Galileosky

CAN. Receiving Data on Fuel Level from the CAN-bus

User Manual

Contents

Necessary Tools, Devices, Materials

To receive fuel level data from the CAN-bus of vehicles (hereinafter - vehicle) one should have:

1. Connecting USB cable, cable of connection to the diagnostic socket OBD-II.
2. Windows-based computer with the installed program of configuration of Galileosky tracking devices – "Configurator". It is recommended to install the latest version of the program from the site https://galileosky.com/podderzhka/programmyi.html. It is also necessary to have the service program of comparing the contents of two text files, for example WinMerge http://winmerge.org.

General Information

Galileosky tracking device (hereinafter - tracking device) allows you to read the information from the vehicle CAN-bus. For many vehicles, especially for light ones, there is no common standard for data transmission description of the state of the vehicle units. Each manufacturer independently defines what identifiers of the CAN-bus protocol will contain this or that information on parameters of vehicle operation. Often this information cannot be received from the manufacturer of the vehicle or dealers. You can use the algorithm proposed below to determine what identifier contains information about the fuel level, the number of engine revolutions, etc.

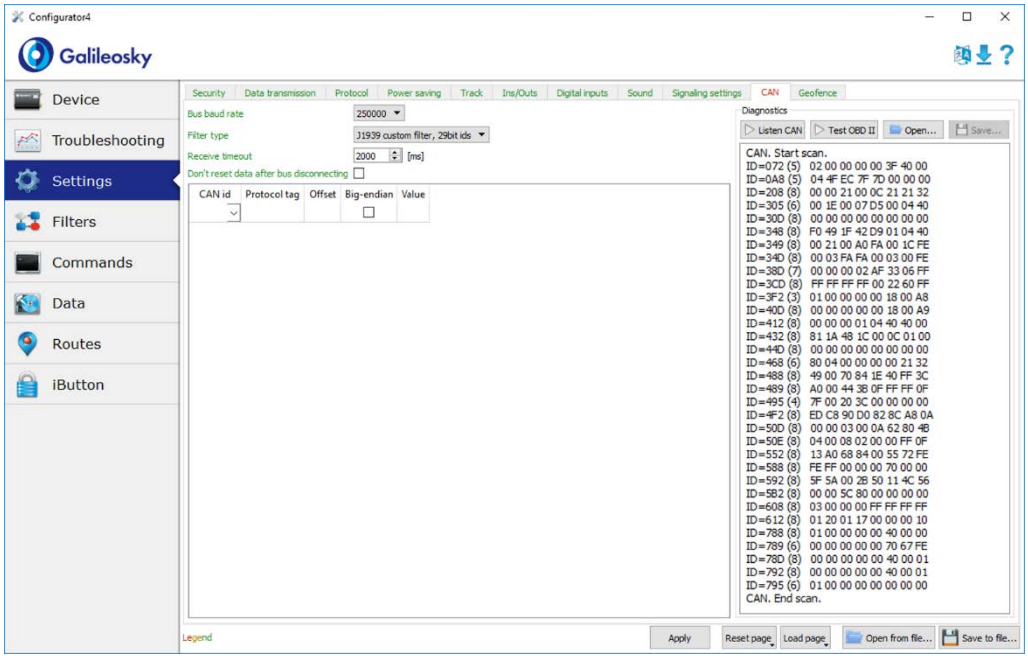
Receiving Data from the CAN-bus of the Vehicle

As an example, consider the situation when you need to determine what identifier contains information about the fuel level. Perform the following steps:

1. Connect the tracking device to the CAN-bus of the vehicle and to the PC, after that start the ignition;

ATTENTION! In the process of obtaining data from the CAN-bus it is not recommended to carry out any action with the car, for example, opening/closing the doors, starting the engine, switching on climatic unit etc.

2. Start the Configurator service program on the PC;
3. Set the custom filter to one of the modes "J1939 custom filter, 11(or 29)-bit identifiers" mode in accordance with recommendations of the manual "Connection to the CAN-bus, general recommendations", it is provided on our site https://galileosky.com/podderzhka/dokumentacziya.html;
4. Set the bus rate and the timeout in accordance with recommendations of the manual "Connection to the CAN-bus, general recommendations" on the site https://galileosky.com/podderzhka/dokumentacziya.html;
5. Click "Listen CAN" button;
6. The information from the CAN-bus will be displayed on the screen (Pic. 1);



Pic. 1

Receiving data from the CAN-bus

7. Save the received data in the file by clicking "Save" button;
8. Repeat actions 5-7 once again;
9. Add fuel in vehicle tank, for example, 10 liters, and repeat actions 5-8 once again;
10. Repeat the actions of section 9.

CAN. Receiving Data on Fuel Level from the CAN-bus (version 4 dated April 5, 2018)

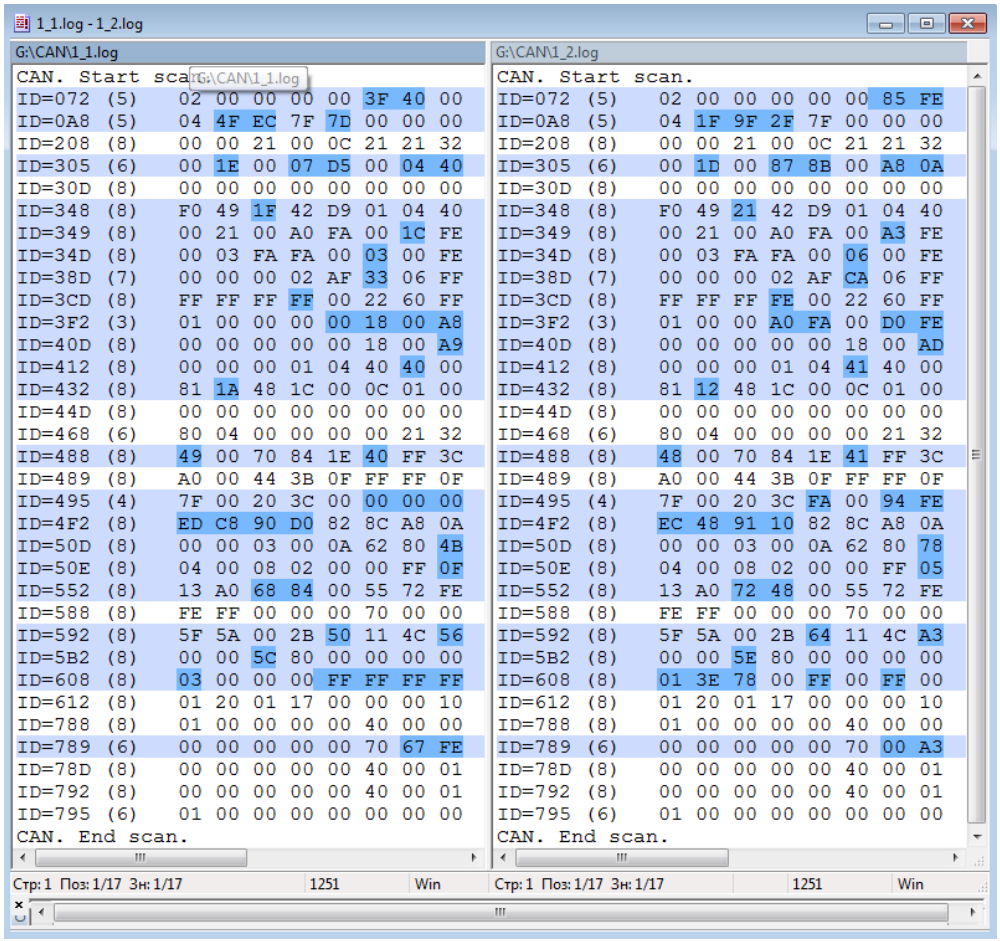
Eventually, we have 6 files:

- two initial files before adding fuel into the vehicle tank, let's call them Initial files;
- two intermediate files after filling of 10 liters of fuel, let's call them Intermediate files;
- two final files after filling of 10 more liters of fuel, let's call them Final files.

CAN-bus Data Processing

Further processing of the received data is carried out in the service program of comparison of files (WinMerge). Process all the previously saved scanning results in the following sequence:

1. Compare a couples of the Initial files and find the IDs which do not vary with time (Pic.2);

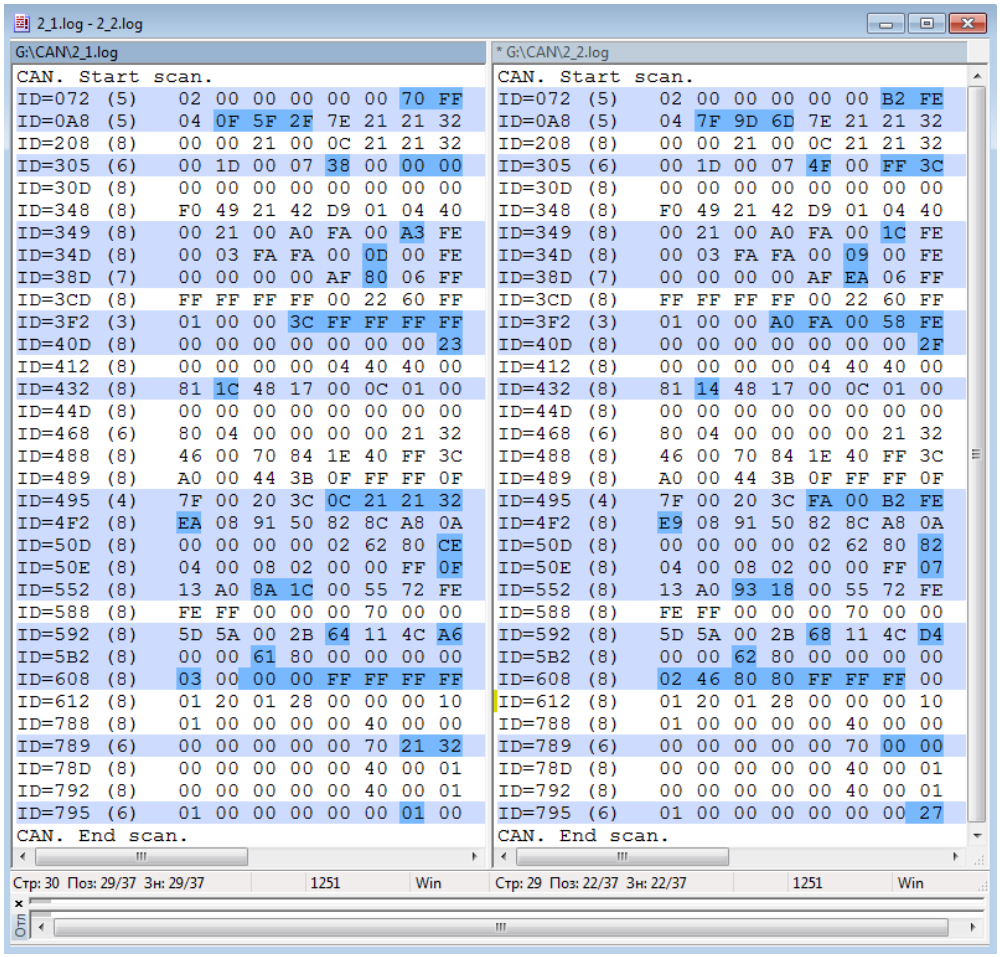


Pic. 2

Comparison of couple of initial files before refuelling

To compare the files of Picture 2 the following identifiers remain unchanged: 208, 30D, 44D, 468, 489, 588, 612, 788, 78D, 792, 795, let's call this list List 1;

2. Compare two Intermediate files and find the IDs from List 1 which don't vary with time (Pic.3)

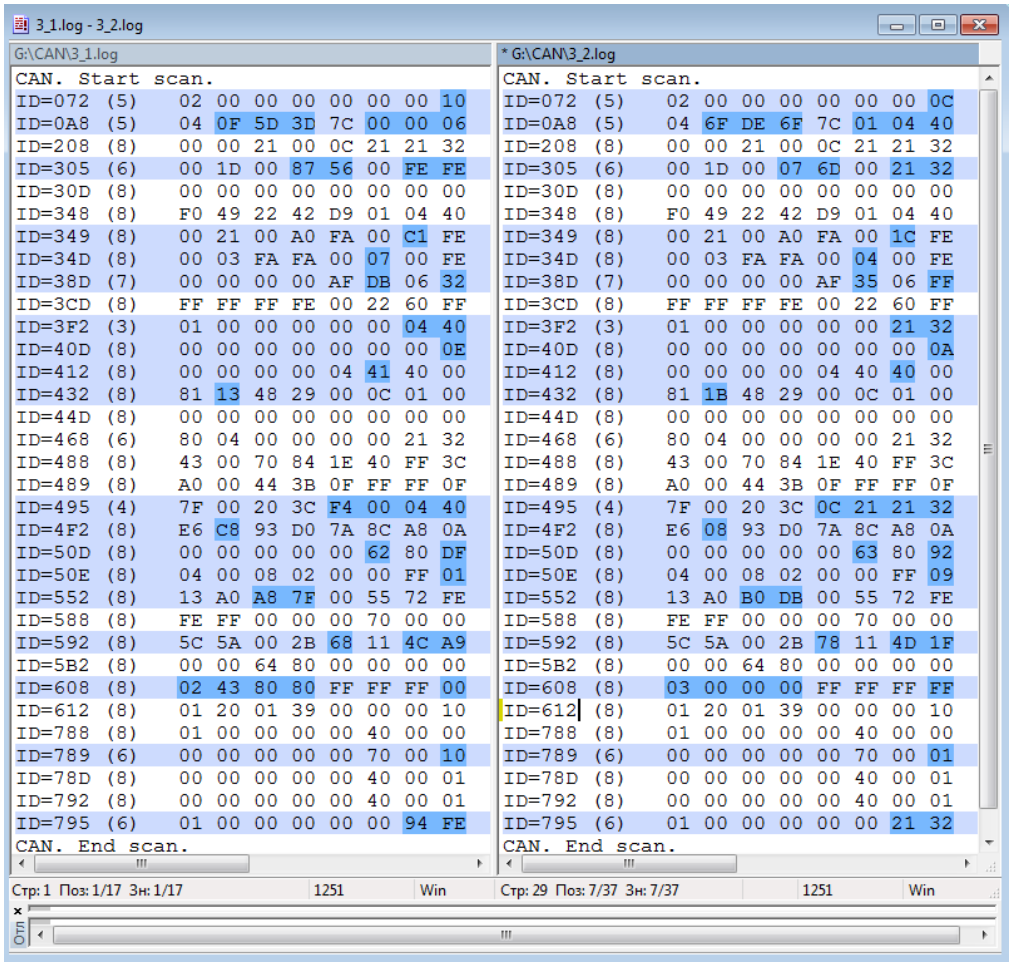


Pic. 3

Comparison of intermediate files after filling of 10 liters of fuel

Delete from the list the IDs that have changed during the second comparison: to compare the files of Picture 3, the following identifiers remain unchanged: 208, 30D, 44D, 468, 489, 588, 612, 788, 78D, 792, let's call this list List 2;

3. Compare two Final files and find the IDs from the List 2, which do not vary with time (Pic.4)

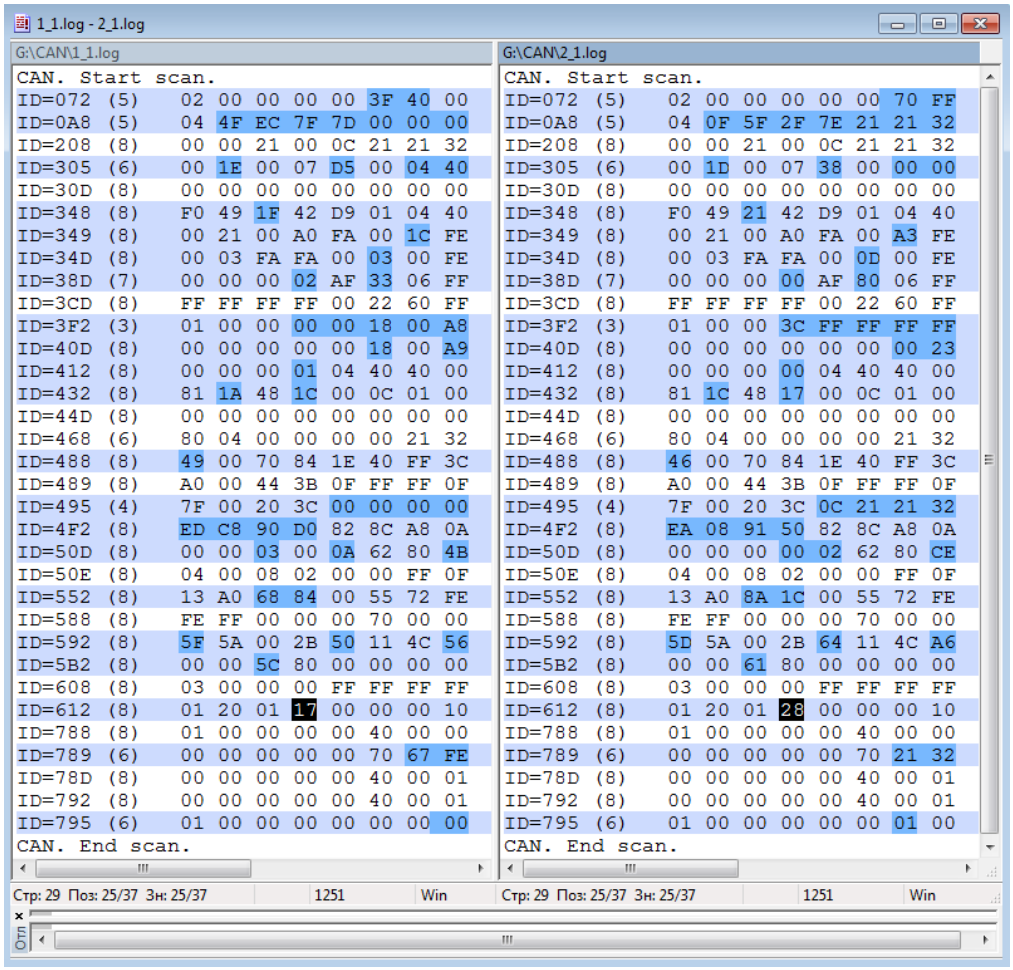


Pic. 4

Comparison of Final files after adding 10 more liters

To compare the files of Picture 4 there are no ID's of the List 2, which vary with time; the following identifiers remain unchanged: 208, 30D, 44D, 468, 489, 588, 612, 788, 78D, 792, let's call this list List 3;

4. Take one of the pair of Initial files and Intermediate files to compare and find the IDs from the List 3 that have changed after the interim refueling (Pic. 5);

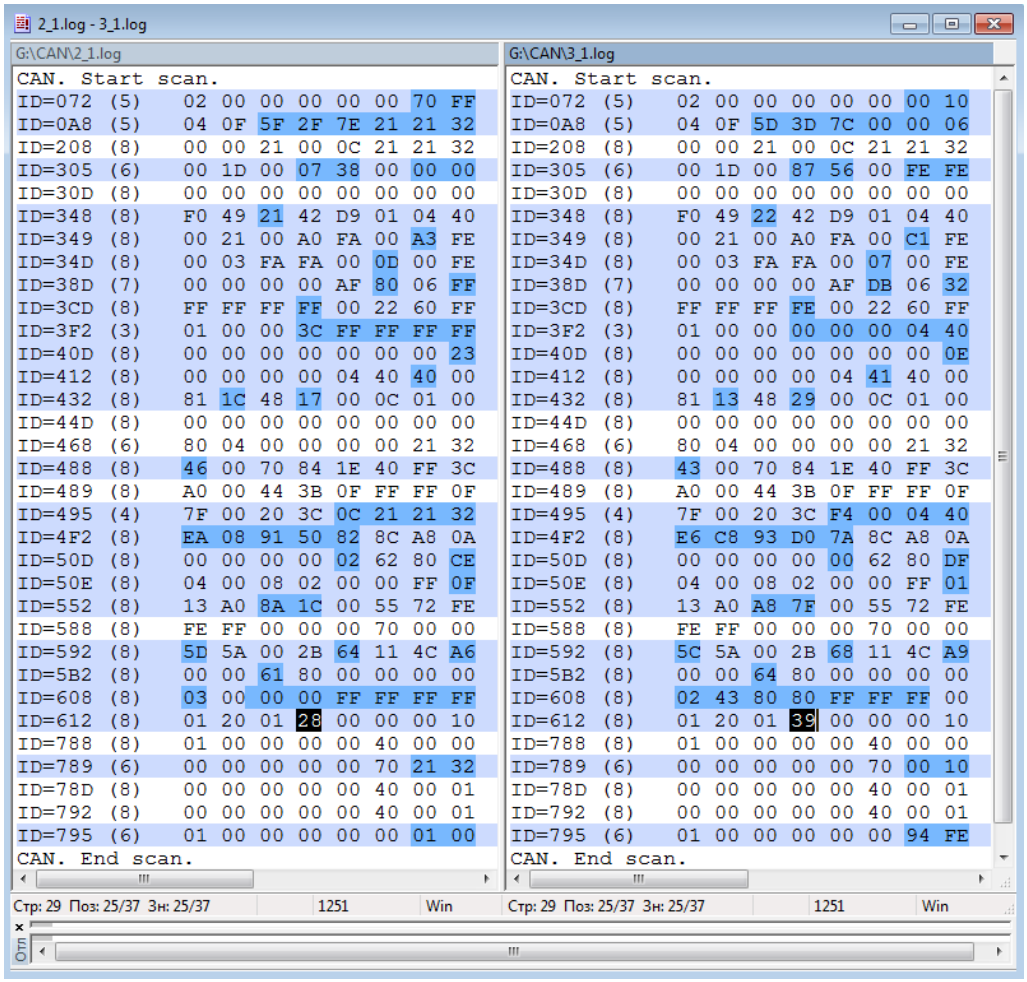


Pic. 5

Comparison of Initial and Intermediate file

For comparison of Picture 5, from the whole List 3 of unchanged IDs only one ID has changed – 612, we can suppose that this ID shows the fuel level in the tank. Check it when comparing the remained couple of files.

5. Take one of the pair of Intermediate files and Final files to compare and find the IDs from the List 3, which have changed after the final refuelling (Pic. 6);

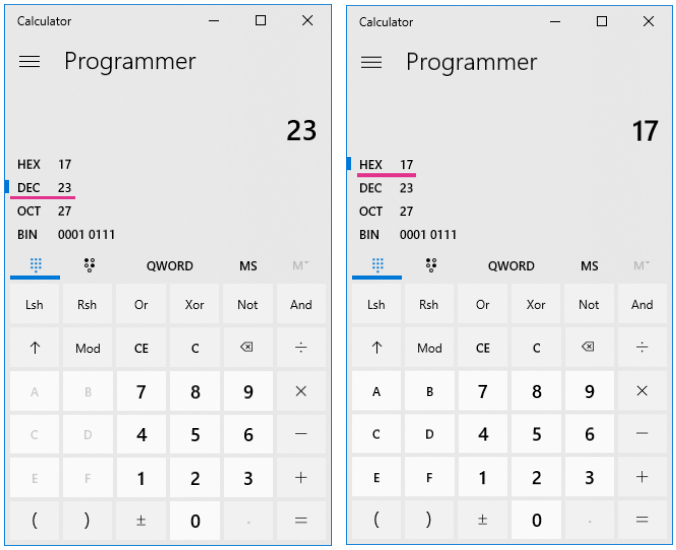


Pic. 6

Comparison of Intermediate and Final files

For comparison of Picture 6, from the whole List 3 of unchanged IDs, again only one identifier has changed– 612. It means that the information on fuel level is contained in a single byte.

6. Analyse data obtained from the identifier and define character of information on fuel level. The identifier transmitted the values: 17 – before refuelling, 28 – after the first refuelling, 39 – after the second refuelling;
7. Listened data from the CAN-bus are in hexadecimal format. To transform it to decimal format, use the calculator built in Windows system (in "Programmer" form) (Pic. 7)



Pic. 7

Transformation from hexadecimal format to decimal one

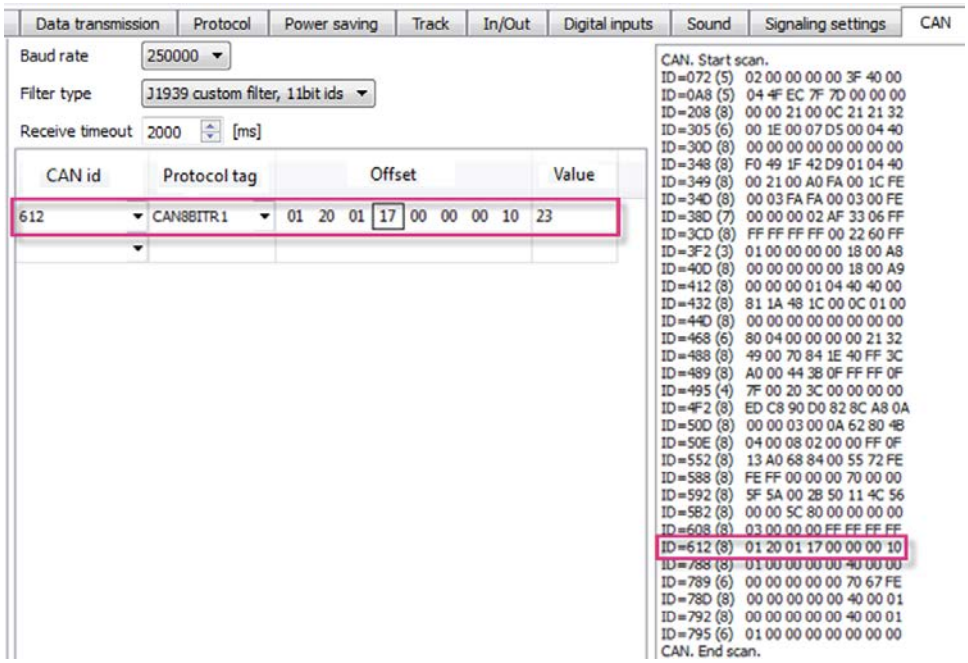
Summary data of the analysis:

- the initial level of fuel in the tank was 23 conventional units;
- after the first refueling with 10 liters the level increased to 40 conventional units;
- after the second refueling with 10 liters the level increased to 57 conventional units;

Consequently, in this specific case 17 conventional units are 10 liters of fuel. Proceeding from the received ratio it will be possible to interpret received values from the CAN-bus on the monitoring server.

ATTENTION! For different car brands, the received parameter can mean the remaining fuel in liters, or percent of tank filling, or some value which will need to be converted to liters with a certain coefficient (as in our example) on the monitoring server, i.e. to fill in the calibration table.

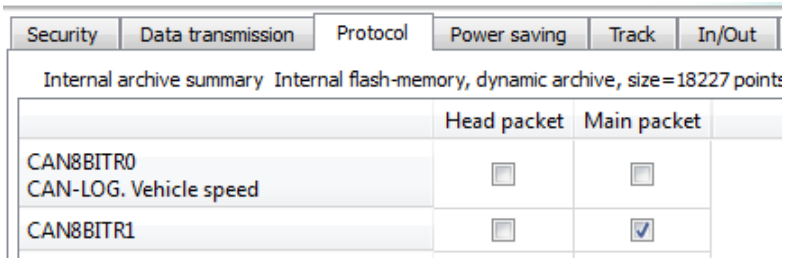
8. Adjust sending data to the monitoring server, having compared the 4th byte of the identifier number 612 to Galileosky protocol tag (Pic. 8):



Pic. 8

Comparison of data on fuel level and protocol tag

9. To send received data to the monitoring server go to the "Settings" tab -> "Protocol" of the Configurator, configure the main packet to send the chosen tag to the server (Pic. 9) and click "Apply" button;



Pic. 9

Selection of parameters to be sent to the monitoring server

Setting of data on fuel level from the CAN-bus of the vehicle is completed; the tracking device is ready to operate.

RSA "Galileosky", LLC produces satellite monitoring equipment for GPS and GLONASS real time vehicles monitoring. The tracking devices determine the mobile object location recording the time and route as points with geographical coordinates and send the data to the server to be further processed and sent to the traffic controller panel.

In addition, a number of other vehicle parameters are recorded: the state of analog and discrete inputs of the tracking device and the state of digital interfaces.

The tracking devices can be used in any vehicle.