

AxxonSoft, Inc.

Auto Intellect Software Package

Operator's Guide

Version 1.25

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1 The list of terms

1. The Guide – this document: Auto-Intellect Software Package, Operator's Guide
2. The system – the Auto-Intellect software system
3. Traffic – the flow of vehicles
4. LPR Viewer – the interface object designed for viewing the recognized LP numbers, the types and speeds of vehicles, as well as for searching the LPR database and creating reports for specific time periods.
5. Traffic Monitor – the interface object designed for monitoring vehicle movement.

2 Introduction

2.1 The purpose and structure of the Guide

The Guide is an informational reference designed for users of the Auto-Intellect system with Operator access rights.

The Guide contains the following material:

1. General description of the Auto-Intellect software system.
2. How to use the Auto-Intellect software system
3. Description of the user interface of the Auto-Intellect system

2.2 The purpose of the *Auto-Intellect* system

The *Auto-Intellect* software system is designed for automated traffic monitoring and control, and has the following functionality:

1. License plate number recognition
2. Centralized events registration and processing, generation of notifications and control commands according to flexible algorithms
3. Searching matches between the recognized plate number and the numbers in the database connected to *Auto-Intellect*
4. Creating the photo and video archive
5. Determining the overall traffic parameters and the parameters of individual vehicles
6. Software scalability

2.3 Recommendations for using the *Auto-Intellect* system

The *Auto-Intellect* software is installed as an extension to the Intellect software package.

For proper operation of the *Auto-Intellect* system, please follow these recommendations:

1. Follow the job description accurately
2. Use the system for the intended purpose only
3. Do not use the computer with *Intellect* installed, to run other software which is not part of the *Intellect* package.

3 General description of the *Auto-Intellect* software package

3.1 The structure of the *Auto-Intellect* software package

Auto-Intellect includes the basic version of the *Intellect* software package with additional software modules that carry out particular functions: recognizing the vehicle parameters and registering the related events.

Auto-Intellect includes the following software modules:

1. Auto-Uragan 3.3.5.18
2. Arena
3. CARMEN-Auto

4. Carmen-parking
5. Radar;
6. Traffic Detector;
7. External Plates Database;
8. Vehicle detector (included in information-gathering subsystem about traffic);
9. Vehicle processor (included in information-gathering subsystem about traffic);
10. Vehicle tracer.

3.2 The Auto-Uragan 3.3.5.18 module functionality

The Auto-Uragan 3.3.5.18 software module supports the following functionality:

1. License plates identification;
2. Saving the identified number to the plates detector database;
3. Identification and logging the determined speed of the vehicle to the plates database (while connecting the Radar module);
4. Identification and logging the determined class of a moving vehicle to the plates database (while connecting the Traffic detector module);
5. **Check of identified license plates via connected search database;**
6. **Possibility to work with multilane driveway;**
7. **Identification of extended list of license plates types: all types of Russian license plates, all CIS countries and Baltic States, countries of Europe, Latin America and The USA.** Worked out the main types of single-line plates of different countries, for each both civil and specialized (diplomatic, transit, military etc.);
8. Plates filtration according to their characters' sizes
9. Possibility to change level of plates' identification quality
10. Saving the frames of the identified plates to bmp, jpeg and avi formats
11. Calculation of the capture lanes in the area of identification restriction

The Auto-Uragan 3.3.5.18 software module restricts working with different standard sizes of vehicle license plates. It also restricts working with template recognition with the absence of new licensing key.

The Auto-Uragan 3.3.5.18 software module uses IPP 6.1 library.

3.3 The Arena module functionality

The Arena software module supports the following functionality:

1. License plates identification;
2. Saving the identified number to the plates detector database;
3. Identification and logging the determined speed of the vehicle to the plates database;
4. Identification and logging the determined class of a moving vehicle to the plates database.

3.4 The CARMEN-Auto module functionality

The CARMEN-Auto software module supports the following functionality:

1. License plates identification;
2. Saving the identified number to the plates detector database;
3. Identification and logging the determined speed of the vehicle to the plates database (while connecting the Radar module);
4. Identification and logging the determined class of a moving vehicle to the plates database (while connecting the Traffic detector module);

3.5 The CARMEN-parking module functionality

The CARMEN-parking software module supports the following functionality:

1. License plates identification;
2. Saving the identified number to the plates detector database;

3.6 The *Uragan* software module functionality

The *Uragan* software module supports the following functionality:

1. Recognizing the numbers on the license plates and saving them to the database
2. Determining and saving the speed of the recognized vehicles to the database (if the *Radar* module is connected)
3. Determining and saving the type of the recognized vehicles to the database (if the *Radar* module is connected)
4. Searching the external database for the recognized numbers (if the *External Plates Database* module is connected)

3.7 The *Radar* software module functionality

The *Radar* software module supports the following functionality:

1. Registration of Radar (speed-trap) type devices
2. Detecting the vehicle speed using the connected Radar (speed-trap) device.

3.8 The *Traffic Detector* software module functionality

The *Traffic Detector* software module supports the following functionality:

1. Determining the overall number of vehicles that passed in each lane
2. Saving the date and time of vehicle registration
3. Determining the types of vehicles
4. Calculating the total number of vehicles of each type
5. Determining the speed of the vehicles (using the video image processing algorithm)
6. Determining the speed of the vehicles moving along a specified lane
7. Calculating the average traffic speed
8. Determining the average speed of passenger car vehicles
9. Determining the average speed of truck vehicles
10. Determining the distance between the vehicles
11. Determining the road load
12. Registering moving violations
13. Detecting traffic jams

3.9 The *External Plates Database* module functionality

The *External Plates Database* module supports the following functionality:

1. Matching the recognized numbers with the numbers in the external plates database.

3.10 Auto terminal module functionality

The Auto terminal program module is designed for video registration and identification of vehicles in auto terminals with fixed vehicle fleet.

Note. Auto terminal with fixed vehicle fleet may be exemplified by Road Patrol Service shelf object.

Module carries out the following functions:

- 1 Identification of vehicle's numbers that get into the field of view of recognizers, installed in the terminal's entries (requires Uragan module connection).
- 2 Identification of vehicles, registered in the auto terminal's database, in the terminal's entries.
- 3 Vehicles' numbers processing, registered in the auto terminal's database, with automatic and manual status assignment.
- 4 Research requests processing according to auto terminal's database

4 Using the *Auto-Intellect* software system

4.1 Starting and closing the system

Please check the working condition of all hardware components – connections, cameras, etc – prior to starting the system.

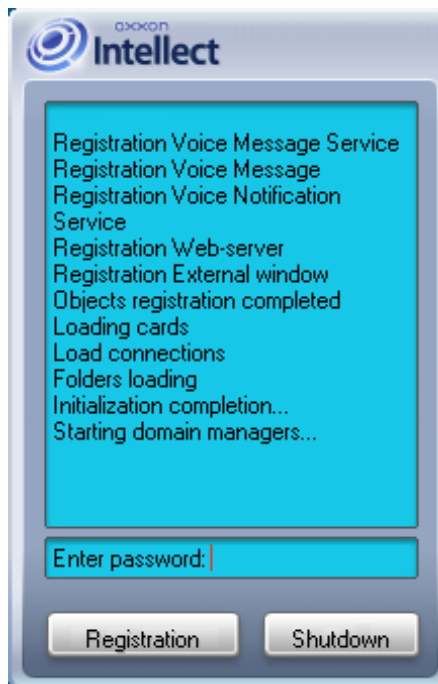


Figure 4.1-1 Starting the system

The system can be started using one of the following methods (Figure 4.1-1):

1. Automatically. The system starts automatically after the operating system boots up.
2. Manually. To start the system manually, in the **Start** menu, select **Programs**, then **Intellect**, then **Client Workstation**, or use the corresponding shortcut on the Desktop.

Access to the system can be protected by a password. In this case, enter your password to start the system.

To shut down the system, do the following:

1. Point the mouse to the upper right corner of the screen, the main control panel will open.
2. Click the  icon on the panel.
3. Select **Shutdown** in the menu that opens.

The shut down process will start, the password will be required if set (Figure 4.1-2).

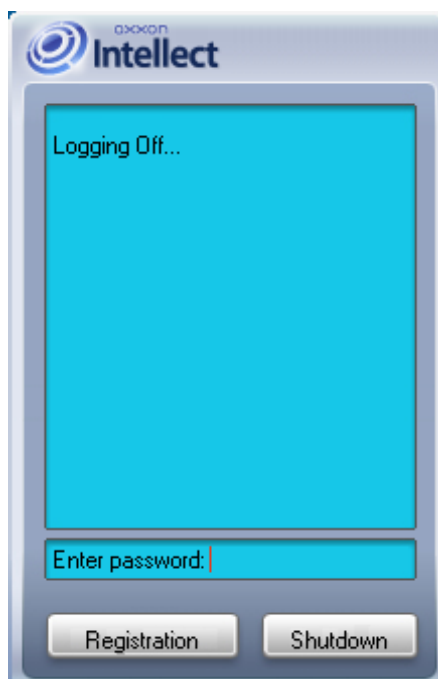


Figure 4.1-2 Shutting the system down with password confirmation

Note. The system can be set up to forbid the shut down. Then, the **Shutdown** item is not present in the menu.

4.2 Using the Traffic Monitor interface object

4.2.1 Displaying the current traffic information in table form

The table with current traffic parameters is shown in the **Table** sub-tab of the **Current value** tab (Figure 4.3.1-1 and 4.3.1-2).

Current Value		Statistics				Traffic monitor 1	
Table		Charts					
		Detector of transport 1					
		1	2	3	4		
Total number of vehicles		2124	2736	1501	1260		
Time of registration		'8:46 04-02-2	'8:49 04-02-2	'8:49 04-02-2	'8:48 04-02-2		
Motorcycles		0	0	0	0		
Passenger cars		2119	2521	880	3		
Trucks less than 12 m long		5	210	419	625		
Trucks more than 12 m long		0	0	0	0		
Buses		0	5	202	632		
Registered speed of the vehicle (km/h)		191	43	34	88		
Vehicle length		6	20	3	22		
Average speed for all vehicles (km/h)		180.75	16.20	38.09	102.26		
Average speed for passenger cars (km/h)		180.82	15.99	39.30	30.33		
Average speed for trucks (km/h)		150.00	18.65	36.37	102.44		
Distance between vehicles (m)		94	22	30	137		
Road load (%)		5	20	10	10		
Number of speed overruns		2114	22	171	1063		
Moving along the oncoming lane		0	0	0	0		
Number of vehicle stops		0	0	0	0		
Jam		Free	Free	Free	Free		
Number of incidents		2114	22	171	1063		

Figure 4.3.1-1 Displaying the current traffic parameters by lane in a table

Current Value	Statistics	Traffic monitor 1
Table	Charts	
	Detector o...	
	Movement ...	
Total number of vehicles	7824	
Time of registration	1:09 04-02-2	
Motorcycles	0	
Passenger cars	5669	
Trucks less than 12 m long	1295	
Trucks more than 12 m long	0	
Buses	860	
Registered speed of the vehicle (km\h)	56	
Vehicle length	30	
Average speed for all vehicles (km\h)	80.76	
Average speed for passenger cars (km\h)	83.06	
Average speed for trucks (km\h)	74.71	
Distance between vehicles (m)	76	
Road load (%)	45	
Number of speed overruns	3470	
Moving along the oncoming lane	0	
Number of vehicle stops	0	
Jam	Free	
Number of incidents	3470	

Figure 4.3.1-2 Displaying the current traffic parameters by direction in a table

The system can be set up to display the traffic parameters by lane or by traffic movement direction. In case of the by-lane display, the columns correspond to traffic lanes, and rows correspond to traffic parameters. In case of the by-direction display, the columns correspond to traffic directions, and rows correspond to traffic parameters.

Note. The **Time of registration** parameter for each lane corresponds to the time when the last vehicle passed. The **Time of registration** minus the **Statistics update period** is taken as the beginning of the period to base the statistics on, while the current moment is taken for the end of the statistics period.

4.2.2 Displaying current traffic information in graphic form

The charts with current traffic parameters are displayed in the **Charts** sub-tab of the **Current value** tab (Figure 4.3.2-1 and 4.3.2-2).

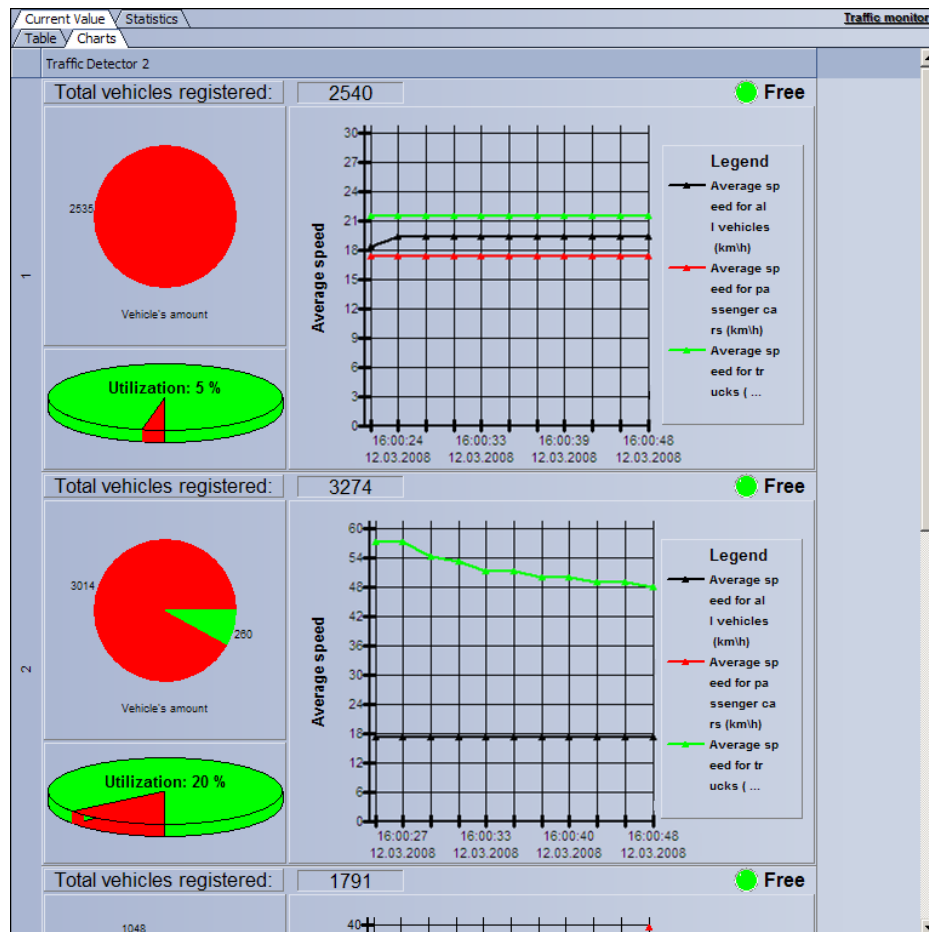


Figure 4.3.2-1 Displaying the charts of current traffic parameters by lane

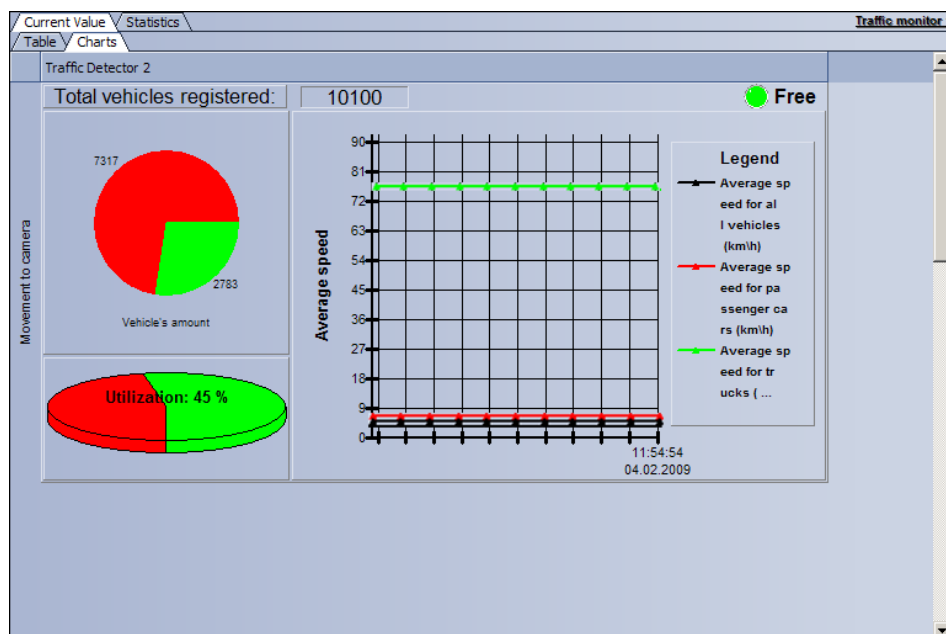


Figure 4.3.2-2 Displaying the charts of current traffic parameters by direction

The system can be set up to display the traffic parameters by lane or by traffic movement direction.

The **Charts** tab consists of several sections corresponding to the lanes or the traffic movement directions. Each section consists of several subsections displaying some particular sets of traffic parameters in graphic form.

4.2.3 Creating a request for traffic statistics

To create a request for traffic statistics, use the **Statistics** tab (Figure 4.3.3-1).

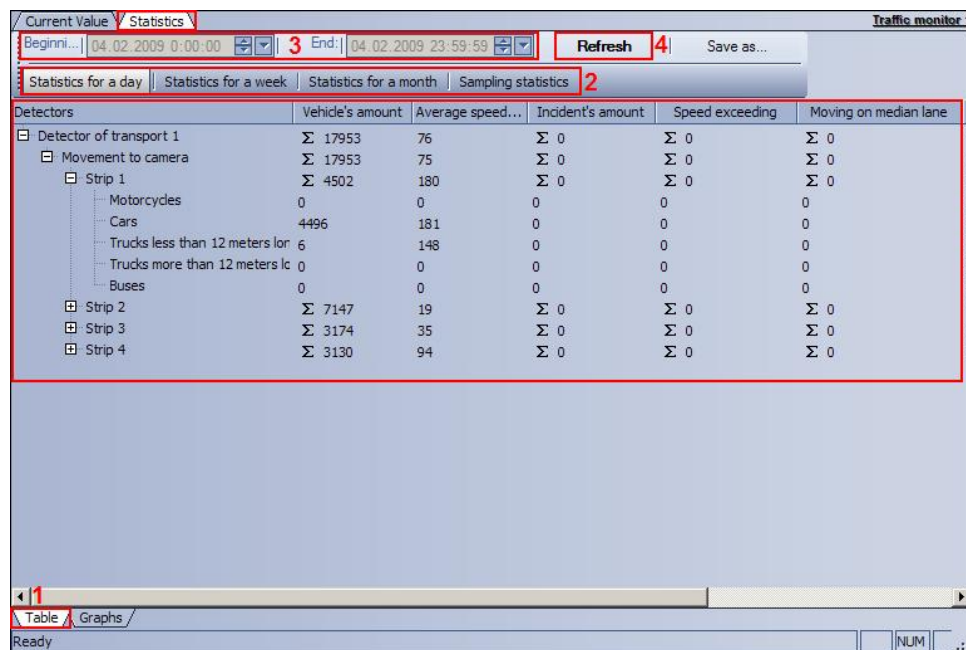


Figure 4.3.3-1 Creating a request for traffic statistics

To create a request for traffic statistics, do the following:

1. Select the preferred type of statistics presentation by clicking the **Table** or the **Charts** tab.
2. Select the sampling period – **Day**, **Week**, **Month**, or **Specific time period** (specify the period manually).
3. If **Specific time period** is chosen, enter the beginning and the end date/time of the statistics period in the **Beginning** and the **End** fields.
4. Click the **Refresh** button to create or update the statistics.

4.2.4 Displaying traffic statistics in table form

The traffic statistics in table form are displayed in the **Table** sub-tab of the **Statistics** tab (Figure 4.3.4-1).

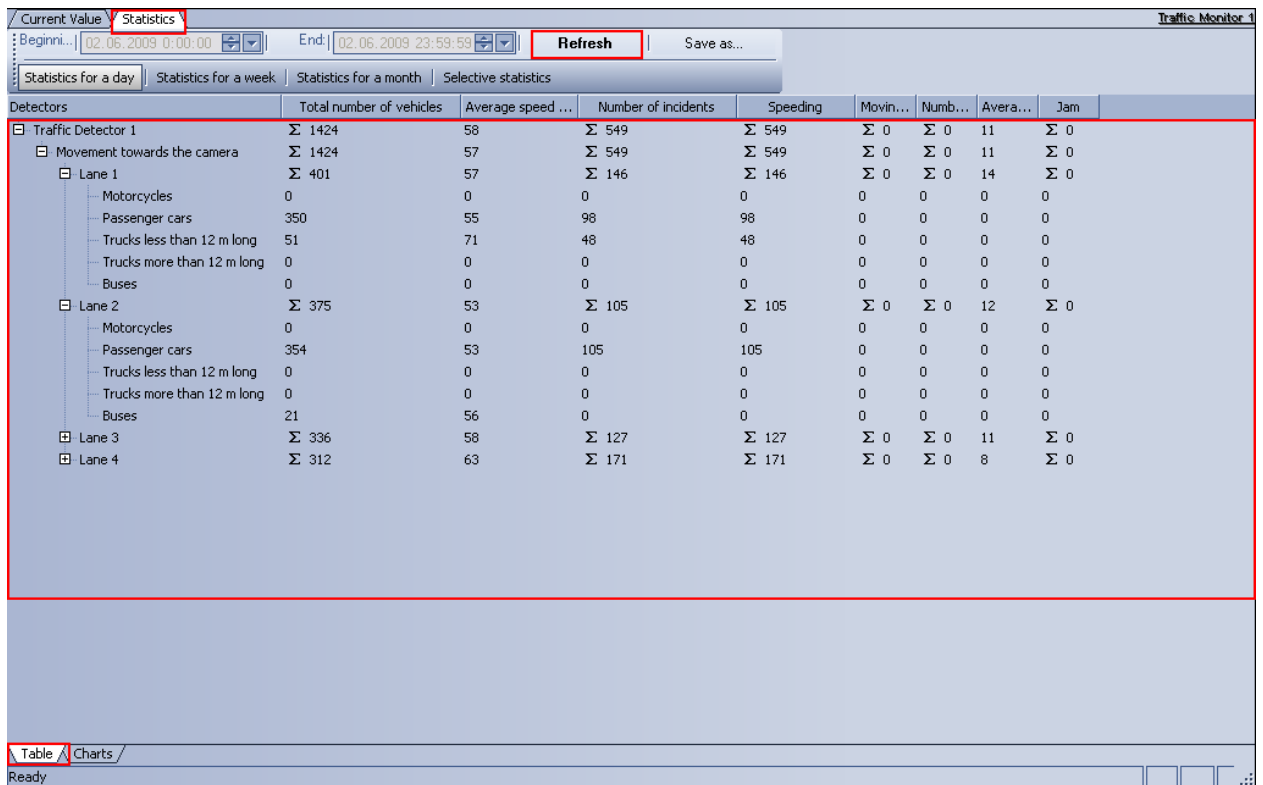


Figure 4.3.4-1 Displaying traffic statistics in table form

The traffic statistics are displayed in the following tree structure: Recognizer name → Movement direction → Lane → Vehicle type. The statistics data for each level of the tree is shown.

Note. To refresh the displayed statistics, click the **Refresh** button.

4.2.5 Displaying traffic statistics in graphic form

The traffic statistics in graphic form are displayed in the **Charts** sub-tab of the **Statistics** tab (Figure 4.3.5-1).

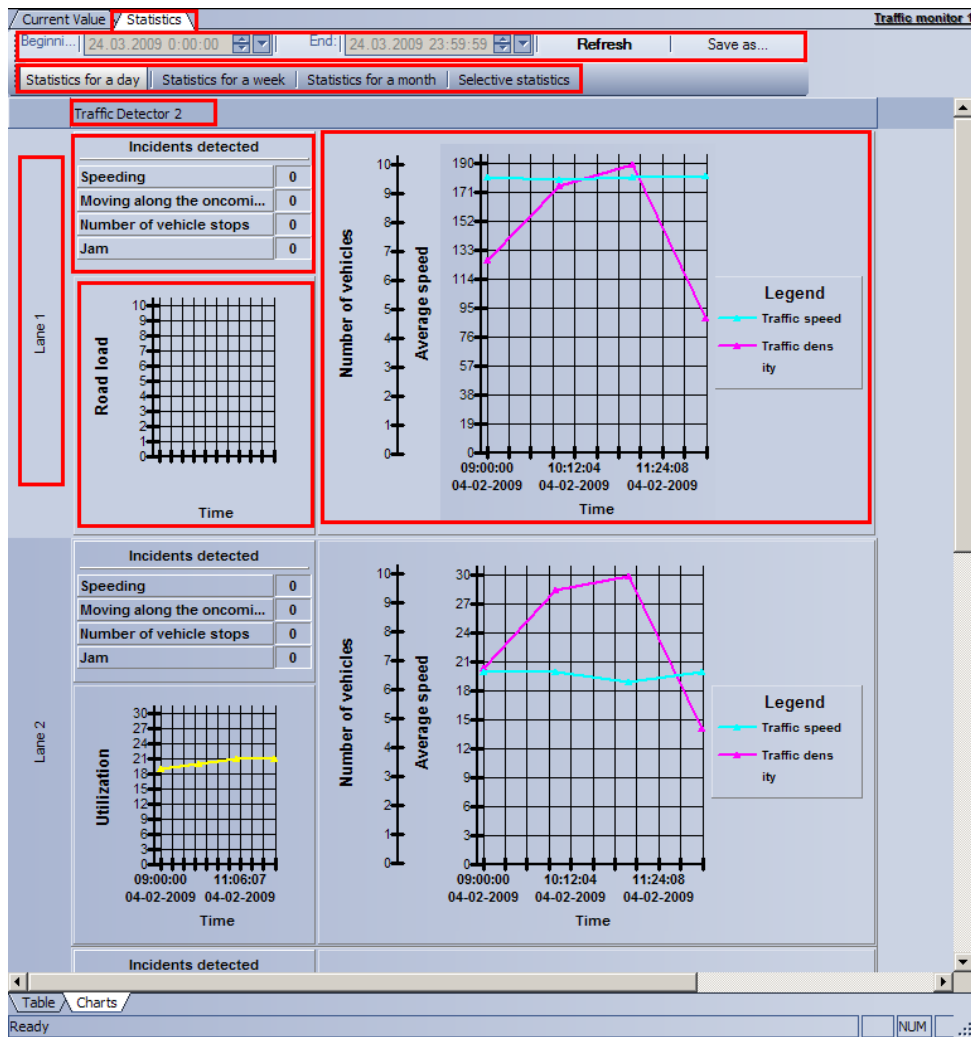


Figure 4.3.5-1 Displaying traffic statistics in graphic form

Note. To refresh the displayed statistics, click the **Refresh** button.

4.2.6 Saving traffic statistics to a file

The **Statistics** tab allows saving the traffic statistics into a file (Figure 4.3.6-1).

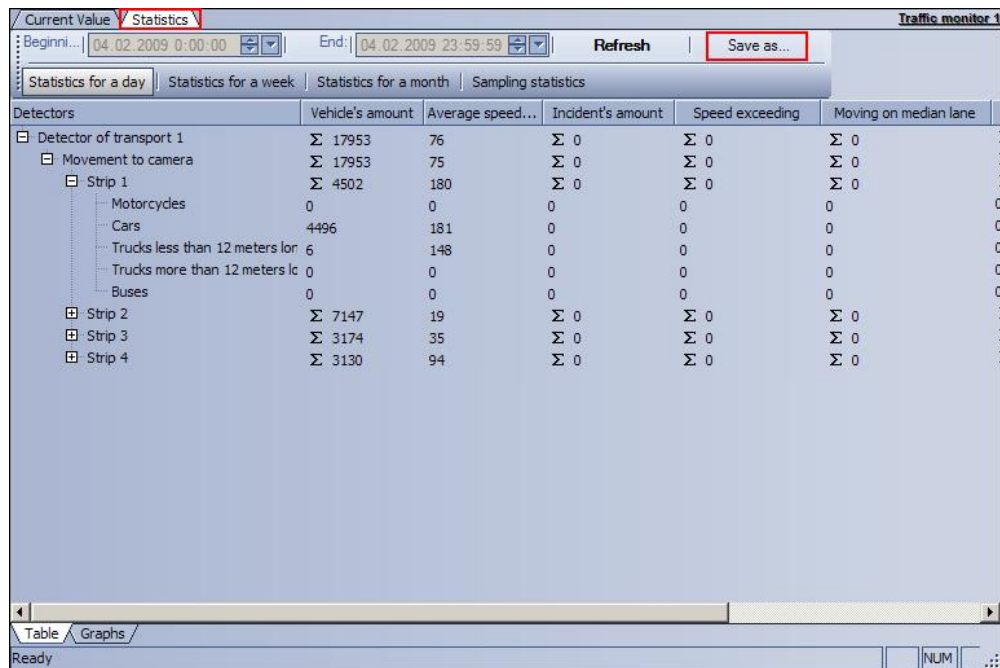


Figure 4.3.6-1 Saving traffic statistics into a file

To export the traffic statistics into a file, do the following:

1. Create and display the request for traffic statistics (see the *Creating the traffic statistics request* section)
2. Click the **Save as** button.
3. Enter the pathname in the window that opens and click **Save**.
4. The traffic statistics will be saved in the specified location in a CSV file.

4.3 The LPR channel interface object

4.3.1 Introduction

The LPR channel interface object includes the following components:

1. «On-line monitor» – is designed for displaying the data about identified plates and for handling alarms;
2. «Events monitor» – displays video frame with a vehicle, which plate is being recognized at the moment and also identified number and speed.

Note. Events monitor component is optional and isn't displayed with corresponding system settings (see the document «Auto-Intellect software complex: Administrator guide»).

4.3.2 Viewing the data about passing vehicle

Viewing the data about passing vehicle is performed in the window Events monitor (Fig. 4.3-1).



Fig. 4.3-1 Viewing the data about passing vehicle

In the Events monitor window the following data is displayed:

LPR channel (the name of the corresponding object LPR channel ») (Fig. 4.3-1, 1);

1. Vehicle's video frame with a sing, containing the following data (Fig. 4.3-1, 2):
 - a. Date and time of receiving data about the vehicle;
 - b. Vehicle's speed;
 - c. Vehicle's direction;
 - d. Speed, allowed on the controlled area of the road;
 - e. Vehicle's detector id number;
 - f. Control site.
2. Vehicle's identified number and speed (Fig. 4.3-1, 3).

Note1. In case, when Uragan or CARMEN-Auto module is used for identification, allowed speed, vehicle's speed and speed detector's number are displayed only if the Radar module is connected (see the document «Auto-Intellect software complex: Administrator guide »).

Note 2. In case when alarm is registered for a vehicle (overspeeding, and /or identification of a plate in the external plates database), a field with a video frame is underlined red (Fig. 4.3-1, 2).

4.3.3 Viewing the data about the last identified vehicle

Viewing the data about the last identified vehicle is performed in the group «Last event» of «On-line monitor» window (Fig. 4.3-2).



Fig. 4.3-2 Data about the last identified vehicle

Note. If there is selected an event in the identified vehicles protocol or in the alarms protocol, the data about this event will be displayed in the group Last event (see sections «Viewing the protocol of the identified vehicles», «Viewing the alarms protocol»).

Viewing the data about the last identified vehicle is performed in the following way:

1. In field 1 there is displayed a vehicle's video frame with a sign (Fig. 4.3-3, 1).

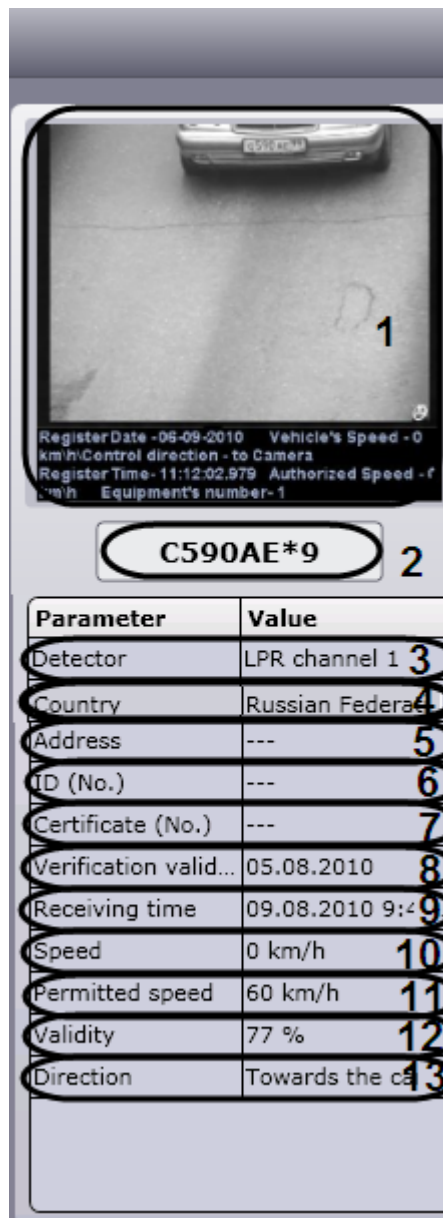


Fig. 4.3-3 Viewing the data about the last identified vehicle

2. Identified vehicle's plate is displayed in Field 2 (Fig. 4.3-3, 2).

Note. In case when a plate hasn't been recognized, Unidentified message will be displayed in the field.

3. In the detector string the name of plate's detector is displayed (the name of the corresponding object «LPR channel») (Fig. 4.3-3, 3).
4. In the country string there is displayed a country in accordance with the identified number (Fig. 4.3-3, 4).

Note. The country is displayed only in case when the Uragan or CARMEN-Auto modules are used for recognition.

5. Camera's installation address is displayed in the string Address (Fig. 4.3-3, 5).
6. Camera's identifier number is displayed in the string ID (№) (Fig. 4.3-3, 6).
7. Certificate's number is displayed in the string Certificate (Fig. 4.3-3, 7).
8. The date, until which verification is valid is displayed in the string Verification valid (Fig. 4.3-3, 8).
9. In the string Receiving time there is displayed the date and receiving time of vehicle's information (Fig. 4.3-3, 9).
10. In the string Speed there is displayed vehicle's speed (Fig. 4.3-3, 10).

Note1. In case, if Uragan or CARMEN-Auto modules are used for identification and Radar module is not connected, zero speed value is displayed.

Note 2. Dependent on LPR channel settings the speed is displayed in km/h or m/h (see the document «Auto-Intellect program complex: Administrator guide»).

11. In the string Permitted speed there is displayed maximum permitted speed on this road's area (Fig. 4.3-3, 11).
12. In the string Validity there is displayed validity of identified plate in percent (Fig. 4.3-3, 12).
13. In the string Direction there is displayed vehicle's direction («Towards the camera » or «Off the camera») (Fig. 4.3-3, 13).

Viewing the data about the last identified vehicle is over.

Note1. In case if there is registered an alarm for a vehicle, the reason of alarm is also displayed in the group Last event.

Note2. In the same way one can view the data about any event, selected in the identified vehicles protocol or in the alarm protocol (see sections Viewing the protocol of identified vehicles, Viewing the alarms protocol).

4.3.4 Viewing the protocol of identified vehicles

Viewing the protocol of identified vehicles is performed in On-line monitor window (Fig. 4.3-4).



Fig. 4.3-4 Identified vehicle's protocol

The protocol of identified vehicles is a table which contains information about identified vehicles (Fig. 4.3-4, 2). Select the tab Events, displaying the protocol of identified vehicles, to access to the protocol (Fig. 4.3-4, 1).

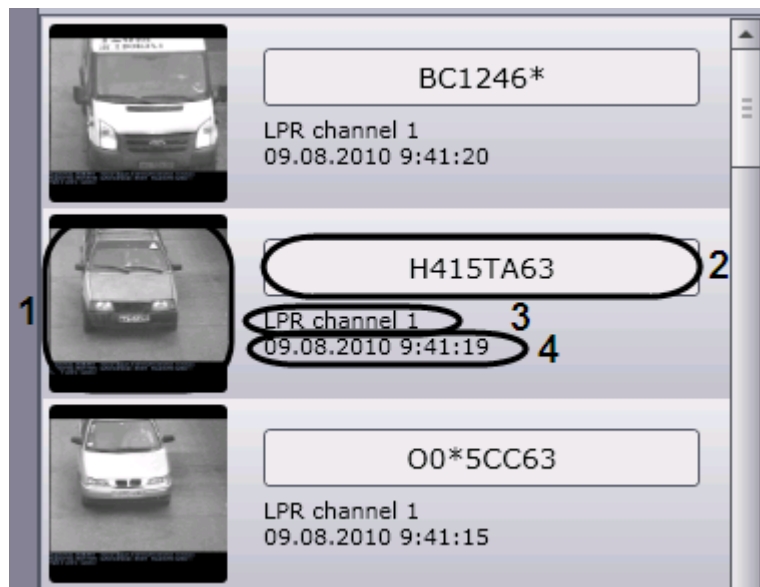


Fig. 4.3-5 Viewing the identified vehicles protocol

For every vehicle (event) there are displayed the following data:

1. video frame of the vehicle(Fig. 4.3-5, 1);
2. Identified vehicle's number (Fig. 4.3-5, 2);
3. Vehicle's speed;
4. LPR channel (Fig. 4.3-5, 3);
5. Time of receiving I information about the vehicle (Fig. 4.3-5, 4).

Note. In case, when Uragan or CARMEN-Auto module is used for identification, vehicle's speed is displayed only if the Radar module is connected» (see the document «Auto-Intellect program complex: Administrator guide).

For alarms there is displayed information about reasons of alarms (see section «Alarms operation»). Unprocessed by the operator alarms are underlined red, processed-underlined yellow (see section «Alarm's processing»).

Note. Processed events may not be displayed (see section «Hiding the processed events in the protocols»).

To view the detailed information about the event it is necessary to perform the following actions:

1. Click with a left mouse button upon the required event.
2. The data about the event will be displayed in the group Last event in result. Operative update of the identified vehicles protocol will be suspended in the process.
3. Viewing the data about the event according to section «Viewing the data about the last identified vehicle».

To restore the active update of identified vehicles protocol click the Trace button in the upper area of the On-line monitor window (Fig. 4.3-6).

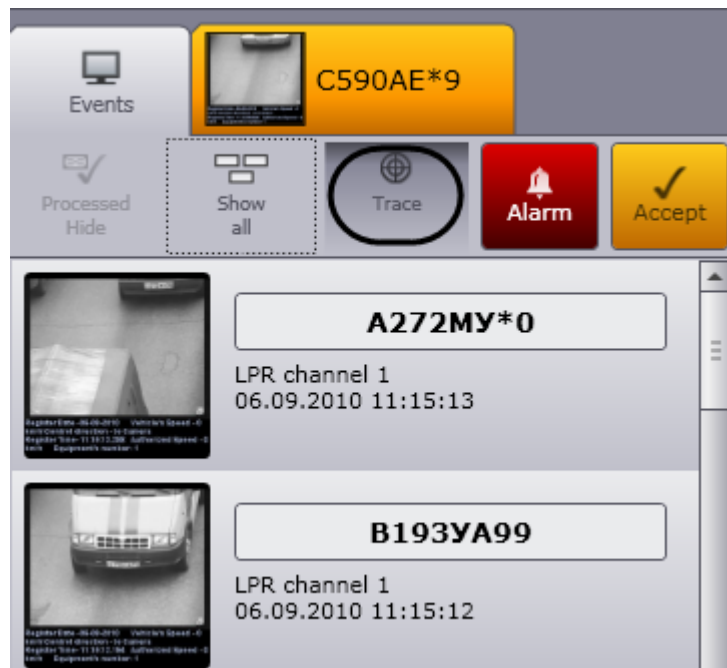


Fig. 4.3-6 Restoring the active update of identified vehicles protocol
Viewing the detailed data about the event is over.

4.3.5 Alarms operation

Alarms operation is done in the On-line monitor window.

Alarm is triggered by one of the following ways:

1. automatically – in case of overspeeding or vehicle's plate identification in the external database;
2. manually.

4.3.5.1 Manual triggering the alarm

Manual triggering the alarm is done in the following way:

1. Select the required event in the identified vehicles protocol, clicking it with a left button of the mouse (Fig. 4.3-7, 1).



Fig. 4.3-7 Manual triggering the event

2. Click the Alarm button (Fig. 4.3-7, 2).
3. In result of this operation the event will be underlined red and added to the alarms protocol (Fig. 4.3-8, 1). For an alarm, triggered by operator, there is displayed the reason of alarm «Marked by operator» and the time of triggering the event (Fig. 4.3-8, 2).



Fig. 4.3-8 Alarm reason-Marked by operator

Note. Information about alarms protocol is given in the section «Viewing the alarms protocol». Manual triggering the alarm is completed.

4.3.5.2 Viewing the alarms protocol

Alarms protocol is a table which contains information about vehicles for which alarm has been triggered (Fig. 4.3-9, 2). It necessary to activate a tab, that is located in the upper area of the On-line monitor window to access to the protocol (Fig. 4.3-9, 1).

Note. There is displayed data about the last alarm on the tab.



Fig. 4.3-9 Viewing the alarms protocol

Unprocessed by operator alarms are underlined red, processed-underlined yellow (see section «Alarm processing»).

Note. Processed events may not be displayed (see section «Hiding the processed events in the protocols»).

Viewing the alarm protocol is done in a similar way with identified vehicles protocol (see section Viewing the identified vehicles protocol). The difference is that for an alarm there is displayed information about the reason of alarm:

1. «Marked by operator» - in case, when the alarm is triggered by operator (the time of triggering is also stated);
2. «Is found in: <external database name >» - in case, when the identified plate is found in the external database;
3. «Overspeeding» - in case, when the vehicle's overspeeding is registered.

Detailed information about an alarm with stating the reason of alarm one can see in the group Lat event (see section Viewing the data about the last identified vehicle). Viewing the detailed information about an alarm is similar with viewing the data about the event, registered in the identified vehicles protocol (see section Viewing the identified vehicles protocol).

In case when the identified vehicle's plate is found in the External Plates Database, the information about the vehicle, stored at this base, will be displayed. (Fig. 4.3-10).



Fig. 4.3-10 Information about the vehicle, found in the External Plates database

4.3.5.3 Alarm processing

Alarm processing is done in the following way:

1. Select an alarm in the identified vehicles protocol or in the alarms protocol, clicking it by a left mouse button (Fig. 4.3-11, 1).



Fig. 4.3-11 Alarm processing

2. Click Accept (Fig. 4.3-11, 2).
3. The event will be underlined yellow in result (Fig. 4.3-11, 3).

Alarm processing is completed.

4.3.5.4 Hiding the processed events in the protocol

There is possibility to hide processed events in the identified vehicles protocol and alarms protocol. To realize this possibility it is necessary to click the button Processed Hide (Fig. 4.3-12).



Fig. 4.3-12 Hiding the processed events

4.3.6 Adding the comments to the events

There is possibility to add commentary to the events. This possibility is realized in the ON-line monitor window.

Note! There is possibility to comment accepted events (are underlined yellow) is not provided.

To add a commentary to the event one has to carry out the following events:

1. To select an event in the identified vehicles protocol or events protocol, click it with a left mouse button (Fig. 4.3-13, 1). Operative update of the protocol, displayed on the screen, will be suspended in result.



Fig. 4.3-13 Adding the comments to the event

2. Click Comment (Fig. 4.3-13, 2).
3. Comments window will open in result (Fig. 4.3-13).

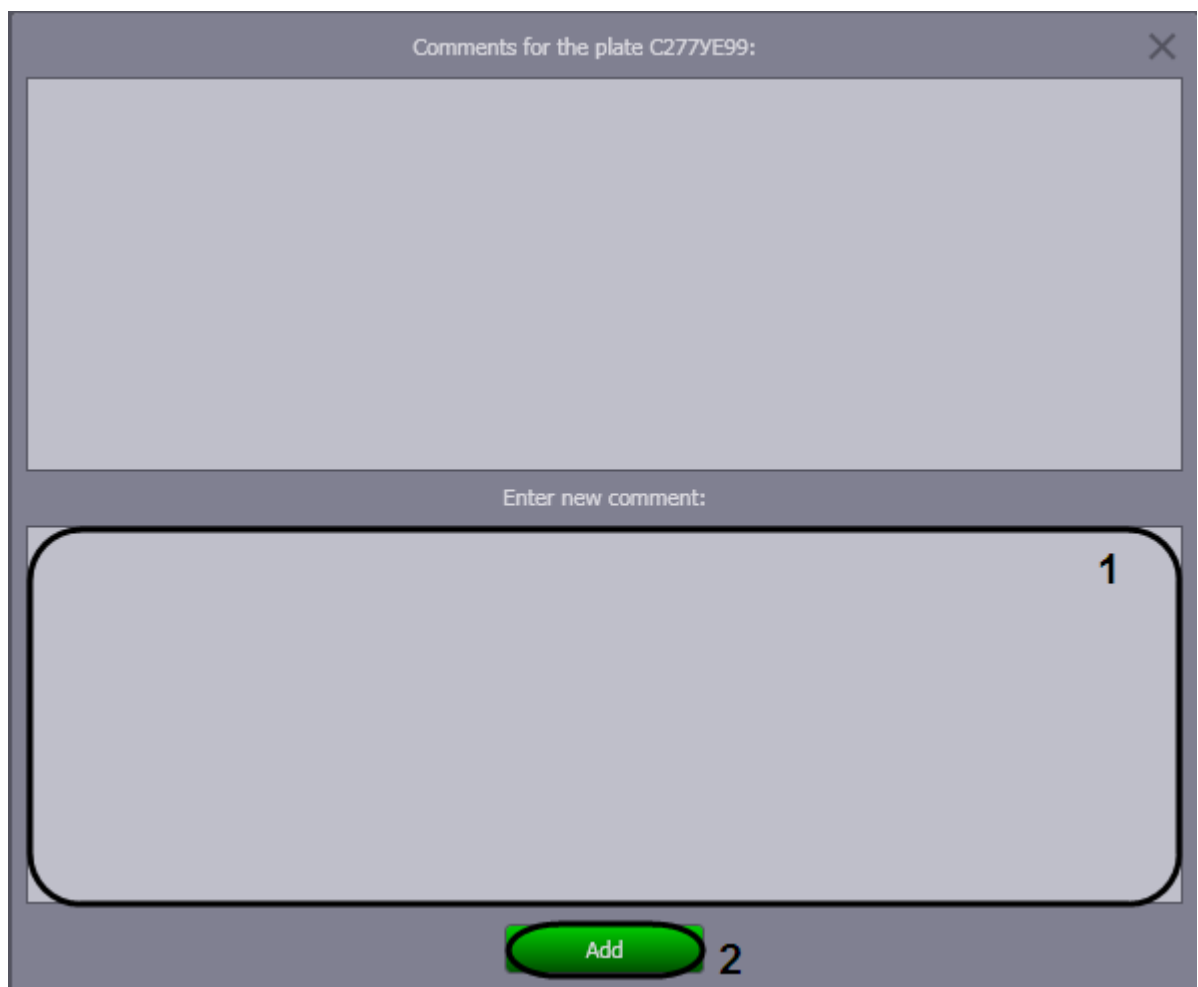


Fig. 4.3-14 Comments dialog window

4. Enter the comment in the field after the stated date (Fig. 4.3-14, 1)
5. Click Add button to apply the comment to the event (Fig. 4.3-14, 2).

6. Repeat steps 2-5 for all the required comments.
7. To resume operative update of the protocol, displayed on the screen, click Trace button (Fig. 4.3-13, 3).

Adding the comments to the event is completed.

To view the comments to the event the required value should be selected in the identified vehicles protocol or in the alarms protocol. Comments will be displayed in one field (Fig. 4.3-13, 4).

4.3.7 Printing and exporting the data about the vehicle

Printing and exporting the data about the vehicle is done in the following way:

1. Select an event in the identified vehicles protocol or events protocol, clicking upon it with a left mouse button (Fig. 4.3-15, 1). Operative update of the protocol, displayed on the screen, will be suspended in result.



Fig. 4.3-15 Printing and exporting the data about the vehicle

2. To build a report with vehicle characteristics click the Print button (Fig. 4.3-15, 2).
3. Preview report program will be run in result. Vehicle characteristics report will be displayed in this program's window (Fig. 4.3-16).

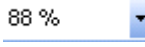


Fig. 4.3-16 Vehicle characteristics preview report

4. Carry out the necessary operations (Table 4.3-1) with a report, then quit the program for viewing the reports, having executed the point of the main menu File ->Exit viewer or clicked the button «».

Table 4.3-1 List of operations with a report

Operation	Call for operation		
	Start in the main menu	Start in the contextual window	Button on the toolbar
Open the report, saved in .rsd or .xml	File->Open	-	
Save the report in .rsd or .xml	File ->Save	-	
Export the report to one of the most common formats	File ->Export	-	
Print the report	File ->Print	-	
Activate the tool «Arm»	View-> Scrolling	Scrolling	
Zoom in the displaying of report's pages	View ->Zoom in	Zoom in	
Zoom out the displaying of report's pages	View ->Zoom out	Zoom out	
Enable dynamic scaling of report's pages	View ->Dynamic scaling	Dynamic scaling	
Zoom in the selected region scaling	View ->Region scaling	Region scaling	
Scale in page size	View ->In page	In page size	

Operation	Call for operation		
	Start in the main menu	Start in the contextual window	Button on the toolbar
	size		
Scale in page's width size	View -> In page's width size	In page's width size	
Display pages in real size	View -> Real size	Real size	
Enter or select from the list the required scale of displaying the report's pages	View -> Set the scaling	Set the scaling	
Enable the mode of nonstop paginal report's displaying	-	-	
Enable the mode of by one page report's displaying	-	-	
Go to the first report's page	Navigate->The first page	The first page	
Go to the previous report's page	Navigate ->Previous page	Previous page	
Go to the next report's page	Navigate ->The next page	The next page	
Go to the last report's page	Navigate ->The last page	The last page	
Go to the required report's page (call for a dialog window « Go to page »)	Navigate -> Go to page	-	-
Display the previous report's view	Navigate ->Back	Back	
Display the next report's view	Navigate ->Forward	Forward	
Find the required characters string in the report	Document->Find	Find	
Update the report	Document -> Update	Update	
Edit the report (open the editing program)	Document ->Edit the report	Edit the report	
Display report's content	-	-	
Display information about the program to view the report	Help -> About program	-	-
Close the preview report program	File ->Close	-	-

Note 1. Operations with report files (opening, saving, exporting, and printing) are performed with standard dialog OS Windows.

Note2. To go to the required page one should enter page's number in the field «Page №» of «Go to page» dialog window and then click OK.

5. To resume operative update of displayed protocol click the Track button. (Fig. 4.3-15, 3).

Printing and exporting the data about the vehicle is completed.

4.3.8 Viewing the video archive by event

There is possibility to command from the component On-line monitor in order to reproduce the video archive by event in the interface window the Monitor.

Note. The preliminary set Monitor object should be selected as a monitor for controlling on the LPR channel settings panel. (see the document «Auto-Intellect software complex: Administrator Guide »).

To view the video archive by event do the following:

1. Select the event in the identification vehicles protocol or alarms protocol, clicking upon it with a left mouse button (Fig. 4.3-17). Operative update of the protocol, displayed on the screen, will be suspended in result.



Fig. 4.3-17 Access to video archive by event

1. Click Video archive (Fig. 4.3-17, 2).
2. In case, when currently the monitor with a video surveillance corresponding to the plates identification camera is displayed on the screen, this video surveillance window will enable the mode of displaying the archive recording by the event (Fig. 4.3-18). Video archive navigation is described in the document «Program complex «Intellect base»: Operator guide ». To close the video archive displaying mode it is necessary to click with a left button upon the sign «» in the right bottom corner of the video surveillance window.



Fig. 4.3-18 Viewing the video archive by event

3. To resume operative update of displayed protocol click the Track button (Fig. 4.3-17, 3).

Viewing the video archive by event is completed.

4.3.9 Using the filters in the protocols

There is possibility to select events to be displayed in the identified vehicles protocol and alarms protocol.

Note! Both displayed and hidden in the protocol events are saved in the recognizer's database of the Auto-Intellect Software.

Events may be selected, using the following events:

1. speed;
2. overspeeding;
3. plate;
4. region;
5. direction;
6. alarm type;
7. identifiers.

Selection of filters, used in the protocols, is done in the following way:

1. Click Filter button in the ON0line monitor window (Fig. 4.3-19, 1).

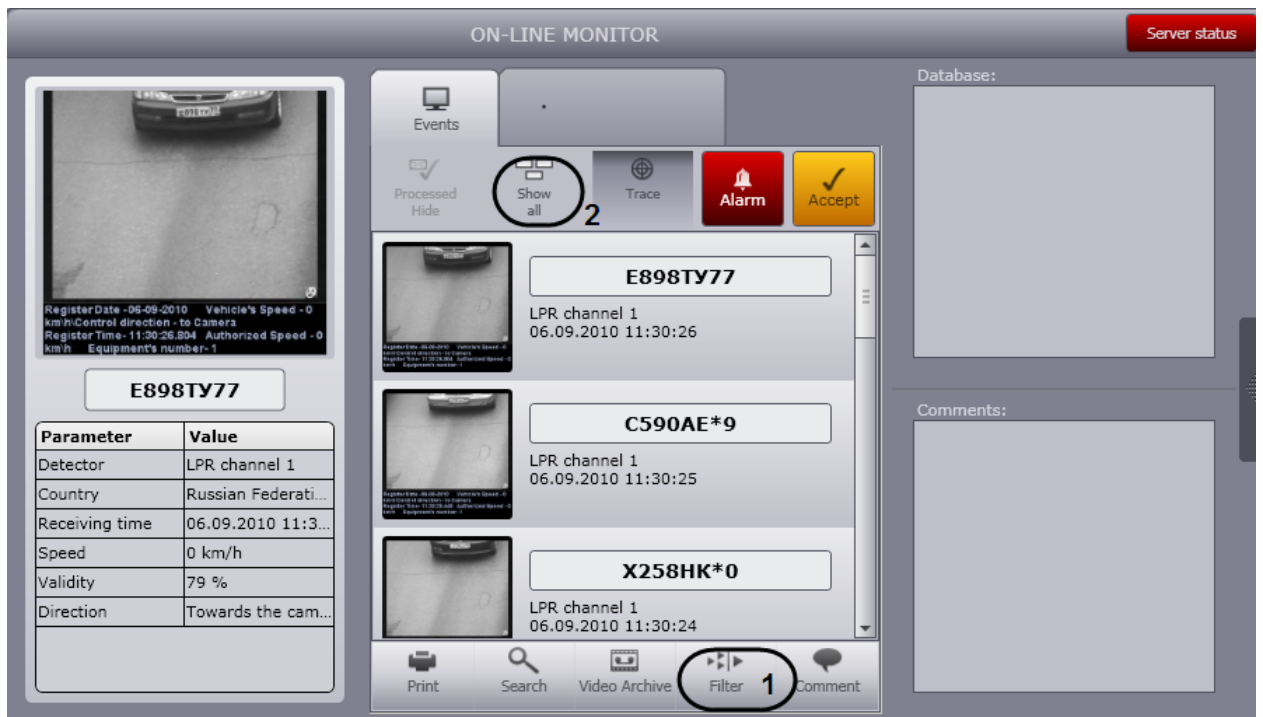


Fig. 4.3-19 Using the filters in the protocol

2. Filters dialog window will be displayed in result (Fig. 4.3-20).

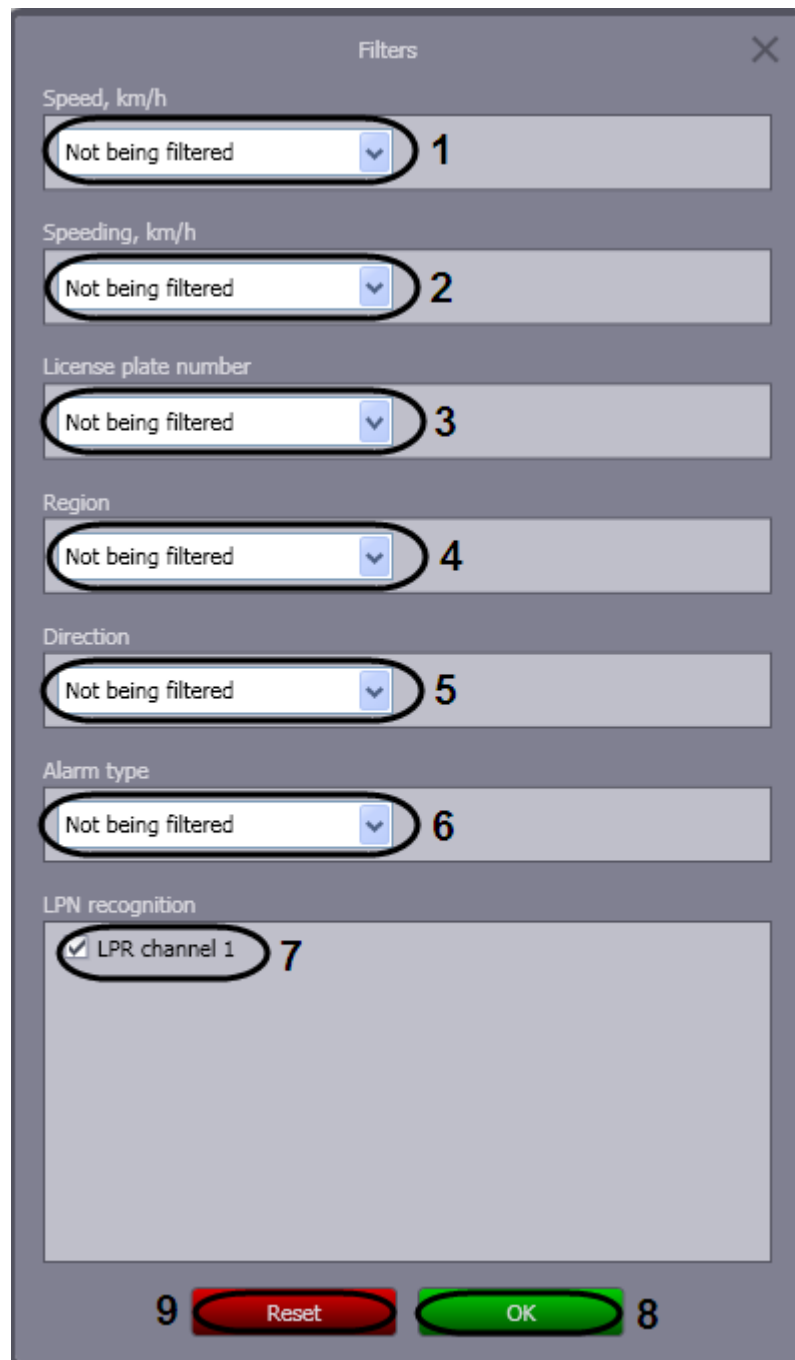


Fig. 4.3-20 Filters dialog window

3. From the list Speed (Fig. 4.3-20, 1) select the required filter according to vehicle's speed, then enter the threshold value of the speed in the field(s) in km/h.

The following speed filters are available:

- a. «Is not filtered» — the event is displayed in protocols with any vehicle's speed.
- b. «More» — the event is displayed in protocols in case when vehicle's speed is over threshold value (Fig. 4.3-21).



Fig. 4.3-21 «More» speed filter

- c. «Less» — the event is displayed in protocols in case when vehicle's speed doesn't exceed the threshold value (Fig. 4.3-22).

Fig. 4.3-22 «Less» speed filter

- d. «Interval» — the event is displayed in protocols in case when vehicle's speed corresponds to the entered range of threshold value (Fig. 4.3-23).

Fig. 4.3-23 «Interval» speed filter

4. From the list Overspeeding (Fig. 4.3-20, 2) select the required vehicle's overspeeding filter and then enter threshold value of overspeeding in km/h.

The following overspeeding filters are available:

- «Is not filtered» — the event is displayed in protocols with any vehicle's overspeeding.
- «More» — the event is displayed in protocols in case when vehicle's overspeeding is over the threshold value (Fig. 4.3-24).

Fig. 4.3-24 «More»overspeeding filter

Note. The threshold value is calculated as a difference between the fixed vehicle's speed and the speed, permitted in the controlled area of the road.

5. From the list Number (Fig. 4.3-20, 3) select the required vehicle's plate filter and then in the field enter the number or its part which identification leads to event's displaying in protocols.

The following plate filters are available:

- «Is not filtered» — the event is displayed in protocols with any vehicle's plate.
- «Exact matching» — vehicle's event is displayed in protocols in case, when vehicle's plate exactly matches the entered value (Fig. 4.3-25).

Fig. 4.3-25 « Exact matching » plate filter

- «Contains» — vehicle's event is displayed in protocols in case, when vehicle's plate contains the entered value (Fig. 4.3-26).

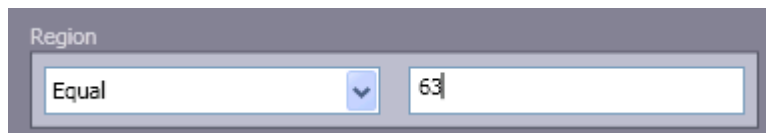
Fig. 4.3-26« Contains » plate filter

Note. The expression, given for filters «Exact matching» and «Contains», may include usual characters and characters «», stating for an unidentified plate's character. If the expression contains one or several characters «*», there are displayed only plates, containing unidentified characters in the set combination, in the protocols.*

6. From the Region list (Fig. 4.3-20, 4) select the required region's filter, where the vehicle has been registered, and then enter region's number in the appeared window (Fig. 4.3-20, 4).

The following region's filters are available:

- a. «Is not filtered» — the events are displayed in protocols of the vehicles, registered in any region.
- b. «Equal» — the events are displayed in protocols of the vehicles, registered in the given region (Fig. 4.3-27).



The image shows a software interface for a 'Region' filter. It consists of a grey header bar with the word 'Region' in white. Below the header is a white rectangular box containing a dropdown menu with 'Equal' selected and a text input field to its right containing the number '63'.

Fig. 4.3-27 « Equal » region filter

7. From the Direction list (Fig. 4.3-20, 5) select vehicle's direction with which the event should be displayed in protocols.

The following direction filters are available:

- a. «Is not filtered» — the vehicle's events are displayed in protocols with any direction in respect of the plates identification camera.
- b. «From camera» — the vehicle's event is displayed in case, when the vehicle was moving from the camera (Fig. 4.3-28).



The image shows a software interface for a 'Direction' filter. It consists of a grey header bar with the word 'Direction' in white. Below the header is a white rectangular box containing a dropdown menu with 'From Camera' selected.

Fig. 4.3-28« From camera» direction filter

- c. «Towards the camera» — the vehicle's events are displayed in protocols in case, when the vehicle was moving towards the camera (Fig. 4.3-29).



The image shows a software interface for a 'Direction' filter. It consists of a grey header bar with the word 'Direction' in white. Below the header is a white rectangular box containing a dropdown menu with 'Towards the camera' selected.

Fig. 4.3-29« Towards the camera» direction filter

8. From the Alarms list select the alarm type (Fig. 4.3-20, 6). Only alarms of the selected type will be displayed in protocols.

The next alarm type filters are available:

- a. «Is not filtered» — the vehicle's events are displayed in protocols with any alarm type or its absence.
- b. «Overspeeding» — the vehicle's events for which overspeeding has been registered are displayed in protocols (Fig. 4.3-30).



The image shows a software interface for an 'Alarm type' filter. It consists of a grey header bar with the words 'Alarm type' in white. Below the header is a white rectangular box containing a dropdown menu with 'Overspeeding' selected.

Fig. 4.3-30« Overspeeding» alarm type filter

- c. «LP found in Database» — the vehicle's events which plates have been found in the external plates database are displayed in protocols (Fig. 4.3-31).



Fig. 4.3-31« LP found in database» alarm type filter

- d. «Alarm set by operator» — the vehicle's events, initialized manually, are displayed in protocols (Fig. 4.3-32).



Fig. 4.3-32« Alarm set by operator» alarm type filter

9. In the group«Plates identifiers» (Fig. 4.3-20, 7) set the checkboxes for those LP recognition Servers, which data have to be displayed in protocols.
10. Click OK to save filters settings and close the Filters dialog window (Fig. 4.3-20, 8).

Note. To reset all the settings it is convenient to use Reset button (Fig. 4.3-20, 9).

Selecting the filters, used in protocols is over.

There is possibility to disable filters without changing the settings in Filters dialog window. Click the button Show all for it (Fig. 4.3-19, 2). All the registered events will be displayed in protocols in result. To resume the usage of filters, this button should be repeatedly pressed.

4.3.10 Viewing the LPR channel errors

With LPR channel errors the Server status button in the right upper corner of On-line monitor window is green (Fig. 4.3-33) (Fig. 4.3-34). If errors are registered, the button is red (Fig. 4.3-35).



Fig. 4.3-33 Viewing the LPR channel errors

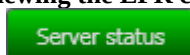


Fig. 4.3-34The absence of LPR channel errors

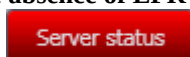


Fig. 4.3-35 The LPR channel errors

To view the LPR channel errors, do the following:

1. Click the button «».
2. Errors dialog window will be displayed in result (Fig. 4.3-36 Errors dialog windowFig. 4.3-36)



Fig. 4.3-36 Errors dialog window

3. Data about occurred errors are displayed in Field 1(Fig. 4.3-36, 1).
4. A list of all possible error sources is displayed in Field 2: LPR channels and/or external databases. Current error sources are marked by sign «», idle sources are marked by sign «» (see Fig. 4.3-36, 2).
5. To delete data about errors and close Errors dialog window click Clear button (see Fig. 4.3-36, 3).
6. To close Errors dialog window without deleting data about mistakes, click «» button.
7. The button Server status will become green in result (Fig. 4.3-33).

Viewing the LPR channel errors is completed.

4.3.11 Creating the additional components of On-line monitor

There is possibility to create additional interface components «On-line monitor». Make a left double click upon the component Events monitor to create an additional component (Fig. 4.3-37). In result of this operation there will be displayed an additional On-line monitor component in the center of the screen.



Fig. 4.3-37 Creating the components of on-line monitor

Note 1. Events monitor component may not be displayed due to corresponding system settings (see the document «Auto-Intellect program complex: Administrator guide»).

4.3.12 Searching the events in the recognizer's databases

Searching the events in the recognizer's databases of the Auto-Intellect program complex is performed in the dialog window «Events search in the recognizer's databases ». To call for this window click the Search button in the interface object On-line monitor.

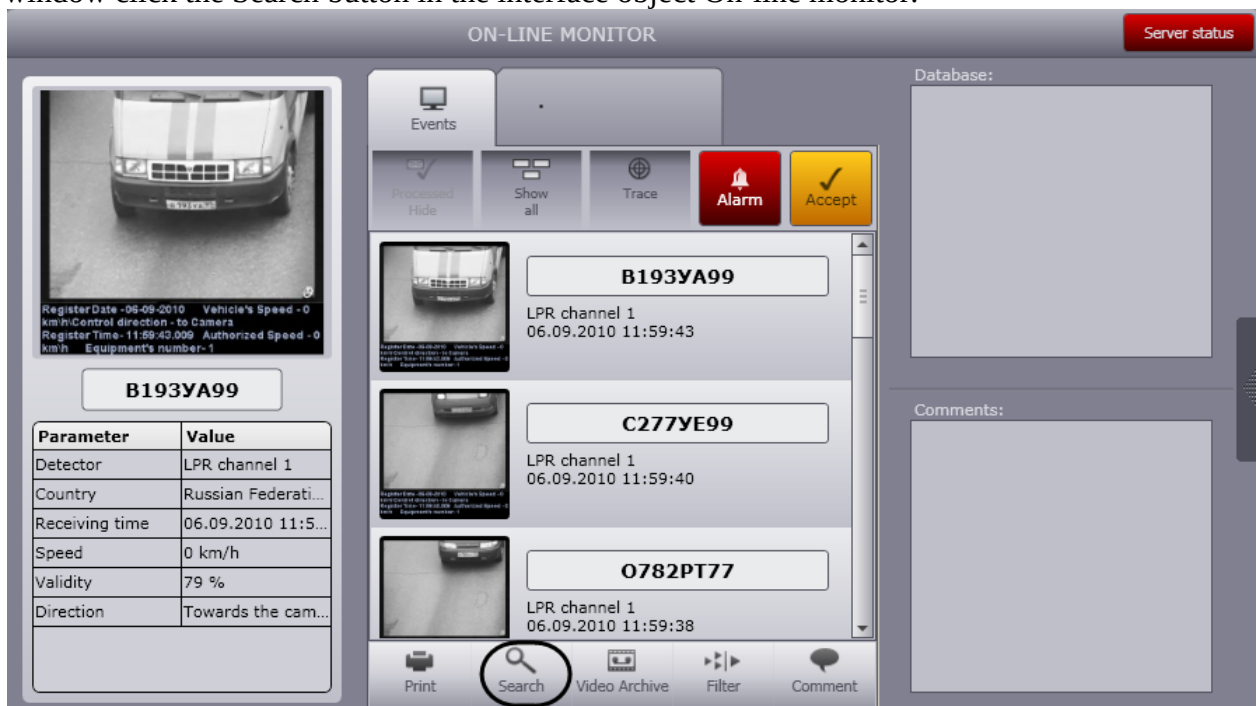


Fig. 4.3-38 Searching the events in the recognizer's databases

Full functionality, provided to operator in the window Searching the events in the recognizer's databases, is the following:

1. Searching the events, stored at both local and remote recognizer's databases of the Auto-Intellect program complex.
2. Printing the reports concerning the search results.
3. Creating an own plates database (Base «Active tracer »).

4.3.12.1 Setting up the events search

Events search is set up in the following way:

1. Select the database, where events should be searched.
2. Set up the displaying of events search.
3. Set up the video archive.

4.3.12.1.1 Selecting recognizer databases for events search

To select recognizer databases for events search, select servers where required LPR databases are. To carry this out select the point «Servers» -> «<Name of the required database>» of the main menu in the «Event search in the Recognizers DBs » window (**Fig. 4.3-39**). As a result the server will be marked with «☒» icon.

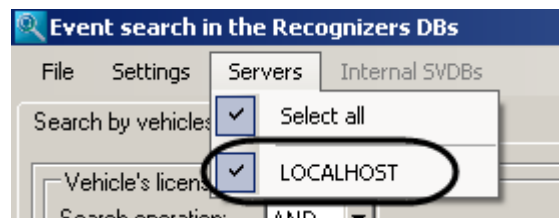


Fig. 4.3-39 Selecting recognizer database for event search

Note. To select all system servers select the point «Servers» -> «Select all». There will be search by selected servers.

4.3.12.1.2 Event search results setup

Event search results are presented in the table. There is a possibility to choose which table's columns should be displayed and which shouldn't, to add new columns and also edit their displayed names.

To set up the displaying of search results do the following:

1. Select «Settings» in the main menu of the Events search in recognizers databases (Fig. 4.3-40).



Fig. 4.3-40 Access to search results setup

As a result Settings dialog box is displayed. (Fig. 4.3-41). Set up of the event search results displaying is carried out in «Configure fields» tab.

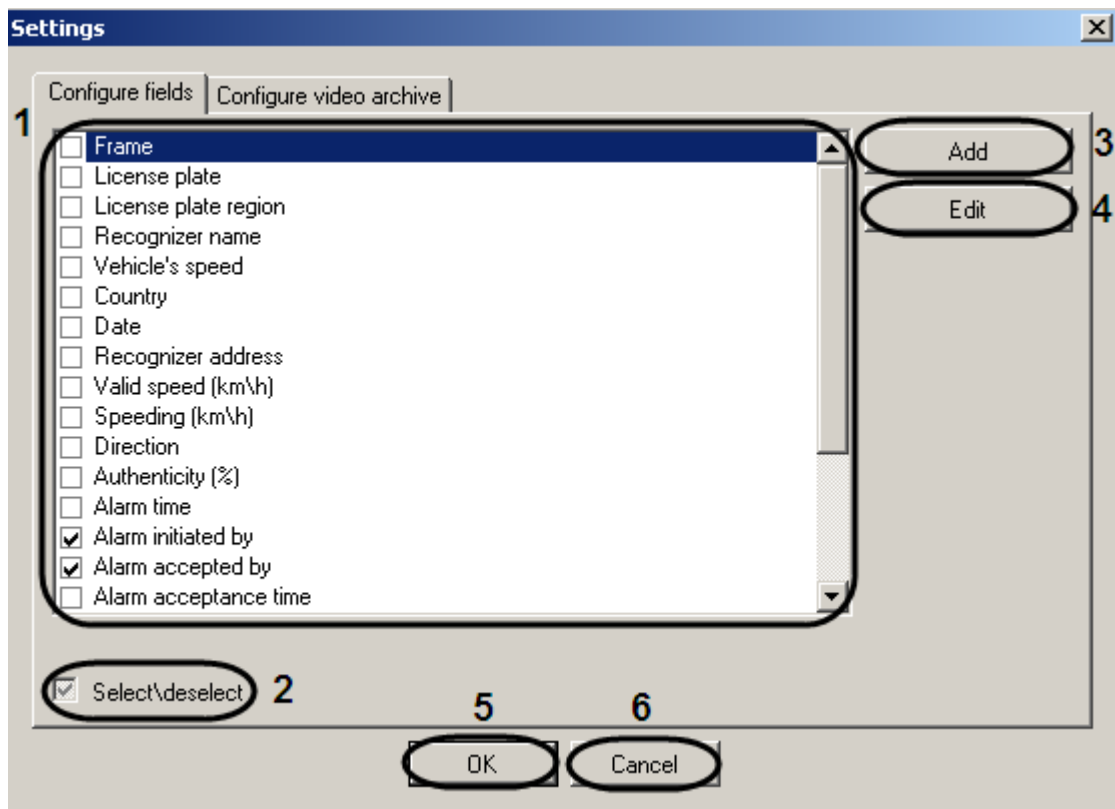


Fig. 4.3-41 Settings window

2. In the central field of the window (Fig. 4.3-41, 1) set the checkboxes for the columns that should be displayed in event search results table (Table 4.3-2).

Note. For displaying all the available columns in the search results table set the checkbox «Select/deselect» (Fig. 4.3-41, 2). If this checkbox isn't set, search results table is not displayed.

Table 4.3-2 Event search results table's columns

Column name (on default)	Column's content
Frame	Video frame with a vehicle
Vehicle's speed	Vehicle's speed
Number	Identified plate's number
Region number	Region of identified number
Country	Country of the identified number
Detector name	Object name «LPR channelC», corresponding to Vehicle's detector number
Date	Data of vehicle's identification
Detector address	Number's detector address
Valid speed, km\h	Speed in km\h , that is valid on the road's area/ controlled by number's detector
Overspeed, km\h	Vehicle's overspeeding in km\h
Direction	A check, that the vehicle was moving towards the camera, detecting numbers
Authenticity, %	Plates identification authenticity is given in percent
Alarm time	Time of alarm registration according to the identified number
Alarm detection time	Time of alarm detection by the PC operator of the Auto-Intellect
Delay of alarm acceptance, sec	Time between registering the alarm and its acceptance by operator
Commentary	Commentary , added by the operator to the event with a vehicle
Alarm type	Alarm type(overspeeding or vehicle's identification in the external plates databases)
Alarm processed	A check, that the alarm has been accepted by the operator
External database	A check, that the alarm has been found in the External database

3. To add a new column to the event search results table do the following:
 - 3.1. Click Add (Fig. 4.3-41, 3). As the result Fields configuration dialog box opens (Fig. 4.3-42).

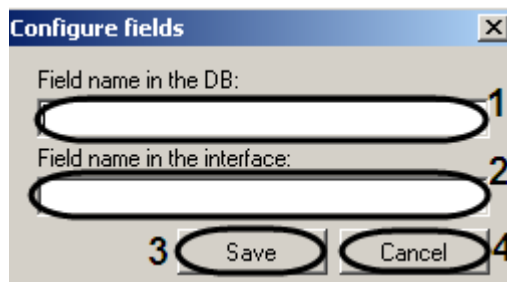


Fig. 4.3-42 Adding a new column to the event search results table

- 3.2. In the «Field name in the DB» enter the column's name in the connected recognizer's database, which content is required to be displayed in the event search results table (Fig. 4.3-42, 1).
- 3.3. In the «Field name in the interface» enter the name of this column in the event search results table (Fig. 4.3-42, 2).
- 3.4. Click «Save» to save the applied changes and close «Fields configuration» dialog window (Fig. 4.3-42, 3).

Note. Click «Cancel» to close this window without saving any changes (Fig. 4.3-42, 4).

4. To edit column's name in the event search results table do the following:
 - 4.1. In the group «Available fields» select the column, the name of which has to be changed (Fig. 4.3-41, 1).
 - 4.2. Click «Edit» (Fig. 4.3-41, 4).
 - 4.3. As a result «Configure fields» dialog box with blocked «Field name in the interface» field is displayed (Fig. 4.3-43).

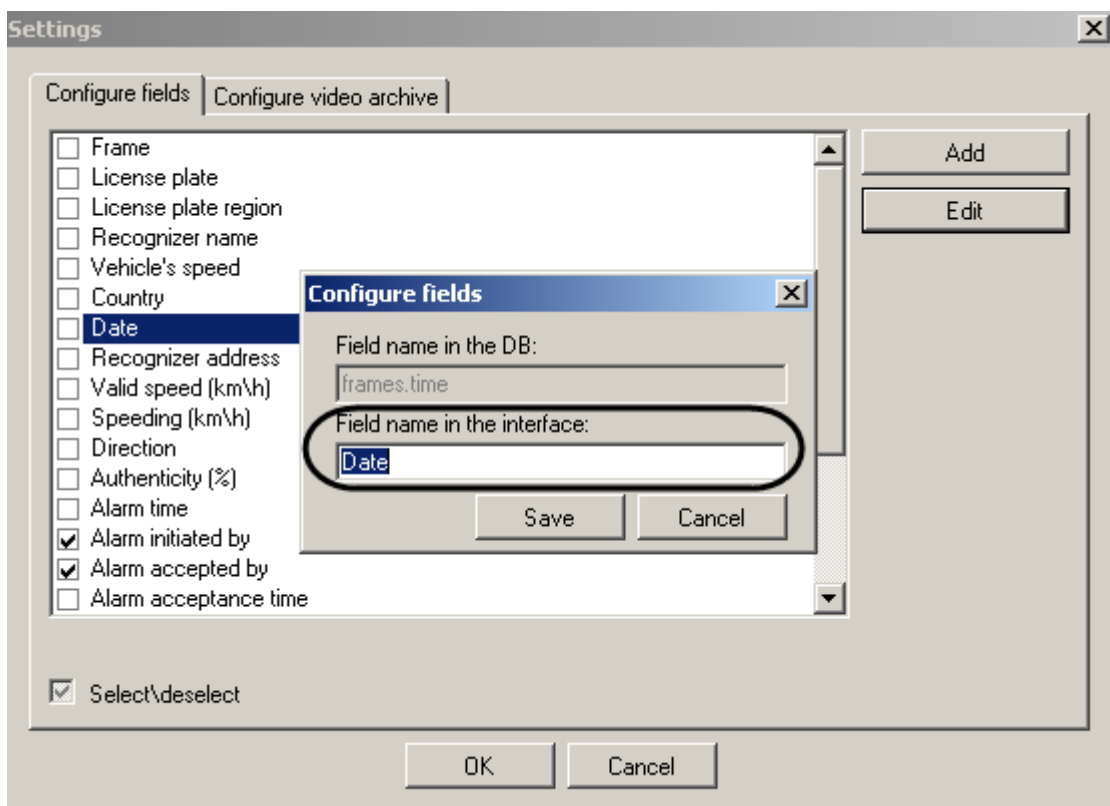


Fig. 4.3-43 Editing the column's name in the event search results table

- 4.4. Change the columns name in a required way in the event search results table and save the changes (see steps 4.3-4.4).
5. Click «OK» to save the changes and close the «Displayed fields selection» dialog window (Fig. 4.3-41, 5).

Note. Click «Cancel» to close this window without saving any changes (Fig. 4.3-41, 6). Setting up the event search results is completed.

4.3.12.1.3 Set up the video archive

Video recordings of events are displayed in video archive. To set up the video recordings playback do the following:

1. Select «Settings» in the main menu of the Event search in Recognizers DBs (Fig. 4.3-44)



Fig. 4.3-44 Access to search results setup

As a result «Settings» dialog box is displayed (Fig. 4.3-45).

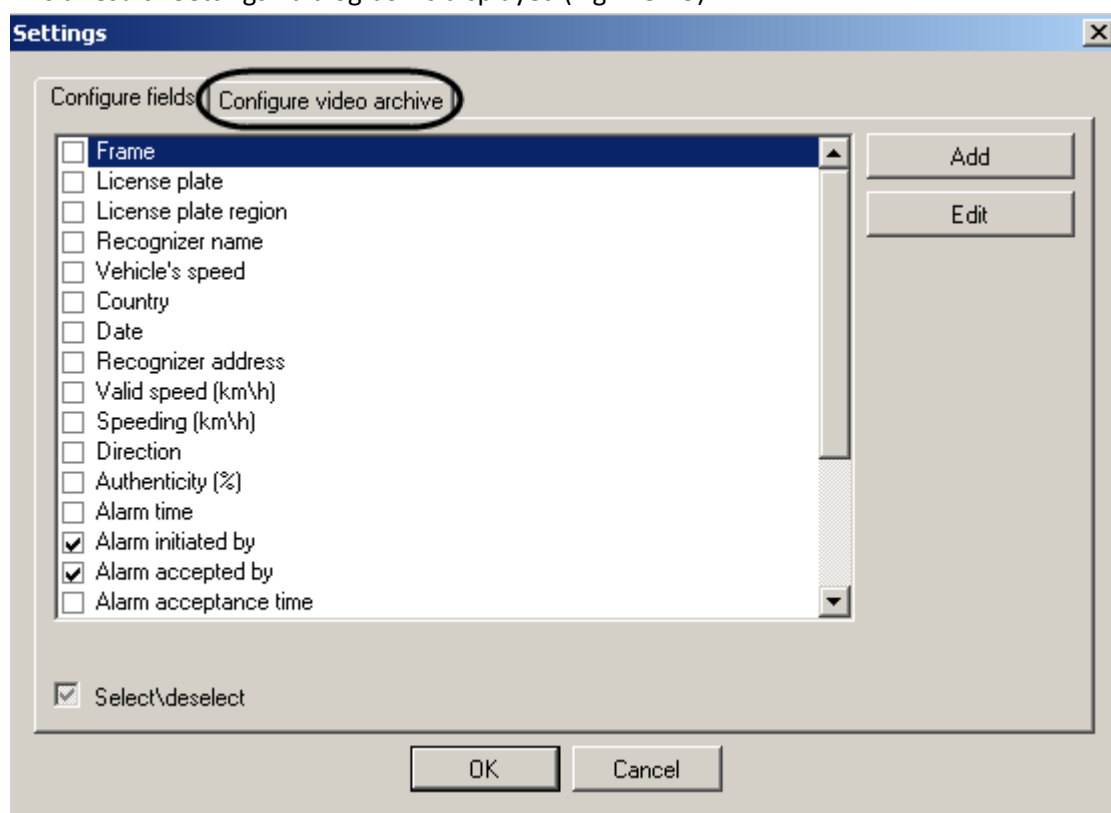


Fig. 4.3-45 Settings dialog box

2. Go to «Configure video archive » tab (Fig. 4.3-46, 1)

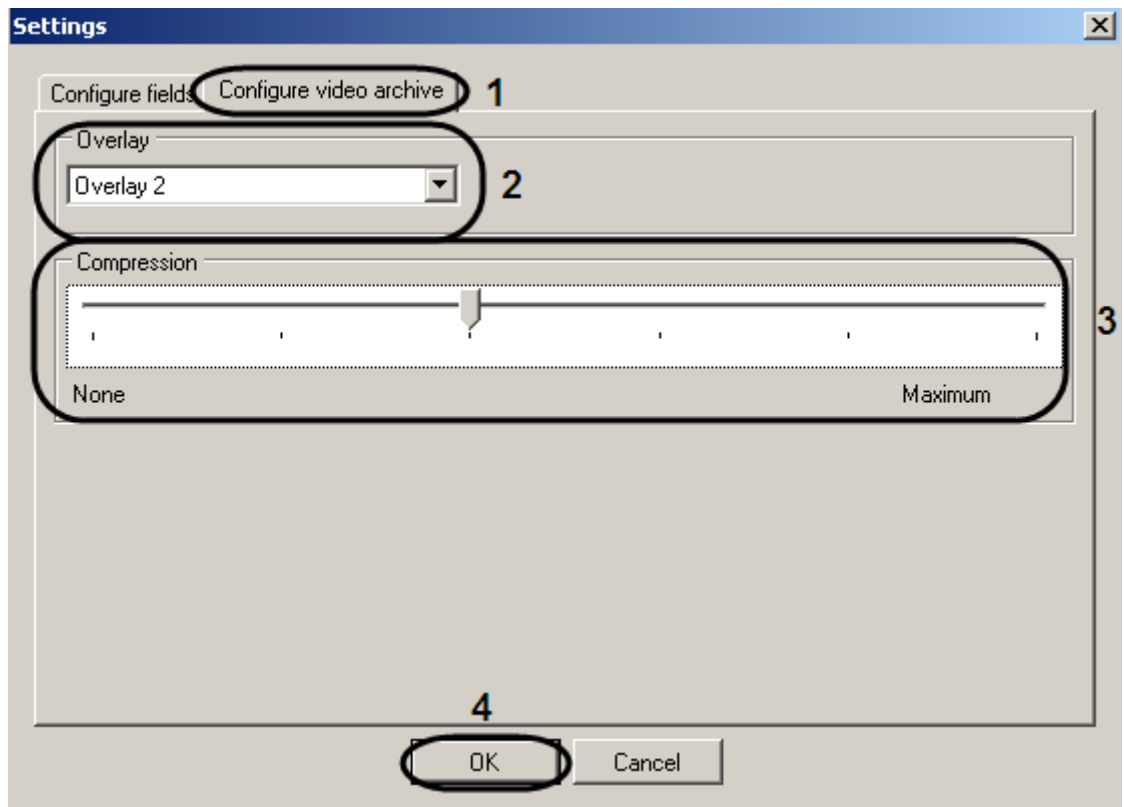


Fig. 4.3-46 Video archive setting

3. Select Overlay mode in the Overlay dropdown list.(see Table 4.3-3, Fig. 4.3-46, 2)

Note. Overlay is used to process the video using the video card and Direct X libraries, before it is displayed. Overlay allows to improve the image due to optimization of the pixel color settings. At the same time, the CPU's load reduces as the video is processed with the resources from the video capture card.

Table 4.3-3 Overlay mode

Overlay mode	Description
«No»	Videos from video cameras are not processed by video card
«Overlay 1»	Videos from video cameras are processed as one stream
«Overlay 2» (set on default)	Videos from video cameras are processed independently of one another

4. In «Compression» field set the cursor in position that determines video compression degree (see Fig. 4.3-46, 3). Minimal compression value is «None» – maximal video size, best quality. Maximal compression value is «Maximum» – minimal video size, worst quality.
5. To save changes click «OK» (see Fig. 4.3-46, 4).

The setting of the events video recordings playback is completed.

4.3.12.2 Forming the search query

There is a possibility to form a search query:

1. By events;
2. By alarms.

4.3.12.2.1 Forming the search query by events

Forming the search query by events is done in the following way:

1. Go to the tab Search by events (Fig. 4.3-47).

Fig. 4.3-47 Search by events tab

2. From the list Search operation (Fig. 4.3-47, 1) select a logical construction, used for uniting several elements of the key phrase, corresponding to numbers of the vehicle, that are being searched:

- 2.1. «and» – for searching by numbers, containing all the elements of the key phrase;
- 2.2. «or» – for searching by numbers, containing at least one element of the key phrase.

Note. For example, search query '[a-m]3_2 and 02' may return events with numbers 'a302mm63', 'a312mm02'.

3. In the field Vehicle's numbers (Fig. 4.3-47, 2) enter the key phrase, consisting of one or several comma separated elements, corresponding to the plates 'numbers that are being searched.

Note. The key phrase may include usual characters and picture-characters in the required combination (Table 4.3-4).

Table 4.3-4 Picture-characters

Picture-characters	Description of Picture-characters	Example of search query
%	Any string in length from zero and more characters	Search query 'a%385%78' returns numbers, containing the elements 'a', '385' and '78', divided by any number of characters, for example 'A038578', 'a385мк78'
_ (underlining)	Any single character	Search query '2__5' returns numbers, containing the sequence of four characters, the first of which is '2', the last one is '5', for example, 'A256577', '2115OK43'
[]	Any single character, that is contained in the range ([a-e]) or in the set ([абвгде])	Search query '[e-м][2-5]53' returns numbers, containing the sequence of four characters. The sequence ends in '53', the first character belongs to the range e-м, the second one belongs to the range 2-5, for example, 'к453мн02', 'м253вт63'
[^]	Any single character, that is not contained in the range ([^a-e]) or in the set ([^абвгде])	Search query '[^e-м] 499' returns numbers, containing the sequence of four characters. The sequence ends in '499', the first character does not belong to the range e-м, for example 'в499БК57', 'н499578'

4. Set the checkbox Number not recognized if it is necessary to display all the numbers (Fig. 4.3-47, 3).

Note. Selection on one checkbox Number not recognized is active only with logical construction selection «OR» in the dropdown list Search operation.

5. Set the checkbox Recognized partially if it is necessary to display partially recognized numbers (Fig. 4.3-47, 4).
6. In the group «Plate region» set the checkboxes for those regions, which events should be returned while being searched (Fig. 4.3-47, 5).
7. In the group «Date/time» (Fig. 4.3-47, 4, 5) set the time boundaries within which the required events have been registered. On default these boundaries are not activated (checkboxes from and to are disabled). To activate the boundaries it is necessary to set the checkboxes From and/or To and then click «» button (Fig. 4.3-47, 6-7) and in the appeared calendar set the required date. Enter the required time in the field From and/or To. In case, if only upper or bottom boundary is selected, the search query will return the events, having been registered before or after the set deadline correspondingly. To disable the search by data and time one should uncheck From and To checkboxes.
8. In the License plate recognizers (Fig. 4.3-47, 8) set the checkboxes for those plate recognizers, which events are to be returned while being searched.
9. From the list Registered speed (Fig. 4.3-47, 9) select the required filter of vehicle's speed and then in the activated field (fields) (Fig. 4.3-47, 10) enter the threshold value(values) of vehicle's speed.

The following speed filters are available:

- 9.1. «No matter» – events of the vehicle, moving with any speed will be returned.
- 9.2. «More» – events of the vehicle, moving with a speed, exceeding a single threshold value, will be returned.
- 9.3. «Less» – events of the vehicle, moving with a speed, not exceeding a single threshold value, will be returned.
- 9.4. «Interval» – events of the vehicle, moving with a speed, belonging to a single entered threshold value, will be returned.
10. From the Direction list (Fig. 4.3-47, 11) select the required filter concerning the direction of the vehicle. The following direction filters are available:
 - 10.1. «No matter» – events of the vehicle, moving in any direction concerning the LP recognizer's camera will be returned.

- 10.2. «From the camera» – events of the vehicle, moving from the LP recognizer's camera will be returned.
- 10.3. «To the camera» – events of the vehicle, moving to the LP recognizer's camera will be returned.
11. In the Countries group (Fig. 4.3-47, 12) set the checkbox for the country, which events should be returned while being searched.
12. From the list Search operation (Fig. 4.3-47, 13) select a logical construction, used for uniting several elements of the key phrase, corresponding to numbers of the vehicle, that are being searched:
 - 12.1. «and» – for searching by numbers, containing all the elements of the key phrase;
 - 12.2. «or» – for searching by numbers, containing at least one element of the key phrase.
13. In the Comment field (Fig. 4.3-47, 14) enter the key phrase, containing one or several comma separated elements, corresponding to the comments, that are being searched.
14. Set the Blank comment checkbox in case if the event that is being searched can be left uncommented (Fig. 4.3-47,15).
Note. The selection of this Blank comment checkbox is active only with logical construction selection «OR» in the dropdown list Search operation.
15. From the Validity list (Fig. 4.3-47, 9) select the required Validity filter and then in the activated field (fields) (Fig. 4.3-47, 10) and enter the threshold Validity value (values). The following Validity filters are available:
 - 15.1. «No matter» – events of the vehicle, which numbers have been recognized with any validity.
 - 15.2. «More» – events of the vehicle, which numbers have been recognized with validity, exceeding the entered threshold value.
 - 15.3. «Less» – events of the vehicle, which numbers have been recognized with validity, not exceeding the entered threshold value.
 - 15.4. «Interval» – events of the vehicle, which numbers have been recognized with validity, belonging to the entered threshold value.

Forming the search query by events is completed.

After forming the search query one should run its processing (see section «Query launching »).

4.3.12.2.2 **Forming the search query by alarms**

Forming the search query by alarms is done in the following way:

1. Go to the tab Search by alarms (Fig. 4.3-48).

Search by vehicles

Search by alarms

Vehicle's Numbers:

Search operation:

AND

☐ Plate not recognized
 ☐ Recognized partially

Plate region:

☐ <empty>

Date/Time

from:

2010-09-21 16:06:50

to:

2010-09-21 16:06:50

License plate recognizers:

☒ LPR channel 1
 ☒ LPR channel 2
 ☒ LPR channel 3

Registered speed:

<no matter>

from:

0

to:

0

Direction:

<no matter>

Countries:

☐ <empty>

Comment:

Search operation:

AND

☐ Blank comment

External database:

Permitted speed:

<no matter>

from:

0

to:

0

Speeding:

<no matter>

from:

0

to:

0

Alarm handling delay, s

<no matter>

from:

0

to:

0

Alarm type

☒ Alarm set by operator
 ☐ LP found in DataBase
 ☐ Overspeeding

Alarm processed:

<no matter>

Fig. 4.3-48 Search by alarms tab

2. Repeat steps 2-14 of the section «Forming the search query by events» as applied to interface elements of the tab Search by alarms (Fig. 4.3-48, 1).
3. In the group External database (Fig. 4.3-48, 2) set the checkboxes for those external databases, which events have to be returned in search query results.

Note 1. This setting is relevant in case, when the checkbox the number is found in the database is set in the group Alarm type (see step10).

Note 2. The group External Plates database contains a list of all the databases that have ever been used together with LPR channel module.

4. From the list Permitted speed (Fig. 4.3-48, 3) select the required speed filter, permitted on the controlled road area and then in the activated field (fields) (Fig. 4.3-48, 4) enter the threshold speed value (values) in km/h.

The following filters of the permitted speed are available:

- 4.1. «No matter» – events of the vehicle, registered on the road area with any permitted speed will be returned.
- 4.2. «More » – events of the vehicle, registered on the road area with any permitted speed, exceeding the entered threshold value will be returned.
- 4.3. «Less» – events of the vehicle, registered on the road area with any permitted speed, not exceeding the entered threshold value will be returned.
- 4.4. «Interval» – events of the vehicle, registered on the road area with any permitted speed, that belong to the entered threshold value range will be returned.
5. From the list Speeding (Fig. 4.3-48, 5) select the required speeding filter and then in the activated field (fields) (Fig. 4.3-48, 6) enter the threshold value (values) of speeding in km/h.

Note 1. This setting is relevant in case, when the checkbox Speeding is set in the group Alarm type» (see step 9).

Note 2. The value of speeding is calculated as a difference between the fixed vehicle's speed and the speed, permitted on the controlled area of the road.

The following filters of the speeding are available:

- 5.1. «No matter» – events of the vehicle, moving with any overspeeding or with the absence of it will be returned.
- 5.2. «More » – events of the vehicle, moving with overspeeding, exceeding the entered threshold value will be returned.
- 5.3. «Less» – events of the vehicle, moving with overspeeding, less than the entered threshold value will be returned.
- 5.4. «Interval» – events of the vehicle, moving with overspeeding, in the entered range of threshold values.
6. From the list «Alarm handling delay, sec» (Fig. 4.3-48, 7) select the required filter according to the alarm handling delay and then in the activated field (fields), (Fig. 4.3-48, 8) enter the threshold value (values) of delay time in seconds.

The following filters of alarm handling delay are available:

- 6.1. «No matter» – alarms, accepted in any time after being registered or unaccepted at all.
- 6.2. «More» – alarms will be returned, accepted with a delay, exceeding the entered threshold value.
- 6.3. «Less» – alarms will be returned, accepted with a delay, not exceeding the entered threshold value.
- 6.4. «Interval» – alarms will be returned, accepted with a delay, belonging to the entered threshold value.

Note. This setting is relevant in case if from the list Alarm processed the value No matter or Processed is selected (see step 10).

7. In the group Alarm type (Fig. 4.3-48, 9) set the checkboxes for those alarms, which have to be returned in results of search query:
 - 7.1. «No matter» — alarms will be returned with any alarm type or with the absence of it.
 - 7.2. «Overspeeding» — events will be returned for which overspeeding has been registered.
 - 7.3. «LP found in database» — events will be returned which plates have been found in the external database.
 - 7.4. «Alarm set by operator» — alarms will be returned, triggered manually.
8. From the list «Alarm processed» (Fig. 4.3-48, 10) select the required filter according to the alarm processing factor:
 - 8.1. «No matter» — both processed and unprocessed events will be returned.
 - 8.2. «Alarm is not processed» — only unprocessed events will be returned.
 - 8.3. «Alarm processed» — only processed events will be returned.

Forming the search query by alarms is completed.

After forming the search query one should launch its processing (see section «Query launching»).

4.3.12.3 Query launching

After forming the search query by vehicles or by alarms one should launch its processing, clicking «Find» (Fig. 4.3-49, 1).

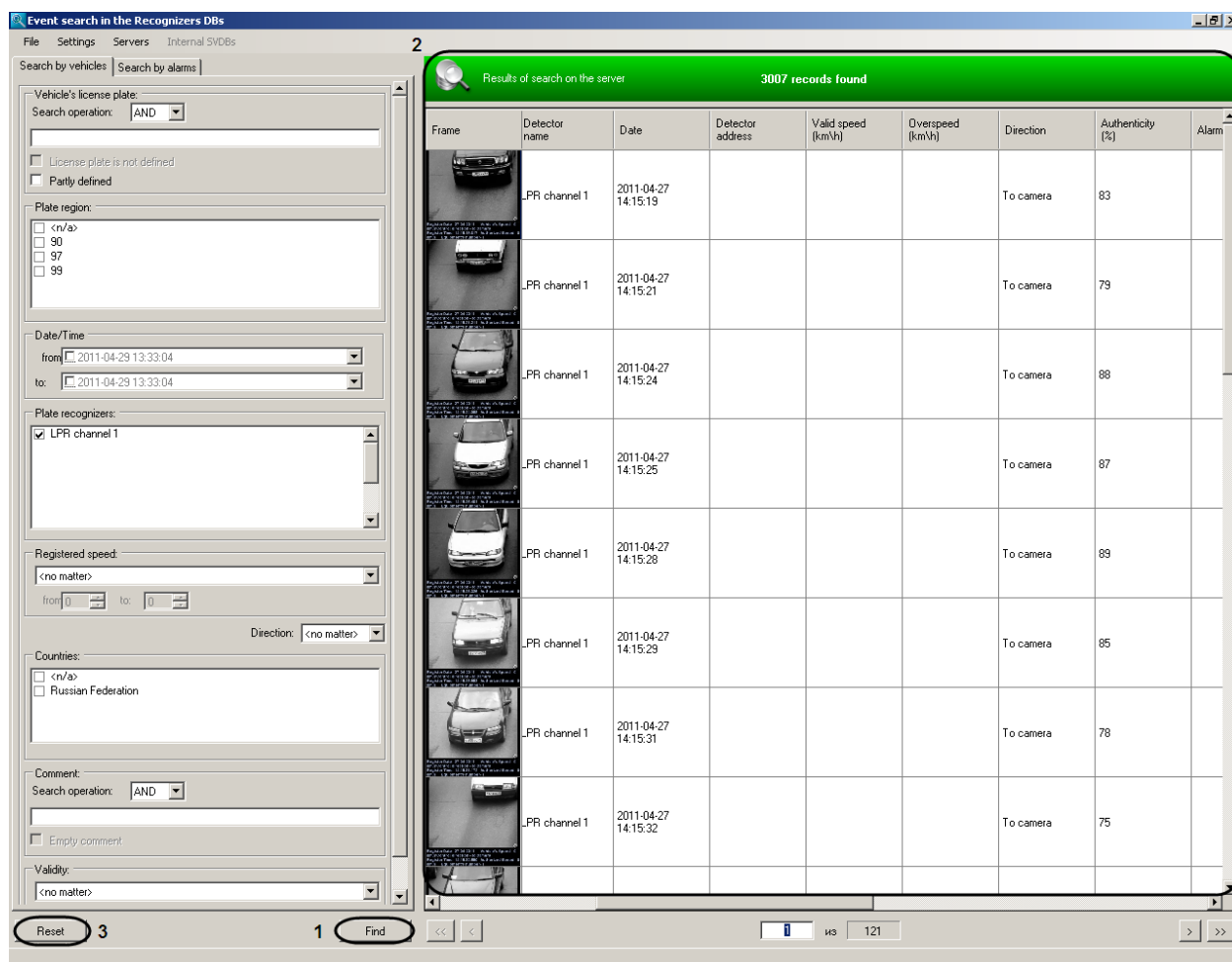


Fig. 4.3-49 Query launching

As a result search results table will open (Fig. 4.3-49, 2).

Note. To clear the tabs Search by events, Search by alarms from the entered search criterion it is convenient to use Reset button (Fig. 4.3-49, 3).

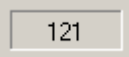
4.3.12.4 Viewing and printing the search results

Columns of Search results table (Fig. 4.3-50, 1) are displayed in accordance to the settings, given in the dialog window Selection of displayed fields (see section «Events search results setup»). Description of the columns 'content is given in the same section of the Guide (Table 4.3-1).

Frame	Detector name	Date	Detector address	Valid speed (km/h)	Overspeed (km/h)	Direction	Authenticity (%)	Alarm
	PR channel 1	2011-04-27 14:15:19				To camera	83	
	PR channel 1	2011-04-27 14:15:21				To camera	79	
	PR channel 1	2011-04-27 14:15:24				To camera	88	
	PR channel 1	2011-04-27 14:15:25				To camera	87	
	PR channel 1	2011-04-27 14:15:28				To camera	89	
	PR channel 1	2011-04-27 14:15:29				To camera	85	
	PR channel 1	2011-04-27 14:15:31				To camera	78	
	PR channel 1	2011-04-27 14:15:32				To camera	75	

Fig. 4.3-50 Events search results

For results' navigation in the table there are used the following interface elements (Fig. 4.3-50):

1. button «  » – transfer to the first page of the table;
2. button «  » – transfer to the previous page of the table;
3. field «  » – transfer to the required page of the table;
4. field «  » - number of pages in the table;

5. button «  » – transfer to the next page of the table;
6. button «  » – transfer to the last page of the table.

Note. To transfer to the required page one should enter its number in the field 2 (Fig. 4.3-50, 2), and then click «Enter».

To print the Event search results or/and export them to one of the most commonly used formats select the point «File» of the main menu in the window «Event search in the Recognizers DBs » (Fig. 4.3-51).

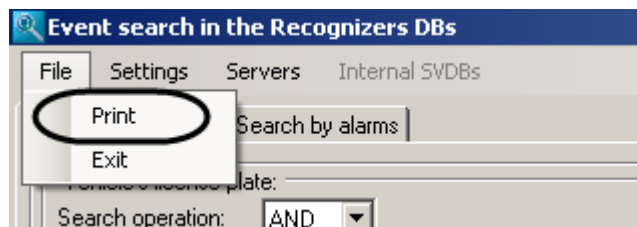


Fig. 4.3-51 Printing and/or exporting the Events search results

As a result preview report program will launch. In the window of this program there will be displayed License plates protocol (Fig. 4.3-52).

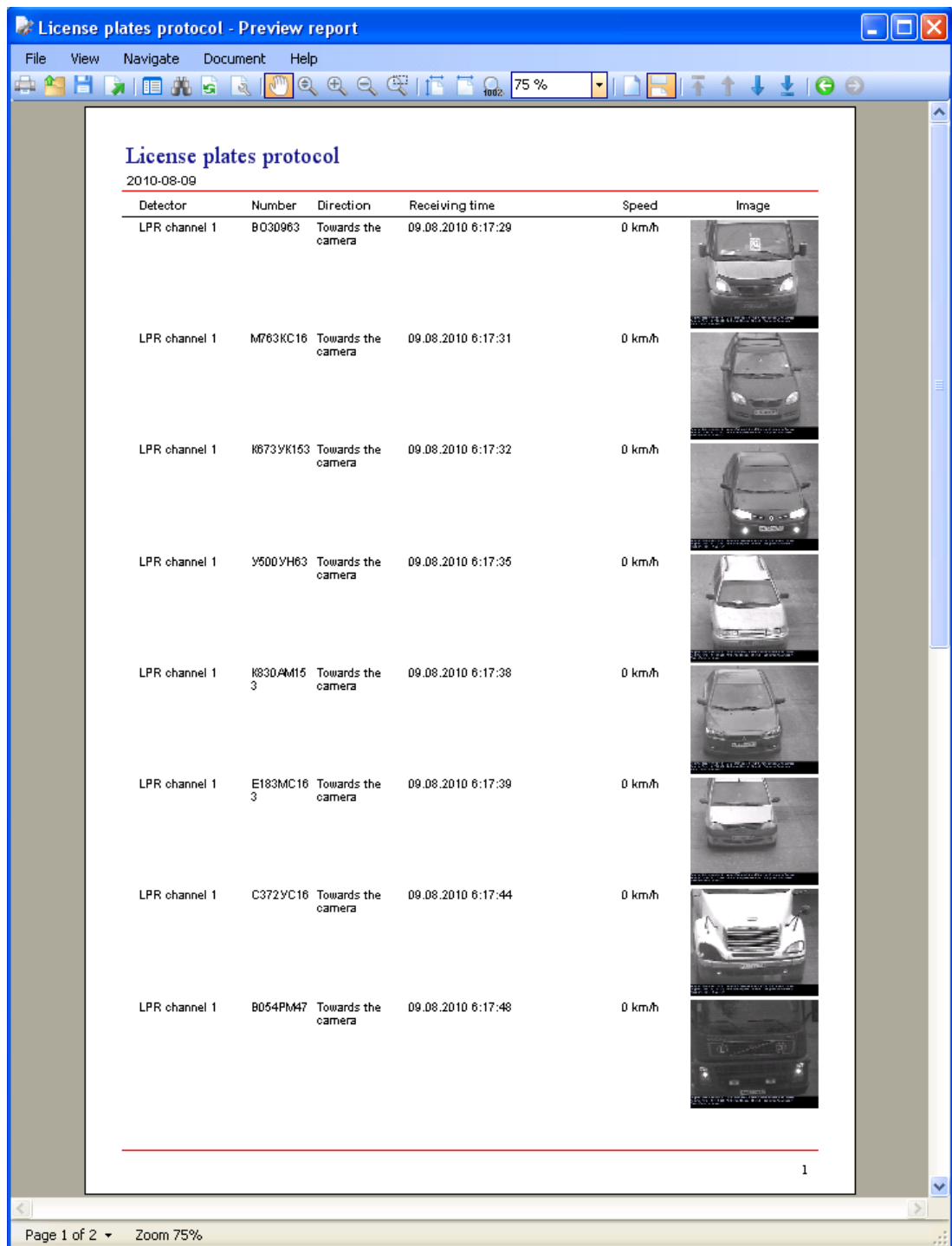


Fig. 4.3-52Event search results report

Perform the necessary operations (Table 4.3-1) with a report and then quit the program Preview report by following the points of the main menu File ->Exit or by clicking the button «» (see step 4 in the section « Printing and/or exporting the Vehicle's data»).

4.3.12.5 Previewing and printing the data about the event

To view the data about the event it is necessary to make a left click upon the corresponding string in the search results table. View event dialog window will open in result (Fig. 4.3-53).

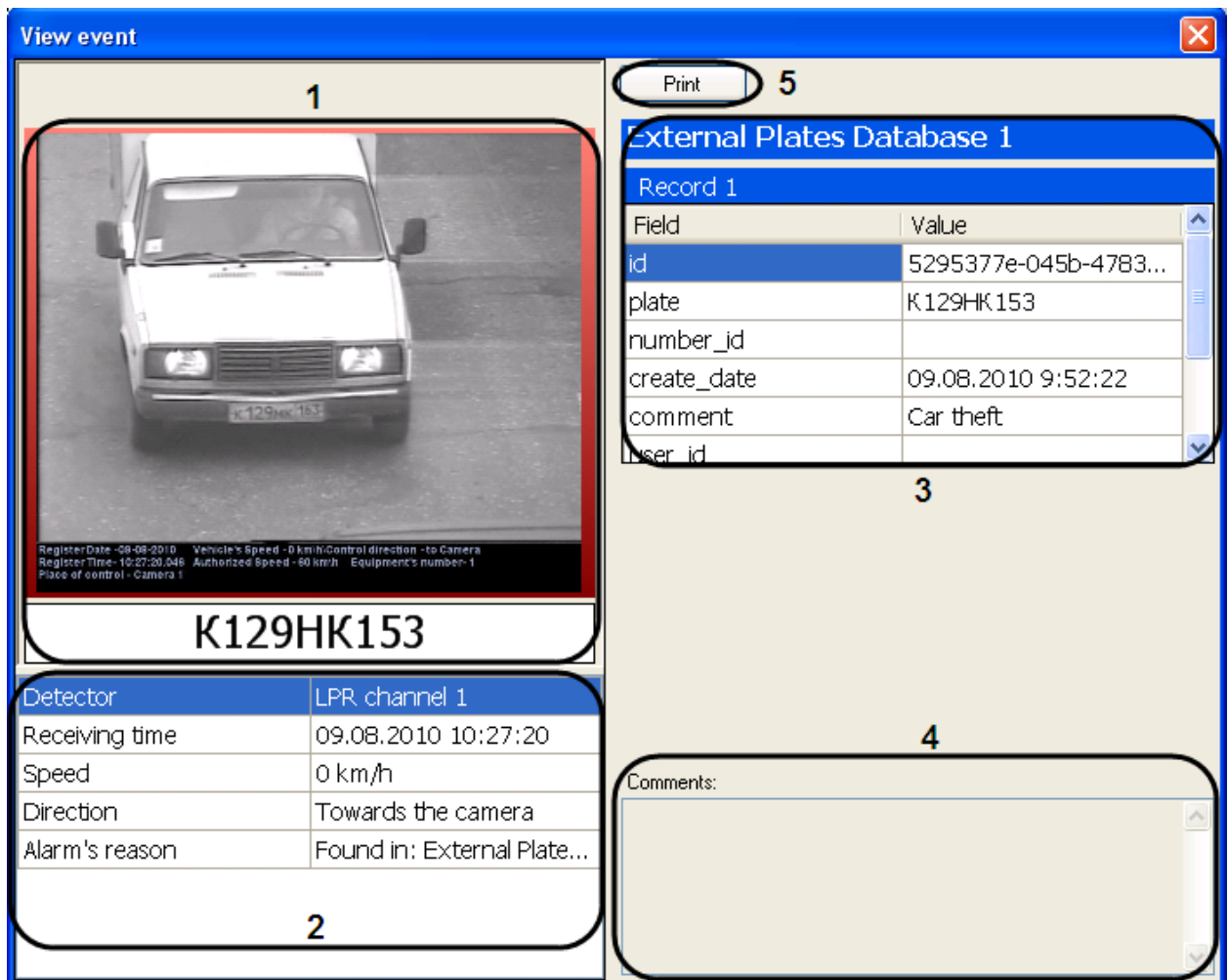


Fig. 4.3-53 View event

In the View event there are displayed the following event characteristics:

1. Video frame with a sign, containing the following data (Fig. 4.3-53, 1):
 - 1.1. Date and time of receiving the data about the vehicle;
 - 1.2. Vehicle's speed;
 - 1.3. Vehicle's direction;
 - 1.4. Speed, permitted on the controlled road area;
 - 1.5. ID of speed's detector;
 - 1.6. Control site;
2. Vehicle's identified plate (Fig. 4.3-53, 2);
3. Vehicle's plate detector (Fig. 4.3-53, 2)
4. Date and time of identifying the vehicle's plate (Fig. 4.3-53, 2);
5. Vehicle's speed (Fig. 4.3-53, 2);
6. Vehicle's direction according to the LP recognition camera (Fig. 4.3-53, 2);
7. Alarm's reason (Fig. 4.3-53, 2);
8. Data about the vehicle for the external LP database in case if the identified number has been found there (Fig. 4.3-53, 3);
9. Comments to the event (Fig. 4.3-53, 4).

To print the Report or/and export it to one of the most commonly used formats click the Print button (Fig. 4.3-53, 5). Preview report program will launch in result. In the window of this program there will be displayed Vehicle characteristics report. (Fig. 4.3-54).

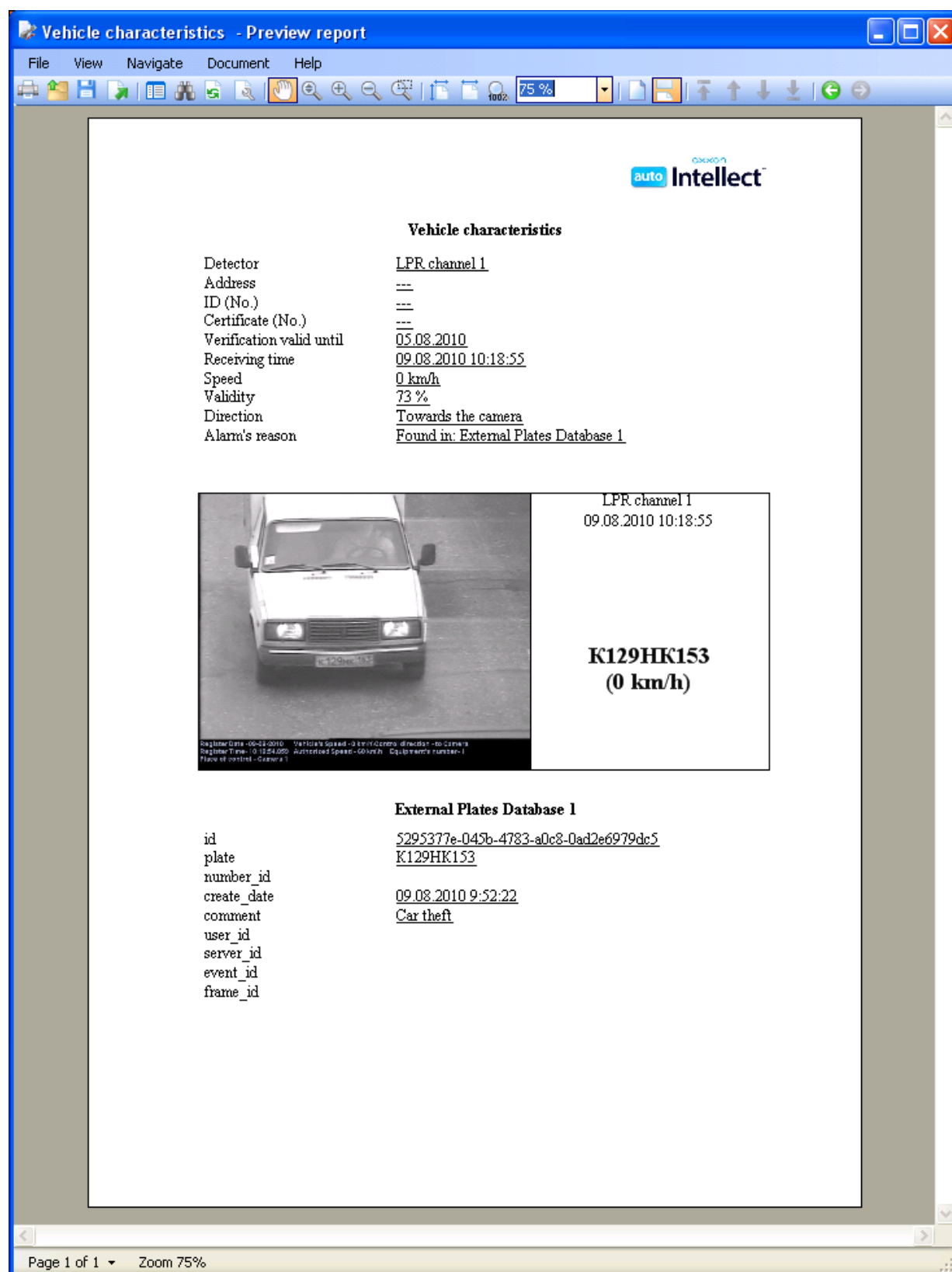


Fig. 4.3-54 Vehicle's data report

Perform the necessary operations (Table 4.3-1) with a report and then quit the program Preview report by following the points of the main menu File -> Exit or by clicking the button «» (see step 4 in the section « Printing and/or exporting the Vehicle's data »).

4.3.12.6 Forming the Active tracking database

The Active tracking database is the PC Auto-Intellect database and is filled up by operator via LPR channel.

The following conditions should be met for total interaction of the Active tracking database and LPR channel:

1. The Active tracking database is connected to the PC Auto-Intellect as an external plates database.
2. This external database is used by LPR Channel for analyzing the identified plates.

Meeting the following conditions the interaction of the Active tracking database and LPR channel is done in the following way:

1. Vehicle's plate is entered by operator to the Active tracking database via LPR channel, stating the reason.
2. LPR channel compares the plate of a passing vehicle with plates, stored at the Active tracking database. In case, if the correspondence of the identified plate and the plate, stored at the Active tracking database is set up, alarm is generated.

Active tracking option is convenient to be used in the Auto-Intellect distributed system, as it enables the operator at his workstation to notify the remote workstation operators about the vehicle that is to be captured.

Editing the data about the vehicle in the Active tracking database is done in the following way:

1. Click the Active tracking database (Fig. 4.3-55) of the main menu in the Events search in recognizers databases window.

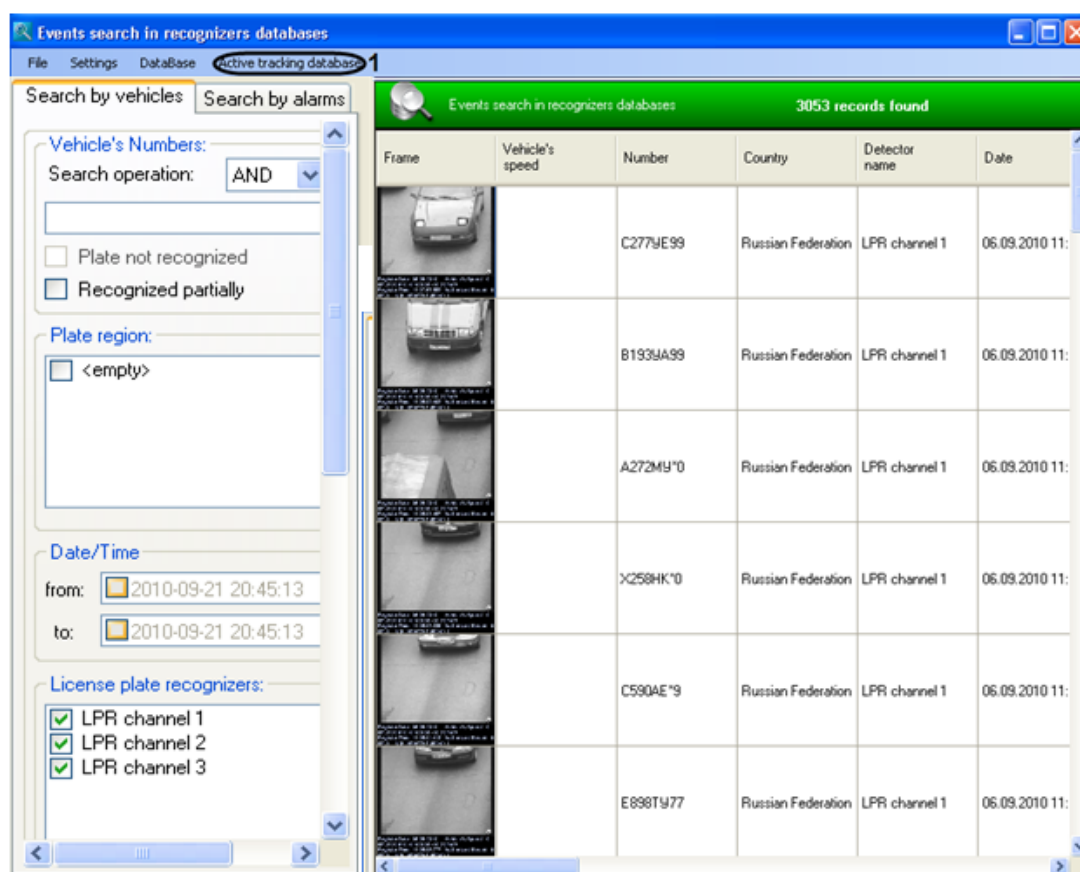


Fig. 4.3-55 Access to the Active tracking database

2. Active tracking database will open in result (Fig. 4.3-56).

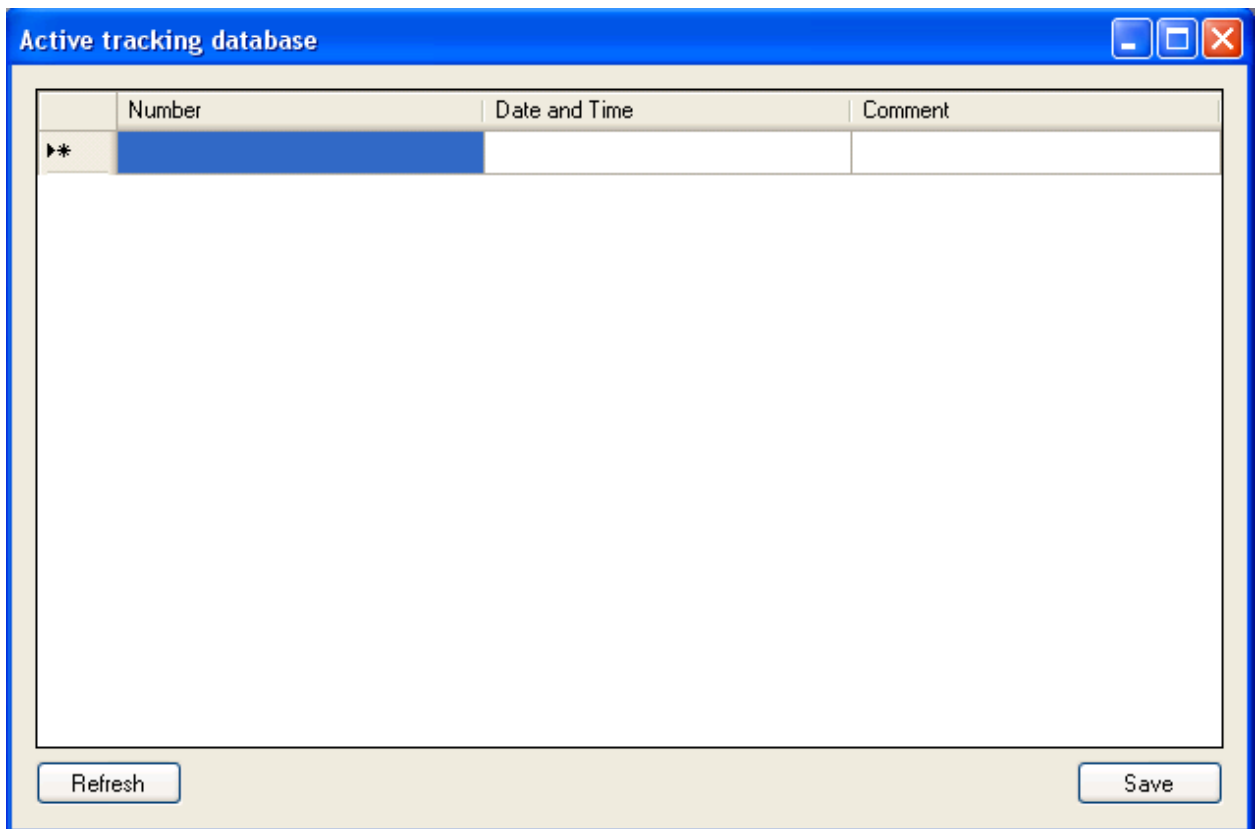


Fig. 4.3-56 Active tracking database

3. To delete the string with vehicle's data it should be selected and then click the key combination Ctrl+Del. If necessary repeat this action for all the required strings.
4. To add a new string with data about the vehicle it is necessary to do the following:
 - 4.1. In the Number column (Fig. 4.3-57, 1) enter the number of the vehicle that is to be captured.

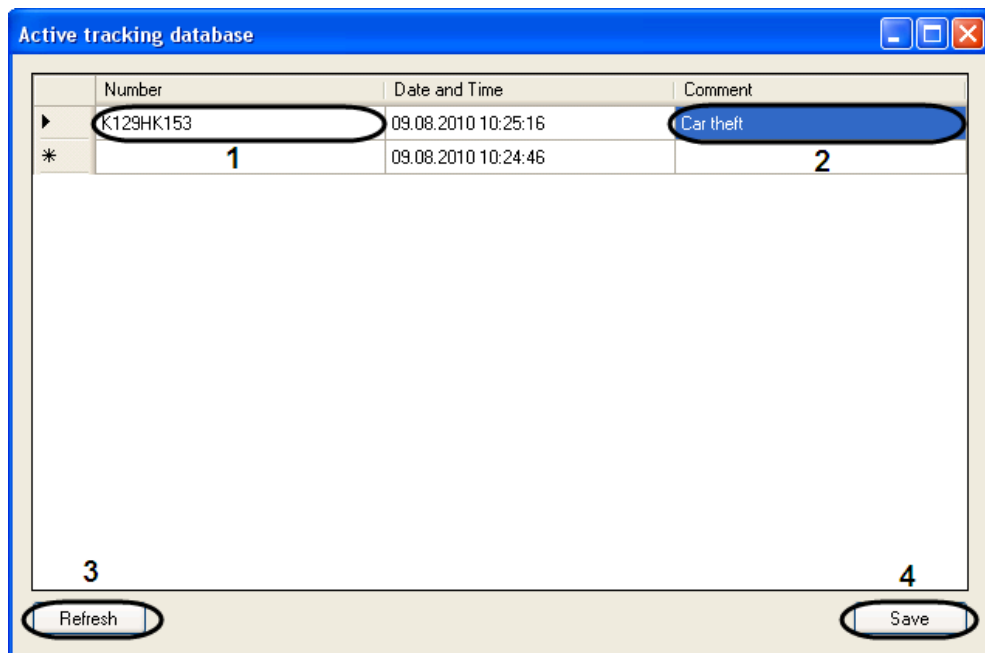


Fig. 4.3-57 Adding the vehicle's plate to the Active tracking database

- 4.2. In the Commentary column (Fig. 4.3-57, 2) enter the comment about the reason why the vehicle was captured.
5. Repeat step 4 for all the required vehicles.

Note. If necessary to cancel all the current changes click Refresh button (Fig. 4.3-57, 3).

6. To save the applied changes and close the dialog window Active tracking database click Save or «» button. In the latter case there will be displayed a dialog window «Table was changed» (Fig. 4.3-58), where one should click Yes.

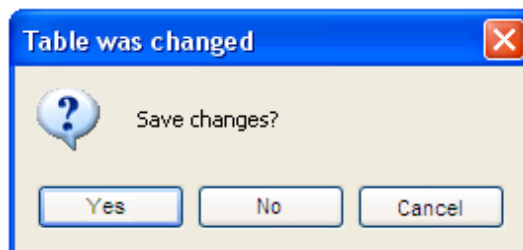


Fig. 4.3-58 Table was changed window

Editing the data about the vehicle in the Active tracking database is completed.

4.3.12.7 Viewing the video archive by event

Viewing video archive by event is started in three ways:

1. Call for a required event contextual menu by clicking right mouse button and select «Video archive» option (Fig. 4.3-59).

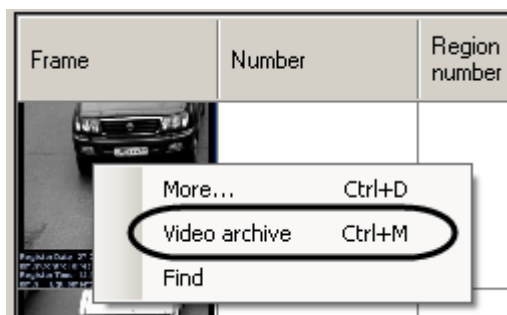


Fig. 4.3-59 Contextual menu of event

2. Select the required event by single clicking left mouse button and click «Ctrl» + «M» key combination.
3. Holding «Shift» key click the required event twice with left mouse button.

Video archive with videos of this event opens after carrying out any of above mentioned operations (Fig. 4.3-60).

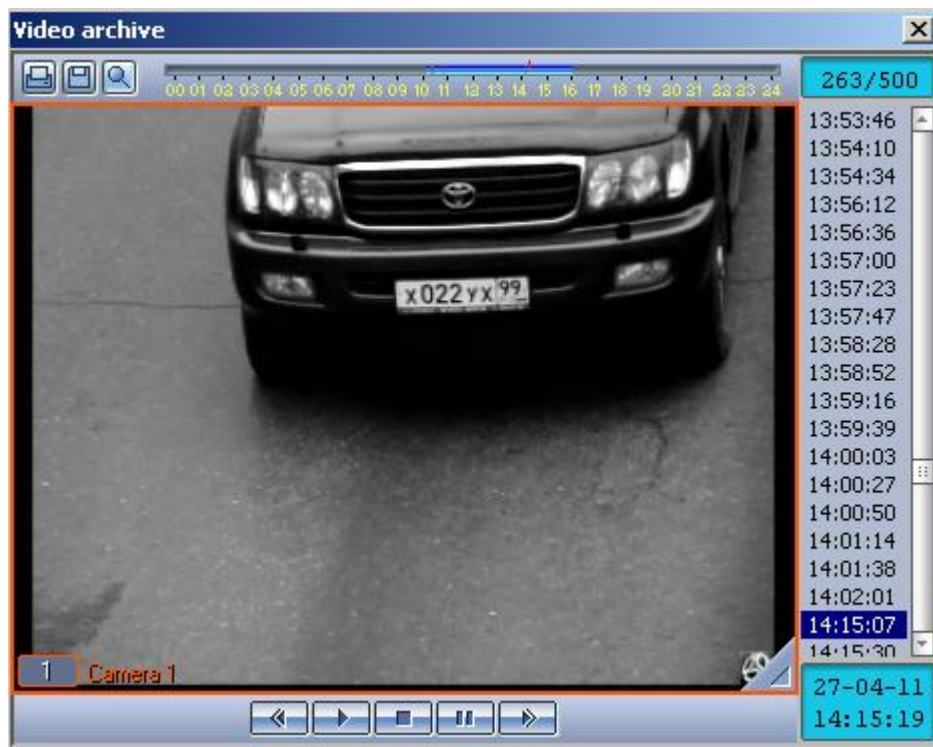


Fig. 4.3-60 Viewing the video archive by event

To close the video archive it is necessary to click the «X» sign in the right upper corner of the window (Fig. 4.3-60).

Viewing the video archive by event is completed.

5 Description of the Auto-Intellect user interface

5.1 The Traffic Monitor interface object

5.1.1 Current value tab, Table sub-tab

Figures 5.2.1-1 and 5.2.1-2 show the **Table** sub-tab of the **Current value** tab displayed by lane and by direction respectively (depending on the system setup).

Traffic monitor 1					
Current Value Statistics Table Charts					
	Detector of transport 1				
	1	2	3	4	
Total number of vehicles	2124	2736	1501	1260	
Time of registration	'8:46 04-02-2	'8:49 04-02-2	'8:49 04-02-2	'8:48 04-02-2	
Motorcycles	0	0	0	0	
Passenger cars	2119	2521	880	3	
Trucks less than 12 m long	5	210	419	625	
Trucks more than 12 m long	0	0	0	0	
Buses	0	5	202	632	
Registered speed of the vehicle (km\h)	191	43	34	88	
Vehicle length	6	20	3	22	
Average speed for all vehicles (km\h)	180.75	16.20	38.09	102.26	
Average speed for passenger cars (km\h)	180.82	15.99	39.30	30.33	
Average speed for trucks (km\h)	150.00	18.65	36.37	102.44	
Distance between vehicles (m)	94	22	30	137	
Road load (%)	5	20	10	10	
Number of speed overruns	2114	22	171	1063	
Moving along the oncoming lane	0	0	0	0	
Number of vehicle stops	0	0	0	0	
Jam	Free	Free	Free	Free	
Number of incidents	2114	22	171	1063	

Figure 5.2.1-1 The Table sub-tab of the Current value tab displayed by lane

Current Value		Statistics	Traffic monitor 1
Table		Charts	
	Detector o...		
	Movement ...		
Total number of vehicles	7824		
Time of registration	11:09 04-02-2		
Motorcycles	0		
Passenger cars	5669		
Trucks less than 12 m long	1295		
Trucks more than 12 m long	0		
Buses	860		
Registered speed of the vehicle (km/h)	56		
Vehicle length	30		
Average speed for all vehicles (km/h)	80.76		
Average speed for passenger cars (km/h)	83.06		
Average speed for trucks (km/h)	74.71		
Distance between vehicles (m)	76		
Road load (%)	45		
Number of speed overruns	3470		
Moving along the oncoming lane	0		
Number of vehicle stops	0		
Jam	Free		
Number of incidents	3470		

Figure 5.2.1-2 The Table sub-tab of the Current value tab displayed by direction

Table 5.2.1-1 describes the elements of the **Table** sub-tab.

Table 5.2.1-1 The elements of the Table sub-tab of the Current value tab

Field name	Description
Time of registration	The time when the last vehicle passed
Total number of vehicles	Total number of registered vehicles of all types
Motorcycles	The number of registered motorcycles
Passenger cars	The number of registered passenger cars
Trucks less than 12 m long	The number of registered trucks less than 12 m long
Trucks more than 12 m long	The number of registered trucks more than 12 m long
Buses	The number of registered buses
Registered speed of the vehicle	The speed of the last registered vehicle, km/h
Vehicle length	Total length of the registered vehicle, m
Average speed for all vehicles	Average speed for all registered vehicles, km/h
Average speed for passenger cars	Average speed for passenger car vehicles, km/h
Average speed for trucks	Average speed for registered trucks, km/h
Distance between vehicles	The distance between the last vehicle and the previous one, m
Road load	Average road load, %
Number of speed overruns	The number of speeding violations
Moving along the oncoming lane	The number of moving along the oncoming lane events
Number of vehicle stops	The number of vehicles stopped in the lane

Field name	Description
Jam	Traffic jam indicator
Number of incidents	Total number of road rules violations for the lane (direction)

5.1.2 The Charts sub-tab of the Current value tab

Figures 5.2.2-1 and 5.2.2-2 show the **Charts** sub-tab of the **Current value** tab displayed by lane and by direction, respectively (depending on the system setup).

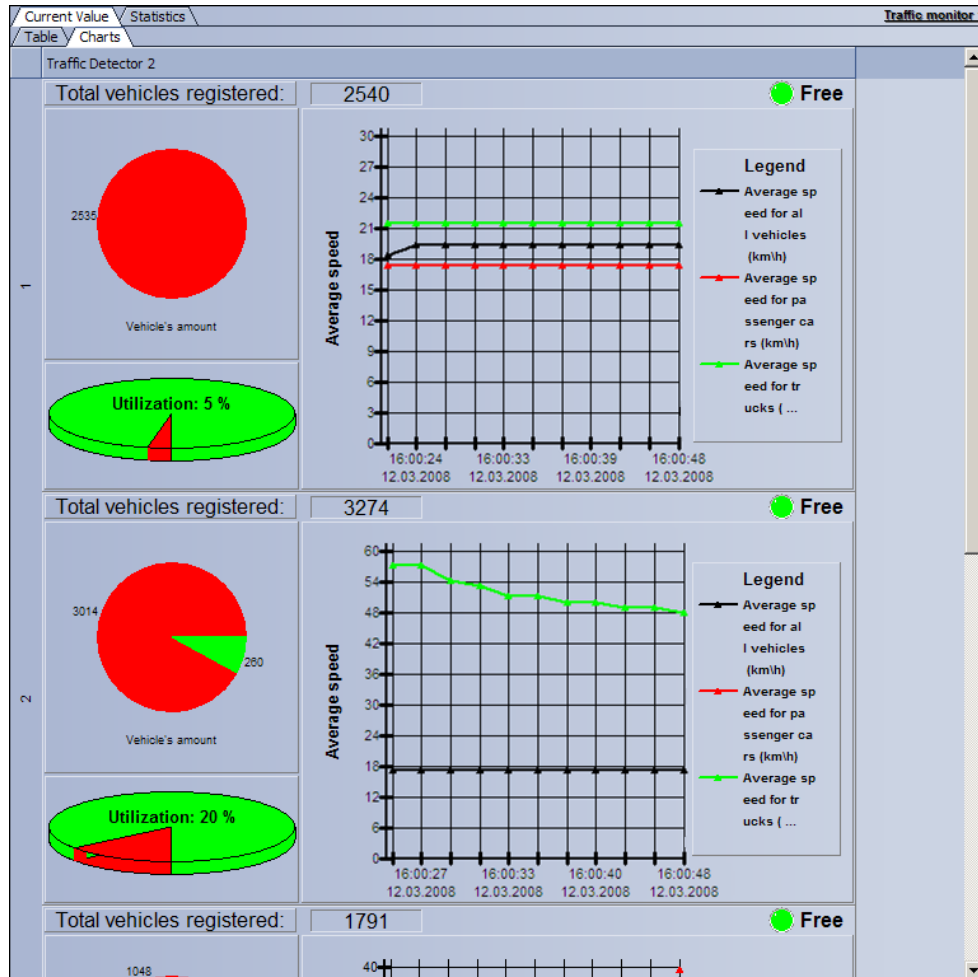


Figure 5.2.2-1 The Charts sub-tab of the Current value tab displayed by lane

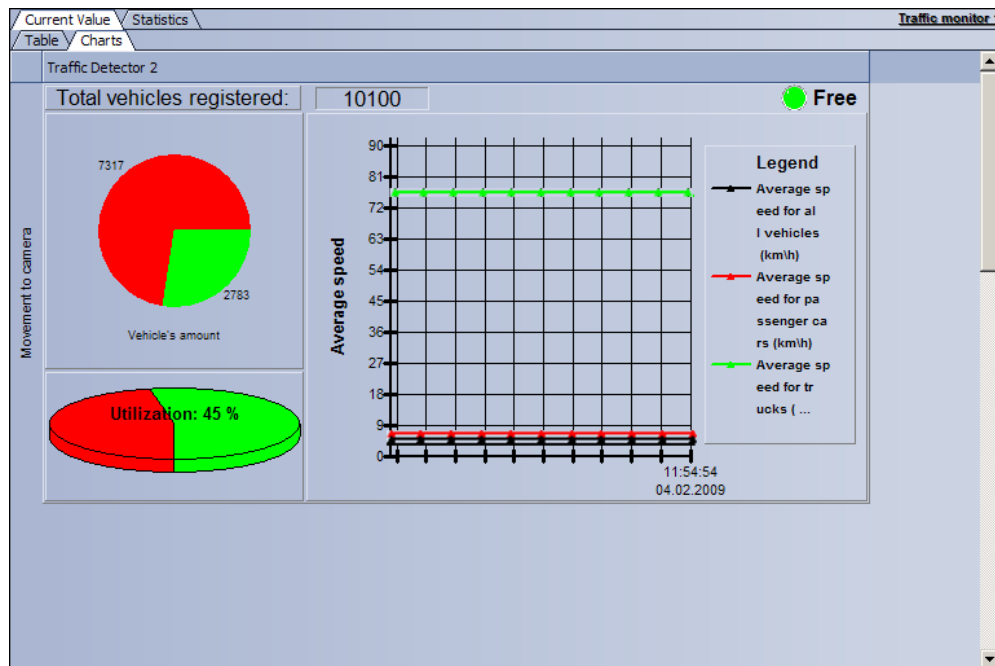
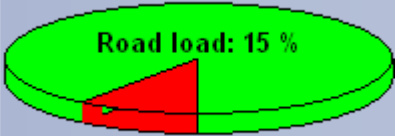
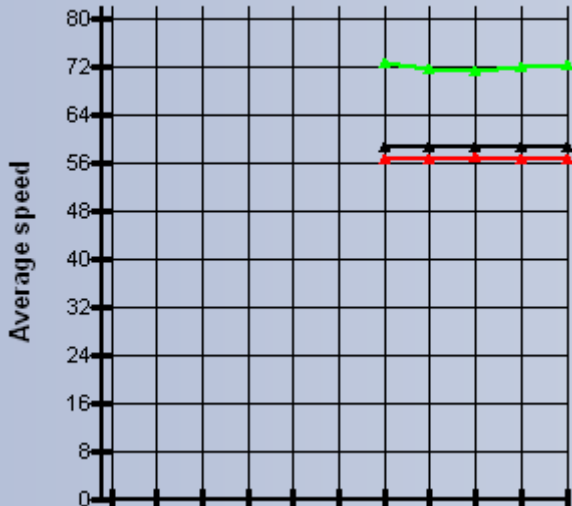


Figure 5.2.2-2 The Charts sub-tab of the Current value tab displayed by direction

Table 5.2.2-1 describes the elements of the **Charts** sub-tab.

Table 5.2.2-1 The elements of the Charts sub-tab of the Current value tab

Element	Description
Traffic Detector 1	The Traffic Detector name
1	The lane number or direction
Total vehicles registered: 1068	Total number of vehicles registered for the lane (direction)
Free	Indication of a traffic jam in the lane (direction)
	Chart showing the number of vehicles in the lane (direction)

Element	Description
	Chart showing the road load of the lane (direction), %
	Chart showing the statistics for the average speed of different vehicles types

5.1.3 Statistics tab, Table sub-tab

Figure 5.2.3-1 shows the **Table** sub-tab of the **Statistics** tab.

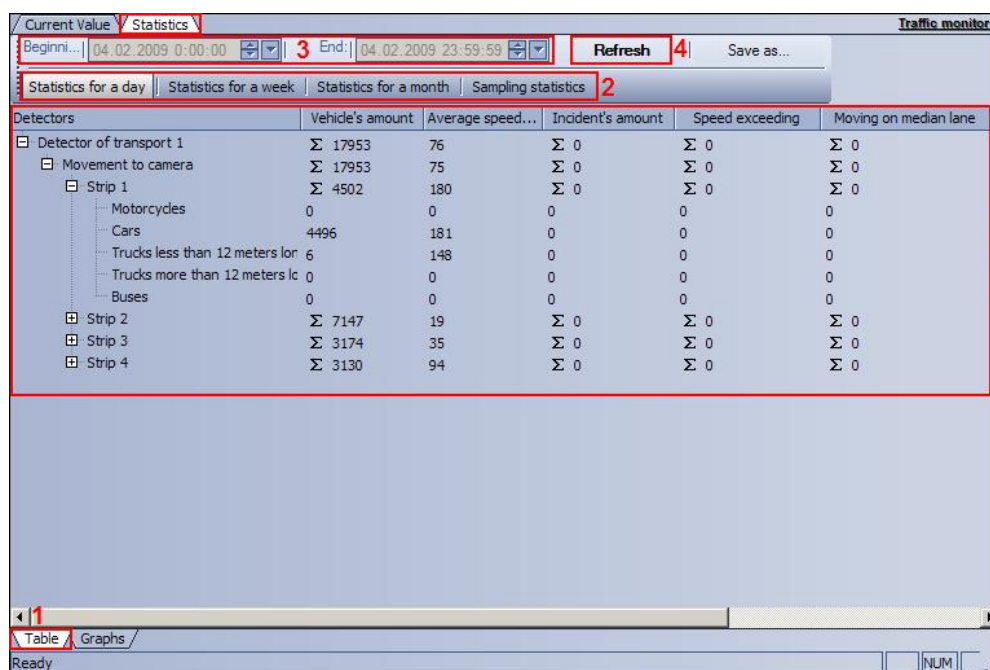


Figure 5.2.3-1 The Table sub-tab of the Statistics tab

Table 5.2.3-1 describes the elements of the **Table** sub-tab.

Table 5.2.3-1 The elements of the Table sub-tab of the Statistics tab

Element	Description
	Set of elements for entering the beginning and end dates

Element	Description
	and times of the traffic statistics period
Refresh	The Refresh button refreshes the displayed statistics.
Save as...	The Save as button exports the displayed statistics to a file
Statistics for a day Statistics for a week Statistics for a month Selective statistics	Set of elements for selecting the statistic frequency
Traffic Detector 1 Σ 1424 58 Σ 549 Σ 549 Σ 0 Σ 0 11 Movement towards the camera Σ 1424 57 Σ 549 Σ 549 Σ 0 Σ 0 11 Lane 1 Σ 401 57 Σ 146 Σ 146 Σ 0 Σ 0 14 Motorcycles 0 0 0 0 0 0 Passenger cars 350 55 98 98 0 0 Trucks less than 12 m long 51 71 48 48 0 0 Trucks more than 12 m long 0 0 0 0 0 0 Buses 0 0 0 0 0 0 Lane 2 Σ 375 53 Σ 105 Σ 105 Σ 0 Σ 0 12 Motorcycles 0 0 0 0 0 0 Passenger cars 354 53 105 105 0 0 Trucks less than 12 m long 0 0 0 0 0 0 Trucks more than 12 m long 0 0 0 0 0 0 Buses 21 56 0 0 0 0 Lane 3 Σ 336 58 Σ 127 Σ 127 Σ 0 Σ 0 11 Lane 4 Σ 312 63 Σ 171 Σ 171 Σ 0 Σ 0 8	Traffic statistics results

5.1.4 Statistics tab, Charts sub-tab

Figure 5.2.4-1 shows the **Charts** sub-tab of the **Statistics** tab.

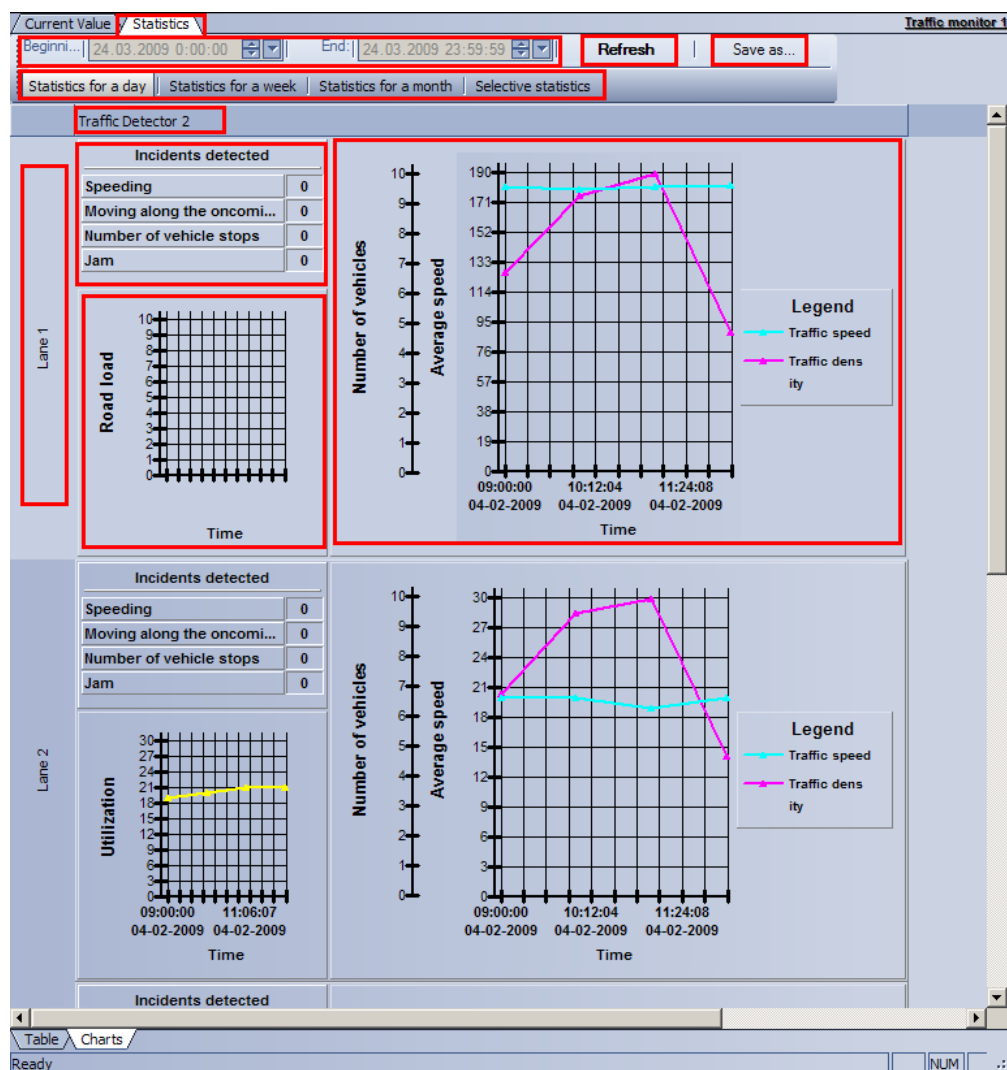
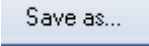
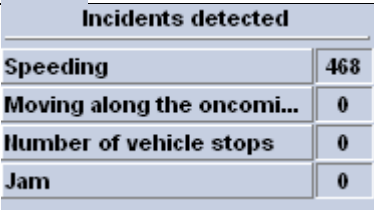
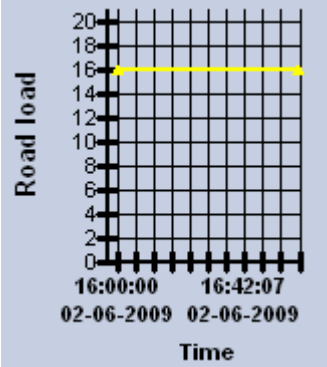
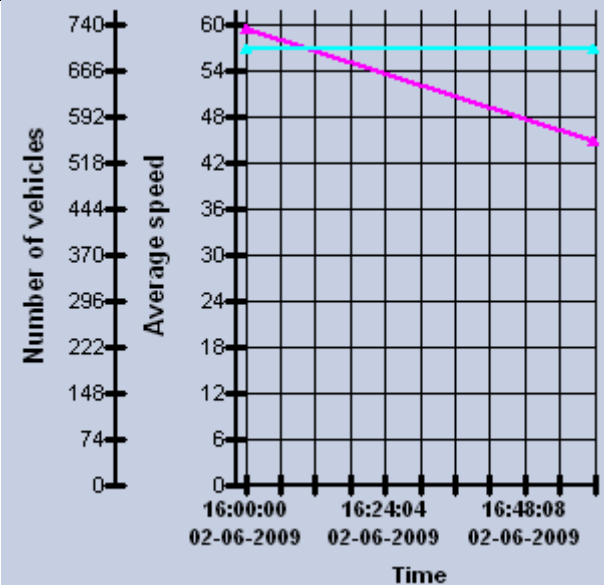


Figure 5.2.4-1 The Charts sub-tab of the Statistics tab

Table 5.2.4-1 describes the elements of the **Charts** sub-tab.

Table 5.2.4-1 The elements of the Charts sub-tab of the Statistics tab

Element	Description
	Set of elements for entering the beginning and end dates and times of the traffic statistics period
	The Refresh button refreshes the displayed statistics.
	The Save as button exports the displayed statistics to a file
	Set of elements for selecting the statistic frequency
	The Traffic Detector name
	The lane number
	Incident statistics for the lane
	The road load chart

Element		Description
		Chart showing the number of vehicles in the lane

5.2 The LPR channel interface description

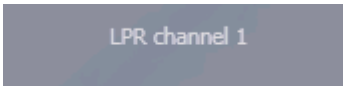
5.2.1 The Events monitor

The events monitor contains the following interface elements (Fig. 5.2-1, Table 5.2-1).



Fig. 5.2-1 The Events monitor

Table 5.2-1 The Events monitor interface description

№	Element	Description
1		Detector of passing vehicle's plate

№	Element	Description
2		Signed frame with a passing vehicle
3	C277YE99	Identified vehicle's plate and speed (when the Uragan or CARMEN-Auto modules are used, the Radar module should be connected)

5.2.2 The On-line monitor

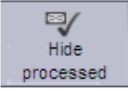
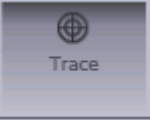
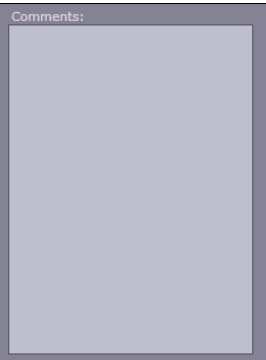
The On-line monitor contains the following interface elements (Fig. 5.2-2, Table 5.2-2).

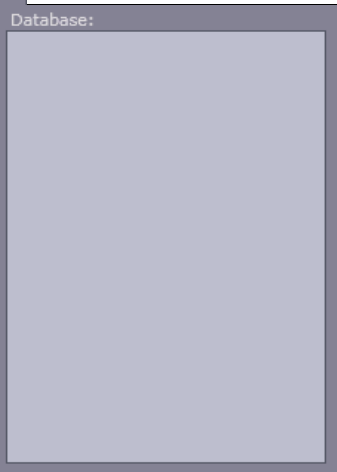


Fig. 5.2-2 The On-line monitor

Table 5.2-2 The On-line monitor interface description

№	Element	Description
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№	Element	Description																								
1	<table><thead><tr><th>Параметр</th><th>Значение</th></tr></thead><tbody><tr><td>Распознаватель</td><td>Сервер распозн...</td></tr><tr><td>Страна</td><td>Россия</td></tr><tr><td>Адрес</td><td>---</td></tr><tr><td>Идентификатор</td><td>---</td></tr><tr><td>Сертификат (№)</td><td>---</td></tr><tr><td>Проверка действ.</td><td>28.06.2010</td></tr><tr><td>Время распозн.</td><td>28.06.2010 13:2...</td></tr><tr><td>Скорость</td><td>0 км/ч</td></tr><tr><td>Разрешенная ск.</td><td>60 км/ч</td></tr><tr><td>Достоверность</td><td>81 %</td></tr><tr><td>Направление</td><td>К камере</td></tr></tbody></table>	Параметр	Значение	Распознаватель	Сервер распозн...	Страна	Россия	Адрес	---	Идентификатор	---	Сертификат (№)	---	Проверка действ.	28.06.2010	Время распозн.	28.06.2010 13:2...	Скорость	0 км/ч	Разрешенная ск.	60 км/ч	Достоверность	81 %	Направление	К камере	Data about the last passed vehicle or event, selected in the identified vehicles protocol or in the alarms protocol
Параметр	Значение																									
Распознаватель	Сервер распозн...																									
Страна	Россия																									
Адрес	---																									
Идентификатор	---																									
Сертификат (№)	---																									
Проверка действ.	28.06.2010																									
Время распозн.	28.06.2010 13:2...																									
Скорость	0 км/ч																									
Разрешенная ск.	60 км/ч																									
Достоверность	81 %																									
Направление	К камере																									
2		Transfer to the Events tab of the identified vehicles protocol.																								
3	 	Transfer to the alarms protocol tab. With alarms there displayed a video frame and number of the last alarm on the tab.																								
4		Hidden in the processes events protocols																								
5		Enabling/disabling setup filters.																								
6		Resuming the operative update of the displayed vehicle's protocol.																								
7		Triggering the alarm by operator.																								
8		Alarm acceptance.																								
9	 	Transfer to the list of bugs in LPR channel operation																								
10	Comments: 	Displaying the commentary to the selected event.																								

№	Element	Description
11		The identified objects protocol or alarms protocol dependent on activated tabs- 2 or 3.
12		Roll down/roll up the displaying panel of comments and base.
13		Displaying the information from the external database.
14		Forming the report with data about the selected event.
15		Opening the search window in the plates recognizers databases.
16		Transfer to the video archive of identified vehicles.
17		Transfer to filter settings, used in protocols.
18		Comments to the selected event with stated data and time of the commentary.

5.2.3 The Events search in recognizers databases

The Events search in recognizers databases dialog window contains the following interface elements (Fig. 5.2-3, Table 5.2-3).

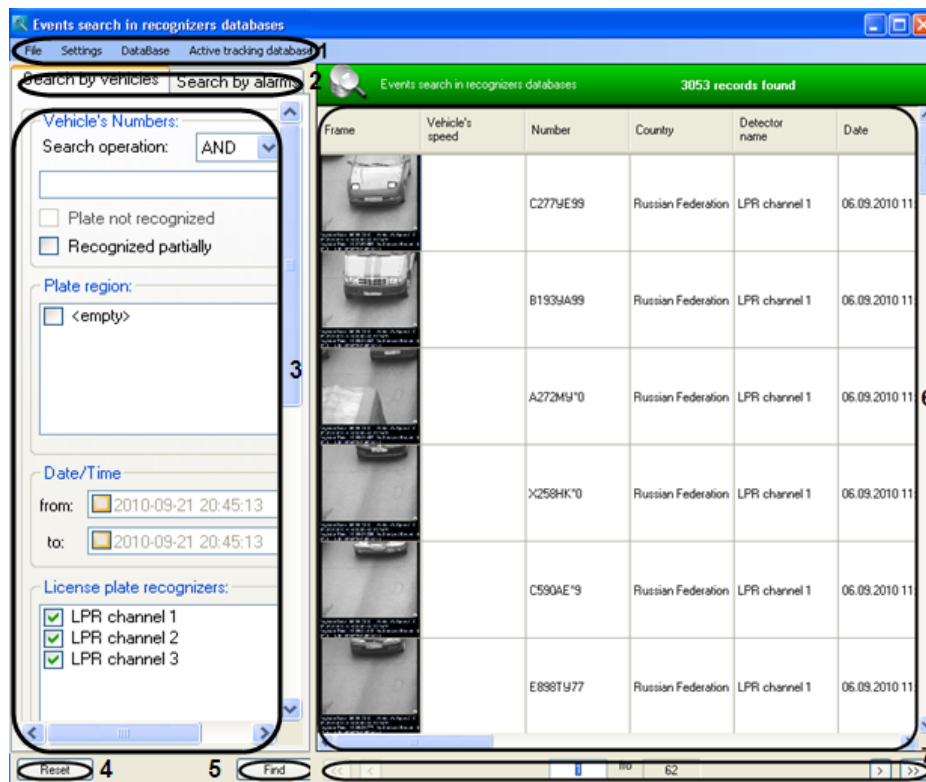
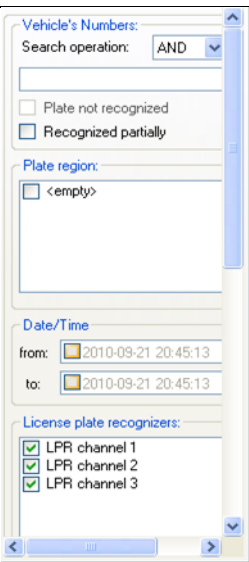
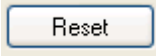
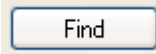
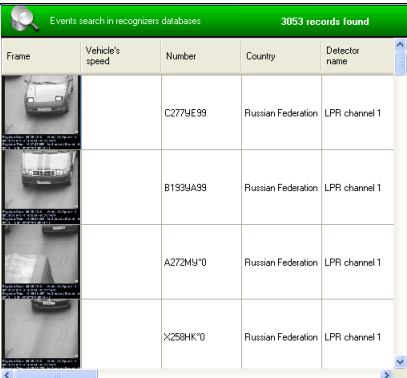


Fig. 5.2-3 The Events search in recognizers databases dialog window

Table 5.2-3 The Events search in recognizers databases interface description

№	Element	Description
1	File Settings DataBase Active tracking database	The main menu, that enable to do the following operations: 1. File command: 1.1. Printing the events search results; 1.2. Closing the window Events search in recognizers databases 2. Settings command: 2.1. Setting up the displaying of events search results; 2.2. Connecting the recognizers databases. 3. Database command: 3.1. Selecting the databases for searching the events. 4. Command Active tracking database 4.1. Editing the Active tracking user database
2	Search by events Search by alarms	Selecting the type of search: by events or by alarms

№	Element	Description
3		Forming the search query of the selected type
4		Clearing the search form from the given search criteria
5		Launching the search query processing
6		Events search results table
7		Navigation panel of the events search results

5.2.4 The preview report

The preview report program window contains the following interface elements (Fig. 5.2-4, Table 5.2-4).

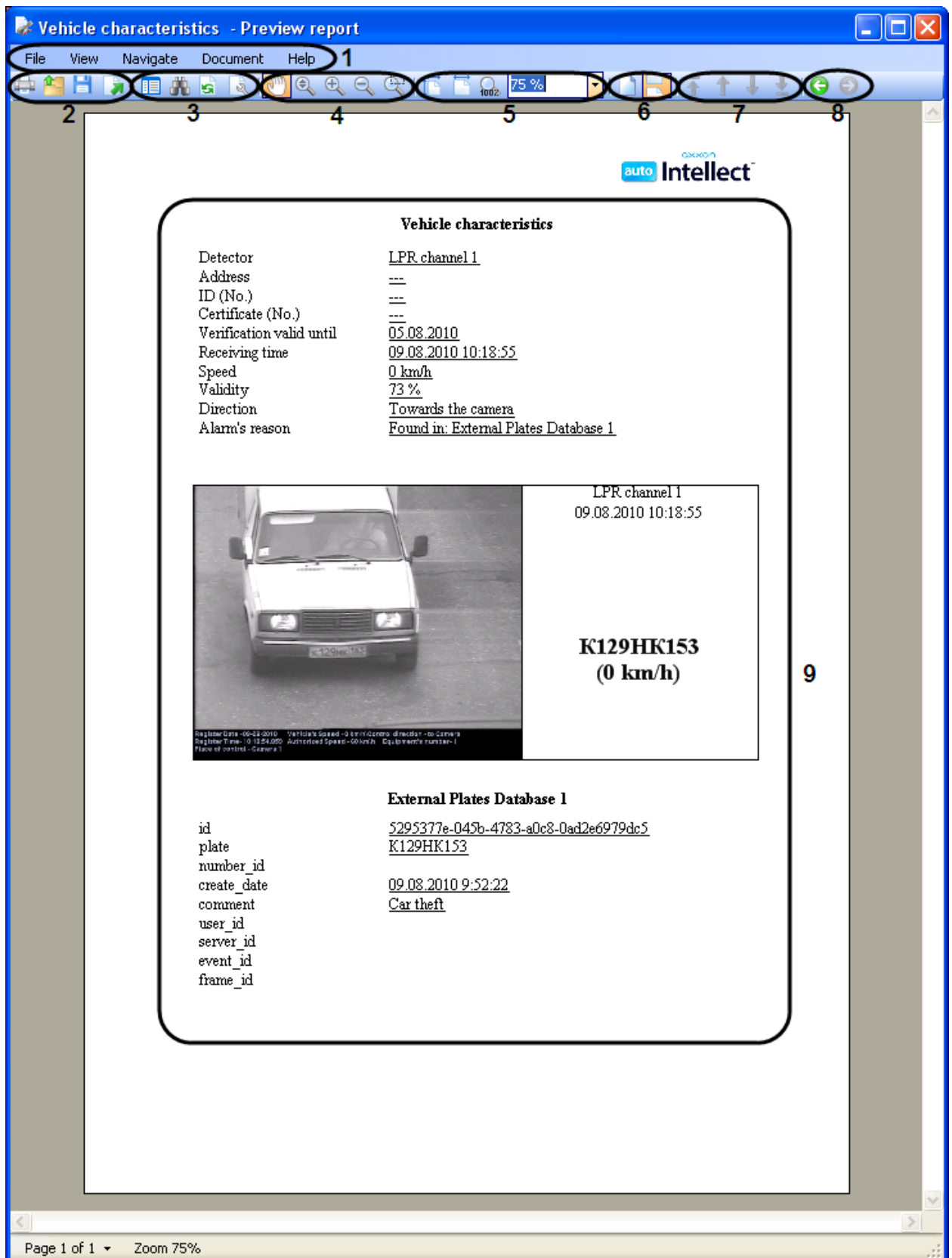
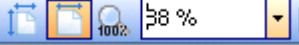


Fig. 5.2-4 The preview report

Table 5.2-4 The preview report interface description

No	Element	Description
1	File View Navigate Document Help	Main program's menu for viewing the reports (operations with a file, operations of previewing and navigating the report, operation with a report, viewing the information about program)
2		Block of elements for operations

№	Element	Description
		with a report file (printing, opening, saving, exporting the file)
3		Block of elements for operations with a report (displaying, content, search, update, edit)
4		Selecting the scaling mode and the scale of displaying the report
5		
6		Selecting the mode of displaying the report (displaying the pages by one page, nonstop page-by-page displaying)
7		Block of elements for navigation of the report
8		
9	Vehicle characteristics Detector LPR channel 1 Address --- ID (No.) --- Certificate (No.) --- Verification valid until 05.08.2010 Receiving time 09.08.2010 10:18:55 Speed 0 km/h Validity 73 % Direction Towards the camera Alarm's reason Found in External Plates Database 1  LPR channel 1 09.08.2010 10:18:55 K129HK153 (0 km/h) Register Date: 09-12-2010 Vehicle Speed: 0 km/h direction: 0 Camera: 1 Register Time: 09-12-2010 Authorized Speed: 0 km/h Equipment's number: 1 Plate of vehicle: 00000000 Camera: 1 External Plates Database 1 id 5295377e-045b-4783-a0c8-0ad2e6979dc5 plate K129HK153 number_id 09.08.2010 9:52:22 create_date Car theft comment user_id server_id event_id frame_id	Field for displaying the formed report