the respective ECU manufacturer.

5. System overview / description

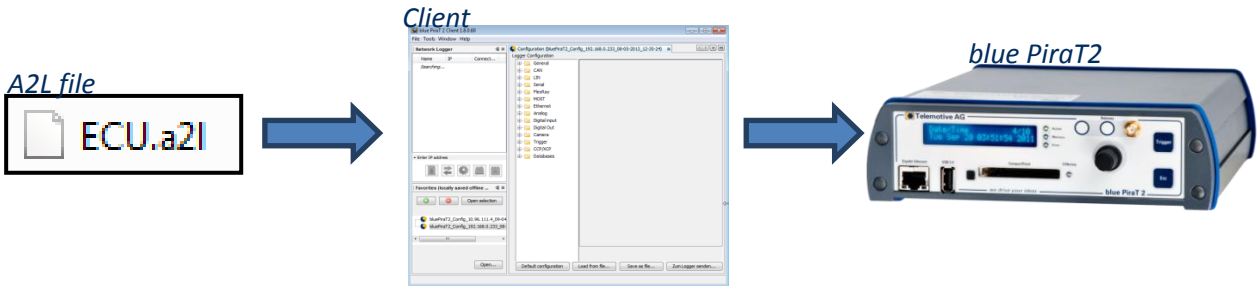
For an easy system overview, we can separate the system into three basic parts.

- Setup / configuration
- Operating / data recording
- Download / conversion.

In general, the system is used to get a MDF v3.3 file that includes the CCP communication data.

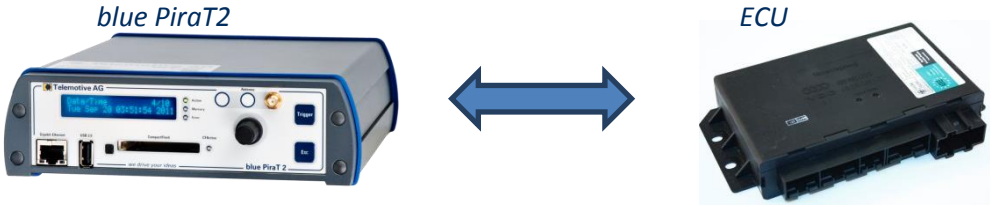
5.1. Setup / configuration:

The A2L file (delivered by the ECU supplier) is loaded by the blue PiraT2 client and can be modified if necessary. The client can upload the configuration to the blue PiraT2.



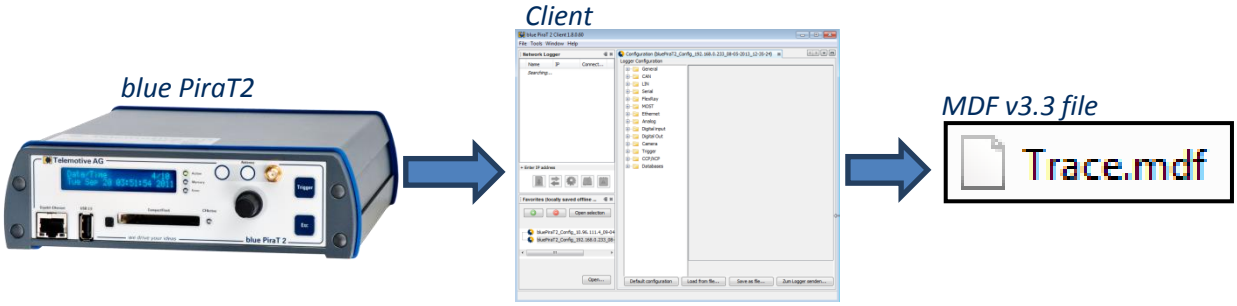
5.2. Operating / Data recording:

The blue PiraT2 and the ECU work as configured. The CCP protocol is running. The blue PiraT2 records the data.



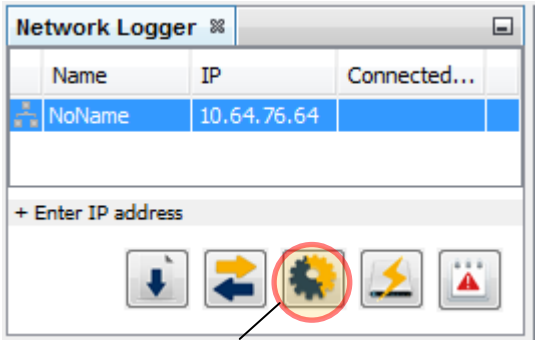
5.3. Download / Conversion:

After recording, the data can be downloaded or converted directly into the MDF v.3.3 format by the blue PiraT2 Client.



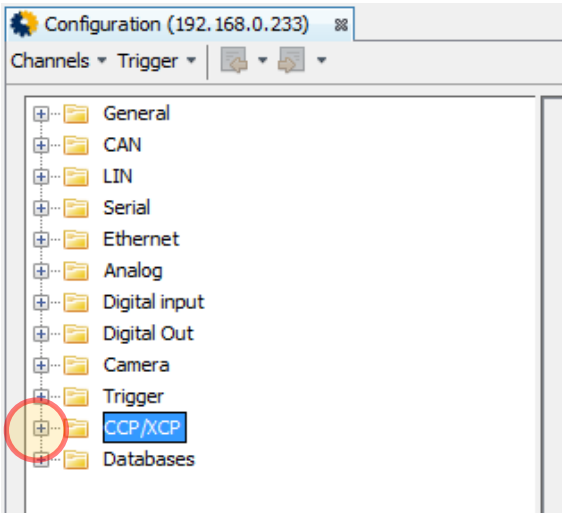
6. Setup / configuration

Connect the blue PiraT2 and a Computer by using an Ethernet cable and open the Client. Select the blue PiraT2 in the “Network Logger” window and click on the “Open configuration” button.

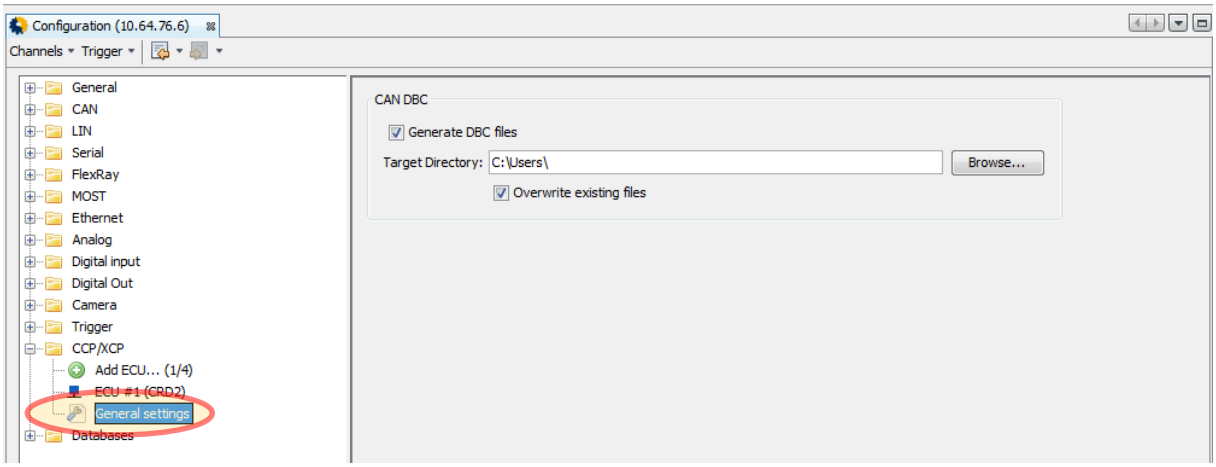


Open configuration

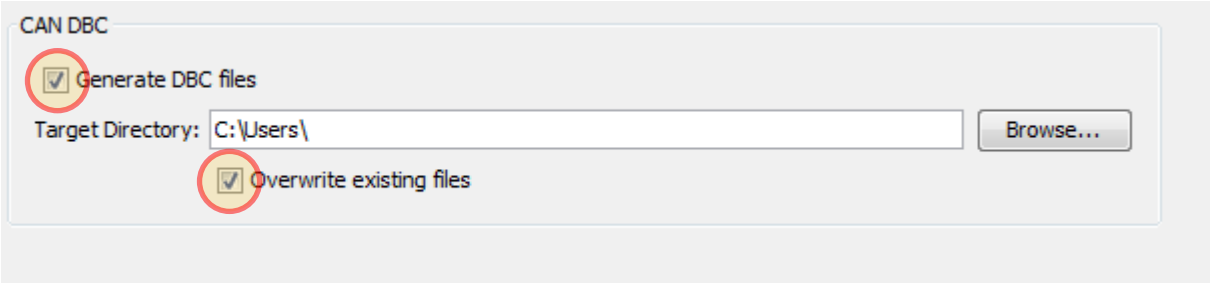
The settings for CCP / XCP are available in the data logger tree. There are also all other channel types from the blue PiraT2 listed. A click on the “+” opens the CCP substructure.



Start with the general settings and select the respective entry.



With the first checkbox, the blue PiraT2 will create a ".dbc" file. A dbc file includes a data base of CCP data field details which were measured over the DAQ lists.

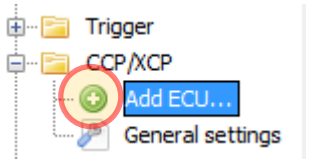


With the second checkbox, there could be decided whether an existing dbc file will be overwritten or not. The file name is generated by the client. If you want to keep the existing files, a different destination directory must be selected.

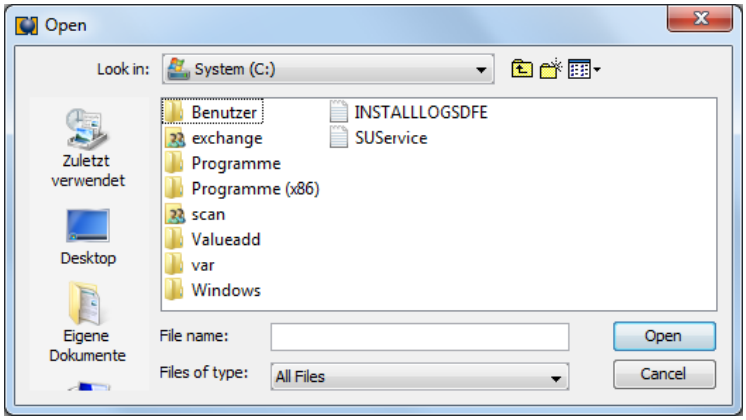
Attention:

If the target data format is MDF v3.3, please select the option to generate the *.dbc files. The ".dbc" file is absolutely necessary to create this file format.

To configure a new ECU, please double click "Add ECU…"



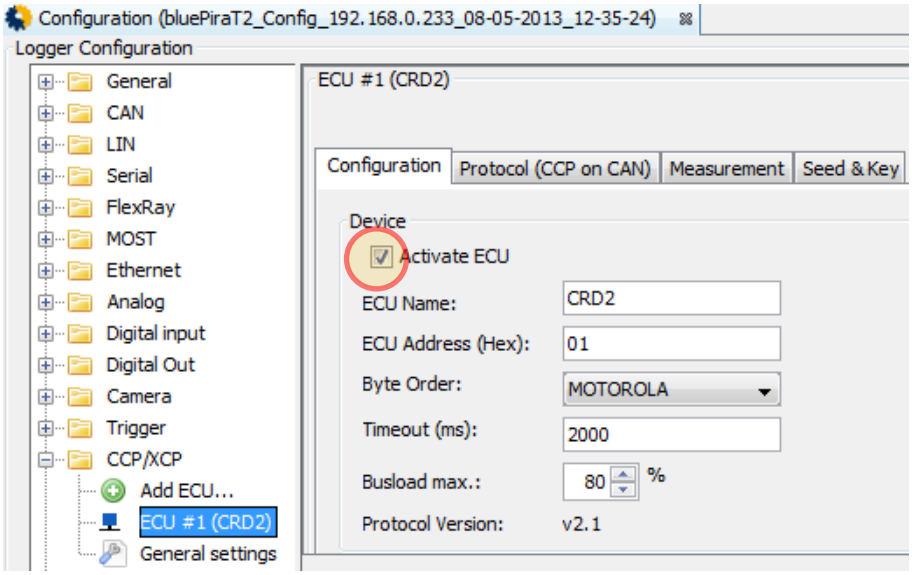
A file selection menu to select an A2L file with the configuration data of the ECU appears. Please select the corresponding A2L file for the ECU.



Attention:

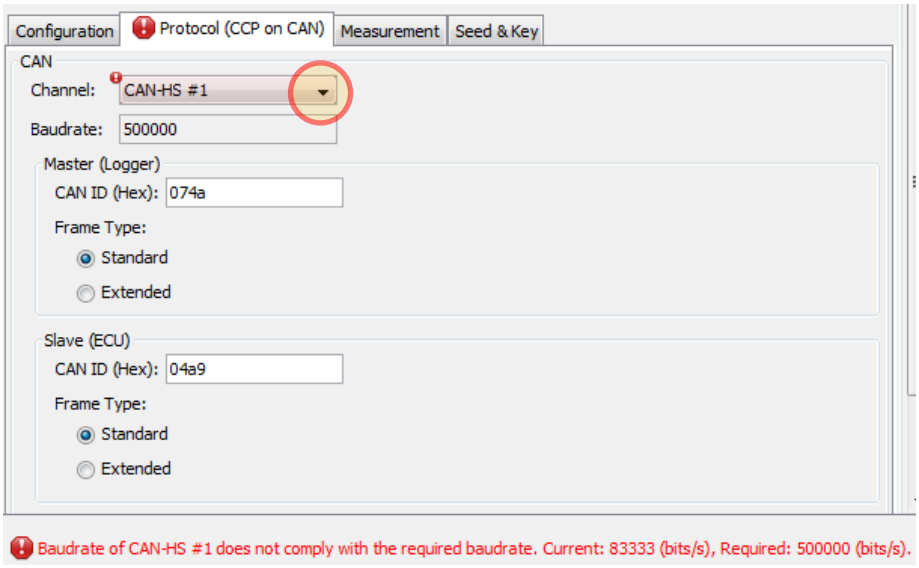
The A2L file has to match absolutely the ECU and its hard- and software version. Otherwise the read or write addresses can be wrong and the CCP communication does not work correctly. Please contact the ECU supplier for the correct A2L file.

Every single ECU can be activated or deactivated on the first tab. Here, you can also type in a name for the ECU.



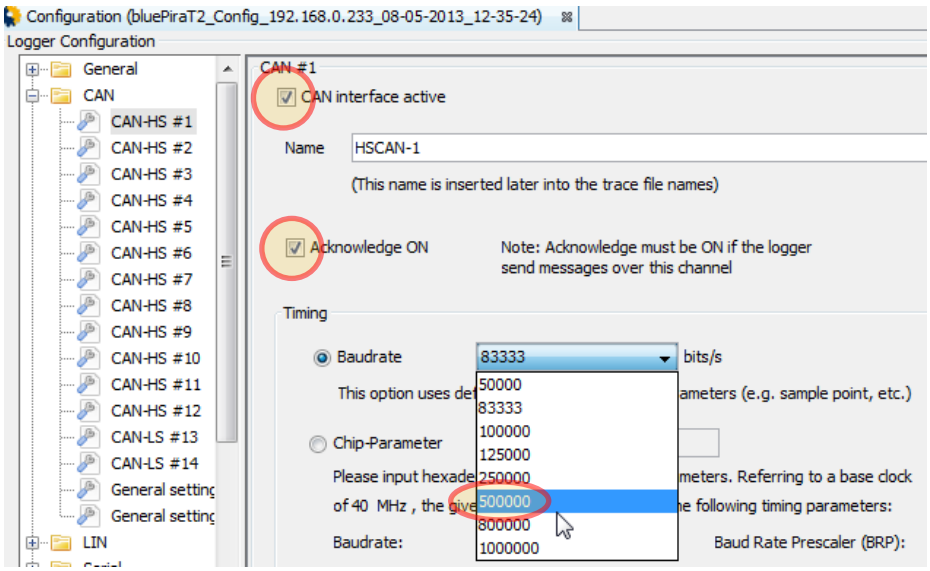
The parameters are predefined by the A2L file. Please change these parameters only if you exactly know their importance and the effects that could happen.

On the tab “Protocol (CCP on CAN)” please select the required CAN channel. The selected CAN channel has to be activated in the CAN settings.



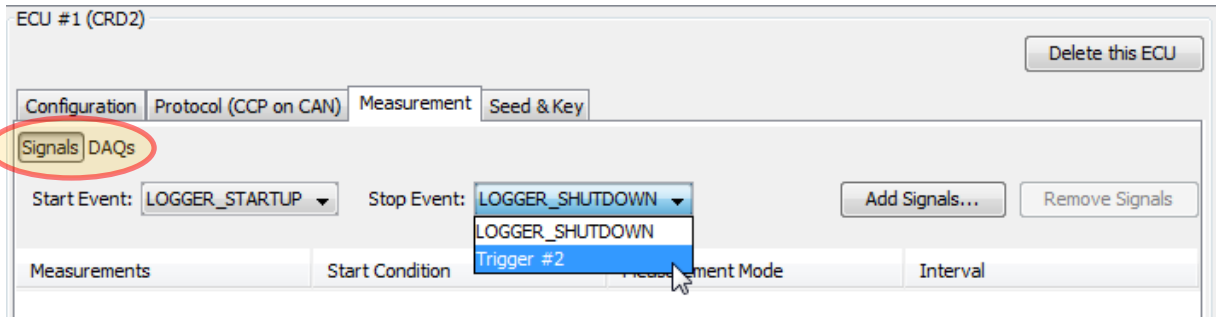
The baud rate is read out from the A2L file. If the value does not match to the channel (in this case “CAN-HS #1”) an error message is shown.

To correct the error, switch to the corresponding CAN channel (CAN-HS #1) and set up the baud rate. You also have to set the CAN channel to be active. The “Acknowledge ON” must be activated, too.



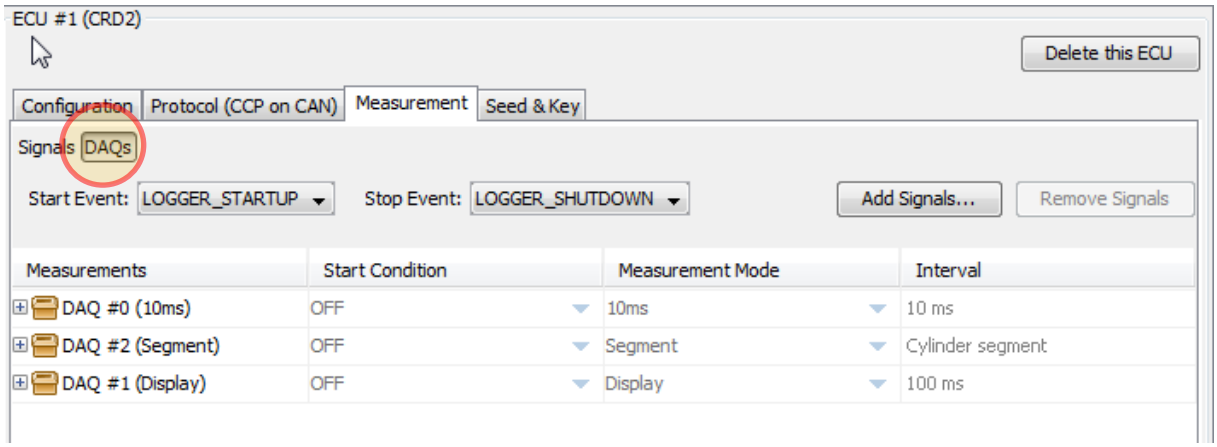
In the tab “Measurement” there could be set up a start and a stop event. This can be done for each ECU.

In this tab the view could be changed between “Signals” and “DAQs” (DAQ Lists).



To define a trigger as start or stop event, the license “complex triggers” is necessary. After defining a complex trigger for CCP, the option is also able to start or stop the CCP measurement. Further information about the complex triggers can be found in the document “bP2 - Complex Triggers User Guide”.

The DAQ lists are already predefined by the A2L file. Some of the lists allow editing the parameters.

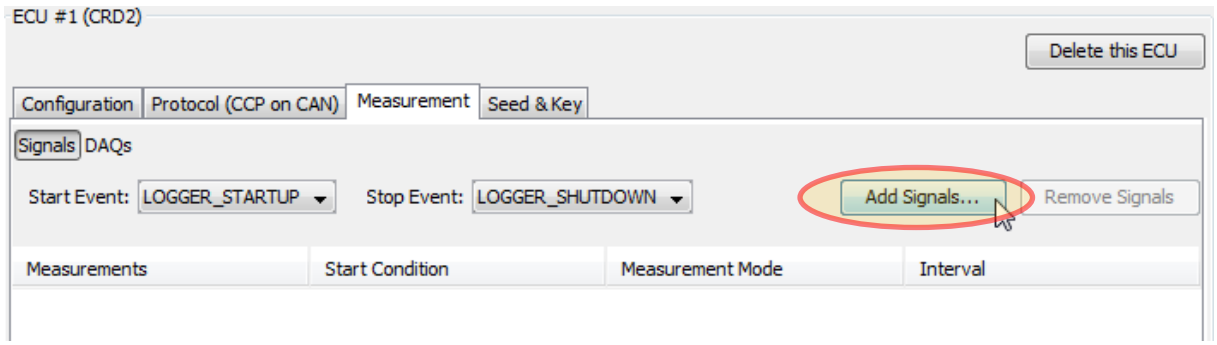


Separate start events for the individual measurements

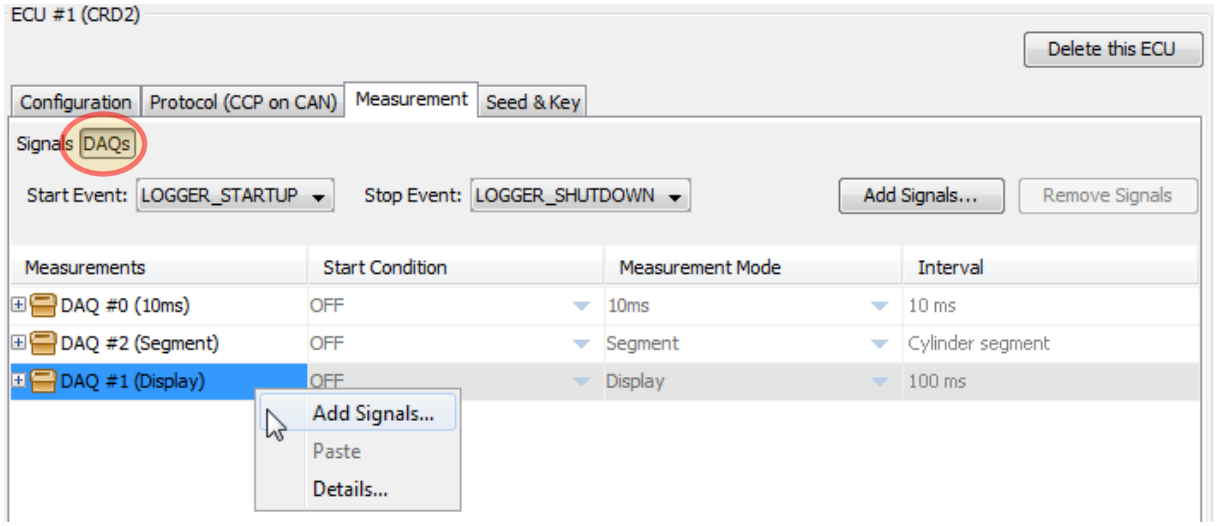
Mode for the individual measurement

Interval, can be time- or event triggered

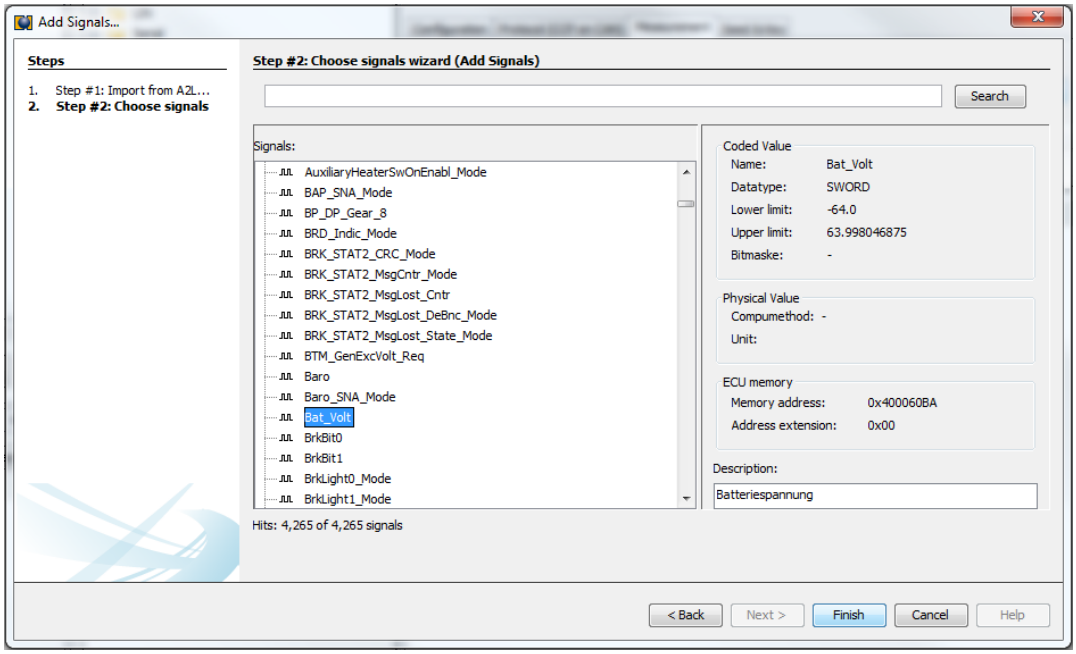
The button "Add Signals" adds individual signals that should be measured to the current measurement.



Signals can also be added for each DAQ list by right clicking the list.



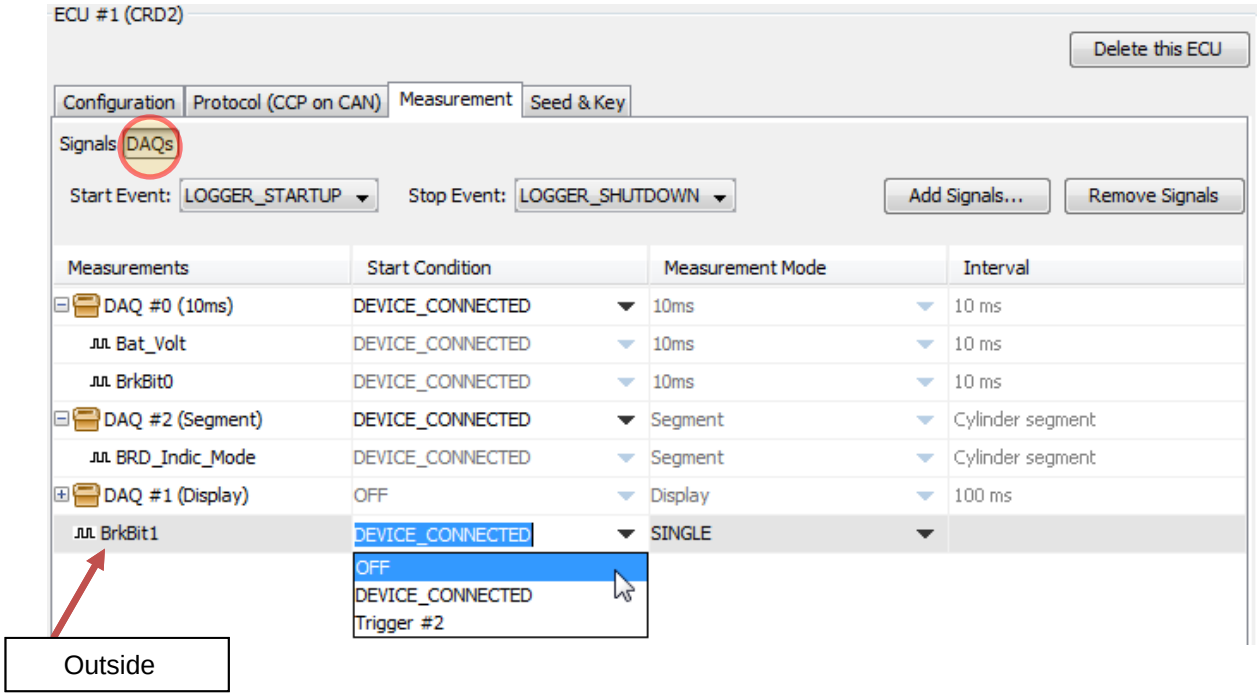
Both cases will open the following window:



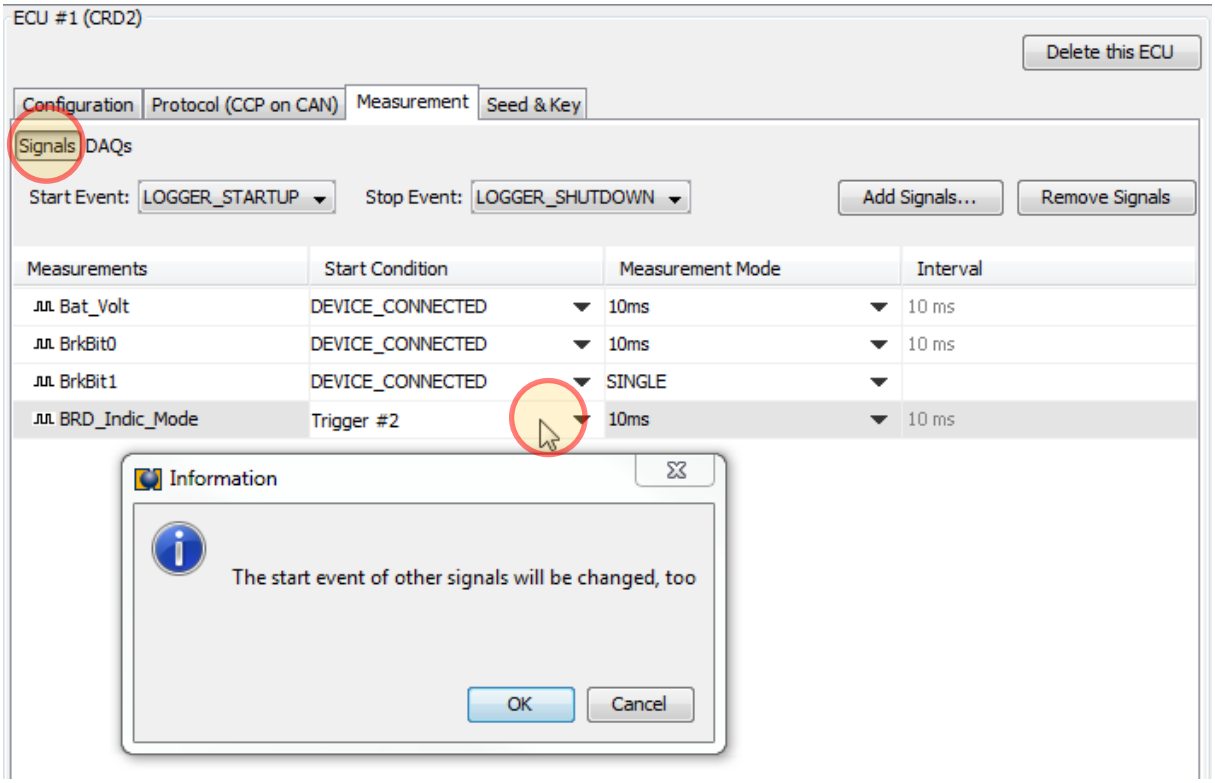
A double click on the required signal will automatically add this to the measurement. It is also possible to select multiple signals and clicking “Finish”.

Signals can be moved per “drag and drop” between the DAQ lists or they can be placed outside the DAQ list.

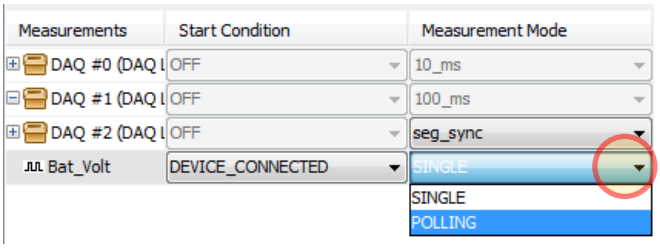
For each signal which is not in a DAQ list, or complete DAQ lists, a separate start condition can be defined.



If the start condition of a single signal from a DAQ list is changed in the “Signal” view, the whole DAQ list must be changed.



For each signal, the measurement mode from the drop down list is selectable. This function also operates only with Signals outside a DAQ-List or with the whole DAQ list.



The drop down content is usually defined in the A2L file. If options cannot be selected or changed, this is also defined in the A2L file.

In principle, three different types of measurement can be distinguished:

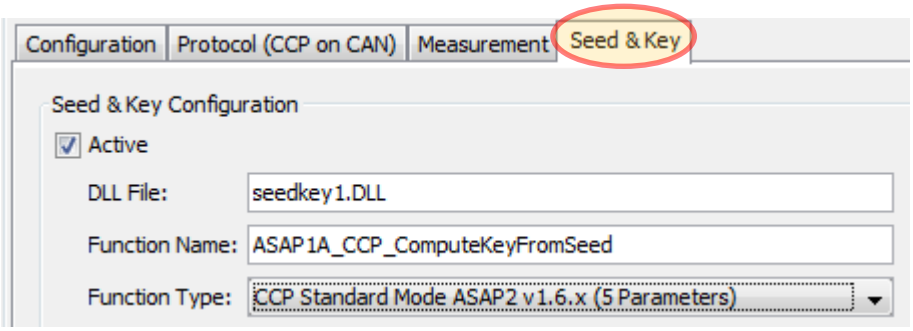
- SINGLE: The data will be requested once.
- POLLING: The data will be requested in cycle. This is happen after a defined time interval.
- DAQ The data is configured once from the blue PiraT2 within the ECU. The ECU will send the required data after an ECU internal defined event.

Note:

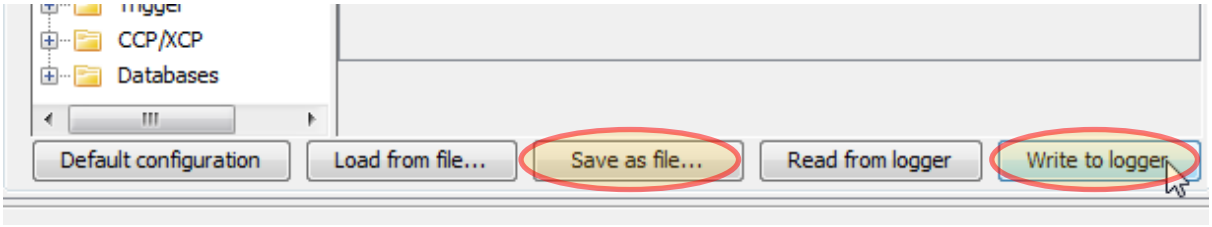
In some cases the ECU software does not support all the measurement modes defined in the A2L file. If more than one measurement mode is configured for the same ECU and the CCP communication does not run, please try to configure only one measurement mode first. So you can isolate the problem and may have at least one or two working measurement modes.

One or more selected signals can be deleted by using the button “Remove Signals”.

If the ECU supports „Seed & Key“, please check the settings in the corresponding tab.



If all configurations have been finished, it is possible to save the configuration or to send it to the data logger. A saved configuration can always be opened by the client.

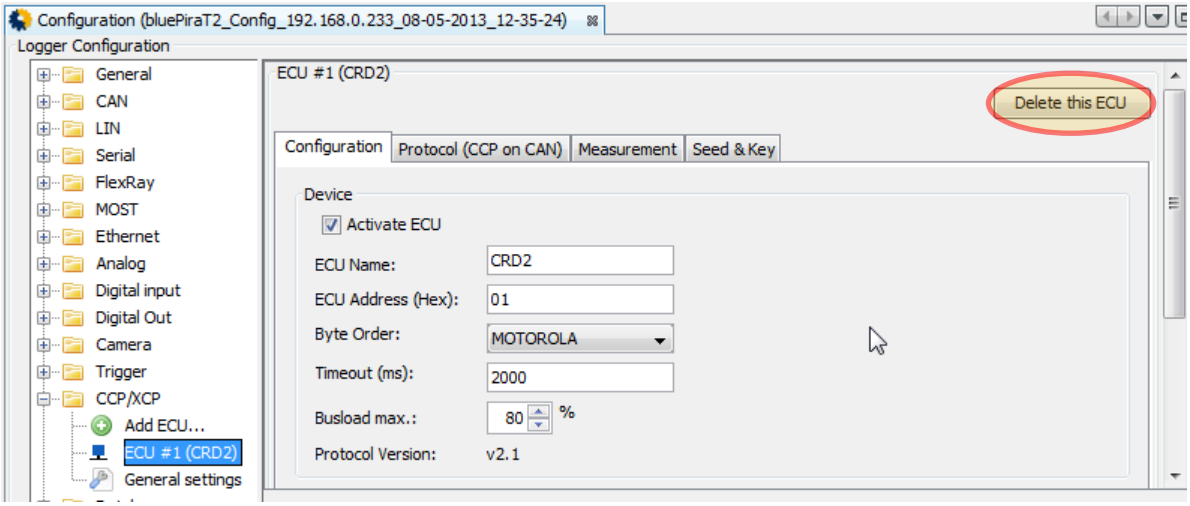


After writing the configuration to the blue PiraT2, the CCP communication should be working.

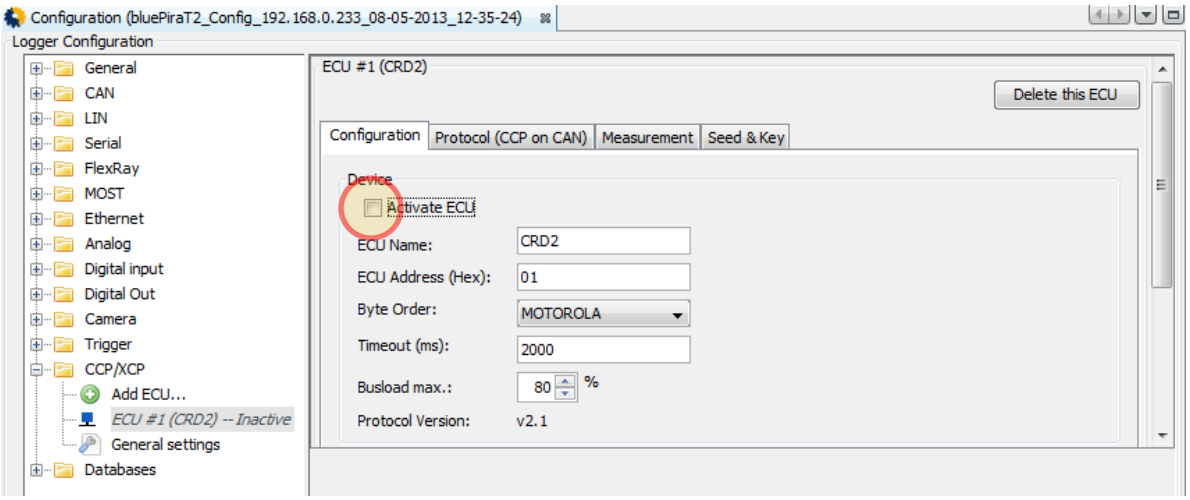
7. Operating / data recording

If the configuration has been written to the data logger without errors, the CCP communication should be running and the blue PiraT2 should be recording the CCP communication.

An ECU can always be deleted by the client. Please select the respective ECU and press “Delete this ECU”.

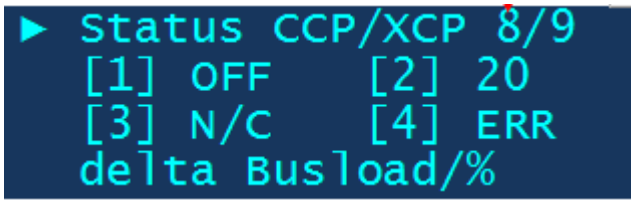


Alternatively, it is possible to deactivate an ECU. The ECU is getting marked as inactive.



If a Remote Control is connected, a state message can be shown in the display. Therefore press “i” button and scroll to page 8 with the page scroll buttons.

The state of four ECUs can be displayed.



- OFF ECU is deactivated
- N/C ECU not connected
- ERR Connection Error

The number shows the delta busload (additional load from CCP) in percent.

The display of the data logger also shows CCP information. The display can only show two lines. Please use the rotating knob until the CCP menu is shown. There are 4 characters showing the state of the ECUs. Each sign is used for one ECU (ECU 1 to ECU 4).

- \- Not configured
- X Not connected
- T Traffic
- N Connected
- E Connection Error

8. Download / conversion

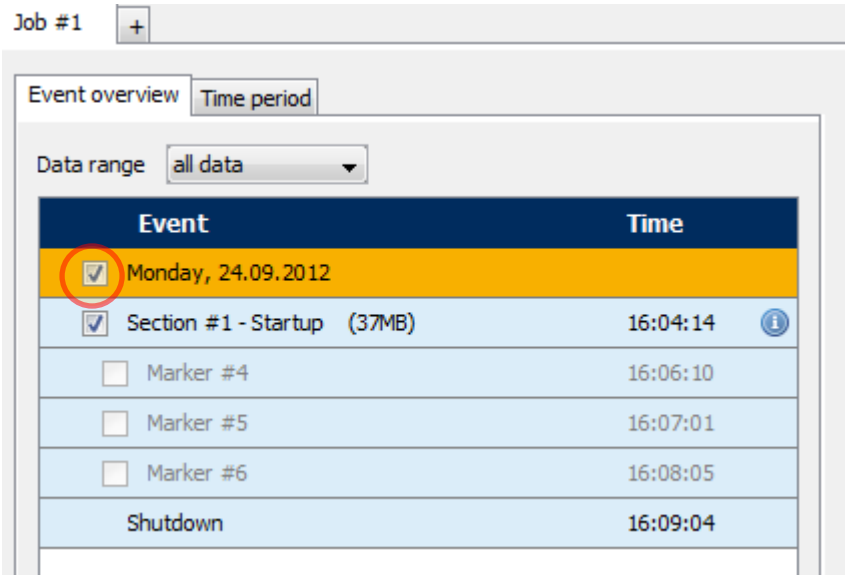
To convert the data, please connect the client to the data logger, first.

Note:

To get the target data format MDF v3.3, it is absolutely necessary to have the corresponding ".dbc" file.

Click on the "Convert…" button.

In the client window, the convert dialog will be opened. Select the wanted event or a time period.

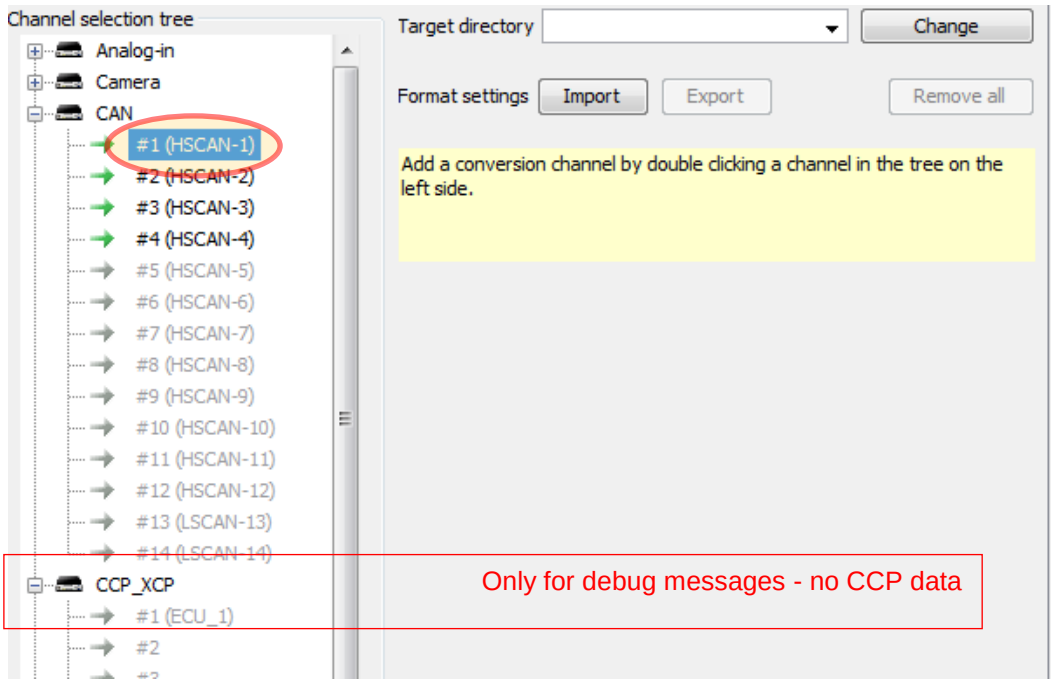


Choose the CAN channel which is set up for the CCP communication in the "Channel selection tree" (see following page). Therefore double click the respective channel.

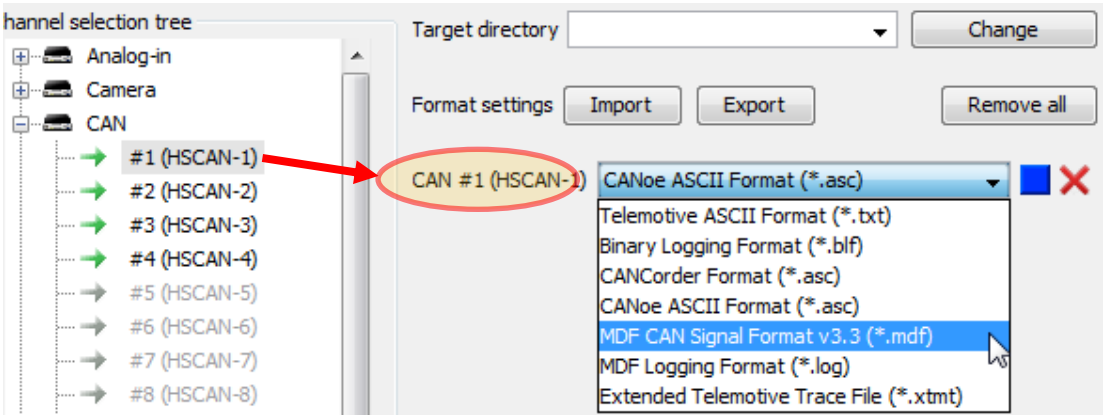
Attention:

The direct selection of a channel in the "CCP_XCP" area is only for internal debug reasons. There are only debug messages and no CCP data stored. The CCP communication is stored in the CAN channel in the "CAN" area. Please always select the CAN channel to get the right CCP data!

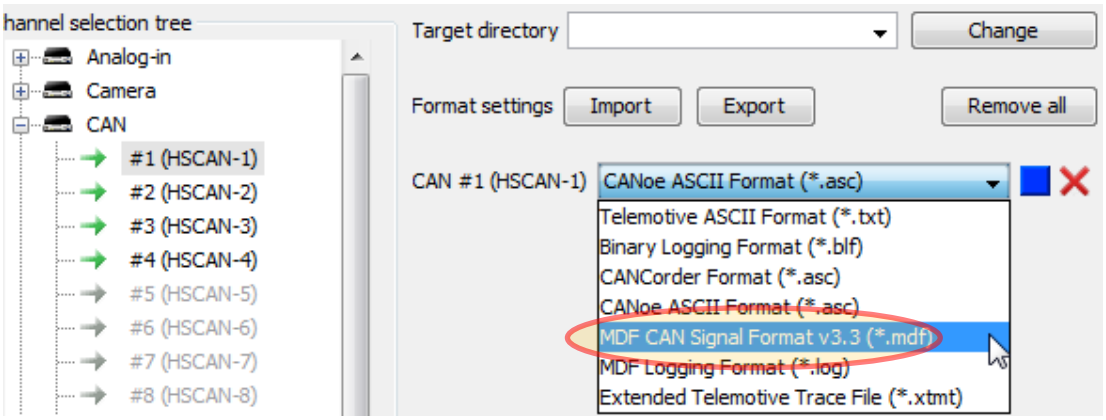
In the follow screenshot, the CCP communication data was recorded with “HSCAN #1”.



If the wanted CAN channel is selected it can be added to the conversion list on the right side by using the “Add…” button or by double clicking

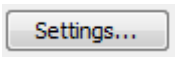


Afterwards, select the “MDF CAN Signal Format v3.3” as output format.

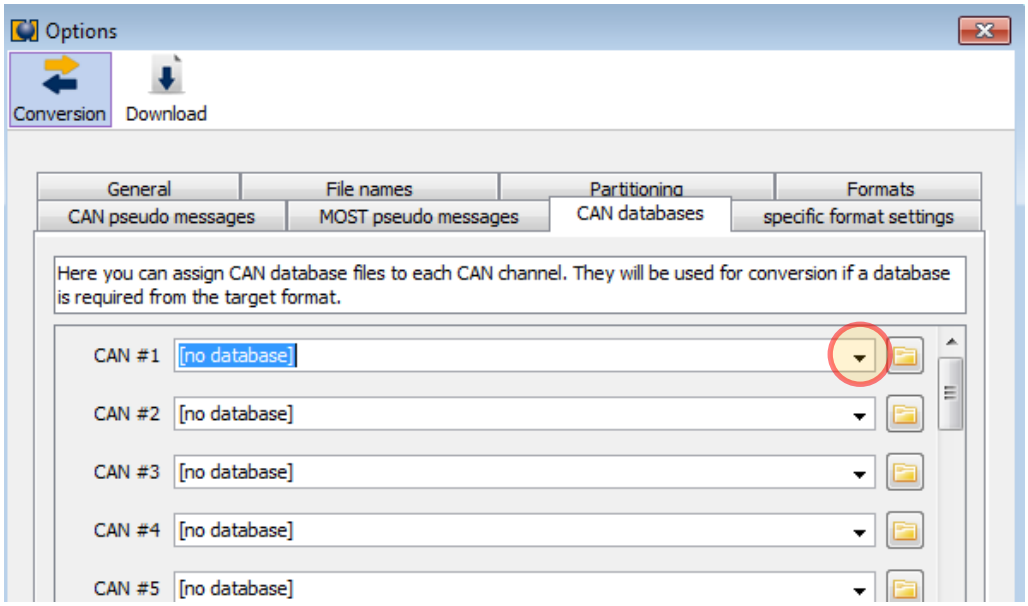


Please repeat this for all required channels.

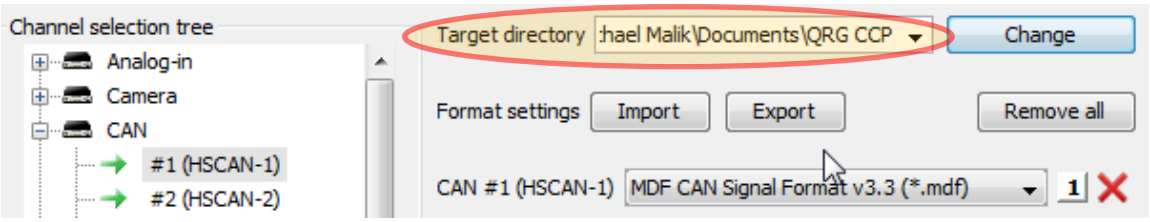
If all channels are added, every channel has to be assigned to the corresponding dbc file. To start please click the “Settings” button (bottom right corner).



In the following window, you can assign each dbc file to the CAN channel which is set up in the configuration.

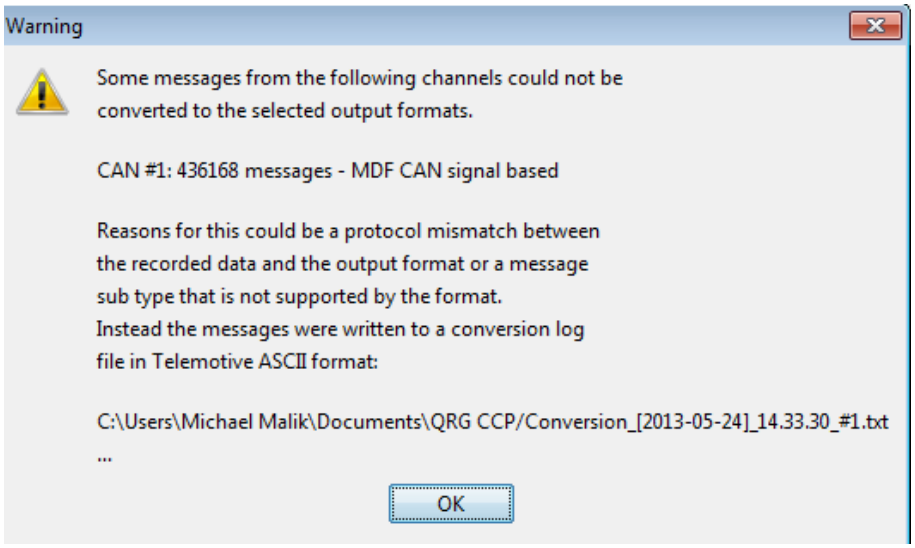


Finally, select the target directory and start the conversion.

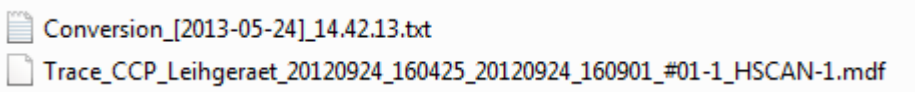


Click the “Convert” button to start the conversion (bottom right corner).

The following warning message could be displayed:



The reasons therefore are the all other CAN messages that are recorded additionally to the CCP messages. These additional messages do not match to the MDF v3.3 format. The additional messages will be written into a separate txt file.



The MDF v3.3 file is ready for further actions

9. Contact

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