AxxonSoft

«Intellect» software system

Detector Pack: User's Manual

Version 2.4

Moscow 2014

ITV ИНТЕЛЛЕКТ. ТЕХНОЛОГИИ. ВИДЕО.

axxon Video Surveillance and Security Solutions

Contents

1 Introduction

1.1 General information

1.2 Purpose of the document

The *Intellect software system – Detector pack: Operator's Manu*al contains the information necessary to install and operate the additional software modules that are part of the *Intellect* software system detector pack.

The structure of this document allows the user to skim the information contained on the detector pack and to select, depending on the level of training, topics of interest for a more detailed study. Chapters in the manual - or the informational or reference content – each have their own underlying structure.

The *Introduction* Chapter is intended as a general introduction to this document.

The chapter on *Software and hardware requirements* states the requirements for computers in which the applicable modules that are part of the detector pack will be installed.

Requirements for staff working with modules comprising the detector pack are provided in the *Staffing requirements* chapter.

The chapter on the *General description of the detector pack* describes the modules comprising the detector pack.

Recommendations for users and administrators to install, repair and remove the detector pack are described in detail in the chapter on *Installing the detector pack*.

Information on configuring the **Queue length detector**, the **People counter detector, Stopped car detector** and the **Glow detection** modules is provided in the chapter on *Configuring the "Queue length detector", "People counter detector", "Stopped car detector" and "Glow detection" modules*.

Information on operating the **Queue length detector**, the **People counter detector, Stopped car detector** and the **Glow detection** modules is provided in the chapter on *Operating the "Queue length detector", "People counter detector", "Stopped car detector" and "Glow detection" modules.*

1.3 Purpose of the detector pack

The following detector pack modules are intended for integration and use with *Intellect*:

1. **Queue length detector**.
2. **People counter detector**.
3. **Stopped car detector**.
4. **Glow detection**.

The installation and functionality of these modules are shown in the appropriate sections (see the chapter on the *General description of the detector pack*).

2 Software and hardware requirements

2.1 Computer and operating system requirements

The computer and operating system requirements for the modules that are part the detector pack correspond to the same requirements for that of *Intellect* (see the *Intellect system Administrator's Manual*).

2.2 Camera requirements

Note. In general, the requirements listed in 2.2.1 - 2.2.4 sections are not mandatory. However, if these requirements are not met, the accuracy of the detector decreases.

The remaining camera requirements for the detector pack modules correspond to similar requirements for *Intellect* software.

2.2.1 Camera requirements for the Queue length detector module

The requirements for the cameras that will work with the **Queue length detector** module are listed in the Table 2.2—1.

Table 2.2—1 Camera requirements for the Queue length detector module

Camera	• Resolution: 720x576 (CIF4), using of 360x288 (CIF1) is acceptable; oversize images are reduces until CIF4. • Fps: not less than 6 • Color: analytics works with grey and color images. • Camera must be rigidly fixed.
Lighting	• The best working of detection is archived at medium lighting. Response to low (night) or over (flashing) lighting the quality of procedure working can be reduced. • Sharp changes of lighting can lead to short-time invalid analytics working.
Scene and camera angle	• The best position – camera "looks" to the scene vertically down. The better this requirement, the carefully the received estimation. • Sizes of camera field of view: 3x3m is minimal (6x6 people), 4x4m is optimal (8x8 people), 8x8m is maximal (16x16 people). • Background is static and is not changed sharply. • Analytics can work inappropriately on specular surfaces and in case of sharp shadows from moved objects. • Analytics can work inappropriately in case of in the camera field of view there are periodic movements of background objects (trees, working TV, etc.)
Objects image	• Image quality: the image is to be clear, without visible defects from reducing procedure. • Available size of a person: the area of a rectangle around the person as a percentage of the picture area is between 0.25% and 10%.

2.2.2 Camera requirements for the People counter detector module

The requirements for the cameras that will work with the **People counter detector** module are listed in the Table 2.2—2.

Table 2.2—2 Camera requirements for the People counter detector module

Camera	• Resolution: 720x576 (CIF4), using of 360x288 (CIF1) is acceptable. Resolution zoom-in over CIF4 is not improve the quality of recognizing procedure. • Fps: 25. • Color: only color camera can be in use. • Camera must be rigidly fixed.
Lighting	• The best working of detection is archived at medium lighting. Response to low (night) or over (flashing) lighting the quality of procedure working can be reduced. • Sharp changes of lighting can lead to short-time invalid analytics working.
Scene and camera angle	• The best position – camera "looks" to the scene vertically down. The better this requirement, the carefully the received estimation. • Sizes of camera field of view: 2x2m is minimal, 4x4m is optimal (8x8 people).

	• Background is static and is not changed sharply. • In the recognized are there no moving objects except of people. • Analytics can work inappropriately on specular surfaces and in case of sharp shadows from moved objects. • Analytics can work inappropriately in case of in the camera field of view there are periodic movements of background objects (trees, working TV, etc.) • People occulting by static objects is to be minimal (by columns, trees etc.).
Objects image	• Image quality: the image is to be clear, without visible defects from reducing procedure. • Available size of a person: the area of a rectangle around the person as a percentage of the picture area is between 10% and 60%.
Other:	• People shouldn't move by continuous flow, by groups by several people are counted properly.

2.2.3 Camera requirements for the Tracker module

The requirements for the cameras that will work with the **Tracker** module are listed in the Table 2.2—3.

Table 2.2—3 Camera requirements for the Tracker module

Camera	• Resolution: not less than 320x240. • Fps: not less than 6. • Color: analytics works with grey and color images. • Camera must be rigidly fixed.
Lighting	• The best working of detection is archived at medium lighting. Response to low (night) or over (flashing) lighting the quality of procedure working can be reduced. • Sharp changes of lighting can lead to short-time invalid analytics working.
Scene and camera angle	• Moving objects in the video image should be visually distinguishable. • Background is static and is not changed sharply. • People occulting by static objects is to be minimal (by columns, trees etc.). • Analytics can work inappropriately on specular surfaces and in case of sharp shadows from moved objects. • Analytics can work inappropriately in case of long one-color objects
Objects image	• Line sizes of objects on the image shouldn't be less than 2% from the frame size. • Line sizes are not be more than 25%. • Speed of objects moving on the image is not to be less than 1 pixel by second.

2.2.4 Camera requirements for the Stopped car detector module

The requirements for the cameras that will work with the **Stopped car detector** module are follows:

- The camera must be rigidly fixed.
- Cars in the video image should be visually distinguishable.
- Camera "looks" to the scene vertically down.
- Available car size is from 0.1 to 0.8 from the size of recognizing area.

2.2.5 Camera requirements for the Glow detection module

The requirements for the cameras that will work with the **Glow detection** module are follows:

- The camera must be rigidly fixed.
- Light sources in the video image should be visually distinguishable.
- The camera is pointed to the area where all light sources are located (ideally, the optical axis of the camera is pointed strictly perpendicularly to this area).

3 Staffing requirements

For the use of the *Intellect*-based detector, there are the following roles:

1. administrator;
2. operator.

In particular cases a person can perform the functions of both the administrator and operator. The main duties of the administrator are:

1. upgrading, configuring and monitoring the performance of the system hardware;
2. installing, upgrading, configuring and monitoring the performance of the system and basic software;
3. installing, configuring and monitoring the application software.

The administrator must have a high level of qualifications and practical experience in the implementation of the installation, configuration and administration of software and hardware used in the software package. The structure of the system provides the ability to control all functionality available by a single administrator, and also allows for the sharing of the administrative responsibility among multiple operators. The main duties of the operator are as follows:

1. work with the system's graphical user interface;
2. optimization of the PC for the tasks needed using the functionality provided in the system.

The system operator should have experience working with PC's based on Microsoft Windows operating systems at the level of a skilled user, and easily carry out basic operations.

4 General description of the detector pack

4.1 Structure of the detector pack

The *Intellect* detector pack is comprised of 4 independent software modules:

1. The **Queue length detector** module.
2. The **People counter detector** module.
3. The **Stopped car detector** module.
4. The **Glow detection** module.

The basic version of *Intellect* includes the software platform for the installation of these modules.

4.2 Functionality of the «Queue length detector» module

The **Queue length detector** module is designed to carry out the following functions:

1. Count the number of people waiting in line within a certain time interval.
2. Record the number of people waiting in line in a database.
3. Plot the crowding in an observed area.

4.3 Functionality of the «People counter detector» module

The **People counter detector** module is designed to carry out the following functions:

1. Count visitors in an observed area.
2. Record incidence of visitor entries into an observed area in a database.
3. Record incidence of visitor exits from an observed area in a database.
4. Generate reports in the number of visitors to an observed area.

4.4 Functionality of the «Stopped car detector» module

The **Stopped car detector** module is designed to carry out the following functions:

1. Recognizing cars stopped in the specified area.
2. Recognizing jams in the specified area.
3. Recording Jams and Stopped cars events to the database.

4.5 Functionality of the «Glow detection» module

The **Glow detection** module is designed to carry out the following functions:

1. Keeping track of light sources (lamps) in an observed area.
2. Record events about recognizing of light sources insertion or elimination to the database.

5 Installing the detector pack

5.1 General information on installing the detector pack

The installation of the detector pack takes place in the following order:

1. Install *Intellect* (see the *Intellect system Administrator's Manual*).
2. Install the detector pack (see the chapter on *Installation*).

5.2 Installing the detector pack

5.2.1 Description of the detector pack installation files

Detector pack installation files on CD-ROM (see Fig. 5.2—1).

Fig. 5.2—1 CD-ROM with the detector pack installation files

The installation files contain the installation program and the necessary software components to install the detector pack on the computer.

Only an administrator can install the detector pack.

5.2.2 Installation

To install the detector pack, the following steps must be carried out:

1. Insert the CD-ROM with the detector pack installation files into the CD/DVD drive. A window will open showing the contents of the disc (Fig. 5.2—2)

Fig. 5.2—2 Contents of the CD-ROM

2. Run **Setup.exe**, which will start the detector pack installation.

As a result, a window will appear with the message **Welcome to the Detector Pack v.1.2.0 Setup Wizard** (Fig. 5.2—3).

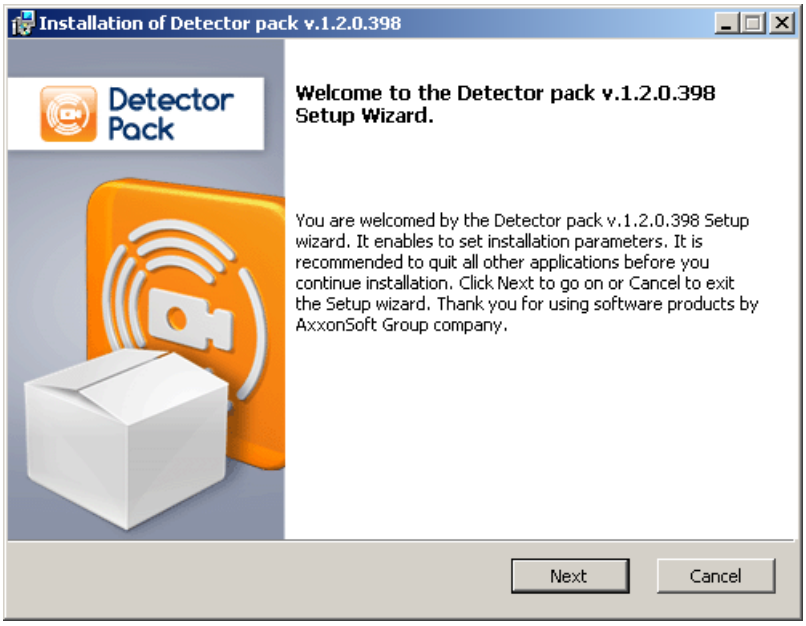


Fig. 5.2—3 Installation setup window

3. Click **Next** (Fig. 5.2—3).

The **License agreement** window will appear (Fig. 5.2—4).

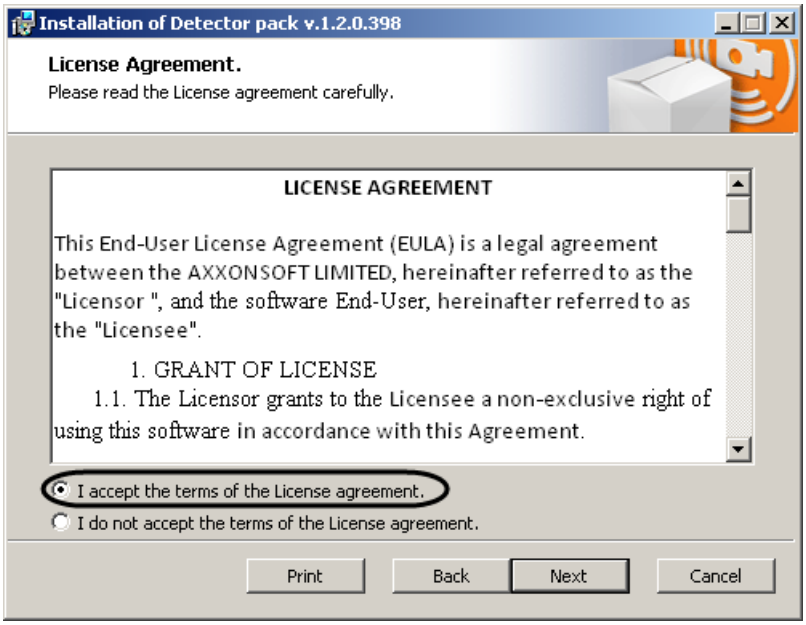


Fig. 5.2—4 License agreement window

4. After reading the license agreement, agree with the terms of the agreement by clicking on the check box stating **I accept the terms of the License agreement**, otherwise the installation of the software system will be discontinued (Fig. 5.2—4).
5. Click **Next** (Fig. 5.2—4).

The **Ready to install** window will appear (Fig. 5.2—5).

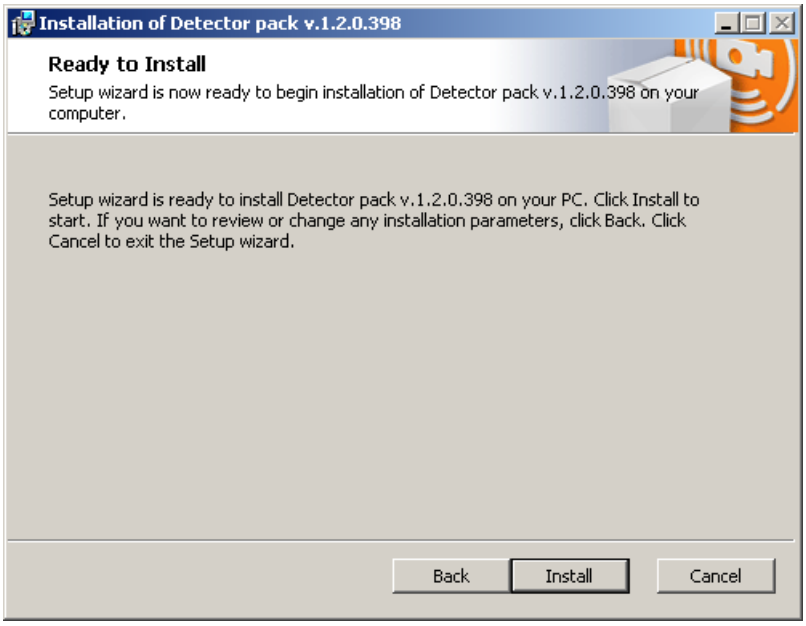


Fig. 5.2—5 Ready to install window

6. Click **Install** (Fig. 5.2—5).

As a result, the **Detector pack installation process** window will appear (Fig. 5.2—6)

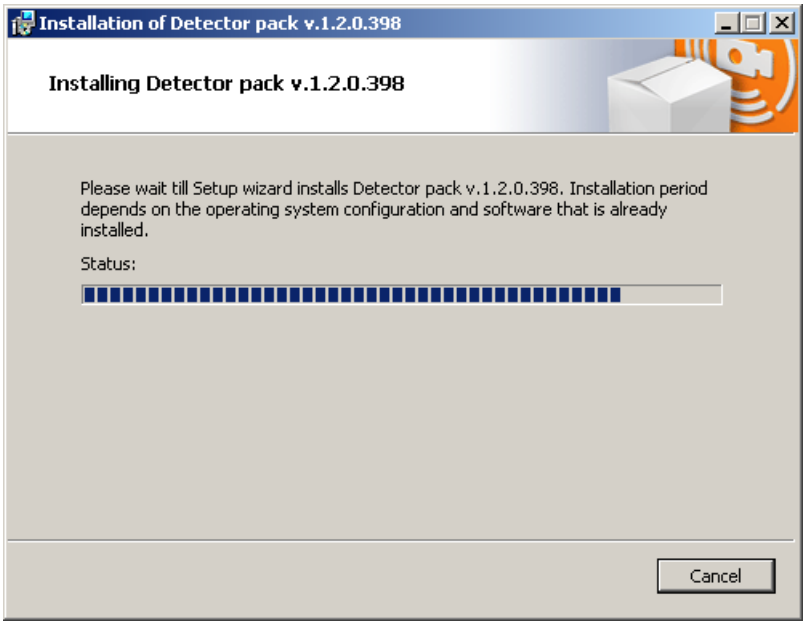


Fig. 5.2—6 Detector pack installation process window

After installing all components, the **Installation complete window** will appear (Fig. 5.2—7)

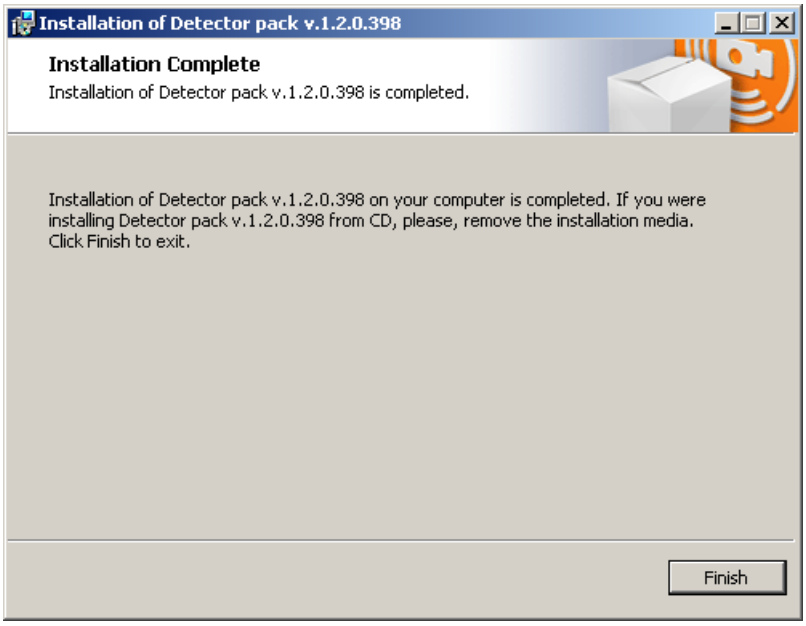


Fig. 5.2—7 Installation complete window

7. Click **Finish** (Fig. 5.2—7).

The detector pack installation in complete.

5.2.3 Repair

To repair the detector pack, the following steps must be carried out:

1. Insert the CD-ROM with the detector pack installation files into the CD/DVD drive. A window will open showing the contents of the disc (Fig. 5.2—8)

Fig. 5.2—8 Contents of the CD-ROM

2. Run **Setup.exe**, which will start the detector pack installation.

As a result, the **Select action** window will appear (Fig. 5.2—9).

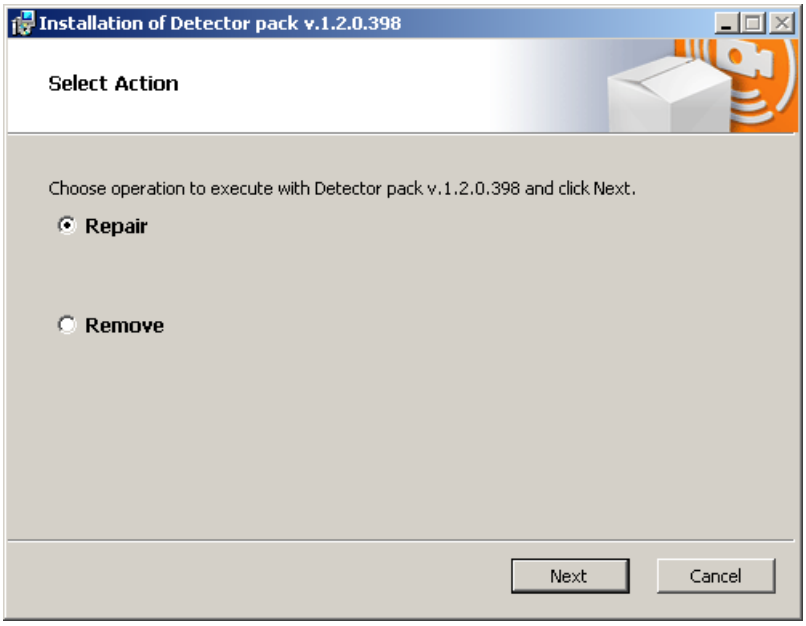


Fig. 5.2—9 Select action window

3. Select **Repair** (Fig. 5.2—9).
4. Click **Next** (Fig. 5.2—9).

The **Detector pack repair process** window will appear (Fig. 5.2—10).

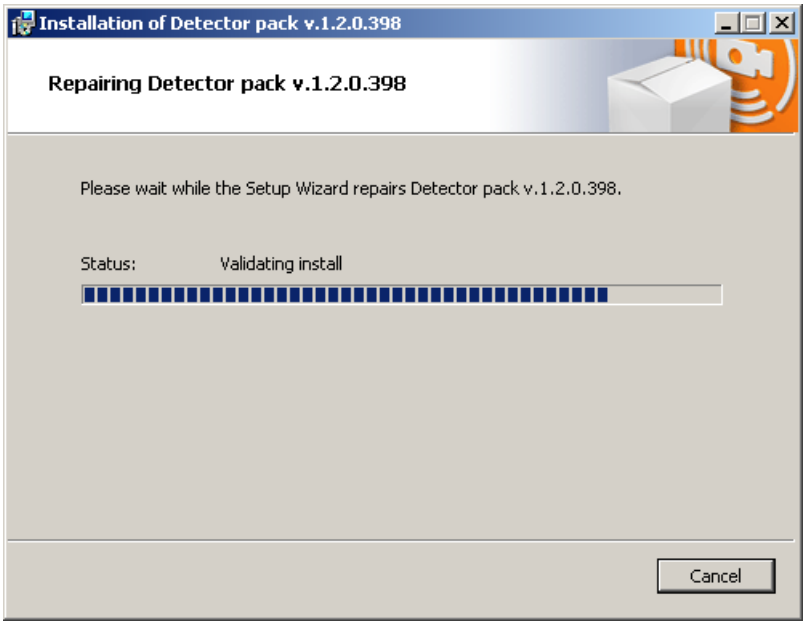


Fig. 5.2—10 Repair process window

After installing all components, the Repair complete window will appear (Fig. 5.2—11).

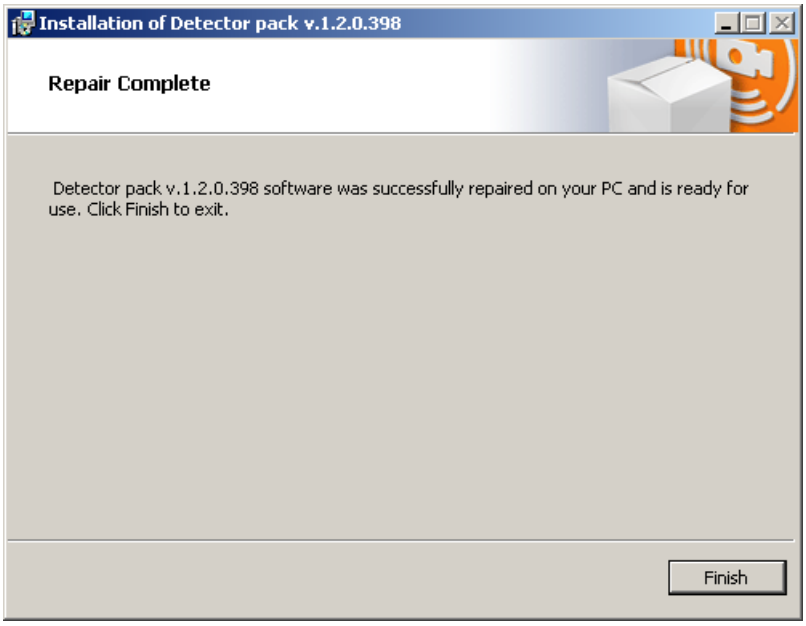


Fig. 5.2—11 Repair complete window

5. Click **Finish** (Fig. 5.2—11).

The detector pack repair is complete.

5.2.4 Removal

To remove the detector pack, the following steps must be carried out:

1. Insert the CD-ROM with the detector pack installation files into the CD/DVD drive. A window will open showing the contents of the disc (Fig. 5.2—12).

Fig. 5.2—12 Contents of the CD-ROM

2. Run **Setup.exe**, which will start the detector pack installation.

As a result, the **Select action** window will appear (Fig. 5.2—13).

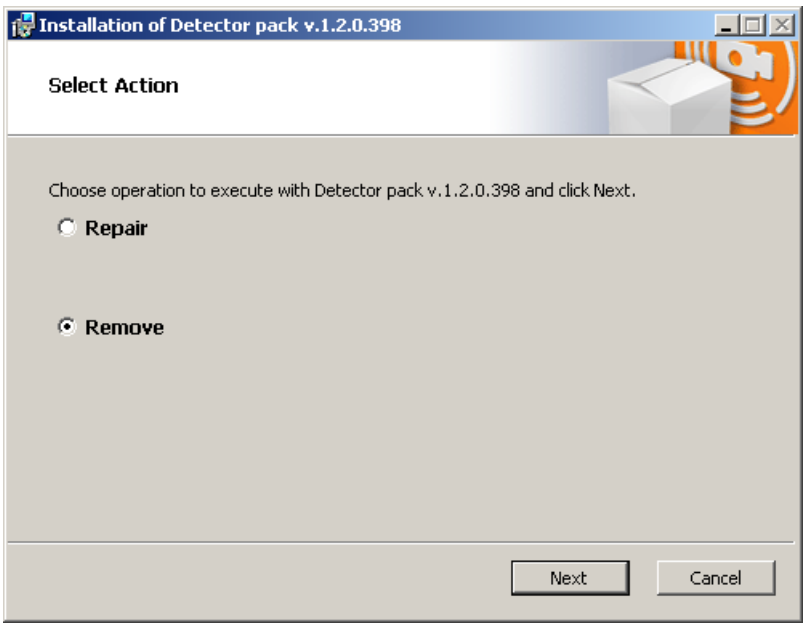


Fig. 5.2—13 Select action window

3. Click **Remove** (Fig. 5.2—13).
4. Click **Next** (Fig. 5.2—13).

The **Detector pack removal process** window will appear (Fig. 5.2—14).

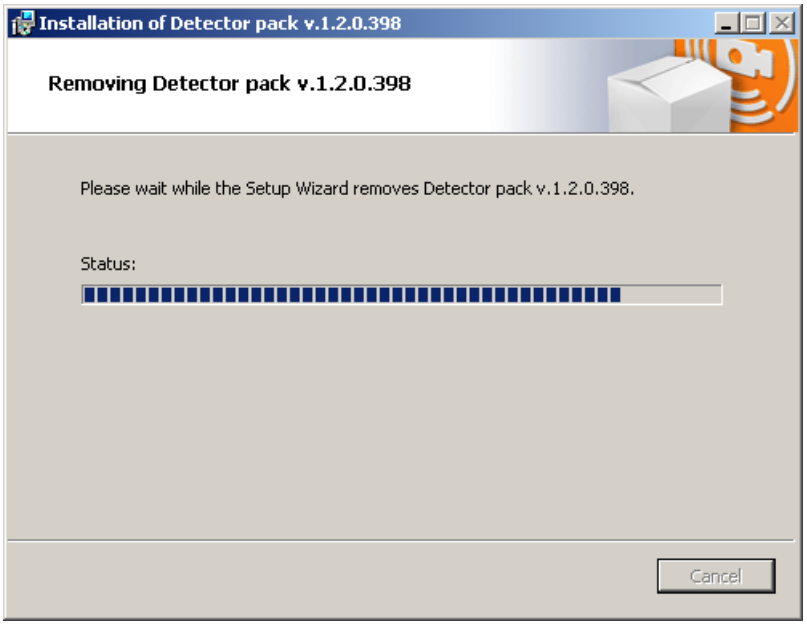


Fig. 5.2—14 Removal process window

Upon the deletion of the files, a message will appear stating that the detector pack was removed (Fig. 5.2—15).

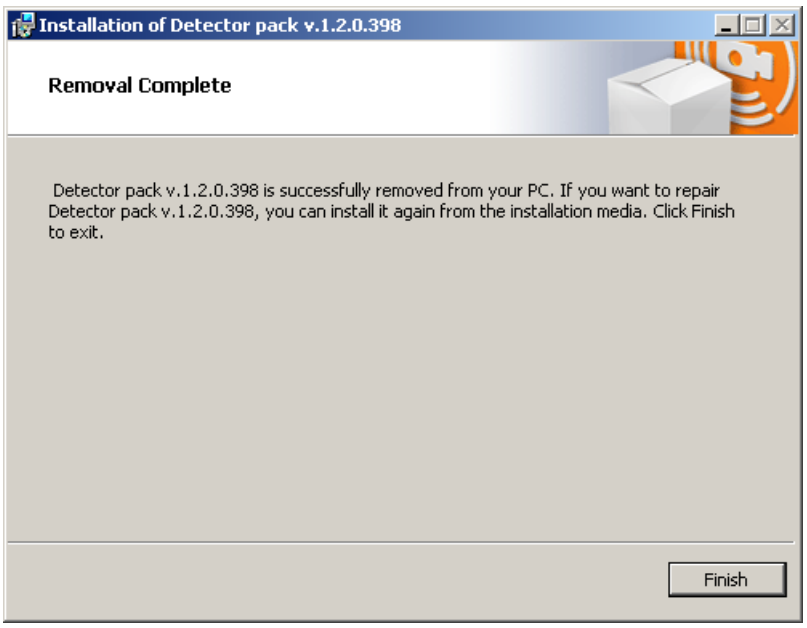


Fig. 5.2—15 Detector pack removal complete window

5. Click **Finish** (Fig. 5.2—15).

The detector pack removal is complete.

6 Configuring the «Queue length detector» and «People counter detector» modules

6.1 Configuring the «Queue length detector» module

The **Queue length detector** module can be configured using the **System settings** menu, under the **Hardware** tab, on the **Queue Length Detection** control panel, using the **Camera** settings (Fig. 6.1—1).

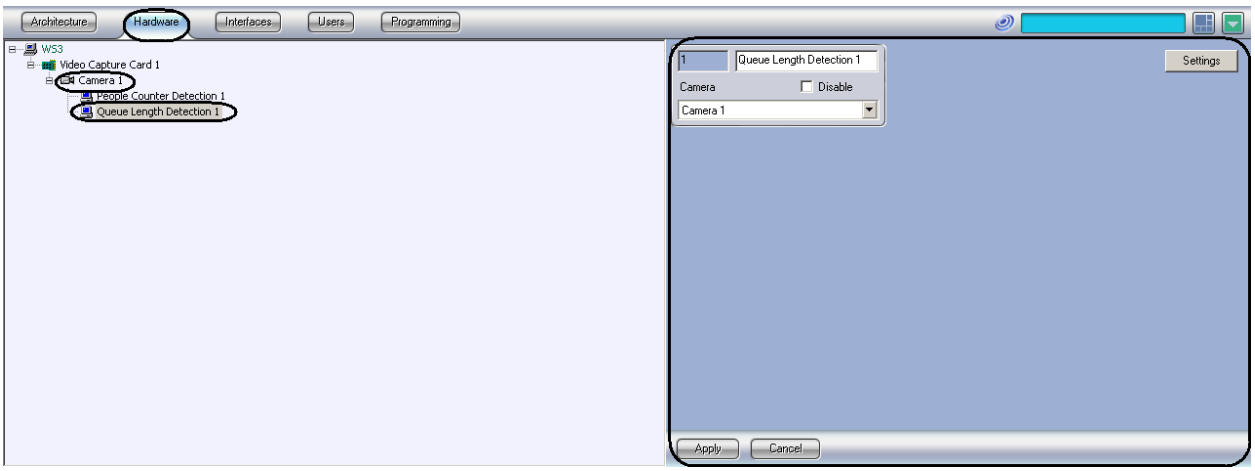


Fig. 6.1—1 Queue Length Detection menu

The **Queue length detector** module is set up as follows:

1. Go to the **Queue Length Detection** control panel (Fig. 6.1—2).

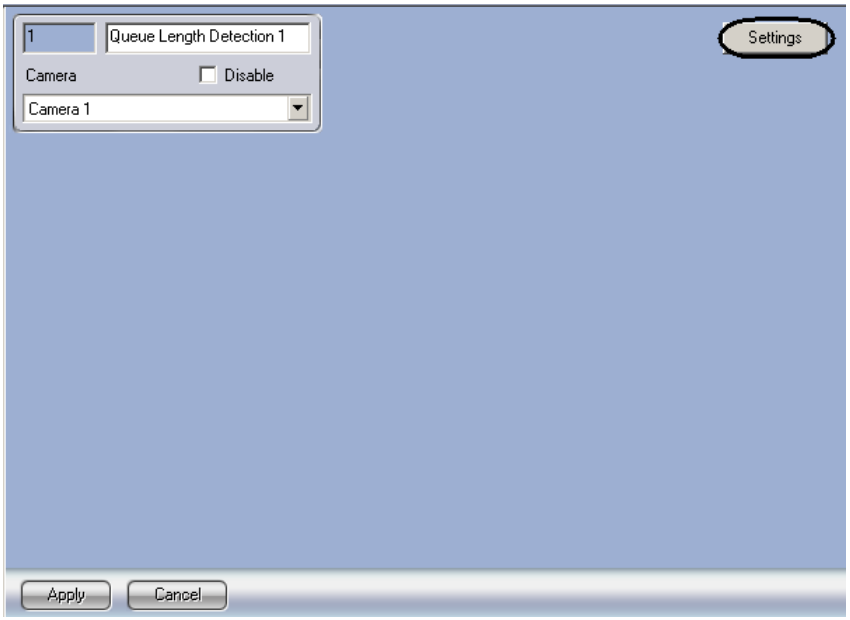


Fig. 6.1—2 Queue Length Detection control panel

2. Click **Settings** (see Fig. 6.1—2).

The **Detector settings** window will appear (Fig. 6.1—3).

Fig. 6.1—3 Detector settings window

3. Specify the area of interest and the approximate size of people in the video image:
   - 3.1 Click **Stop video** to capture the video image (see Fig. 6.1—3, **1**).
   - 3.2 Click **Area of interest** (see Fig. 6.1—3, **2**).
   - 3.3 Using the left mouse button select the four corners of the area on the captured video image (see Fig. 6.1—3, **3**) to be analyzed (Fig. 6.1—4, **1**). Only one area may be so designated. If a second area is specified, then the first area will be deleted. Upon selection of the area the remaining part of the video image will be dimmed.

Note. To remove a selected area, click the  *next to the* ***Area of interest*** *button.*

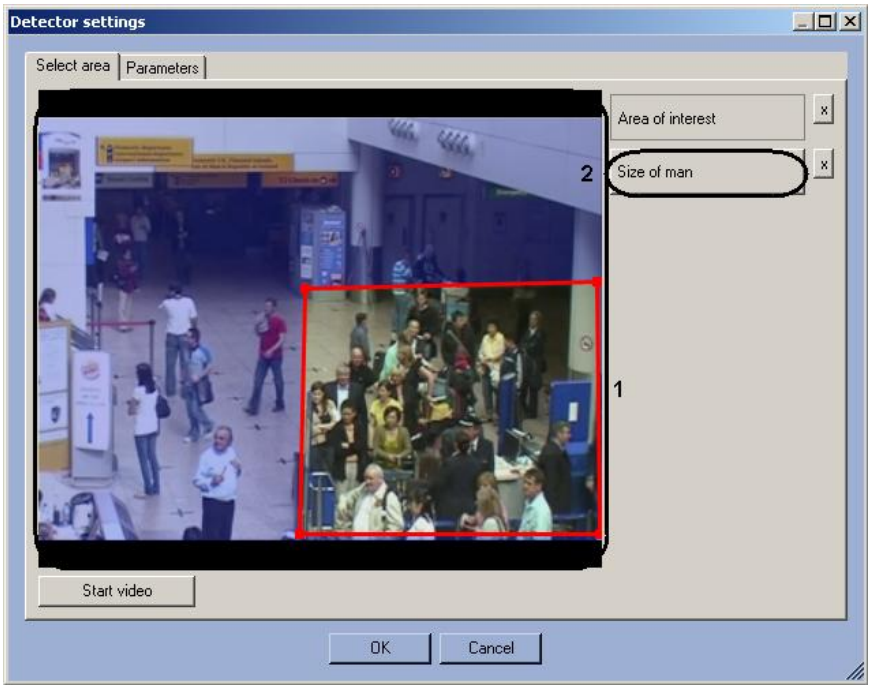


Fig. 6.1—4 Setting area of interest

3.4 Click **Person size** (see Fig. 6.1—4, **2**).

3.5 On the captured video image (see Fig. 6.1—4, **1**) specify the approximate size of a person. To do this use the left mouse button to specify a rectangular area (Fig. 6.1—5, **1**).

Note. To remove the person size, click the  *next to the* ***Person size*** *button.*

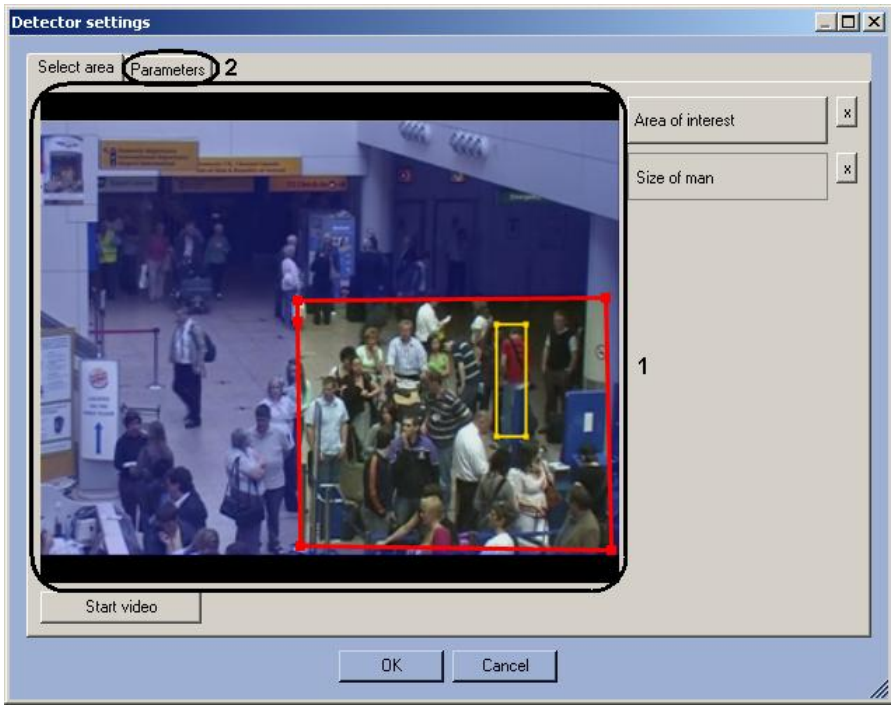


Fig. 6.1—5 Specify person size

4. Set the module parameters:

4.1 Go to the **Parameters** tab (see Fig. 6.1—5, **2**).

4.2 Set the detection sensitivity field in a range from 0 to 1 with up to two decimal places (Fig. 6.1—6, **1**).

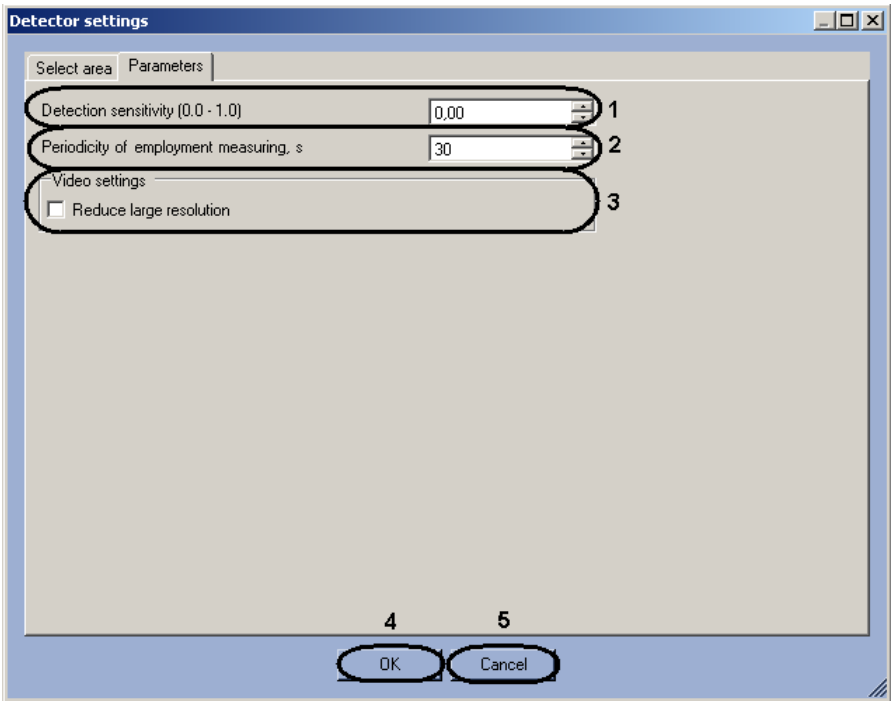


Fig. 6.1—6 Configuring the Queue length detector module parameters

4.3 In the **Period of activity sensing** field, enter a time period in seconds for counting the number of persons in the observed area (see Fig. 6.1—6, **2**).

4.4 Set the **Reduce large resolution** checkbox to create and process the new frame consist of even lines of initial frame (see Fig. 6.1—6, **3**).

5. Click **OK** to save changes and return to the control panel of the **Queue length detector** (see Fig. 6.1—6, **4**).

*Note. To return to the control panel of the **Queue length detector** without saving changes, click **Cancel** (see Fig. 6.1—6, **5**).*

6. On the **Queue length detector** control panel, click **Apply**.

Configuring the **Queue length detector** module is complete.

6.2 Configuring the «People counter detector» module

The **People counter detector** module can be configured using the **System settings** menu, under the **Hardware** tab, on the **People counter detector** control panel, using the **Camera** settings (Fig. 6.2—1).

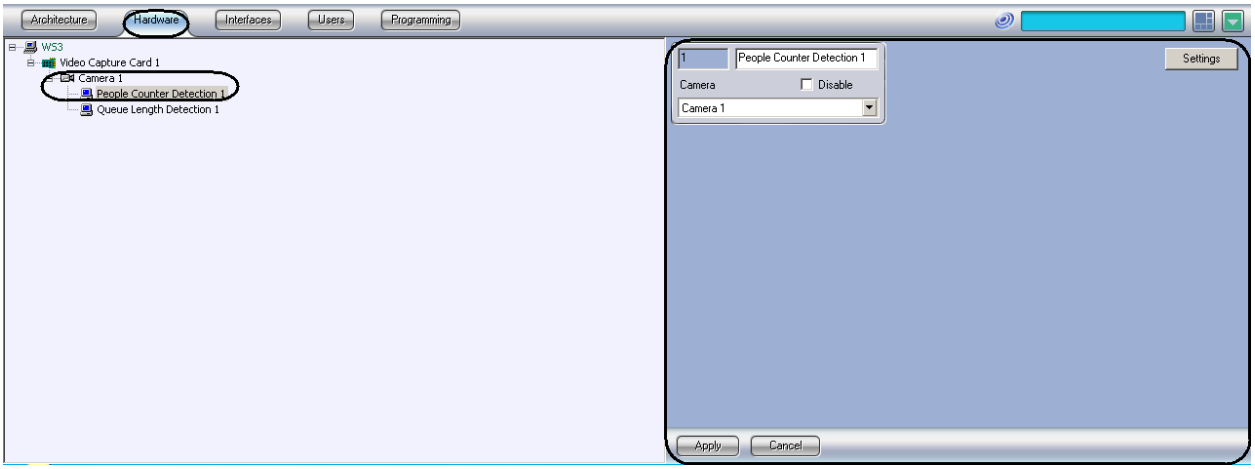


Fig. 6.2—1 People counter detector menu

The **People counter detector** module is set up as follows:

1. Go to the **People Counter Detection** control panel (Fig. 6.2—2).

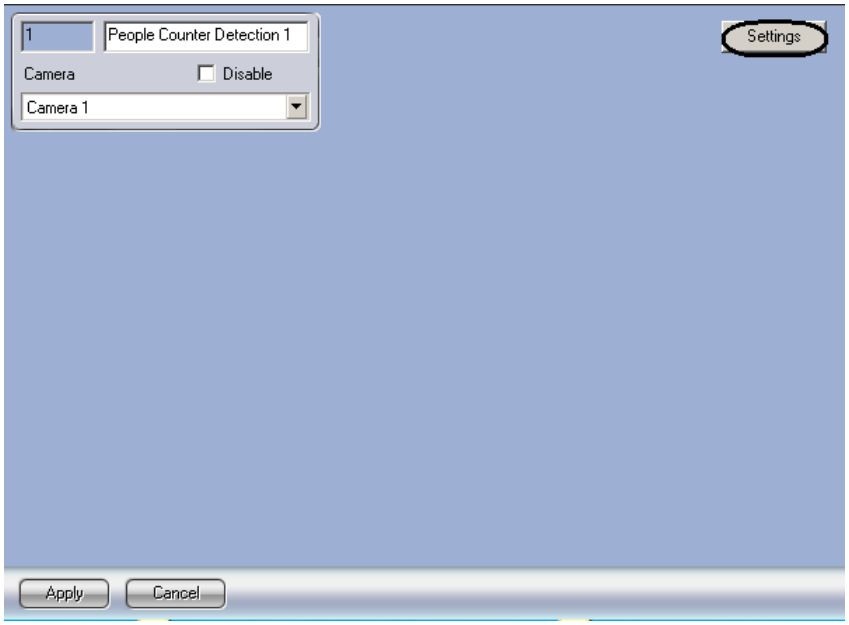


Fig. 6.2—2 People counter detector control panel

2. Click **Settings** (see Fig. 6.2—2). The **Detector settings** window will appear (Fig. 6.2—3).

Fig. 6.2—3 Detector settings window

3. Specify the area of interest and the approximate size of people in the video image:
   3.1. Click **Stop video** to capture the video image (see Fig. 6.2—3, **1**).
   3.2. Click **Area of interest** (see Fig. 6.2—3, **2**).
   3.3. Using the left mouse button select the four corners of the area on the captured video image (see Fig. 6.2—3, **3**) to be analyzed (Fig. 6.2—4). Only one area may be so designated. If a second area is specified, then the first area will be deleted.

Note 1. To remove a selected area, click the  *next to the* ***Area of interest*** *button.*

Note 2. The area of interest is divided into two sections - 1 and 2. If an object moves from sector 1 to sector 2, it is logged as the entry of a visitor; if the visitor moves from sector 2 to sector 1, it is logged as an exit.

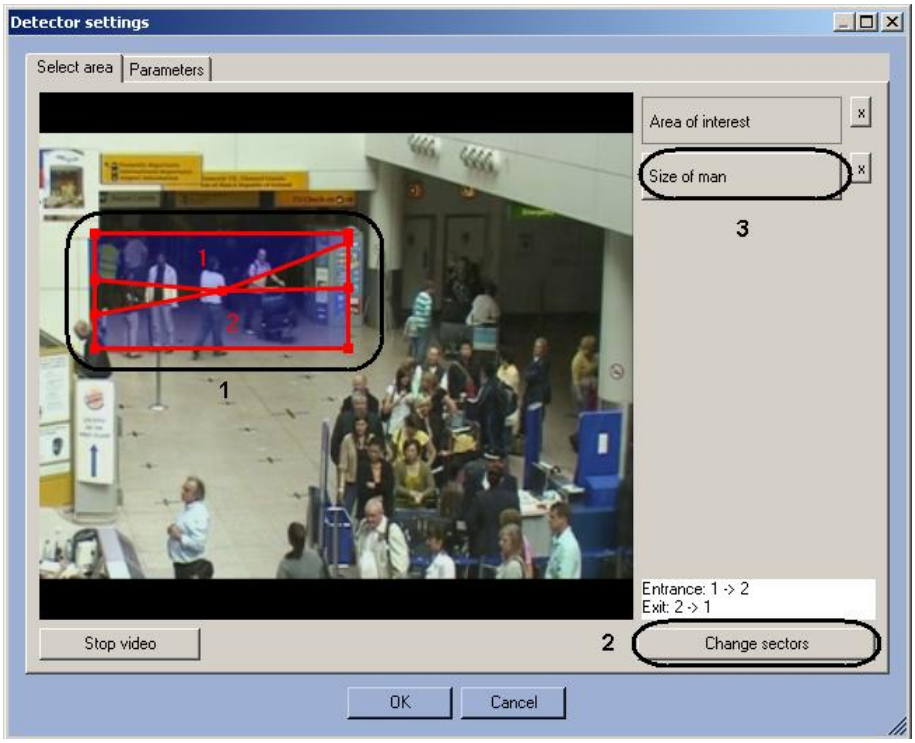


Fig. 6.2—4 Setting the area of interest

3.4. Set the desired size, shape and position of the sectors in the area of interest by moving their boundaries (see Fig. 6.2—4, **1**).

3.5. If you want to swap sectors 1 and 2, click **Change sectors** (see Fig. 6.2—4, **2**).

4. Set the approximate person size as follows:

4.1. Click on **Person size** (see Fig. 6.2—4, **3**).

4.2. On the captured video image set the approximate person size. To do this, use the left mouse button to select a rectangular area (Fig. 6.2—5, **1**).

Note. To remove the person size, click the x *next to the* ***Person size*** *button.*

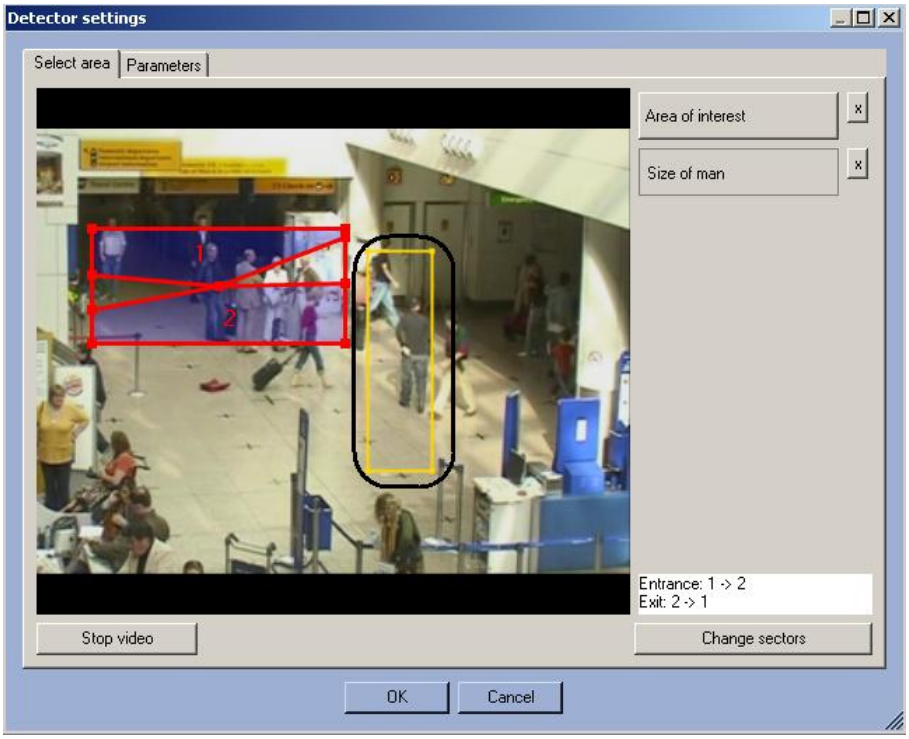


Fig. 6.2—5 Specify person size

5. Setting the module parameters:

   5.1. Go to the **Parameters** tab in the **Detector settings** window (Fig. 6.2—6, **1**).

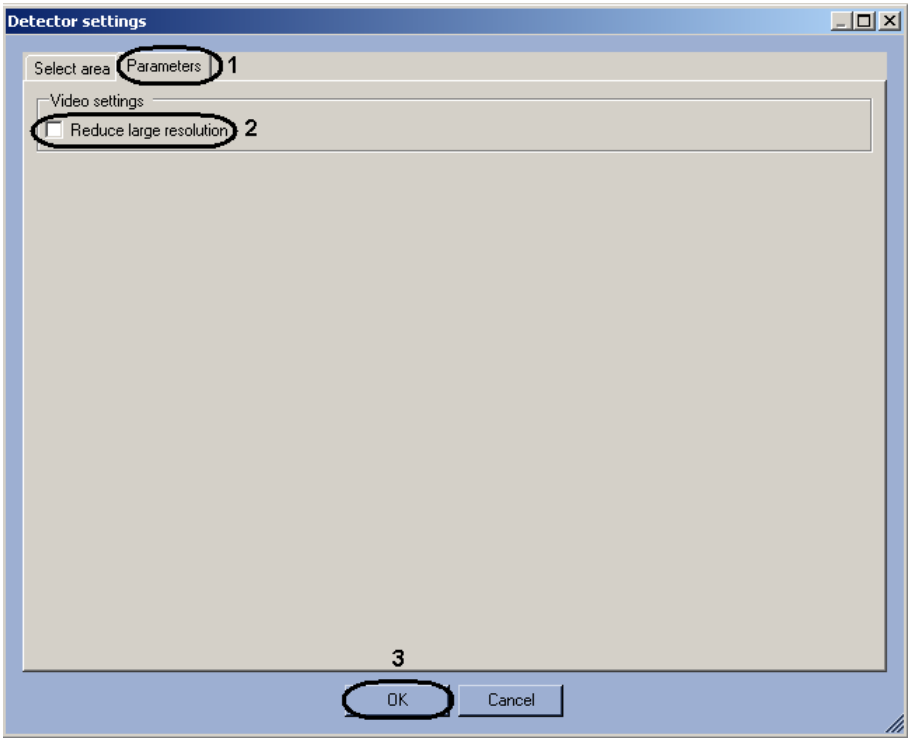


Fig. 6.2—6 Configuring the People counter detector module parameters

   5.2. Set the **Reduce large resolution** checkbox to create and process the new frame consist of even lines of initial frame (see Fig. 6.2—6, **2**).

6. Click **OK** (see Fig. 6.2—6, **3**).

Configuring the *People counter detector* module is complete.

6.3 Configuring the «Stopped car detector» module

6.3.1 Licensing the «Stopped car detector» module

To license the «Stopped car detector» module do the following:

1. Go to the *<Intellect installation folder>\Modules\IntelliVision* folder.
2. Run the *HardwareID.exe* utility (Fig. 6.3—1).

Attention! Start the HardwareID.exe utility from the name of computer Administrator.

Also the utility is to be started after the full loading of operating system, specifically after start of all needed services and applications.

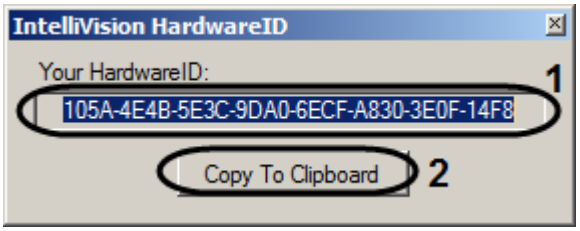


Fig. 6.3—1 HardwareID.exe utility

3. In the **Your HardwareID** field the code is displayed (Fig. 6.3—1, **1**).
4. Click the **Copy To Clipboard** button to copy the code to the clipboard (Fig. 6.3—1, **2**).
5. Send the code to the manager of the ITV company and specify the number of **Stopped car detectors** which are planned to be used.
6. Receive the regkey.dat file from the manager of the ITV company.
7. Put the received file to the *<Intellect installation folder>\Modules* folder.

Licensing the «Stopped car detector» module is completed.

6.3.2 Configuring the «Stopped car detector» module

The **Stopped car detector** module can be configured using the **System settings** menu, under the **Hardware** tab, on the **Stopped car detector** control panel, using the **Camera** settings (Fig. 6.3—2).

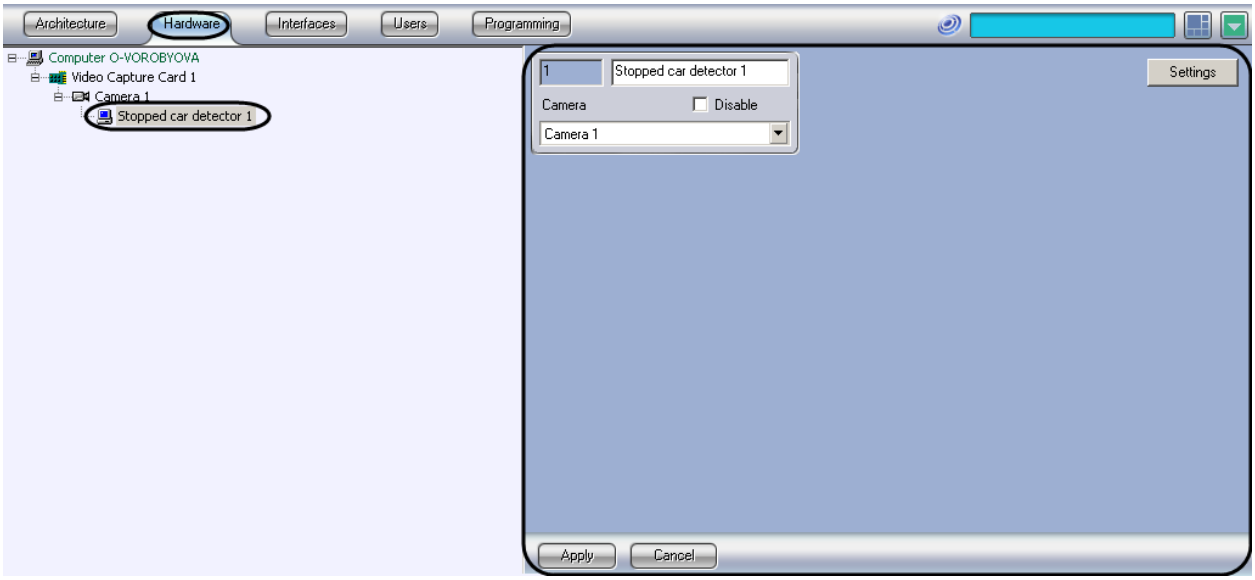


Fig. 6.3—2 Stopped car detector object

The **Stopped car detector** module is set up as follows:

1. Go to the **Stopped car detector** control panel (Fig. 6.3—3).

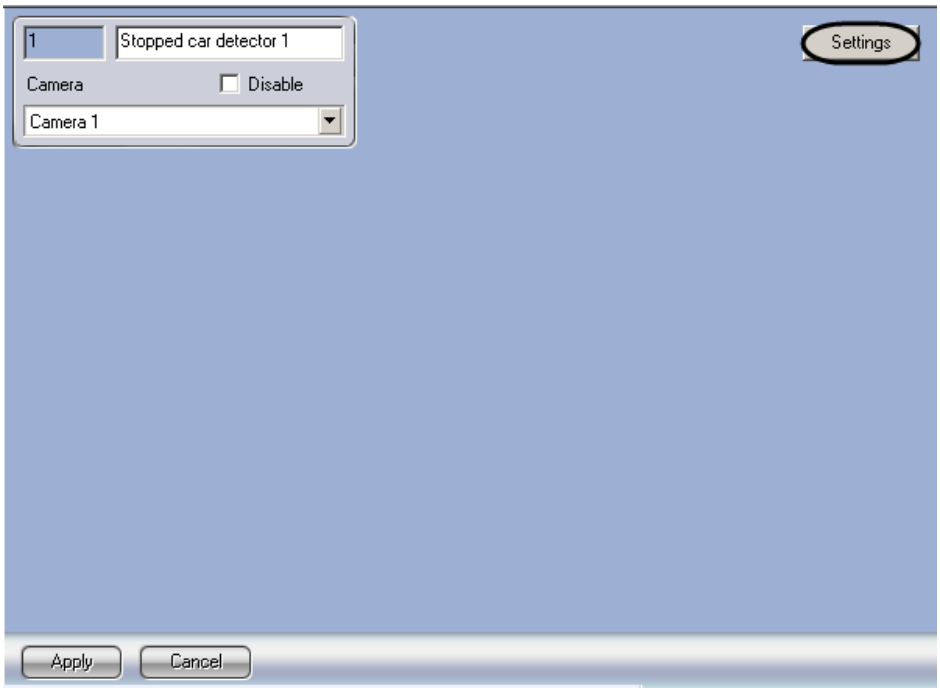


Fig. 6.3—3 Stopped car detector control panel

2. Click **Settings** (Fig. 6.3—3). The **Detection settings** window will appear (Fig. 6.3—4).

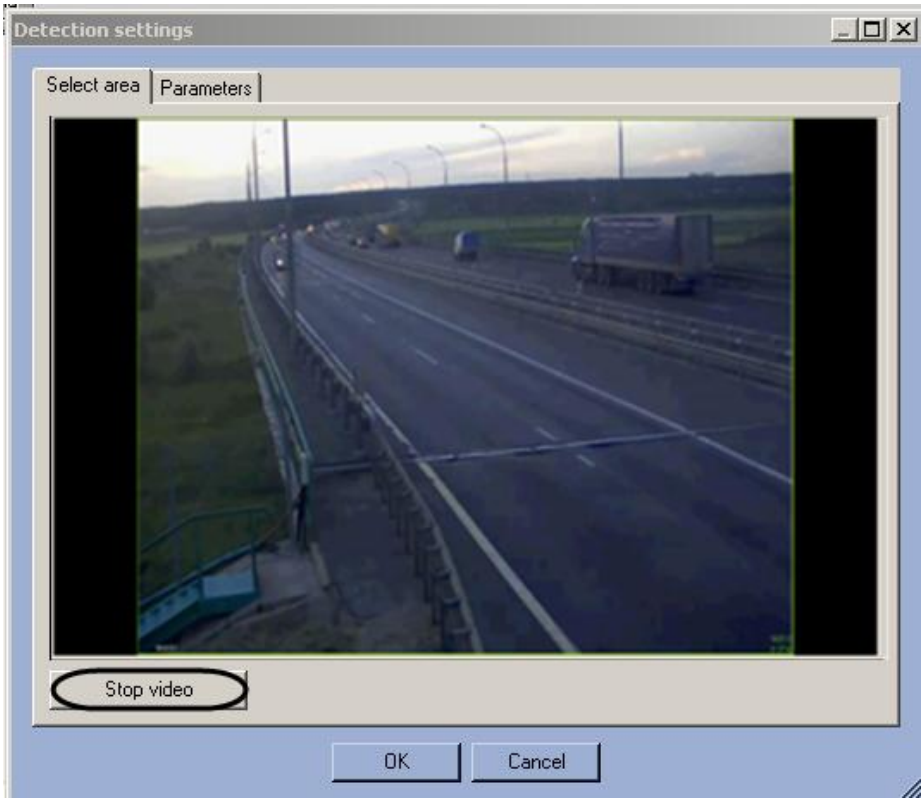


Fig. 6.3—4 Detector settings window

3. Specify the area of interest and the approximate size of car in the video image:
   3.1. Click **Stop video** to capture the video image (Fig. 6.3—4).
   3.2. Using the left mouse button select the area on the captured video image to be analyzed (Fig. 6.3—5, **1**). Only one area may be so designated. If a second area is specified, then the first area will be deleted.

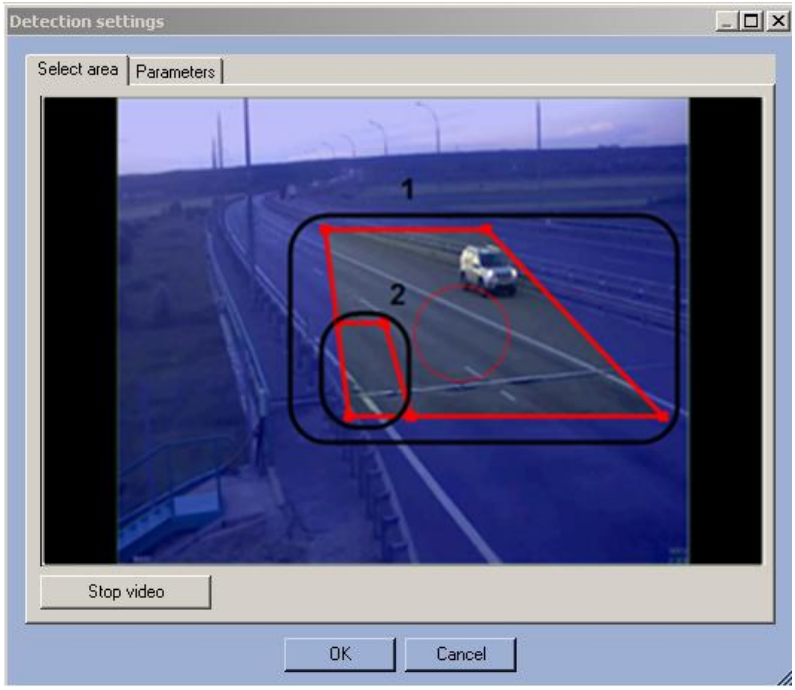


Fig. 6.3—5 Specify the analyzed area

3.3. Set the required size, shape and position of the analyzed area (Fig. 6.3—5, **1**). To rotate the area, use the board dragging. To drag the area on the frame use the circle dotted line. To change the area size, use the grid points marked squares. The minimal height and size of the smallest base of trapezoid is 0.05 of the frame height.

3.4. Specify the approximate size of the vehicle by changing the size of the internal area in the bottom left corner of the main area (Fig. 6.3—5, **2**).

Note. The analyzed area is covered with not more than 256 detection zones corresponding to the car size. Recognition of stopped cars is performed only on that part of analyzed area which is covered by these zones. The part of analyzed area will not be covered by detection zones if the car size is much smaller than the size of analyzed area. To control the coverage area by detection zones, use the debug window (see Appendix 1. Debug window).

4. Set the module parameters:

4.1. Go to the **Parameters** tab of the **Detection settings** window (Fig. 6.3—6, **1**).

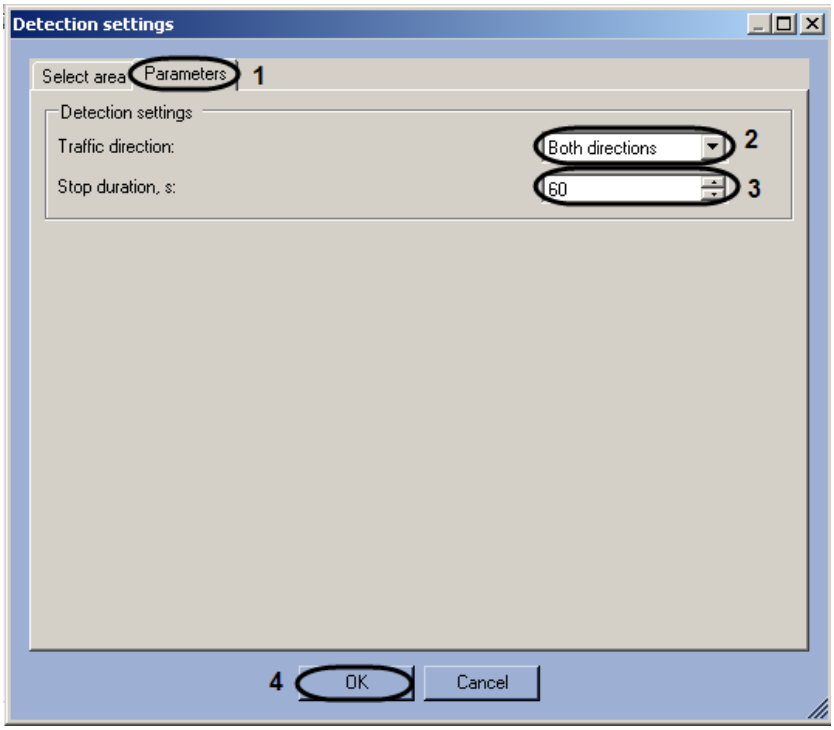


Fig. 6.3—6 Configuring the Stopped cars detector module parameters

4.2. In the **Traffic Direction** drop-down list select the direction of the vehicles moving towards the camera (Fig. 6.3—6, **2**).

4.3. In the **Stop duration, s** field set the minimal stop duration in seconds using the up and down buttons (Fig. 6.3—6, **3**).

5. Click OK (Fig. 6.3—6, **4**).

Configuring the **Stopped car detector** module is completed.

6.4 Configuring the «Glow detection» module

The *Glow detection* module can be configured using the **System settings** menu, under the **Hardware** tab, on the **Glow detection** control panel, using the **Camera** settings (Fig. 6.4—1).

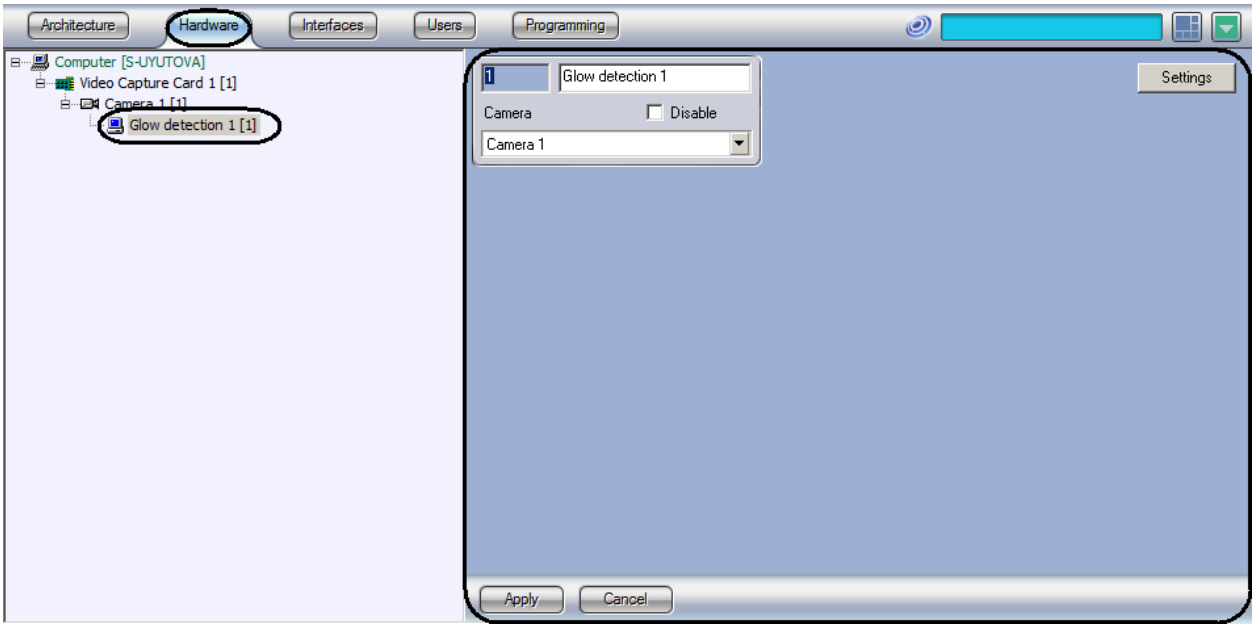


Fig. 6.4—1 Glow detection object

The *Glow detection* module is set up as follows:

1. Go to the **Glow Detection** control panel (Fig. 6.4—2).

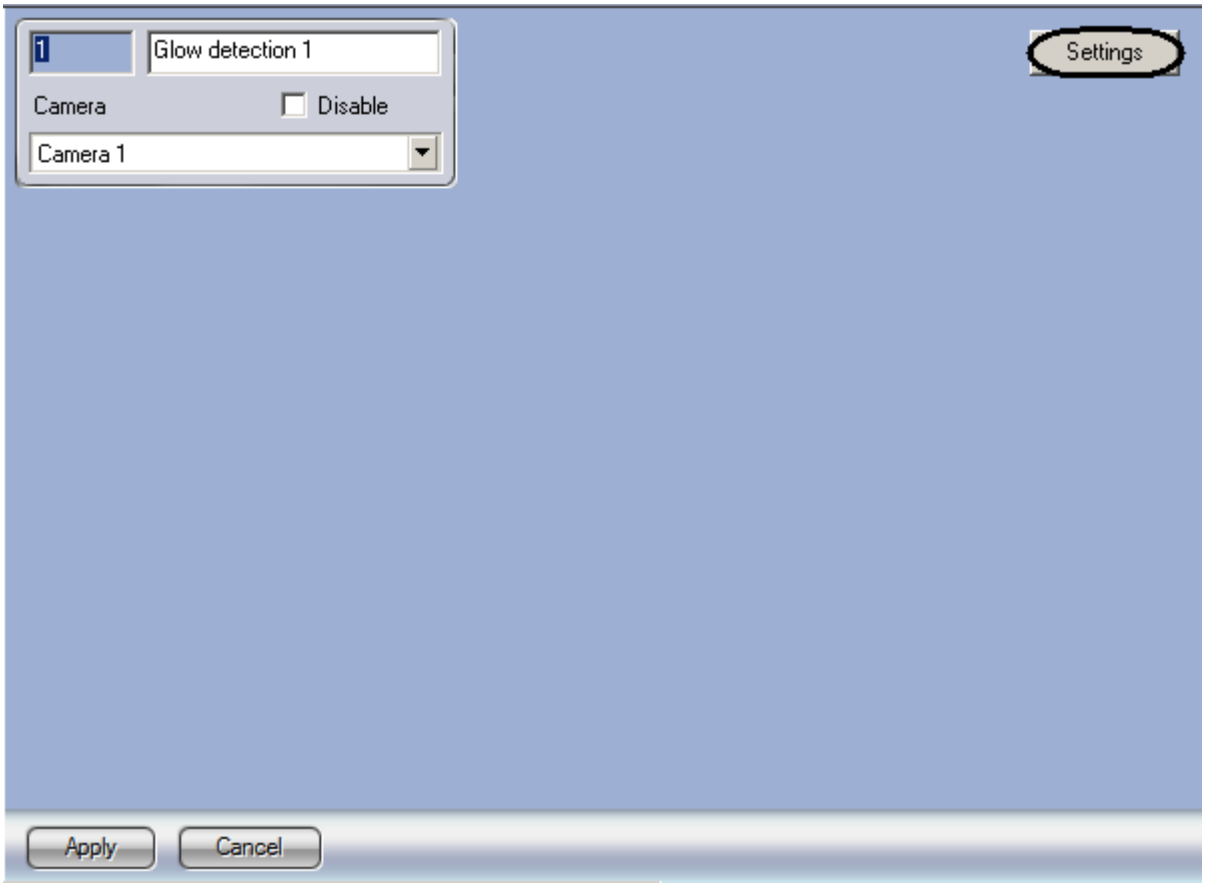


Fig. 6.4—2 Glow detection control panel

2. Click **Settings** (Fig. 6.4—2). The **Detection settings** window will appear (Fig. 6.4—3).

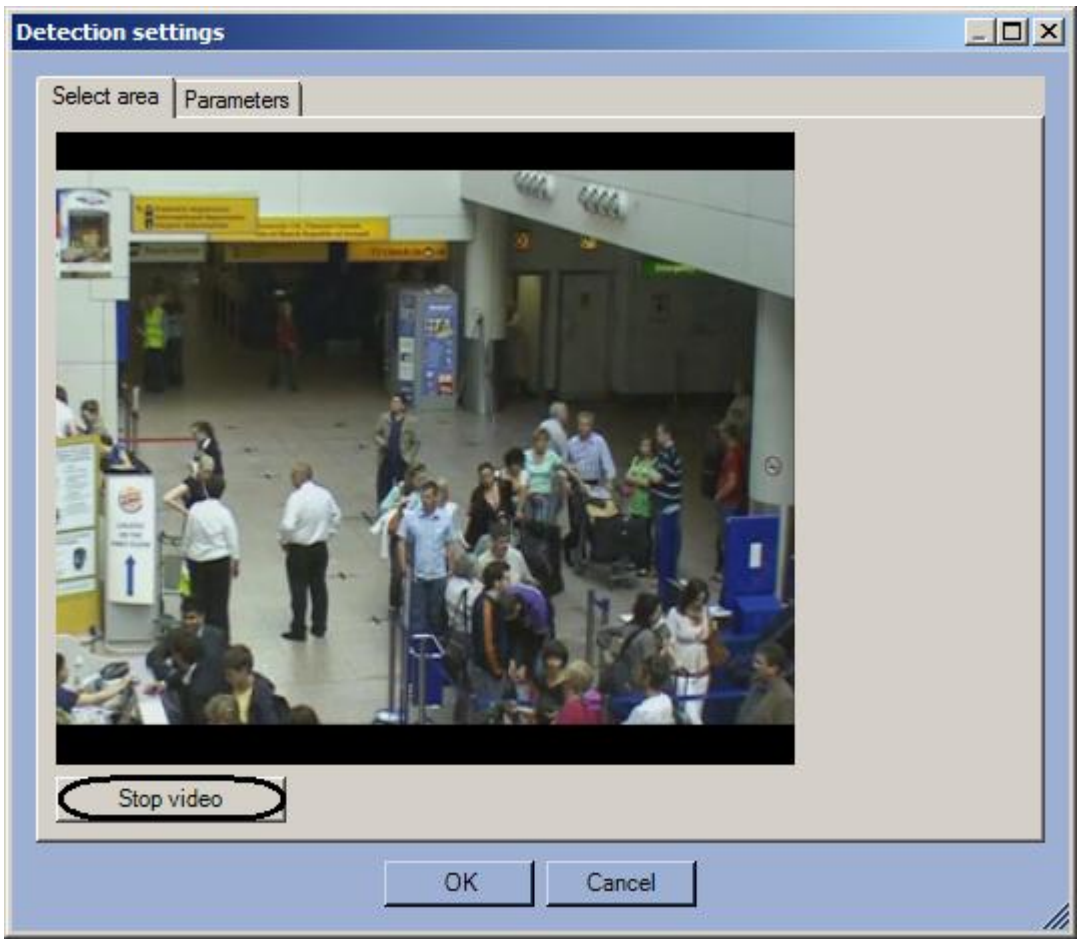


Fig. 6.4—3 Detection settings window

3. Specify the location of lights sources in the image which are to be tracked by detection:
   3.1. Click **Stop video** to capture the video image (Fig. 6.4—3).
   3.2. On the captured video image specify areas to be analyzes (Fig. 6.4—4, **1**). Click the left mouse button in the frame area and stretch it to the required size. The minimal allowed size of the analyzed area is 15x15 pixels. The maximum allowed size of the analyzed area is 200x200 pixels.

   Areas of interest are numbered in the order of creation starting from 1. The number of analyzed area is not limited. Adding the area at the right from the video image the corresponding button is displayed (Fig. 6.4—4, **2**).

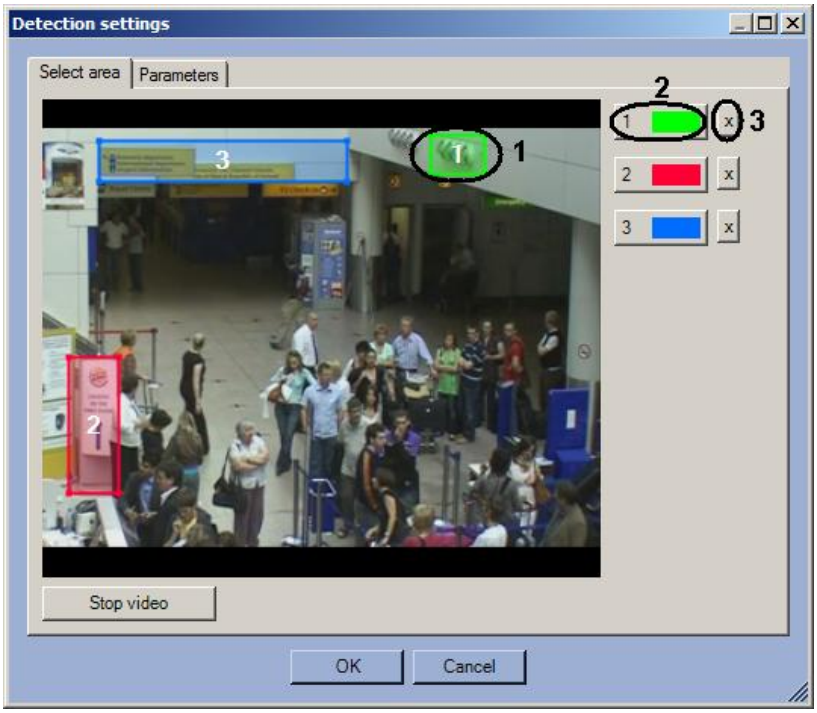


Fig. 6.4—4 Specify the areas of interest

3.3. Specify the required size, shape and location of sectors in the area of interest moving their borders. Selecting the area take into account that the local change of illuminance and specular surface near lamps in the area of interest can cause the false detection triggering.

3.4. To specify the area again click the button with its number in the list of areas and mark the area in the video image frame (Fig. 6.4—4, **2**).

3.5. Click the x button next to the **Area of interest** button (Fig. 6.4—4, **3**).

4. Specify the glow detection sensitivity:

4.1. Go to the **Parameters** tab in the **Detection settings** window (Fig. 6.4—5, **1**).

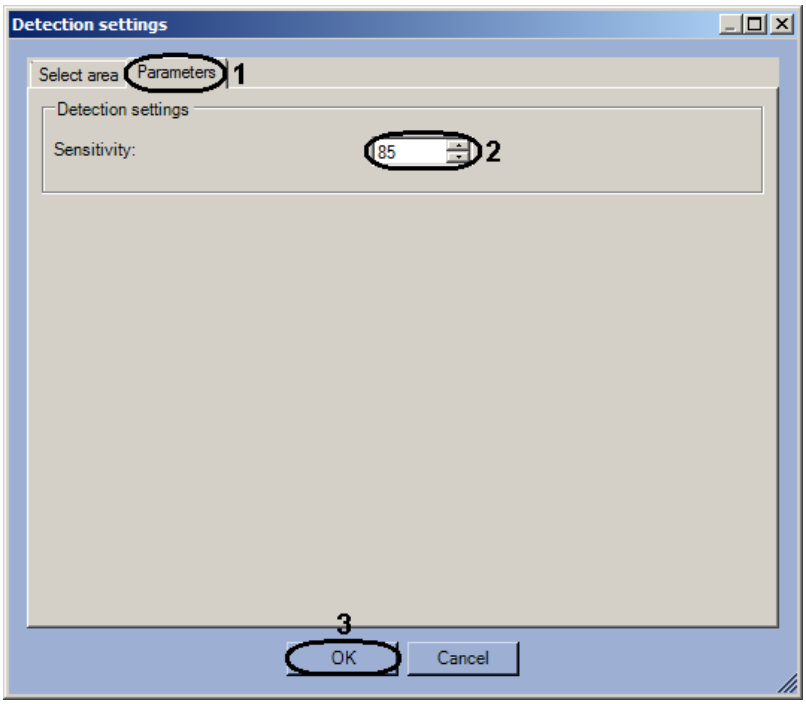


Fig. 6.4—5 Sensitivity configuration

4.2. Using the **up-down** buttons enter the value of sensitivity parameter in the **Sensitivity** field (Fig. 6.4—5, **2**). The optimal value is selected experimentally by testing detection on triggering in the required conditions. The value range is from 0 to 100. The more sensitivity the more possibility of false triggering. The less sensitivity, the more possibility of losing event.

5. Click the **OK** button (Fig. 6.4—5, **3**).

Configuring the *Glow detection* module is complete.

7 Operating the «Queue length detector», «People counter detector» modules and «Stopped car detector» modules

7.1 Operating the «Queue length detector» module

7.1.1 Obtaining traffic information in the area of interest

As reported in the **Event log** interface at specified intervals by the **Queue length detector** module (Fig. 7.1—1).

Source	Event	Partition	Add. info	Date	Time
Camera 1	Alarm	Region 1		12-05-12	10:22:46
Queue Length Detection 1	Queue full		0	12-05-12	10:23:17
Queue Length Detection 1	Queue full		0	12-05-12	10:23:27
Queue Length Detection 1	Queue full		5	12-05-12	10:23:37
Queue Length Detection 1	Queue full		15	12-05-12	10:23:47
Queue Length Detection 1	Queue full		19	12-05-12	10:23:57
Queue Length Detection 1	Queue full		22	12-05-12	10:24:07
Queue Length Detection 1	Queue full		24	12-05-12	10:24:17
Queue Length Detection 1	Queue full		25	12-05-12	10:24:27
Queue Length Detection 1	Queue full		25	12-05-12	10:24:37
Queue Length Detection 1	Queue full		24	12-05-12	10:24:47
Queue Length Detection 1	Queue full		24	12-05-12	10:24:57
Queue Length Detection 1	Queue full		26	12-05-12	10:25:07
Queue Length Detection 1	Queue full		25	12-05-12	10:25:17

Fig. 7.1—1 Displaying traffic information in the area of interest

Each line item contains information about the number of people in the area of interest at that moment in time (see Fig. 7.1—1).

*Note. For more information on working with the **Event log** interface, see the Intellect system Administrator's Manual.*

7.1.2 Generating a report on the traffic in the area of interest

Reports on the traffic in the area of interest are generated via the web-based *Report System*.

All necessary information is provided in the *web-based Report System User's Manual.*

7.1.3 Visualization of operating the Queue length detector

Visualization of operating the Queue length detector in the Monitor window can be realized with the help of user scripts on the base of **Titles** object (Fig. 7.1—1). Detailed description of one of these scripts is presented in the *1.7 Examples of scripts on the Jscript language* section of *Programming guide (Jscript)* document – *Example 1. Visualization of operating the Queue length detector in the Video surveillance monitor.*

Fig. 7.1—1 Visualization of operating the Queue length detector

7.2 Operating the «People counter detector» module

7.2.1 Obtaining information on number of visitors

The **People counter detector** module provides entries onto the **Event log** when visitors pass through the area of interest (Fig. 7.2—1).

Source	Event	Partition	Add. info	Date	Time
Camera 1	Alarm	Region 1		12-05-12	10:29:35
People Counter Detection 1	Visitor exit			12-05-12	10:30:40
People Counter Detection 1	Visitor exit			12-05-12	10:30:43
People Counter Detection 1	Visitor exit			12-05-12	10:30:52
People Counter Detection 1	Visitor entrance			12-05-12	10:31:19
People Counter Detection 1	Visitor exit			12-05-12	10:31:42
People Counter Detection 1	Visitor entrance			12-05-12	10:31:43
People Counter Detection 1	Visitor exit			12-05-12	10:32:03
People Counter Detection 1	Visitor exit			12-05-12	10:32:15
People Counter Detection 1	Visitor entrance			12-05-12	10:32:32

Fig. 7.2—1 Displaying visitor entry and exit events

When a visitor moves from sector 1 to sector 2, it is logged as **Visitor entry**; if the visitor moves from sector 2 to sector 1, it is logged as **Visitor exit**.

*Note. For more information on working with the **Event log** interface, see the Intellect system Administrator's Manual.*

7.2.2 Generating a visitor report

Visitor reports are generated via the web-based *Report System*.

All necessary information is provided in the *web-based Report System Users's Manual.*

7.2.3 Visualization of operating the People counter detector

Visualization of operating the People counter detector in the Monitor window can be realized with the help of user scripts on the base of **Titles** object (Fig. 7.2—1). Detailed description of one of these scripts is presented in the *1.7 Examples of scripts on the Jscript language* section of *Programming guide (Jscript)* document – *Example 2. Visualization of operating the People counter detector in the Video surveillance monitor.*

Fig. 7.2—1 Visualization of operating the People counter detector

7.3 Operating the «Stopped car detector» module

The **Stopped car detector** module sends messages to the **Event log** when the stopped car is detected in the surveillance area (Fig. 7.3—1).

Source	Event	Partition	Add. info	Date	Time
Stopped cars detector 1	Stopped car			27-11-12	13:18:11
Stopped cars detector 1	Stopped car			27-11-12	13:18:15
Stopped cars detector 1	Traffic jam			27-11-12	13:18:20
Stopped cars detector 1	Traffic jam			27-11-12	13:18:21
Stopped cars detector 1	Stopped car			27-11-12	13:18:29
Stopped cars detector 1	Stopped car			27-11-12	13:18:32
Stopped cars detector 1	Stopped car			27-11-12	13:18:36
Stopped cars detector 1	Traffic jam			27-11-12	13:18:37
Stopped cars detector 1	Traffic jam			27-11-12	13:18:38
Stopped cars detector 1	Traffic jam			27-11-12	13:18:41

Fig. 7.3—1 Displaying stopped cars events

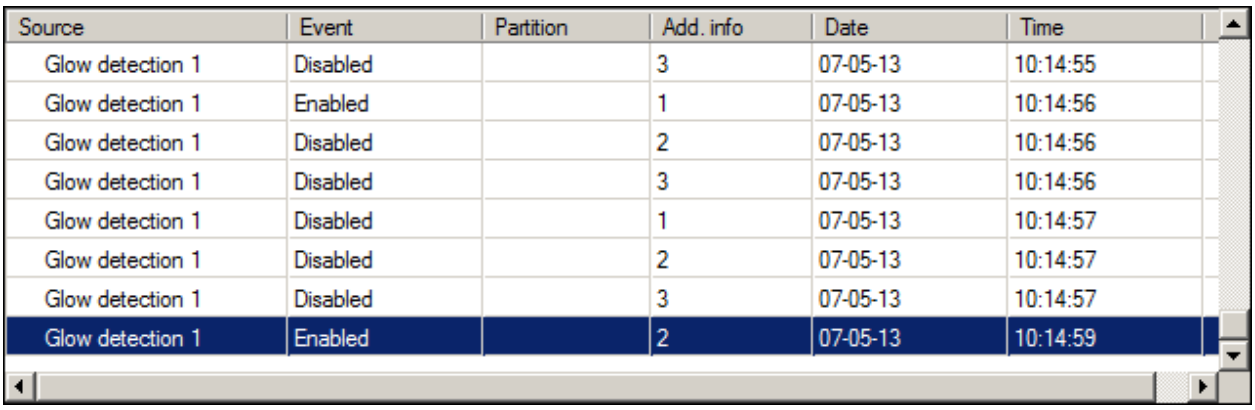
*Note. For more information on working with the **Event log** interface, see the Intellect system Administrator's Manual.*

When a traffic jam is detected, it is logged as a **Traffic jam** event.

If a stopped car is detected in the surveillance area, it is logged as a **Stopped car** event.

7.4 Operating the «Glow detection» module

The **Glow detection** module sends messaged to the **Event log** when the light source is detected or lost in the surveillance area (Fig. 7.4—1).



Source	Event	Partition	Add. info	Date	Time
Glow detection 1	Disabled		3	07-05-13	10:14:55
Glow detection 1	Enabled		1	07-05-13	10:14:56
Glow detection 1	Disabled		2	07-05-13	10:14:56
Glow detection 1	Disabled		3	07-05-13	10:14:56
Glow detection 1	Disabled		1	07-05-13	10:14:57
Glow detection 1	Disabled		2	07-05-13	10:14:57
Glow detection 1	Disabled		3	07-05-13	10:14:57
Glow detection 1	Enabled		2	07-05-13	10:14:59

Fig. 7.4—1 Displaying Glow detection events

When a light source is detected (enabled), it is logged as an **Enabled** event. If a light source is lost (disabled), it is logged as a **Disabled** event. The number of surveillance area from which the event received is displayed in the **Add. Info** column.

8 Appendix 1. Debug window

8.1 General information

The debug window is designed to control events received from detectors registered in the system. Besides, the function of displaying the detection area above the video image received from camera is available in the debug window.

8.2 Start the debug window

Start of the debug window is performed from the Windows task bar. Double click the left mouse button on the icon to start the debug window (Fig. 8.2—1).

Fig. 8.2—1 Start debug window

As a result the External detector window is displayed (Fig. 8.2—2).

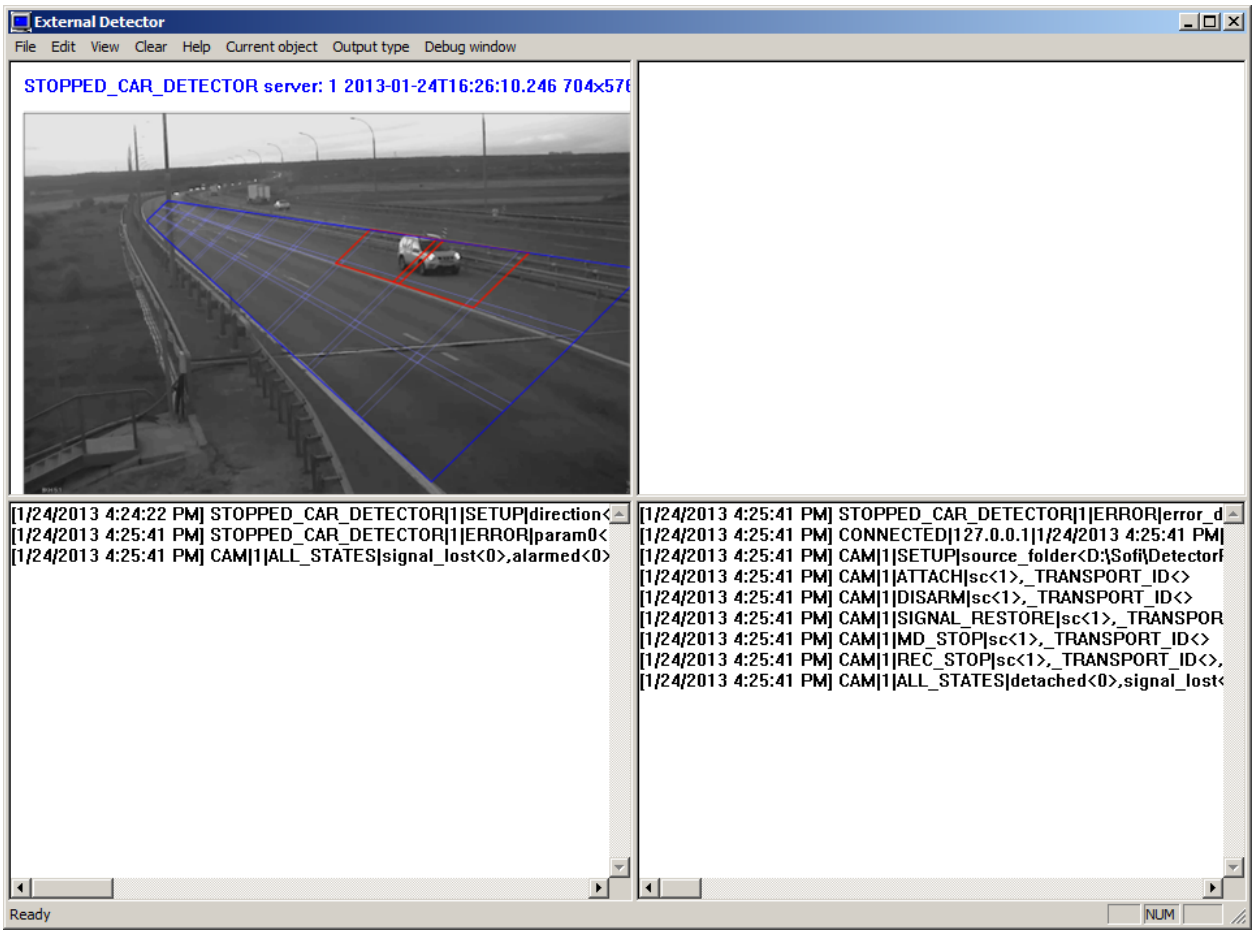


Fig. 8.2—2 «External Detector» debug window

Attention! Start the debug window is possible only if the Debug mode is enabled with the help of Intellect Advanced Setup utility (Fig. 8.2—3).

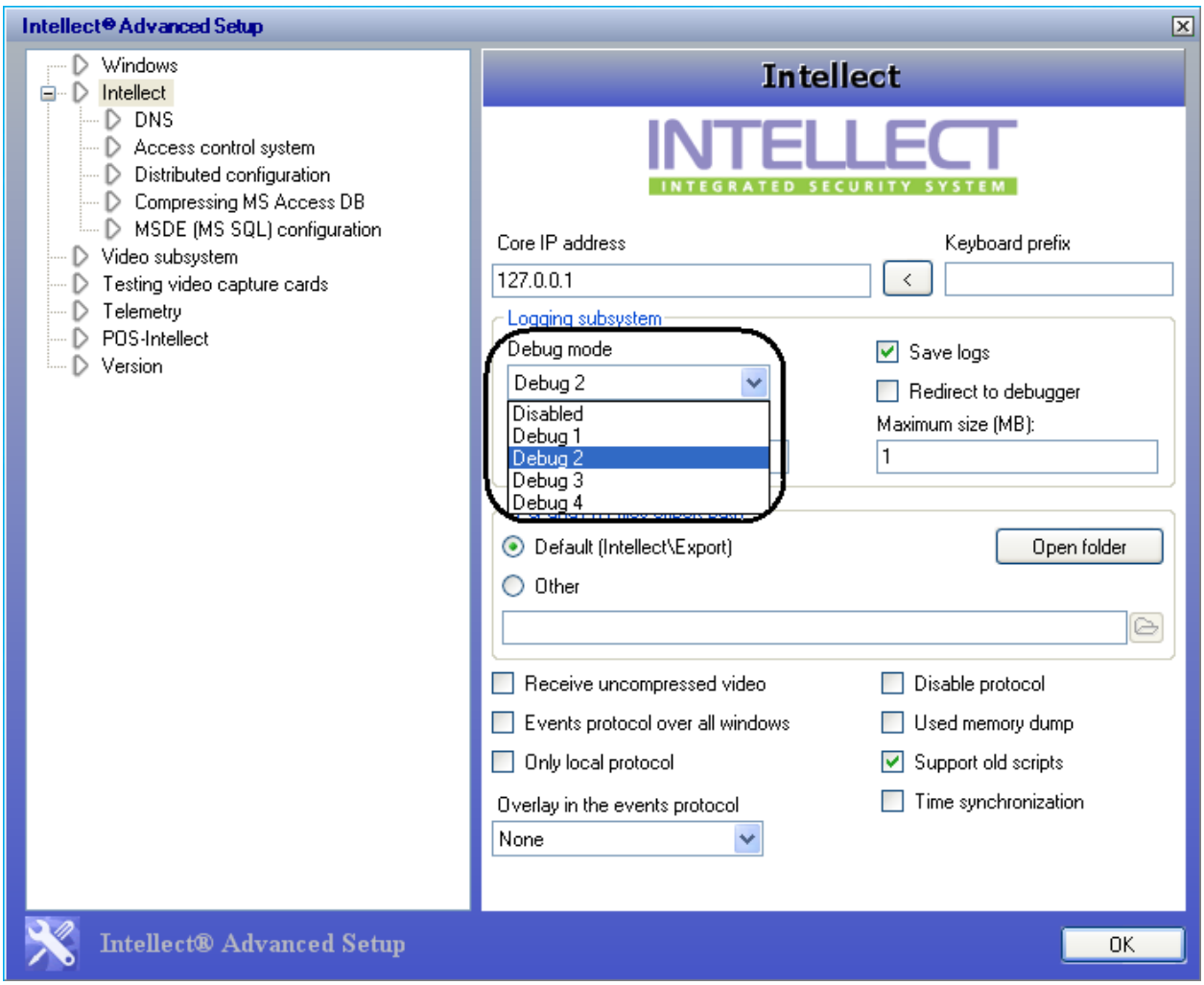


Fig. 8.2—3 Enable Debug mode

8.3 Interface of debug window

The debug window contains the interface components described in the table (Fig. 8.3—1, Table 8.3—1).

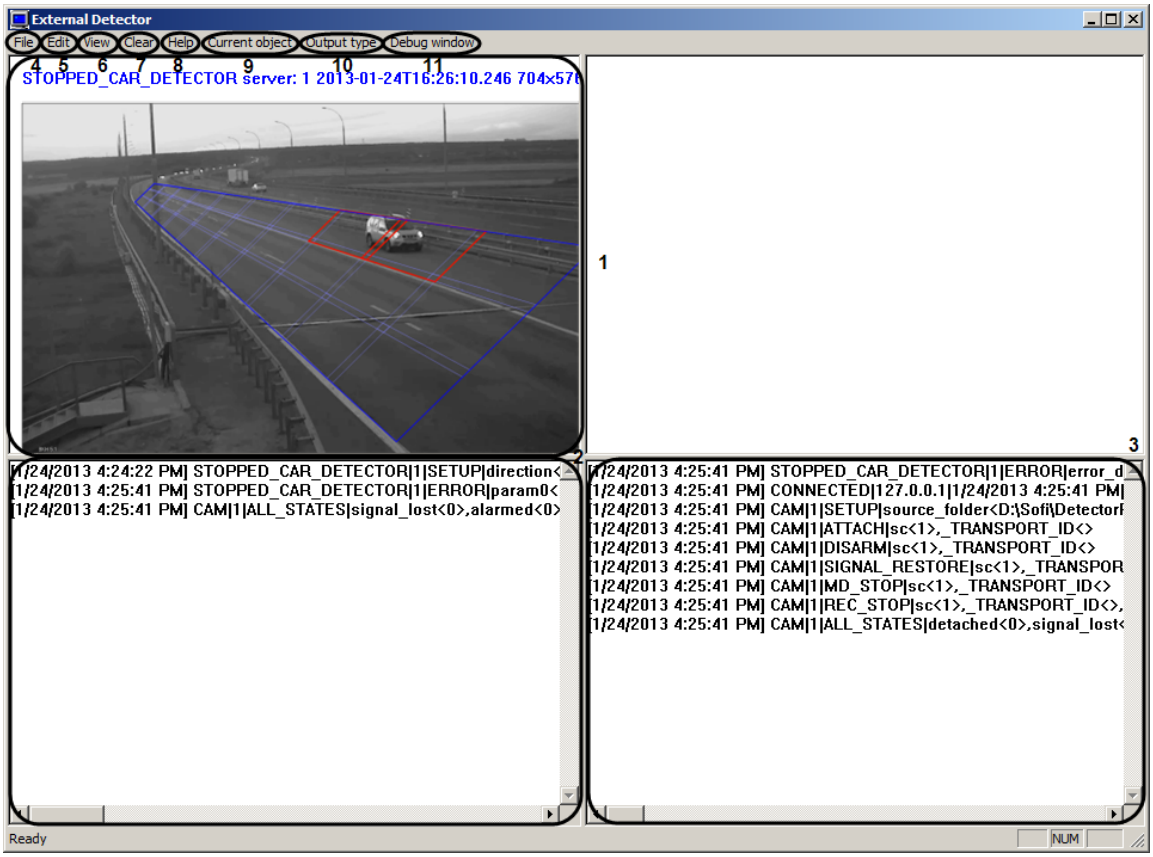


Fig. 8.3—1 Interface of debug window

Table 8.3—1 Description of elements of debug window interface

No	Name	Description
1	Preview area	Element is designed for displaying the detection area above the video image. Besides detection area the specific detection settings are displayed: – the person size for queue length detector and people counter detector; – detection zones for stopped cars detector.
2	Area of Events viewing from detectors	Events from detectors registered in the system are displayed in this area.
3	Area of system events viewing	All system events except events from detectors are displayed in this area.
4	**File** menu	Access to the Exit function**.**
5	**Edit** menu	Access to the operations with text.
6	**View** menu	Access to the function of displaying and hiding the status bar.
7	**Clear** button	Clear areas of events viewing.
8	**Help** menu	Access to the information about program.
9	**Current object** menu	Selection of a detector settings of which are displayed in the preview area. The detector selection have an impact on the camera from which the video stream is used for displaying in the preview window.