AxxonSoft Inc.

Auto-Intellect Software Package
Operator's Guide

Version 1.16

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Contents

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. *Uragan*
2. *Potok*
3. *Radar*

4. *Traffic Detector*
5. *External Plates Database*

3.2 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)

3.3 The *Potok* software module functionality

The *Potok* software module supports the following functionality:

1. Recognizing license plate numbers
2. Searching the external database for the recognized numbers (if the *External Plates Database* module is connected)

3.4 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.

3.5 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

3.6 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.

3.7 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 f 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 LPR Viewer interface object

4.2.1 Viewing the list of LP numbers

To view the list of LP numbers, use the **Protocol** tab (Figure 4.2.1-1).

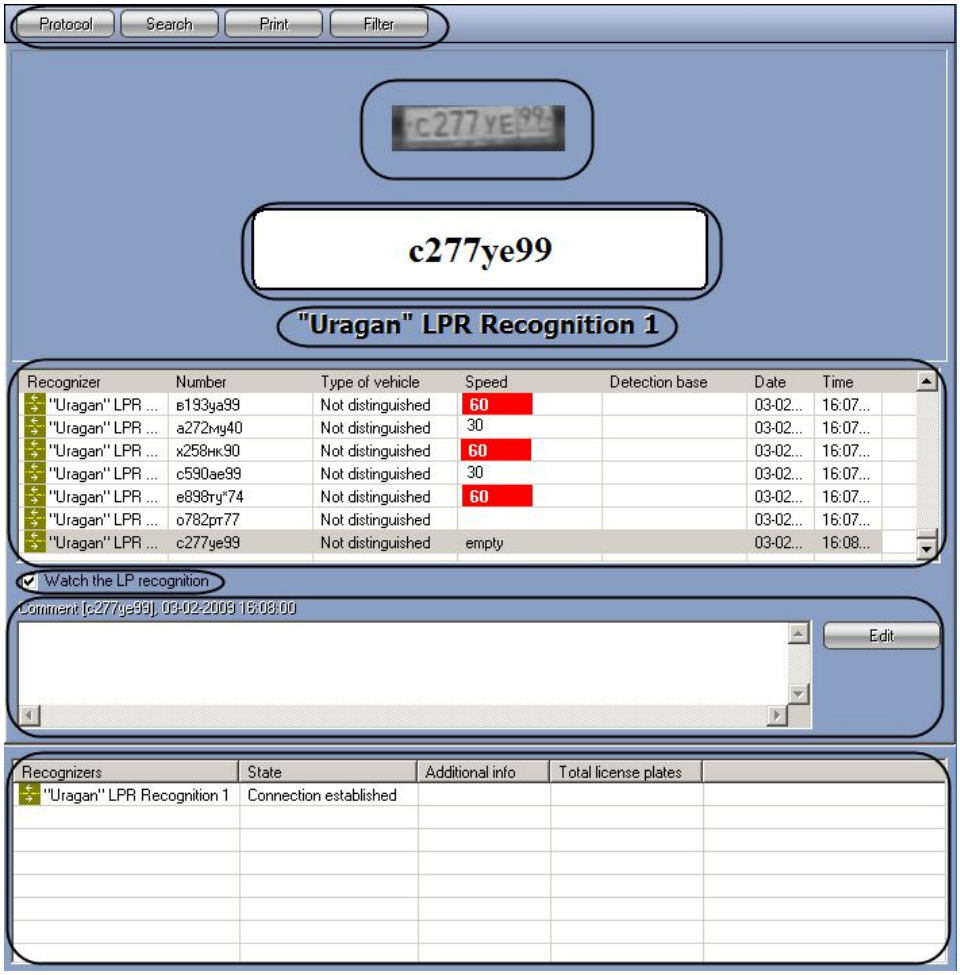


Figure 4.2.1-1 Viewing the list of numbers

The top of the window shows the last recognized number (video frame and text) and the name of the module that recognized it.
The table containing the list of recognized numbers is shown in the middle of the window. New numbers can be added to the top or to the bottom of the table (depending on the system setup). The recognition module, number, vehicle type, speed value and overrun indication, database match, date and time of the recognition are shown for each recognized number. If the recognized number has been found in the external database, the **Detection database** field shows the name of the external database where the number was found; the field is highlighted in color. If the vehicle speed exceeds the specified value (depending on the system setup), the speed value in the field is highlighted in red.

4.2.2 Viewing the video frame corresponding to the moment of recognition

To view the video frame corresponding to the moment of recognition of the number, use the **Search** tab (Figure 4.2.2-1).

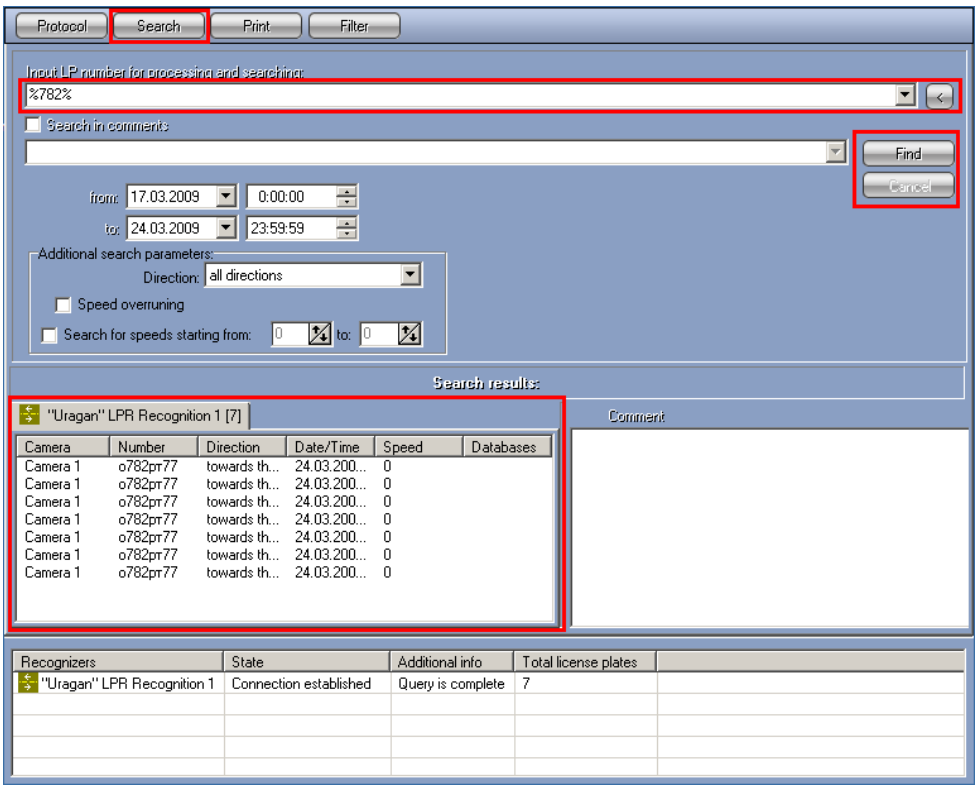


Figure 4.2.2-1 Viewing the video frame corresponding to the recognition moment

To view the video frame corresponding to the recognition moment, do the following:

1. Enter the number to search for in the **Enter the number to search for** field.
2. Click the **Find** button.
3. Select the recognizers in the dialog window that opens (to select all recognizers, check the **Select ALL recognizers** checkbox) and click **OK** (Figure 4.2.2-2)

Figure 4.2.2-2 Recognizers selection

4. The search will start; it may take some time.
5. All matching numbers will be listed chronologically in the **Search results** table.
6. Double-click a required number in the table.
7. The corresponding video frame will be shown in the new window (Figure 4.2.2-3).

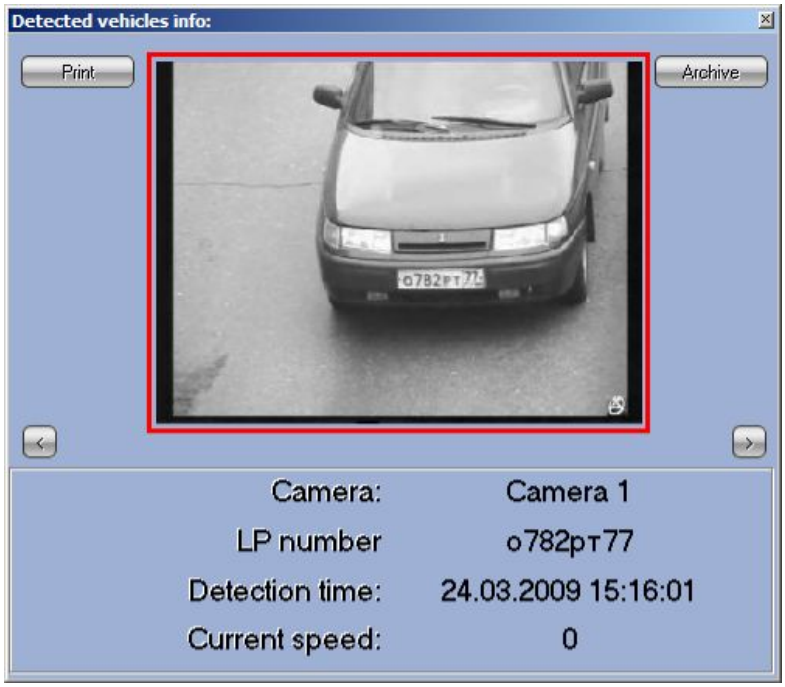


Figure 4.2.2-3 The video frame corresponding to the recognition moment

4.2.3 Setting the number list parameters

The parameter of the LP number list can be set in the **Protocol** tab (Figure 4.2.3-1).

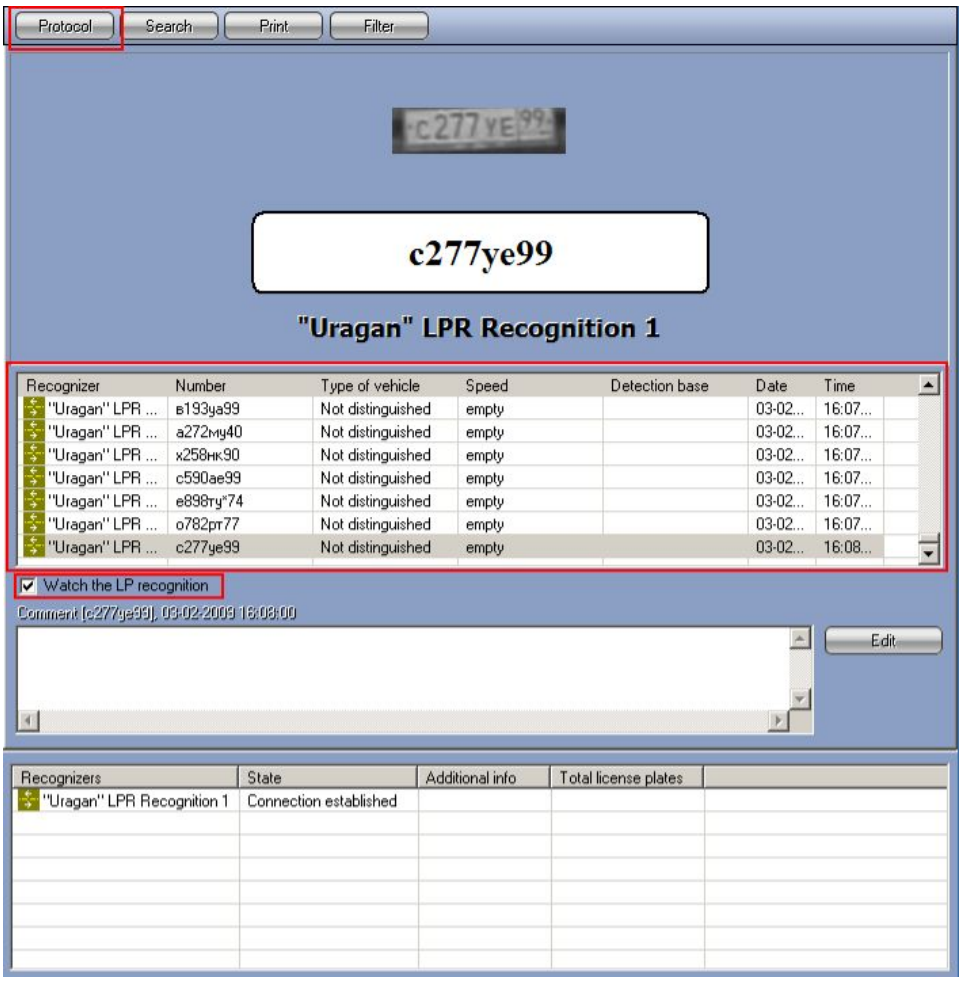


Figure 4.2.3-1 Setting the parameter of the number list

Check the **Watch the selected number** checkbox to focus on a selected number in the table. If this checkbox is checked, the current highlighted number will remain highlighted and in focus, despite new numbers being added to the table.
Note. Newly recognized numbers can be added to the top or to the bottom of the table (depending on the system setup).

4.2.4 Adding text comments to the recognized numbers

To add text comments to recognized numbers, use the **Protocol** tab (Figure 4.2.4-1).

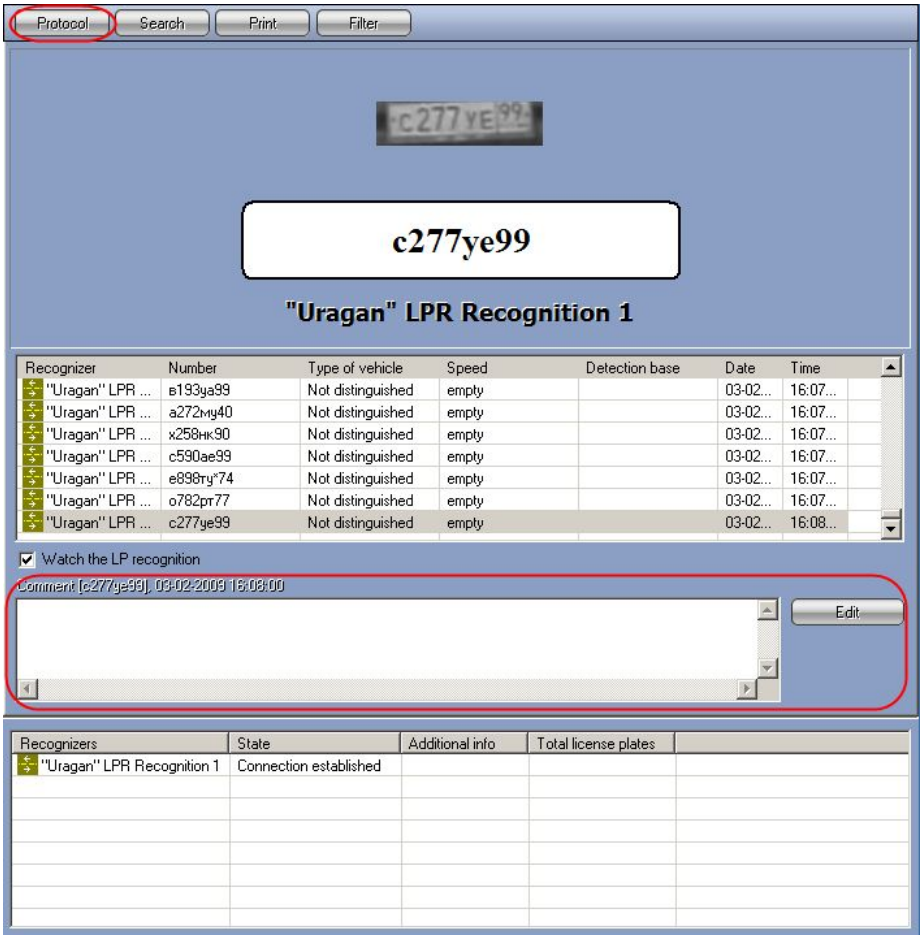


Figure 4.2.4-1 Adding text comments to the recognized numbers

To enter a text comment, select the number in the table and click the **Edit** button. Enter your comment in the new window (Figure 4.2.4-2) and click **Edit**.

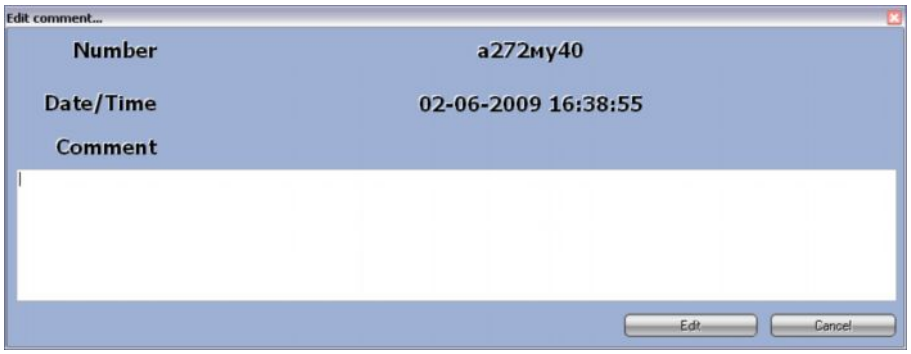


Figure 4.2.4-2 Entering a comment for a number

We recommend checking the **Watch the selected number** checkbox, so that the number stays in focus while entering the comments.

To view the comment, select the LP number in the table, and the comment will be shown in the **Comment** field, optionally showing its number and date.

4.2.5 Creating a search request for the recognized numbers

A search request can be created using one of two methods:

1. The **Search** tab
2. The **Protocol** tab

Note. The search request for recognized numbers returns only the first 1000 numbers satisfying the request criteria.

Figure 4.2.5-1 shows the creation and sending of the search request using the **Search** tab.

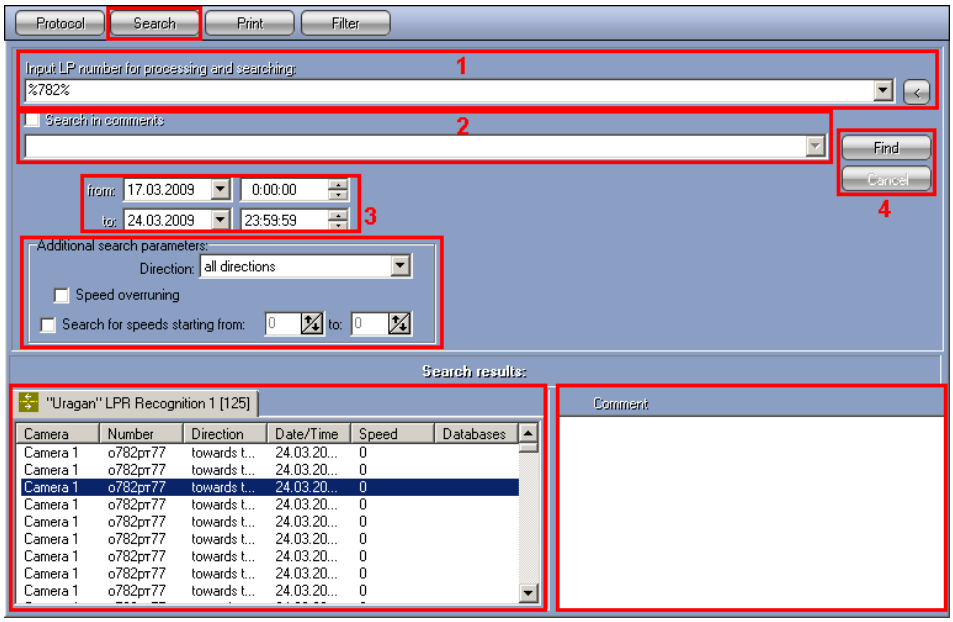


Figure 4.2.5-1 Creating and sending a search request for the recognized numbers

To create the search request using the **Search** tab, do the following:

1. In the field **Enter the number to search for** enter the key phrase for search.

Note A. Key phrase may contain usual characters and wildcards in the required combination (Table 4.2.5-1).

Table 4.2.5-1

Wildcards	Description of wildcards	Example of search request
%	Any string, containing 0 and more characters	Search request ‘a%385%78’ returns numbers, containing elements ‘a’, ‘385’ and ‘78’, separated by any number of characters, for example ‘AO38578’, ‘a385мк78’
_ (underscore character)	Any single character	Search request ‘2__5’ returns numbers, containing a sequence of four characters , the first one is ‘2’, the last one is‘5’, for example, ‘A256577’, ‘2115OK43’
[]	Any single character, that is contained in the range ([a-e]) or set ([абвгде])	Search request ‘[е-м][2-5]53’ returns numbers, containing a sequence of four characters. A sequence ends in ‘53’, the first character belongs to the range е-м, the second one belong to the range 2-5, for example ‘к453мн02’, ‘м253вт63’

Wildcards	Description of wildcards	Example of search request
[^]	Any single character, that is not contained in the range ([^a-e]) or int the set ([^абвгде])	Search request '[^е-м]499' returns numbers, containing a sequence of four characters. A sequence ends in '499', the first character does not belong to the range е-м, for example'в499вк57', 'н499578'

Note B. *Compiling key phrase to unite several elements one can use one of the following constructions:*

- *«And» – to search for the numbers, containing all the elements of the key phrase*
- *«Or» – to search for the numbers, containing at least one element of the key phrase Entering the logical constructions on the search request is perfoemed with the use of a keyboard and/or «*  *» button. In one search request one should use several logical constructions with syntax «AND» or «OR».*

Note. *Search request 'а-м]3_2 AND 02' may return numbers 'а302мм63', 'а312мм02'.*

2. To search for a word in the comments, check the **Search in comments** checkbox and enter a keyword in the field beneath.
3. Additional search criteria can be set: time interval, vehicle movement direction, speed range, or speed overrun. In the **from** and **to** fields, enter the date and time range when the numbers were recognized. In the **Direction** field, select the vehicle movement direction (all directions, to camera, from camera). Check the **Speed overrunning** checkbox to search for vehicles moving faster than the speed limit. Enter the required speed range in the **Search for speeds from … to** fields.
4. Click **Find** after setting all the criteria.
5. In the new window, select the required recognizers (check **Select ALL recognizers** to select all) and click **OK** (Figure 4.2.5-2).

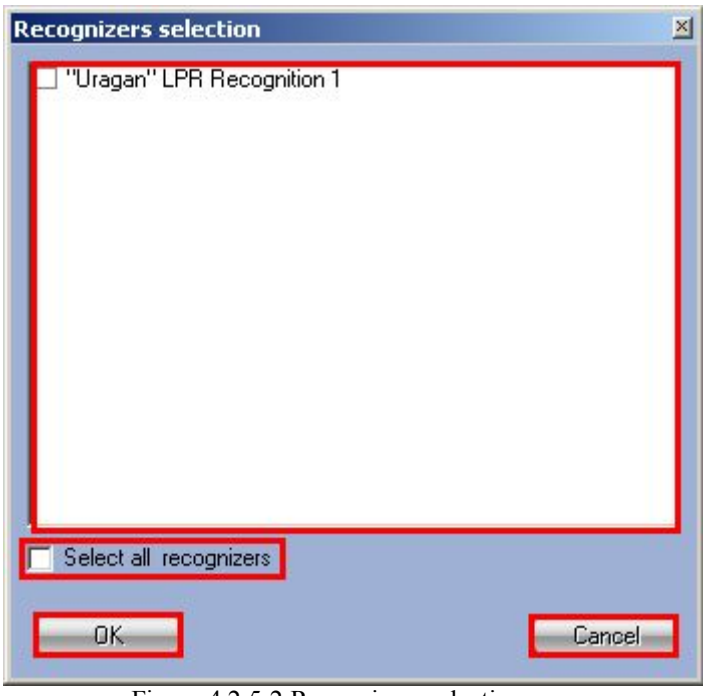


Figure 4.2.5-2 Recognizers selection

6. The search process status is displayed in the bottom of the window for each recognizer (**Searching** string in the **Additional info** field).

7. The found numbers are chronologically listed in the **Search results** table. All found numbers are distributed among the table tabs corresponding to different recognizers, while the **Additional info** field shows the amount of found numbers for each recognizer.

Note. To search for a license plate from a specific region, enter "%<region_number>".

Figure 4.2.5-3 shows the creation and sending of the search request using the **Protocol** tab.

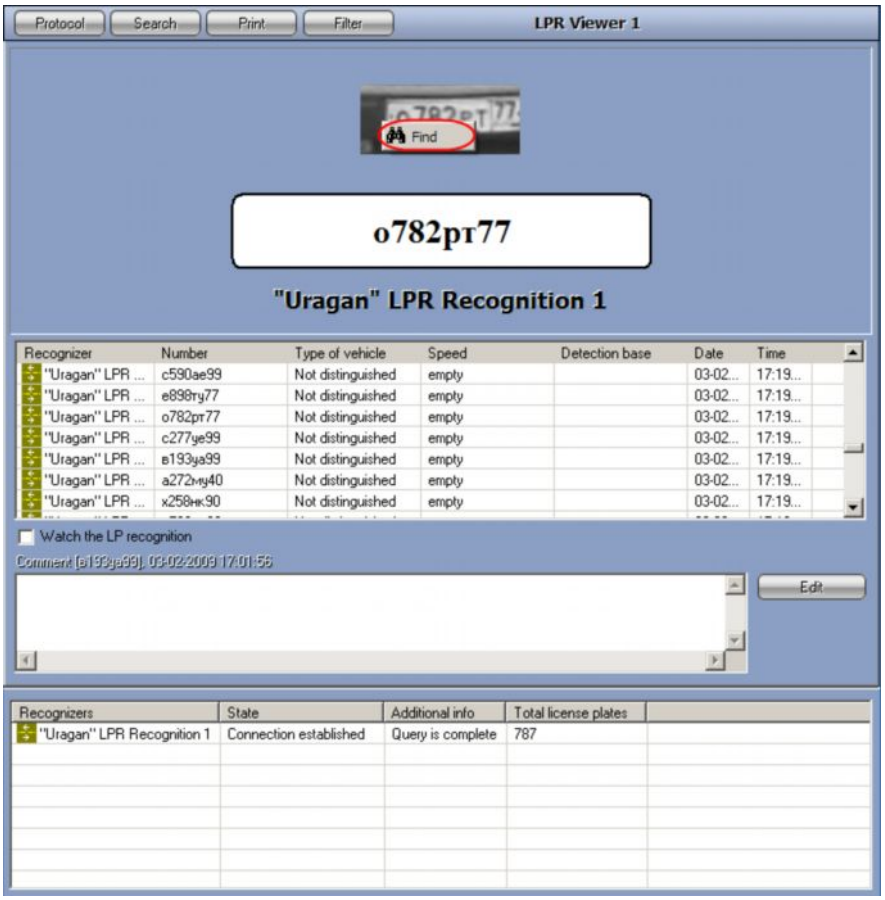
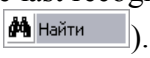


Figure 4.2.5-3 Creating a number search request

1. To create a search request using the **Protocol** tab, do the following: Right-click the video frame or the text of the last recognized number.
2. Select the **Find** item ().
3. The **Search** tab and the **Recognizer selection** window will open. In the new window, select the required recognizers (check **Select ALL recognizers** to select all) and click OK (Figure 4.2.5-4).

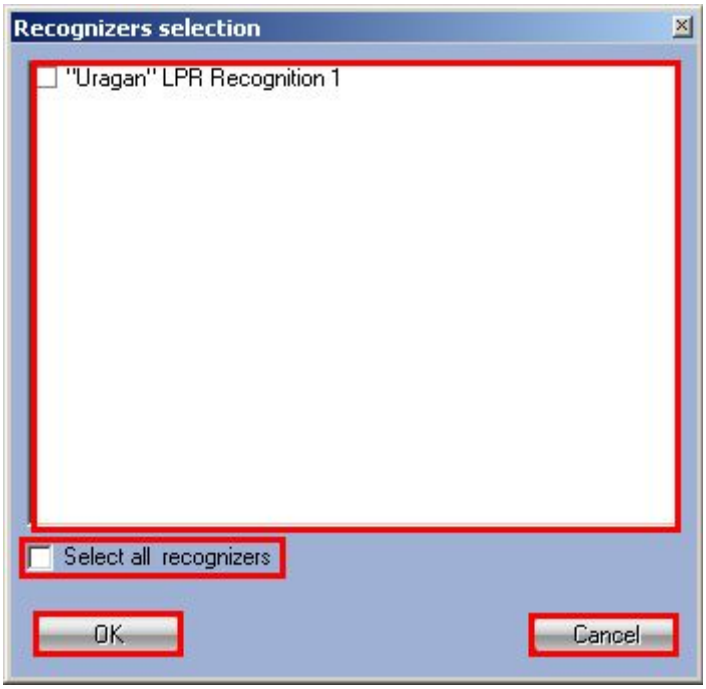


Figure 4.2.5-4 Recognizers selection

4. The search process status is displayed in the bottom of the window for each recognizer (**Searching** string in the **Additional info** field).

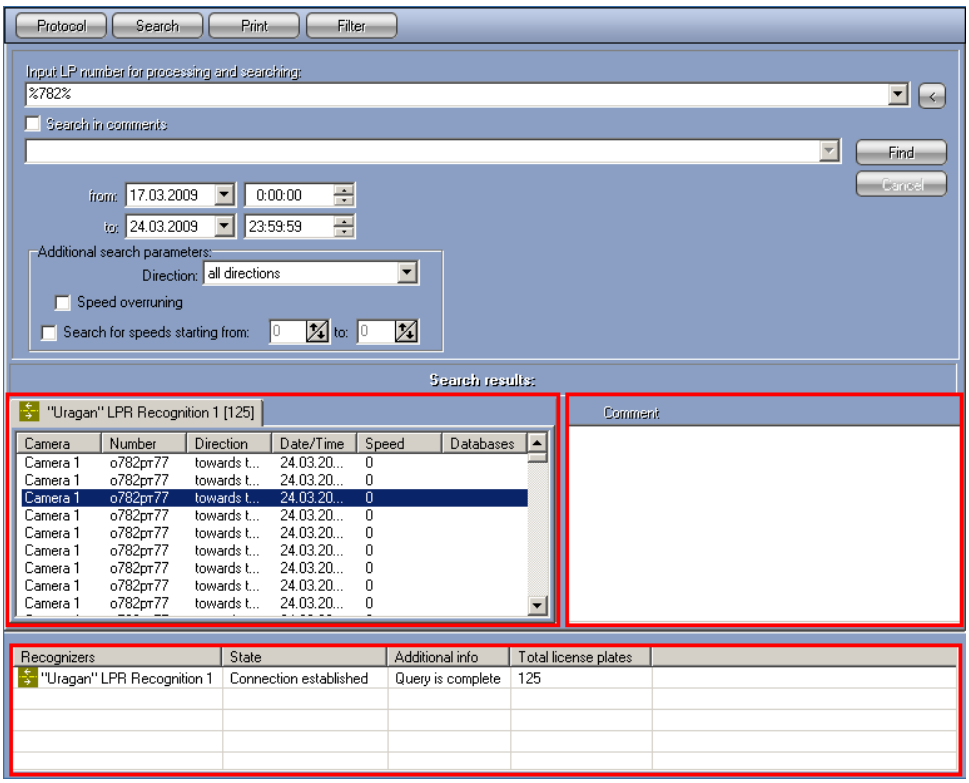


Figure 4.2.5-5 Number search results

5. The found numbers are chronologically listed in the **Search results** table. All found numbers are put in separate tabs of the table corresponding to different recognizers, while the **Total license plates** field shows the amount of found numbers for each recognizer.

4.2.6 Displaying complete information about the recognized number

To display the full information about the recognized number, use the **Search** tab (Figure 4.2.6-1).

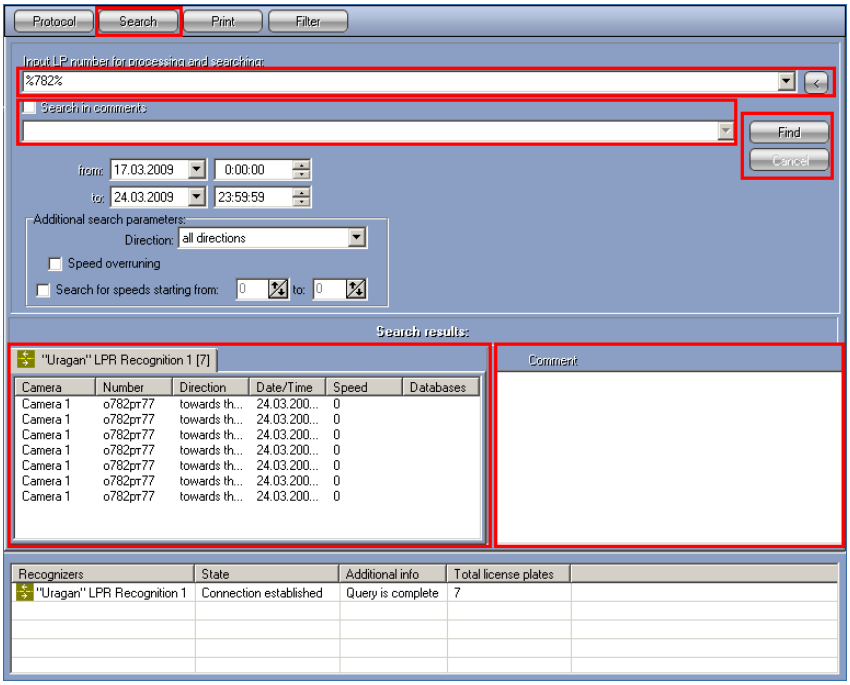


Figure 4.2.6-1 Accessing the complete information about the recognized number

To display the complete information about the recognized number, do the following:

1. Enter the number in the **Enter the number to search for** field.
2. Click the **Find** button.
3. In the new window, select the required recognizers (check **Select ALL recognizers** to select all) and click **OK** (Figure 4.2.6-2).

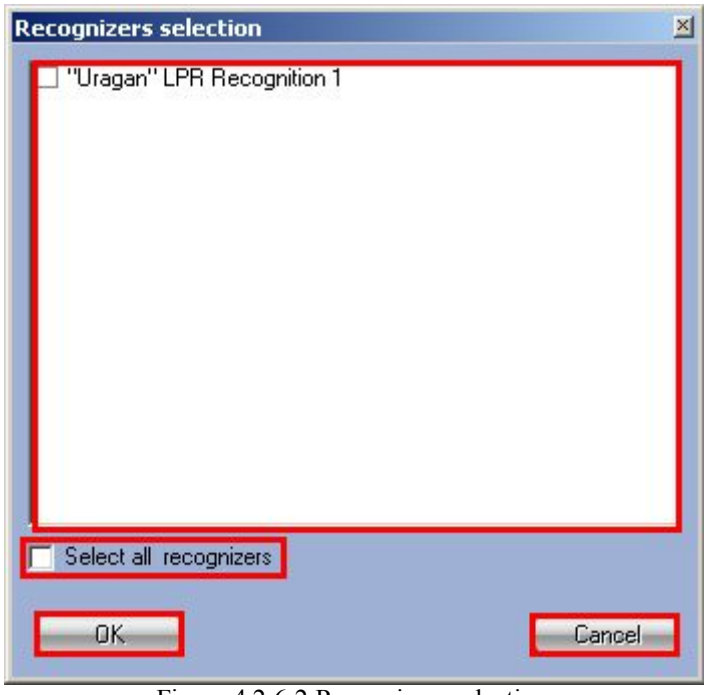


Figure 4.2.6-2 Recognizers selection

4. The search will start; it may take some time.
5. All matching numbers will be listed chronologically in the **Search results** table.

6. Double-click the required number in the table.

The complete information about the number will be displayed in the new window (Figure 4.2.6-3).

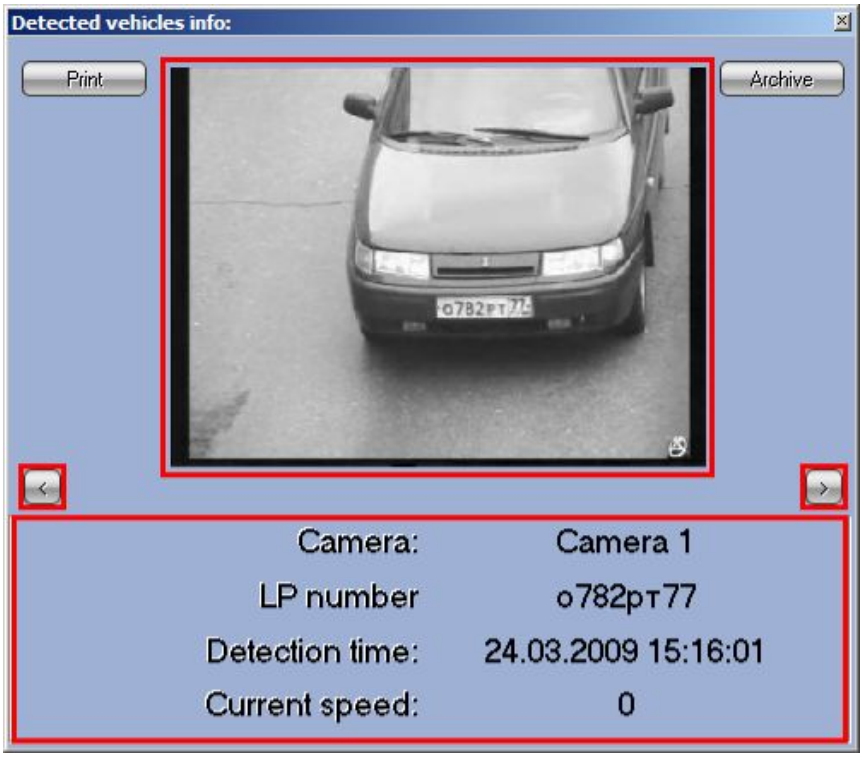


Figure 4.2.6-3 Displaying the complete information about the recognized number

The following data is displayed for each recognized number:

1. The video framer corresponding to the recognition moment
2. The name of the camera that recognized the number
3. The recognized license plate number
4. The date and time of the recognition
5. Vehicle speed at the moment of recognition

The  and  buttons allow navigating to the previous and next number in the search results table.

The  button is designed for displaying the report about recognized number(Figure 4.2-1).

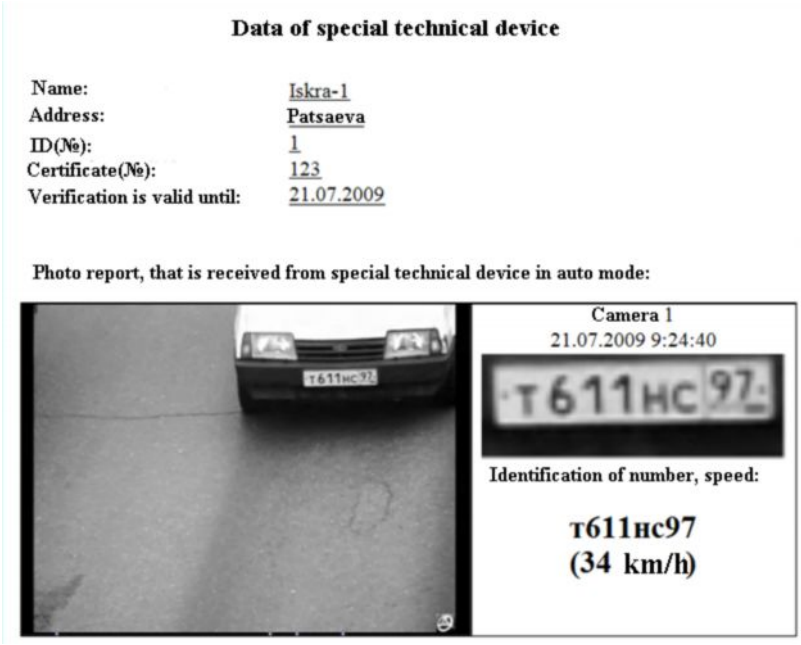


Figure 4.2-1Report about recognized number

Report about recognized number contains the following data:

1. Data about radar, used for vehicle's speed recognition
2. Video frame, corresponding to the moment of number identification
3. Name of camera, from which vehicle's number has been recognized
4. Recognized ID
5. Date and time of number's identification
6. Vehicle's speed, corresponding to the moment of number identification

The 

button is used for switching to the viewing mode of archive video recording with a passing vehicle.

4.2.7 Printing and exporting the search results

To print or export the search results (the report), use the **Print** tab (Figure 4.2.7-1).

Figure 4.2.7-1 The Print tab

Select the recognizers in the dialog window that opens (to select all recognizers, check the **Select ALL recognizers** checkbox) and click **OK** (Figure 4.2.7-2).

Figure 4.2.7-2 Recognizers selection

The report preview will be displayed in a separate window as it will be printed (Figure 4.2.7-3).

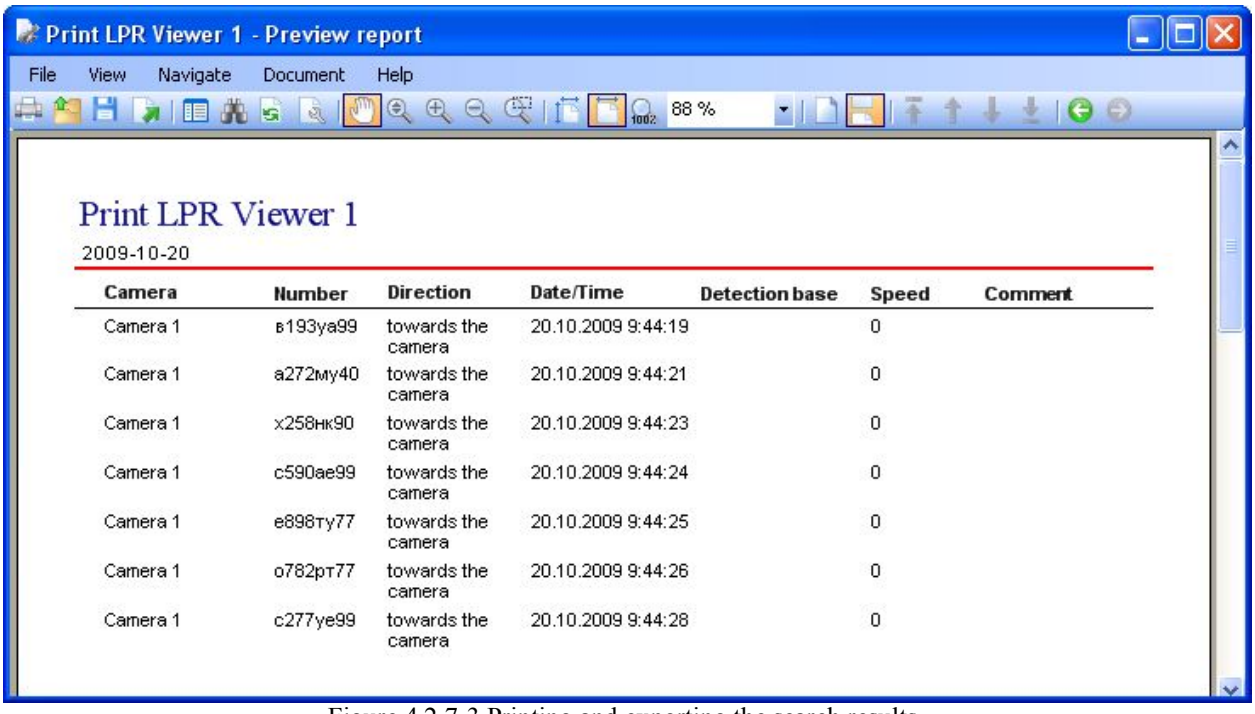


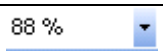
Figure 4.2.7-3 Printing and exporting the search results

The report preview is performed with the use of «Report Sharp-Shooter» program. This program allows performing the following operations (Table 4.2.7-1).

Note. Detailed information about «Report Sharp-Shooter» program is given in official manual concerning this program (see. Producer site http://www.perpetuumsoft.com/).

Table 4.2.7-1 Operations in «Report Sharp-Shooter» program

Description	Call for operation		
	Point in the main menu	Point in the contextual menu	Button on the toolbar
Open the report, saved in the format.rsd (Report Sharp-Shooter	File->Open	-	

Description	Call for operation		
	Point in the main menu	Point in the contextual menu	Button on the toolbar
Documents) or .xml			
Save the report in the format.rsd (Report Sharp-Shooter Documents) or .xml	File->Save	-	
Export the report to one of the widespread formats	File->Export	-	
Print the report	File->Print	-	
Activate the pan tool	View->Pan	Pan	
Zoom in the image of report's page	View->Zoom In	Zoom In	
Zoom out the image of report's page	View->Zoom Out	Zoom Out	
Enable dynamic zoom of report's page	View->Dynamic Zoom	Dynamic Zoom	
Zoom in the selected area	View->Zoom to Rectangle	Zoom to Rectangle	
Zoom to the whole page size	View->Whole Page	-	
Zoom to the page width	View->Page Width	-	
Display the report's page in actual size	View->Actual Size	-	
Enter or select from the dropdown list the required zoom of the page's displaying	View->Custom Zoom	-	
Enable the mode of non-stop page by page report's displaying	-	-	
Disable the mode of page by page report's displaying	-	-	
Go to the first page of the report	Navigate->First Page	-	
Go to the previous page of the report	Navigate->Previous Page	-	
Go to the next page of the report	Navigate->Next Page	-	
Go to the last page of the report	Navigate->Last Page	-	
Go to the required page of the report (call for the dialog window «Go to Page»)	Navigate->Go to Page	-	-
Display the previous view	Navigate->Backwards	-	

Description	Call for operation		
	Point in the main menu	**Point in the contextual menu**	**Button on the toolbar**
Display the next view	Navigate->Forward	-	
Find	Document->Find	-	
Refresh the report	Document-> Refresh	-	
Edit the report (Open«Report Sharp-Shooter Designer» program for editing)	Document->Edit Report	-	
Display the content of the report	-	-	
Display information about «Report Sharp-Shooter»program	Help->About	-	-
Exit from «Report Sharp-Shooter» program	File ->Exit viewer	-	-

Note. Operations with report files (opening, saving, export, printing)are performed with standard OS dialog windows).
To go to the required page one should enter the page number in the field Page # of «Go to Page» dialog window, and then click «OK».

4.2.8 Using the vehicle type filter in the LPR Viewer

To filter the vehicles by type, click the **Filter** button to open the **Vehicle type filter** dialog window (Figure 4.2.8-1).

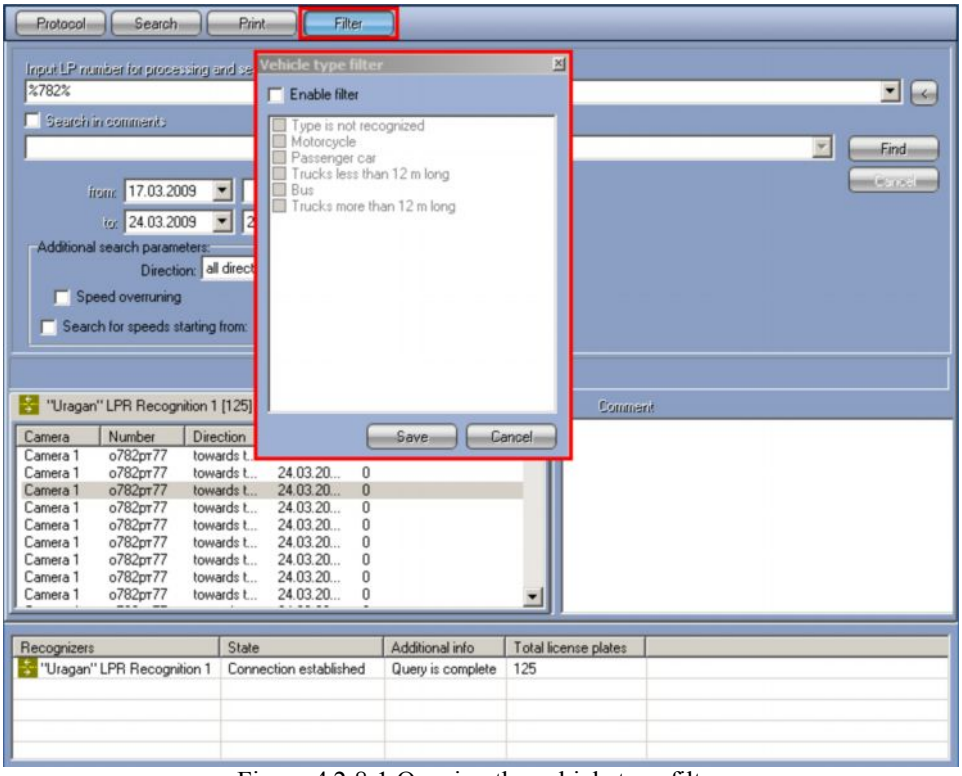


Figure 4.2.8-1 Opening the vehicle type filter

To filter the vehicles by specific types, check the **Enable filter** checkbox and then check the checkboxes next to the required types, then click **Save** (Figure 4.2.8-2).

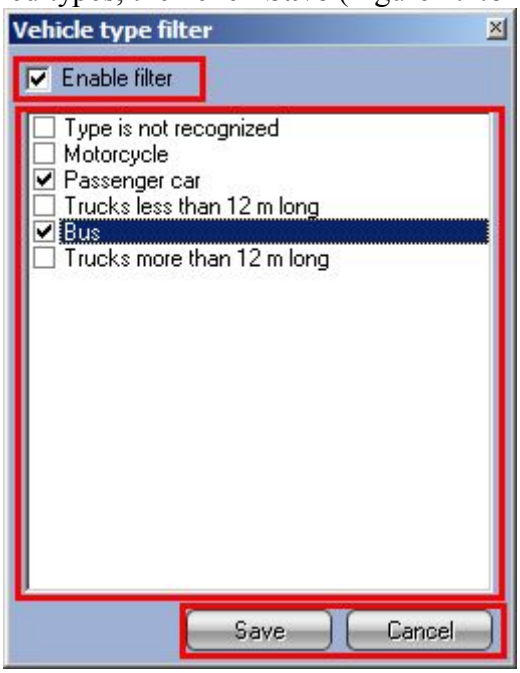


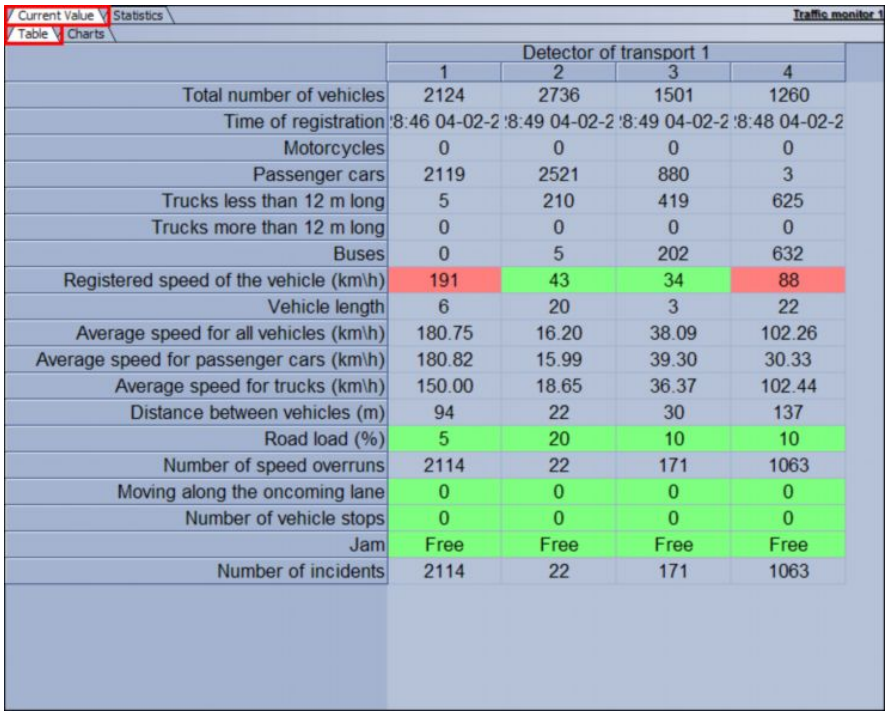
Figure 4.2.8-2 The Vehicle type filter panel

Once the **Save** button is clicked, the **Vehicle type filter** dialogue window will close, and the data in the recognized numbers list will be filtered according to set criteria.
Click **Cancel** to cancel the changes and close the **Vehicle type filter** window.
Note. The vehicle type filter can be used in conjunction with the **Traffic Detector** module only.

4.3 Using the Traffic Monitor interface object

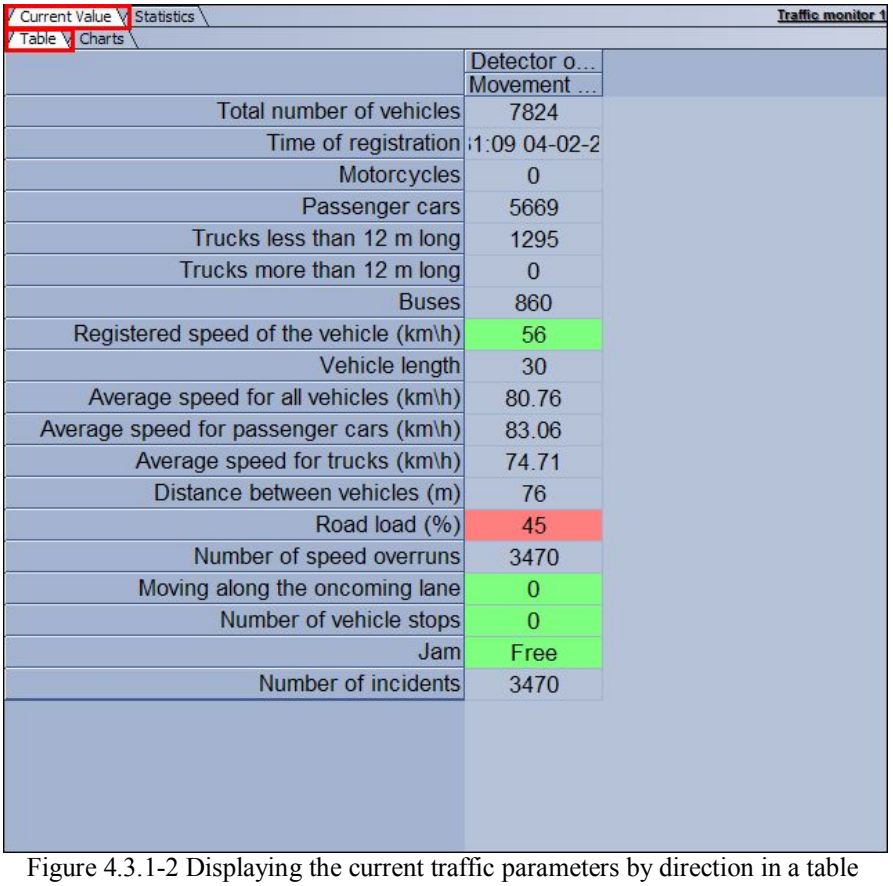
4.3.1 Displaying the current traffic information in table form

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).



	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



	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.

4.3.2 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).

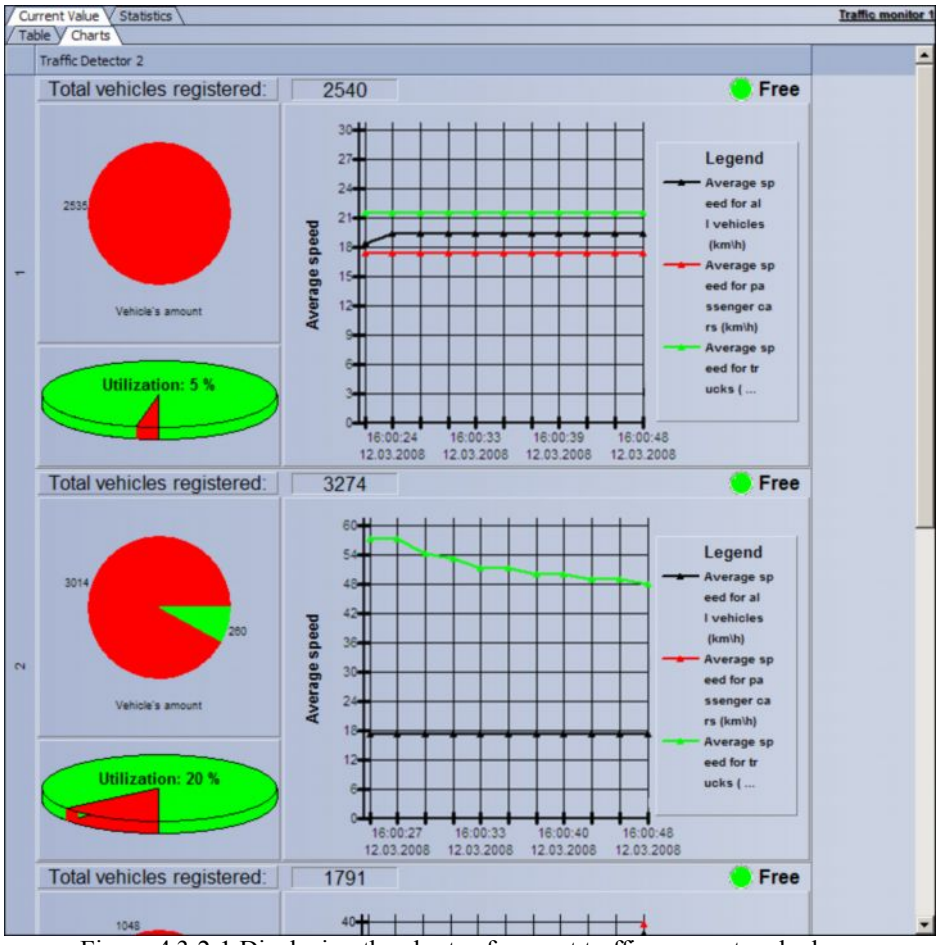


Figure 4.3.2-1 Displaying the charts of current traffic parameters by lane

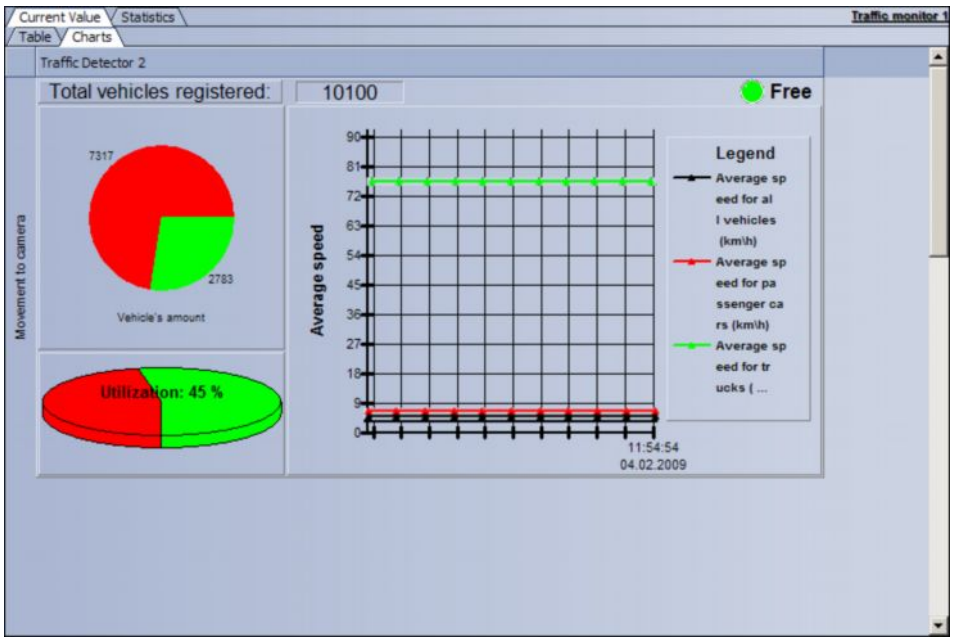


Figure 4.3.2-2 Displaying the charts of current traffic parameters by direction

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.

4.3.3 Creating a request for traffic statistics

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

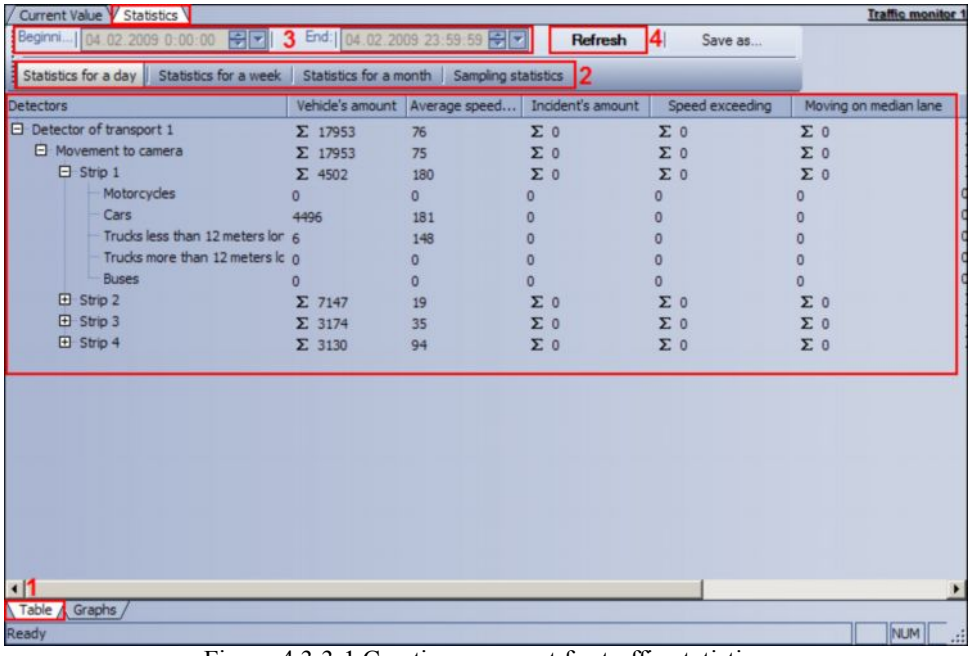


Figure 4.3.3-1 Creating a request for traffic statistics

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.

4.3.4 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).

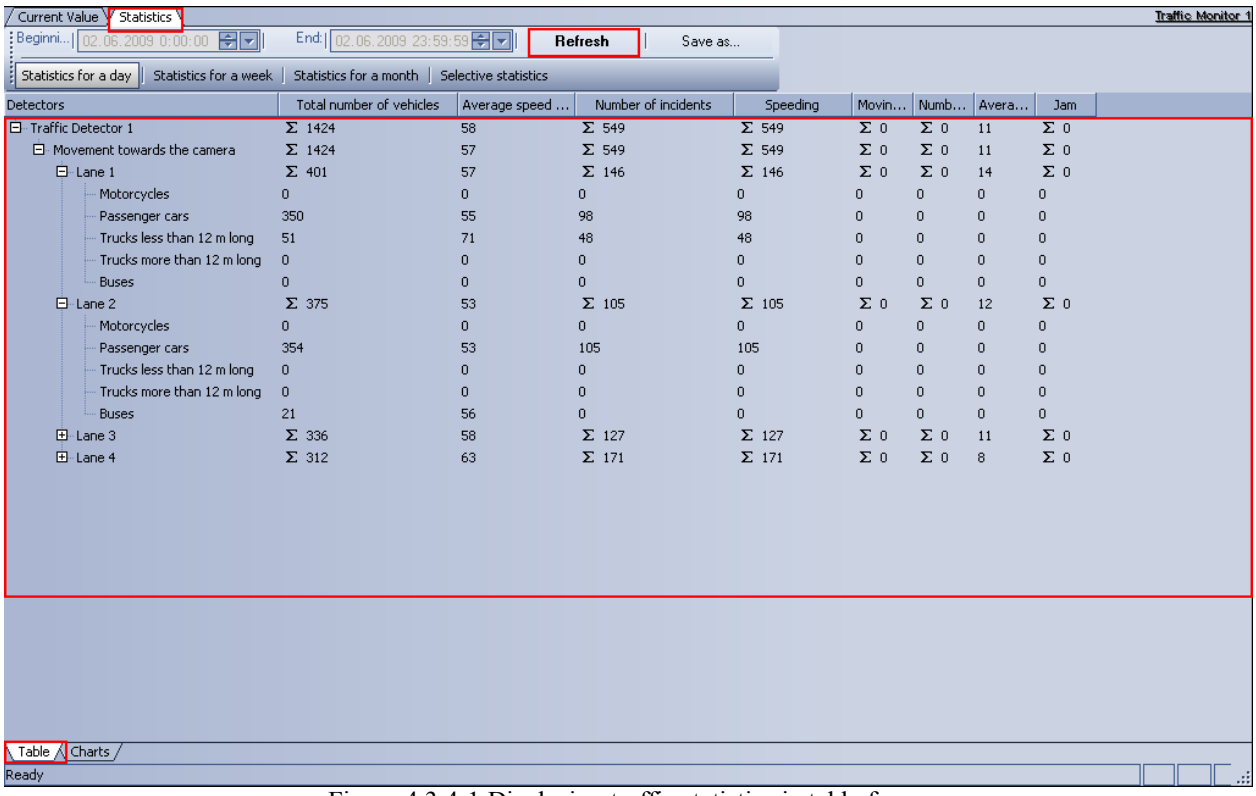


Figure 4.3.4-1 Displaying traffic statistics in table form

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.

4.3.5 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).

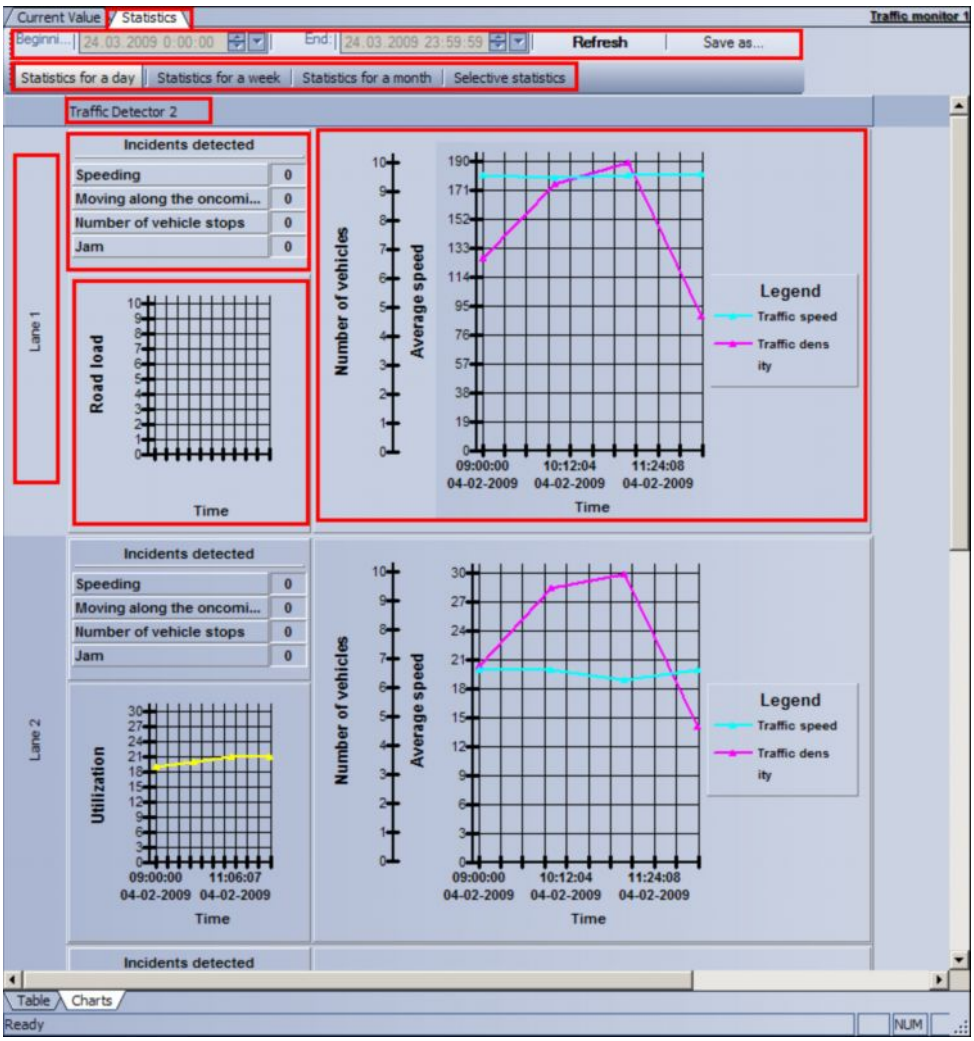


Figure 4.3.5-1 Displaying traffic statistics in graphic form

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

4.3.6 Saving traffic statistics to a file

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

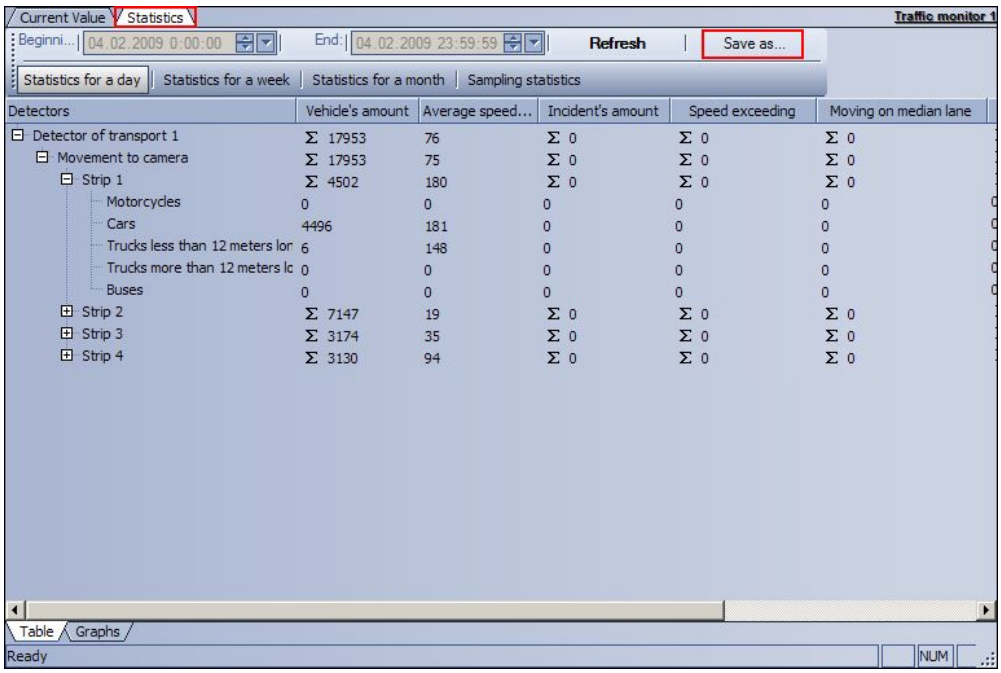


Figure 4.3.6-1 Saving traffic statistics into a file

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.

5 Description of the Auto-Intellect user interface

5.1 The LPR Viewer interface object

5.1.1 The Protocol tab

Figure 5.1.1-1 shows the **Protocol** tab.

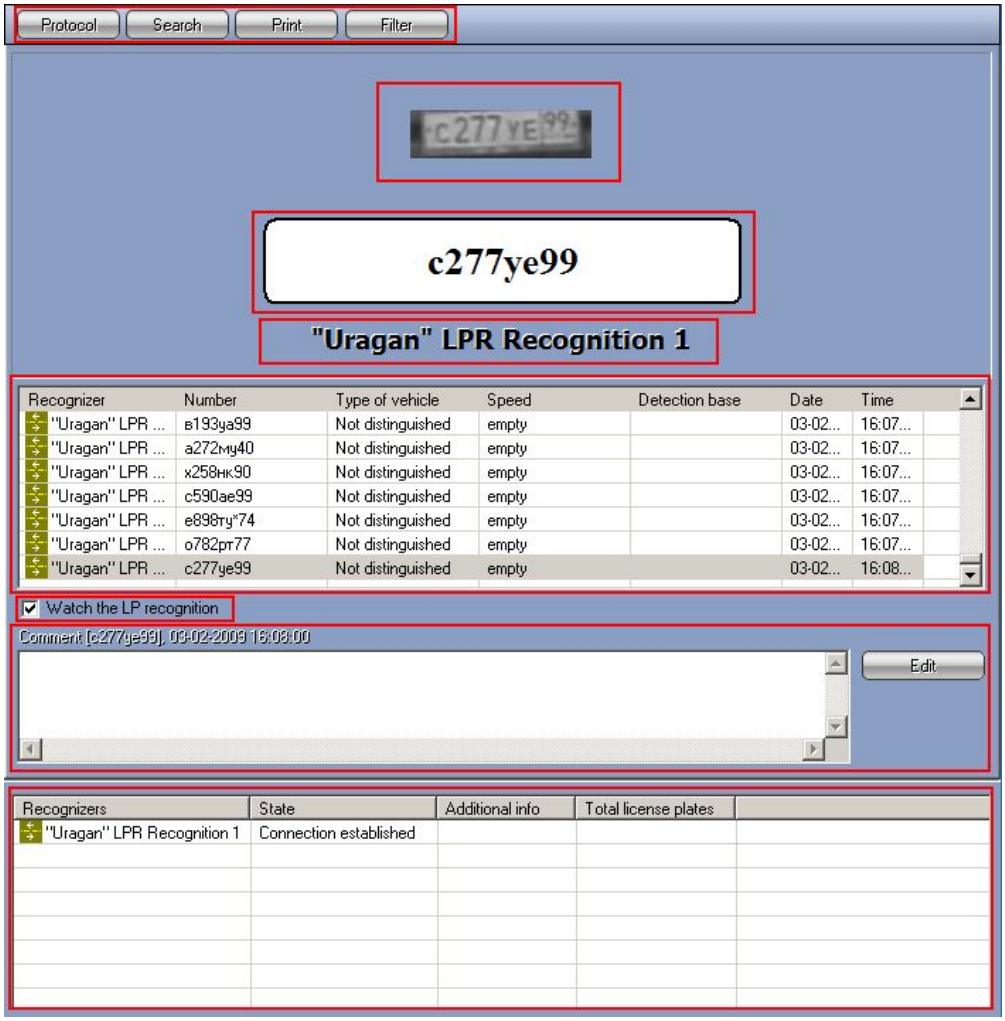
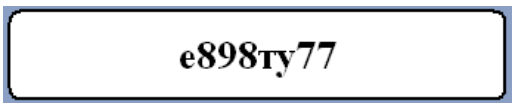
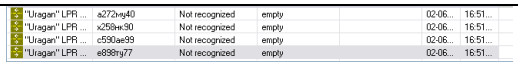
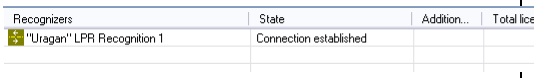


Figure 5.1.1-1 The LPR Viewer interface window

Table 5.1.1-1 describes the elements of the **Protocol** tab.

Table 5.1.1-1 The Protocol tab interface elements

Element	Description
	Set of buttons for opening different tabs of the **LPR Viewer** window
	The last recognized license plate number (video frame)
	The last recognized license plate number (text)
	The name of the recognizer that detected the last number
	The table of recognized numbers

Element	Description
	Enabling/disabling the monitoring of the selected number
	Comments to the recognized number
	The recognizers status table

Right-clicking a line in the table opens the drop-down menu corresponding to the recognized number (Figure 5.1.1-2). The drop-down menu allows copying the data about the selected number to the clipboard.

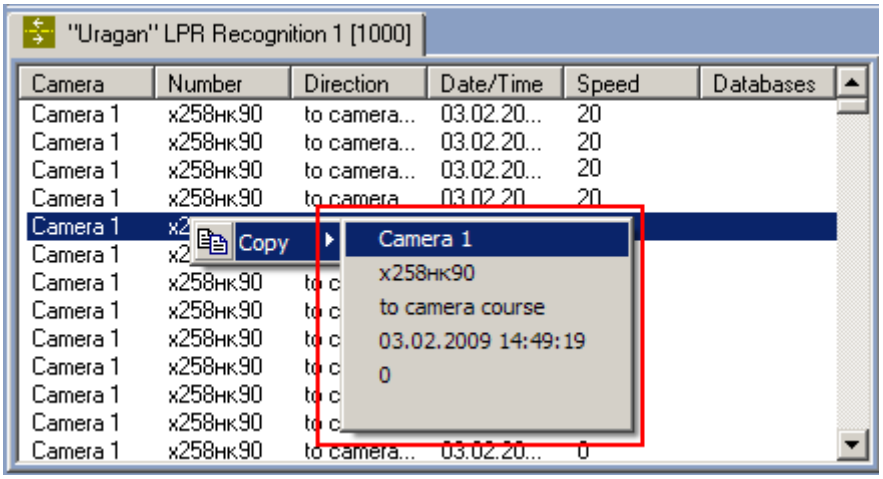


Figure 5.1.1-2 Drop-down menu of a number

Note. The system can be set up to display the **LPR Viewer** window title next to the tabs buttons (Figure 5.1.1-3).

Figure 5.1.1-3 The LPR Viewer window title

5.1.2 The Search tab

Figure 5.1.2-1 shows the **Search** tab.

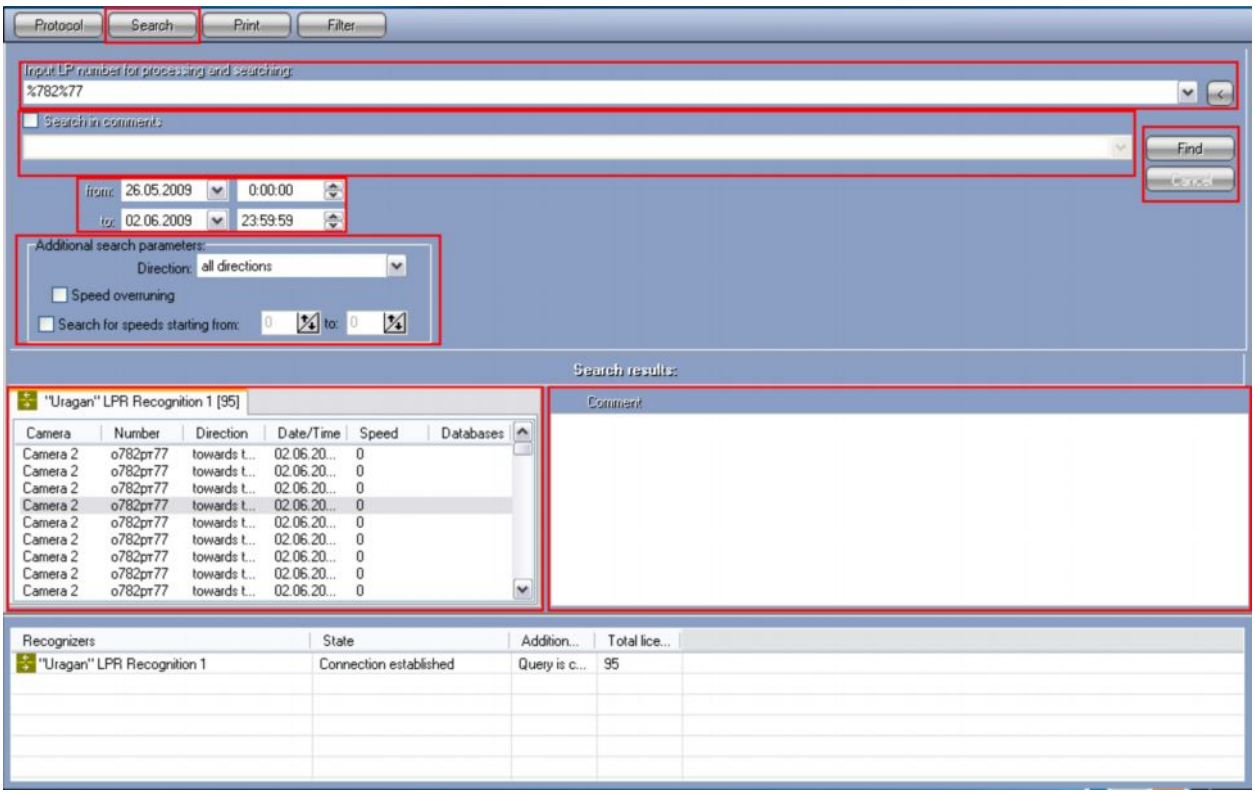
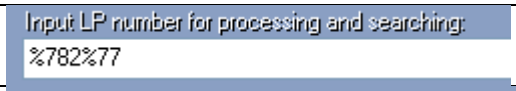
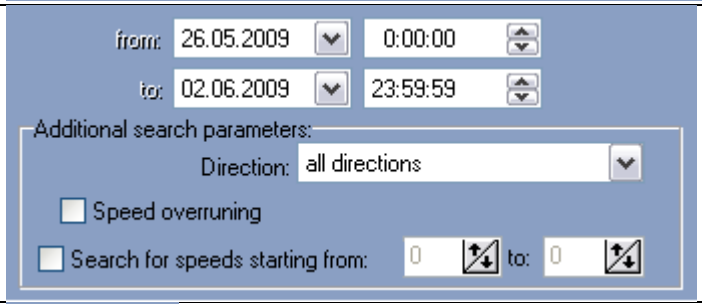
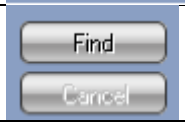
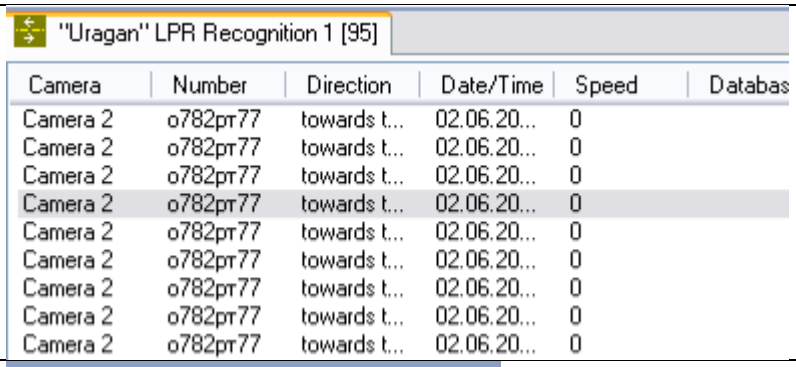
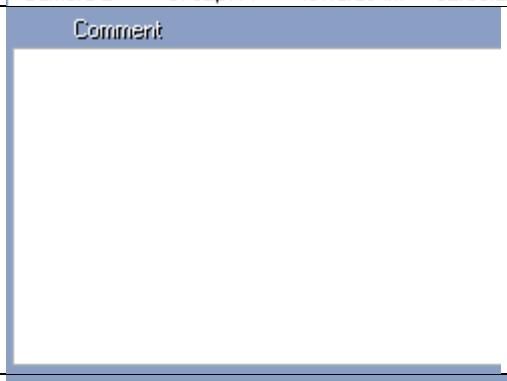
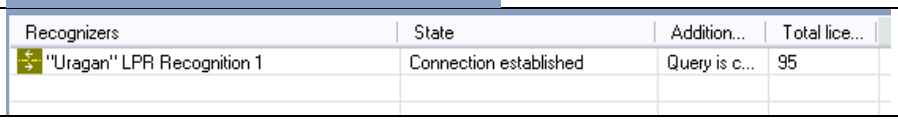


Figure 5.1.2-1 The Search tab

Table 5.1.2-1 describes the elements of the **Search** tab.

Table 5.1.2-1 The Search tab interface elements

Element	Description
	Entering the search symbols and expressions
	Searching the comments to the recognized numbers
	Setting additional search criteria
	Starting and stopping the search process

Element	Description
	Search results table
	Comments to the recognized number
	The recognizers status table

Note. The system can be set up to display the **LPR Viewer** window title next to the tabs buttons (Figure 5.1.2-2).

Figure 5.1.2-2 The LPR Viewer window title

5.1.3 The Print tab

Print tab represents the access to «Report Sharp-Shooter» program, designed to view and edit the reports about recognized numbers. Interface of «Report Sharp-Shooter» program is represented in Figure 5.1.3-1

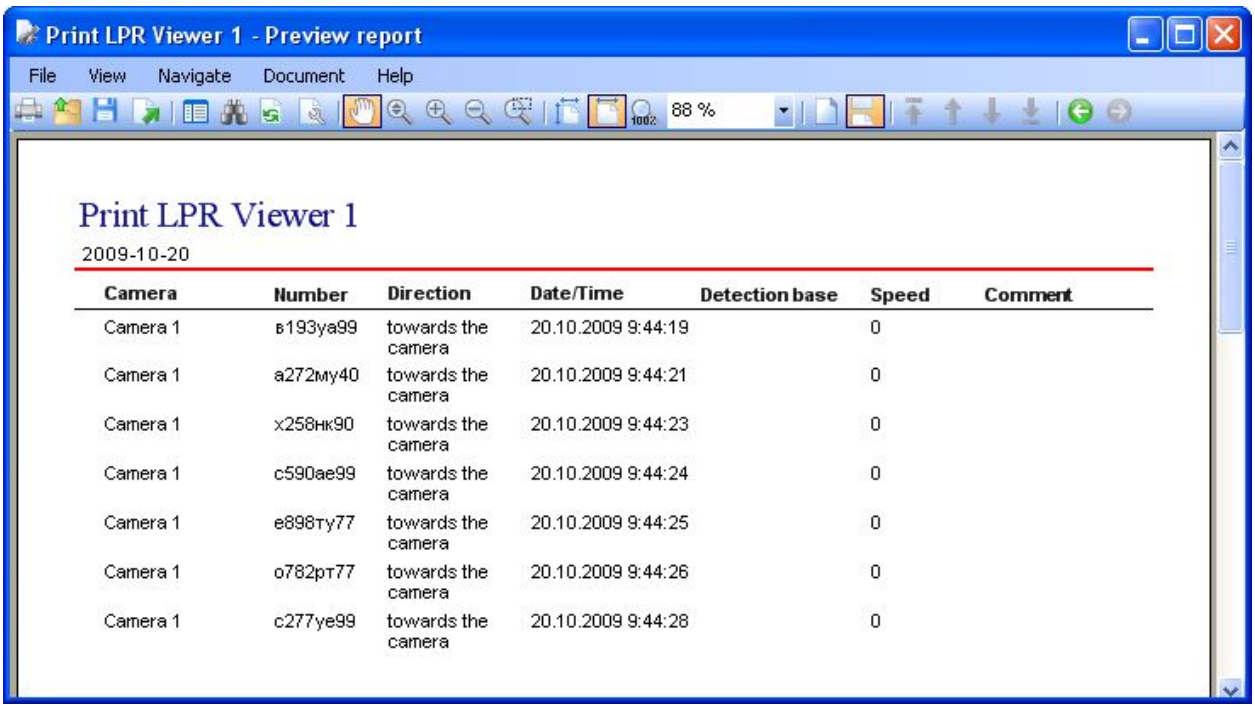
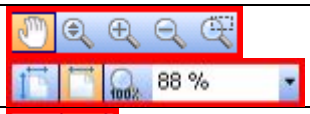
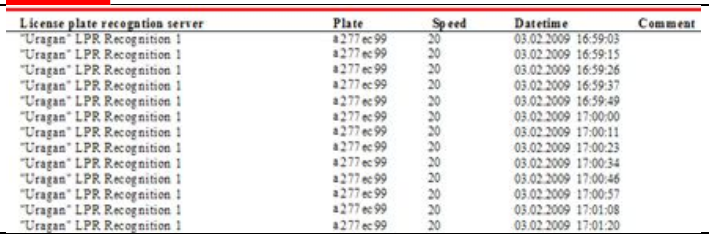


Figure 5.1.3-1 The interface of Report Sharp-Shooter program

Interface of «Report Sharp-Shooter» program includes elements, described in Table 5.1.3-1.

Table 5.1.3-1 Description of elements of the Report Sharp-Shooter program

Element's image	**Commentary**
	«Report Sharp-Shooter» program main menu(operations with file, operations of view and navigation of the report, work with report, viewing the information about report)
	Block of elements for operations with report files (printing, opening, export , saving the file)
	Block of elements for work with report (displaying the content, search, updating, editing)
	Choice of scale mode and scale of report's displaying
	Choice of report's displaying mode (displaying in a single page, nonstop page by page displaying)
	Block of elements for report's navigation
	Field for displaying the generated report

Note. The system can be set up to display the **LPR Viewer** window title next to the tabs buttons (Figure 5.1.3-2).

Figure 5.1.3-2 The LPR Viewer window title

5.1.4 The Vehicle type filter dialogue window

Figure 5.1.4-1 shows the **Vehicle type filter** window.

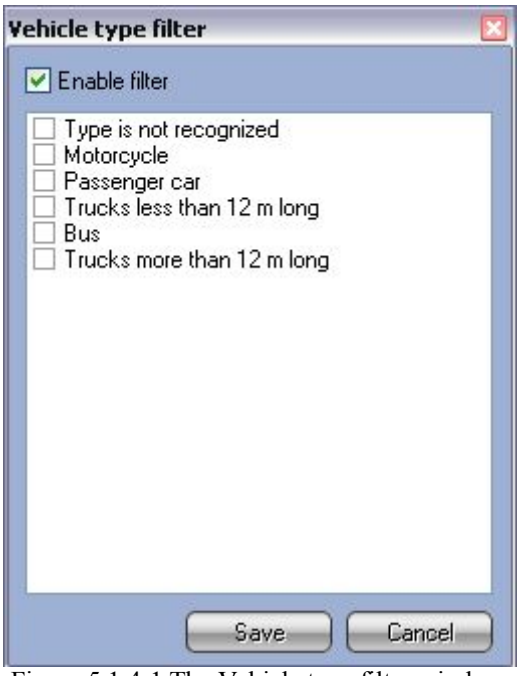


Figure 5.1.4-1 The Vehicle type filter window

Table 5.1.4-1 describes the elements of the **Vehicle type filter** window.

Table 5.4.1-1 Elements of the Vehicle type filter window

Element	Description
Enable filter	Enabling/disabling the vehicle type filter
Type is not recognized Motorcycle Passenger car Trucks less than 12 m long Bus Trucks more than 12 m long	Filter criteria
Save Cancel	Saving or canceling the filtering criteria

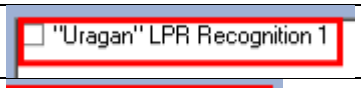
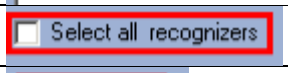
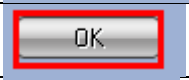
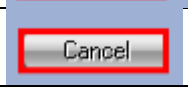
5.1.5 The Recognizers selection dialogue window

Figure 5.1.5-1 shows the face of **Recognizers selection**.

Figure 5.1.5-1 Recognizers selection

Table 5.1.5-1 describes the elements of the **Recognizers selection** window, that contains the interface panel.

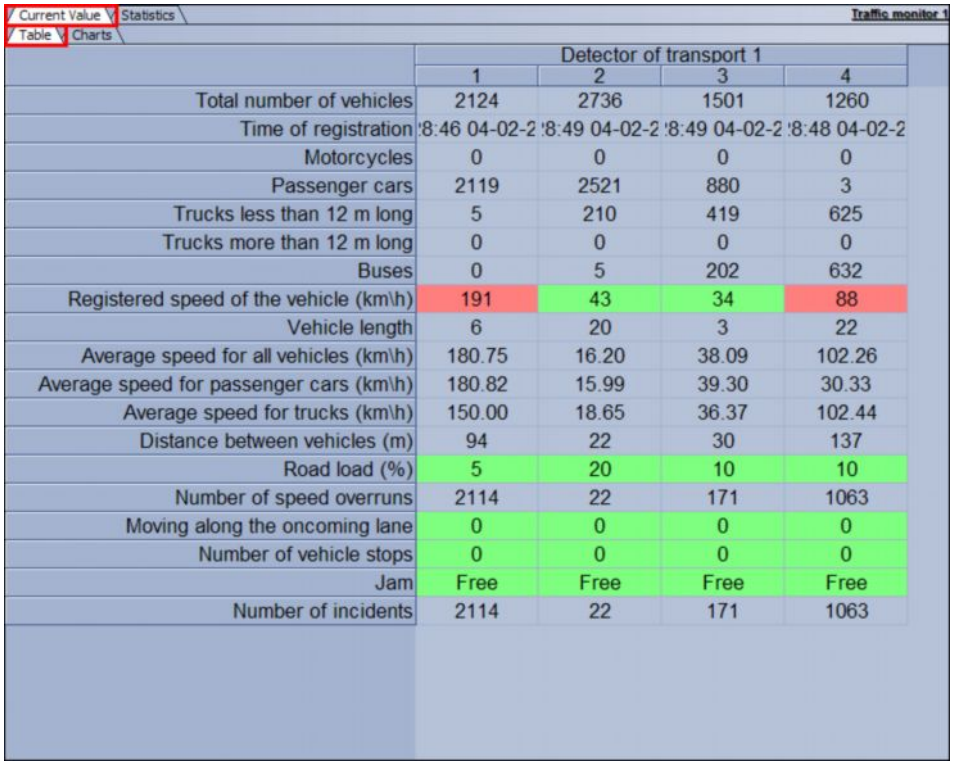
Table 5.1.5-1 The elements in the Recognizers selection window

Element	Description
	Recognizers selection
	Select all recognizers
	Save the selection
	Cancel the selection

5.2 The Traffic Monitor interface object

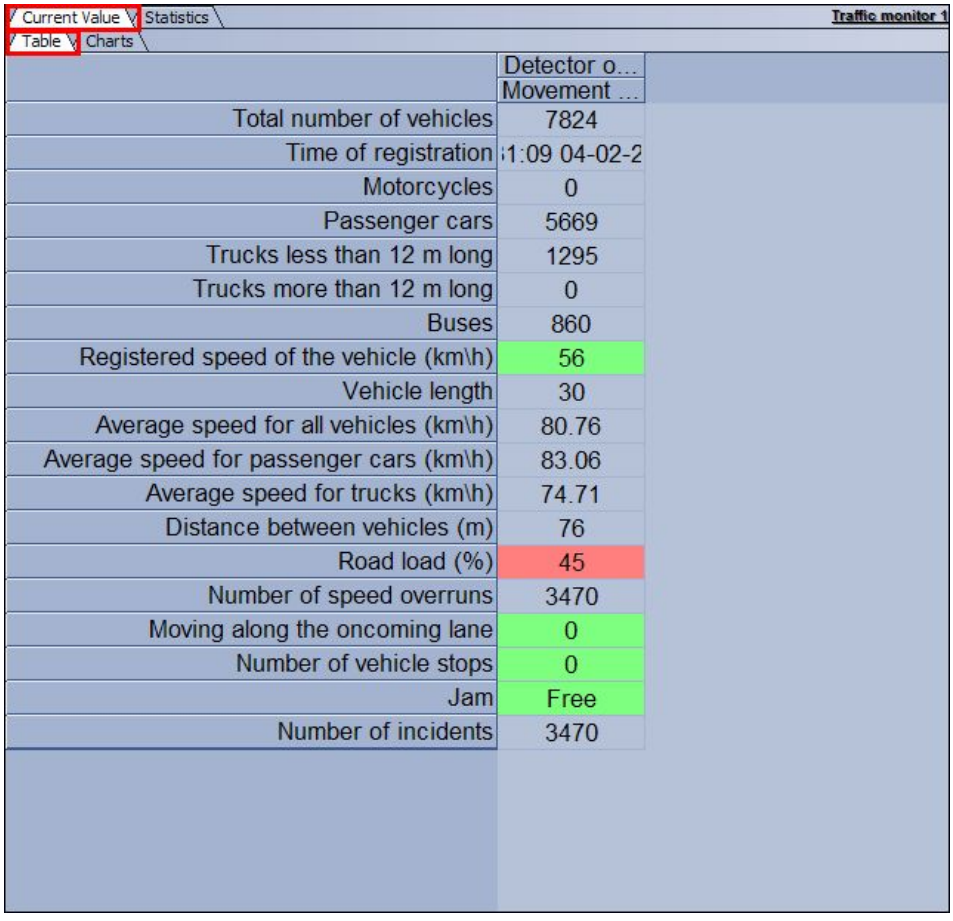
5.2.1 Current value tab, Table sub-tab

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).



	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



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

5.2.2 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).

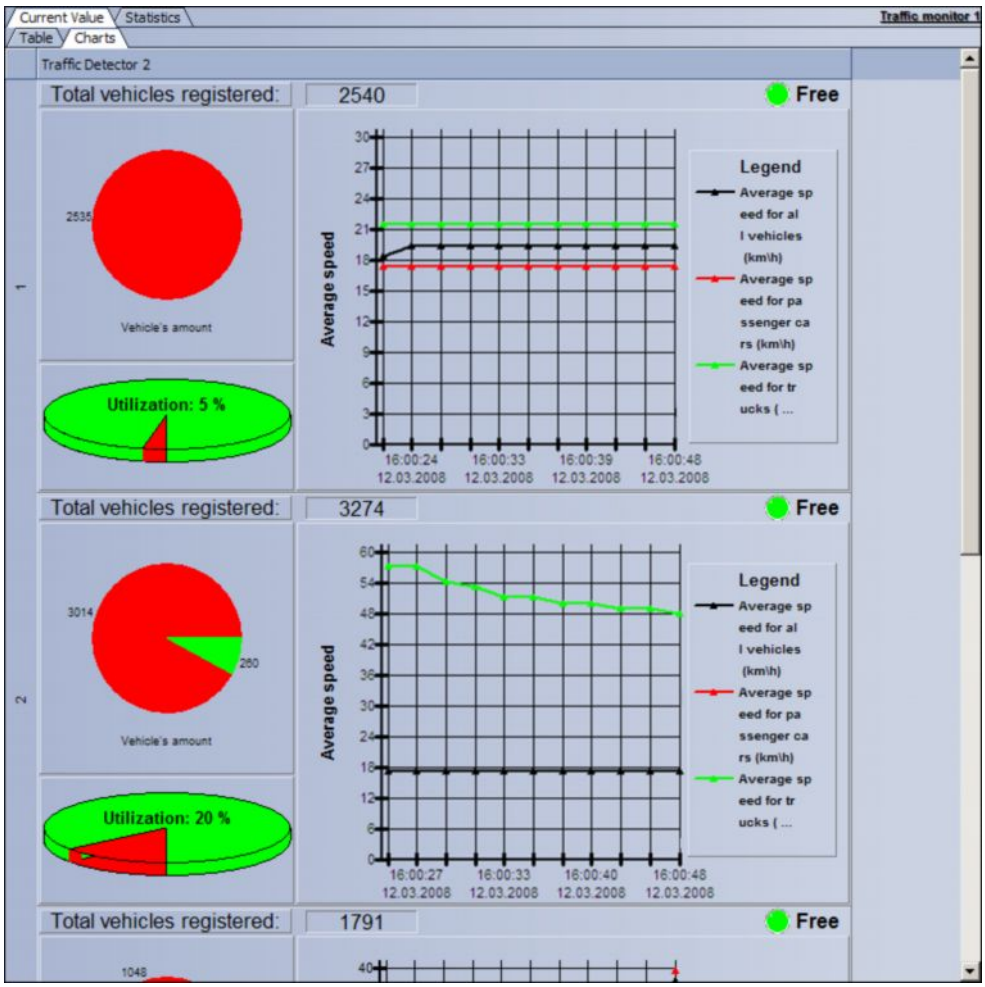


Figure 5.2.2-1 The Charts sub-tab of the Current value tab displayed by lane

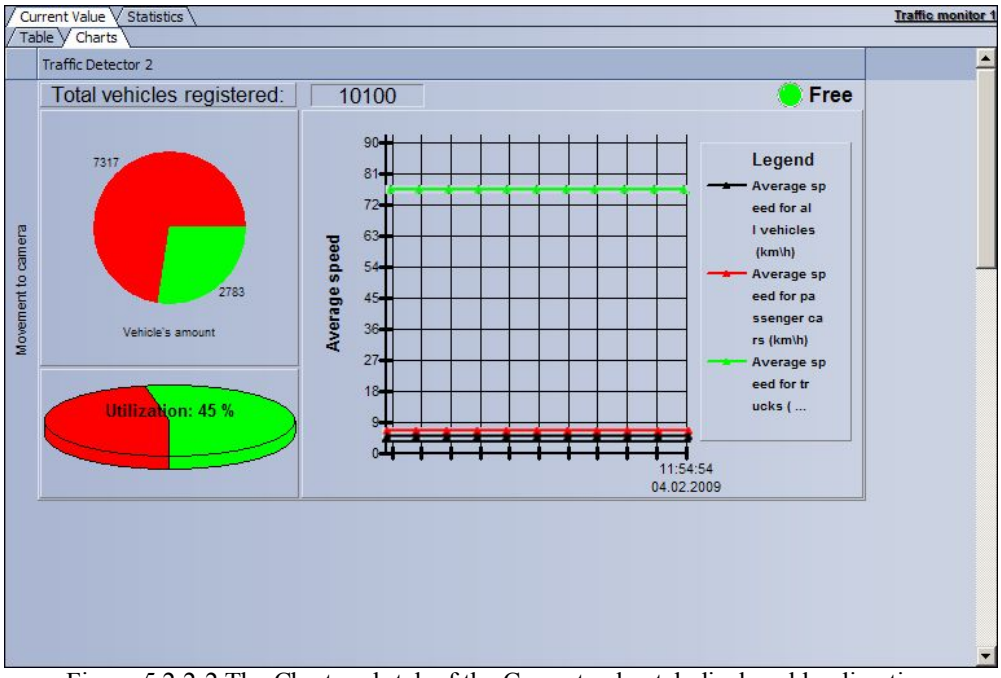
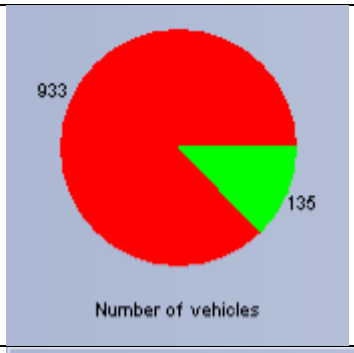
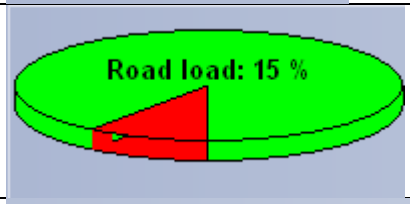
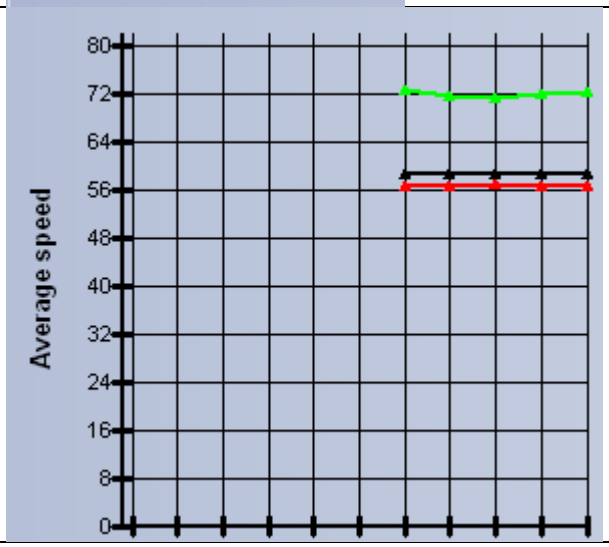


Figure 5.2.2-2 The Charts sub-tab of the Current value tab displayed by direction

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

Element	Description
	The Traffic Detector name
	The lane number or direction
	Total number of vehicles registered for the lane (direction)
	Indication of a traffic jam in the lane (direction)
	Chart showing the number of vehicles in the lane (direction)
	Chart showing the road load of the lane (direction), %
	Chart showing the statistics for the average speed of different vehicles types

5.2.3 Statistics tab, Table sub-tab

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

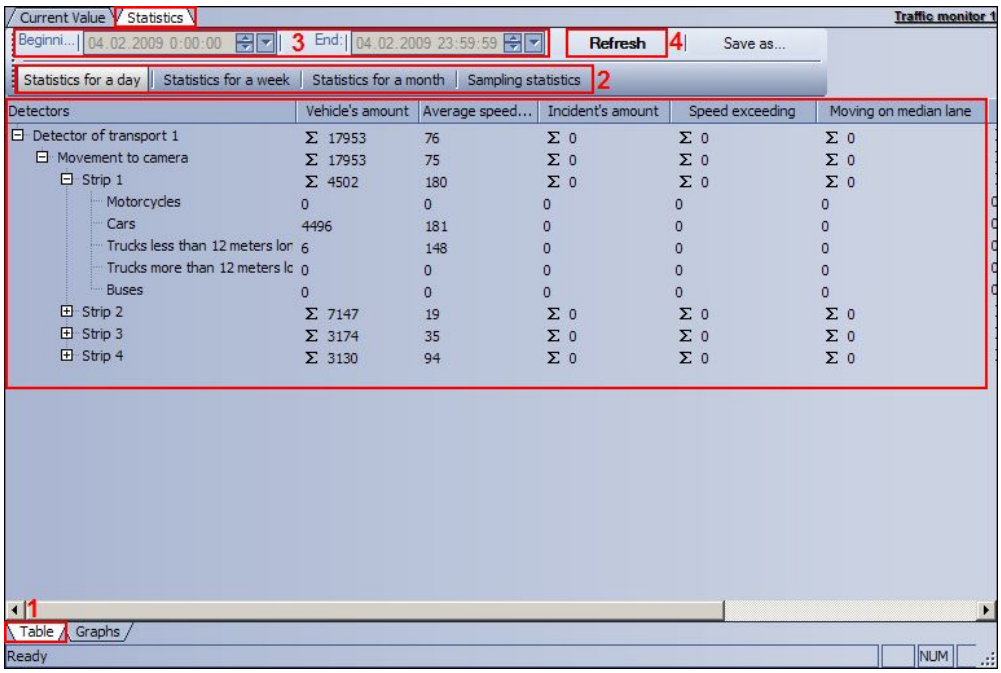
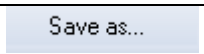
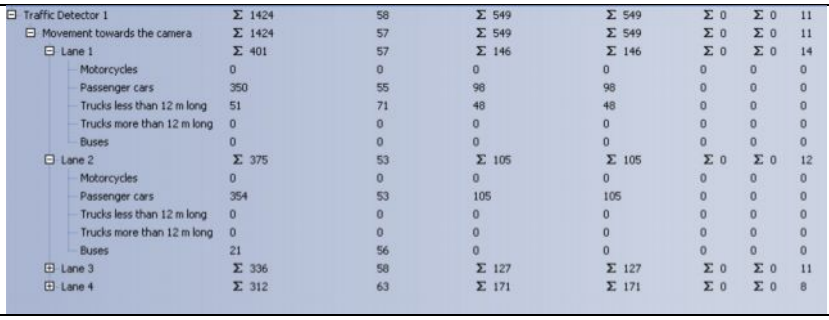


Figure 5.2.3-1 The Table sub-tab of the Statistics tab

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 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
	Traffic statistics results

5.2.4 Statistics tab, Charts sub-tab

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

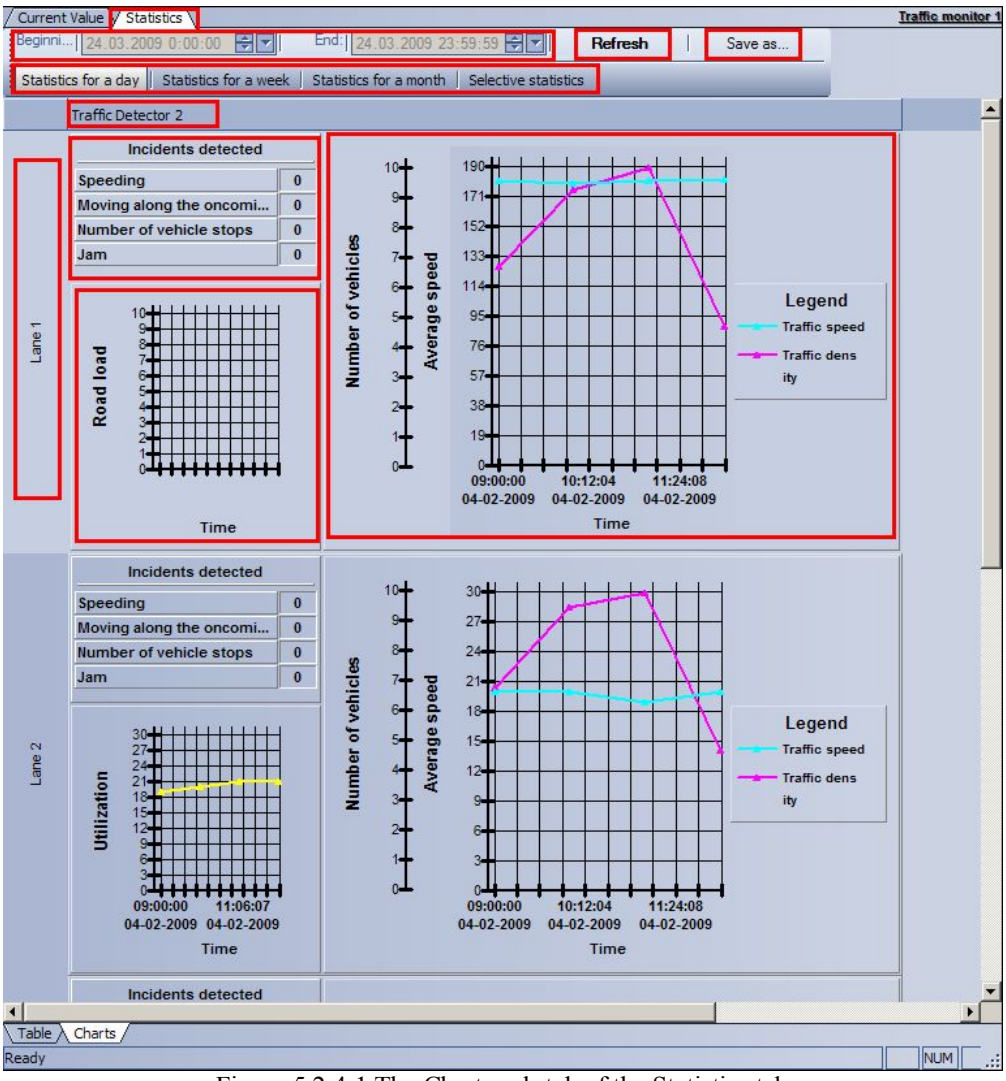
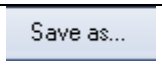
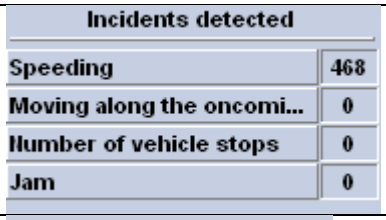
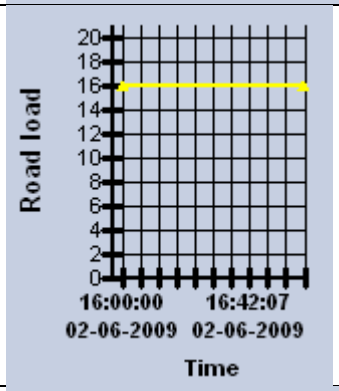
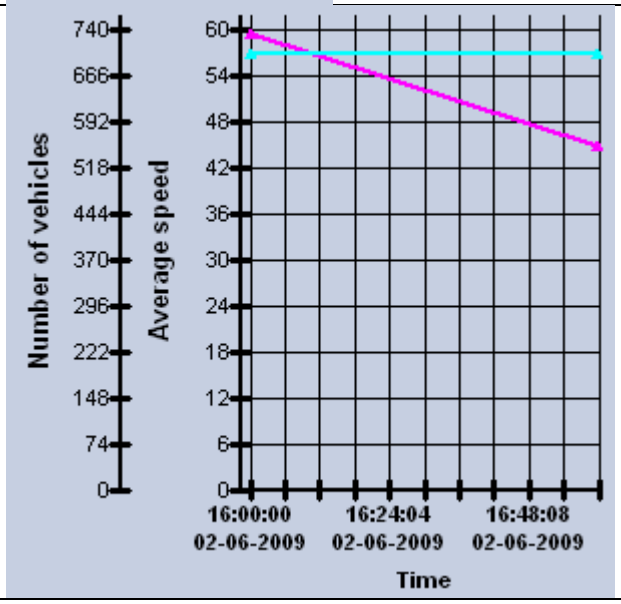


Figure 5.2.4-1 The Charts sub-tab of the Statistics tab

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

Element	Description
	Incident statistics for the lane
	The road load chart
	Chart showing the number of vehicles in the lane