



Operator's Guide

Last update 02/07/2020

Table of contents

1	The list of terms used.....	4
2	Operator's Guide. Introduction.....	5
2.1	The purpose and structure of the Guide.....	5
2.2	The purpose of the Auto-Intellect system	5
2.3	Recommendations for using the Auto-Intellect system	5
3	Using the Auto-Intellect software system.....	6
3.1	Starting and closing the system.....	6
3.2	Using the Traffic Monitor interface object.....	7
3.2.1	Displaying the current traffic information in table form	7
3.2.2	Displaying the current traffic information in graphic form	9
3.2.3	Creating a request for traffic statistics.....	11
3.2.4	Displaying traffic statistics in table form	12
3.2.5	Displaying traffic statistics in graphic form	12
3.2.6	Saving traffic statistics to a file	13
3.3	Using the Vehicle Tracer interface object.....	14
3.3.1	Introduction	14
3.3.2	Viewing the data about passing vehicle	14
3.3.3	Viewing the data about the last identified vehicle.....	16
3.3.4	Viewing the identified vehicles protocol.....	19
3.3.5	Alarms operation	20
3.3.5.1	Manual alarm triggering	21
3.3.5.2	Viewing the alarms protocol	22
3.3.5.3	Alarm processing	24
3.3.5.4	Hiding the processed events in the protocol.....	25
3.3.5.5	Viewing the alarm information in the Alarm window	26
3.3.6	Adding comments to the events	28
3.3.7	Printing and exporting the vehicle data	29
3.3.8	Viewing the video archive by event.....	32
3.3.9	Using filters in the protocols	34
3.3.10	Viewing the Vehicle Tracer errors.....	37
3.3.11	Creating the additional Online monitor components	38
3.3.12	Searching the events in the recognizers databases.....	39

3.3.12.1	Opening and closing the Event search in the Recognizers DBs window.....	39
3.3.12.2	Configuring the events search.....	41
3.3.12.2.1	Selecting the recognizer databases for the events search	41
3.3.12.2.2	Configuring the search results	41
3.3.12.2.3	Configuring the video archive	44
3.3.12.3	Creating the search query	46
3.3.12.3.1	Creating the search query by vehicles	46
3.3.12.3.2	Creating the search query by alarms	51
3.3.12.4	Query launching.....	56
3.3.12.5	Viewing, printing and exporting the search results	56
3.3.12.5.1	Printing the search results report	57
3.3.12.5.2	Exporting the search results to JPG files	59
3.3.12.6	Previewing and printing the event data	60
3.3.12.7	Creating the Active tracking database.....	62
3.3.12.8	Viewing the video archive by event.....	65
4	Description of the Auto-Intellect user interface	67
4.1	The Traffic Monitor interface object	67
4.1.1	Table panel of the Current value tab	67
4.1.2	Charts panel of the Current value tab.....	69
4.1.3	Table panel of the Statistics tab.....	71
4.1.4	Charts panel of the Statistics tab	72
4.2	The Vehicle Tracer interface description	74
4.2.1	The Events monitor.....	74
4.2.2	The Alarm window	75
4.2.3	The On-line monitor.....	76
4.2.4	The Events search in recognizers databases.....	78
4.2.5	The preview report.....	79

1 The list of terms used

1. The Guide – this document: [Auto-Intellect Software Package: Operator's Guide](#).
2. The system – the *Auto-Intellect* software system.
3. Server - computer with installed *Auto-Intellect* software package.
4. Traffic – the flow of vehicles.
5. Vehicle Tracer – 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.
6. Traffic Monitor – the interface object designed for monitoring vehicle movement.
7. fps - frame frequency. Number of video stream frames processed by software per 1 second.

2 Operator's Guide. Introduction

On page:

- [The purpose and structure of the Guide](#)
- [The purpose of the Auto-Intellect system](#)
- [Recommendations for using the Auto-Intellect system](#)

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 responded for operation with *Auto-Intellect* software and corresponding interface objects.

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.

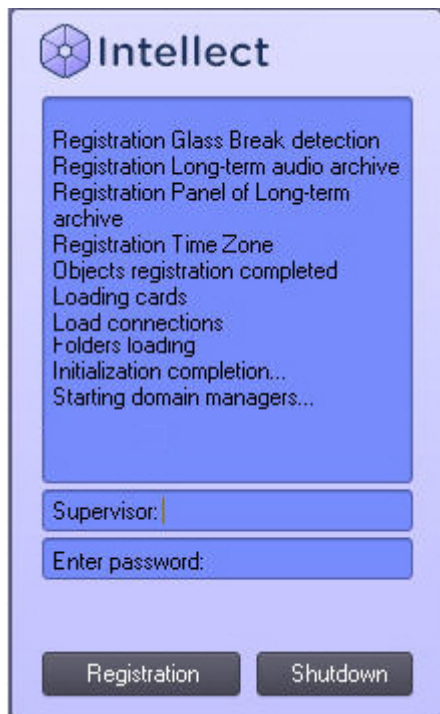
For proper operation of the *Auto-Intellect* system, please follow these recommendations:

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 Using the Auto-Intellect software system

3.1 Starting and closing the system

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



The system can be started using one of the following methods:

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 -> Intellect -> 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.

**Note.**

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

3.2 Using the Traffic Monitor interface object

3.2.1 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.

Displaying the current traffic parameters by lane in a table.

Current value	Statistics			
Table	Charts			
	Traffic Detection 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
Passenger cars	2119	2521	880	3
Trucks less than 11 m long	5	210	419	625
Trucks from 11 to 14 m long	6	20	3	22
Trucks more than 14 m long	0	0	0	0
Buses	0	5	202	632
Registered vehicle speed (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 availability (%)	5	20	10	10
Number of speed overruns	2114	22	171	1063
Moving along oncoming lane	0	0	0	0
Total vehicle stops	0	0	0	0
Traffic jam	Vacant	Vacant	Vacant	Vacant
Violations	2114	22	171	1063

Displaying the current traffic parameters by direction in a table.

Current value	Statistics
Table	Charts
	Traffic Detection 1
	Movement towards ca...
Total number of vehicles	7824
Time of registration	13:21:48 07-08-2014
Passenger cars	1295
Trucks less than 11 m long	0
Trucks from 11 to 14 m long	76
Trucks more than 14 m long	0
Buses	860
Registered vehicle speed (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 availability (%)	56
Number of speed overruns	3470
Moving along oncoming lane	0
Total vehicle stops	0
Traffic jam	Vacant
Violations	3470

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.

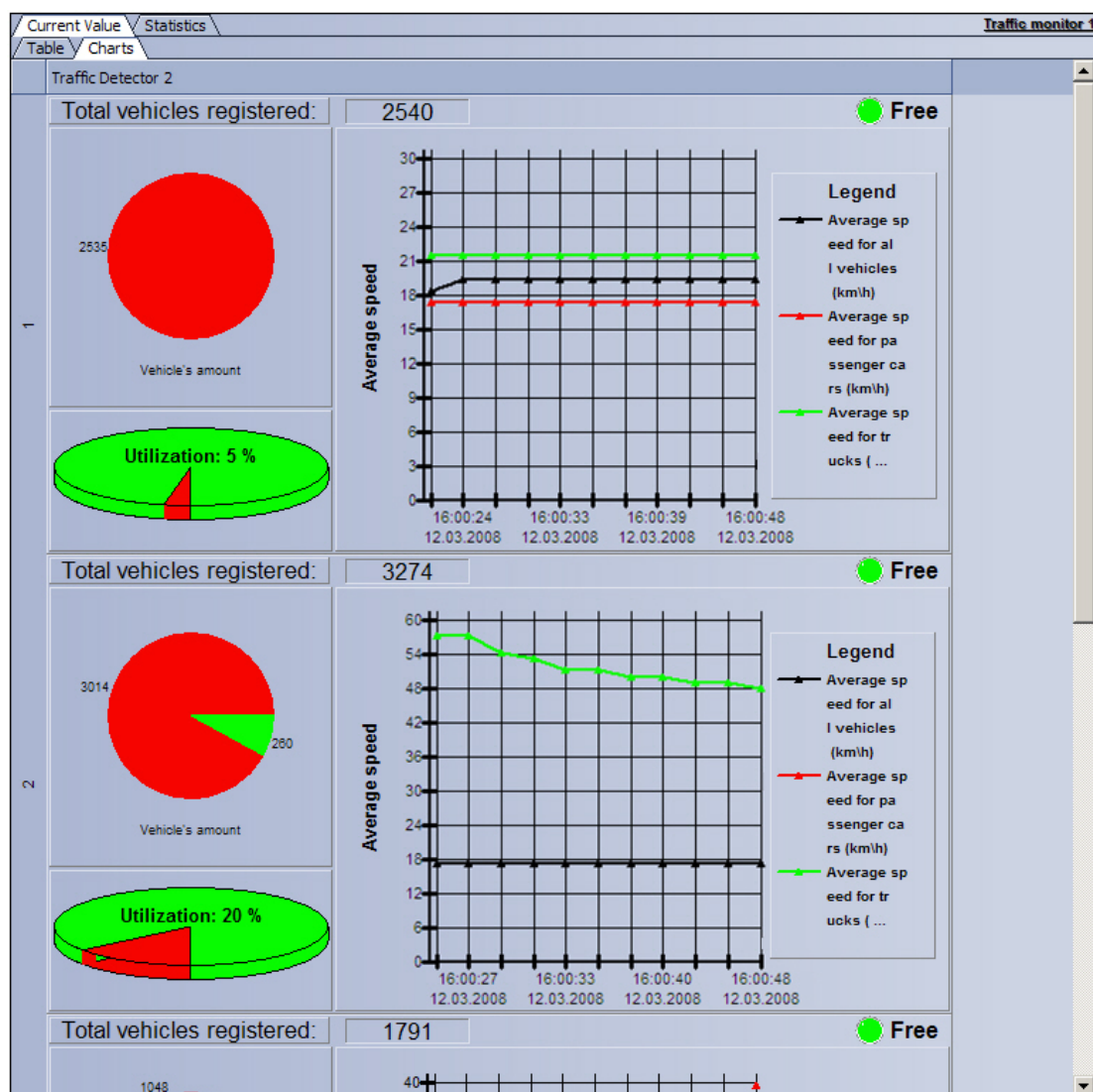
Note.

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.

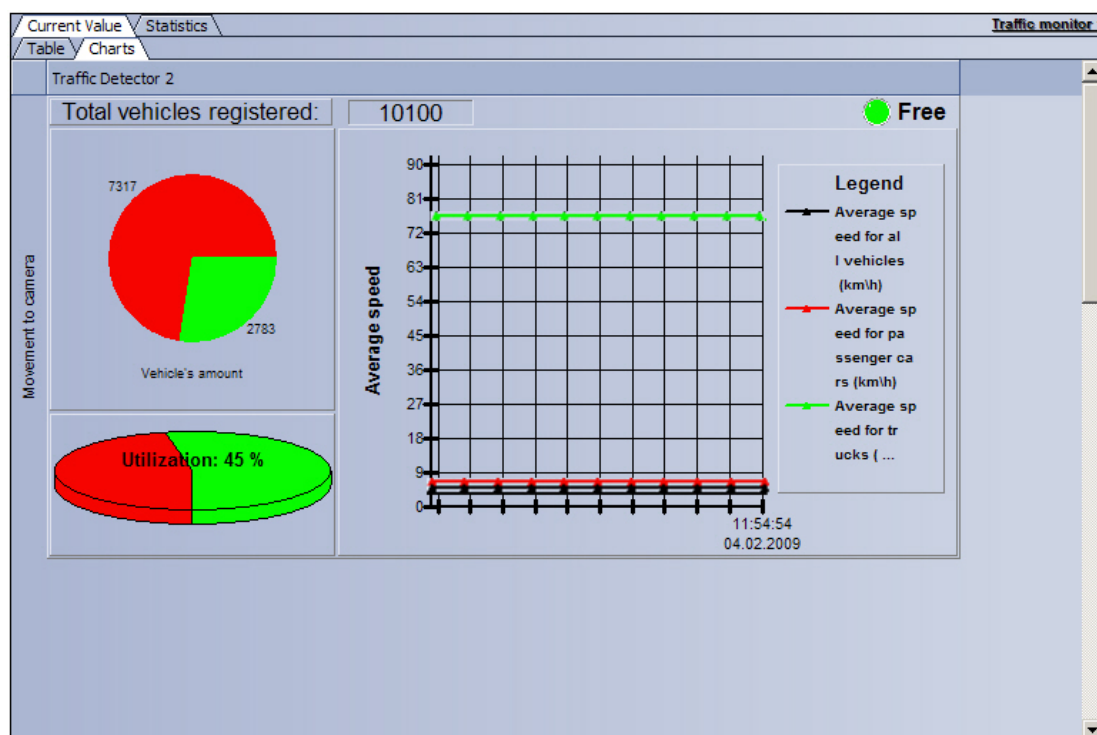
3.2.2 Displaying the current traffic information in graphic form

The charts with current traffic parameters are displayed in the **Charts** sub-tab of the **Current value** tab.

Displaying the charts of current traffic parameters by lane.



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.

3.2.3 Creating a request for traffic statistics

To create a request for traffic statistics, use the **Statistics** tab.

Detections	Total n...	Averag...	Violatio...	Speedi...	Moving...	Total v...	Averag...	Traffic i...
[-] Traffic Detection 1	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[-] Movement towards camera	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[-] Lane 1	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
Passenger cars	0	0	0	0	0	0	0	0
Trucks less than 11 m long	0	0	0	0	0	0	0	0
Trucks from 11 to 14 m long	0	0	0	0	0	0	0	0
Trucks more than 14 m long	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0
[+] Lane 2	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[+] Lane 3	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[+] Lane 4	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0

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.

3.2.4 Displaying traffic statistics in table form

The traffic statistics in table form are displayed in the **Table** sub-tab of the **Statistics** tab.

Detections	Total n...	Averag...	Violatio...	Speedi...	Moving...	Total v...	Averag...	Traffic j...
[-] Traffic Detection 1	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[-] Movement towards camera	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[-] Lane 1	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[-] Passenger cars	0	0	0	0	0	0	0	0
[-] Trucks less than 11 m long	0	0	0	0	0	0	0	0
[-] Trucks from 11 to 14 m long	0	0	0	0	0	0	0	0
[-] Trucks more than 14 m long	0	0	0	0	0	0	0	0
[-] Buses	0	0	0	0	0	0	0	0
[+] Lane 2	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[+] Lane 3	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0
[+] Lane 4	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0

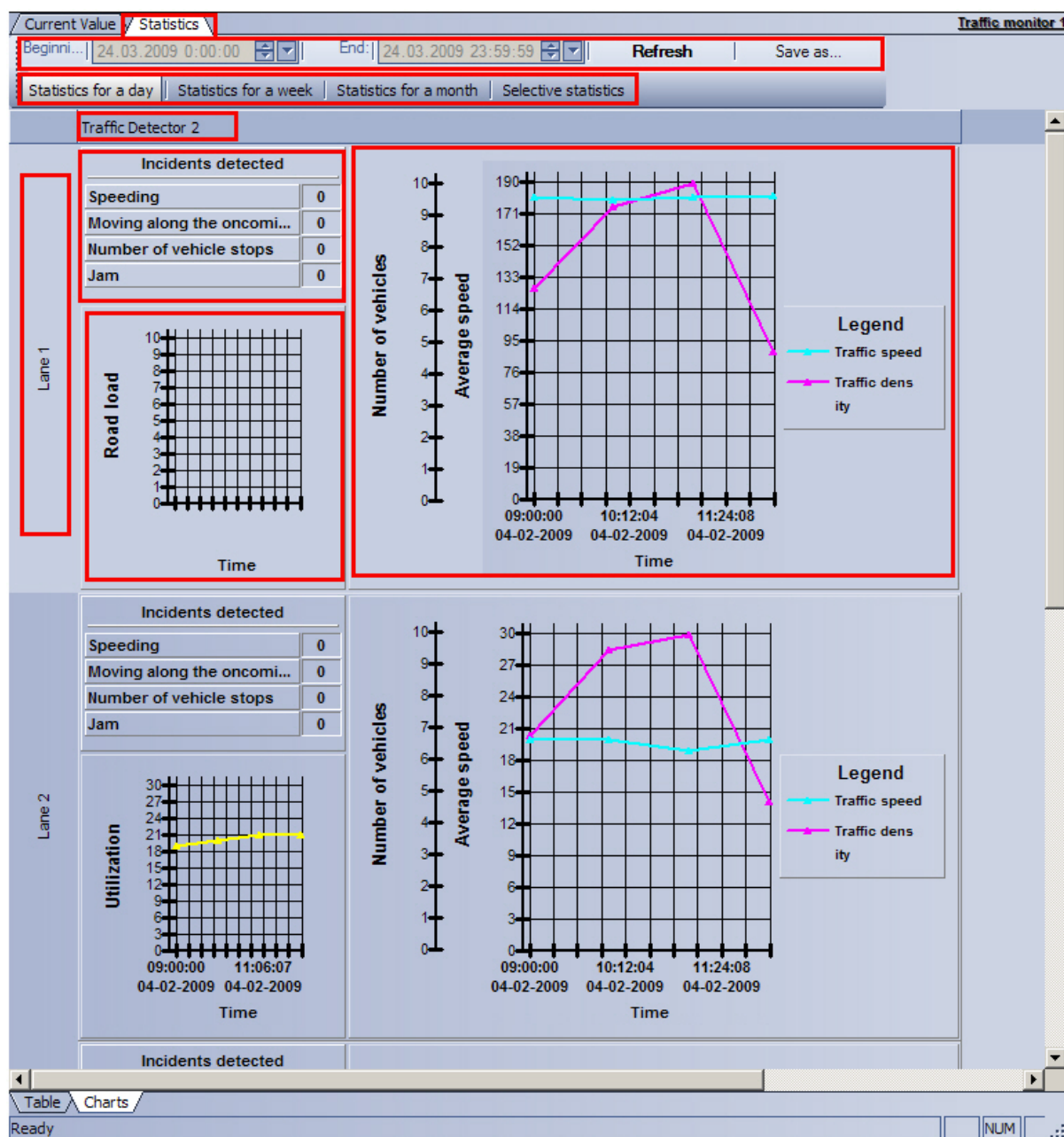
The traffic statistics are displayed in the following tree structure: **Recognizer name** -> **Movement direction** -> **Lane** -> **Vehicle type**. The statistics data for each level of the tree is shown.

Note.

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

3.2.5 Displaying traffic statistics in graphic form

The traffic statistics in graphic form are displayed in the **Charts** sub-tab of the **Statistics** tab.

**Note.**

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

3.2.6 Saving traffic statistics to a file

The **Statistics** tab allows saving the traffic statistics into a file.

Current value		Statistics							
Beginni...	07.08.2014 0:00:00		End:	07.08.2014 23:59:59		Refresh		Save As...	
Statistics per day Statistics per week Statistics per month Selective statistics									
Detections	Total n...	Averag...	Violatio...	Speedi...	Moving...	Total v...	Averag...	Traffic j...	
[-] Traffic Detection 1	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0	
[-] Movement towards camera	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0	
[-] Lane 1	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0	
Passenger cars	0	0	0	0	0	0	0	0	
Trucks less than 11 m long	0	0	0	0	0	0	0	0	
Trucks from 11 to 14 m long	0	0	0	0	0	0	0	0	
Trucks more than 14 m long	0	0	0	0	0	0	0	0	
Buses	0	0	0	0	0	0	0	0	
[+] Lane 2	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0	
[+] Lane 3	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0	
[+] Lane 4	Σ 0	0	Σ 0	Σ 0	Σ 0	Σ 0	0	Σ 0	

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

1. Create and display the request for traffic statistics (see the [Creating a request for traffic statistics](#) 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.

3.3 Using the Vehicle Tracer interface object

3.3.1 Introduction

The **Vehicle Tracer** 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.
3. **Alarm window** – is designed for displaying the data about vehicles in case of coincidence of recognized plates with plates which are stored on the external orientation database.

Note.

Events monitor and **Alarm window** components are optional and aren't displayed with corresponding system settings (see the document [Auto-Intellect software package: Administrator guide](#)).

3.3.2 Viewing the data about passing vehicle

The passing vehicle data is displayed in the **Events monitor** window.

**Note**

Events monitor component may not be displayed due to the corresponding system settings (see [Auto-Intellect software package: Administrator's guide](#)).

In the **Events monitor** window, the following data is displayed:

1. LP recognizer (the name of the corresponding **LPR channel** object) (1);
2. vehicle video frame with a caption, containing the following data (2):
 - a. date and time of receiving data about the vehicle;
 - b. vehicle speed;
 - c. vehicle direction;
 - d. speed, allowed on the controlled area of the road;
 - e. speed detector ID number;
 - f. name of the video camera that detected the vehicle.
3. identified LP number and the LP image (3).

Note

If the LP number hasn't been recognized, **UNDEFINED** message will be displayed in the field.

Note

- In case the **Uragan** or **CARMEN-Auto** module is used for identification, allowed speed, vehicle speed and speed detector ID number are displayed only if the **Radar** module is connected (see [Auto-Intellect software package: Administrator's guide](#)).
- In case the alarm is registered for a vehicle (overspeeding, and /or identification of a plate in the external plates database), the field with a video frame is highlighted with red (2).

3.3.3 Viewing the data about the last identified vehicle

The last identified vehicle data is displayed in the **Last event** group of the **Online monitor** window (left area of this window).

The screenshot shows the 'ONLINE MONITOR' interface. On the left, a video frame of a car with license plate C407TX190 is displayed, with the text 'Camera 01' below it. Below the video frame, the license plate 'C407TX190' is shown in a red-bordered box. To the right of the video frame is a table with vehicle parameters.

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-09-04 12:03:36
Speed	22 km/h
Speed limit	15 km/h
Speeding	7 km/h
Validity	97 %
Direction	To camera
Regional code	
Camera	Camera 1

On the right side of the window, there is a list of identified vehicles with their license plates and recognition times. The first entry, C407TX190, is highlighted with an orange border. Below this list is a navigation bar with icons for Print, Search, Video archive, Filter, and Comment.

Note

If there is an event selected in the identified vehicles protocol or in the alarms protocol, the data about this event will be displayed in the **Last event** group (see [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. The vehicle video frame with a caption is displayed in the field (1).



The screenshot displays the software interface with three main components labeled 1, 2, and 3:

- Field 1:** A video frame showing a dark car on a road. The timestamp "10-22-2015 Thu 15:42" is in the top left, and "Camera 01" is in the bottom right.
- Field 2:** A license plate "A164BT50" and a corresponding image of the license plate. The image is highlighted with a red border.
- Field 3:** A table with the following data:

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-09-04 11:20:13
Speed	15 km/h
Speed limit	5 km/h
Speeding	10 km/h
Validity	96 %
Direction	To camera
Regional code	
Camera	Camera 1

2. The identified LP number and the LP image is displayed in the field (2).

Note

If the LP number hasn't been recognized, **UNDEFINED** message will be displayed in the field.

3. Depending on the available data, the following information can be displayed in the box (3):
 - a. In the **Recognizer** field, the name of the LP recognizer is displayed (the name of the corresponding **LPR channel** object).
 - b. In the **Country** field, the country to which belongs the identified LP number is displayed.

Note

This field is only displayed when the **IntelliVision LPR** module is used for recognition.

- c. In the **Recognition time** field, the date and time of receiving the vehicle information is displayed.
- d. In the **Speed** field, the vehicle speed is displayed.

Note

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

Note

Depending on the **Vehicle Tracer** settings, the speed is displayed in km/h or mi/h (see [Auto-Intellect software package: Administrator's guide](#)).

- e. In the **Speed limit** field, the speed limit allowed on this part of the road is displayed.
- f. In the **Speeding** field, the difference between the captured vehicle speed and the speed limit allowed on this part of the road is displayed.

Note

This field is displayed if the speeding event was registered, otherwise this field is absent.

- g. In the **Validity** field, the identification validity rate is displayed in percent.
- h. In the **Direction** field, the vehicle's direction is displayed (**Towards the camera**, **Off the camera** or **Undefined**).
- i. In the **Regional code** field, the regional code of the recognized LP is displayed.

Note

This field can be hidden (see [Setting up the Vehicle Tracer interface window](#)).

- j. In the **Camera** field, the name of the video camera which captured the vehicle, is displayed.
- k. In the **Address** field, the camera location address is displayed.
- l. In the **Identificator (№)** field, the camera ID number is displayed.
- m. In the **Sertificate (№)** field, the certificate number is displayed.
- n. In the **Calibration** field, the calibration expiration date is displayed.
- o. In the **Type** field, the vehicle type is displayed.

Note

This field is displayed only if the **Vehicle type recognition module** is used.

- p. In the **Dangerous goods class** and **Dangerous goods composition** fields, the class and the contents of the dangerous cargo are displayed correspondingly.

Note

These fields are displayed only if the **CARMEN-Auto** module and the Hazard Identification Number Recognition Engine (ADR) are used.

Viewing the data about the last identified vehicle is complete.

Note

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

Note

The data about any event selected in the identified vehicles protocol or in the alarm protocol can be viewed in the same way (see [Viewing the identified vehicles protocol](#), [Viewing the alarms protocol](#)).

3.3.4 Viewing the identified vehicles protocol

The identified vehicles protocol is displayed in the **On-line monitor** window.

ONLINE MONITOR Server status

10-22-2015 Thu 15:42

A164BT50 **A 164BT 50**

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-08-30 16:43:08
Speed	14 km/h
Speed limit	5 km/h
Speeding	9 km/h
Validity	96 %
Direction	To camera

C407TX190 4

Processed Hide Show All Trace Alarm Accept

A164BT50
LPR channel 1
2018-08-30 16:43:08

M961ET777
LPR channel 1
2018-08-30 16:43:06

A721CY97
LPR channel 1
2018-08-30 16:43:00

Print Search Video archive Filter Comment

To access to the protocol, go to the **Events** tab (1). The identified vehicles protocol is a table which contains the information about identified vehicles (2).

BC1246*
LPR channel 1
09.08.2010 9:41:20

H415TA63 2
LPR channel 1 3
09.08.2010 9:41:19 4

O0*5CC63
LPR channel 1
09.08.2010 9:41:15

For every vehicle (event) the following data is displayed:

1. video frame of the vehicle (1);

2. identified vehicle LP number (**2**);

Note

If the LP number hasn't been recognized, **UNDEFINED** message will be displayed in the field.

3. vehicle speed;

Note

Vehicle speed is displayed only if the **Radar** module is connected (see [Auto-Intellect software package: Administrator guide](#)).

4. LPR channel (**3**);
5. date and time of receiving the information about the vehicle (**4**).

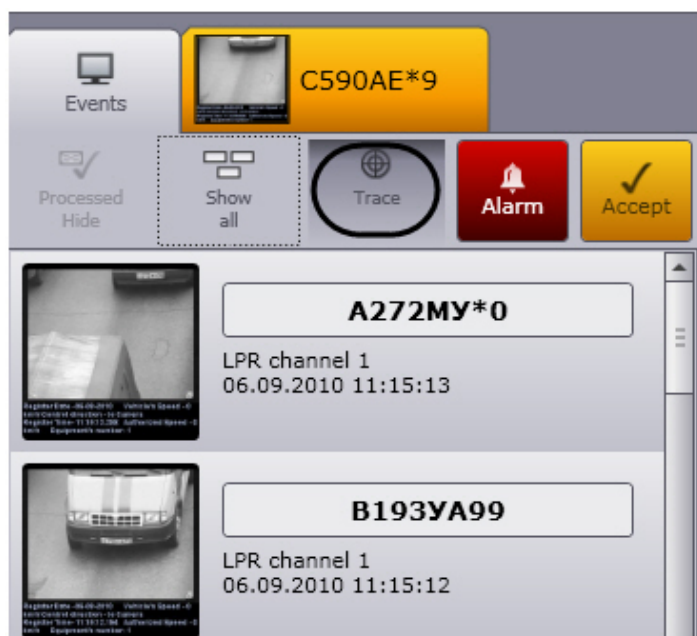
For alarms, the information about reasons of alarms is also displayed (see [Alarms operation](#)). The alarms which were not processed by the operator, are highlighted with red, and processed alarms are highlighted with yellow (see [Alarm processing](#)).

Note

Processed events may not be displayed (see [Hiding the processed events in the protocol](#)).

To view the detailed information about the event, do the following:

1. Left-click the required event.
2. As a result, the data about the vehicle will be displayed in the **Last event** group. Online update of the identified vehicles protocol will be suspended.
3. View the data about the event as described in the [Viewing the data about the last identified vehicle](#) section.
4. To restore the online update of the identified vehicles protocol click the **Trace** button in the upper area of the **On-line monitor** window.



Viewing the detailed data about the event is complete.

3.3.5 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.

3.3.5.1 Manual alarm triggering

To enable the manual alarm triggering, do the following:

1. Left-click the required event in the identified vehicles protocol (1).

The screenshot displays the 'ONLINE MONITOR' interface. On the left, a large video window shows a car with license plate 'A164BT50' and a timestamp '10-22-2015 Thu 15:42'. Below the video, the license plate 'A164BT50' is displayed again, with a red box highlighting the text 'A 164BT 50'. A table below the license plate shows the following data:

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-08-30 16:43:08
Speed	14 km/h
Speed limit	5 km/h
Speeding	9 km/h
Validity	96 %
Direction	To camera

On the right, a list of identified vehicles is shown. The first entry, 'A164BT50', is highlighted with an orange box and labeled with a '1'. The other entries are 'M961ET777' and 'A721CY97'. Above the list, there are buttons for 'Cars', 'Processed Hide', 'Show All', 'Trace', 'Alarm' (labeled with a '2'), and 'Accept'. At the bottom of the interface, there are buttons for 'Print', 'Search', 'Video archive', 'Filter', and 'Comment'.

2. Click the **Alarm** button (2).

3. As a result, this event will be highlighted with red (3), and the **Alarms protocol** tab will become available (4). For the alarm which was triggered by the operator, the **Marked by the operator** cause of alarm is displayed (5).

The screenshot shows the 'ONLINE MONITOR' window. On the left, a video feed of a car is highlighted with a red border (3). Below it, a red box contains the license plate 'A164BT50'. To the right, a table lists parameters for this vehicle. The 'Cause of alarm' is 'Marked by the operator:' (5). On the far right, a list of vehicles is shown, with 'A164BT50' highlighted in red (4). The 'Alarms protocol' tab is visible at the top right.

Parameter	Value
Speed limit	5 km/h
Speeding	9 km/h
Validity	96 %
Direction	To camera
Cause of alarm	Marked by the operator: 5
Regional code	
Camera	Camera 1

Note.

For the information about alarms protocol, see [Viewing the alarms protocol](#).

Manual alarm triggering is complete.

3.3.5.2 Viewing the alarms protocol

The **Alarms protocol** tab located in the upper area of the **Online monitor** window (1) automatically becomes available in case of the alarm event. The alarms protocol is a table which contains the information about the vehicles for which the alarms were triggered (2).

Note.

The information about the last alarm is displayed on the tab.

ONLINE MONITOR

Server status

1

10-22-2019 Thu 15:42:43

Camera #1

T851BT750

T851BT750

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-08-30 17:04:58
Speed	17 km/h
Speed limit	5 km/h
Speeding	12 km/h
Validity	93 %
Direction	To camera

2

Cars

Processed Hide

Show All

Trace

Alarm

Accept

T851BT750

LPR channel 1
2018-08-30 17:04:58
Speed: 17 km/h

C407TX190

LPR channel 1
2018-08-30 17:04:25
Speed: 20 km/h

T851BT750

LPR channel 1
2018-08-30 16:43:14
Marked by the operator:

Print

Search

Video archive

Filter

Comment

The alarms which were not processed by the operator, are highlighted with red, and processed alarms are highlighted with yellow (see [Alarm processing](#)).

Note.

Processed events may not be displayed (see [Hiding the processed events in the protocol](#)).

To view the alarms protocol, do the same as to view the identified vehicles protocol (see [Viewing the identified vehicles protocol](#)). The only difference is that for an alarm the information about the alarm reason is also displayed:

1. **Marked by the operator** - means the alarm is triggered by the operator (the time of triggering is also displayed);
2. **Is found in: <external database name>** - means the identified LP is found in the external database;
3. **Overspeeding** - means the vehicle overspeeding is registered.

Detailed information about an alarm with the alarm reason is displayed in the **Last event** group (see [Viewing the data about the last identified vehicle](#)). To view the detailed information about an alarm, do the same as to view the information about the event, registered in the identified vehicles protocol (see [Viewing the identified vehicles protocol](#)).

In case the identified vehicle LP is found in the **External Plates Database**, the information about the vehicle, stored in this base, will be displayed in the field (3).

Note

To display the side panel, click the (4) button.



3.3.5.3 Alarm processing

Alarm processing is done in the following way:

1. Left-click the alarm in the identified vehicles protocol or in the alarms protocol (1).



2. Click **Accept** (2).

3. As a result, the event will be highlighted with yellow.

The screenshot shows the 'ONLINE MONITOR' interface. On the left, a large video feed shows a car with license plate 'C407TX190' from 'Camera 01'. Below the video, the license plate is highlighted in yellow. To the right of the video is a table with parameters and values.

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-08-30 16:42:41
Speed	22 km/h
Speed limit	5 km/h
Speeding	17 km/h
Validity	84 %
Direction	To camera

On the right side of the interface, there is a list of events. The first event, 'C407TX190', is highlighted in yellow. Below it are two other events, 'A164BT50' and 'M961ET777', which are highlighted in red. At the bottom of the interface, there are buttons for 'Print', 'Search', 'Video archive', 'Filter', and 'Comment'.

Alarm processing is completed.

3.3.5.4 Hiding the processed events in the protocol

It is possible to hide the processed events in the identified vehicles protocol and alarms protocol. To do this, click the **Processed Hide** button. As a result, when all alarms are processed, then the **Alarms protocol** tab becomes hidden.

ONLINE MONITOR Server status



M961ET777 

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-08-30 17:10:56
Speed	15 km/h
Speed limit	5 km/h
Speeding	10 km/h
Validity	99 %
Direction	To camera

 Cars

 16
C407TX190

 Processed
Hide

 Show
All

 Trace

 Alarm

 Accept



M961ET777

LPR channel 1
 2018-08-30 17:10:56
 Speed: 15 km/h



B447EP190

LPR channel 1
 2018-08-30 17:10:46
 Speed: 15 km/h



C407TX190

LPR channel 1
 2018-08-30 17:10:32
 Speed: 20 km/h

 Print

 Search

 Video archive

 Filter

 Comment

3.3.5.5 Viewing the alarm information in the Alarm window

Depending on the certain configuration, the **Alarm window** can be displayed automatically in the following cases:

1. If the recognized license plate number coincides with the number stored in the external online monitoring database. As a result, the **Report of vehicle found in DB** sign will be displayed at the top of the alarm window.
2. If the alarm event was triggered manually. As a result, the **Marked by the operator** sign will be displayed at the top of the alarm window.

Report of vehicle found in DB

Alarms in total: 25



Register Date - 29-08-2018 Vehicle's Speed - 0 km/h Control direction - To camera
Register Time - 17:03:27.084 Authorized Speed - 0 km/h Equipment's number - 1
Place of control - Camera 1

1

2018-08-29 17:50:37

License plate

Recognition server

Direction

Internal Vehicles DB

State:

K673YK163

LPR channel 1

To camera

External Plates DB 1

Not confirmed

Field	Value
id	a2c98cbf-99ab-e811-aa18-1c1b0da7b3d9
License plate number	K673YK163
Storage time	
Active for search	Yes
Date/time of creation	29.08.2018 17:42:08
Comment	
Operator	

3

<<
<
>
>>

4

☒ Follow

5

Approve (information sent)

6

Disapprove

The following data is displayed in the **Alarm window**:

1. Event information (1):

- Date and time when the alarm event was recorded.
- License plate number.
- Recognition server name that recorded the event.
- Vehicle direction of movement relative to the camera.
- Name of the external database.

Note

The field with the name of the external database is hidden if the the alarm event was triggered manually.

- Current state of the alarm event.

Note

There can be the following states of the alarm event:

- **Not confirmed** - a new event that has not yet been confirmed.
- **Processing...** - an alarm event is confirmed, but the information has not yet been recorded to the database.
- **Confirmed** - the alarm is confirmed and recorded to the database (you may not notice this state since the event is deleted from the Alarm window after a successful confirmation).
- **Error** - the confirmation is not recorded to the database due to the heavy load on the Server. It is necessary to confirm the event again.

2. The description from the stolen vehicles database (2): ID, LP number, storage time, search status, date and time of creation, comment, full name of the operator who created the report.

Note

The table with the description from the stolen vehicles database is hidden if the the alarm event was triggered manually.

Use buttons to scroll the alarm events (3).

To confirm the active alarm status, click the **Approve (information sent)** button (5). As a result the alarm will be marked as received in the **On-line monitor** window, and deleted from the **Alarm window**. If the **Follow** checkbox is set (4), the confirmed alarm will be deleted from all **Alarm windows** in the distributed system.

To close the window of stolen vehicle report click the **Disapprove** button (6). If you click this button, the alarm status will not be changed in the **On-line monitor** (alarm will not be processed).

3.3.6 Adding comments to the events

It is possible to add the comments to the events. It can be done in the **Online monitor** window.

Attention!

It is not possible to add the comments to the accepted events (highlighted with yellow).

To add a comment to the event, do the following:

1. Left-click the event in the identified vehicles protocol or events protocol (1). Online update of the protocol displayed on the screen will be suspended.



2. Click **Comment** button (2).

3. **Comments for license plate** window will open in result.

4. In the **Enter new comment** field (5), specify a required comment.
 5. Click the **Add** button (6) to add the comment to the event.

Note

The **Comments for license plate <LP number>** field (3) displays the previous comments, if any, and the date when they were added to this event.

6. To view the comments to the event, left-click the required event in the identified vehicles protocol or events protocol. Comments will be displayed in the corresponding field (4).

Note

To display the side panel, click the (7) button.

7. To resume the online update of the protocol, displayed on the screen, click **Trace** button (3).

Adding the comments to the event is completed.

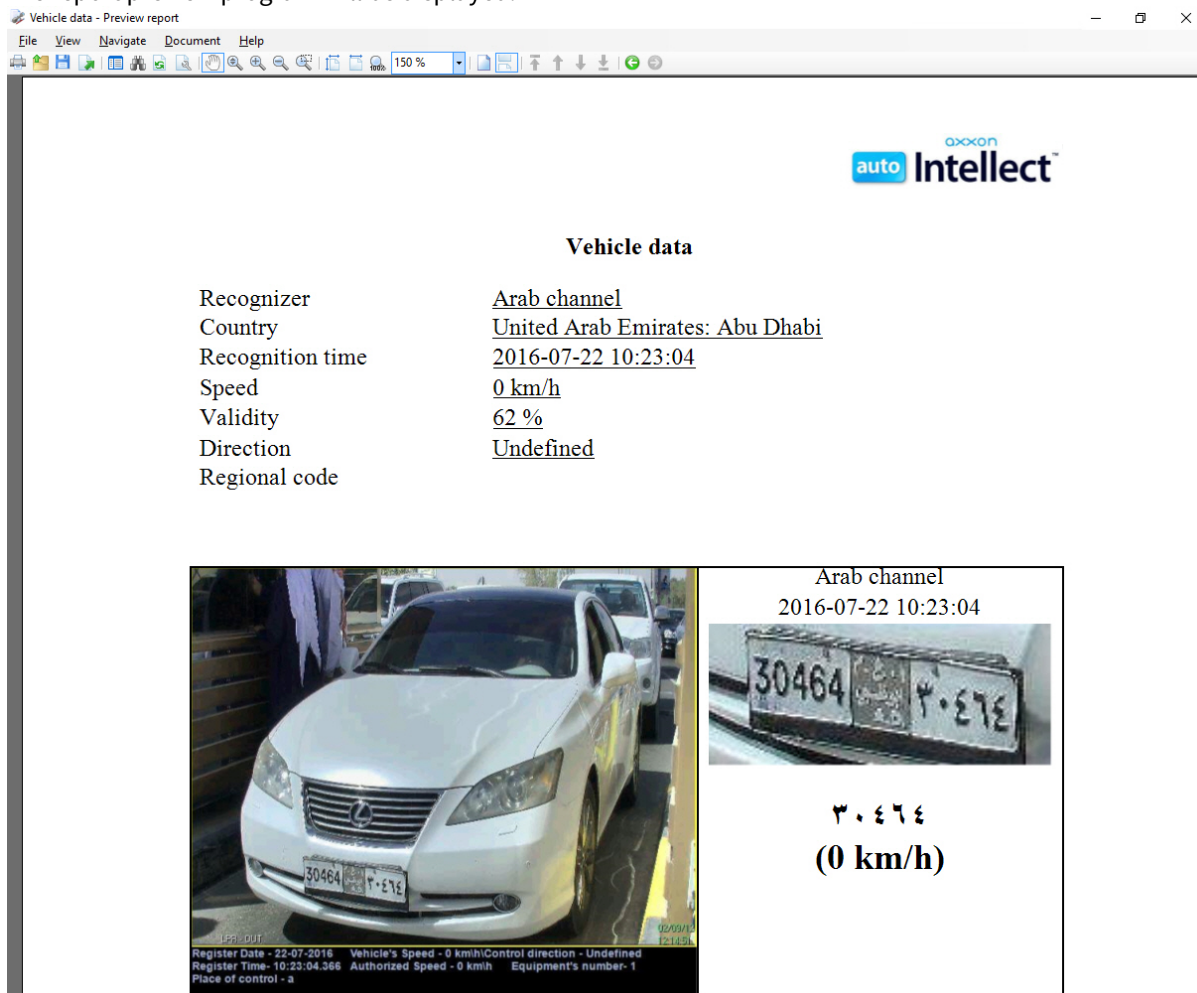
3.3.7 Printing and exporting the vehicle data

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

1. Left-click the event in the identified vehicles protocol or events protocol (1). Online update of the protocol, displayed on the screen, will be suspended.



2. To build a report with vehicle data, click the **Print** button (2).
3. The report preview program will be displayed.



4. If necessary, do the following operations with the report, then quit the report preview program by clicking the **File -> Exit viewer** in the main menu, or by clicking the button in the top right corner. The available operations for the report are listed in the table below.

Operation	Operation invocation		
	Main menu item	Context menu item	Toolbar button
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 common formats	File -> Export	-	
Print the report	File -> Print	-	
Activate the «Hand» tool	View -> Scrolling	Scrolling	
Zoom in the report pages	View -> Zoom in	Zoom in	
Zoom out the report pages	View -> Zoom out	Zoom out	
Enable dynamic scaling of report pages	View -> Dynamic scaling	Dynamic scaling	
Zoom in the selected area of the report	View -> Region scaling	Region scaling	
Scale in page size	View -> In page size	In page size	
Scale in page width	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 pages	View -> Set the scaling	Set the scaling	88 % 
Enable the nonstop paginal report displaying	-	-	
Enable the page-by-page report displaying	-	-	
Go to the first page	Navigate -> The first page	The first page	
Go to the previous page	Navigate -> Previous page	Previous page	
Go to the next page	Navigate -> The next page	The next page	

Operation	Operation invocation		
	Main menu item	Context menu item	Toolbar button
Go to the last page	Navigate -> The last page	The last page	
Go to the certain page (open the «Go to page» dialog window)	Navigate -> Go to page	-	-
Display the previous view	Navigate -> Back	Back	
Display the next view	Navigate -> Forward	Forward	
Find the required characters 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 table of contents	-	-	
Display information about the program to view the report	Help -> About program	-	-
Close the preview report program	File -> Close	-	-

Note.

Operations with report files (opening, saving, exporting, and printing) are performed via the standard OS Windows dialog windows.

Note.

To go to the required page, enter the page number in the **Page №** field of the **Go to page** dialog window and then click **OK**.

Printing and exporting the vehicle data is completed.

3.3.8 Viewing the video archive by event

In the **On-line monitor** component, it is possible to initiate the video archive playback by the event via the **Monitor** interface window.

Note.

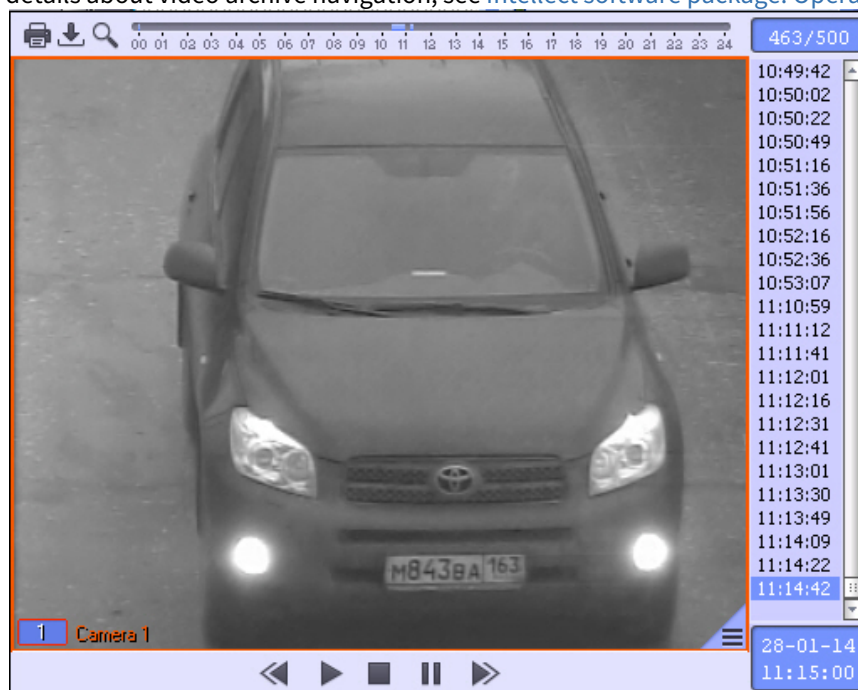
The pre-configured **Monitor** object should be selected as a controlling monitor on the **Vehicle Tracer** settings panel (see [Auto-Intellect software package: Administrator Guide](#)).

To view the video archive by event, do the following:

1. Left-click the event in the identified vehicles protocol or alarms protocol (1). Online update of the protocol displayed on the screen will be suspended.



2. Click **Video archive** (2).
3. In case the monitor with a video surveillance window corresponding to the LP recognition camera is displayed on the screen at the moment, this video surveillance window will switch to the video archive playback by the event mode. For details about video archive navigation, see [Intellect software package: Operator's Guide](#).



Note

To exit the video archive displaying mode, left-click the  sign in the right bottom corner of the video surveillance window.

Viewing the video archive by event is completed.

3.3.9 Using filters in the protocols

You can select events to be displayed in the identified vehicles protocol and alarms protocol.

Attention!

Both displayed and hidden in the protocol events are saved in the recognizers database of the *Auto-Intellect* software.

You can select the events using the following filters:

1. speed;
2. overspeeding;
3. license plate;
4. validity;
5. region;
6. direction;
7. alarm type;
8. plate recognizers.

To select the filter, do the following:

1. Click **Filter** button in the **On-line monitor** window (1).



2. **Filters** dialog window will be displayed in result.

3. From the **Speed** list (1) select the required filter, then specify the speed value(s) in the field(s) in km/h.

The following speed filters are available:

- **No filtering** — the event is displayed in protocols with any vehicle speed.
- **More** — the event is displayed in protocols if the vehicle speed exceeds the specified value.
- **Less** — the event is displayed in protocols if the vehicle speed is below the specified value.
- **Interval** — the event is displayed in protocols if the vehicle speed is within the specified speed range.

4. From the **Speeding** list (2) select the required filter, then specify the overspeeding value in the field in km/h.

The following overspeeding filters are available:

- **No filtering** — the event is displayed in protocols with any vehicle overspeeding.
- **More** — the event is displayed in protocols if the vehicle overspeeding exceeds the specified value.

Note.

The overspeeding value is calculated as the difference between the recorded vehicle speed and the speed, permitted in the controlled area of the road.

5. From the **License plate number** list (3) select the required filter and then in the field enter the LP number or its part which identification leads to event displaying in protocols.

The following LP filters are available:

- **No filtering** — the event is displayed in protocols with any vehicle LP number.
- **Register** — the event is displayed in protocols if the vehicle LP number exactly matches the specified value.
- **Contains** — the event is displayed in protocols if the vehicle LP number contains the specified value.

Note.

The value specified for the **Register** and **Contains** filters may include usual characters and «*» characters which stand for an unidentified LP character. If the value contains one or several «*» characters, only the LPs which contain the unidentified characters in the specified combination, are displayed in the protocols.

6. From the **Validity** list (4) select the required filter of the LP recognition validity percentage, then specify the percentage value in the field(s).

The following validity filters are available:

- **No filtering** - the events are displayed for those vehicles which plates are recognized with any validity.
- **More** - events are displayed in the protocol if the recognizing validity is higher than the specified value.
- **Interval** - vehicle event is displayed in the protocol if the recognizing validity of vehicle plate belongs to the specified range of values.

7. From the **Region** list (5) select the required region filter, where the vehicle has been registered, and then enter the region number in the field.

The following region filters are available:

- **No filtering** — the events are displayed in protocols for the vehicles, registered in any region.
- **Equal** — the events are displayed in protocols for the vehicles, registered in the specified region.

8. From the **Direction** list (6) select the vehicle direction for which the event should be displayed in protocols.

The following direction filters are available:

- **No filtering** — the events are displayed in protocols with any vehicle direction.
- **From camera** — the event is displayed in protocols if the vehicle was moving away from the camera.
- **Towards the camera** — the events are displayed in protocols if the vehicle was moving towards the camera.
- **Undefined** — the events are displayed in protocols if the vehicle direction was not determined.

9. From the **Alarm type** list (7) select the alarm type. Only alarms of the selected type will be displayed in protocols.

The following alarm type filters are available:

- **No filtering** — the events are displayed in protocols with any alarm type or its absence.
- **Overspeeding** — the events for which overspeeding has been registered are displayed in protocols.
- **LP found in database** — the events for which the LPs have been found in the external plates database are displayed in protocols.
- **Alarm set by operator** — the events, initialized manually, are displayed in protocols.
- **Running a red light** — the events for which the red lights running has been registered are displayed in protocols.
- **Entered the oncoming lane** — the events for which the entering the oncoming lane has been registered are displayed in protocols.
- **Crossed the stop line** — the events for which the crossing the stop line has been registered are displayed in protocols.
- **Stop over crosswalk line** — the events for which the stopping on the crosswalk line has been registered are displayed in protocols.

10. In the **Plates recognizers** (8) group set the checkboxes for those LP recognition Servers, which data should be displayed in protocols.

11. Click **OK** to save filters settings and close the **Filters** dialog window (10).

Note.

To reset all the settings, click the **Reset** button (9).

Filtering the events to be displayed in the protocols is complete.

Note

You can disable any filtering without changing the settings in the **Filters** dialog window. To do this, click the **Show all** button (2). All the registered events will be displayed in protocols in result. To resume the usage of filters, click this button again.

3.3.10 Viewing the Vehicle Tracer errors

If there are no **Vehicle Tracer** errors, the **Server status** button in the right upper corner of **On-line monitor** window is green

. If errors are registered, the button is red .



ONLINE MONITOR

Server status

10-22-2015 Thu 15:42:38

Camera 01

A164BT50

Parameter	Value
Recognizer	LPR channel 1
Country	Russia
Recognition time	2018-08-30 17:17:14
Validity	99 %
Direction	Undefined
Regional code	
Camera	Camera 1

Cars

Processed Hide Show All Trace

Alarm Accept

A164BT50

LPR channel 1
2018-08-30 17:17:14

M961ET777

LPR channel 1
2018-08-30 17:17:12

A721CY97

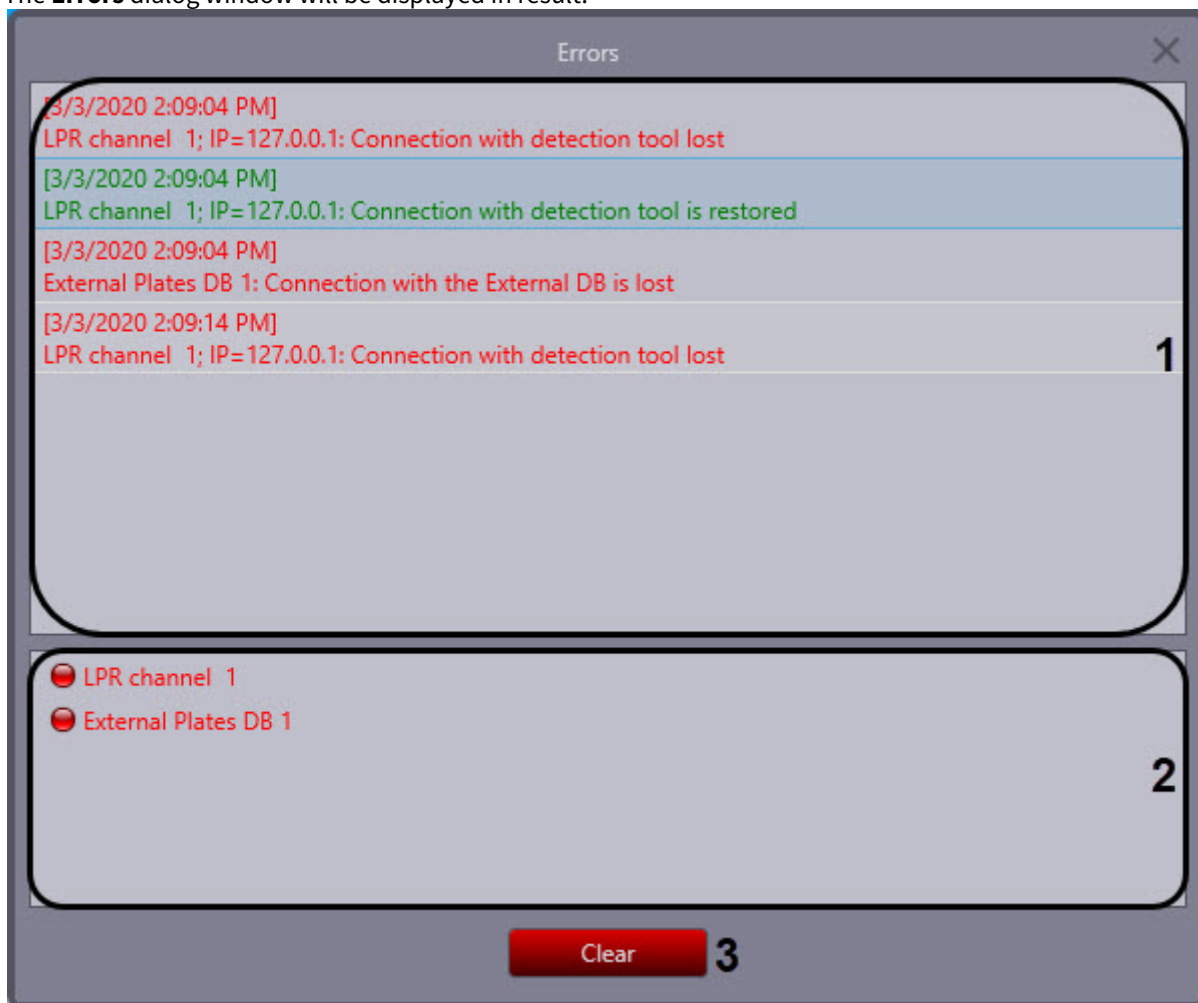
LPR channel 1
2018-08-30 17:17:03

Print Search Video archive Filter Comment

To view the **Vehicle Tracer** errors, do the following:

1. Click the **Server status** button.

2. The **Errors** dialog window will be displayed in result.



3. The data about the occurred errors is displayed in the field (1).
4. The list of all possible error sources is displayed in the field (2): LPR channels and/or external databases. Current error sources are marked by the  sign, idle sources are marked by the  sign.
5. To delete the data about the errors and close the **Errors** dialog window, click the **Clear** button (3).
6. To close the **Errors** dialog window without deleting the data about the errors, click the  button.

Viewing the **Vehicle Tracer** errors is completed.

3.3.11 Creating the additional Online monitor components

It is possible to create the additional **Online monitor** interface components. To do this, double left-click the **Events monitor** component. As a result, the additional **Online monitor** component will be displayed in the center of the screen.



Working with **Additional Online monitor** components is similar to working with the main **Online monitor** component.

3.3.12 Searching the events in the recognizers databases

3.3.12.1 Opening and closing the Event search in the Recognizers DBs window

You can search the events in the the *Auto-Intellect* recognizers databases via the **Event search in the Recognizers DBs** dialog window.

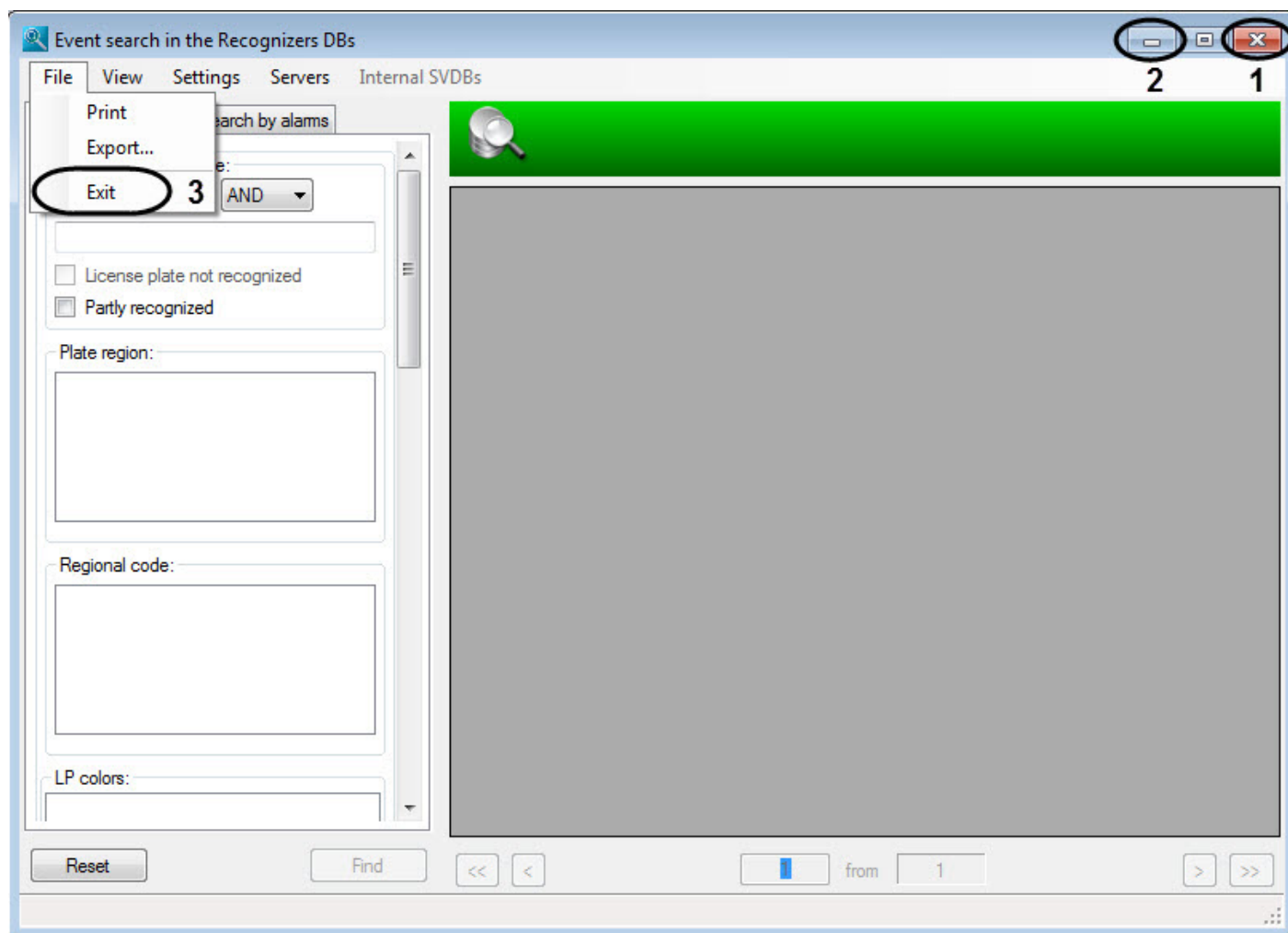
The full list of operations provided to the operator in the window **Event search in the Recognizers DBs**, is the following:

1. Searching the events, stored in the *Auto-Intellect* local or remote recognizers databases.
2. Printing the search results reports.
3. Creating the personal LPs database (**Active** tracking database).

To open this window, click the **Search** button in the **On-line monitor** interface object.



As a result, the **Event search in the Recognizers DBs** window will be opened.



To minimize the **Event search in the Recognizers DBs** window, click the (1) or (2) buttons. As a result, the window will be minimized to the Taskbar but will continue working.

To close the **Event search in the Recognizers DBs** window, select the **File -> Exit** item in the main menu (3). As a result, the window will be closed completely.

3.3.12.2 Configuring the events search

On the page:

- [Selecting the recognizer databases for the events search](#)
- [Configuring the search results](#)
- [Configuring the video archive](#)

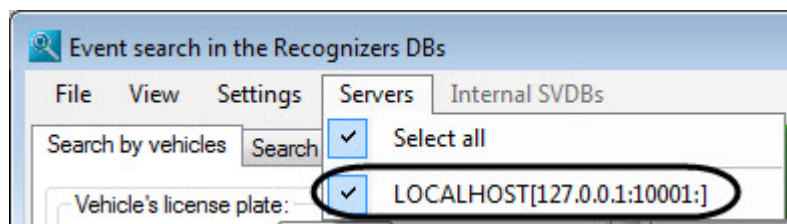
Events search is set up in the following order:

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

3.3.12.2.1 Selecting the recognizer databases for the events search

To select the recognizer databases for events search, first select the servers where the required LPR databases are. To do this, click the **Servers -> <Name of the required database>** in the main menu of the **Event search in the Recognizers DBs** window.

The selected server will be marked with ☒ icon.



Note.

To select all system servers, click **Servers -> Select all**.

The search will be performed in the selected servers.

Note.

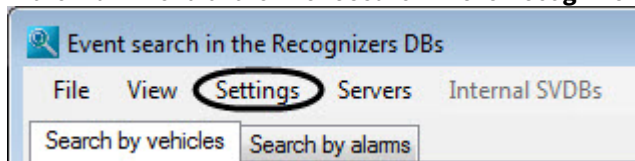
If some of selected servers is unavailable for search, the **Results of search on the server** heading will be highlighted with red. If all servers are available for search the heading will be highlighted with green.

3.3.12.2.2 Configuring the search results

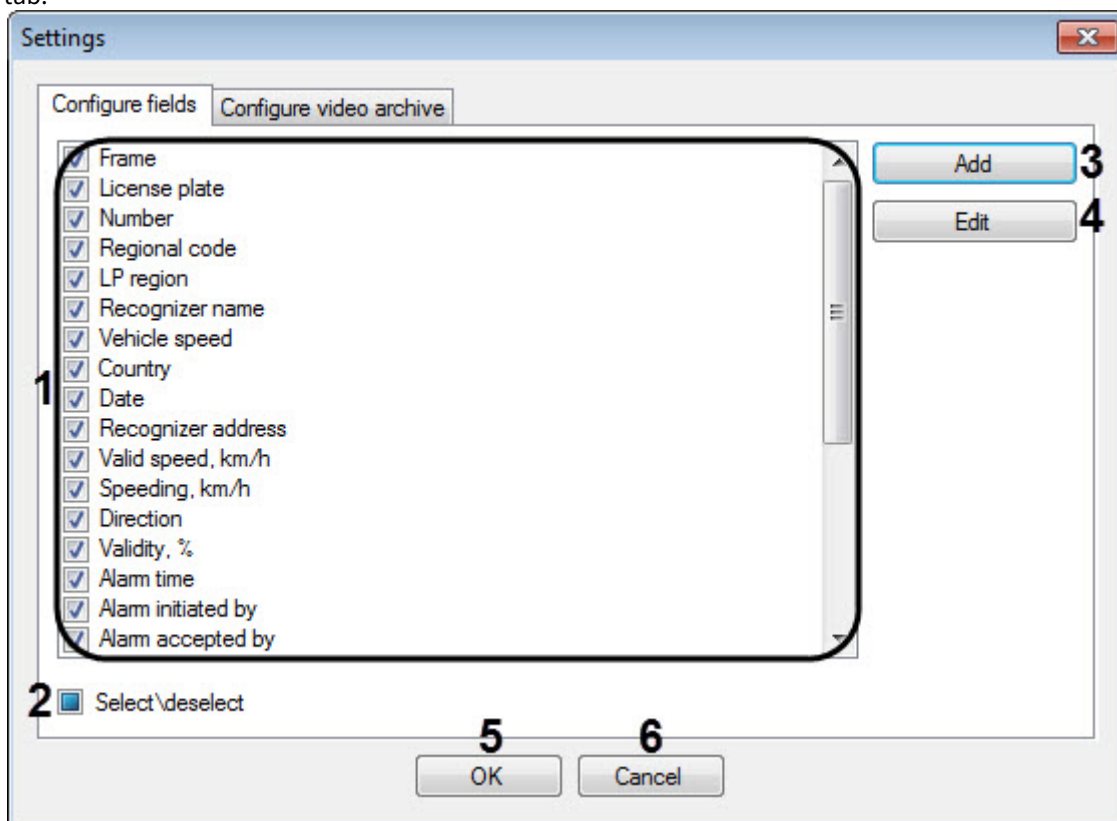
Event search results are displayed in the table. You can choose which table columns should be displayed and which shouldn't, add new columns and also edit the columns displayed names.

To configure the search results displaying, do the following:

1. In the main menu of the **Event search in the Recognizers DBs**, click **Settings**.



As a result the **Settings** dialog window is displayed. The search results displaying is configured on the **Configure fields** tab.



2. In the field (1) set the checkboxes for the columns that should be displayed in search results table.

Note.

To display all the available columns in the search results table, set the **Select\ deselect** checkbox (2). If this checkbox isn't set, the search results table is not displayed.

Column name (by default)	Column content
Frame	Video frame with a vehicle
LP number	Video frame with vehicle LP number
Number	Identified LP number
Region number	Region number of the identified number
Region	Region of the identified LP number
Detector name	LPR channel object name, corresponding to the vehicle detector

Column name (by default)	Column content
Vehicle speed	Vehicle speed
Country	The country of the recognized LP number
Date	Date and time of the vehicle identification
Detector address	LP detector address
Valid speed, km/h	Speed in km/h permitted on the road area covered by the detector
Overspeed, km/h	Vehicle overspeeding in km/h
Direction	An indication that the vehicle was moving towards the detecting camera
Authenticity, %	LP identification accuracy in percent
Alarm time	Time of the LP detection alarm registration
Alarm initiated by	Name of the operator who initiated the alarm
Alarm accepted by	Name of the operator who processed the alarm
Alarm detection time	Time of the LP detection alarm acceptance by the <i>Auto-Intellect</i> operator
Delay of alarm acceptance, sec	Time between registering the alarm and its acceptance by the operator
Commentary	Comment on the event added by the operator
Alarm type	Alarm type (overspeeding or vehicle identification in the external plates databases)
Alarm processed	An indication that the alarm was accepted by the operator
External database	An indication that the alarm was found in the external plates database
Red-light phase start time	Time of the red-light phase start during which the alarm was registered (if the Red lights running module is used)
Time passed since the red-light phase start	Time between the red-light phase start and the alarm registration (if the Red lights running module is used)
Category	Vehicle category identified by license plate
Camera	Name of the video camera which captured the vehicle
Type	Vehicle type (if the Vehicle type recognition module is used)
Frame from a synchronous camera	Video frame from a synchronous video camera displaying a vehicle
Dangerous goods class	Class of the dangerous cargo (if the CARMEN-Auto module and the Hazard Identification Number Recognition Engine (ADR) are used)

Column name (by default)	Column content
Dangerous goods composition	Contents of the dangerous cargo (if the CARMEN-Auto module and the Hazard Identification Number Recognition Engine (ADR) are used)

3. To add a new column to the search results table, do the following:
 3.1 Click **Add (3)**. As the result the **Configure fields** dialog window will be displayed.

- 3.2 In the **Field name in the DB** field, specify the name of the column in the connected recognizer database, which content should be displayed in the search results table (1).
 3.3 In the **Field name in the interface** field, specify the name for this column which should be displayed in the search results table (2).
 3.4 Click **Save** to save the applied changes and close the **Configure fields** dialog window (3).

Note.

Click **Cancel** to close the window without saving any changes (4).

4. To edit the column name in the search results table, do the following:
 4.1 In the **Configure fields** group select the column, which name should be changed (1).
 4.2 Click **Edit (4)**.
 4.3 As a result the **Configure fields** dialog window with the disabled **Field name in the DB** field is displayed.

- 4.4 In the enabled **Field name in the interface** field, specify the new column name and save the changes (see steps 4.3-4.4).
 5. Click **OK** to save the changes and close the **Configure fields** dialog window (5).

Note.

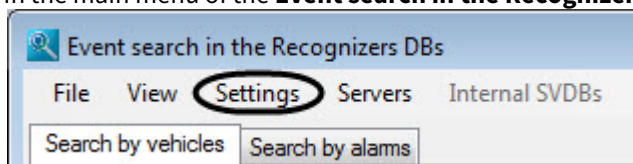
Click **Cancel** to close this window without saving any changes (6).

Configuring the displaying of the search results is completed.

3.3.12.2.3 Configuring the video archive

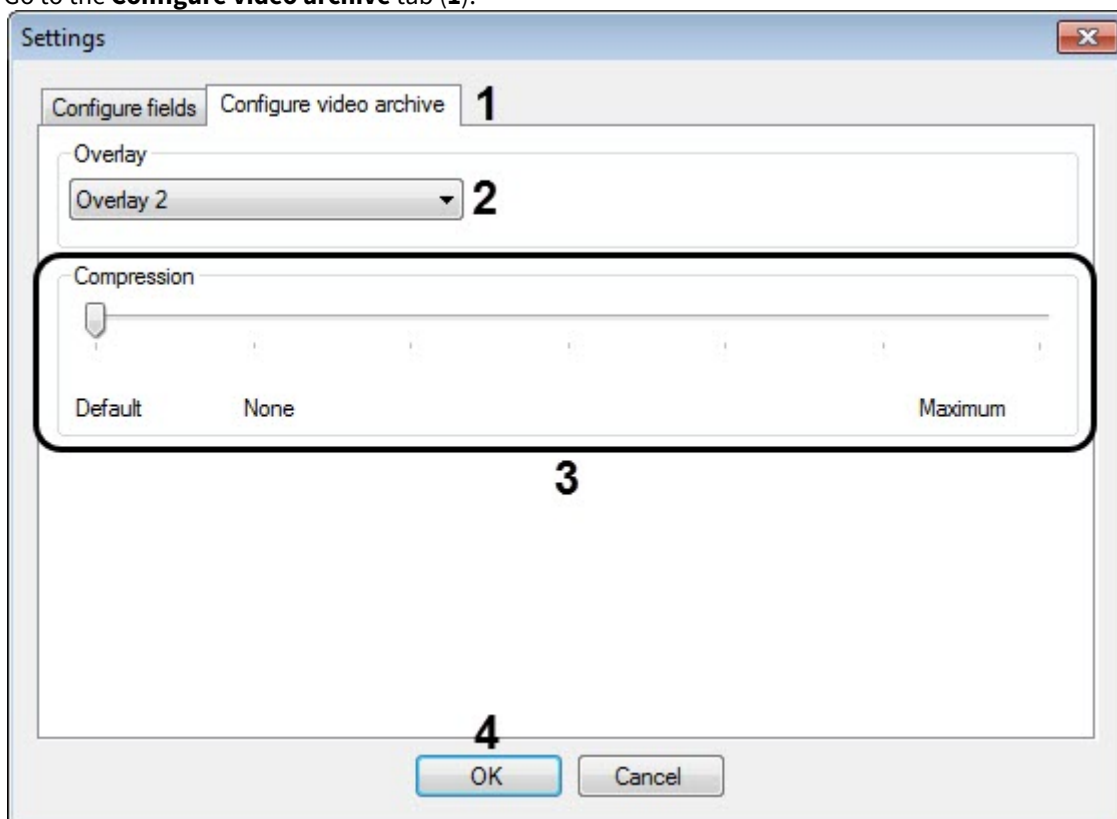
Video recordings of the events are displayed in the video archive. To configure the video recordings playback, do the following:

1. In the main menu of the **Event search in the Recognizers DBs**, click **Settings**.



As a result the **Settings** dialog window is displayed.

2. Go to the **Configure video archive** tab (1).



3. From the **Overlay** dropdown list, select the Overlay mode (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 load is reduced as the video is processed with the resources from the video capture card.

The overlay modes are presented in the table.

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

4. In the **Compression** field, set the cursor according to the required video compression rate (3).
 - **Default** — means the original compression rate, size and quality of the video corresponds to the video image that is sent to the server.
 - **None** — means minimal compression rate, full video size, best quality.
 - **Maximum** — means maximum compression rate, minimal video size, worst quality.

5. To save changes click **OK (4)**.

The configuring of the video recordings playback is completed.

3.3.12.3 Creating the search query

On the page:

- [Creating the search query by vehicles](#)
- [Creating the search query by alarms](#)

It is possible to form a search query:

1. By recognized vehicles;
2. By alarms.

3.3.12.3.1 Creating the search query by vehicles

To create the search query by vehicles, do the following:

1. Go to the **Search by vehicles** tab.

Search by vehicles Search by alarms

Vehicle's license plate:

Search operation: **AND** **1**

2

☐ License plate not recognized **3**

☐ Partly recognized **4**

☐ 'Space' in car number **5**

☐ Acceptable error amount **6** **1** **7**

Regional code:

☐ <not specified> **8**

LP region:

☐ <not specified> **9**

LP colors:

☐ <not specified> **10**

Date/Time

from: **11**

to:

Plate recognizers:

☒ LPR channel 1 **12**

Registered speed:

<not important> **13**

from: **14** to:

Direction: <no matter> **15**

Countries:

☐ <not specified> **16**

Comment:

Search operation: **AND** **17**

2. From the **Search operation** list (1) select a logical construction, used for uniting several elements of the key phrase, which correspond to the LP numbers or their parts that are being searched:
 - a. **AND** – for searching by numbers, containing all the elements of the key phrase;
 - b. **OR** – for searching by numbers, containing at least one element of the key phrase.
3. In the **Vehicle's license plate** (2) field, enter the key phrase. The elements of the key phrase can be separated by comma ",", or semicolon ";".

Note.

The key phrase may include usual characters and picture-characters in the required combination.

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 LP numbers, containing the elements 'a', '385' and '78', divided by any number of characters, for example 'AO38578', 'a385mk78'
_ (underlining)	Any single character	Search query 2__5 returns LP 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 within the range ([a-e]) or in the set ([abcde])	Search query [e-m][2-5]53 returns LP numbers, containing the sequence of four characters. The sequence ends in '53', the first character belongs to the range e-m, the second one belongs to the range 2-5, for example, 'k453mn02', 'm253bt63'
[^]	Any single character outside the range ([^a-e]) or the set ([^abcde])	Search query [^e-m]499 returns LP numbers, containing the sequence of four characters. The sequence ends in '499', the first character does not belong to the range e-m, for example 'b499bk57', 'n499578'

4. Set the **License plate not recognized** checkbox (3) if it is necessary to display all the numbers.

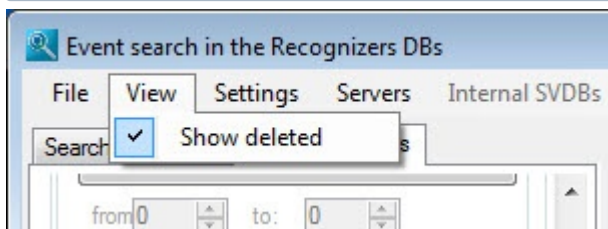
Note.

Selection of the checkbox **License plate not recognized** is enabled only if the **OR** logical construction is selected in the **Search operation** dropdown list.

5. Set the **Partly recognized** checkbox if it is necessary to display partially recognized numbers (4).
6. Set the **'Space' in car number** checkbox (5) if it is necessary to display the numbers that contain a space between the characters.
7. Set the **Acceptable error amount** check box (6) to display the numbers with the errors (character mismatches), the amount of which is indicated in the (7) drop-down list.
8. In the **Regional code** group set the checkboxes for those regional codes events for which should be returned while being searched (8).
9. In the **LP region** group set the checkboxes for those regions, which events should be returned while being searched (9).
10. In the **LP colors** group select color of regional code and basic color of the license plate (10).
11. In the **Date/time** group (11) set the time range within which the required events have been registered. By default this range is not activated (checkboxes from and to are disabled). To activate it, set the checkboxes **From** and/or **To** and then click  button (11) and in the appeared calendar set the required date. Enter the required time in the field **From** and/or **To**. If only upper or bottom boundary is selected, the search query will return the events, registered before or after the set deadline correspondingly. To disable the search by date and time, uncheck **From** and **To** checkboxes.
12. In the **Plate recognizers** group (12) set the checkboxes for those plate recognizers, which events are to be returned while being searched.

Note.

By default, information about objects removed from the *Intellect* software package is not displayed in the **Plate recognizers** group. Select **Show deleted** in the **View** menu of the **Event search in the Recognizers DBs** main window to search by removed servers of plate recognizers. After this all removed servers of plate recognizers will be displayed in the **Plate recognizers** group. Set checkboxes for those plate recognizers which will be used while being searched.



13. From the list **Registered speed** (13) select the required filter of vehicle speed and then in the activated field(s) (14) enter the threshold value(s) of vehicle speed.

The following speed filters are available:

- No matter** – events of the vehicle, moving with any speed will be returned.
- More** – events of the vehicle, moving with a speed, exceeding a single threshold value, will be returned.
- Less** – events of the vehicle, moving with a speed, not exceeding a single threshold value, will be returned.
- Interval** – events of the vehicle, moving with a speed, belonging to a single entered threshold value, will be returned.

14. From the **Direction** list (15) select the required filter concerning the direction of the vehicle. The following direction filters are available:

- No matter** – events of the vehicle, moving in any direction concerning the LP recognizer's camera will be returned.
- Undefined** – events of the vehicle, which direction could not be defined, will be returned.
- From the camera** – events of the vehicle, moving away from the LP recognizer's camera will be returned.
- To the camera** – events of the vehicle, moving towards the LP recognizer's camera will be returned.
- To the right** – events of the vehicle, moving to the right of the LP recognizer's camera will be returned.
- To the left** – events of the vehicle, moving to the left of the LP recognizer's camera will be returned.

15. In the **Countries** group (16) set the checkbox for the country, which events should be returned while being searched.

Attention!

Only the countries whose license plate numbers have already been recognized earlier are displayed in the **Countries** group, since the information about the countries for this filter is taken from the recognized plates database.

16. From the list **Search operation** (17) select a logical construction, used for uniting several elements of the key phrase, corresponding to the comments, that are being searched:

- and** – for searching by comments, containing all the elements of the key phrase;
- or** – for searching by comments, containing at least one element of the key phrase.

17. In the **Comment** field (18) enter the key phrase, containing one or several comma separated elements, corresponding to the comments to the events, which are being searched, and which were specified in the **Online monitor** window (see [Adding comments to the events](#)).

18. Set the **Empty comment** checkbox to include the uncommented events in the search (19).

Note.

The selection of the **Blank comment** checkbox is enabled only if the **OR** logical construction is selected in the **Search operation** dropdown list.

19. From the **Validity** list (20) select the required Validity filter and then in the activated field(s) (21) enter the threshold of Validity value(s) in percent. The following Validity filters are available:

- a. **No matter** – events of the vehicle, which numbers have been recognized with any validity.
- b. **More** – events of the vehicle, which numbers have been recognized with validity, exceeding the entered threshold value in percent.
- c. **Less** – events of the vehicle, which numbers have been recognized with validity, not exceeding the entered threshold value in percent.
- d. **Interval** – events of the vehicle, which numbers have been recognized with validity, belonging to the entered threshold value in percent.

20. In the **Recognition cameras** field (22) set the checkboxes for the cameras, which events should be returned while being searched.

Creating the search query by events is completed.

After creating the search query, run its processing (see [Query launching](#)).

3.3.12.3.2 Creating the search query by alarms

To create the search query by alarms, do the following:

1. Go to the **Search by alarms** tab.

Search by vehicles Search by alarms

Vehicle's license plate:
 Search operation: **AND**

☐ License plate not recognized
☐ Partly recognized
☐ 'Space' in car number
☐ Acceptable error amount **1**

Regional code:
☐ <not specified>

LP region:
☐ <not specified>

LP colors:
☐ <not specified>

Date/Time
 from:
 to:

Plate recognizers:
☒ LPR channel 1

Registered speed:

 from: to:

External DB:
☐ External Plates DB 1
☐ External Plates DB 1
☐ External Plates DB 2 **2**

Permitted speed:
 3

4

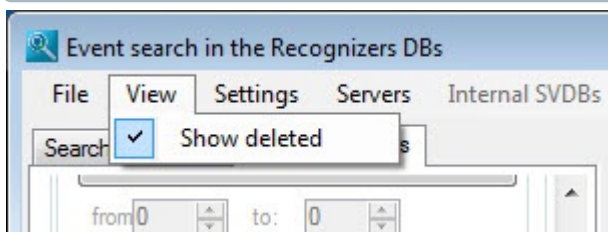
2. Repeat steps 2-12 of the section **Forming the search query by events** as applied to interface elements of the tab **Search by alarms** (1).
3. In the group **External DB** (2) set the checkboxes for those external databases, which events have to be returned in search query results.

Note.

This setting is enabled if the checkbox **Plate number is found in the DB** is set in the **Alarm type** group (9).

Note.

The **External database** group contains a list of all the databases that have ever been used together with the **Vehicle Tracer** module but, by default, databases removed from the *Intellect* software package are not displayed in the list. Select the **Show deleted** in the **View** menu of **Event search in the Recognizers DBs** main window to search by removed servers of plate recognizers. As a result, all external databases removed from the system will be displayed in the list. Set checkboxes for those databases which will be used while being searched.



4. From the **Permitted speed** list (3) select the required speed filter, permitted on the controlled road area and then in the activated field(s) (4) enter the threshold speed value(s) 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 **Alarm handling delay, sec** (5) select the required filter according to the alarm handling delay and then in the activated field(s) (6) enter the threshold value(s) of delay time in seconds.
The following filters of alarm handling delay are available:
 - 5.1 **No matter** – alarms, accepted in any time after being registered or unaccepted at all.
 - 5.2 **More** – alarms will be returned, accepted with a delay, exceeding the entered threshold value.
 - 5.3 **Less** – alarms will be returned, accepted with a delay, not exceeding the entered threshold value.
 - 5.4 **Interval** – alarms will be returned, accepted with a delay, belonging to the entered threshold value.

Note.

This setting is enabled if the values **No matter** or **Processed** are selected from the **Alarm processed** list.

6. From the list **Alarm processed** (7) select the required filter according to the alarm processing factor:
 - a. **No matter** – both processed and unprocessed events will be returned.
 - b. **Alarm is not processed** – only unprocessed events will be returned.
 - c. **Alarm processed** – only processed events will be returned.
7. In the **Alarm accepted by** group (8), set the checkboxes for the operators who received the alarm events to display these events in the search query.
8. In the **Alarm type** group (9), set the checkboxes for the alarms, which have to be returned in results of search query:
 - a. **Stop over stop line** – events will be returned for which stopping over the stop line at the stoplight has been registered.

- b. **Entered the oncoming lane** — events will be returned for which entering the oncoming lane has been registered.
 - c. **Parking violation** — events will be returned for which the violation of parking rules has been registered.
 - d. **Marking rules violation** — events will be returned for which the violation of marking rules has been registered.
 - e. **LP found in database** — events will be returned which plates have been found in the external database.
 - f. **Stop over crosswalk line** - events will be returned for which stopping over the crosswalk line at the stoplight has been registered.
 - g. **Overspeeding** — events will be returned for which overspeeding has been registered.
 - h. **Running a red light** — events will be returned for which running a red light has been registered.
 - i. **Running a red light at crossroads** — events will be returned for which running a red light at crossroads has been registered.
 - j. **Alarm is set by operator** — manually triggered alarms will be returned.
9. From the **Search operation** list (10), select the logical construct which is used to combine several elements of the key phrase, that correspond to the comments to the events to be searched in external databases:
- a. **AND** - to search for comments that contain all the elements of the key phrase;
 - b. **OR** - to search for comments that contain at least one element of the key phrase.
10. In the **Comment from external DB** field (11), enter a key phrase consisting of one or more elements, separated by commas, that correspond to the comments to the events to be searched in external databases that are specified in the **External DB** group (2) (see [Creating the Active tracking database](#)).
11. From the **Speeding** list (12) select the required speeding filter and then in the activated field(s) (13) enter the threshold value(s) of speeding in km/h.

Note.

This setting is enabled if the checkbox **Speeding** is set in the **Alarm type** group (9).

Note.

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

The following filters of the speeding are available:

- 6.1 **No matter** – events of the vehicle, moving with any overspeeding or with the absence of it will be returned.
 - 6.2 **More** – events of the vehicle, moving with overspeeding, exceeding the entered threshold value will be returned.
 - 6.3 **Less** – events of the vehicle, moving with overspeeding, less than the entered threshold value will be returned.
 - 6.4 **Interval** – events of the vehicle, moving with overspeeding, in the entered range of threshold values, will be returned.
12. From the **Red light shows at, sec** list (14) select the required filter for red light start and then in the activated field(s) (15) enter the threshold value(s) in seconds.

Note

This setting is enabled if the checkbox **Red light violation** is set in the **Alarm type** group (9).

The following filters of the running a red light are available:

- 6.1 **No matter** – events of the vehicle, which violated a red light, will be returned.
 - 6.2 **More** – events of the vehicle, which violated a red light after the entered threshold value will be returned.
 - 6.3 **Less** – events of the vehicle, which violated a red light before the entered threshold value will be returned.
 - 6.4 **Interval** – events of the vehicle, which violated a red light within the entered range of threshold values, will be returned.
13. In the **Alarm initiated by** field (16) select the required operators who initiated the alarm. The corresponding alarms will be shown in the search results.

Note

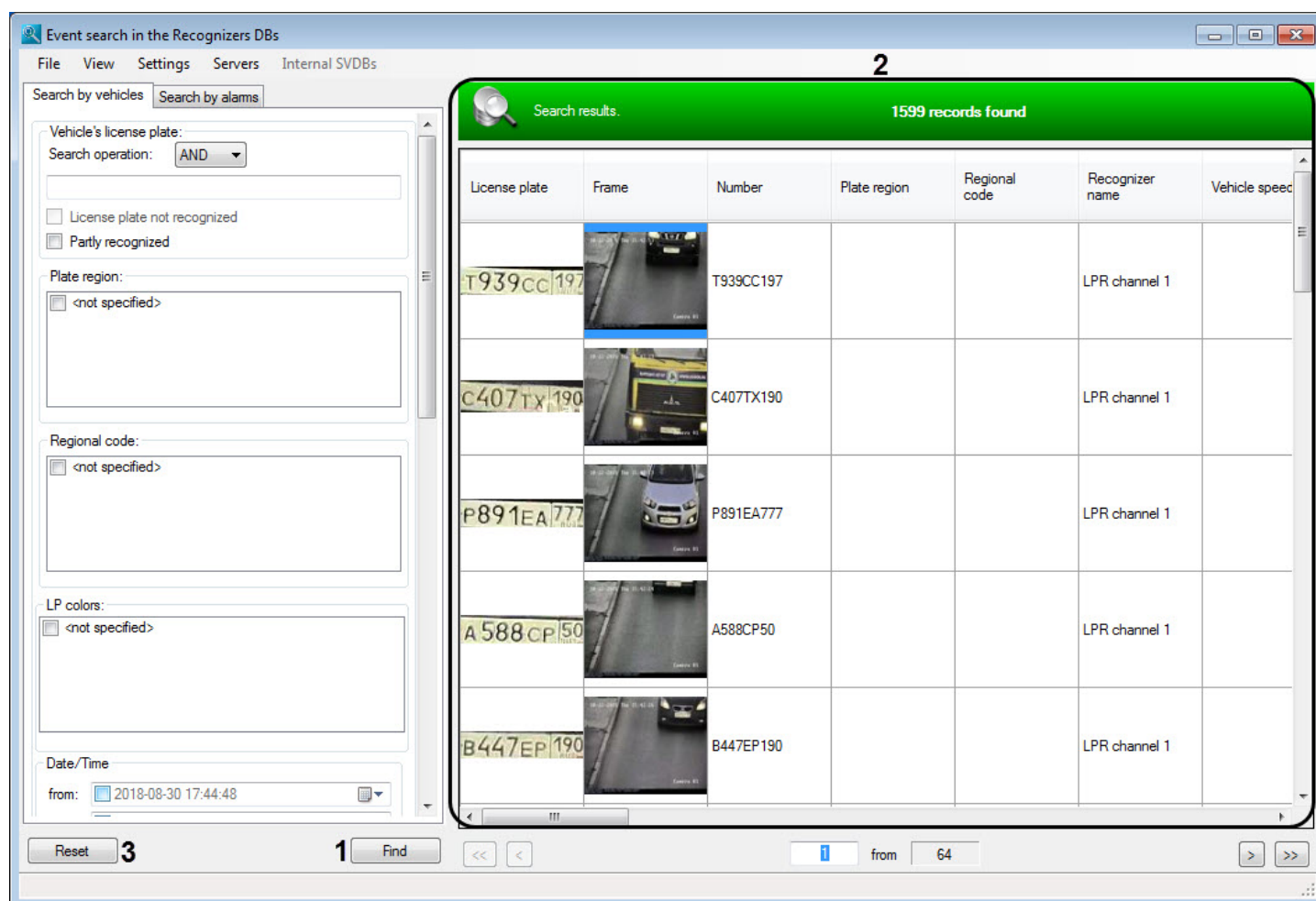
This setting is enabled if the checkbox **Alarm is set by operator** is set in the **Alarm type** group (9).

Creating the search query by alarms is completed.

After creating the search query, launch its processing (see section [Query launching](#)).

3.3.12.4 Query launching

After forming the search query by vehicles or by alarms, launch its processing by clicking the **Find** button (1).



As a result search results table will open (2).

Note.

To clear the tabs **Search by vehicles**, **Search by alarms** from the entered search criteria, click the **Reset** button (3).

3.3.12.5 Viewing, printing and exporting the search results

Columns of **Search results** table (1) are displayed in accordance with the settings, given in the **Selection of displayed fields** dialog window (see [Configuring the events search](#)).

Description of the columns content is given in the same section of the Guide.

1

Search results. 1599 records found						
License plate	Frame	Number	Plate region	Regional code	Recognizer name	Vehicle speed
T939CC197		T939CC197			LPR channel 1	
C407TX190		C407TX190			LPR channel 1	
P891EA777		P891EA777			LPR channel 1	
A588CP50		A588CP50			LPR channel 1	
B447EP190		B447EP190			LPR channel 1	

2

from

To navigate in the results table, use the following interface elements:

1. button  – go to the first page of the table;
2. button  – go to the previous page of the table;
3. field  – go to the required page of the table;
4. field  121 – number of pages in the table;
5. button  – go to the next page of the table;
6. button  – go to the last page of the table.

Note.

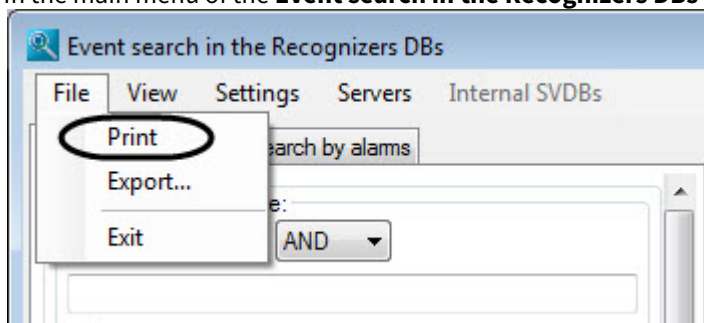
To go to the required page, enter its number in the field (2), and then press **Enter** on the keyboard.

The search results can be printed or exported as a report (see [Printing the search results report](#)), as well as the JPG file (see [Exporting the search results to JPG files](#)).

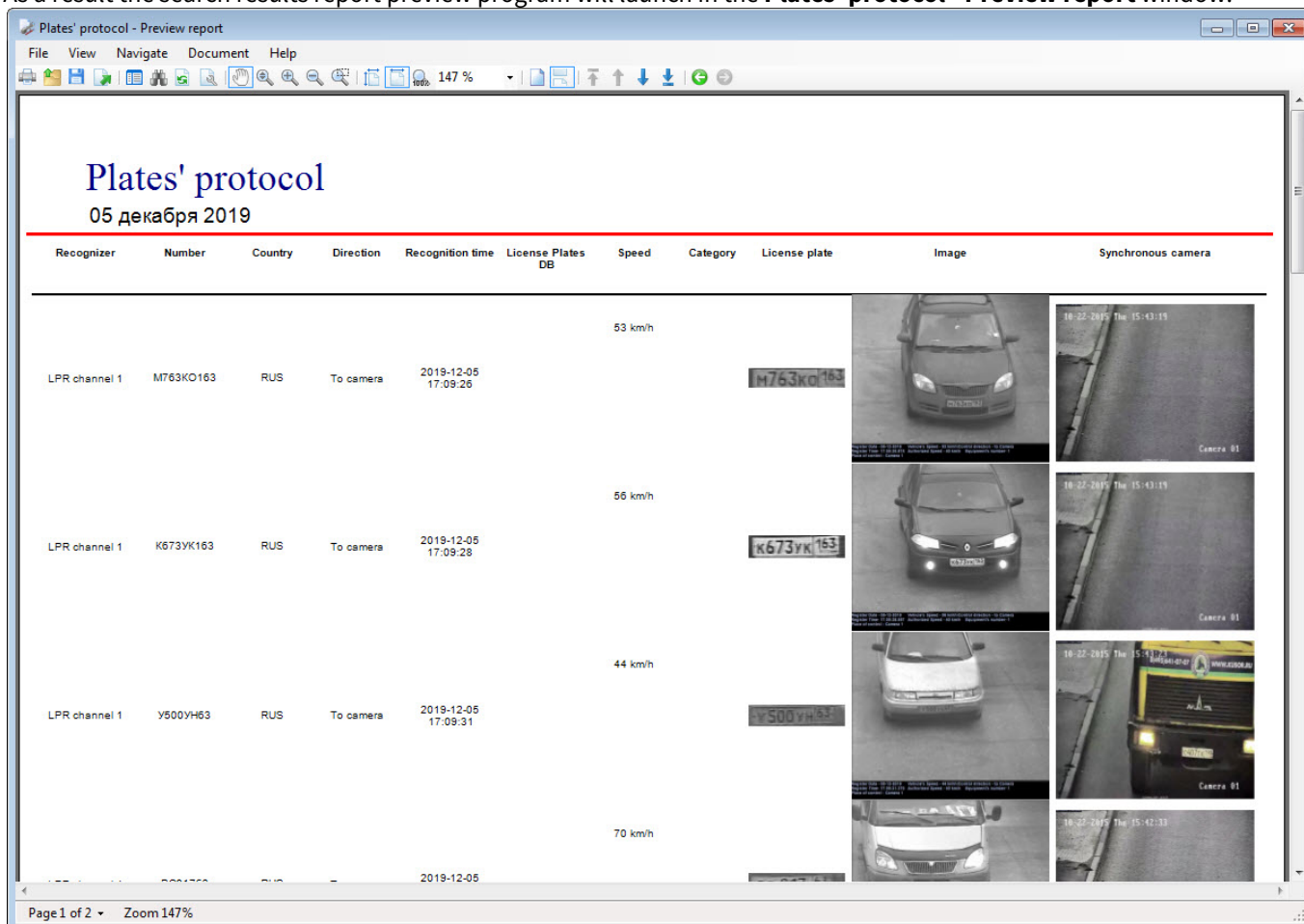
3.3.12.5.1 Printing the search results report

The event search results can be printed as a report. To do this, follow these steps:

1. In the main menu of the **Event search in the Recognizers DBs** window, click **File** → **Print**.

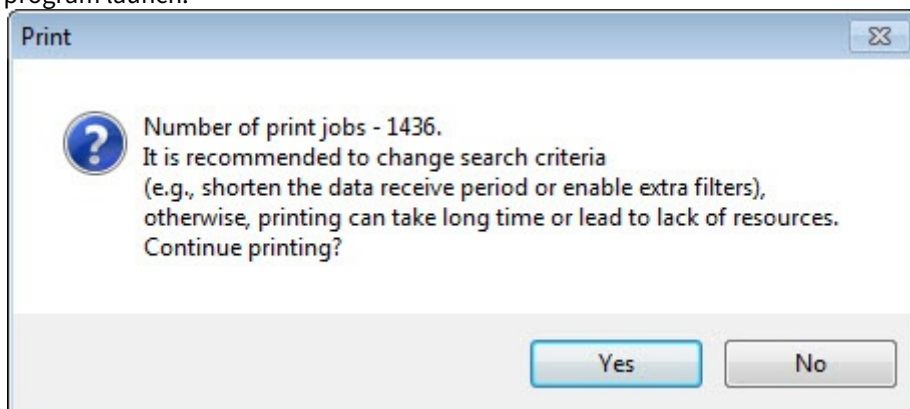


2. As a result the search results report preview program will launch in the **Plates' protocol - Preview report** window.



3. Perform the necessary operations with a report. All operations in this window are similar to those described on the page [Printing and exporting the vehicle data](#).

4. If there are more than 1000 entries in the search results the following message will be displayed before the preview report program launch.



Note

If the search results contain more than 1000 entries, the report may not be generated, because Windows does not allocate more than 2 GB of memory to the x86-bit processes.

Click **Yes** to continue. Click **No** to come back to change the search criteria.

Printing the event search results report is complete.

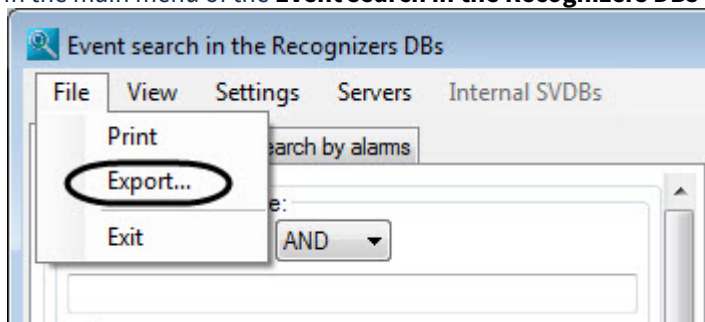
3.3.12.5.2 Exporting the search results to JPG files

The events search results can be exported to JPG files. For each event, the following objects will be created:

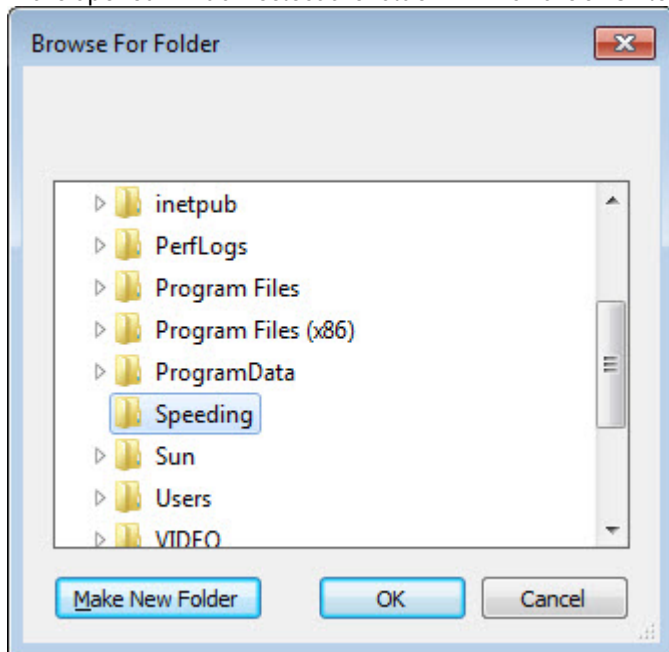
- a JPG file containing the frame from the main camera;
- a JPG file containing the frame from the *synchronous* camera with the *_secondary.jpg name (if the *synchronous* camera is configured);
- an archive containing meta data in the Arena module format (if Debug4 mode is enabled). This functionality is required for integration with the TRIS.

To export the events search results to JPG files, do the following:

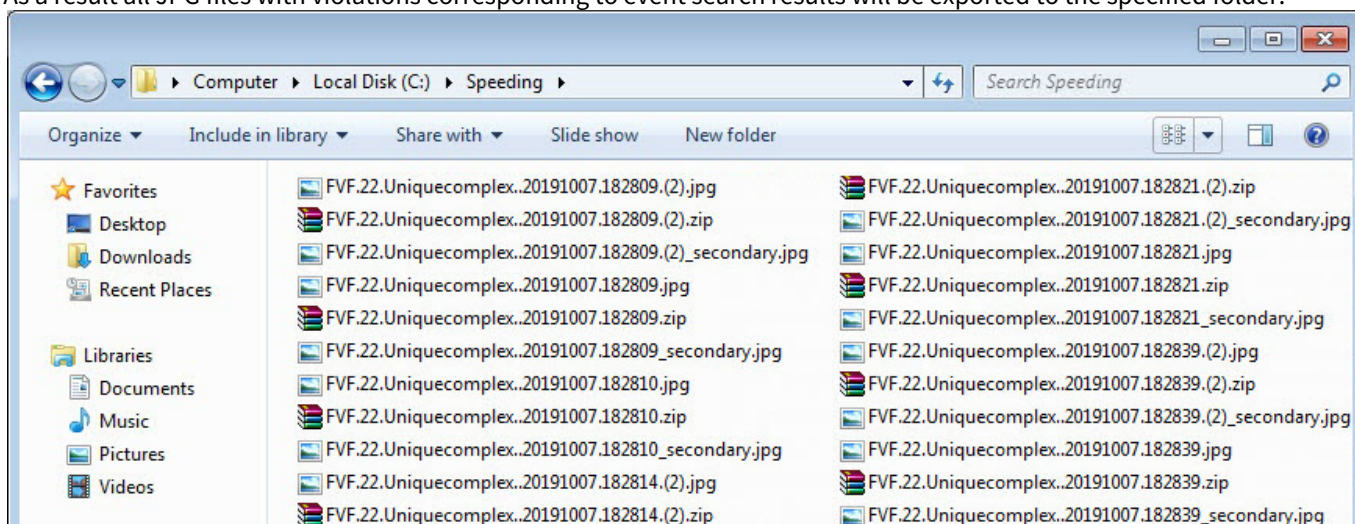
1. In the main menu of the **Event search in the Recognizers DBs** window, click **File** → **Export**.



2. In the opened window select the folder in which the JPG files with search results are to be exported. Click **OK**.



3. As a result all JPG files with violations corresponding to event search results will be exported to the specified folder.



Exporting the events search results to JPG files is complete.

3.3.12.6 Previewing and printing the event data

To view the event data, left-click the corresponding string in the search results table. **View event** dialog window will open in result.

View event



Recognizer	Arab channel
Country	United Arab Emirates: Abu Dhabi
Recognition time	2016-07-22 10:23:04
Speed	0 km/h
Validity	62 %
Direction	Undefined
Regional code	
Category	Private

Print

External Plates Database 1

Record 1

Field	Value
id	5295377e-045b-4783...
plate	K129HK153
number_id	
create_date	09.08.2010 9:52:22
comment	Car theft

Comments:

In the **View event** window, the following event characteristics are displayed:

- Video frame with a caption which contains the following data (1):
 - Date and time of receiving the vehicle data;
 - Vehicle speed;
 - Vehicle direction;
 - Speed, permitted on the controlled road area;
 - ID of speed detector;
 - Control site;
 - Name of the camera that captured the vehicle.
- Field (2) with the following data:
 - Identified LP number;
 - Image of recognized LP;
 - LP recognizer name;
 - Date and time of identifying the LP;
 - Vehicle speed;
 - Vehicle direction in relation to the LP recognition camera;
 - Regional code;
 - Vehicle category;
 - Alarm reason;
- Vehicle data from the external LP database if the identified LP has been found there (3);
- Comments to the event (4).

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

Vehicle data - Preview report

File View Navigate Document Help

150 %

auto Intellect™

Vehicle data

Recognizer	<u>Arab channel</u>
Country	<u>United Arab Emirates: Abu Dhabi</u>
Recognition time	<u>2016-07-22 10:23:04</u>
Speed	<u>0 km/h</u>
Validity	<u>62 %</u>
Direction	<u>Undefined</u>
Regional code	
Category	<u>Private</u>



Arab channel
2016-07-22 10:23:04



٣٠٤٦٤
(0 km/h)

Register Date - 22-07-2016 Vehicle's Speed - 0 km/h Control direction - Undefined
Register Time - 10:23:04.366 Authorized Speed - 0 km/h Equipment's number - 1
Place of control - a

Perform the necessary operations 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 [Printing and exporting the vehicle data](#)).

3.3.12.7 Creating the Active tracking database

The **Active tracking** database is the *Auto-Intellect* software package database and is filled up by operator via the **Vehicle Tracer** module.

Note.

It is impossible to remove and change records via the **Vehicle Tracer** module except changing the stolen vehicle status.

For total interaction between the **Active tracking** database and the **Vehicle Tracing** module the following conditions should be met:

1. The **Active tracking** database should be connected to the *Auto-Intellect* software package as an external plates database.
2. This external database should be used by the **Vehicle Tracer** module for analyzing the identified plates.

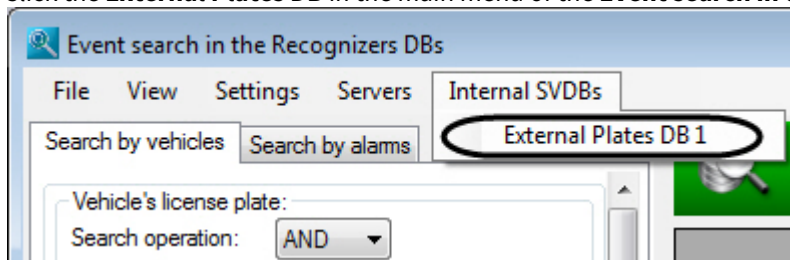
If the following conditions are met, the interaction between the **Active tracking** database and the **Vehicle Tracer** module is done in the following way:

1. The operator adds the vehicle LP to the **Active tracking** database via the **Vehicle Tracer** module, and specifies the reason of its adding.
2. The **Vehicle Tracer** module compares the passing vehicle LP with the LPs stored in the **Active tracking** database. If the correspondence between these LPs is set, the alarm is generated.

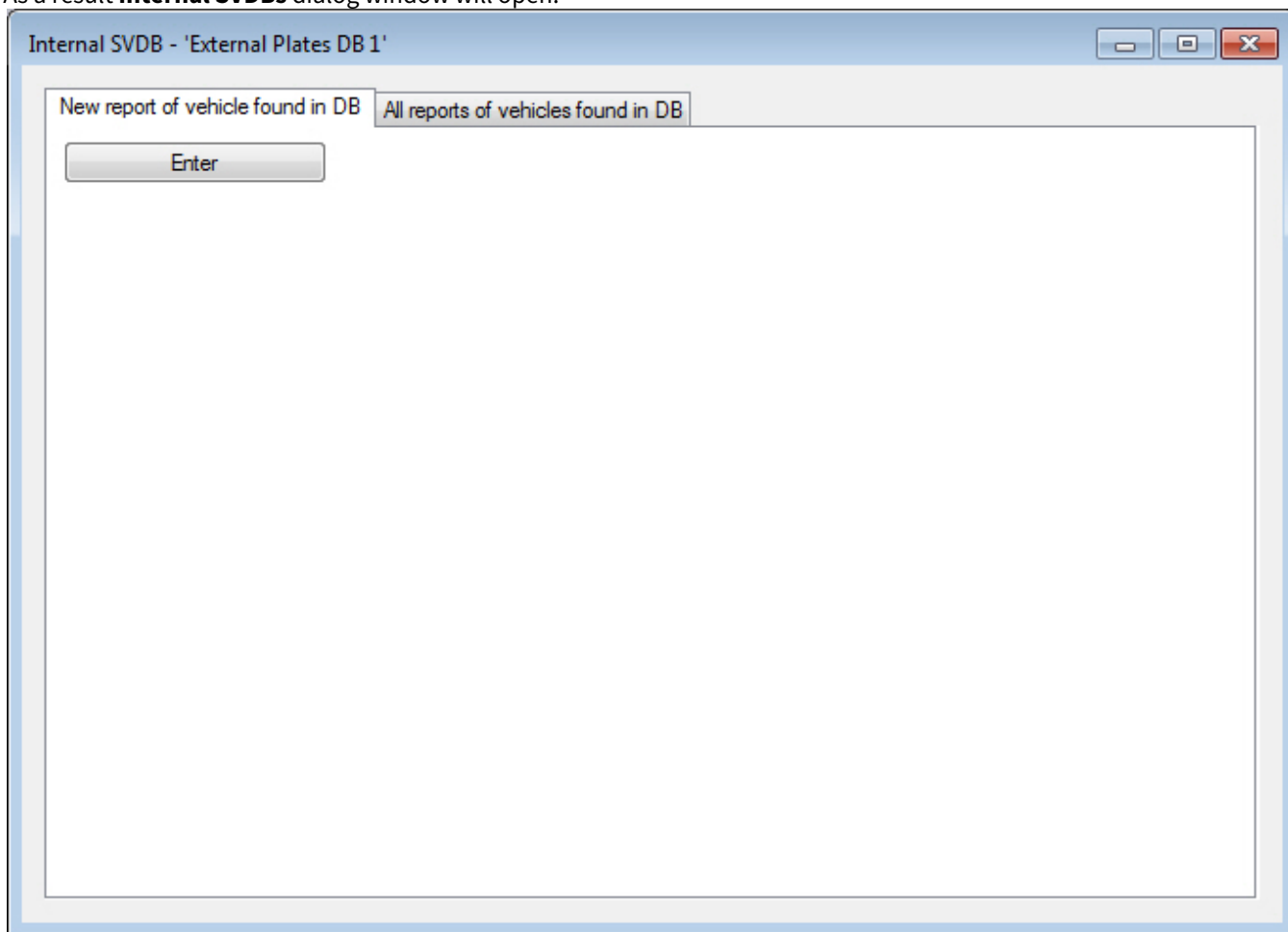
Active tracking option is convenient to be used in the *Auto-Intellect* distributed system, as it enables the operator at his workstation to notify the remote workstation operators about the vehicle that is to be captured.

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

1. Click the **External Plates DB** in the main menu of the **Event search in the Recognizers DBs** window.



2. As a result **Internal SVDBs** dialog window will open.



3. Click **Enter** to add records to the database.

4. Enter the vehicle LP number in the **License plate number** field (1).

Note

To enter a two-line LP number, use two underscore characters "_" as a line separator, for example:
123ABC__TH777.

5. If the fact of vehicle driving to the vehicle report by all boundaries is to be checked, do the following:
- Set the **Check the fact of driving** checkbox (2).
 - Enter the time period using the **up-down** buttons and select the measuring unit from the drop-down list (3).
6. Enter the description of reason by which the vehicle report is created in the **Additional information** field (4).
7. Click **Save** to save changes (5).

Note.

Click **Cancel** to cancel changes (6).

Note.

Entered vehicle reports are added to the database with the **Active** status.

8. Go to the **All reports of vehicles found in DB** tab to change the status of vehicle report.

Internal SVDB - 'External Plates DB 1'

New report of vehicle found in DB All reports of vehicles found in DB

LP: Search Edit Delete

Number	Date and Time	Operator	Comment	Active
663	01.08.2018 18:06:53			☒

Refresh Save

1 4

9. The list of vehicle reports in database is displayed in the table (1):
- In the **Number** column, the LPs on the wanted list are displayed.
 - In the **Date and Time** column, the time of adding the vehicle report to the database is displayed.
 - In the **Operator** column, the operator who added the vehicle report to the database is displayed.
 - In the **Comment** column, the reason by which the vehicle report is created is displayed.
 - In the **Active** column, the checkboxes are set for the active vehicle reports.
10. To search the vehicle in the table, enter the search request in the **LP** field and click the **Search** button (3). The records corresponding to the search request will be highlighted with red in the table.

Note

The data is searched in the following fields: **Number, Date and Time, Operator, Comment.**

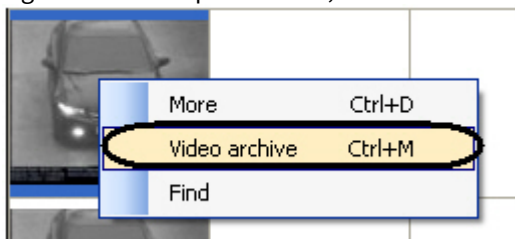
- To change the reports status, in the **Active** column (4) set the checkboxes for those vehicle reports which should be active and uncheck checkboxes for those reports which should be inactive.
- Click **Edit** to edit the selected vehicle report (5).
- Click **Delete** to remove the selected vehicle report (6).
- Click **Refresh** to refresh the list of vehicle reports (7).
- Click **Save** to save changes (8).

Adding the vehicle data to the **External Plates Database** is completed.

3.3.12.8 Viewing the video archive by event

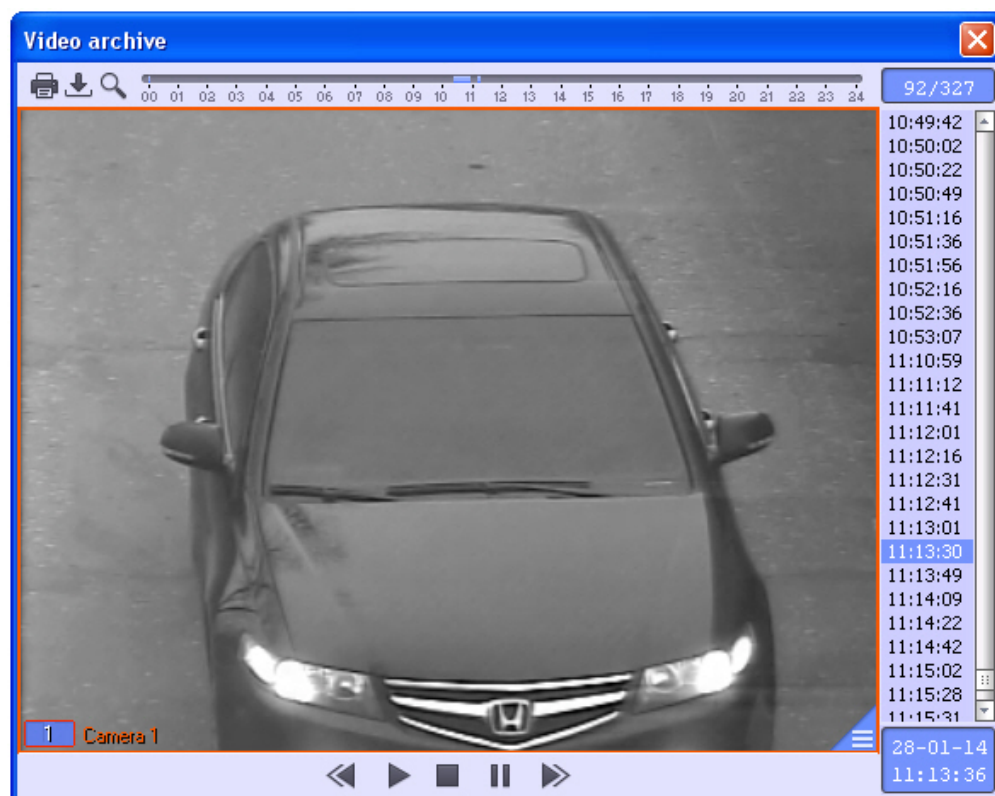
Viewing the video archive by event can be initiated in three ways:

1. Right-click the required event, and in the contextual menu select the **Video archive** option.



2. Left-click the required event, and on the keyboard push the **Ctrl + M** keys combination.
3. Holding the **Shift** key, double left-click the required event.

As a result, the video archive with videos of the event will open.



To close the video archive, click the  button in the right upper corner of the window.

Viewing the video archive by event is completed.

4 Description of the Auto-Intellect user interface

4.1 The Traffic Monitor interface object

4.1.1 Table panel of the Current value tab

The following figures show the **Table** sub-tab of the **Current value** tab displayed by lane and by direction respectively (depending on the system setup).

Displaying by lanes:

Current value Statistics Table Charts				
Traffic Detection 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
Passenger cars	2119	2521	880	3
Trucks less than 11 m long	5	210	419	625
Trucks from 11 to 14 m long	6	20	3	22
Trucks more than 14 m long	0	0	0	0
Buses	0	5	202	632
Registered vehicle speed (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 availability (%)	5	20	10	10
Number of speed overruns	2114	22	171	1063
Moving along oncoming lane	0	0	0	0
Total vehicle stops	0	0	0	0
Traffic jam	Vacant	Vacant	Vacant	Vacant
Violations	2114	22	171	1063

Displaying by direction:

Current value	Statistics
Table	Charts
	Traffic Detection 1
	Movement towards ca...
Total number of vehicles	7824
Time of registration	13:21:48 07-08-2014
Passenger cars	1295
Trucks less than 11 m long	0
Trucks from 11 to 14 m long	76
Trucks more than 14 m long	0
Buses	860
Registered vehicle speed (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 availability (%)	56
Number of speed overruns	3470
Moving along oncoming lane	0
Total vehicle stops	0
Traffic jam	Vacant
Violations	3470

The following table describes the elements of the **Table** panel.

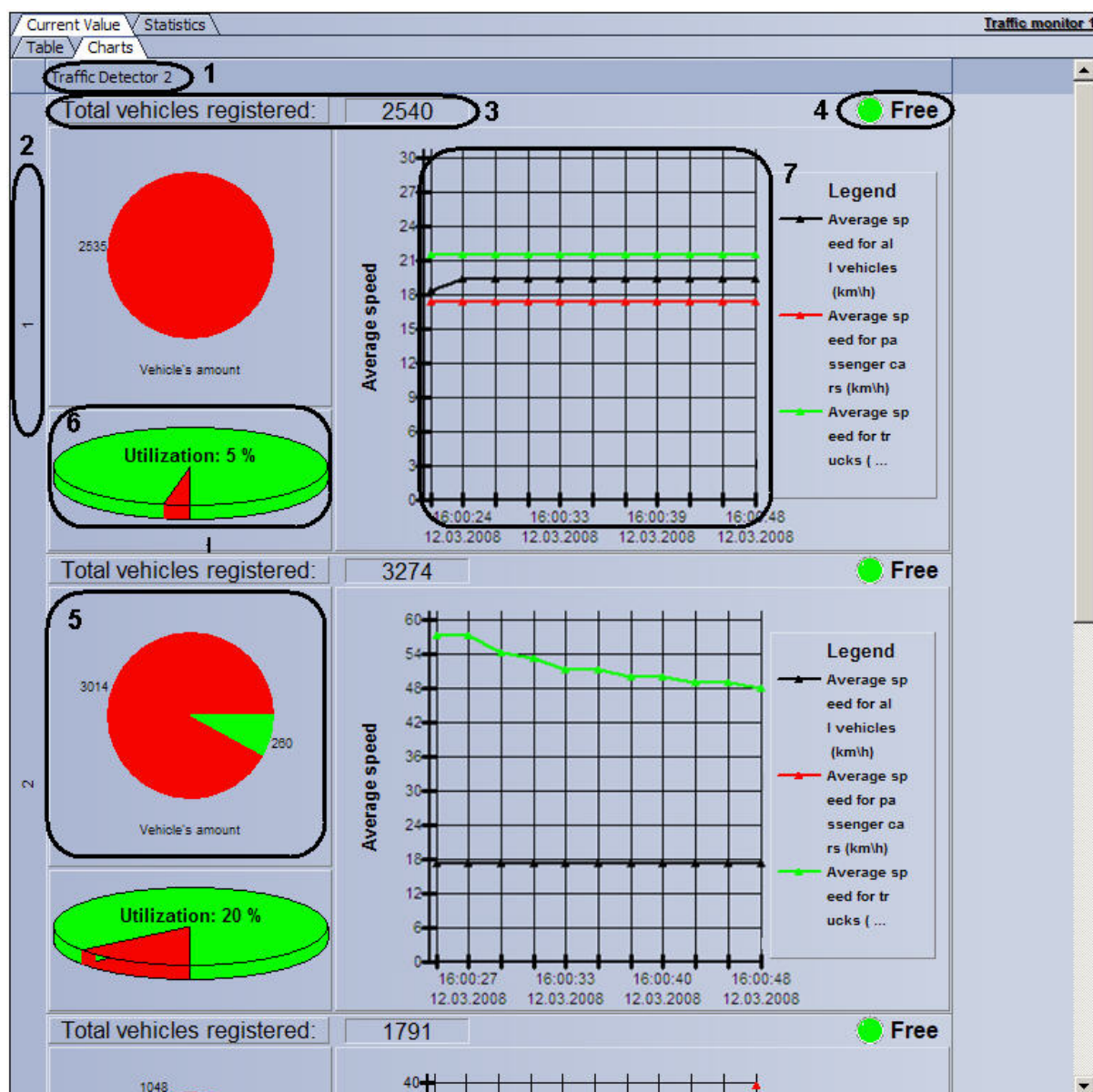
Field name	Description
Time of registration	The time when the last vehicle passed
Total number of vehicles	Total number of registered vehicles of all types
Passenger cars	The number of registered passenger cars
Trucks less than 11 m long	The number of registered trucks less than 11 m long
Trucks from 11 to 14 m long	The number of registered trucks from 11 to 14 m long
Trucks more than 14 m long	The number of registered trucks more than 14 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

Field name	Description
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)

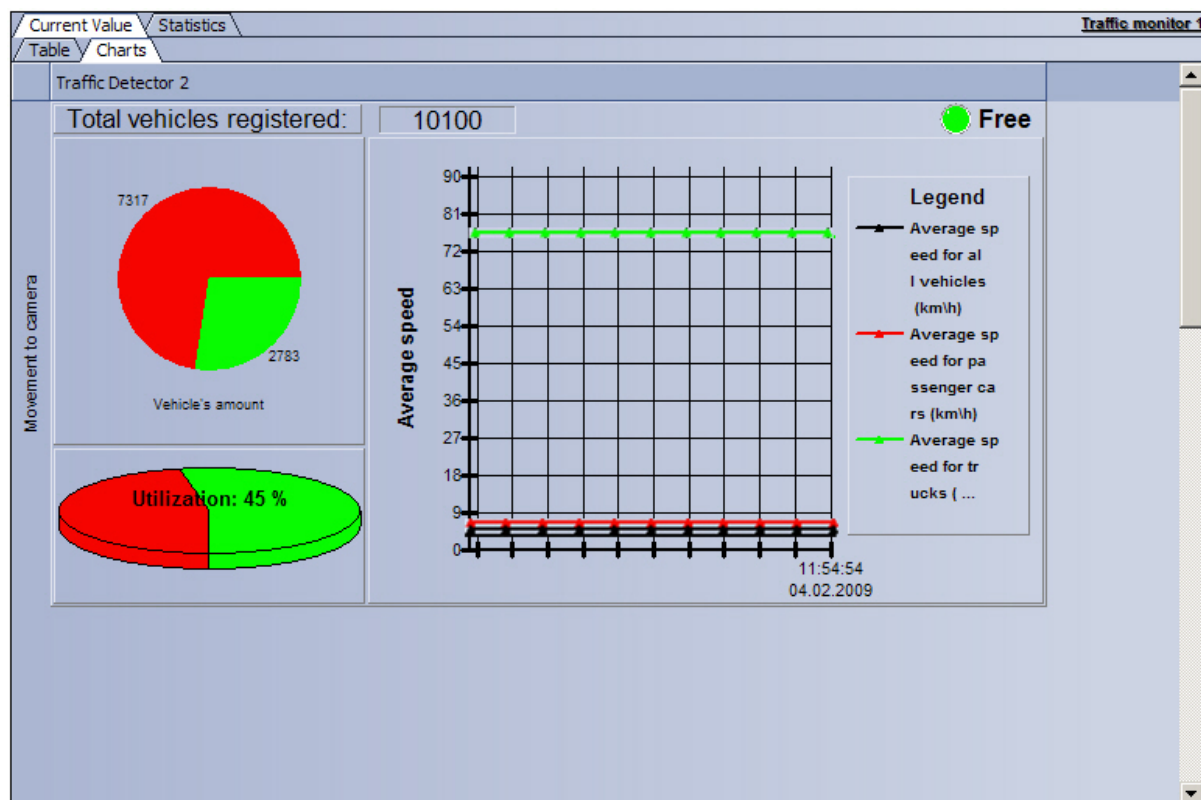
4.1.2 Charts panel of the Current value tab

The following figures show the **Charts** panel of the **Current value** tab displayed by lane and by direction, respectively (depending on the system setup).

Displaying by lanes:



Displaying by direction:

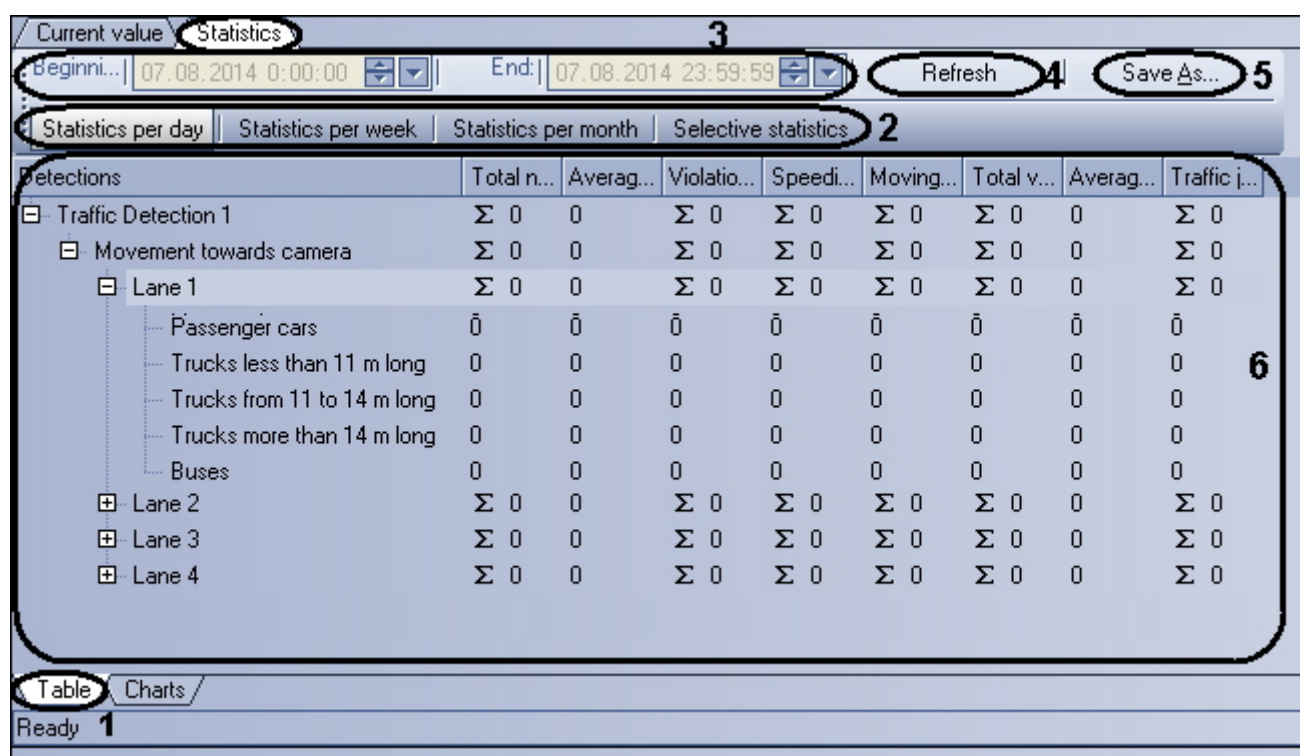


The following table describes the elements of the **Charts** panel.

Number of element	Description
1	The Traffic Detector name
2	The lane number or direction
3	Total number of vehicles registered for the lane (direction)
4	Indication of a traffic jam in the lane (direction)
5	Chart showing the number of vehicles in the lane (direction)
6	Chart showing the road load of the lane (direction), %
7	Chart showing the statistics for the average speed of different vehicles types

4.1.3 Table panel of the Statistics tab

The following figure shows the **Table** sub-tab of the **Statistics** tab.

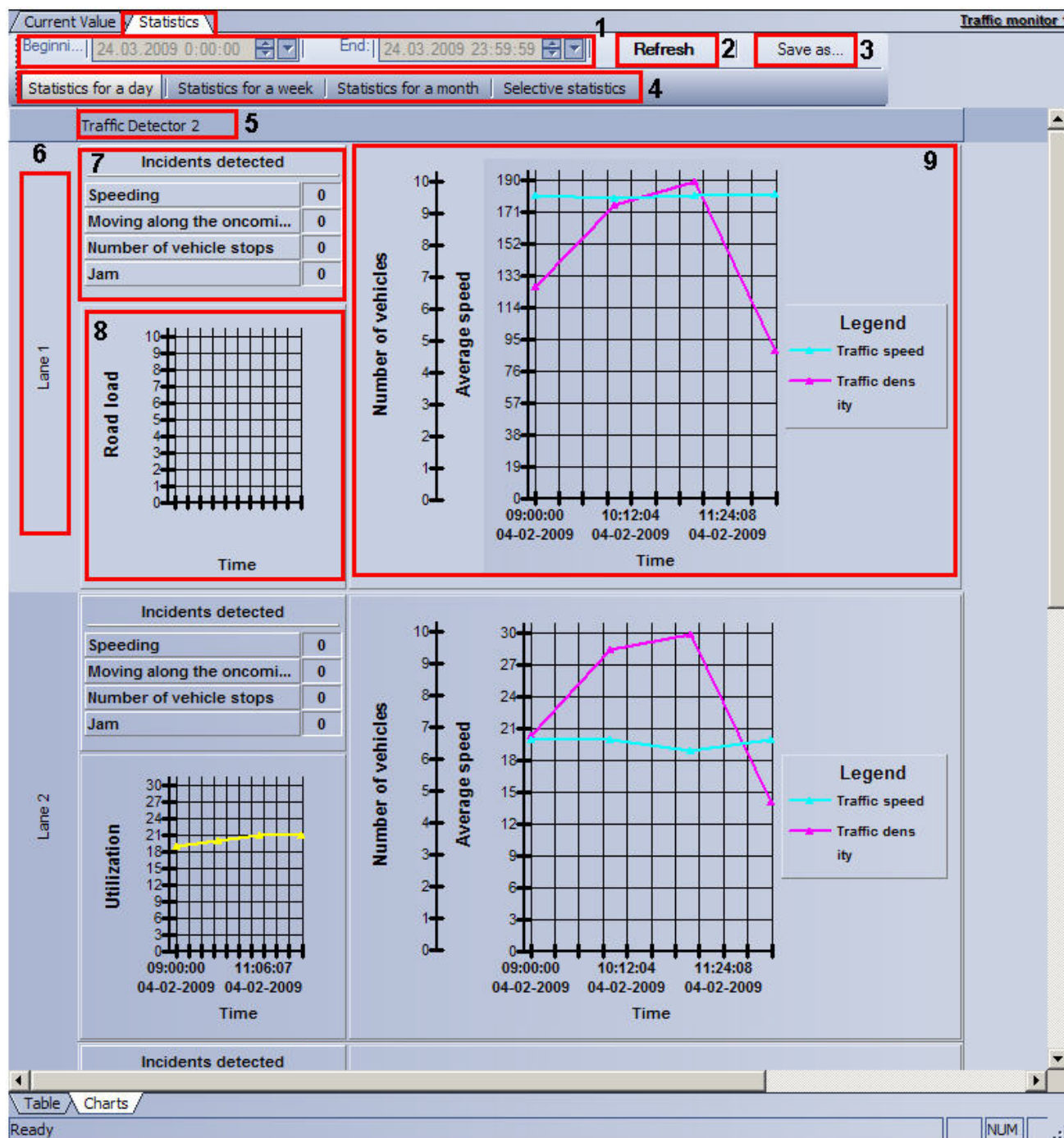


The following table describes the elements of the **Table** sub-tab.

Number of element	Description
2	Set of elements for selecting the statistic frequency
3	Set of elements for entering the beginning and end dates and times of the traffic statistics period
4	The Refresh button refreshes the displayed statistics.
5	The Save as button exports the displayed statistics to a file
6	Traffic statistics results

4.1.4 Charts panel of the Statistics tab

The following figure shows the **Charts** panel of the **Statistics** tab.



The following table describes the elements of the **Charts** panel.

Number of elements	Description
1	Set of elements for entering the beginning and end dates and times of the traffic statistics period
2	The Refresh button refreshes the displayed statistics.
3	The Save as button exports the displayed statistics to a file
4	Set of elements for selecting the statistic frequency

Number of elements	Description
5	The Traffic Detector name
6	The lane number
7	Incident statistics for the lane
8	The road load chart
9	Chart showing the number of vehicles in the lane

4.2 The Vehicle Tracer interface description

4.2.1 The Events monitor

The **Events monitor** contains the following interface elements.



The **Events monitor** interface description is presented in the table:

Element number	Description
1	The passing vehicle LP detector
2	The frame with a passing vehicle and a caption
3	The identified LP number and the LP image

4.2.2 The Alarm window

The **Alarm window** contains the following interface elements.

The screenshot shows the 'Report of vehicle found in DB' window. It includes a video frame of a car (1), a timestamp (2), a license plate (3), and a table of event details (4). At the bottom are navigation buttons (8), a 'Follow' checkbox (9), and 'Approve' (10) and 'Disapprove' (11) buttons. A status bar at the top right shows 'Alarms in total: 25' (6).

Field	Value
id	a2c98cbf-99ab-e811-aa18-1c1b0da7b3d9
License plate number	K673YK163
Storage time	
Active for search	Yes
Date/time of creation	29.08.2018 17:42:08
Comment	
Operator	

The Alarm window interface description is presented in the following table.

Number of element	Description
1	The signed video frame with moving vehicle
2	Date and time when the alarm event was recorded
3	Vehicle license plate number
4	Data about the tools that recorded the event <i>Note. The field with the name of the external database is hidden if the the alarm event was triggered manually.</i>

Number of element	Description
5	Current state of the alarm event There can be the following states of the alarm event: • Not confirmed - a new event that has not yet been confirmed. • Processing... - an alarm event is confirmed, but the information has not yet been recorded to the database. • Confirmed - the alarm is confirmed and recorded to the database (you may not notice this state since the event is deleted from the Alarm window after a successful confirmation). • Error - the confirmation is not recorded to the database due to the heavy load on the Server. It is necessary to confirm the event again.
6	Number of unprocessed alarm events
7	Description from the stolen vehicles database <i>Note. The table with the description from the stolen vehicles database is hidden if the the alarm event was triggered manually.</i>
8	Go to the first alarm event in the list; go to the previous alarm event; go to the next alarm event; go to the last alarm event in the list
9	If the checkbox is set it disappears from all alarm windows in distributed environment when the alarm is confirmed, when the alarm is not confirmed – only from the current alarm window. If the checkbox is not set the alarm disappeared only from the current alarm window both when the alarm confirmed or not.
10	Confirm the event alarm status. The alarm is marked as received when click this button. The dialog box with the offer to print the alarm event card will display.
11	Close the alarm window. The alarm status is not changed when click this button (alarm is not processed). Alarm will disappear from the Alarm window .

4.2.3 The On-line monitor

The **On-line monitor** component contains the following interface elements.



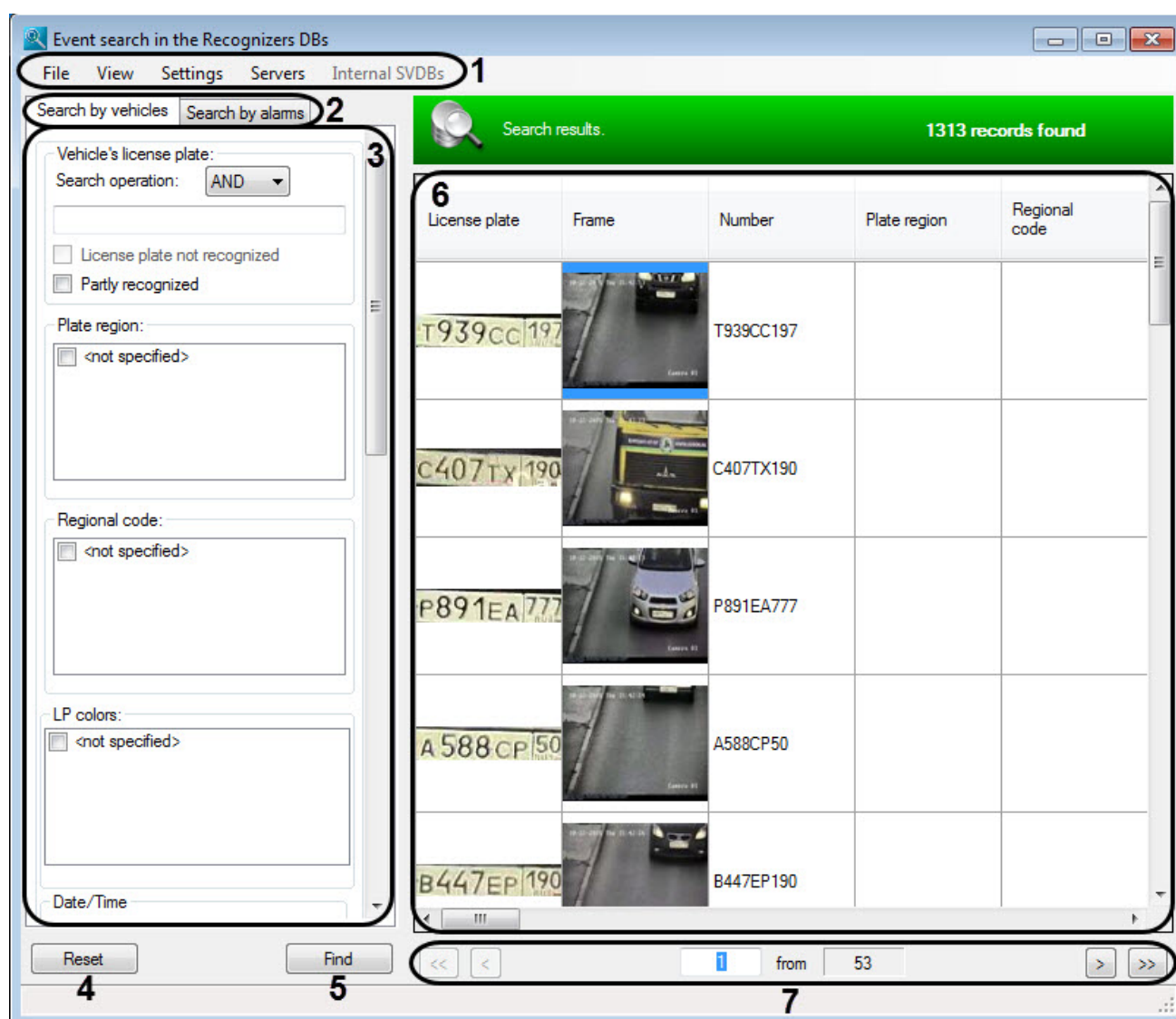
The **On-line monitor** interface description is presented in the following table.

Element number	Description
1	Data about the last passed vehicle or event, selected in the identified vehicles protocol or in the alarms protocol
2	Go to the Events tab of the identified vehicles protocol.
3	In case of the alarm event, go to the Alarms protocol tab. This tab displays the video frame and the LP of the most recent alarm.
4	Hide the processed events in the protocols.
5	Enable/disable the pre-configured filters.
6	Resume the online update of the displayed vehicle protocol.
7	Alarm triggering by the operator.
8	Alarm acceptance.
9	Go to the list of errors occurred in the Vehicle Tracer module.
10	Displaying the information from the external database.
11	Data about the identified objects protocol or the alarms protocol (depends on the activated tabs - Events tab or Alarms protocol tab).
12	Hide/show the panel with comments and external database.
13	Comments to the selected event.

Element number	Description
14	Create the report with data about the selected event.
15	Open the window for search in the plates recognizers databases.
16	Go to the video archive of identified vehicles.
17	Go to the filter settings, used in protocols.
18	Comments to the selected event with specified date and time of the comment creation.

4.2.4 The Events search in recognizers databases

The **Events search in the recognizers DBs** dialog window contains the following interface elements.

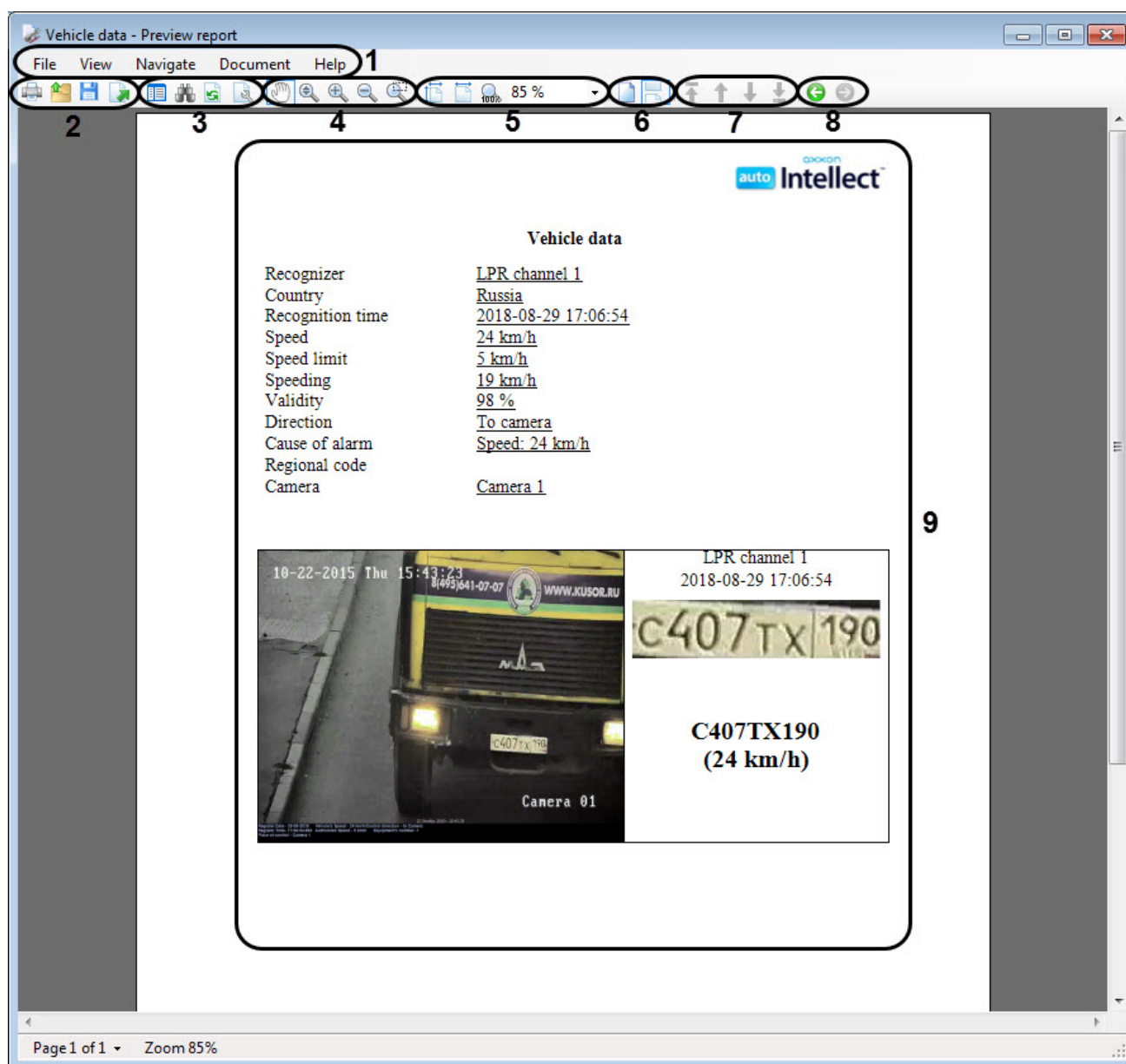


The **Events search in the recognizers DBs** interface description is presented in the following table.

Element number	Description
1	The main menu that enables to do the following operations: 1. File command: a. Printing the events search results; b. Closing the Events search in the recognizers DBs window. 2. View command: a. Configuring the display of remote servers and databases; 3. Settings command: a. Configuring the display of events search results; b. Connecting the recognizers databases. 4. Servers command: a. Selecting the databases for searching the events. 5. Internal SVDBs command: a. Editing the user Active tracking database.
2	Selecting the search type: by vehicles or by alarms.
3	Forming the search query of the selected search 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.

4.2.5 The preview report

The preview report program window contains the following interface elements.



The preview report interface description is presented in the following table.

Element number	Description
1	Main 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	Group of elements for operations with a report file (printing, opening, saving, exporting).
3	Group 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	Zooming the report.
6	Selecting the mode of displaying the report (page-by-page, nonstop page-by-page).

Element number	Description
7	Group of elements for navigation in the report.
8	Undo or redo the last action.
9	Field for displaying the formed report.