Tachograph support

Technical support GLONASSSoft:
website: http://help.glonasssoft.ru,
e-mail: support@glonasssoft.ru
Telephone: 8-800-700-82-21

Parameters for registration in Wialon:
1. Identificatorp – IMEI 1111222233334444 (SAMPLE)
2. Server IP address: 193.193.165.165
3. Port: 21336 (UMKa300), 21510 (UMKa301), 21946(UMKa302); 21787(UMKa 310)

1. General information

UMKa302 supports tachographs from version 2.12.2. The following tachographs are supported: SHTRIH-Taxo RUS, ATOL Drive 5, ATOL Drive Smart, Mercury TA-001 and from version 2.14.13 VDO DTCO 3283 (only uploading DDD file)

Both the current data and drivers' cards DDD files transmission is supported. The list of supported parameters of their possible values for each tachograph type is represented in Table 1.

DDD files transmission is supported only by Wialon Combine protocol.

Also the function of saving DDD files in tracker memory without uploading in server is available. The files saved in tracker memory can be downloaded via configurator.

The new and changed commands for working with tachographs are represented in Table 2.

Table 1 – supported parameters

Protocols		Description (In brackets the name in "History" tab)		SHTRIH	ATOL	Mercury	VDO
IPS	Combine						
–	+	DDD files transmission		+	+	+[1]	+[3]
TMode	param384	Tachograph operation mode (TMode) 0 – operation mode 1 – control mode 2 – calibration mode 3 – enterprise mode		+	–	–	–
TTime	param385	Tachograph time Unix time (TTime)		+	+	+	–
TFlags	param386	Flags and tachograph status. (TFlags)		+[2]	+	+	–
		Bit 0	Ignition	+	+	+	–
		Bit 1	Illumination	–	+	+	–
		Bit 2	Weight disabled	+	+	+	–
		Bit 3	"Tran/ferry" mode	+	+	+	–
		Bit 4	"Inapplicable" mode	–	+	–	–
TSpeed	param387	Tachograph speed, km/h (TSpeed)		+	+	–	–
TDist	param388	Covered distance, km (TDist)		+	+	+	–
TTrip	param389	Trip distance, km (TTrip)		+	–	–	–
TCard1	param390	Slot status and operation 1 (TCard1)		+	+	+	–
		0	Rest	+	+	+	–
		1	Ready to work	+	+	+	–
		2	Work for vehicle control	+	+	+	–
		3	Vehicle control	+	+	+	–
Protocol							

IPS	Combine	Description (In brackets the name in “History” tab)					
		4	No card	+	+	+	–
		5	Card is not authorized	–	+	+	–
		6	The card is not extracted	–	+	+	–
TCard2	param391	Slot status and operation 2 (TCard2)		+	+	+	
		0	Rest	+	+	+	–
		1	Ready to work	+	+	+	–
		2	Work for vehicle control	+	+	+	–
		3	Vehicle control	+	+	+	–
		4	No card	+	+	+	–
		5	Card is not authorized	–	+	+	–
		6	The card is not extracted	–	+	+	–
TCtime1	param392	Time of current work, 1 sec (TCtime1)		+	+	+	–
TCtime2	param393	Time of current work, 2 sec (TCtime2)		+	+	+	–
TCnum1	driver_code16	Card number in slot 1 (TCnum1)		+	+	+	–
TCnum2	driver_code17	Card number in slot 2 (TCnum2)		+	+	+	–

[1] – preliminary saving of card data via tachograph menu is needed.

[2] – flags values are provided by manufacturer. There is no description in the protocol.

[3] – DDD files trasmission is possible only from the card that is set in driver’s slot.

Table 2 – commands for work with tachographs

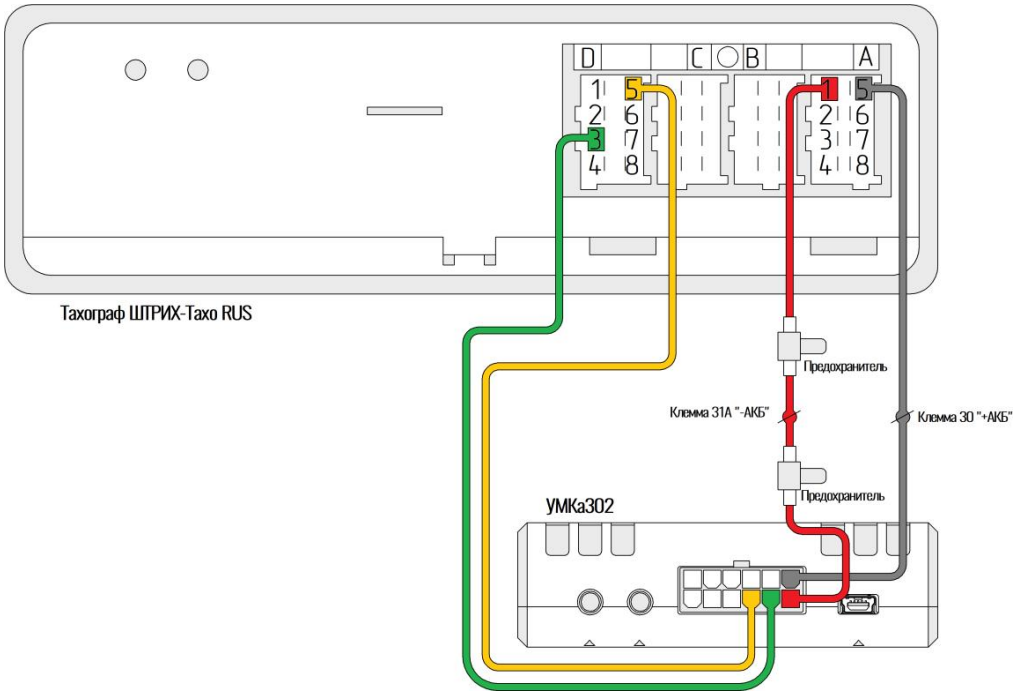
Commands	Description	Version (Model)
RS485 [X[,Y**[,Z*]**]] RS232 [X[,Y**[,Z*]**]]	RS-485 and RS-232 interfaces setup. X – interface operational mode: X=0 – interface disabled; X=1 – LLS FLS; X=2 – CAN-LOG; X=3 – RFID reader; X=4 – combined mode of LLS FLS query and RFID reade; X=5 – Trimble; X=6 – iQFreeze; X=7 – Script (only for UMKa302); X=8 – Modbus (only for UMKa302); **X=9 – Tachograph (only for UMKa302);** Y – interface operational speed. For Y the following values are supported: 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200 bit/sec. **Z* – signs transmission format (bits, evennes, bit stop)** **Z=0 – 8 bit, without evenness, 1 bit stop (8-N-1)**	2.14.13 (UMKa302)

	Z=1 – 8 bit, evenness, 1 bit stop (8-E-1) **Z=2 – 8 bit, unevenness, 1 bit stop (8-O-1)** Without arguments returns current settings. *** - Parameter Z has appeared from version 2.14.13. In early versions is not available.**	
SETTACHO [X[,Y]]	Tachograph parameters transmission setup. X – Tachograph parameters transmission mode: X=0 – transmission disabled; X=1 – transmission enabled. Y – the mask of transmitted parameters of 0x03FF type where 1 in bit value - parameter is transmitted, 0 - parameter is not transmitted. Makes sense only if X=1. Y bits numbers correspond the following parameters: 0 – Tachograph operational time (Mode); 1 – Tachograph time Unix time (Time); 2 – Tachograph status flags. (Flags); 3 – Speed by tachograph, km/h (Speed); 4 – Covered distance, km (Dist); 5 – Trip distance, km (Trip); 6 – Slot status and operation 1 (Card1); 7 – Slot status and operation 2 (Card2); 8 – Card number in slot 1 (Cnum1); 9 – Card number in slot 2 (Cnum2); 10 – Current work time 1 (Ctime1); 11 – Current work time 2 (Ctime2); Without arguments returns current settings. **By default: X=0, Y=0x0xFFF**	2.12.2 (UMKa302)
TACHOCONFIG [X[,Y[,Z]]]	Tachograph setup. X – tachograph type: X=0 – Shtrih; X=1 – ATOL; X=2 – Mercury; X=3 – VDO DTCO 3283; Y – User ID (for ATOL) Z – Registration key (for Shtrih and ATOL) **By default: X=0, Y=empty, Z=empty**	2.14.13 (UMKa302)
TACHO	Query of current values of all availble tachograph parameters. Command without arguments. In reply Mode – Tachograph operational time; Time – Tachograph time Unix time; Flags – Tachograph status flags; Speed – Speed by tachograph, km/h; Dist – Covered distance, km; Trip – Trip distance, km; Card1 – Slot status and operation 1; Card2 – Slot status and operation 2; Cnum1 – Card number in slot 1;	2.12.2 (UMKa302)

	Cnum2 – Card number in slot 2; Ctime1 –Current work time 1; Ctime2 – Current work time 2.	
TACHOGETDDD X[,Y]	Read DDD file by slot number and send on server and save in tracker internal memory. X – slot number 1 and 2; Y – server number on which the file Y=0 – main server will be sent; Y=1 – auxiliary server; Y=2 – alternate server; Y is not given – DDD file will be saved in internal memory. Returns the current settings: 0 – error while reading DDD file; 1 – DDD file is read. The time of command implementation depends on connected tachograph and can be for up 1 minute and longer.	2.12.0 (UMKa302)

2.1 Connecting Shtrih tachograph

Connecting the SHTRIH-Taxo RUS tachograph by the following scheme:



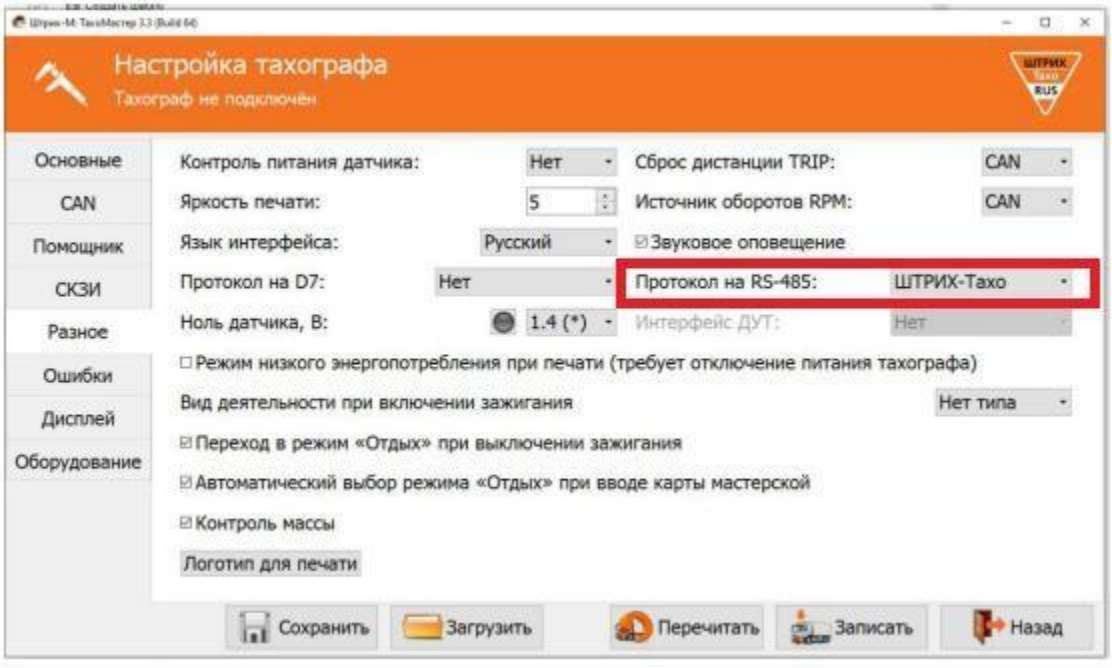
RS-485 line A of the tracker UMKa-302 on D3 tachograph contact.

RS-485 line B of the tracker UMKa-302 on D5 tachograph contact.

«–» tracker supply on A5 tachograph contact.

«+» tracker supply on A1 tachograph contact

For RS-485 interface work in tachograph the parameter “Protocol by RS-485” equal to “SHTRIH-Taxo” must be set up:



UMKa302 settings:

«RS485 9,19200,0» - RS-485. Tachograph mode. Speed 19200. 8-N-1.

«TACHOCONFIG 0,,,» - Shtrih mode. Password by default

«SETTACHO 1,0xFFF» - Transmission of all supported parameters

«RELOAD» – Reload.

After reload the query of current values by command is “TACHO”. If there is connection with tachograph - the reply will be of the kind:

“TACHO=Mode=0,Time=1593521879,Speed=0,
Dist=1.0,Trip=115204.280,Card1=0,Card2=2,Cnum2=RUD0000050088601”

2.2 Shtrih DDD file transmission

Reading of DDD file is performed by command “TACHOGETDDD CARD,SERV”, where CARD – slot number for card 1 or 2; SERV – server number: 0 – main, 1 – auxiliary, 2 – alternate.

Command returns operation status: 1 – DDD file is read in internal memory and is set in line for transmission on the server. 0 – in reading process in internal memory an error has occured.

The time of command implementation for SHTRIH tachograph is about 1 minute. At this time the command interface is blocked.

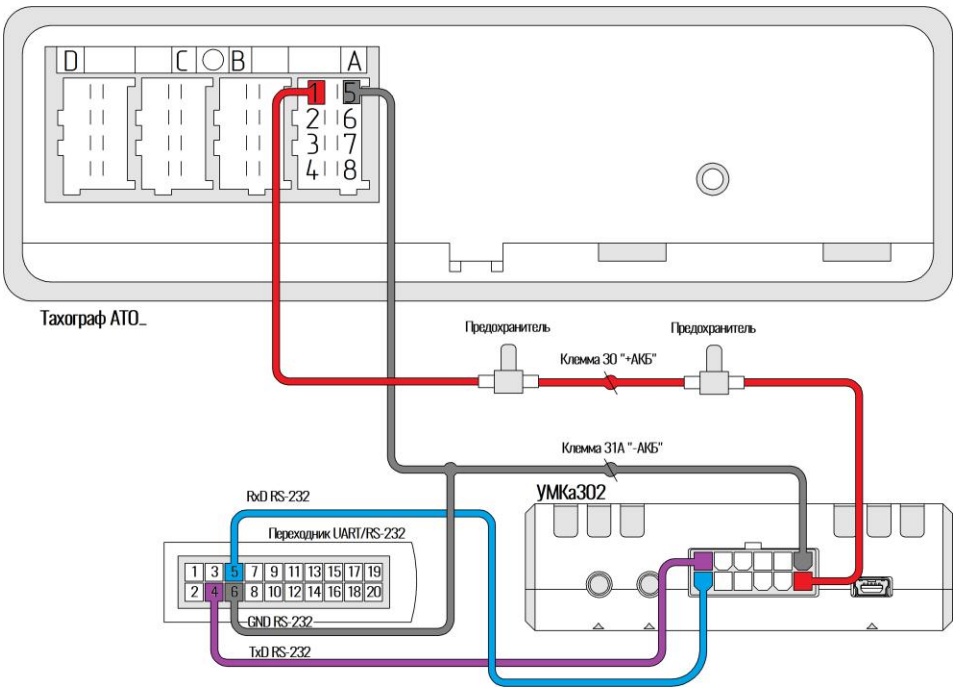
DDD file transmission on the server from tracker internal memory via Wialon Combine protocol takes up about 1 minute.

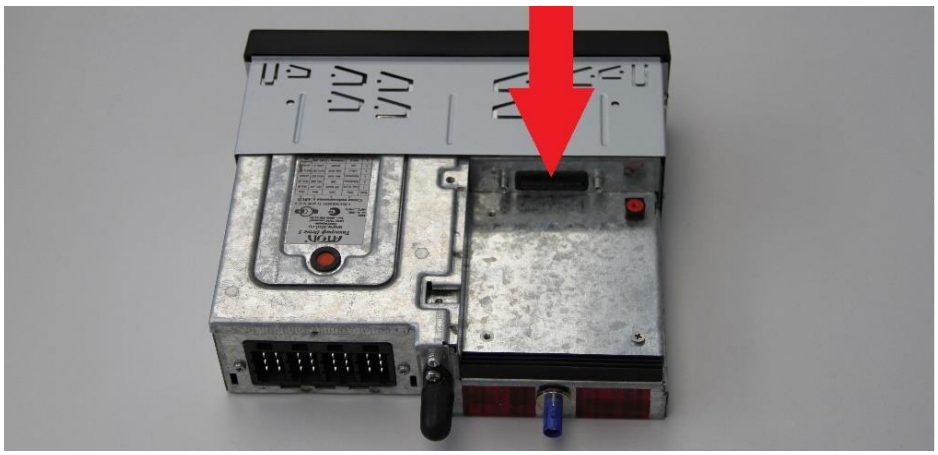
3.1 Connecting ATOL tachograph

To connect ATOL tachograph any modification of UMKa302.R with RS-232 interface is required. To connect “ATOL Drive-5” a separate auxiliary adapter UART/RS-232 is needed.

Connection is done by the following schemes:

ATOL Drive 5:





RS-232 line TxD of the tracker UMKa-302 on RxD contact of UART/RS-232 adapter.

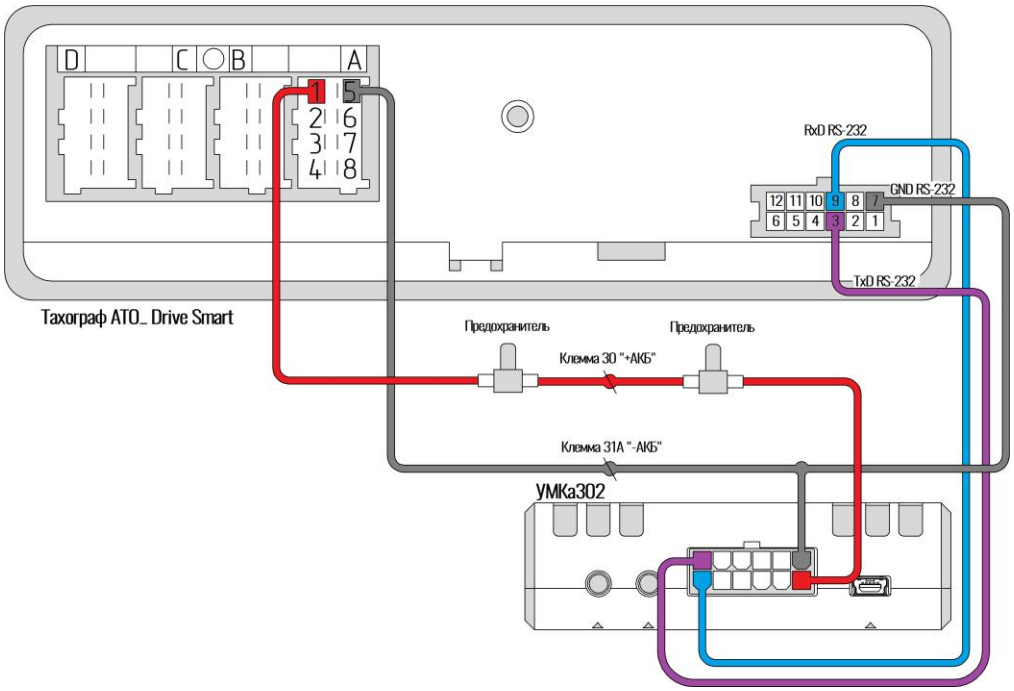
RS-232 line RxD of the tracker UMKa-302 on TxD contact of UART/RS-232 adapter.

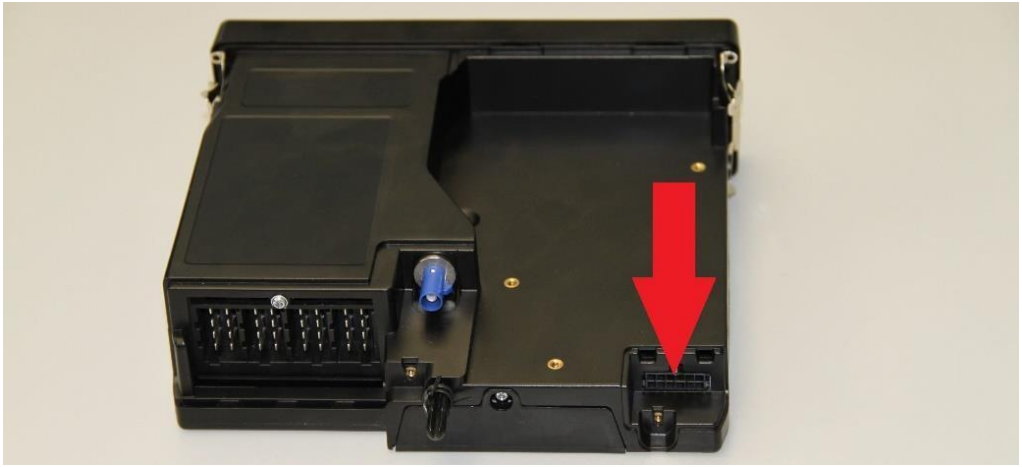
«–» tracker supply on GND contact of UART/RS-232 adapter.

«–» tracker supply on contact A5 of tachograph.

«+» tracker supply on contact A1 of tachograph.

ATOL Drive Smart:





RS-232 line TxD of the tracker UMKa-302 on contact RS 232 RX (9).

RS-232 line RxD of the tracker UMKa-302 on contact RS 232 TX (3).

«–» tracker supply on contact “Onboard network GND” (7).

«–» tracker supply on contact A5of tachograph.

«+» tracker supply on contact A1 of tachograph.

UMKa302 settings:

“RS232 9,115200,0” - RS-232. Tachograph mode. Speed 115200. 8-N-1

“TACHOCONFIG 1,,,” - ATOL mode. User and password by default

“SETTACHO 1,0xFFF” - Transmission of all supported parameters

“RELOAD” – reload.

After reloading the current values query by command “TACHO”. If there is connection with tachograph - the reply will be of the kind:

“TACHO=Time=1453172805,Flags=3,Speed=0,
Dist=1921.880,Card1=4,Card2=0,Cnum1=RUD0000000002100”.

3.2 ATOL DDD file transmission

DDD file reading is implemented by command “TACHOGETDDD CARD,SERV”, where CARD – the slot number for the card 1 or 2; SERV – server number: 0 – main, 1 – auxiliary, 2 – alternate.

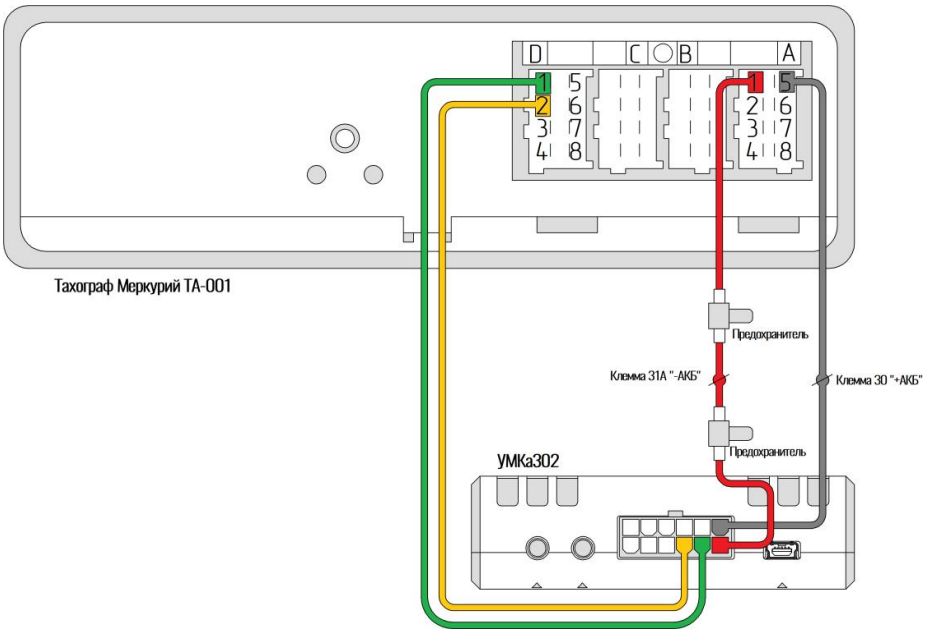
Command returns operation status: 1 – DDD file is read in internal memory and set in line for transmission on the server. 0 – when reafing in internal memory an error has occured.

Time of command implementation for ATOL tachograph is for about 1 minute. At this time the command interface is blocked.

DDD file transmission on the server from the tracker internal memory via Wialon Combine protocol takes up about 1 minute.

4.1 Connecting Mercury tachograph

To connect Mercury TA-001 tachograph use the following scheme:



RS-485 line A of the tracker UMKa-302 on contact D1 of tachograph.

RS-485 line B of the tracker UMKa-302 on contact D2 of tachograph.

«–» tracker supply on contact A5 of tachograph.

«+» tracker supply on contact A1 of tachograph.

UMKa302 settings:

“RS485 9,115200,0” – RS-485. Tachograph mode. Speed 115200. 8-N-1

“TACHOCONFIG 2”- Mercury mode. There is no user name or password in Mercury.

“SETTACHO 1,0xFFF” - Transmission of all supported parameters

“RELOAD” – reload.

After reloading the current values query by command “TACHO”. If there is connection with tachograph - the reply will be of the kind:

“TACHO=Time=1593422795,Flags=3, Dist=3.7,Card1=4,Card2=0,Cnum1=RUD0000050088601”.

4.2 Mercury DDD file transmission

The peculiarity of Mercury TA-001 tachographs is that before card DDD file transmission it is preliminary saved in tachograph memory via the menu. In order to do it, go to “MAIN MENU” and choose the point “Download via GPRS”. Next choose the needed card: “Driver” for card 1 or “Co-driver” for card 2. Wait for about 70 seconds until the sing “Data download” is shown.

DDD file reading is sent by command “TACHOGETDDD CARD,SERV”, where CARD – the slot number for card 1 (Driver) or 2 (Co-driver); SERV – server number on which one need to send the file: 0 – main, 1 – auxiliary, 2 – alternate.

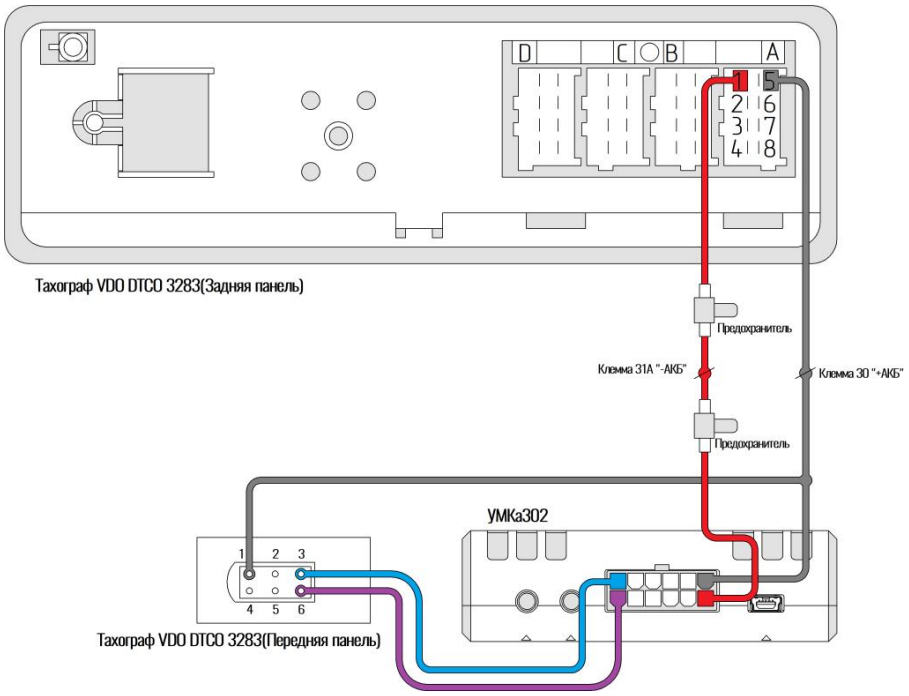
Command returns operation status: 1 – DDD file is read into internal memory and set in line for transmission.

Time of command implementation for Mercury tachograph is for about 20 seconds. At this time the command interface is blocked.

DDD file transmission on the server from tracker internal memory via Wialon Combine protocol takes up for about 1 minute.

5.1 Connecting VDO DTCO 3283 tachograph

To connect tachograph VDO DTCO 3283 use the following scheme:



RS-232 line TX of the tracker UMKa-302 on contact 3 of tachograph front side adapter.

RS-232 line RX of the tracker UMKa-302 on contact 6 of tachograph front side adapter.

«–» tracker supply on contact A5 of tachograph and contact 1 of tachograph front side adapter.

«+» tracker supply on contact A1 of tachograph.

UMKa302 settings:

“RS232 9,9600,1” – RS-232. Tachograph mode. Speed 9600. 8-E-1.

“TACHOCONFIG 3” - VDO mode. There are no user or password in VDO.

“RELOAD”– reload.

5.2 VDO DTCO 3283 DDD file transmission

The peculiarity of VDO DTCO 3283 tachograph is that the DDD file transmission is possible only from the first slot (driver’s slot)

DDD file reading is implemented by command “TACHOGETDDD CARD,SERV”, where CARD – slot number for card **1 (Driver)** ; SERV – server number on which the files must be sent: 0 – main, 1 – auxiliary, 2 – alternate.

Command returns operation status: 1 – DDD dile is read into internal memory and set in line for transmission.

Time of command implementation for VDO DTCO 3283 tachograph is for about 2 minutes. At this time the command interface is blocked,

DDD file transmission on the server from the tracker internal memory via Wialon Combine protocol

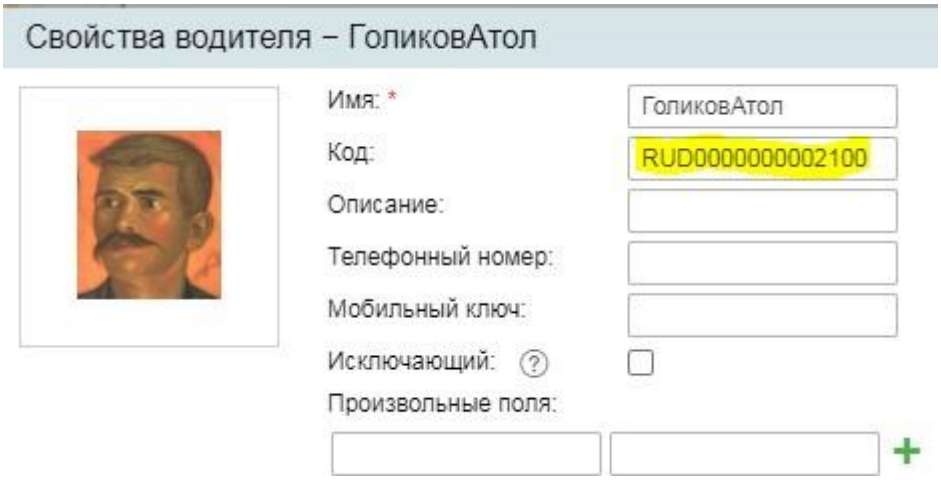
takes up for about 1 minute.

6 Working with DDD files in Wialon system

ATOL tachograph is connected to the tracker and set up correctly . In slot 1 of tachograph the driver's card with number "RUD0000000002100" is set.

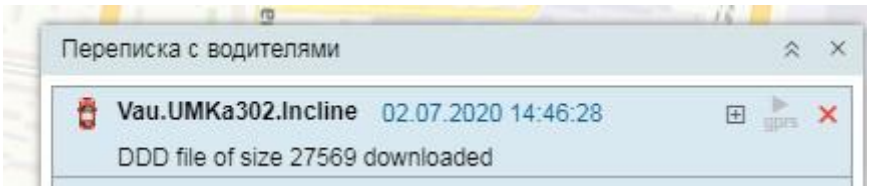
The tracker is set for transmitting data on Wialon server via Wialon Combine protocol.

Create the driver and specify the driver's card number in characteristics.

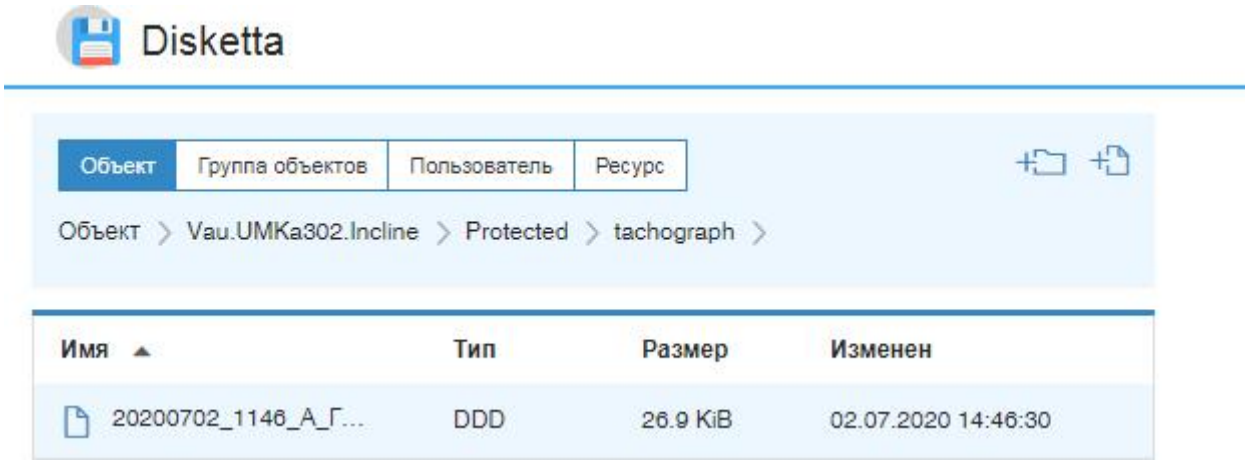


Request the DDD file by "TACHOGETDDD 1,0" command. In a minute receive the reply " TACHOGETDDD=1"- the file is saved into internal memory and set for transmitting data on the server.

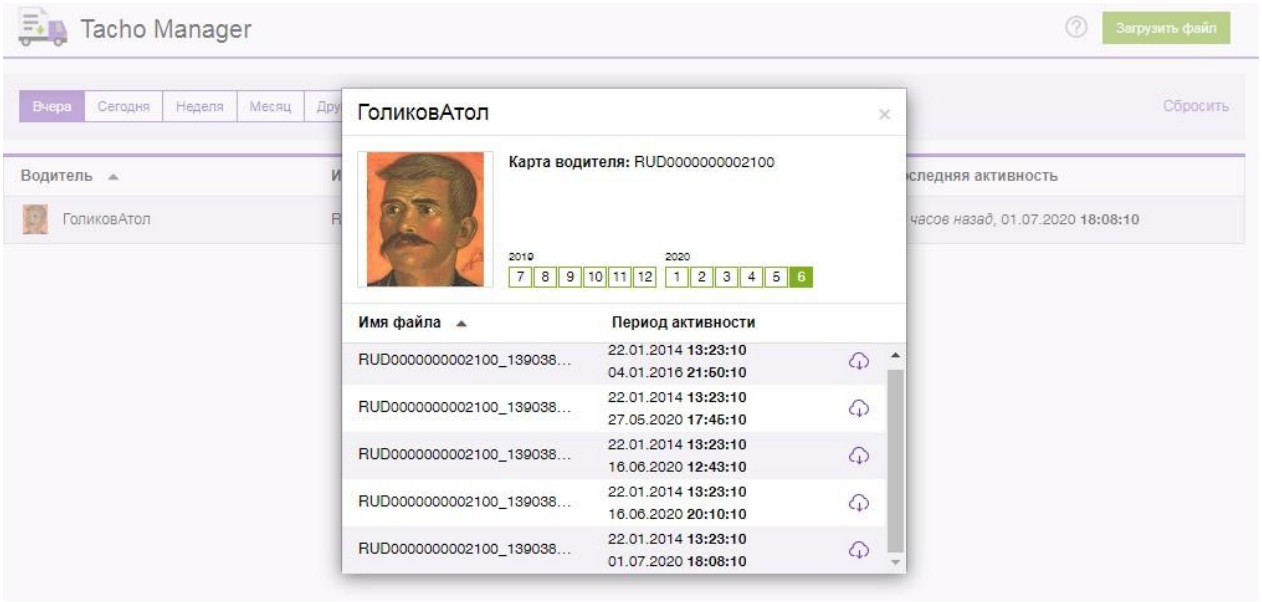
In about a minute you will see that the file is properly oploaded on the server.

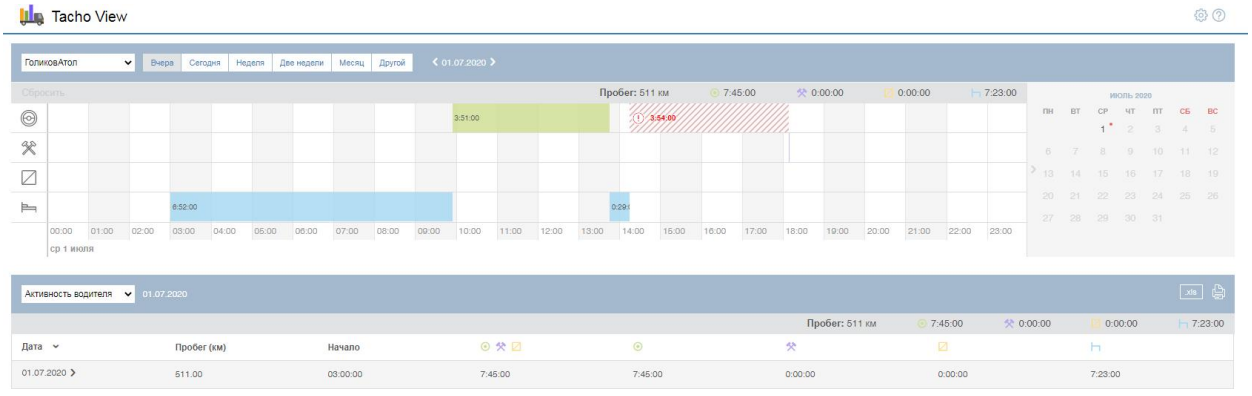


The file can next be saved via "Diskette" application.



The file information is also available in the apps "Tacho Manager"and "Tacho View"





7 Work with tachographs via UMKa3XXX configurator

To configure the work with tachographs you need to have configurator version not lower than 1.15.6.

7.1 Interface settings

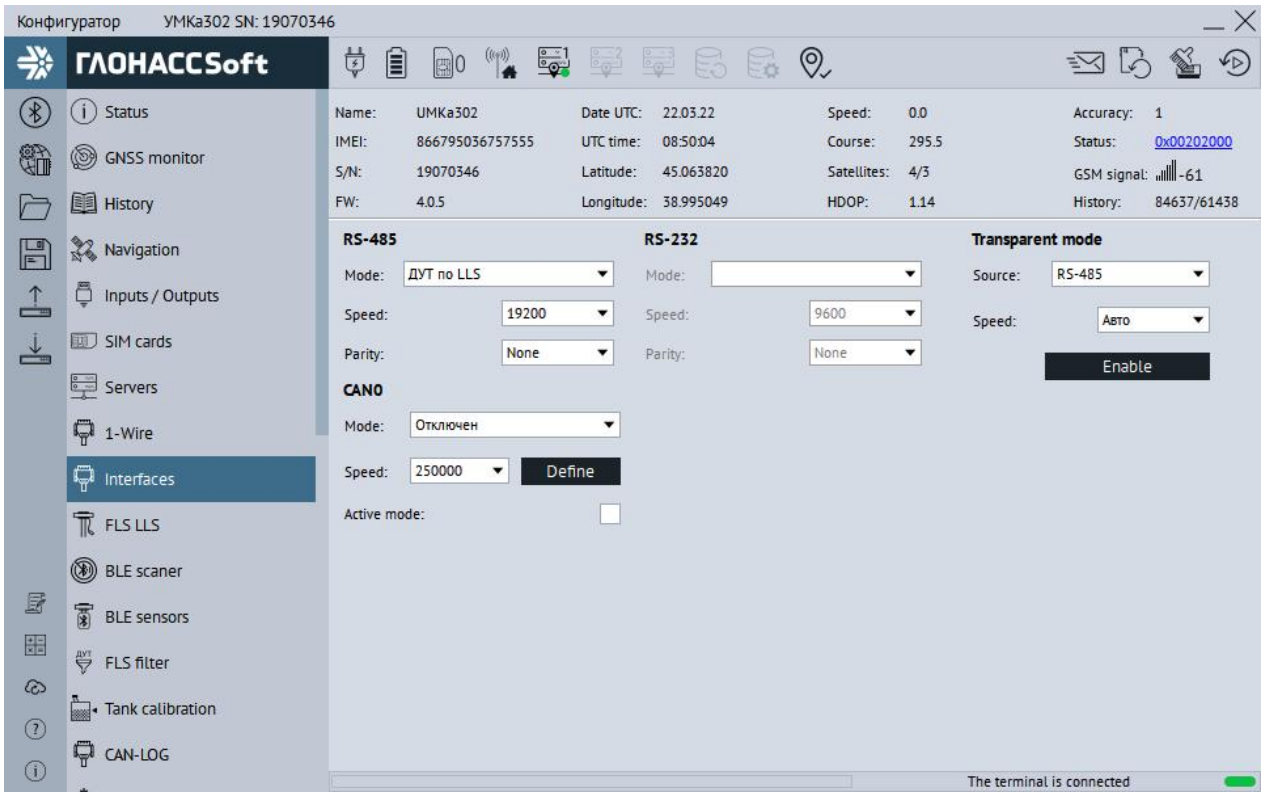
To work with tachographs you need to configure the connection interface.

In order to do it, go to “Interfaces” page and configure connection by the following table:

Table 3 - interface settings

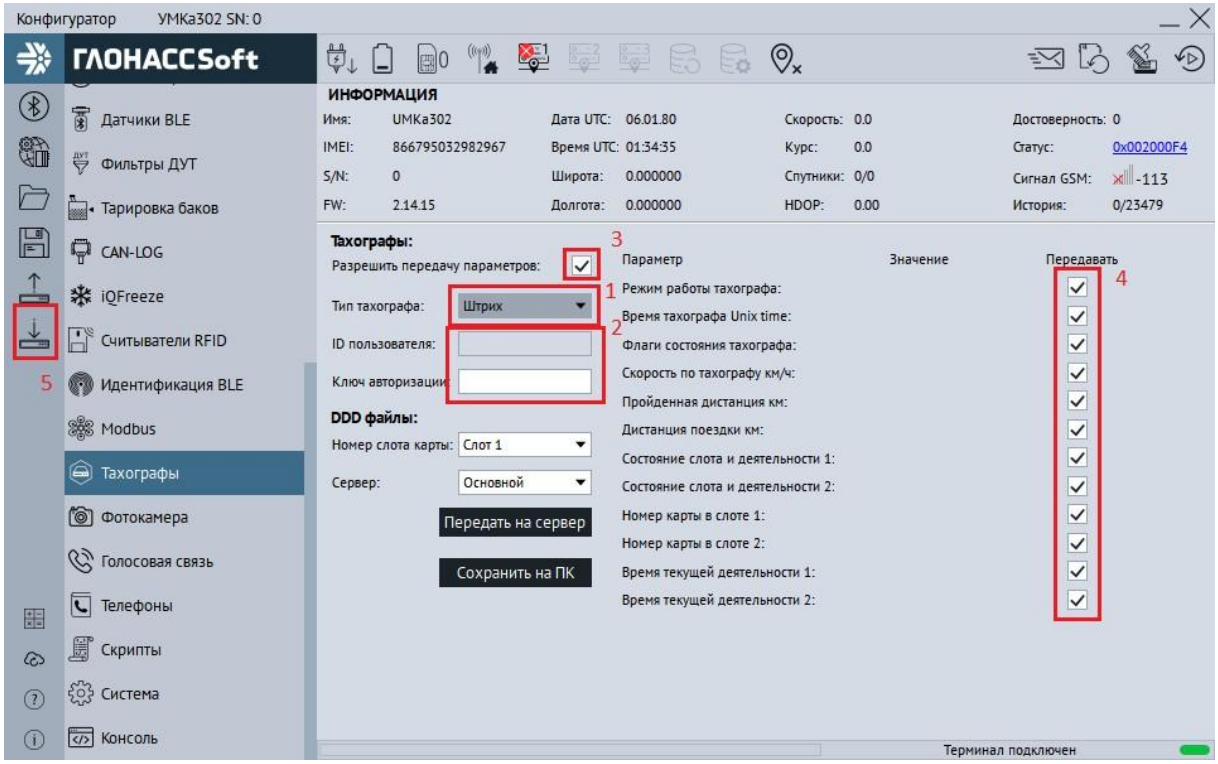
Tachograph type	RS-485			RS-232		
	Mode	Speed	Evenness	Mode	Speed	Evenness
Shtrih	Tachograph	19200	Without evenness	Any not tachograph	No values	No values
ATOL	Any not tachograph	No values	No values	Tachograph	115200	Without evenness
Mercury	Tachograph	115200	Without evenness	Any not tachograph	Не имеет значения	No values
VDO DTCO 3283	Any not tachograph	No values	No values	Tachograph	9600	Evenness

Example of interfaces settings:



7.2 Tachograph settings and control of data occurence

All operations on configuring the type of connected tachograph, transmitted data, current values overview and DDD files upload are implemented on “Tachograph” page:



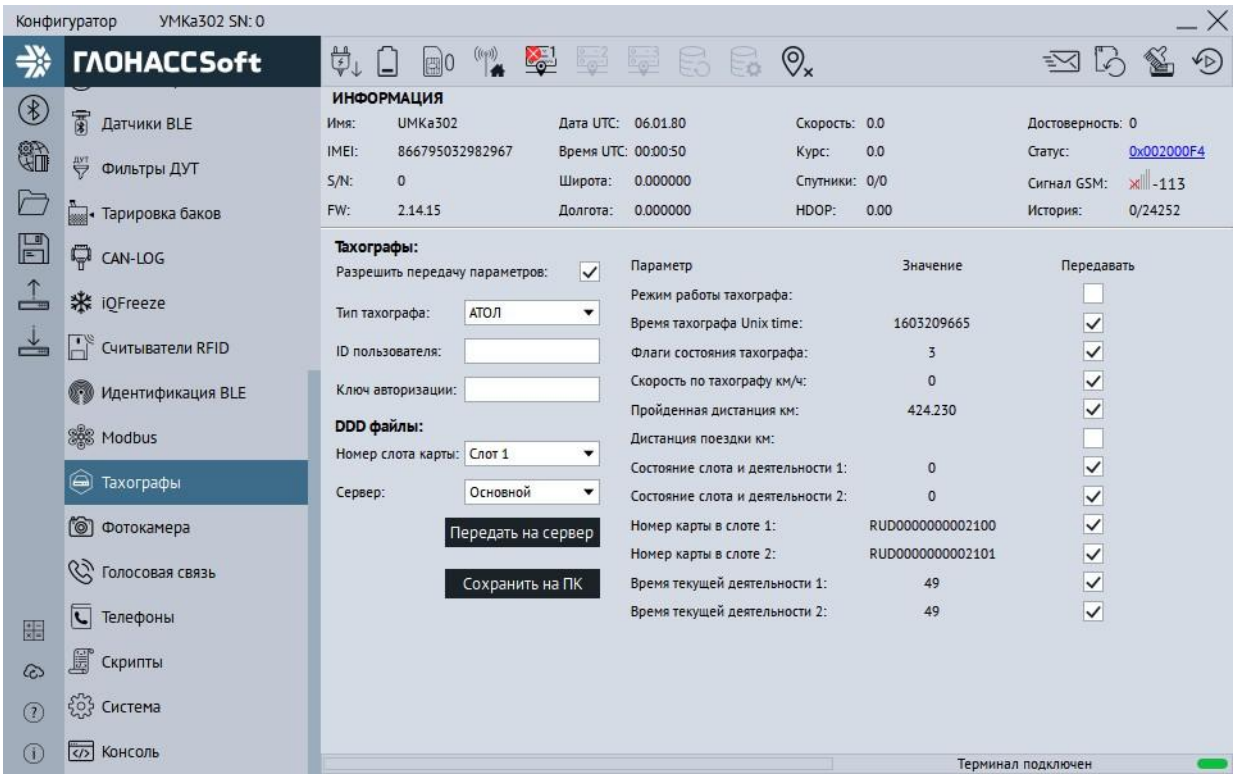
In the dropdown menu “Tachograph type” (1) you need to choose the type of connected tachograph. If neccessary, fill in the fields “User ID” and “Authorization key” (2). In case these parameters fields are left unfilled, factory values for corresponding type of tachographs are used.

To transmit parameters of tachograph operation set the ticks in the field “Allow parameters transmission” (3) and opposite the parameters (4) according to Table 1. It is not recommended to set the ticks opposite the parameters that are not supported by tachograph.

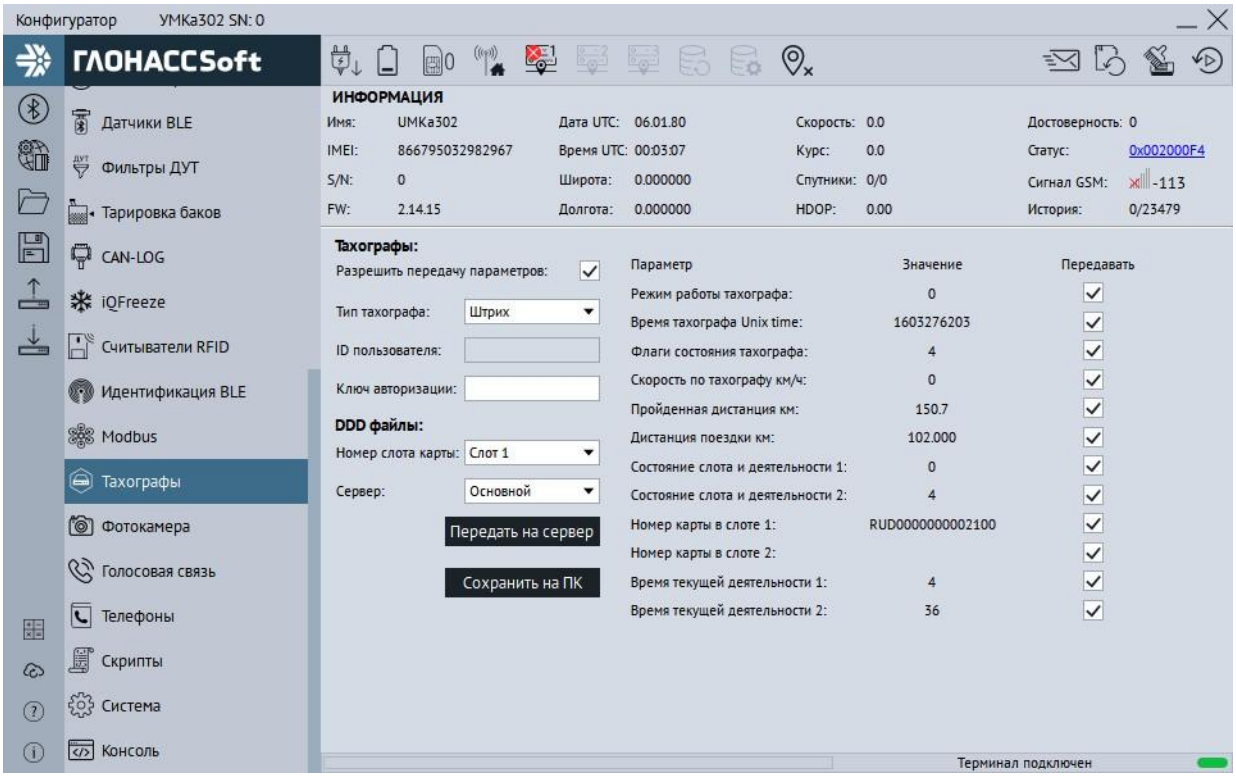
For VDO tachograph remove all the ticks as the parameters reading is not supported for this type of tachograph.

After making all necessary changes enter configuration on the tracker (5).
After tracker reload, if everything is connected and configured in due order, the parameters values are supposed to appear (except for VDO DTCO 3283 tachographs).

Example of “ATOL” tachograph data display:



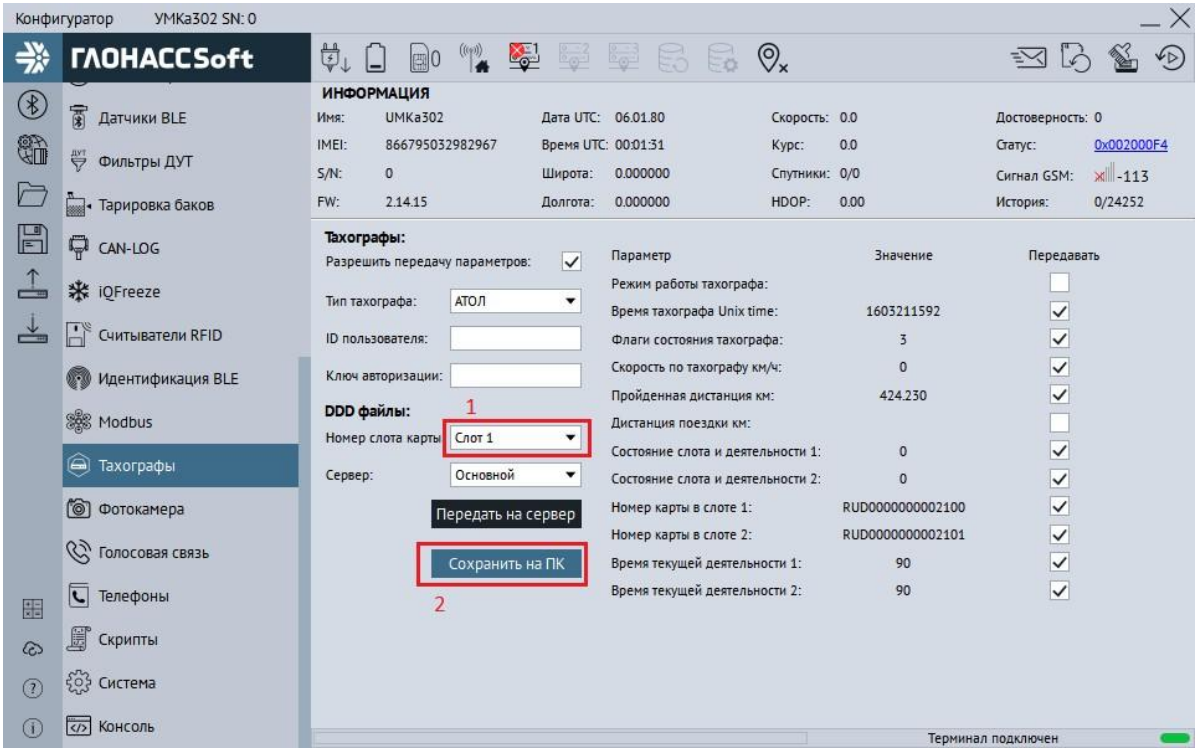
Example of “SHTRIH” tachograph data display:



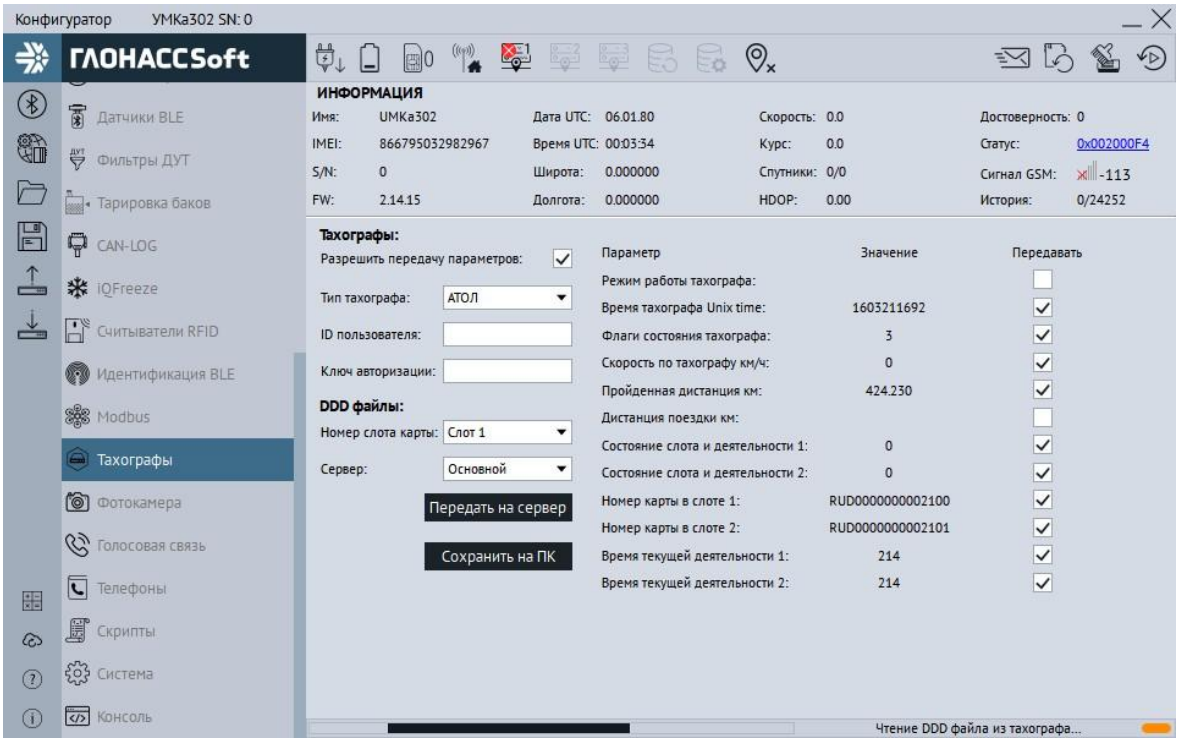
7.3 DDD file reading and saving

If server does not support work with DDD files, you can use configurator capabilities to upload files on local PC.

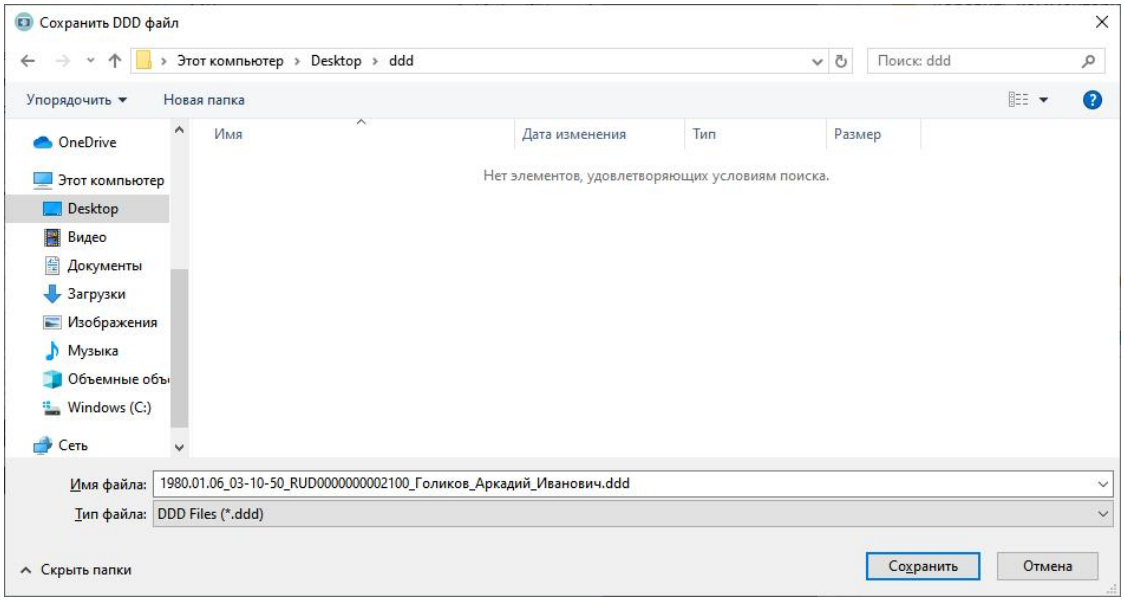
In order to do it, connect to the tracker via USB port or remotely and go to “Tachographs” page. Choose the card slot number (1) (slot 1 or slot 2) and press “Save on PC” (2):



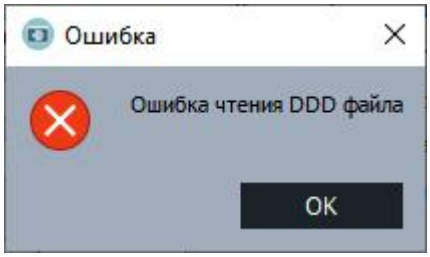
When reading the file the window will display the following:



After the download the dialogue of file saving will appear where you can choose the place for files storing on PC. The name of the file will be automatically made up and if necessary, you can change it.

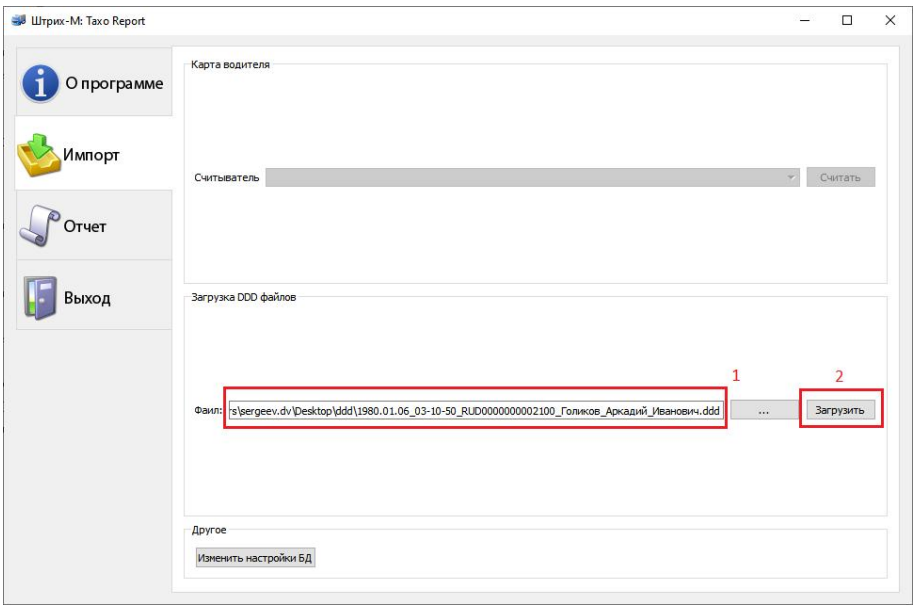


In case of error the window will be displayed:

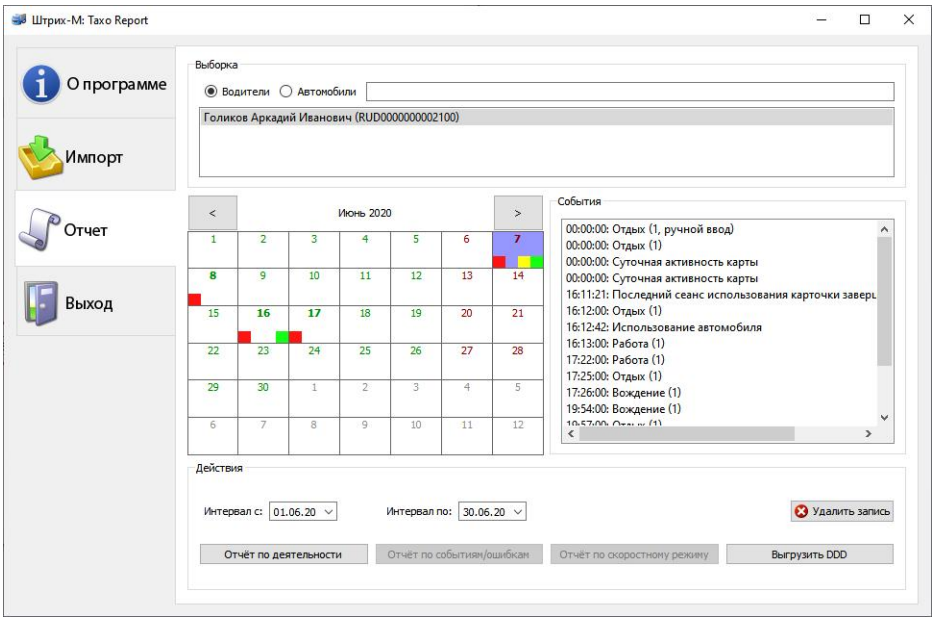


Open the received file on any convenient DDD files overviewer. For example, SHTRIH-TaxoREPORT.

Choose the file:



Overview daily information:



Daily report: