

Operator's Guide

PSIM 1.0.0-1.0.1 (english)

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5 Operator's Guide. Conclusion

6 List of terms used

In the *Axxon PSIM* Operator's Guide the following terms are used.

1. System – video surveillance and audio monitoring digital system based on the *Axxon PSIM* software system.
2. Software – *Axxon PSIM* software system.
3. Screen – virtual object that displays various dialog boxes (monitors, audio players, PTZ control panels etc.) that assist the Operator to work with the software.
4. Video surveillance monitor – interface window for displaying and controlling surveillance windows.
5. Surveillance window – interface window which displays the video image that comes from the surveillance camera. The surveillance window includes interface elements, used to control and display data messages.
6. Audio player – interface window containing elements that allow monitoring and recording the microphone audio signal.
7. Backup archive – function module used to work with the backup archive.
8. Map – on-line graphical chart of the distributed system used to monitor and control external system devices (cameras, microphones, beams, relays).
9. Universal PTZ control panel – interface window used to control System PTZ units (e.g. surveillance camera equipped with PTZ and connected to the System). User's dialog box – interface window with user's set of control elements used to control various system devices and modules.
10. The alarm notification window – interface window used to inform the Operator of registered alarm and system events.
11. Event log – interface window used to display data on events, registered by System (with data event type filtration).
12. Object list – interface window used to control object status on Location Map.
13. Client – computer with **Client** type of *Axxon PSIM* software.

7 Operator's Guide. Introduction

On the page:

- Axxon PSIM software function
- General recommendations on Axxon PSIM software based security system applications
- Personnel skills requirements

7.1 Axxon PSIM software function

Axxon PSIM software is designed to build industrial scalable and flexible (adaptable) integrated security systems based on video surveillance and audio monitoring digital systems.

Axxon PSIM software is to be used as a basic software environment with the following functionality:

1. Building video surveillance and audio monitoring digital systems and integration with joint data systems, various types of security equipment, auxiliary 3rd party application software via integrated OMI.
2. Compatibility with a wide range of security devices and data security systems, particularly fire alarms, access control, surveillance cameras, data systems for object (event) analysis, recognition and identification on video.
3. Central recording and processing of events, notification generating and various functions control on the base of flexible algorithms.
4. Exclusive scaling features, adaptation to actual task, resources used redistribution according to actual number and content of the protected facilities monitoring tasks.

7.2 General recommendations on Axxon PSIM software based security system applications

The following is recommended for correct application of *Axxon PSIM* software based security systems:

1. to follow duty instructions;
2. to use the system only for its intended purpose;
3. not to use 3rd party application software if it is not a software component on basic computers with *Axxon PSIM* software.

7.3 Personnel skills requirements

For correct Software application, Operator shall meet qualifying requirement to *Axxon PSIM* software Operator.

8 General description of Axxon PSIM

Axxon PSIM is the multifunctional open PSIM platform that allows creating integrated security solutions of any scale. The basic distribution package contains the core and the modules that provide general and service functions.

The full list of features and technical specifications can be found in Axxon PSIM functionality and Axxon PSIM restrictions.

General description of *Axxon PSIM* main features can be found in this section.

Axxon PSIM core

Axxon PSIM core transfers information and interconnects all integrated subsystems and *Axxon PSIM* software components. The core is the base that is complemented with functional modules in order to build the complex security system.

Video surveillance and audio control

Video surveillance and audio control are the main functions performed by *Axxon PSIM*-based security systems. *Axxon PSIM* video subsystem offers all advantages of distributed architecture, comprises powerful video analytics functions, guarantees high-quality video image as well as operation stability and usability and allows connecting PTZ devices.

Multistreaming

Several video streams incoming from a camera are supported in the *Axxon PSIM*-based security system — multistreaming.

Axxon PSIM supports up to 4 video streams that can be used:

- To be displayed on the local monitor as well as transferred to the remote workstations;
- To be recorded to the archive;
- For video analytics.

Managing streams in the network

Axxon PSIM performs important digital stream processing functions using the GreenStream technology:

- Auto adjusting the video resolution depending on the display mode;
- Auto adjusting the video stream FPS depending on the network bandwidth;
- Parallelizing digital streams using the Videogate module.

GreenStream technology

Streams transmitted by IP cameras can have multiple resolutions and FPS. Video from cameras is not always displayed with the highest resolution at Remote Client. The system automatically selects the stream with the resolution sufficient for displaying.

Access via web browser and mobile apps

Remote access to the system via the browser and the mobile client (iOS and Android platforms) boosts the monitoring functions making it possible to monitor security systems even when your PC or laptop is unavailable or far away.

Analog and IP cameras

Axxon PSIM platform is integrated with wide range of equipment including IP cameras and IP Servers by more than 120 vendors. IP cameras support in *Axxon PSIM*-based video surveillance system is implemented through the Drivers Pack module that was specially developed by AxxonSoft. The support for new IP devices is added regularly to the Drivers Pack module.

Drivers Pack allows adding the support for new IP devices to *Axxon PSIM* without waiting for the release of the next *Axxon PSIM* version. It is not necessary to reinstall *Axxon PSIM*.

ONVIF

AxxonSoft is a member of ONVIF (Open Network Video Interface Forum). ONVIF is an organization dedicated to the development and promotion of the international interface standards for the security and surveillance network systems. ONVIF is supported in all versions of Drivers Pack, starting from the 3.1.3 version.

Notification systems

SMS and MMS notifications, e-mails with attached video fragments, Telegram bot notifications and voice messages notify persons in charge in case of emergencies and other accidents.

Smart functions

Axxon PSIM performs smart functions — automatic and partly automatic scripts of reactions to the events as well as powerful video analytics functions. Smart functions optimize security service performance making it more productive.

Extended functionality

Extra functional modules are capable of performing a wide range of tasks such as ACS/FAS integration, control over point-of-sale and ATM transactions, license plate and railcar number recognition and more.

9 Axxon PSIM software operation

9.1 Axxon PSIM software start and shutdown

On the page:

- Start
- Confirmation by supervisor
- Password change at logging in
- Two-factor authentication
- Shut down

9.1.1 Start

Before start working with the software it is recommended to make sure that all system units: connections, cameras, microphones etc. are functional.

The software can be started:

1. Automatically. The software starts automatically as Windows starts.
2. Manually. To start the program manually, select the **Client workstation** item in the Windows Start Menu (**Start** → **Axxon PSIM** → **The Client workstation**) or use the shortcut on the desktop.



Note.

If there is no license key and *Axxon PSIM* is started in the demo mode, then there is the login attempt can be made in 60 seconds.
The number of attempts to enter the password and the timeout for the next attempt can be changed using the URAttempts and URDelay registry keys – see Registry keys reference guide.

Login and password are not required when Windows account information is in use. To start *Axxon PSIM*, click the **Registration** button. The **Login** and **Password** fields are to be empty.

9.1.2 Confirmation by supervisor

Confirmation by supervisor is required while the user log-in to the system if the authorization by four-eyes rule is configured in the system. After clicking the **Registration** button, it will be proposed to enter the supervisor login and password. After entering the supervisor password click the **Registration** button again.



9.1.3 Password change at logging in

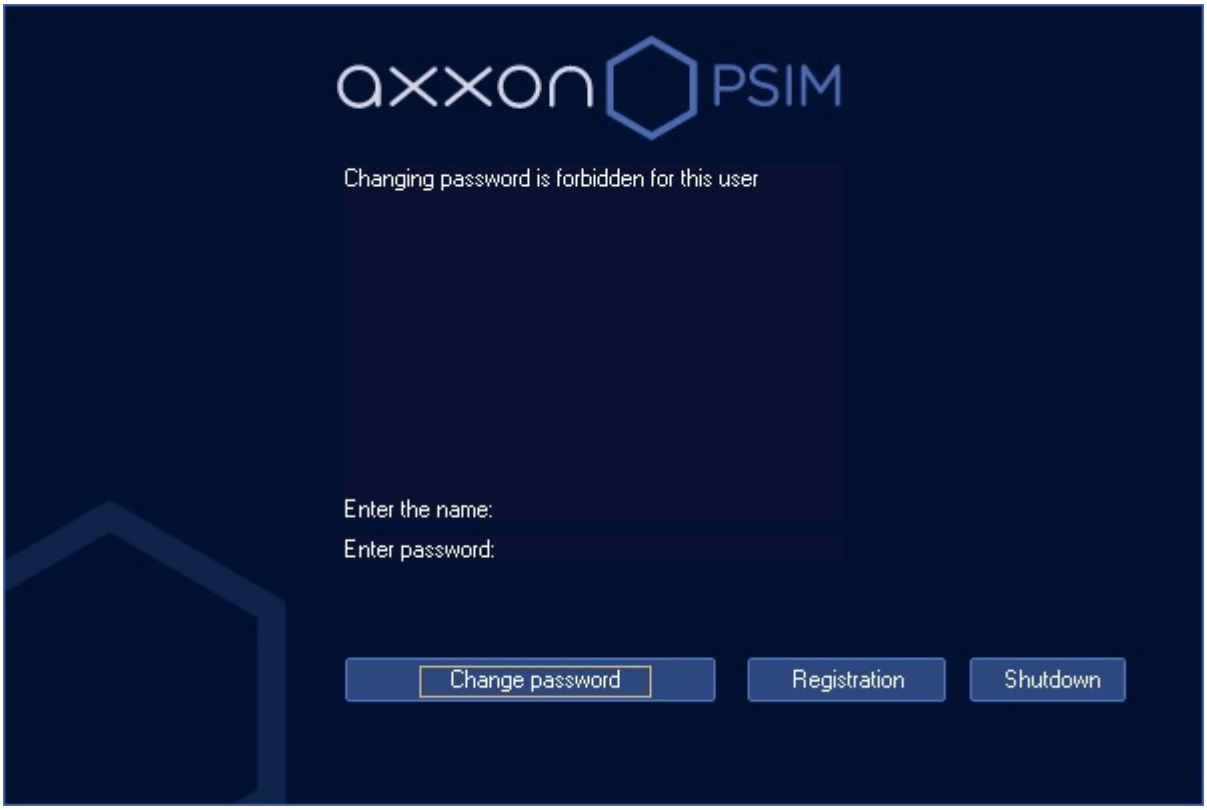
The password change can be required while the corresponding settings in the *Axxon PSIM* software. It may occur at the first user login to the system or after the current password time-out. In this case, after click the **Registration** button you will be proposed to enter and confirm the new password.

The password can be changed by user request while the corresponding settings in the *Axxon PSIM* software. In this case, click the **Change password** button and then enter and confirm the new password.



Note.

If the user is forbidden to change the password by request, the corresponding message will be displayed.



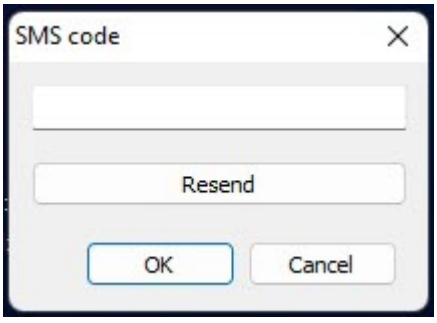
Attention!

The new password shouldn't coincide with the old one.

To start the *Axxon PSIM* software after entering the new password, click the **Registration** button.

9.1.4 Two-factor authentication

The two-factor authentication function can be configured in *Axxon PSIM* requiring login confirmation by SMS code – see Configuring two-factor authentication. In this case, after entering the login and password and clicking on the **Register** button, a short message with the code will be sent to the user's phone number. Enter this code in the **SMS code** box that opens, and then click the **OK** button.



If the message with the code does is not delivered, you can click the **Resend** button to send the code again but not less than in 10 seconds after the previous resend.

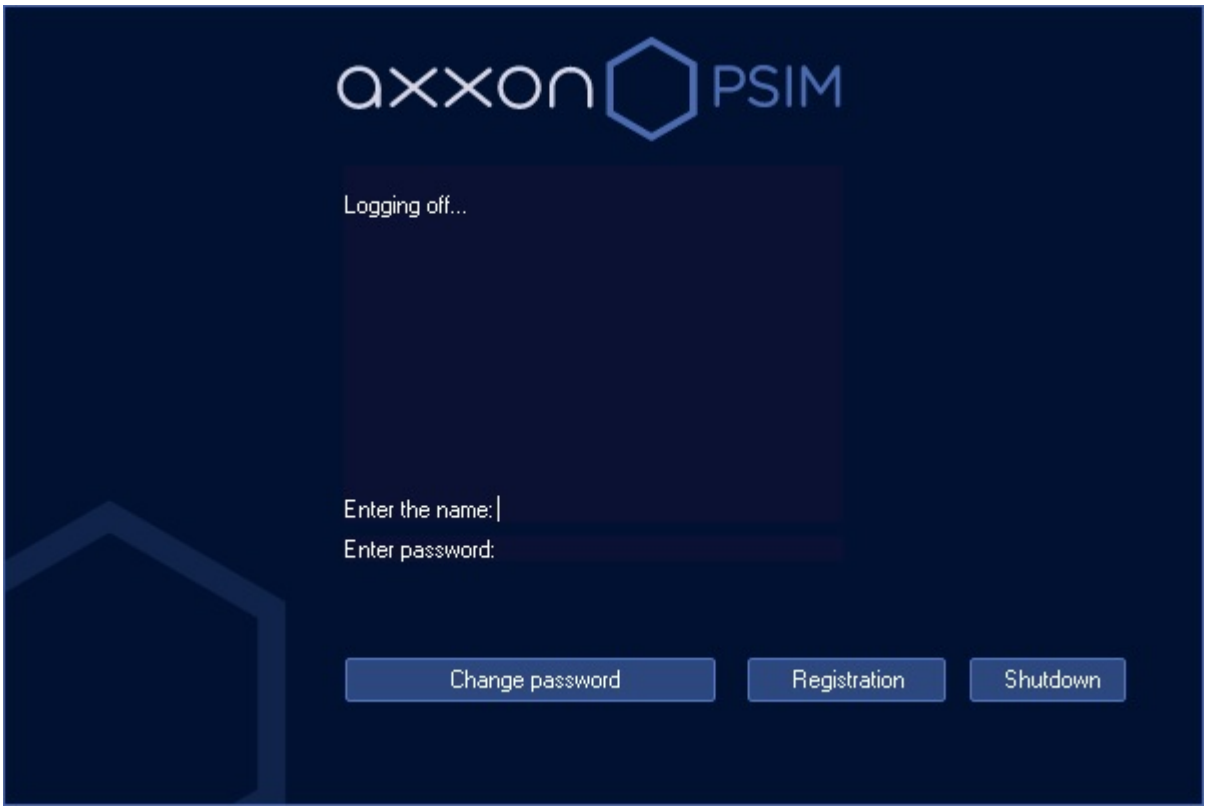
9.1.5 Shut down

To finish the *Axxon PSIM* program operation, do the following:

1. Move the cursor to the top right corner of the program window, then the main program control panel will appear;
2. Click the  icon on the software main control panel;
3. Choose the **Log Off (User Name)** option in the menu.

> **Note.**
>
> The **Log off (User Name)** item is also available from the menu which is opened by clicking the left mouse button on the  symbol in the Windows system tray.
> User name may not display if User permissions are not configured in *Axxon PSIM*.

Program exit will start, and the system can be configured to request a password again.



> **Note.**
>
> When shutting down *Axxon PSIM* in Client configuration in a way that somehow differs from one listed above, particularly when restarting the computer without shutting down *Axxon PSIM,* the interface parameters may remain unsaved. For example, the data about saved layouts on the Video monitor can be lost.

> **Note**

In some configurations *Axxon PSIM* shutdown (logging off) may be forbidden. Then no **Log Off (User Name)** option will be displayed in the menu.

9.2 Axxon PSIM software user interface

9.2.1 Main control panel

On page:

- Function
- Functions
- Interface description

Function

The main control panel is a basic element of the *Axxon PSIM* software control interface.

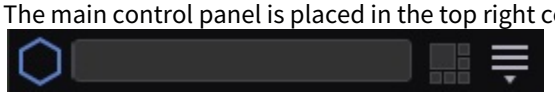
Functions

The main control panel provides access to the following program functions:

1. System operation startup and completion;
2. Program settings;
3. Control of the program interface windows display;
4. Displaying service messages;
5. Manual launching macros;
6. Displaying data on the current program version.

Interface description

The main control panel is placed in the top right corner of the screen.



In a dormant state, the panel is automatically removed from the screen. To return it, simply move the cursor to the top right corner, then the main program control panel will appear on the screen.
Elements of the main panel interface of *Axxon PSIM* software are described below.

1. Information box. The information window is used for prompts on program operation and error messages.
   If *Axxon PSIM* operates in the Demo mode, then there will be the corresponding message in this box.

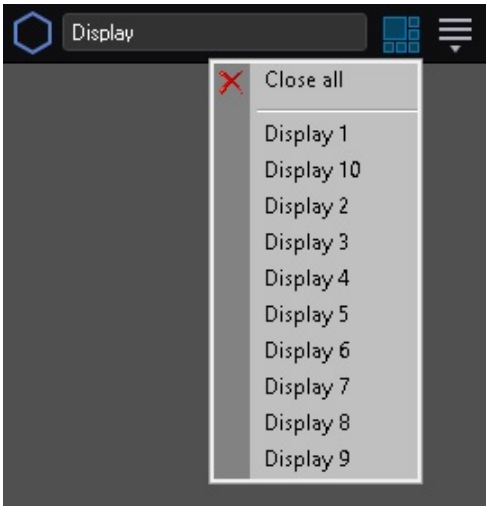
   

   If *Axxon PSIM* runs with a user logged in, the user's last name is displayed in the information box.

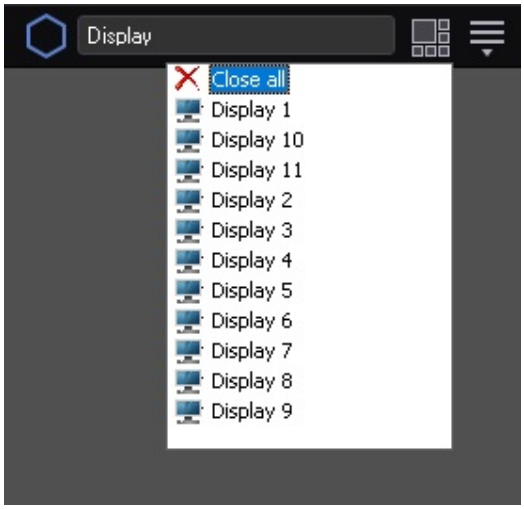
   

   The messages in the information box change every several seconds.

2. Screens button  . Chooses and displays screens and some other windows on the desktop. The **Close all** command hides all visible program windows.
The list may appear it two different ways depending on the number of the displays: if there are more than 50 of them, the list changes giving the ability to scroll itself by mouse wheel. Use the max_disp_menu_items registry key to change the threshold value (see Registry keys reference guide). On the figures below, see the list of screens with max_disp_menu_items = 10 and the number of screens 10 and 11 correspondingly.

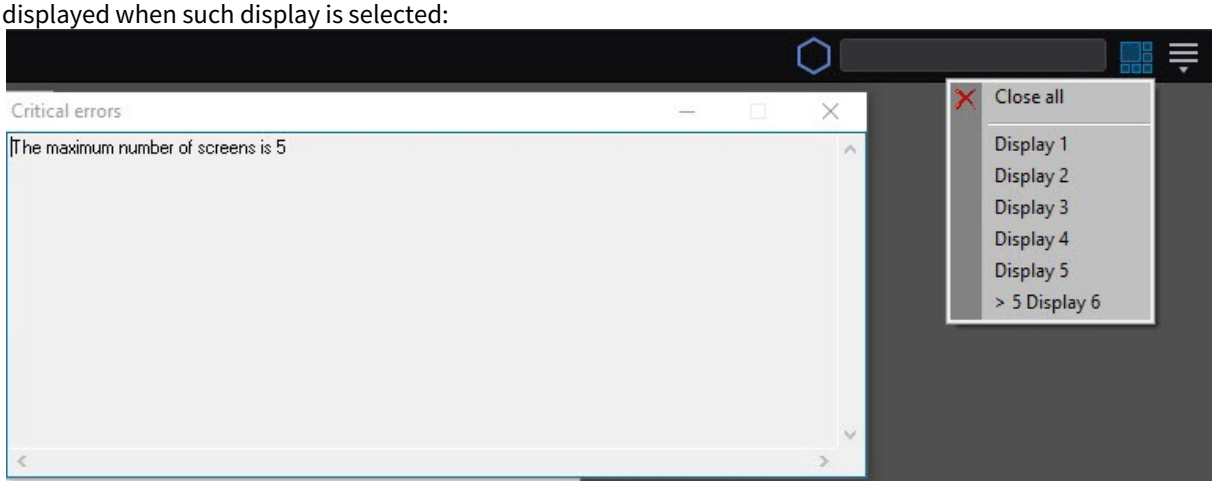


There are 10 displays in the list, so mouse scroll is not available

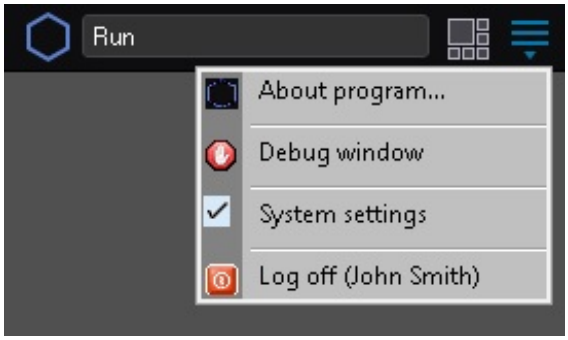


There are 11 displays in the list, so mouse scroll will be available if the list size exceeds the size of the computer monitor.

Also, the DISPLAY_MAX_NUM registry key may limit the number of displays assigned to one computer (500 by default). In this case, when more displays are assigned to the computer than allowed by the key, some of the screens are marked with **> N** in the list, where N is the maximum number of displays; the error message is displayed when such display is selected:



3.  Execute button. Provides access to various program control functions: startup, logging out, program settings, manual launching of macros, calling up the debug window and displaying data on the current program version



Description of hot keys which are used when the Main panel operation is given in the following table.

> **Note.**
>
> These hot keys can be disabled using the RegisterF10andF11 registry key - see the Registry keys reference guide.

Key	Description
F10	Functions if all screens are hidden. The last displayed screen is shown while clicking.
F11	Functions if a screen is displayed while clicking. Hides screen while clicking. Clicking of this hot key is similar to selecting the **Hide all** item in the **Execute** menu of the Main control panel.

9.2.2 Video surveillance monitor

On the page:

- Function
- The functions list
- Interface description

Function

The **Video surveillance monitor** is used for displaying and managing the **Surveillance windows**. The Surveillance windows display video from the specified **Cameras**.

The functions list

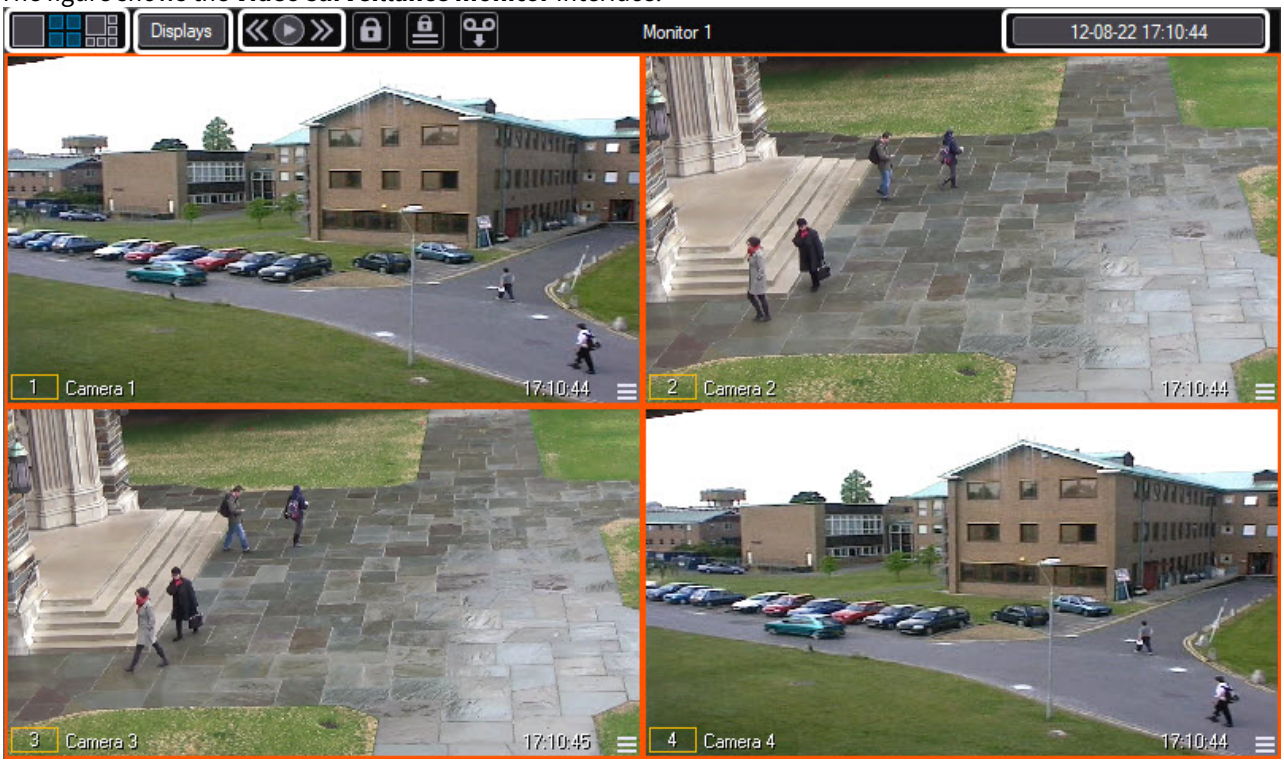
The **Video surveillance monitor** implements the following functions:

1. Display images from the video surveillance cameras.
2. Manage the surveillance modes.
3. Graphically process the images from the video surveillance cameras.
4. Manage video recording from the video surveillance cameras.
5. Work with video archives.

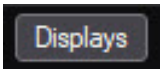
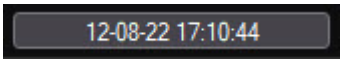
6. Display video camera status data.

Interface description

The figure shows the **Video surveillance monitor** interface.



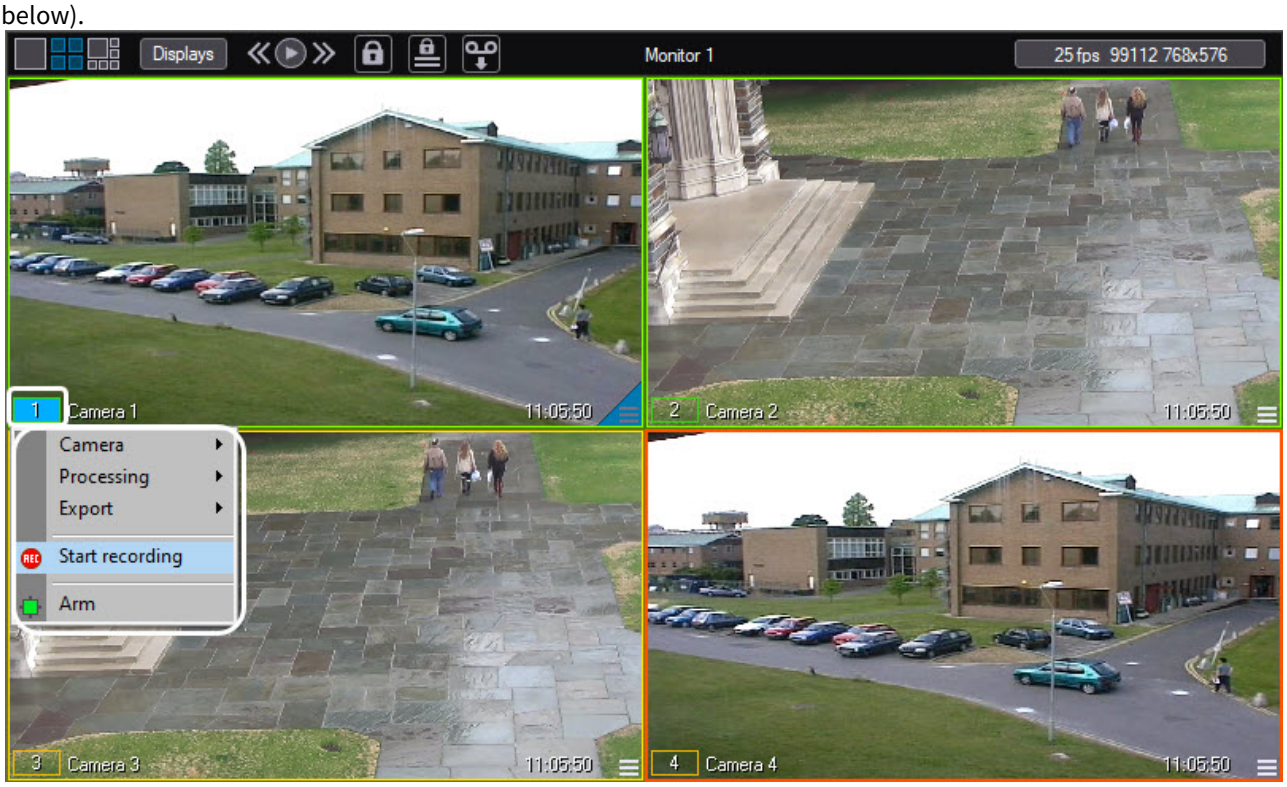
The **Video surveillance monitor** window consists of a field for displaying the **Surveillance windows** and the toolbar above it with the following items:

1. The  buttons are used to change the number of the displayed Surveillance windows on the Video surveillance monitor.
2. The  button is used to manage the layouts.
3. The  buttons are used to switch the Surveillance windows.
4. The  field displays the current time and date.

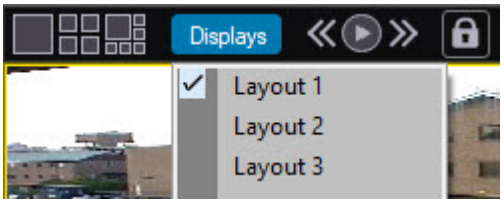
Every **Surveillance window** has function menu to access such functions as arming and disarming video camera, image processing, video recording managing, frame exporting and printing, etc. The **Surveillance window** can also display the **Buttons** for performing the specified actions when you click them:



Left click the video camera number in the **Surveillance window** to display the function menu (see the figure below).



When hovering over the control elements in the **Video surveillance monitor**, the tooltips are displayed. The period of their display can be set using the TT_INITIAL and TT_AUTOPOP registry keys (see Registry keys reference guide).



The keyboard shortcuts ("hotkeys") for convenient **Video surveillance monitor** and **Surveillance windows** operation are listed in the table.

Keyboard shortcuts ("hotkeys")	**Function**	**Comments**
0 .. 9 Num (numeric keyboard)	Select an active Surveillance window with the camera ID in the range from 0 to 9	The sequence number of the Surveillance window corresponds to the key digit
Ctrl + 0 .. 9 Num (numeric keyboard)	Select an active Surveillance window with the camera ID in the range from 10 to 19	To enable the cameras with the ID 10-19, press Ctrl and the key corresponding to the low-order digit. For example, CTRL+0 enables the camera 10, CTRL+9 enables the camera 19

Keyboard shortcuts ("hotkeys")	Function	Comments
Ctrl + 10 or more on numeric keyboard	Select an active Surveillance window with a sequence number from 10	To enable the camera with the two-digit ID, press Ctrl and sequentially enter the digits. For example, CTRL+2+3 to enable the camera 23
F1 .. F6	Select the number of the displayed Surveillance windows	**F1**—1 window **F2**—4 windows **F3**—9 windows **F4**—16 windows, etc. *Note. The documentation can also be opened by pressing the F1 key if Axxon PSIM is set up accordingly (see The Settings panel of the Security zone object section in Administrator's Guide)*
F7	Display all Surveillance windows on the Video surveillance monitor. This key can only be used if there are more than 36 Surveillance windows in the Video surveillance monitor	
F8	In the archive mode — select the date and time for searching records. Long press — display the **Execute** menu of the Main control panel In the video surveillance mode — display the **Execute** menu of the Main control panel	This hotkey can be disabled using the DisableF8 registry key (see Registry keys reference guide)
F9	Display the function menu of the Surveillance window	
Ctrl + R **Ctrl + T**	Manage video recording	**Ctrl + R**—video recording start **Ctrl + T**—video recording stop
Shift + LeftClick/ RightClick	Image scaling in the Surveillance window	**Shift + LeftClick**—step-by-step zoom in **Shift + RightClick**—step-by-step zoom out

Keyboard shortcuts ("hotkeys")	Function	Comments
Tab	Switch the active Surveillance window into the archive mode and back	See Working with video archives By default, pressing **Tab** redirects the user to the main archive of the Server. If the user should be redirected to the external archive, it is necessary to use the EnterEdgeStorageDirect key (see Registry keys reference guide)
Ctrl + **/** (on numeric keyboard NumPad) **Spacebar** **Ctrl** + ***** (on numeric keyboard NumPad) **Left/Right arrow**	Manage archive playback (playback control panel)	**Ctrl** + **/** (on numeric keyboard NumPad)—playback **Spacebar**—stop **Ctrl** + ***** (on numeric keyboard NumPad)—pause **Left/Right arrow**—previous/next frame (in pause mode)
Ctrl + A/D	Camera arming	**Ctrl + A**—camera arming **Ctrl + D**—camera disarming
Ctrl + E/P	Operations with individual frames	**Ctrl + E**—behaviour depends on the state of the camera. If the camera is not in the archive, or in the archive but paused, the frame is exported. Otherwise the video is exported. When the video is exported, the exported frames are played back **Ctrl + P**—frame printing
Ctrl + W	Increase image contrast	Maximum contrast is set. To return to the previous value, press the hotkeys again
Ctrl + S **Ctrl + H**	Set camera mask	**Ctrl + S**—show camera mask **Ctrl + H**—hide camera mask See Use of basic video detection tools
Ctrl + L	Enable/disable PTZ control using the mouse	See Mouse PTZ control
Home	Switch to the first fragment of the video recordings list in the archive view mode	

Keyboard shortcuts ("hotkeys")	Function	Comments
End	Switch to the last fragment of the video recordings list in the archive view mode	

9.2.3 Audio player

On the page:

- Function
- Functions
- Interface description

Function

The audio player is used to operate the audio monitoring subsystem, that provides audio monitoring and recording for protected facilities.

Functions

Audio player provides:

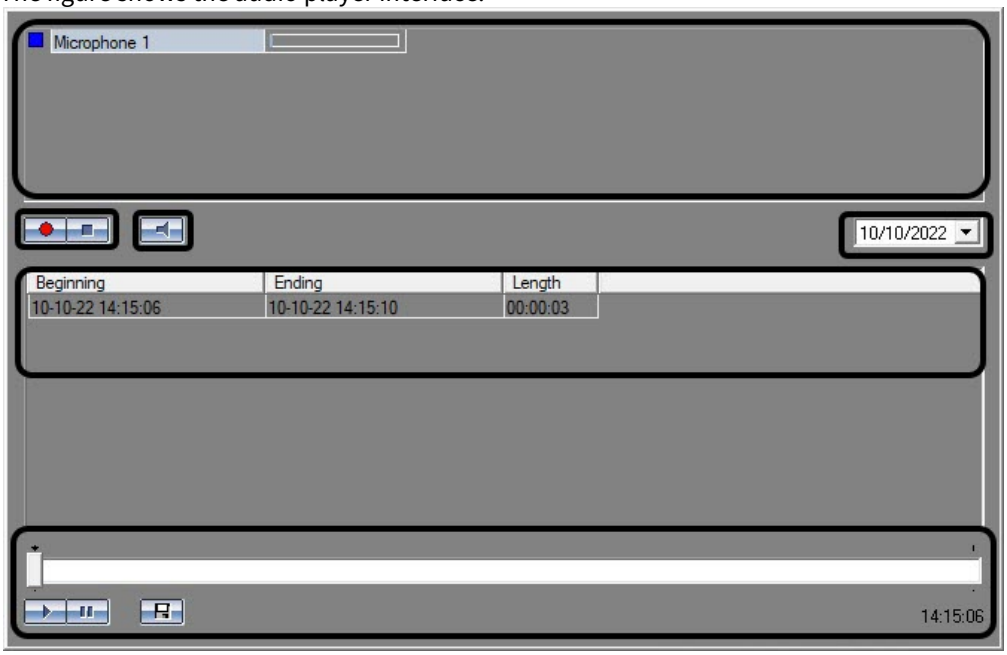
1. Realtime monitoring of the event audio component;
2. Recording of the event audio component;
3. Playback of the recorded event audio component;
4. Saving the recorded event audio component as a standard Windows wave file.

Note

Audio player operation requires headphones or speakers to be connected to the PC soundcard.

Interface description

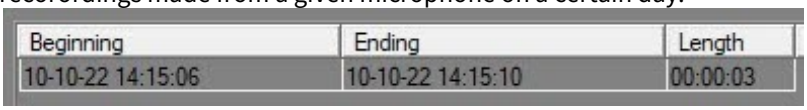
The figure shows the audio player interface.



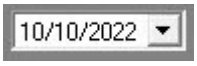
The upper part of the audio player window displays the list of attached microphones. Each microphone has a status indicator (to the left) and microphone signal level dynamic scale (to the right) (see also Microphone status indication).



In the middle part of the audio player window the  recording control buttons are displayed (also used for microphone arming and disarming) and the  button used for switching of real time monitoring and the list of recorordings made from a given microphone on a certain day.



Each audio recording has a from/to time and duration marks.
To choose available recordings to be viewed, enter its date in the field above the recordings list.



The tape transport panel is placed below the audio recordings list.



The  and  buttons are used for selected recording playback control, the  button is used to export the recording into the file.

9.2.4 Universal PTZ control panel

On page:

- Function
- Functions
- Interface description

Function

Universal PTZ control panel is used to control System PTZs (e.g., surveillance camera PTZ).

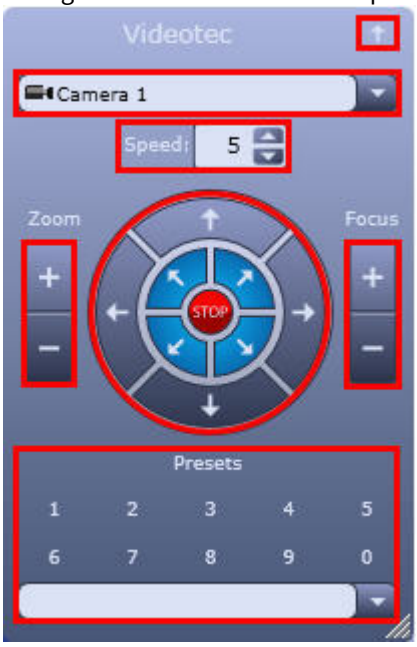
Functions

PTZ control panel universal window provides:

1. Control of camera PTZ units;
2. Lens zoom control (Fig. magnification);
3. Focus adjustment;
4. PTZ user's settings.

Interface description

The figure shows the PTZ control panel universal window interface.



Elements of PTZ control panel universal window interface are described below.

1.  Minimizing PTZ control panel universal window (minimizes the client's window , leaving the header only)
2.  Choosing the camera number, whose PTZ unit is to be controlled.

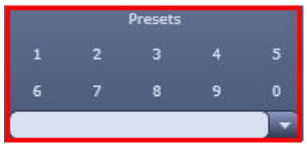
3. 

Setting of relative camera rotation speed
4. 

Camera orientation control
5. 

Lens zoom control (Fig. magnification)
6. 

Focus adjustment. If a camera supports auto focus function, then this feature is enabled when you click 

7. 

PTZ user settings
8. 
Changing the size of the PTZ control panel

9.2.5 User's dialog box window

On page:

- Function
- Functions
- Interface description

Function

The user dialog box window is used to control various system devices and modules.

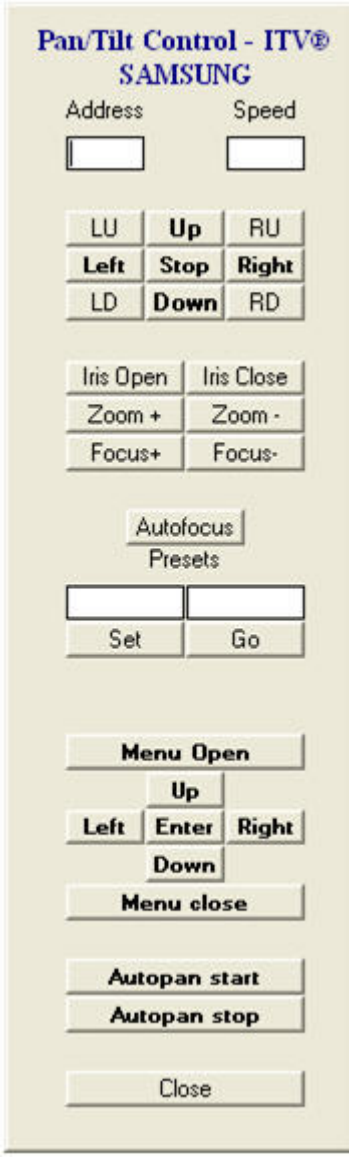
Functions

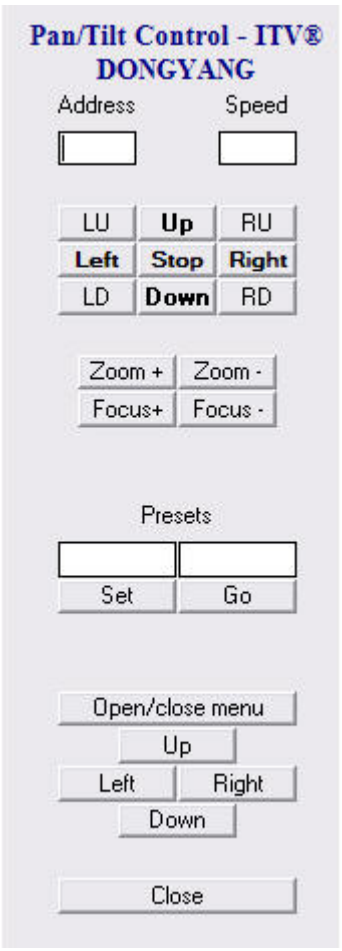
The user dialog box window provides:

1. Control of various system devices and modules;
2. Access to System user functions.

Interface description

The user dialog box window is the interface frame used to perform user specified functions with a user's set of elements, selected by the program administrator whilst setting up the program. Examples of user dialog box windows are shown in figures.





9.2.6 Backup archive panel

On page:

- Function
- Functions
- Interface description

Function

The Backup archive panel is used to control Backup archiving.

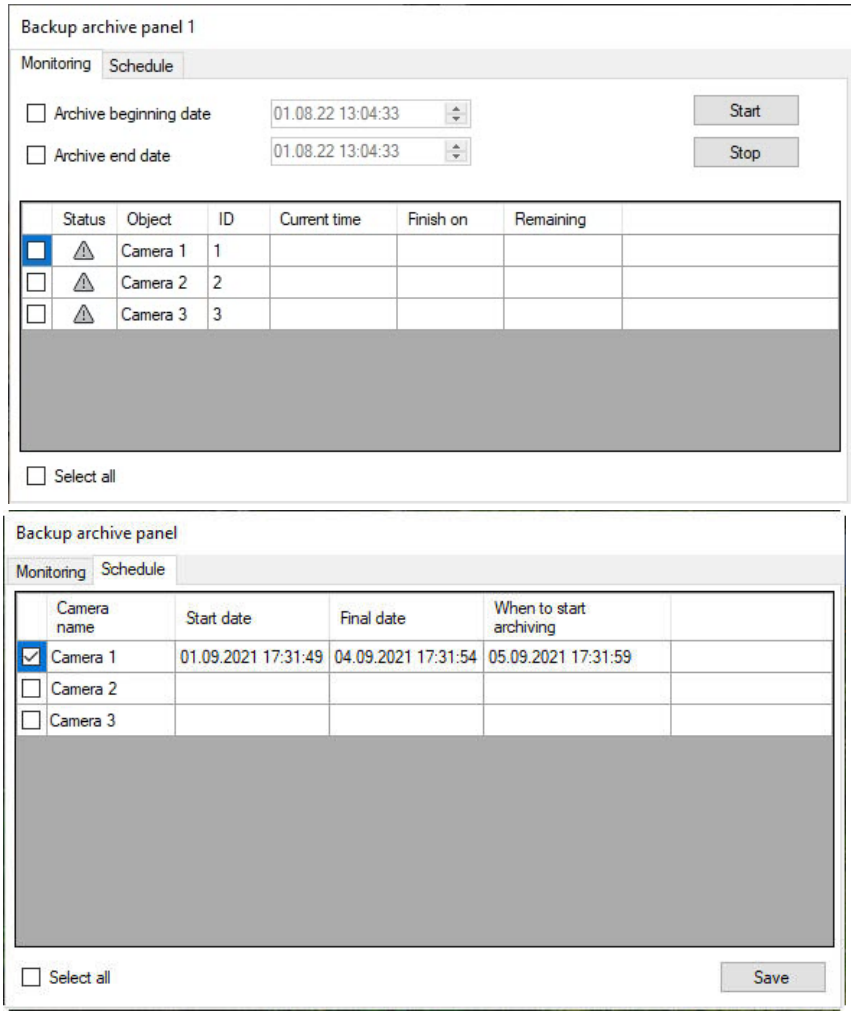
Functions

The Backup archive panel provides:

1. Backup archive monitoring;
2. Manual video archiving;
3. Automatic video archiving;
4. Choosing the surveillance camera, whose video recordings are to be archived;
5. Entering date/time **from** and **to** values for video archiving (for each surveillance camera individually).

Interface description

Figure shows the Backup archive panel interface.



Monitoring and **Schedule** tabs are displayed at the top of the panel. The **Monitoring** tab is used to monitor and control the Backup archive, and the **Schedule** tab – to enter automatic Backup archiving parameters.

The **Monitoring** tab contains the following controls:

1. **Start** and **Stop** buttons for manual archiving;
2. Fields for entering archiving date/time **from** and **to** values;
3. Table of cameras selected and archive copying progress;
4. The **Select all** is used to select/deselect all cameras.

The **Schedule** tab contains the following controls:

1. Table of cameras selected and archive copying progress;
2. The **Select all** is used to select/deselect all cameras.
3. The **Save** button is used to save archiving schedule.



9.2.7 Alarm notification window

On page:

- Function
- Functions
- Interface description

Function

The alarm notification window is used to inform the Operator about registered alarm and system events.

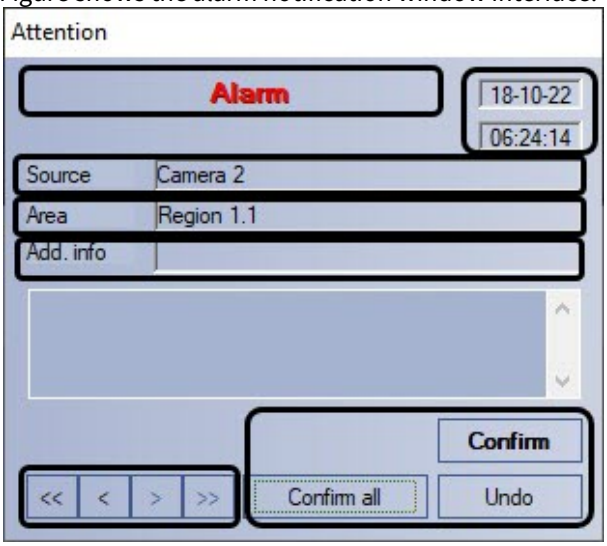
Functions

The alarm notification window provides:

1. Auto notification to Operator of registered system events;
2. Auto notification to Operator of registered alarm events;
3. Operator control of processing registered alarm and system events.

Interface description

Figure shows the alarm notification window interface.

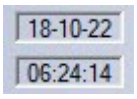


> **Note**
>
> The alarm notification window is not displayed by default – only if the system had registered an alarm or system event is it displayed over all other windows of the program user interface. If an alarm event occurs, the notification window appears on the screen, even if no other UI elements are visible at that time.

Elements of an alarm event window interface are described below.



Event name



Date and time of event registration.



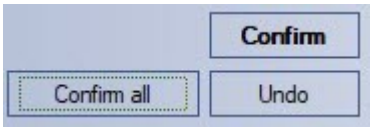
Event source object.



Virtual area (section) of event source location.



Additional information on event.



Control elements block for event processing



Control elements block for event navigation

9.2.8 Events log

On page:

- Function
- Functions
- Interface description

Function

Event log is used to display data on events, registered by the system (with data filtering by event type option)

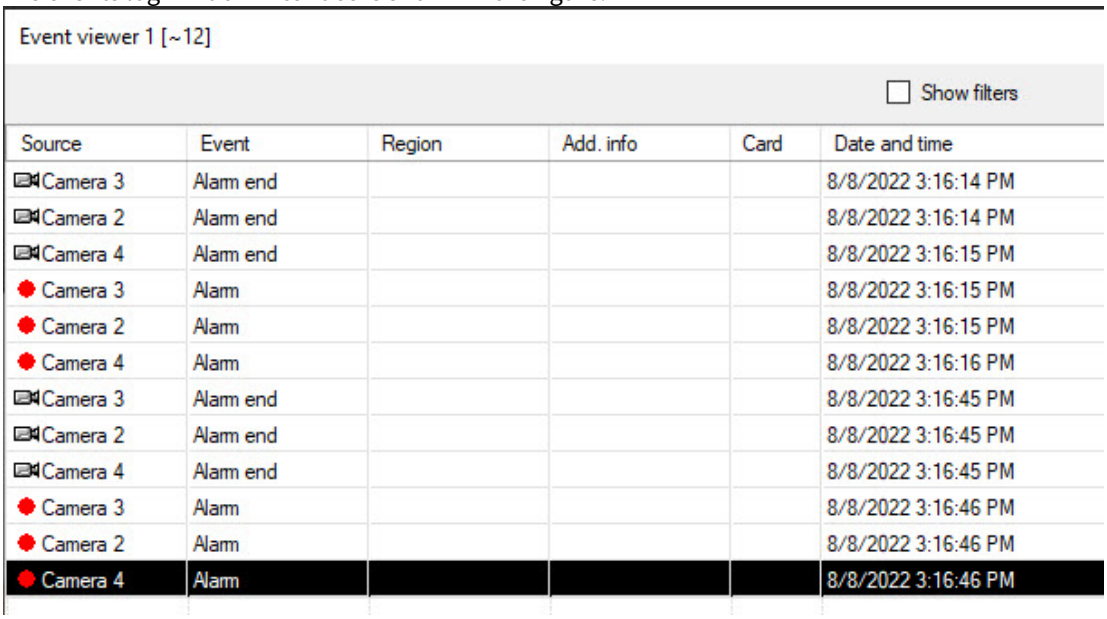
Functions

Events log provides:

1. Showing the list of all events registered in the system;
2. Showing the list of events registered in the system according to the preset filter;
3. Showing data on a displayed event: event source, name, section, date and time of event registration, additional information on event;
4. Forming and printing a report on registered events;
5. Switching to event source map location;
6. Source camera video recording playback option in the events log child window.

Interface description

The events log window interface is shown in the figure.



All displayed events are listed in the event table depending on the selected filters.

Column name	Comments
Source	Event source object
Event	Event name
Section	Virtual area (section) of event source location
Add. info	Additional information on event
Date and time	Date and time of event registration

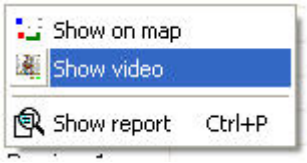
The **Display filters** checkbox shows the list of event filters created while configuring the system (see Configuring event filters for displaying in the Event viewer section in Administrator's Guide). To activate the filter, set the checkbox checked next to its name. Several filters can be activated at the same time.

Events of different types are highlighted in different colors depending on the system settings.

The icon opposite the event source shows the extra info on the event. For example, for the **Camera** event source object the following icons are used in the Event viewer:

1. icon is displayed for the Record on disk stopped, Alarm end, Hard disk rec and Record off events.
2. icon is displayed for the Alarm and Armed events.
3. icon is displayed for the Disarmed event.

For every event in the table, there is provided a functional context menu, called by clicking the right mouse button upon the line with the name of the corresponding event in the table. The particular content of the functions menu depends on the event source object type. For example, the **Camera** type event source object functions menu is shown in the figure.



The **Clear** button is used to clear the list of events in the Event viewer.

Note.

After the Event viewer is cleared and if hidden events are to be displayed again, then *Axxon PSIM* is to be restarted with the Load protocol checkbox set checked (see Event viewer parameters section in Administrator's Guide).

9.2.9 Operator protocol

On page:

- Function
- Functions
- Interface description
  - The Current events tab
  - The Search in events archive tab
  - The Create report tab
  - The Create event tab

Function

The **Operator protocol** is used to process events registered by alarm objects and to search events in the archive.

Functions

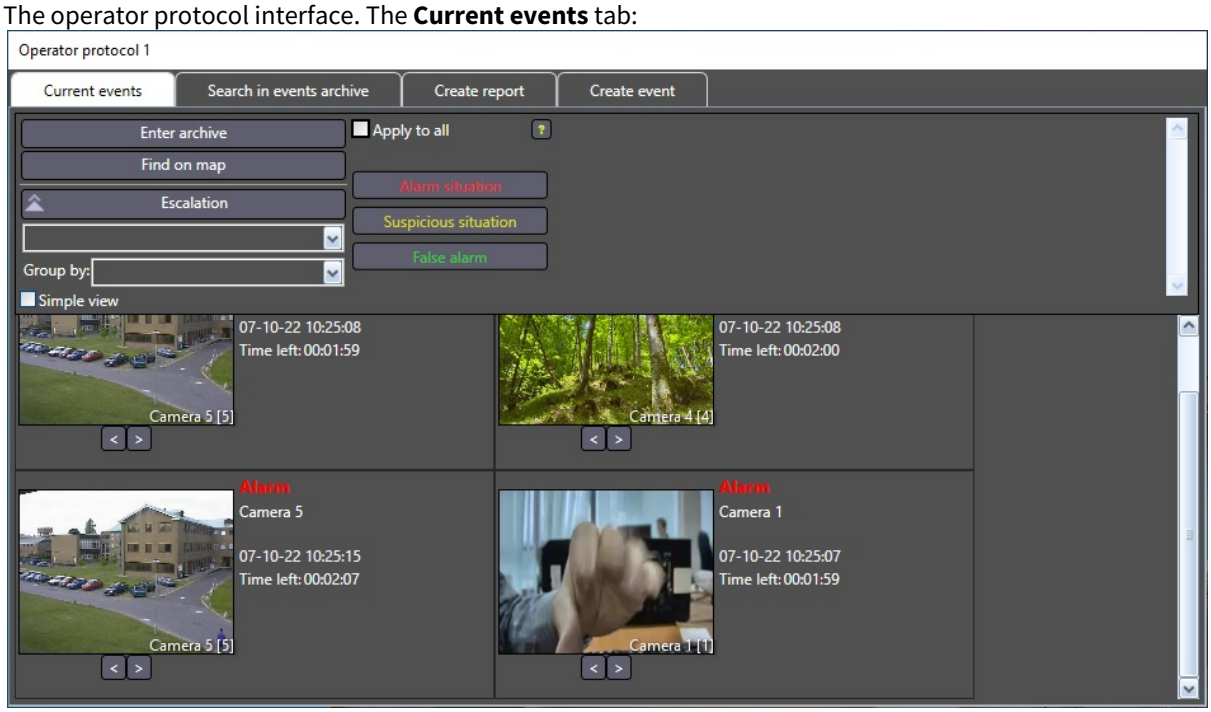
Operator protocol provides:

1. Displaying events registered by alarm objects;
2. Assigning a status (type) to the registered event;
3. Adding a comment to an event;
4. Event recording to the archive;
5. Searching for events in the archive;
6. Viewing event recording;
7. Escalating non-processed events to the operator protocol of a higher level.

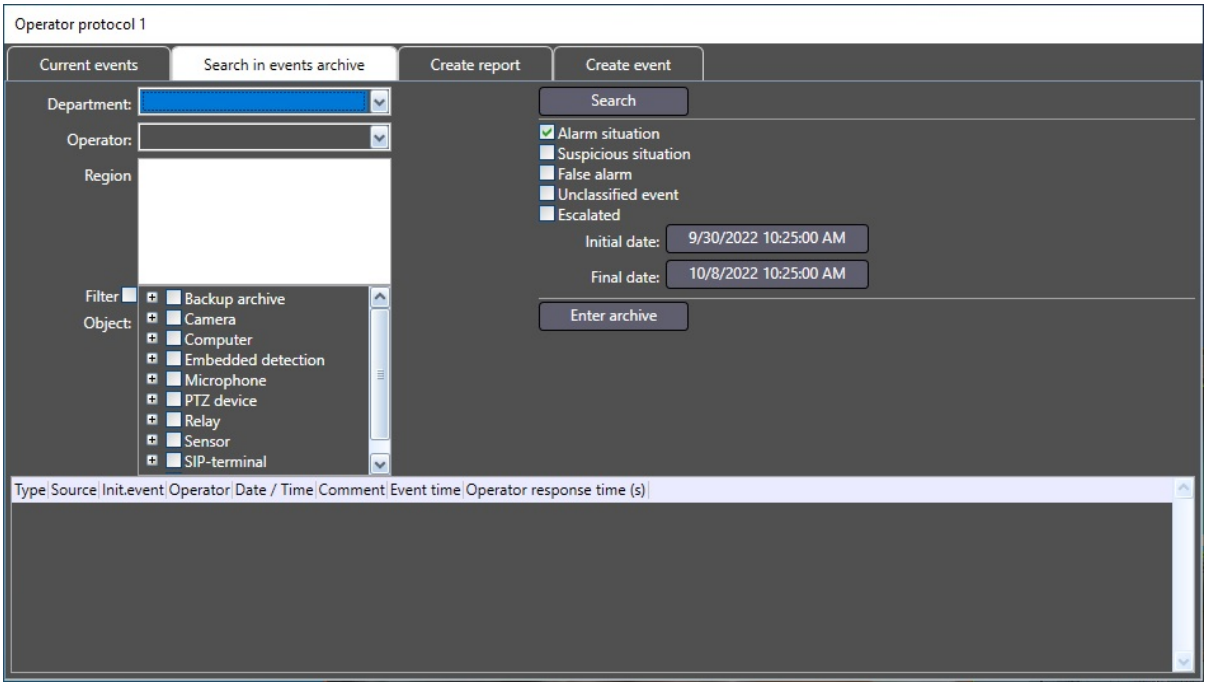
Interface description

The operator protocol interface is shown in the following figures.

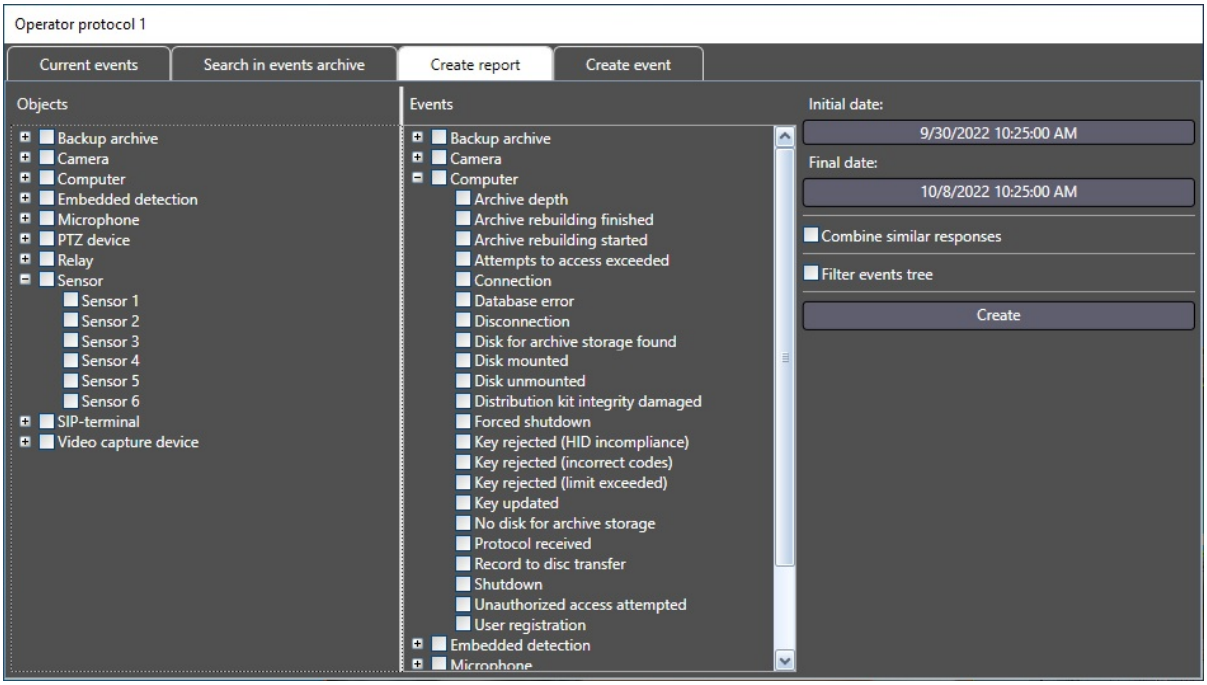
The operator protocol interface. The **Current events** tab:



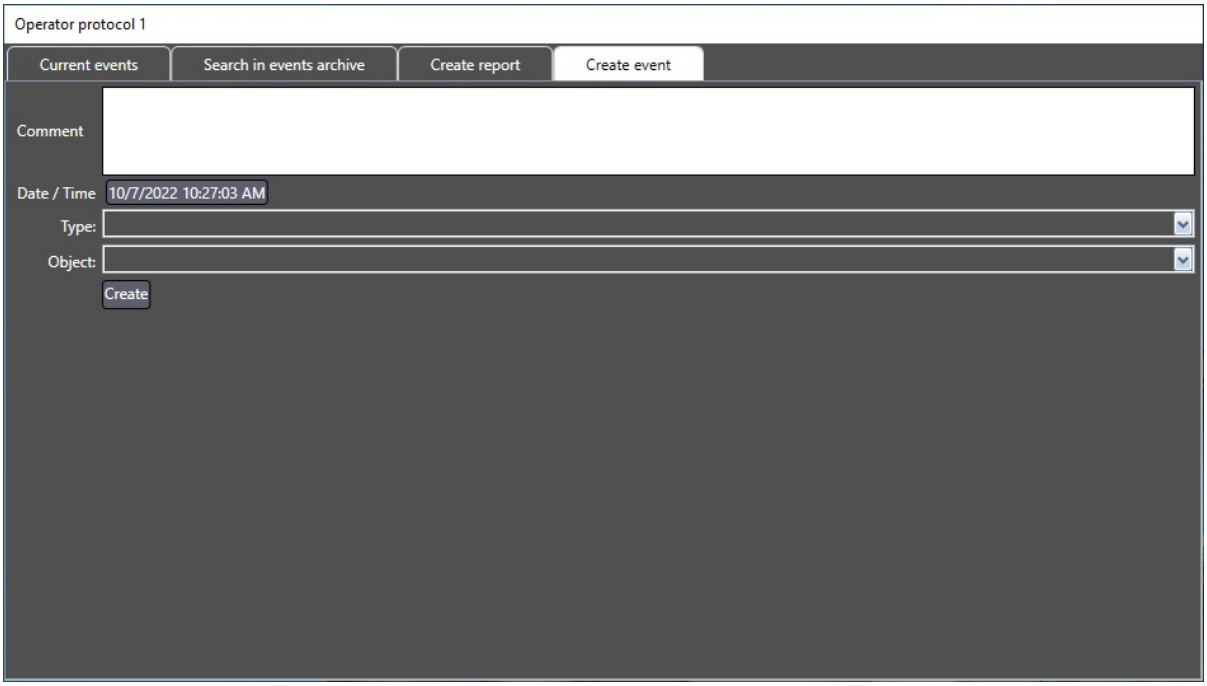
The operator protocol interface. The **Search in events archive** tab:



The operator protocol interface. The **Create report** tab:



The operator protocol interface. The **Create event** tab:



Interface elements of the operator protocol are described below.

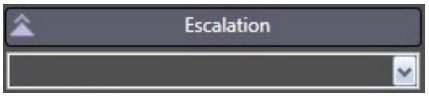
The **Current events** tab

The event control panel is at the top of the **Current events** tab. The following elements can be found on this panel:

> **Note**
>
> The **Enter archive**, **Find on map**, **Escalation** and **Delay** buttons can be inactive if their use was not configured when configuring the Operator protocol object - see Setting the options for handling events in the Operator protocol section of Administrator's Guide.

1. The button to switch to the archive to view and export video of the event 

.
2. The button to switch to the map layer where there is the source of the even 

.
3. The button to escalate the event 

.

   > **Note**
   >
   > If the event has got the **Escalated** status, then this event will be displayed in the interface of the operator protocol of the higher level. If the **Escalation** button is disabled, it means that no superior interface is assigned to the current Operator.

   Several superior interfaces can be assigned to the Operator protocol but escalation is performed to one of them. If more than one superior interfaces is assigned, then before clicking the **Escalation** button select the required Operator protocol of the higher level in the dropdown list that can be found below the **Escalation** button.

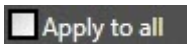
4. A drop-down list 

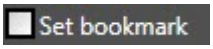
to group the events display by region, event, or object.
5. A checkbox 

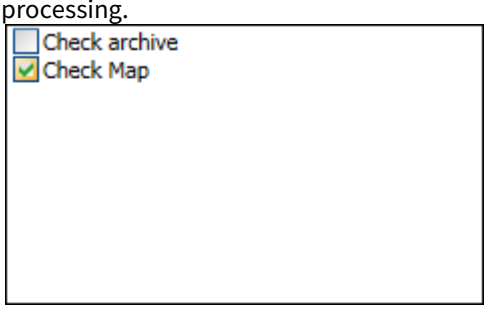
to enable a simple display of events at the bottom of the **Current event**s tab.
6. The buttons to assign the type (status) to the event 

. The buttons for event processing may not be available until a comment is entered if the corresponding setting is enabled. The button names can be changed during the Operator Protocol configuration. Also, if configured accordingly, the buttons may be absent when the line with the name of the event grouping is highlighted.
7. The 

button enables delaying event processing once for a time period specified when configuring the Operator protocol.
8. The  button to open the helping guide about the event processing.
9. The field to enter a comment.


The comment field also contains the information about the completed tasks from the checklist (see below).
10. When enabling the 

checkbox, the type assigned to the corresponding event is applied to all events in the **Current events** tab.
11. The 

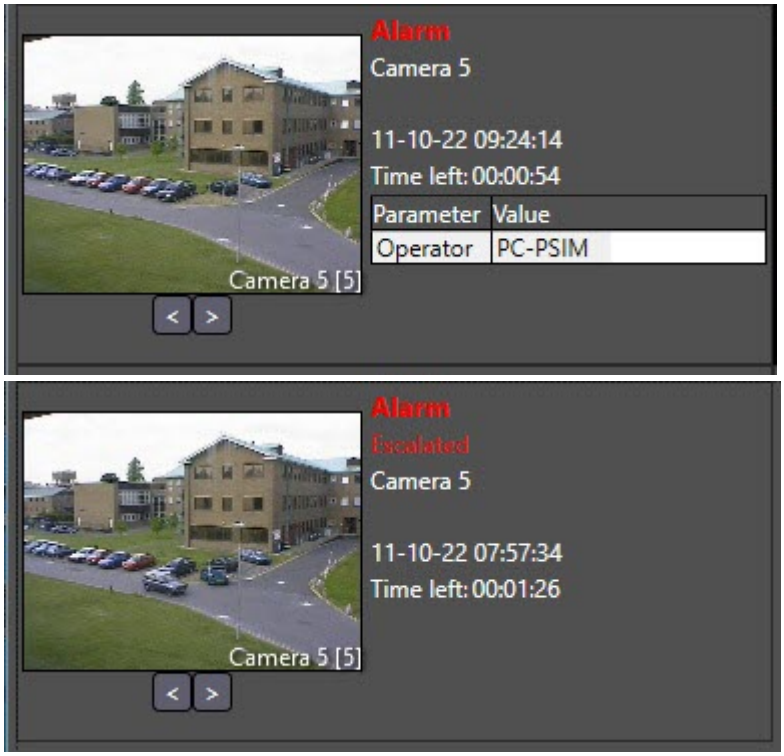
checkbox is used for auto creation of the bookmark in the archive when the event is processed by the operator. The entered comment will be used as the bookmark name.
12. The checklist contains the list of actions that must be performed by the Operator during the event processing.


The events are displayed at the bottom of the **Current events** tab. The display type depends on the settings configured on the control panel. The display options:

1. If no **Group by** value is selected and if the **Simple view** option is disabled, then the bottom of the **Current events** tab displays the cells, each of which corresponds to one event. The number of horizontal cells is determined by the **Operator protocol** window width. The information on the event and the frames from the camera linked to the object from which the event is received are displayed in the cell (see Connection of objects with cameras in Administrator's Guide). The name of the corresponding camera is displayed on the

frame. If there are several cameras linked to the object, you can use the < > buttons to browse the screenshots.

> **Note**
>
> There is no need to configure connection between the embedded detection tool and camera in order to show the frame by events from embedded camera detection tools.

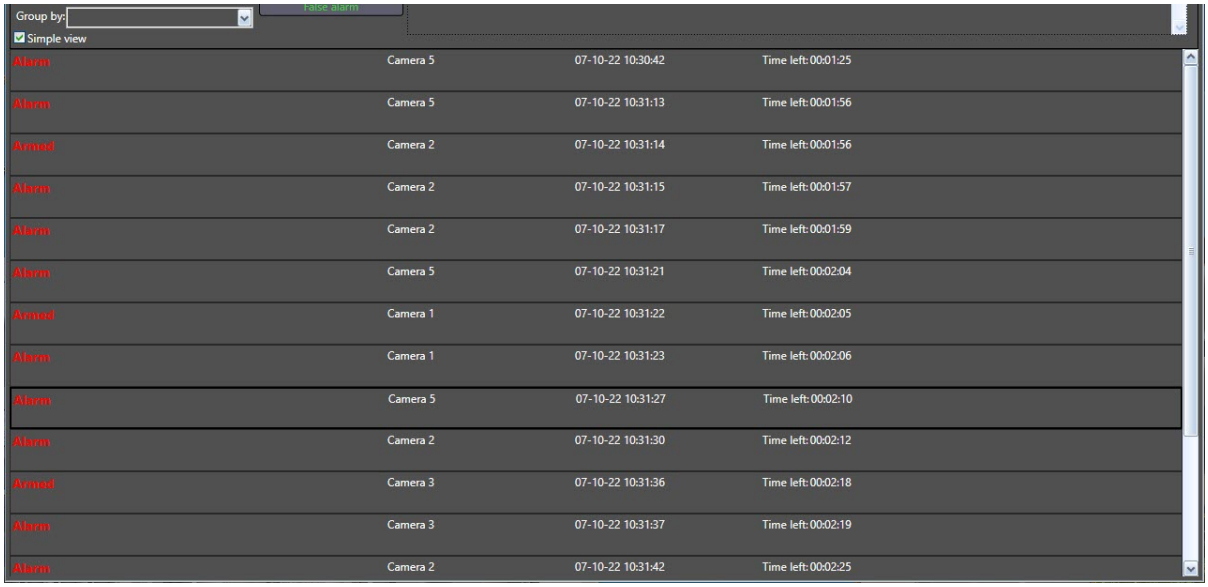


The cell contains the following information:

a. System name of the event;
b. Object registered the event;
c. Name of the **Region** object corresponding to the area where the event is registered;
d. Date and time of event registration;
e. Time left before the **Non-processed event** type is assigned to the event;
f. Information about event escalation or optional parameters.

> **Note**
>
> The list of optional parameters is set when configuring the **Operator protocol** object (see Administrator's Guide).

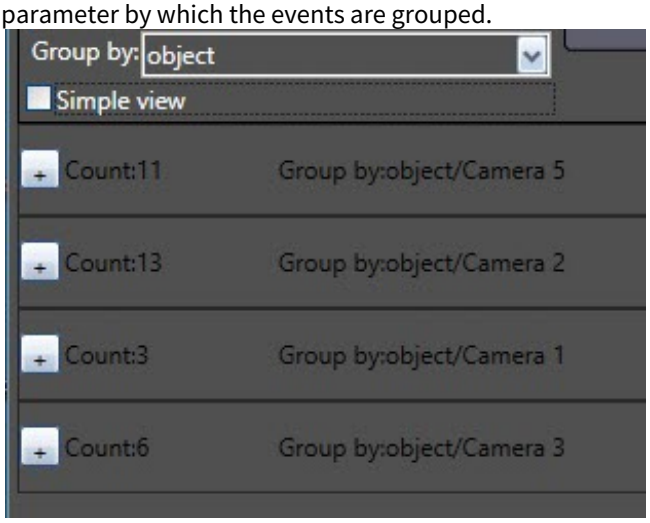
2. If no **Group by** value is selected and if the **Simple view** option is enabled, then the bottom of the **Current events** tab displays a simplified list of events without the frames from the camera:



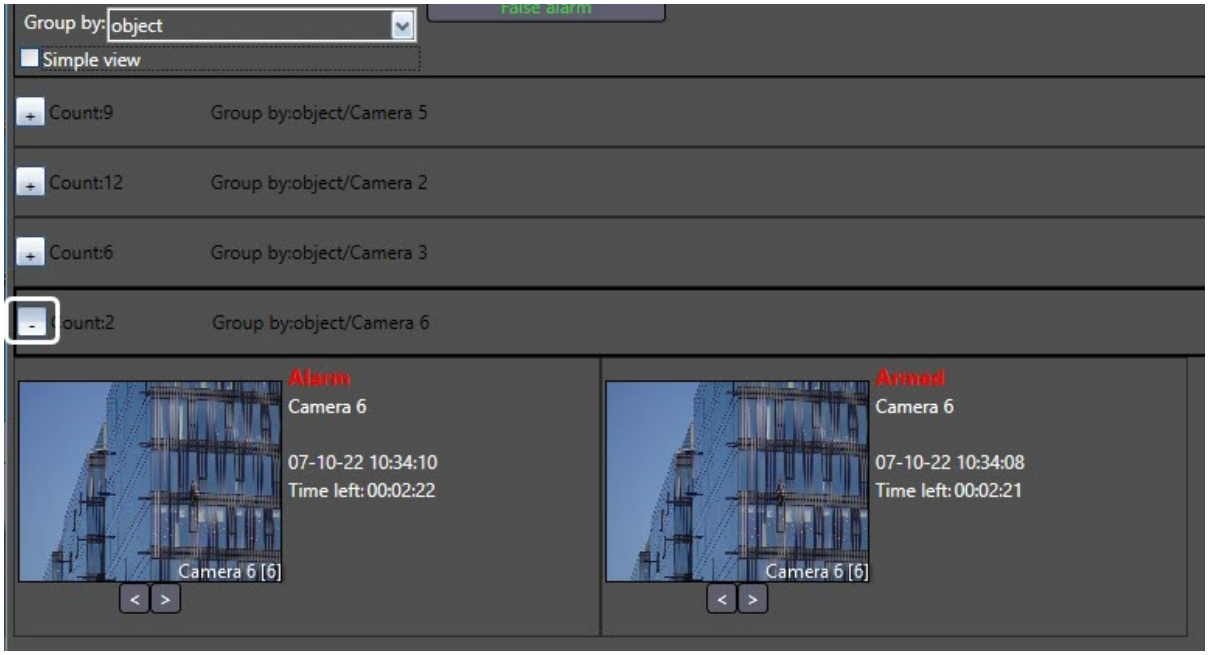
Each line corresponds to one event and contains the following information:

a. System name of the event;
b. Object registered the event;
c. Date and time of event registration.

3. If any **Group by** value is selected, then the bottom of the **Current events** tab displays a list of groupings by the selected parameter. The list line contains the number of events in the grouping and the name of the parameter by which the events are grouped.



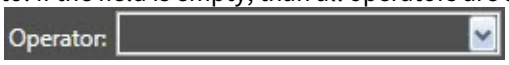
To view all events from the group, click on the + button. To hide the grouped events, click the - button:

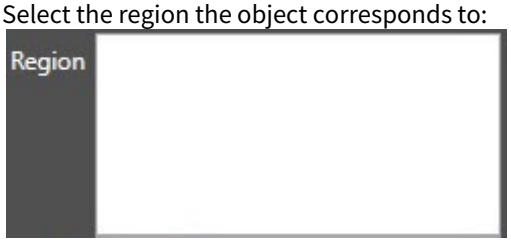


The content of the expanded group depends on whether the **Simple view** checkbox is set or not. If it is disabled, the events will be displayed as cells. If the **Simple view** checkbox is set, then a simplified list will be displayed.

The **Search in events archive** tab

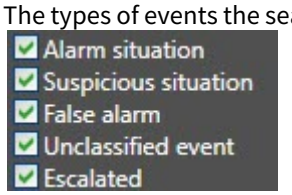
1. 

The list to select the department which the operator belongs to. If the field is empty, than all operators are available to select.
2. 

The list to select the operator.
3. Select the region the object corresponds to:


4. Enabling the filter by objects and object selection:


5. The types of events the search is performed by:



6. The button to set the initial date 

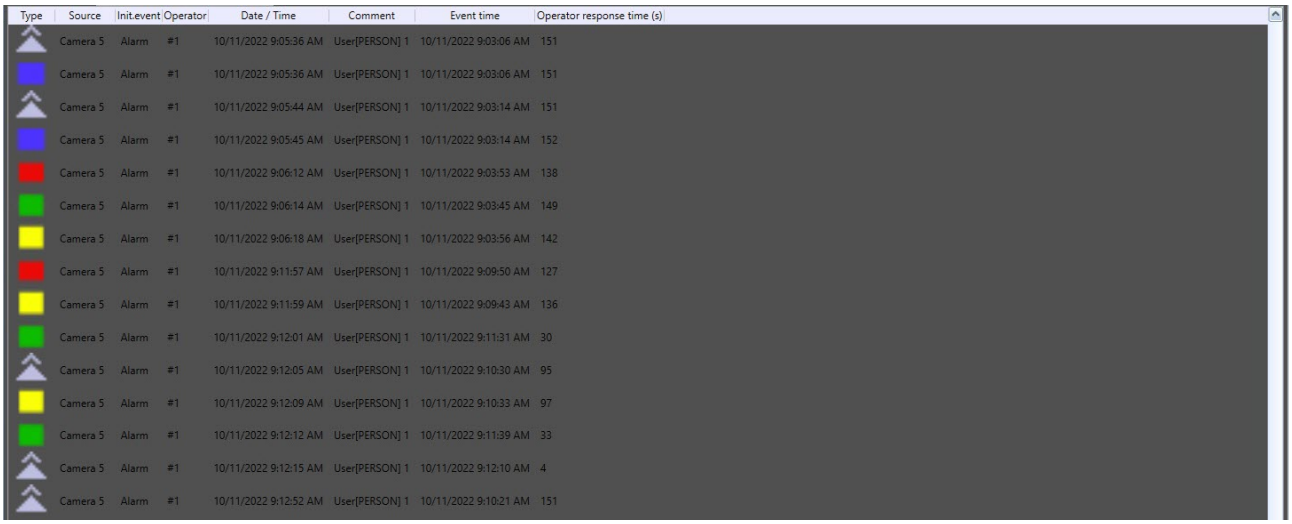
.
7. The button to set the final date 

.
8. The button of search start 

.
9. The button to switch to the archive to view and export video of the event 

.

There is the table containing the search results at the bottom of the **Search in events archive** tab.



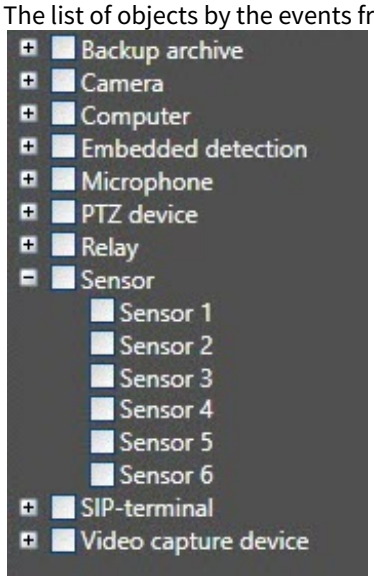
The description of the table is given below:

Column	**Description**
Type	The icon of event type
Source	Source object of the event
Init.event	Initial event or information that the event was created by the Operator on the **Create event** tab
Operator	Operator processed the event
Date/Time	Date and time when the event was processed
Comment	Operator's comment

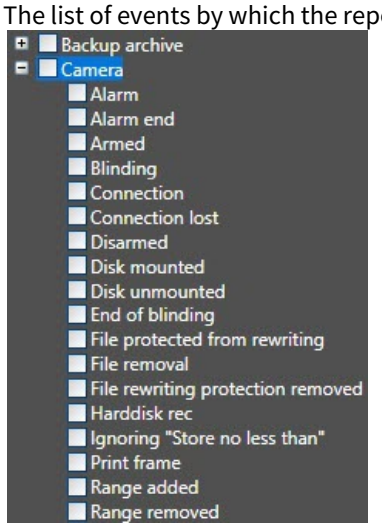
Column	Description
Event time	Date and time when the event was registered in the system
Operator response time	The time period in seconds between the registration of an event in the system and its processing by the operator.

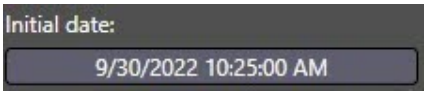
The **Create report** tab

1. The list of objects by the events from which the report can be created:

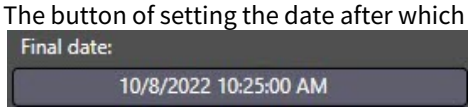


2. The list of events by which the report can be created:

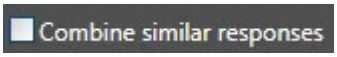


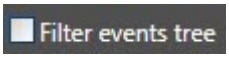
3. The button of setting the date after which events get into the report 

.
4. The button of setting the date after which events do not get into the report



.

5. The 

checkbox enables displaying an event in the report only once. If this checkbox is set unchecked, then one event will be displayed for each Operator protocol in the report.
6. The 

checkbox enables filtration of the events list on the right according to objects selected on the left (e.g., if only **Camera** objects are selected, then only **Camera** events are displayed).
7. The button to create a report 

.

The **Create event** tab

1. The field for description of the event:


.
2. The button of setting the date and time of the event 

.
3. The dropdown list to select the data source type


.
4. The dropdown list to select the source object of the event


.
5. The button to create an event 

.

9.2.10 Incident manager

On this page:

- Purpose
- Functions
- Interface description

Purpose

The Incident manager is used for processing events and generating reports (see Events control and processing using the Incident manager).

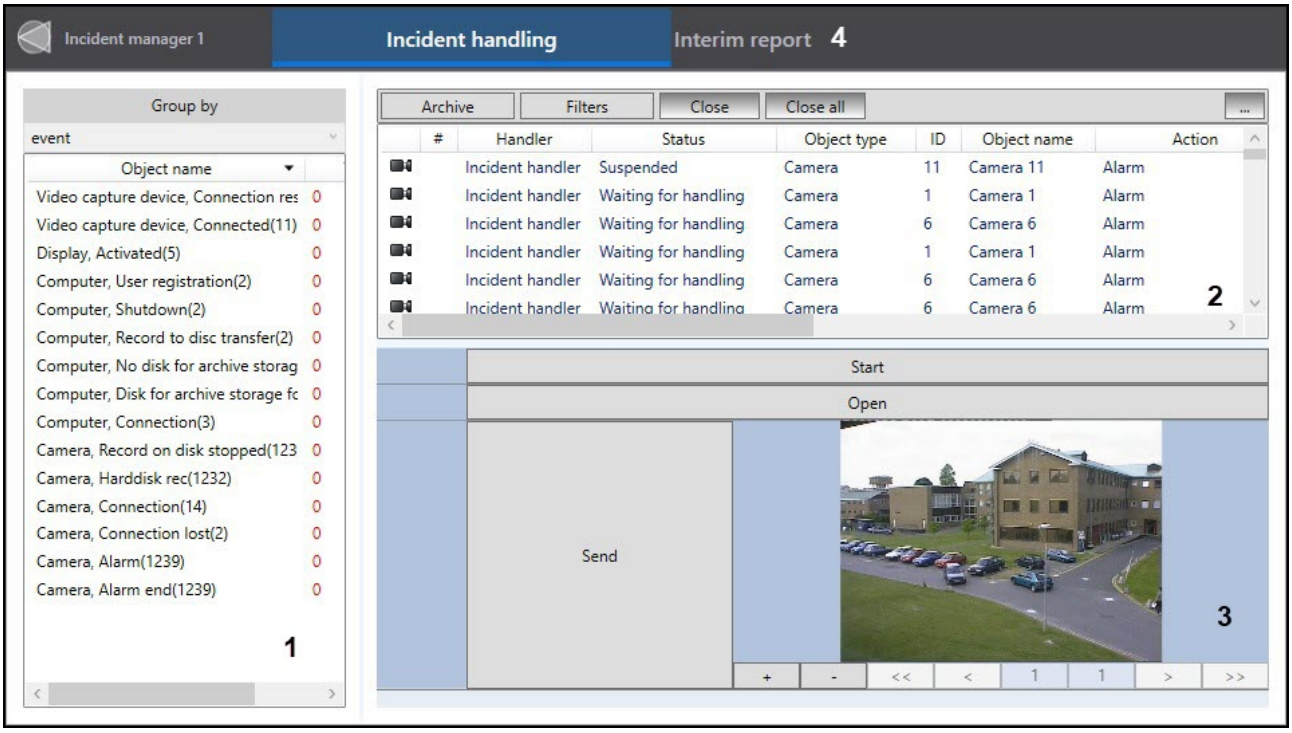
Functions

The Incident manager provides the following features:

1. Event handling according to a pre-configured script.
2. Automatic execution of macros that are triggered by certain operator actions.
3. Generation of a report on the event and operator actions.

Interface description

The Incident manager interface is shown in the figure:

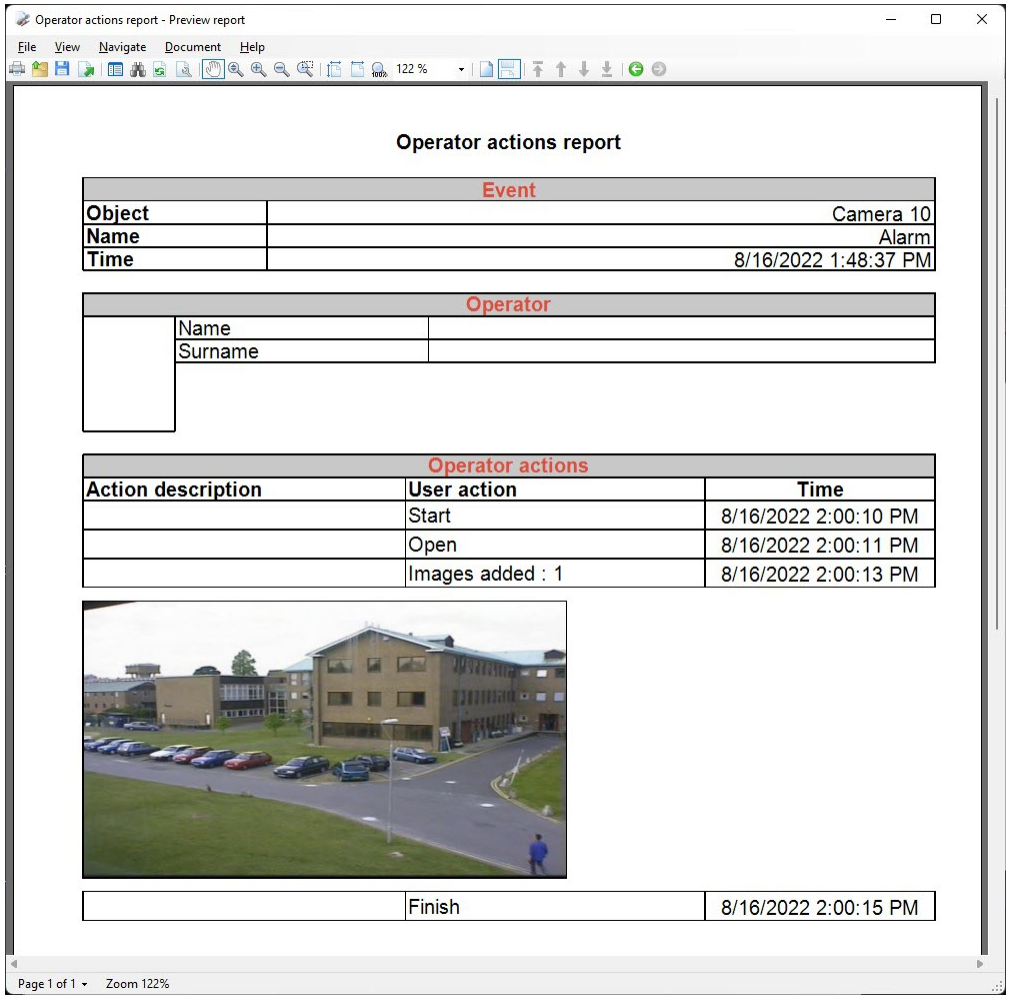


The Incident manager interface consists of three parts:

1. Events grouping panel (**1**). The events can be grouped by:
    a. Object.
    b. Event type.
    c. Region.
    d. No grouping — all events are displayed.
2. Table with a list of events (**2**). The following information is displayed for each event:
    a. Indicator of the presence of the camera associated with the event.
    b. Incident handler.
    c. Event status.
    d. Object type.
    e. Object ID.
    f. Object name.
    g. Action — description of the event.
    h. Time the event occurred.
    i. Priority.
    j. Time (sec) — the number of seconds since the event occurred.
    k. Last comment entered while processing the event.
    l. All comments entered while processing the event.
3. Event handling interface (**3**). The event handling logic is configured based on the requirements of the configured security system (see Creating and configuring the logic of event handling).

To go to the report at any time, click the **Interim report** button (**4**) on the top panel.

The report is built on the basis of the operator's actions during event processing. The report will be opened automatically after completing the entire chain of actions, if it is specified in the Incident manager settings.



9.2.11 Interactive map

On the page:

- Function
- Functions
- Interface description

Function

The map is used to monitor and control system devices (cameras, microphones, sensors, relays, etc.) and to launch macros.

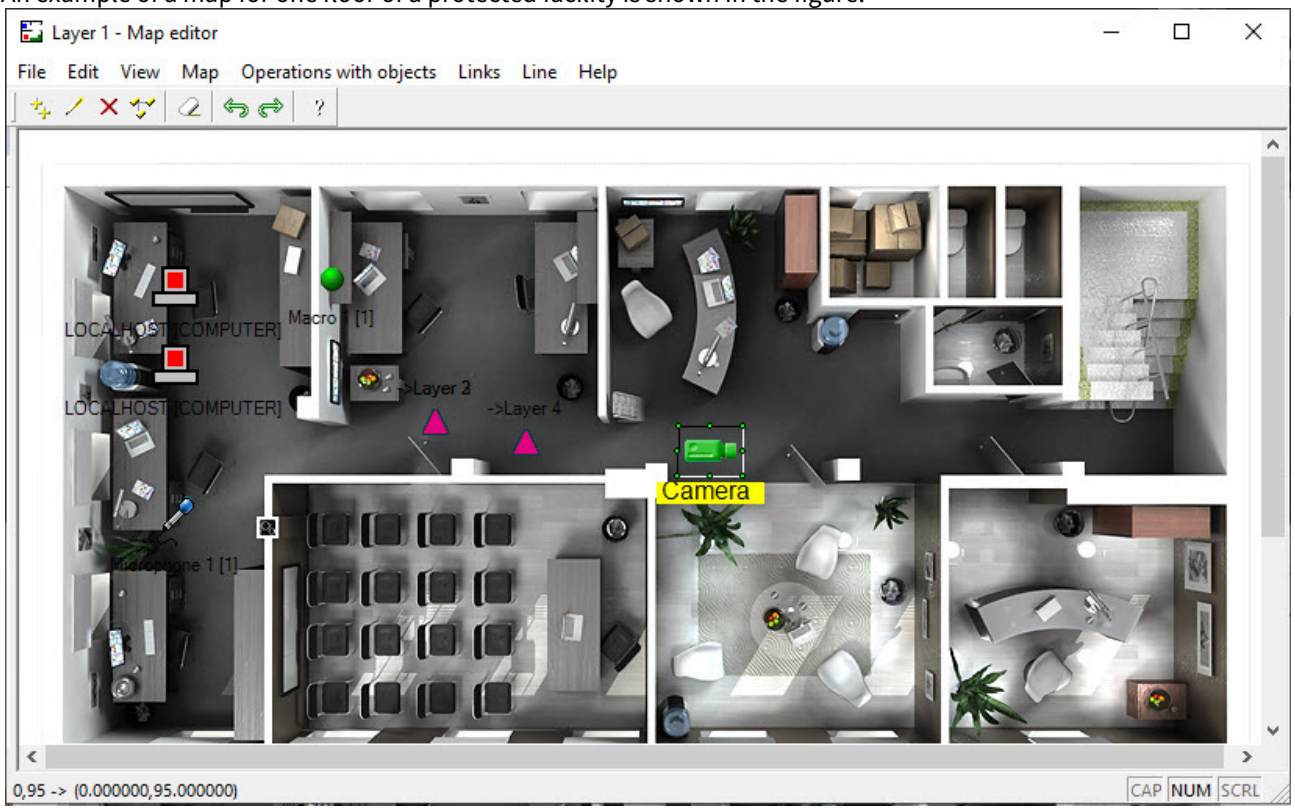
Functions

The map provides the following program functions:

1. Multilevel hierarchical object mapping (graphical chart forming) of a protected facility;
2. On-line monitoring of the status of all system devices on the map;
3. Virtual subdividing of a protected facility;
4. Possibility of automatic switching and recursive structural event analysis;
5. Management of end devices;
6. Running macros.

Interface description

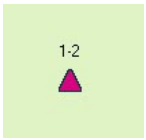
The shape of the map depends on the protected facility structure; it is assigned during the system setup procedure. An example of a map for one floor of a protected facility is shown in the figure.



System devices on the map are displayed as icons. Each device has its status displayed, and access to its functions is performed via the device functions menu by right clicking on the device icon on the map.
For example, the **Camera** type object has a feature menu shown in the figure.



The map may have multiple layers (levels). Then an interlayer link icon is used to toggle the layers.

Interlayer link: 

The map interlayer link indicates registered alarm events by any device on the appropriate layer.

9.2.12 Video surveillance monitor for web browser

On the page:

- Function
- Functions
- Interface description

Function

The video surveillance monitor for web browser is intended for TCP/IP based remote video surveillance of the selected protected facilities via the web browser. Remote video surveillance requires no *Axxon PSIM* software system setup at the Operator's workstation (but the browser has to support Java).

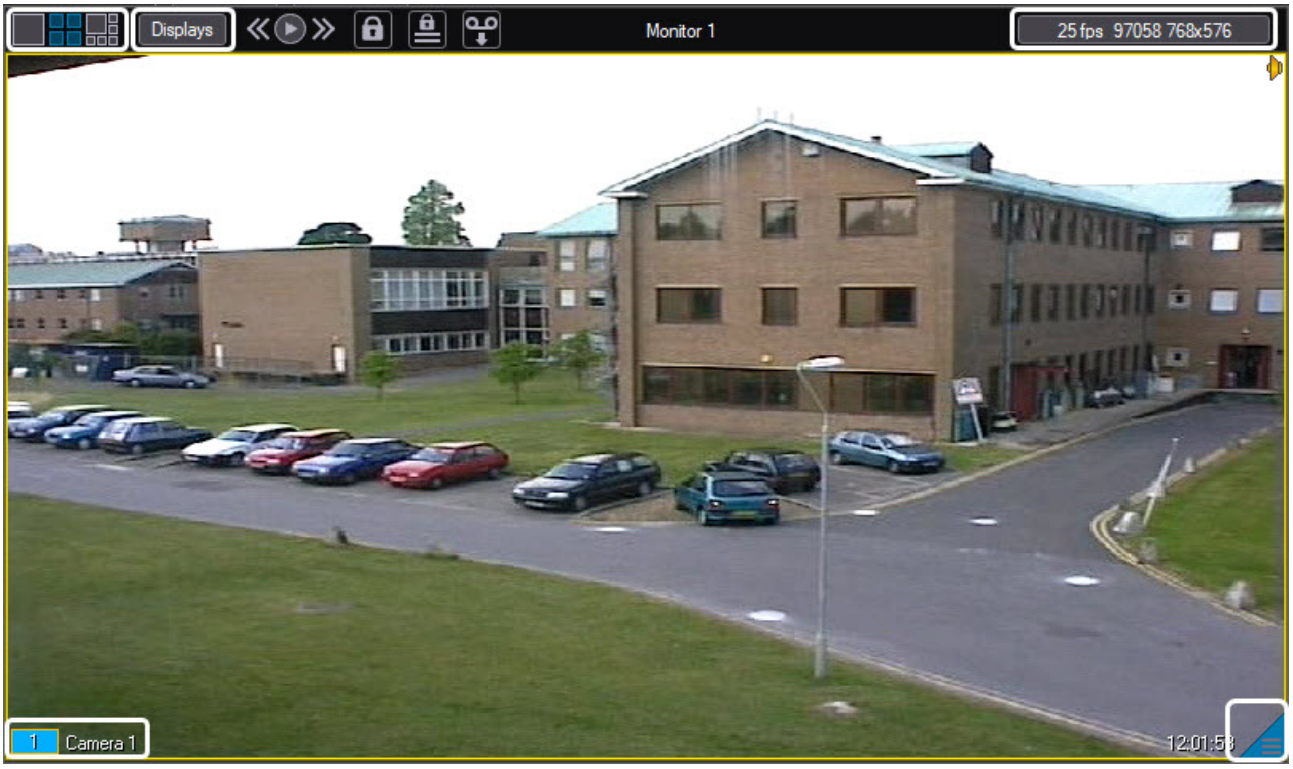
Functions

The video surveillance monitor for the web browser supports:

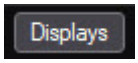
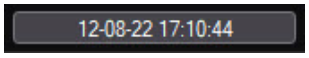
1. Remote video surveillance with no *Axxon PSIM* software system setup at the Operator's workstation;
2. Altering the number of surveillance windows present on the video monitor of the web browser;
3. Camera arming and disarming;
4. Camera detector control;
5. Recording of video sequences from surveillance cameras.

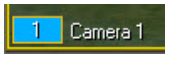
Interface description

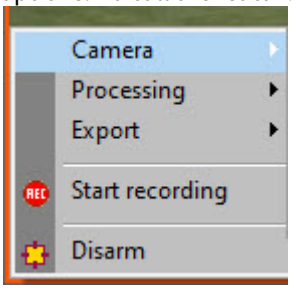
The following figure shows an interface of the video surveillance monitor for web browser.



The video surveillance monitor for the web server window consists of the field for viewing tiles and the tool panel with:

1.  buttons as to alter the number of viewing tiles on the monitor;
2.  button is to select the layout;
3.  and  buttons are to enter the archive viewing mode;
4.  field displaying current time/date.

Every viewing tile has the  feature menu that is used to select a camera and to access some camera options. To call the feature menu, left-click on the camera number in the viewing tile.



The colour of the video surveillance window border and camera name text indicates the camera status.

If there are any troubles with camera connection, there is an icon above the camera number. The icon indicates the existing trouble:

1. No video signal 
2. No camera connection 

Name	Description
No video signal	Appears above the 'camera number' icon when there is no video signal. This can happen if the camera is not connected or it is restarted. **Note**. If there is no video signal, the latest image is displayed in the viewing tile or there is a blue screen (depending on the type of video capture card).
No camera connection	Appears if the incorrect type of video capture card was specified.

9.2.13 Panoramic video surveillance window

On page:

- Function
- Functions
- Interface description

Function

Panoramic video surveillance window is designed for creating and viewing the panoramic image. Panoramic video surveillance window is divided into two parts in accordance with its functions: video surveillance control panel and image viewport.

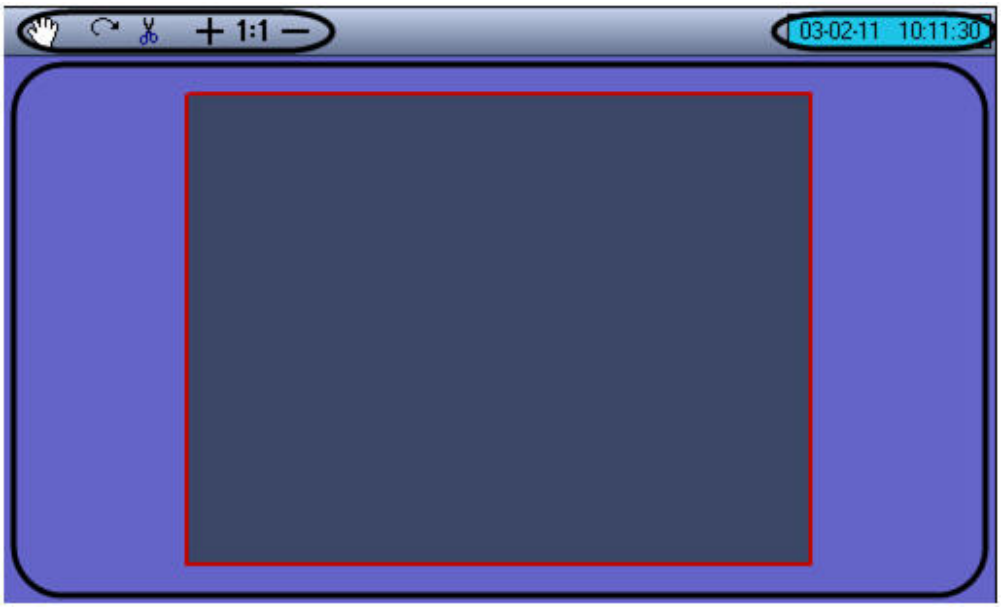
Functions

While using the panoramic video surveillance window the following modes of image processing are provided:

1. Navigation;
2. Perspective correction;
3. Restore;
4. Pan;
5. Cut borders;
6. Zoom in/Zoom out.

Interface description

Panoramic video surveillance window is shown in the figure.



Panoramic video surveillance window consists of the field for displaying video surveillance window and toolbar with the following elements:

1.  buttons serve to process images;
2. current date and time are displayed in the  field.

9.2.14 Captions search

On page:

- Function
- Functions
- Interface description

Function

The **Captions search** interface object is designed for searching information in the captions database.

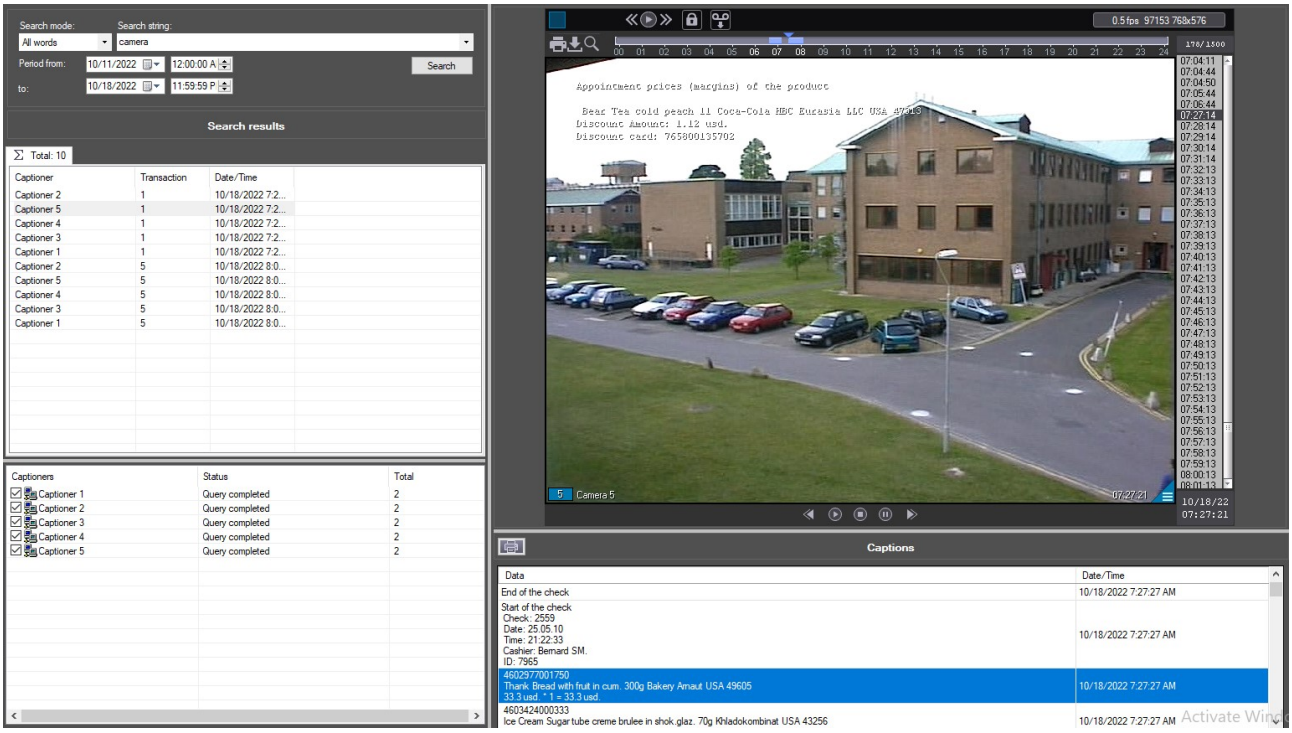
Functions

Search by captions allows:

1. Searching in the captions database.
2. Viewing search results.
3. Printing the search results.

Interface description

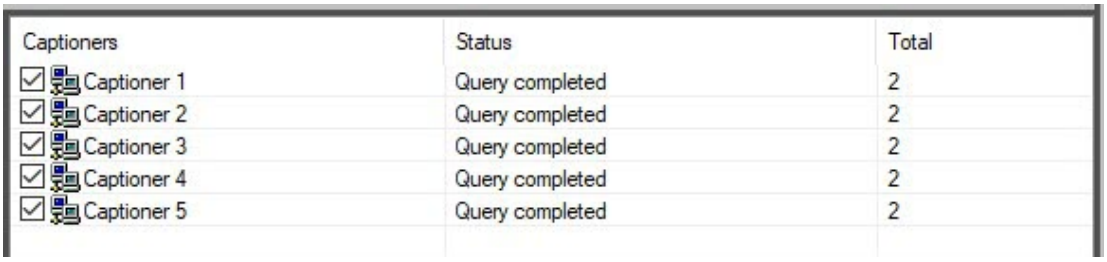
The figure shows an interface of the **Captions search** box.



There is a search substring and time search interval in the upper left corner of the box.



The captions databases are selected in the bottom left corner of the box.



The captions databases the results by which are to be viewed are selected in the Search results area.

Σ Total: 10

Captioner	Transaction	Date/Time
Captioner 2	1	10/18/2022 7:2...
Captioner 5	1	10/18/2022 7:2...
Captioner 4	1	10/18/2022 7:2...
Captioner 3	1	10/18/2022 7:2...
Captioner 1	1	10/18/2022 7:2...
Captioner 2	5	10/18/2022 8:0...
Captioner 5	5	10/18/2022 8:0...
Captioner 4	5	10/18/2022 8:0...
Captioner 3	5	10/18/2022 8:0...
Captioner 1	5	10/18/2022 8:0...

Below the video display area there is a  button clicking which one can print out search results.

Areas displaying search results and videos corresponding to these results are on the right.

Data	Date/Time
End of the check	10/18/2022 7:27:27 AM



9.2.15 HTML interface

On the page:

- Purpose
- List of functions
- Interface description

Purpose

The HTML Interface window is designed for displaying specified web-page or other files, including text and images.

If there is video displaying or sound playing back on the web-page, it will be also available in the **HTML interface** window

List of functions

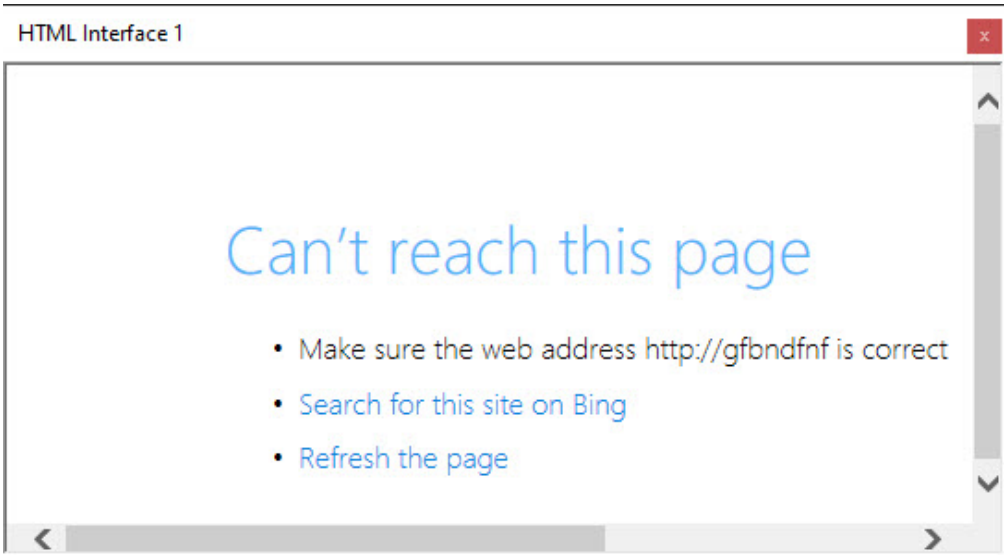
The HTML Interface window performs the following functions:

1. Display web-pages located as locally on computer, as on the Internet.
2. Display images and text files.
3. Display video data and play back sound from the displayed web-page.

Interface description

View of the HTML Interface window entirely depends on settings (see Administrator's Guide).

View of the HTML Interface window containing HTML page created on default is shown in the figure.



The table describes hotkey combinations available for working with the HTML interface:

Hotkey/ hotkey combination	Performed action
Backspace	Back
Alt+left arrow	
Shift+Backspace	Forward
Alt+right arrow	
F5	Update page
Ctrl + **+** or **-**	Zoom in/out page

9.2.16 Display manager

On this page:

- Purpose
- Functions
- Interface description
  - The Screen activation group
  - The Setting and activation of monitors group

Purpose

The Display manager is designed for managing the video walls and attracting the Operator's attention.

Functions

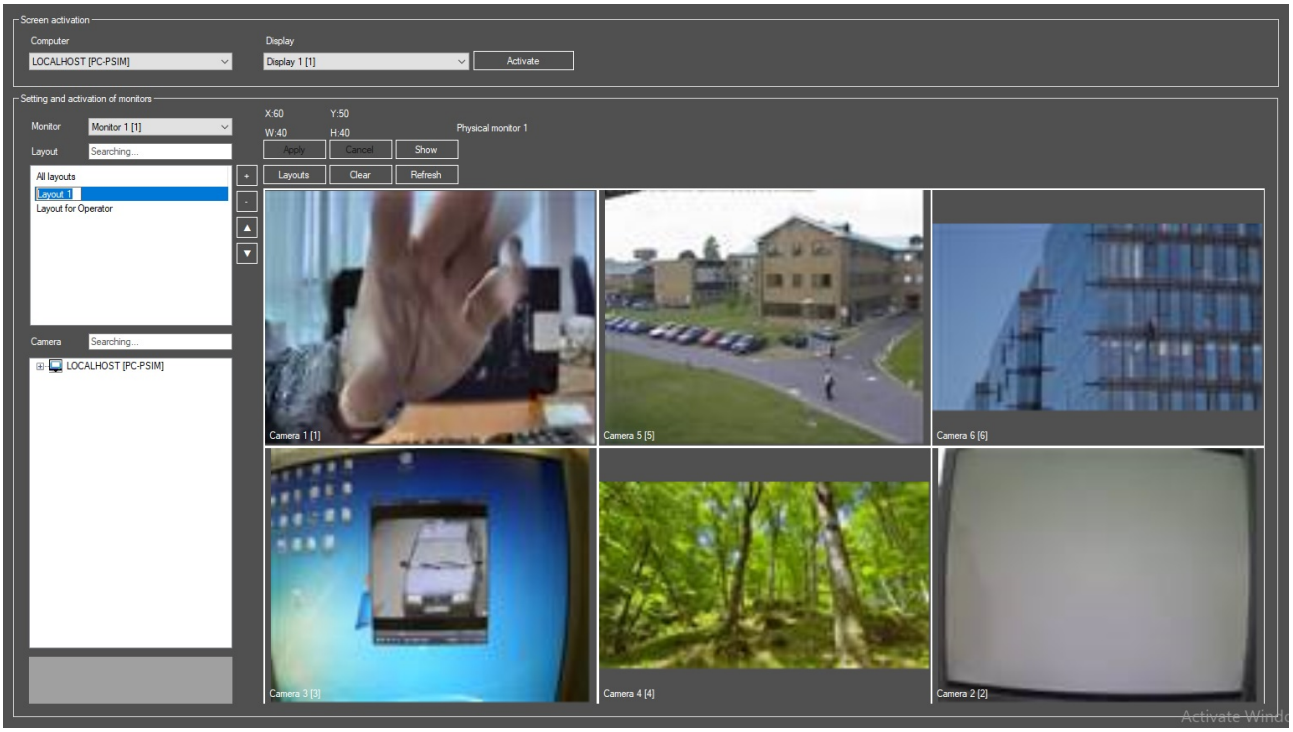
The Display manager provides the following features:

1. Managing the Video surveillance monitor added to the various computers' displays.
2. Creating, editing and deleting Video surveillance monitor layouts.

3. Creating temporary Video surveillance monitor layouts.

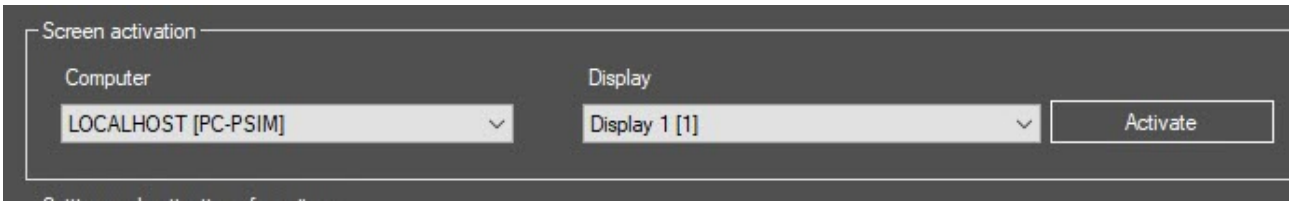
Interface description

The Display manager interface is shown in the figure:



The Screen activation group

The **Screen activation** group is used for selecting and activating the required Display.



The **Computer** drop-down list is used for selecting a computer to which the required display is assigned. The list of computers available in the **Computer** drop-down list is set during the system configuration - see Configuring the Display manager.

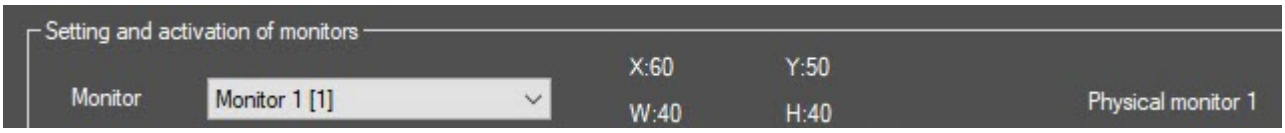
The **Display** drop-down list is used for selecting the required display. In order for the display to be available in this list, it should be assigned to a computer - see Assigning the displays to the operator workstations.

The effect of clicking the **Activate** button is similar to the Screens button on the Main control panel (see Main control panel). When you click this button, the interface windows created on the basis of the selected Display object are displayed on the desktop.

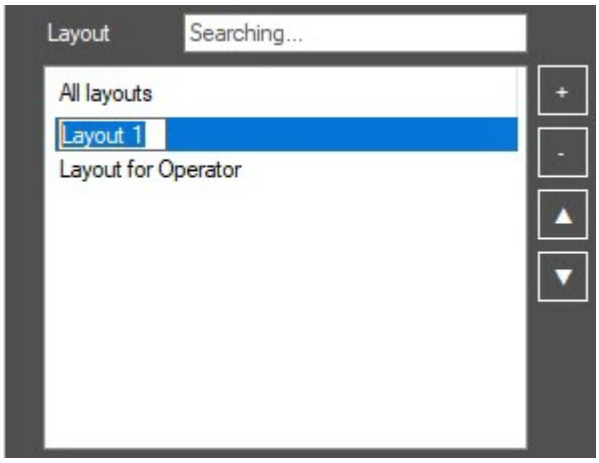
The Setting and activation of monitors group

The **Setting and activation of monitors** group is used for configuring and applying the Video surveillance monitor layouts.

The **Monitor** drop-down list is used for selecting the required Video surveillance monitor, created on the basis of the **Display** object selected in the **Screen activation** group.

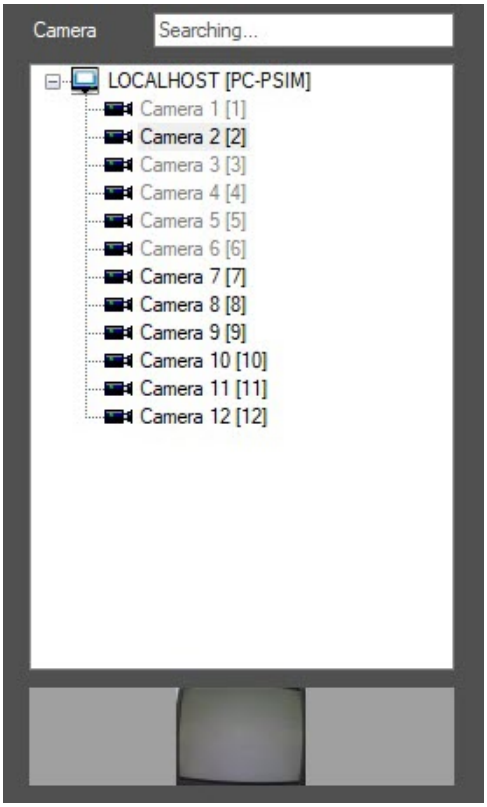


The layouts list is used for selecting the existing layouts, as well as deleting them and creating the new ones (buttons - and +, respectively). You can search for layouts by name using the **Layout** field. To change the order in which the layouts are displayed, use the ▼ and ▲ buttons.



The cameras list displays the available video cameras. You can search for a camera by name or ID using the **Camera** field. The cameras can be added to the layout only once. The cameras which are already added to the layout are highlighted in gray. You can drag the cameras from this list onto the layout using the left mouse button. When dragging the camera, the frame displayed on the camera at the moment when it was added to the layout will be displayed on the layout.

Below the cameras list, the camera preview is displayed.



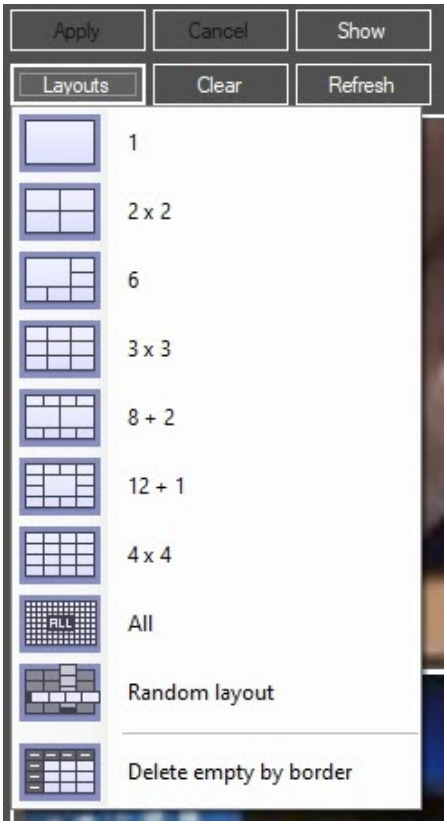
Note

If the camera was added to the Video surveillance monitor during the current Axxon PSIM session, then it is necessary to restart the *Axxon PSIM* to display this camera in this list.

The buttons for managing the layouts:



- **Apply** - save changes in the layout.
- **Cancel** - cancel changes and go to the last saved layout.
- **Show** - display the layout on the selected Video surveillance monitor without saving it.
- **Clear** - remove all cameras from the layout.
- **Refresh** - refresh the frames in the camera preview windows on the layout.
- **Layouts** - select a standard layout from the list:



The layout creation panel allows you to get a visual idea of how the layout will look on the Video surveillance monitor. On this panel, you can drag the Surveillance windows, add new rows and columns, and resize the Surveillance windows using the>, <, ∨, ∧ buttons. If the layout was created using the Display manager, then the frames displayed on the camera at the moment when it was added to the layout will be displayed in the Surveillance windows. If the layout was created using the Video surveillance monitor, then in order to display these frames in the Surveillance windows, it is necessary to click on the **Refresh** button.



9.2.17 State statistics

On this page:

- Purpose
- Features
- Interface description

Purpose

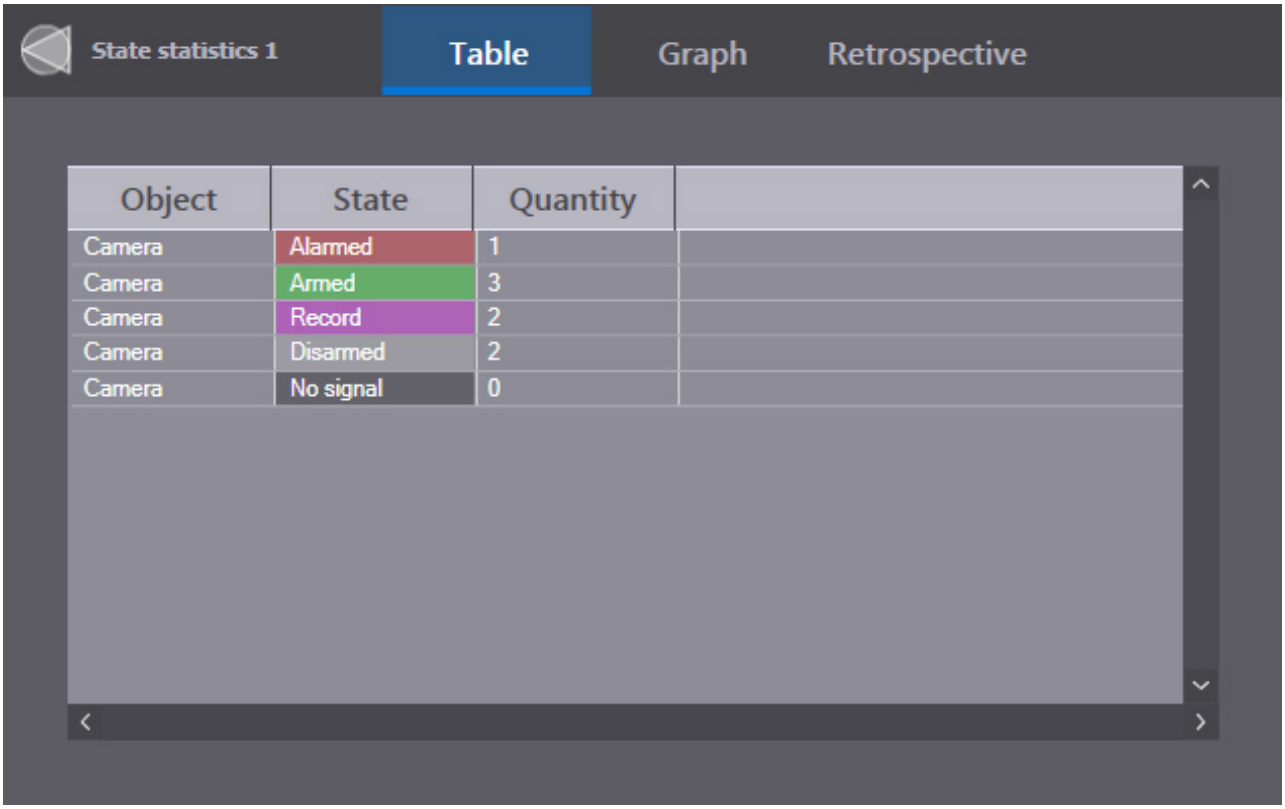
State statistics is designed to monitor the number of objects in the specified states.

Features

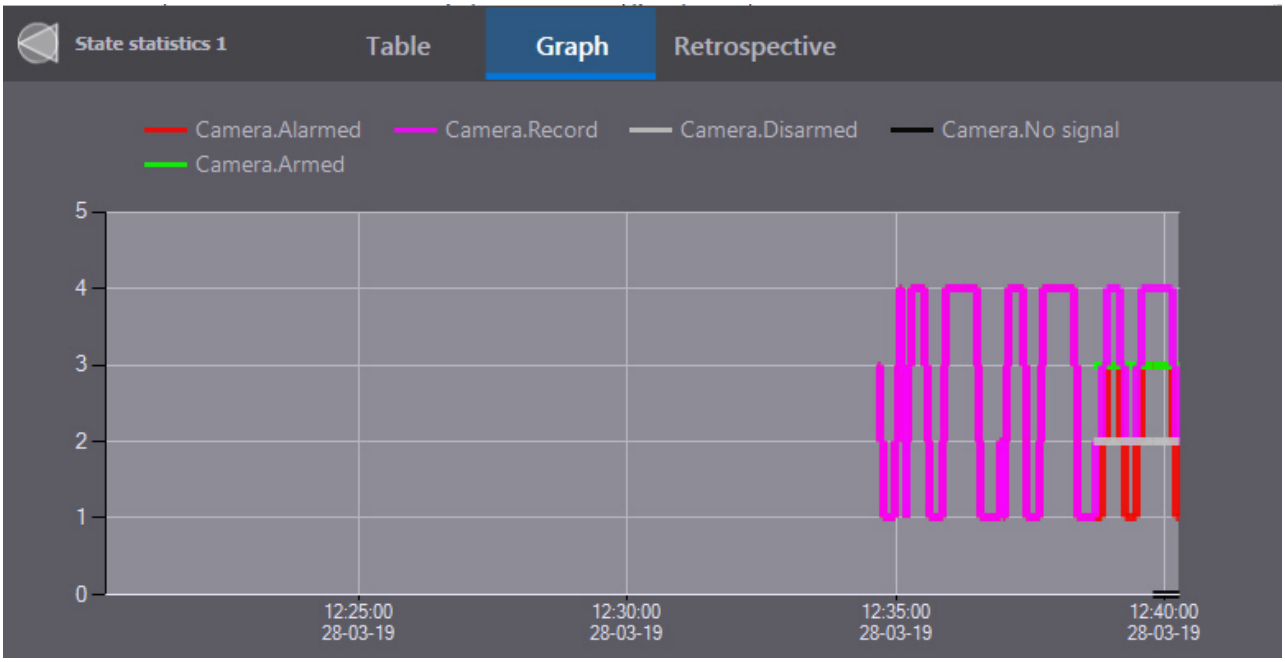
State statistics displays the number of objects of the selected type that are in a particular state, in a table and a graph.

Interface description

The **State statistics** interface is shown in the figures:

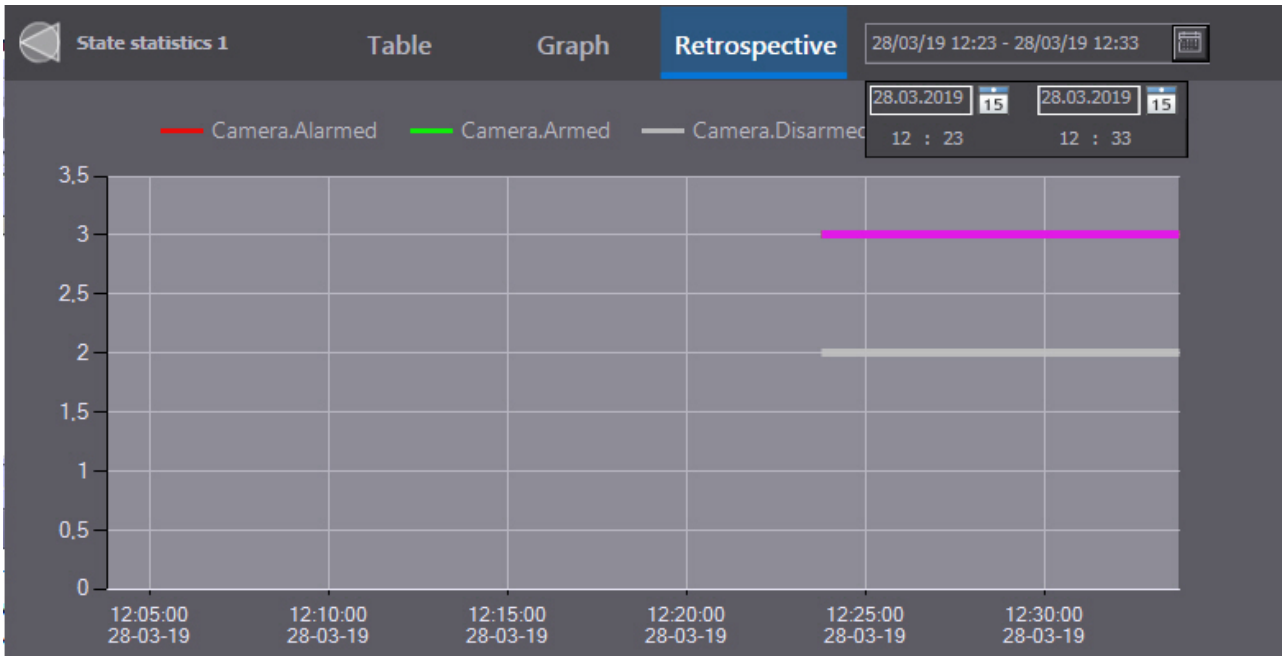


The **Table** tab displays a list of states and the number of objects in each of these states.



The **Graph** tab displays the state statistics graph over time for the last 15 minutes. The displayed objects and the points number on the graph are configured during the system setup (see Selecting the objects to be included in State statistics and configuring the pixels number).

The time and date are marked on the horizontal axis, and the number of objects is marked on the vertical axis. The colors description is displayed on the top of the graph.



The **Retrospective** tab displays the chart of the states for the time period selected in the calendar in the upper right corner. The axes mark the same parameters as on the **Graph** tab.

9.2.18 Graphs

On this page:

- Purpose
- Features
- Interface description

Purpose

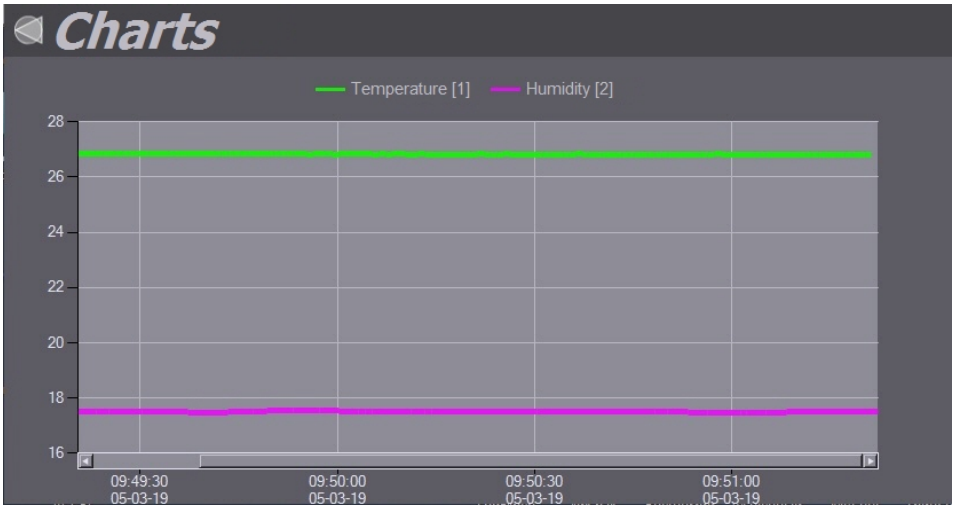
Graphs are designed to monitor the analog sensor readings, e.g. temperature or humidity sensors, etc.

Features

Charts display the readings of the analog sensors selected while configuring the system.

Interface description

The **Charts** interface is shown in the figure:



This window displays the graph of analog sensor readings. The number of points on the graph is configured during the system setup (see Configuring the Charts to display analog sensor readings). The time and date are marked on the horizontal axis, and the number of objects is marked on the vertical axis. The colors description is displayed on the top of the graph.

9.2.19 SIP-panel

On this page:

- Purpose
- Features
- Interface description
  - SIP-operator authorization window
  - The Call tab
  - The Incoming tab
  - The Archive tab

Purpose

SIP-panel is designed for making calls to numbers from the address book and/or to dialed numbers within the distributed system configuration.

Features

SIP-panel provides the following functions:

1. Making single and group calls between operators and/or SIP-devices.
2. Viewing the log of calls received or made using the SIP-panel.
3. Viewing and/or listening to the archived calls received or made using the SIP-panel.

Interface description

By default, all elements are displayed in the SIP-panel interface. If necessary, some interface elements can be disabled (see Advanced settings of the SIP-panel interface object). Below is an example when all interface elements are displayed.

The SIP-panel interface consists of three tabs. The **Call** tab allows receiving and making calls. The **Incoming** tab displays the list of incoming calls and the calls on hold. The **Archive** tab lists the incoming and outcoming calls that can be listened and/or viewed using the corresponding controls.

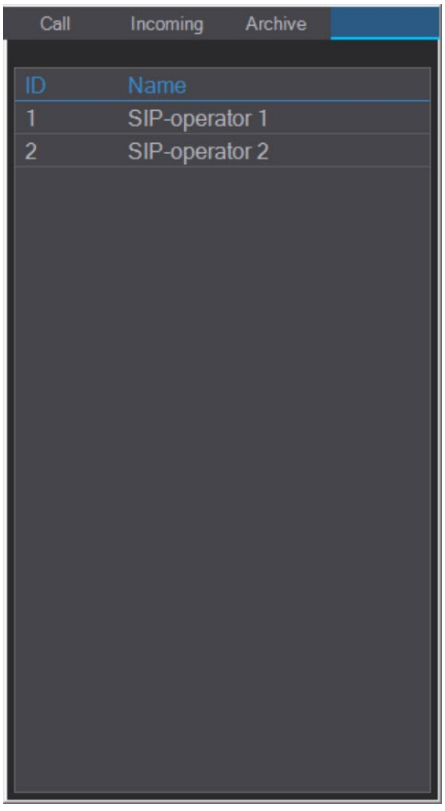
Depending on the operator **Default** settings, you may need to log into the SIP-operator authorization window when you first log into the SIP-panel.

> **Note**
>
> The **Call**, **Incoming** and **Archive** tabs will not be available until the SIP-operator is authorized.

SIP-operator authorization window

The SIP-operator authorization window contains a list of available SIP-operators (see Operator settings of the SIP-panel interface object). For authorization, you need to double-click the SIP-operator under which you will be logged in. The number of the current SIP-operator will be displayed in the upper right corner of the SIP-panel.

If the SIP-operator is already authorized in any SIP-panel, then this operator will be highlighted in red in other SIP-panels. You cannot log in under an already authorized SIP-operator.



After the Server/Remote Client reboot, the previously authorized SIP-operator will be logged in automatically. If you log off the current user in *Axxon PSIM* and log in again as the same user, you will need to be authorized again.

Note

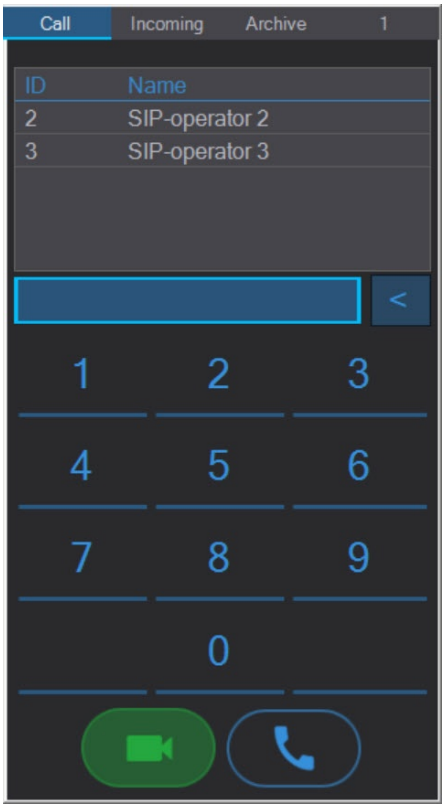
The authorization window may also open in the following cases:

- If during the Server/Remote Client reboot, the same SIP-operator was logged in on another Server/ Remote Client.
- If the **User rights** mode is selected and the current registered *Axxon PSIM* user does not correspond to this mode (see Operator settings of the SIP-panel interface object).

If, while working with the SIP-panel, you need to log out of the current SIP-operator without unloading the Server/ Remote Client, click on the operator number in the upper right corner.

The **Call** tab

The interface of the **Call** tab of the **SIP-panel** is shown in the figure:



The top of the **Call** tab displays the subscriber numbers from the address books added to the current SIP-operator during the SIP-terminal configuration stage. If the same subscriber number is added to several address books, then only one will be displayed on the SIP-panel.

Note

If the SIP-terminal was not specified at the SIP-panel configuration stage (see Basic settings of the SIP-panel interface object), then the subscriber numbers from the address books will not be displayed.

A dial pad is available in the middle of the window. For more information on dialing and making a call, see Making calls using SIP-panel.

The **Incoming** tab

The interface of the **Incoming** tab of the **SIP-panel** is shown in the figure:



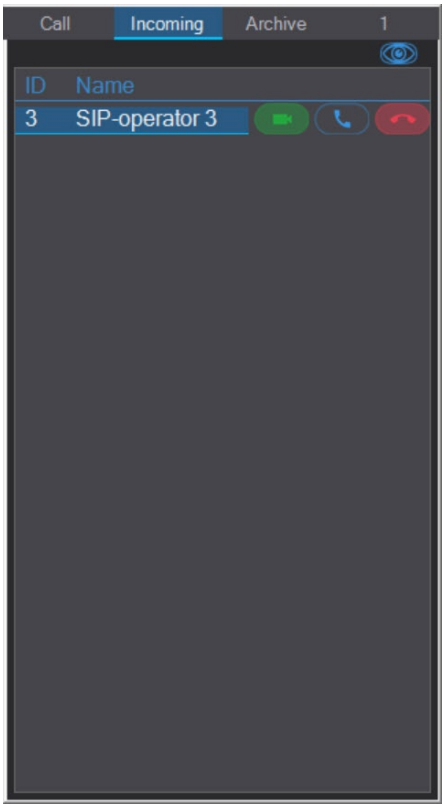
The **Incoming** tab displays a list of incoming calls or calls on hold. The **Incoming** tab opens automatically for incoming calls or calls on hold.

> **Note**
>
> If the **Switch to incoming** checkbox was not set at the SIP-panel configuration stage (see Advanced settings of the SIP-panel interface object), then the **Incoming** tab will not automatically open for incoming calls or calls on hold.

The calls in the list are sorted by the SIP-operators and SIP-devices priority, that was set at the system configuration stage. If several operators or devices have the same priority, the calls from them are sorted by the receiving time. By default, the new calls are added to the top of the list, but the sorting order can be changed during the system configuration, so that the new calls are added to the end of the list regardless of the operators and devices priority (see Advanced settings of the SIP-panel interface object).

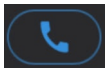
The window with the call list is displayed on top of all windows during a call and a call on hold.

To enable the alternative mode of displaying the calls, click on the  icon at the top of the panel. After that, the **Incoming** tab interface will look as follows:



To disable the alternative mode of displaying the calls, click on the  icon.

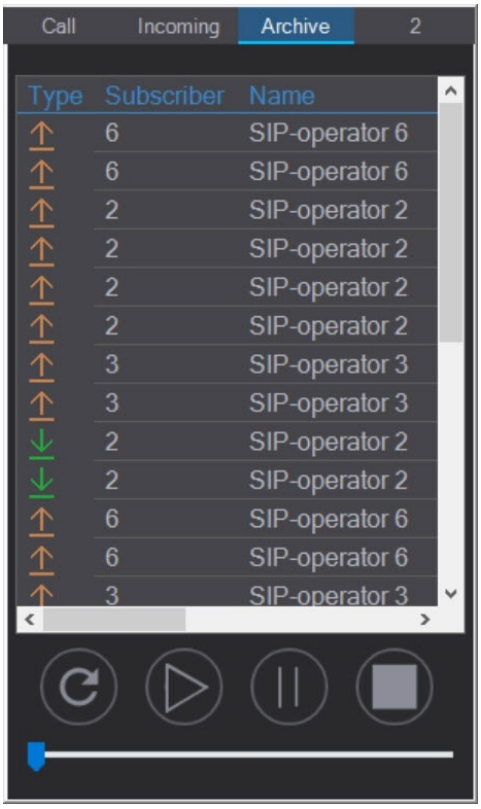
The buttons at the bottom of the panel manage the call:

-  – call with video and audio. If the camera, the microphone and the operator speaker were selected at the system configuration stage and the SIP-device supports the corresponding function, video and audio from the camera and audio from the operator microphone will be transmitted to the device.
-  – call with audio only.
-  – end of call.

If the incoming call is declined and there are no other calls in the list, the **Call** tab will open.

The **Archive** tab

The interface of the **Archive** tab of the **SIP-panel** is shown in the figure:



To ensure the correct playback of the archived calls, it is necessary to configure the audio and video archiving (see Configuring video archiving and Configuring audio signals recording).

The table includes the following information:

Column	Description
Type	Call type: incoming or outcoming
Subscriber	The subscriber number
Name	The subscriber name
Date and time	The call start and end time *Note. The group calls are displayed as several calls to different numbers at the same time (see Configuring numbers of SIP-terminal for details on group calls configuration)*
Duration	The call duration

Note

Left-click on a column name to sort the information in ascending/descending order of the values of the corresponding column.

Video and/or sound are played back when playing back the archived call depending on whether the subscriber (SIP-operator or SIP-device) has camera and/or microphone configured. The operator speaker (see Selecting speaker, microphone and camera for SIP-operator) is used for audio playback, and the **Monitor** selected when configuring the **SIP-panel** (see Configuring the SIP-panel interface object) is used to playback video.

Controls for playing back the archived calls are under the table:

 – Update the call list.

 – Playback the call selected from the list.

 – Pause the playback.

 – Stop the playback.

 – Slider to display the playback and rewind process.

Working with SIP-devices and SIP-operators from the map
Working with SIP-panel

9.3 Video surveillance monitor operation

9.3.1 General information on Video Surveillance Monitor operation

The video surveillance subsystem allows video monitoring (event video component viewing) and video recording (event video component recording) by providing:

1. multiple video camera images simultaneously displayed on a PC screen (multiple windows displayed on a single monitor and multiple monitors used on a single physical PC screen);
2. priority-oriented displaying of active and alarm cameras video stream;
3. flexible split screen configuration, including the number of windows on the monitor;
4. colour coding of the camera state in the window (**Armed**, **Alarm**, **Recording**);
5. image burn-in option in the surveillance window: current time/date, camera ID and name;
6. displaying of alarm notification window;
7. image scaling;
8. automatic or manual windows slide show;
9. video recording can be performed:
    a. if an alarm event is detected;
    b. by Operator command;
    c. pre- and post-alarm event recording;
    d. pre-alarm event recording with post-alarm recording by Operator command.
10. single video frames storage and exporting;
11. freeze frame selection and viewing, without interrupting the video recording;
12. audio- and video-archives management;
13. remote access to audiovisual streams from any workstation with both a local and remote archive recording option;
14. viewing archive recordings with search and retrieve options on time, event type, camera ID criteria;
15. synchro playback of footage recorded by several cameras;

16. image processing option (digital zooming, image sharpening and contrast maximization, dynamic outlining of moving objects, removal of image fluttering);
17. web interface-based surveillance;
18. use of various types of intelligent motion detectors (motion detectors, face detector, lost items detector, focusing detector, video signal stability detector, background change detector, camera tampering, infrared detector);
19. use of independent detector zones;
20. detector masking.

9.3.2 Viewing video sequences from surveillance cameras

Viewing of video sequences from surveillance cameras is performed with the surveillance monitor. Several solutions are possible for the monitor:

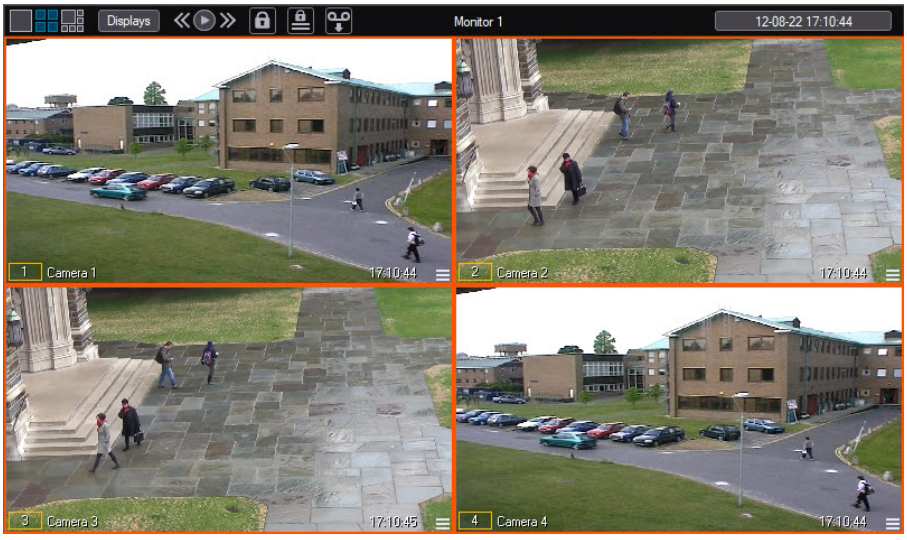
1. The video monitor is a Windows interface window, built in screen object of the *Axxon PSIM* system (see the Video surveillance monitor section).
2. Cross-platform solution with surveillance via a web browser (see the Video surveillance monitor for web browser section).
3. The video monitor of a mobile client – see AxxonSoft mobile Clients. Documentation.

9.3.3 Surveillance windows operation

Changing the number of Surveillance windows

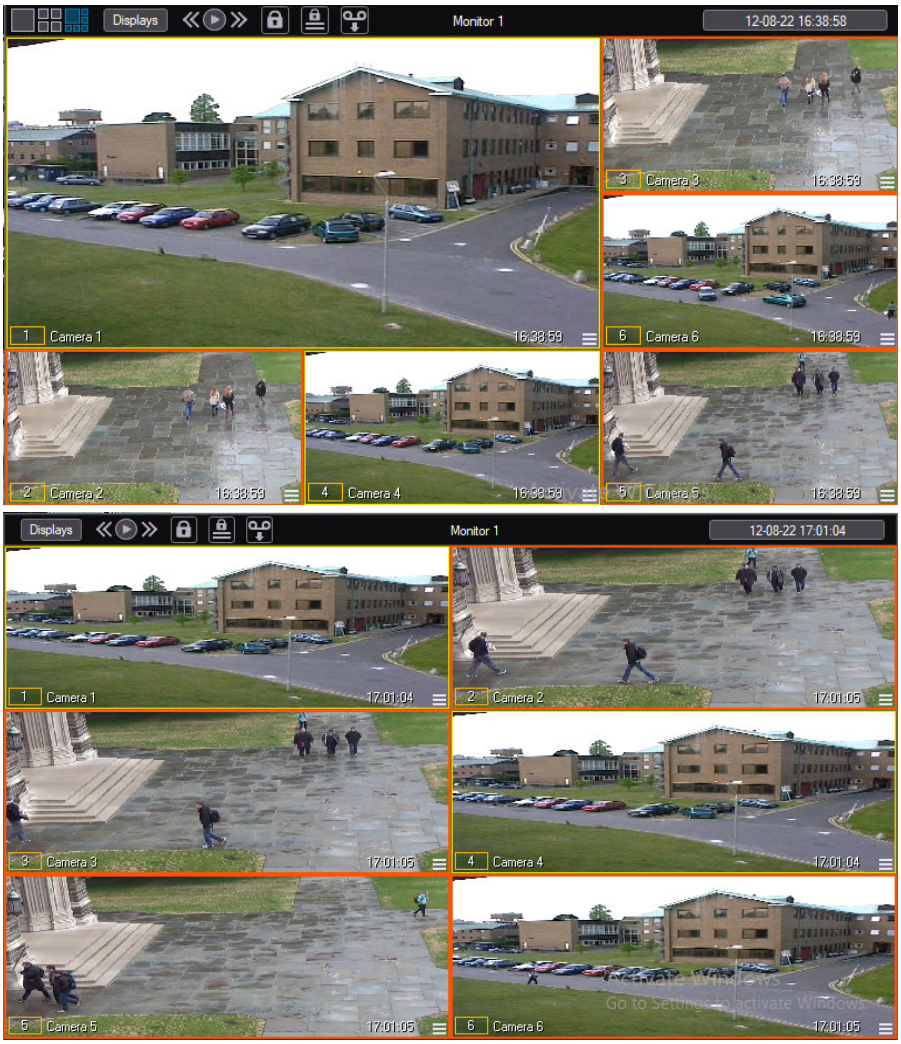
By default, a single **Video surveillance monitor** displays all **Surveillance windows** related to it. The buttons on the top left side of the toolbar are used for changing the number of the **Surveillance windows** displayed on the **Video surveillance monitor**.

> **Note**
>
> If the display of the **Control panel** is disabled (see Setting the parameters of the Monitor interface box), then the **Surveillance windows** will be positioned automatically in such a way as to fill the area of the **Monitor** interface window. Moreover, if the **Keep camera ratio** parameter is disabled, then the video image in the **Surveillance windows** will be "stretched" or "compressed" to the width of the **Monitor** interface window.



The one-fold button is used to display a single selected **Surveillance window**, other buttons are used to simultaneously display a certain number of windows (4, 6, 9 or 16) on the **Video surveillance monitor**. The set of displayed buttons changes automatically depending on the maximum number of video cameras corresponding to this **Video surveillance monitor**.

There is a special layout with six **Surveillance windows** featuring one **Surveillance window** larger than other five. This layout has certain restrictions mentioned below. The special six-fold layout can only be displayed by the button if the toolbar is enabled in the **Video surveillance monitor**. See the figures below for examples of the six-fold layout with the toolbar enabled and disabled.



Double left click in the **Surveillance window** on any layout, except for the six-fold layout, allows increasing the size of the **Surveillance window**, while some **Surveillance windows** will be hidden on the **Video surveillance monitor**. Double right click on the video image allows returing to the original layout.

Managing the number of the **Surveillance windows** with the mouse can be changed with the registry keys (see Registry keys reference guide). When using the MaximizeCameraOnDblClk registry key, double left click switches the **Surveillance window** to the one-fold layout from any layout, including the six-fold layout. Also, the switching to the one-fold layout and back can be enabled with the UseOneClkToMaximizeOrMinimizeCamera key.

The MaximizeCameraOnDblClk, MinimizeCameraOnDblClk and UseOneClkToMaximizeOrMinimizeCamera keys features are described in the table:

Key values	Action on mouse double click
MaximizeCameraOnDblClk = 0 MinimizeCameraOnDblClk = 0 or 1 UseOneClkToMaximizeOrMinimizeCamera = 0 or 1	Standard behavior, the number of the windows doesn't increase in the six-fold layout
MaximizeCameraOnDblClk = 1 MinimizeCameraOnDblClk = 0 UseOneClkToMaximizeOrMinimizeCamera = 0 or 1	The six-fold layout switches to the one-fold layout with left double click. The one-fold layout switches to the six-fold layout with right double click
MaximizeCameraOnDblClk = 1 MinimizeCameraOnDblClk = 1 UseOneClkToMaximizeOrMinimizeCamera = 0	The current layout switches to the one-fold layout with left double click. The layout switches to the smaller window size with right or left double click
MaximizeCameraOnDblClk = 1 MinimizeCameraOnDblClk = 1 UseOneClkToMaximizeOrMinimizeCamera = 1	The current layout switches to the one-fold layout with left or right click. The layout switches to the smaller window size with right or left click *Note. The first mouse click in the **Surveillance window** enables the camera, so if the window isn't initially active, two clicks will be required to enlarge*

In addition, the number of the **Surveillance windows** can be changed using the custom layouts (see Windows layout on the monitor). However, left double click always enlarges the **Surveillance window** to the entire **Video surveillance monitor**. Moreover, if the custom layout is selected, the layout mode icons are disabled, regardless of the number of the **Surveillance windows** displayed on the selected layout.

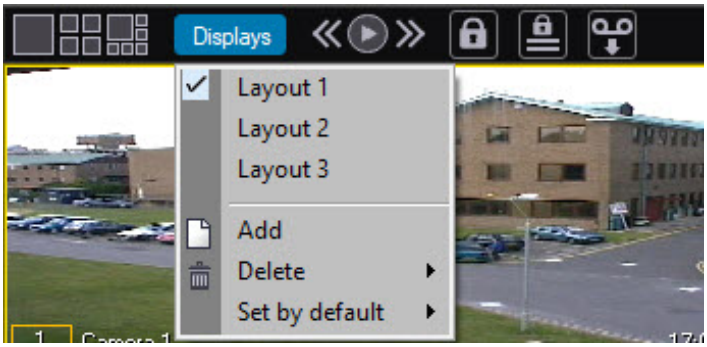
If GreenStream is configured (see Configuring an auto select of video stream for displaying), then when changing the number of the **Surveillance windows** and scaling the video image, the video streams used for their display can be automatically changed.

> **Note**
>
> The **Video surveillance monitor** toolbar can be unavailable if the system is configured accordingly.
> If the **Overlay 1** mode is enabled during the system configuration, then the **Surveillance window** scaling by left double click is disabled, and the **Surveillance windows** layout cannot be changed.

Windows layout on the monitor

The layout defines the number and location of windows on the monitor. To change the location of windows on the monitor, drag them with the mouse. The operator can compose custom window layouts if he (she) is given permissions to control the **Monitor** object.

To control the layout, use menu, called up by the **Screens** button on the video monitor tools panel.



Note.

The layouts can also be managed using the Display manager - see Configuring and activating the layouts.

Creating and deleting layouts

To develop a new layout:

1. Click the **Screens** button on the video monitor.
2. Select the **Add** option in the menu.
3. Enter the name of the new layout in a dialog box.

Then a new layout will appear in the layout list.

To select a layout, click its name in the list. To delete an existing layout, use the **Delete** menu command.

Note.

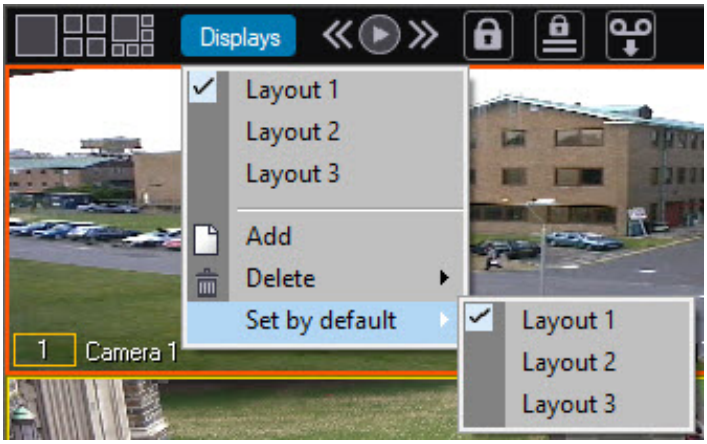
If the **Overlay 1** mode is chosen during the system setup, and the monitor displays six surveillance windows, the surveillance windows layout cannot be changed.
Changing the location of windows on the monitor with mouse can also be prohibited by the DisableReplaceCam registry key – see Registry keys reference guide.

The **Add** and **Delete** functions may not be available depending on the permissions (see Limiting access to the system objects administration, control and viewing functions).

Default layouts

The **Screens** menu also allows assigning default layouts. The default layout will be displayed when *Axxon PSIM* is launched. Use the UseDefaultLayoutOnlyAtStartup registry key to display the default layout each time the corresponding screen with the Video surveillance monitor is displayed (see Registry Keys Reference Guide).

Select **Screens - Set by default**, then select a layout to be set by default.

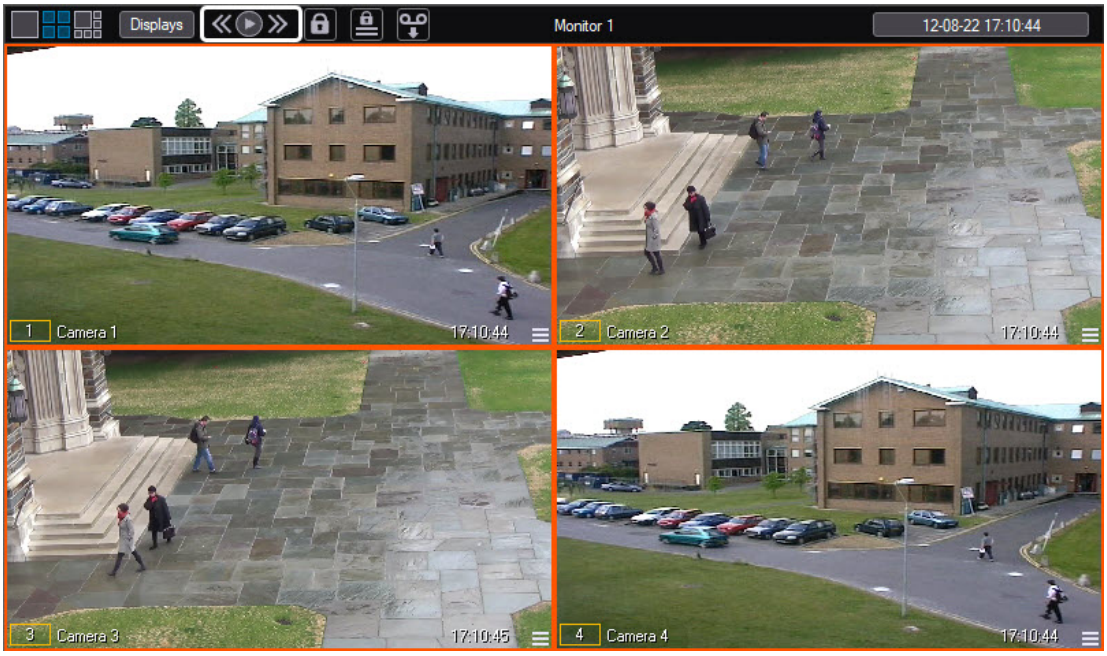


The default layout is highlighted in bold.

Scrolling through surveillance windows

If the total number of cameras, attached to a given monitor is more than the number of surveillance windows, displayed on a monitor simultaneously, the slide show option is used.

For a slide show the  ,  and  buttons are used on the video monitor tools panel.



The first two buttons are used for paging one screen forward/backward. The  button is used to automatically switch on and off the slide show with a pre-defined time value.

When the automatic scrolling mode is enabled, the appearance of the button changes to  .

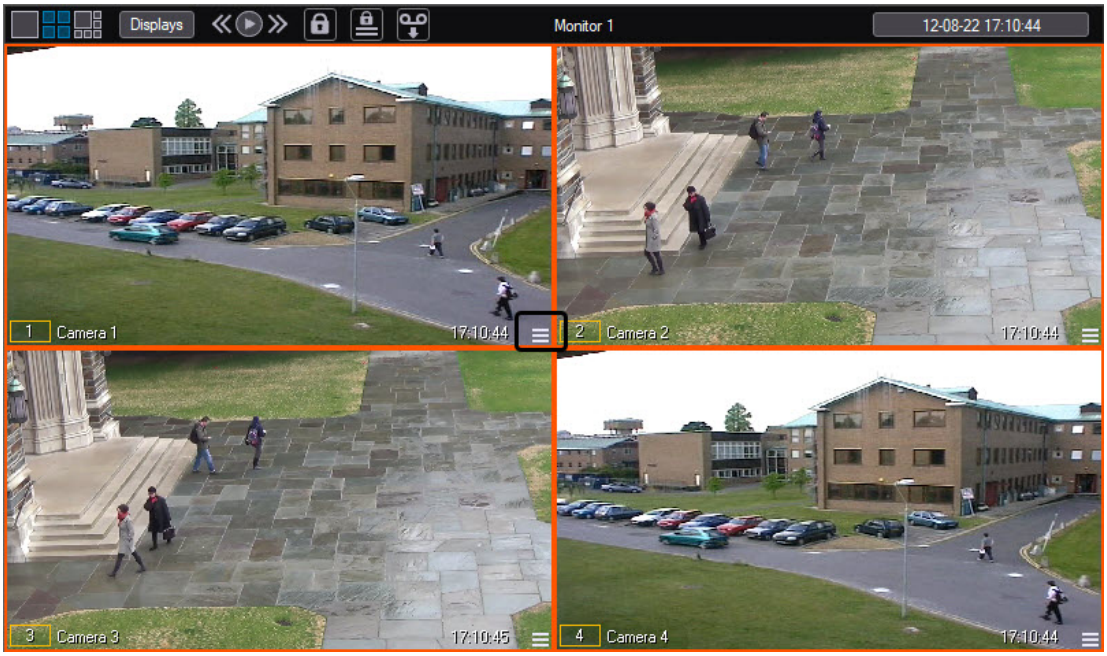
When the automatic scrolling is enabled, the button for opening the camera menu and the button for opening the archive with the left mouse button become inactive. In this case, the button for opening the archive with the right mouse button can be used.

Note.

You can change the standard way of scrolling so that when you click the scroll buttons, the layouts created in the **Surveillance monitor** are scrolled. To do this, set the CycleByLayouts registry key to **1** on the computer where **Surveillance Monitor** is displayed (see Registry keys reference guide). Note that if the CycleByLayout=1 key is set, the settings of the Quad splitter will be ignored (see Setting the parameters of the Monitor interface box).

Active Surveillance window

The Surveillance window can be in two states — active or inactive. The active **Surveillance window** is a window that is in focus at the moment. Other windows are considered inactive. You can move the focus by clicking on other **Surveillance windows**.



The distinctive feature of the active Surveillance window is a button (in the right bottom corner) to access the archive recordings. The archive stores the recordings from the camera of this **Surveillance window**. Another distinctive feature of the active Surveillance window is the light blue background of the **Surveillance window** number.

Note

If there are too many **Surveillance windows**, the button to access the archive recordings may not be displayed.

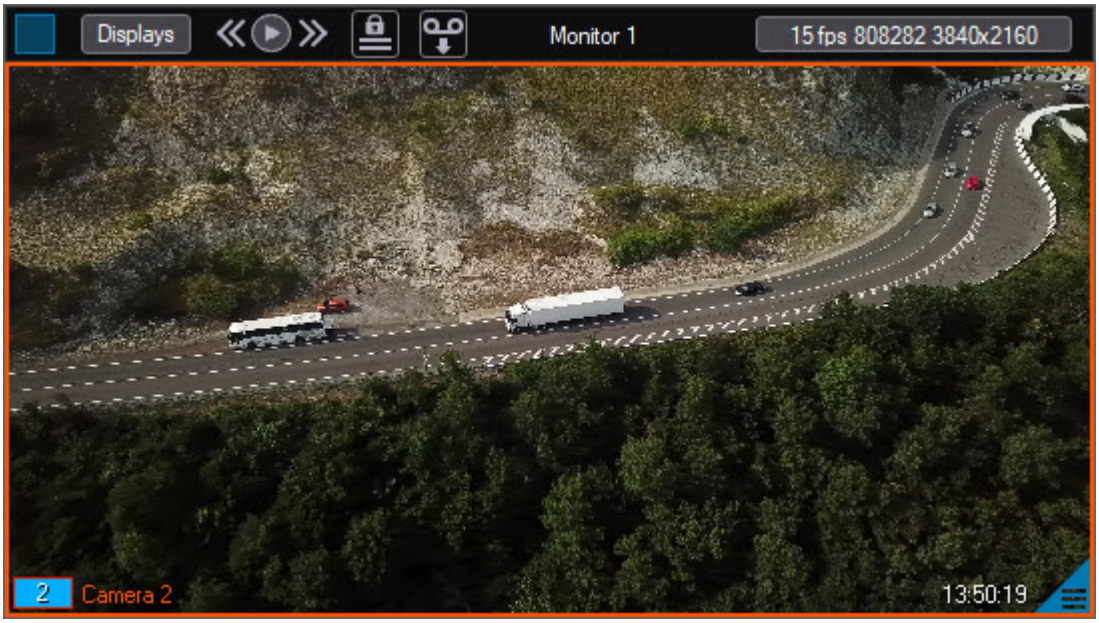
The Video surveillance monitor with the enabled **Active camera** mode (see Configuring the display mode of camera windows) is called the Active Monitor. In case both Active Monitor and GreenStream are configured (see Configuring an auto select of video stream for displaying), the video stream in this Video surveillance monitor will depend on the Active Monitor window size.

Video image scaling in Surveillance window

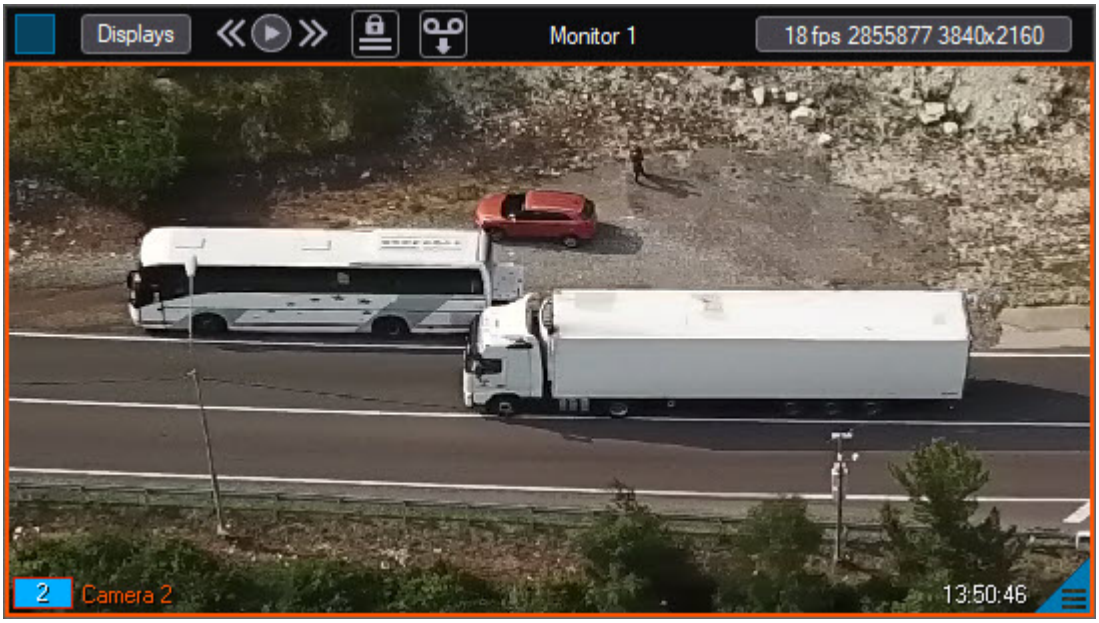
The software has the option of video image scaling in the Surveillance windows.

To zoom in or zoom out the image in an active Surveillance window, use the mouse wheel (see the figures below).

Scaling the video image in the Surveillance window (initial state):

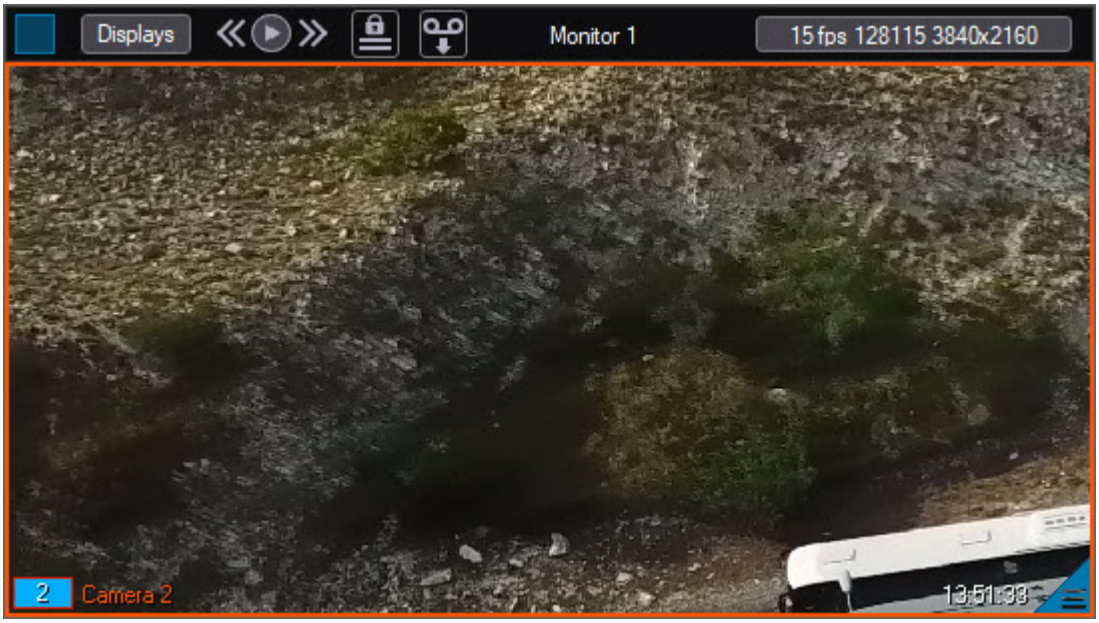


Scaling the video image in the Surveillance window (post scaling state):



In addition, there are other ways of video image scaling (see Image processing).

The zoomed in image can be moved in the Surveillance window by dragging with the left mouse button. You can also use the Up and Down keyboard keys to move the video image up and down respectively.



If the **restorezoom** registry key is specified, then after the specified time, the scaling will be reset if idle (see Registry keys reference guide). If the key is absent, then the specified scaling ratio and the scaling area of the video image are retained even after restarting *Axxon PSIM*.

> **Note**
>
> The possibility to scale and move the scaling area can be blocked using the **blocking** registry key (see Registry keys reference guide).

If the additional Video surveillance monitor is configured and has the **Active camera** mode enabled (see Configuring the display mode of camera windows), and if the automatic video stream selection is configured (see Configuring an auto select of video stream for displaying), then when scaling the video image in this Video surveillance monitor, the video streams will be switched. However, if the maximum resolution video stream is used initially, the video stream will not be switched.

> **Note**
>
> The maximum possible video image size is achieved when a single Surveillance window with this video image is displayed on a single Video surveillance monitor. If multiple Surveillance windows are displayed, their sizes may be automatically reduced to fit into a single Video surveillance monitor.

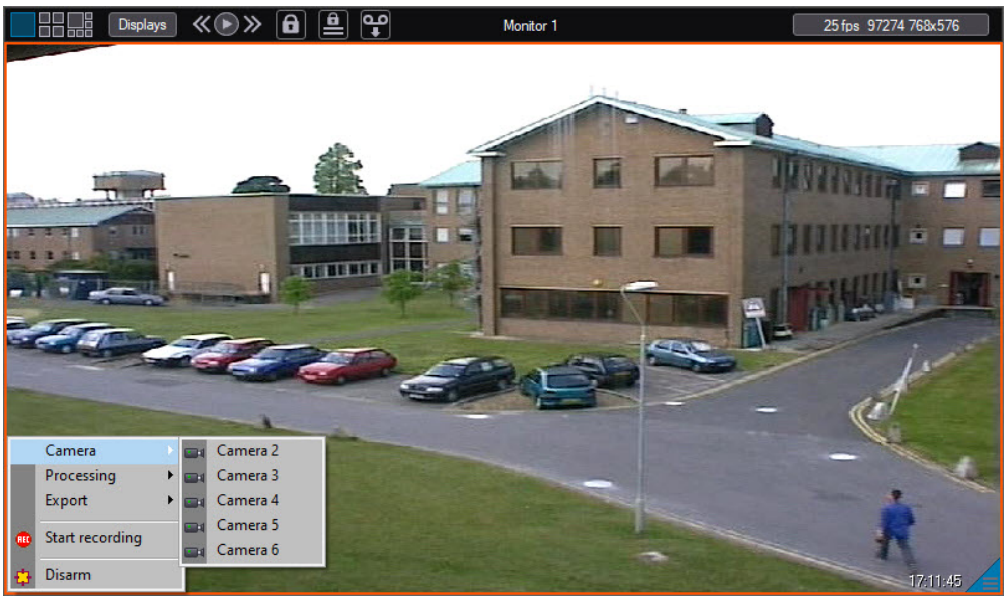
> **Note**
>
> In the archive view mode the mouse wheel can also scroll through the video recordings list, if you left click on the video recordings list beforehand. In this case, you need to left click in the Surveillance window to scale the video image with the mouse wheel.

> **Note**
>
> If the lens type was specified when configuring the camera, then instead of scaling the video image when you scroll the mouse wheel, the fisheye conversion of the video image will be performed (see also Enabling fisheye).

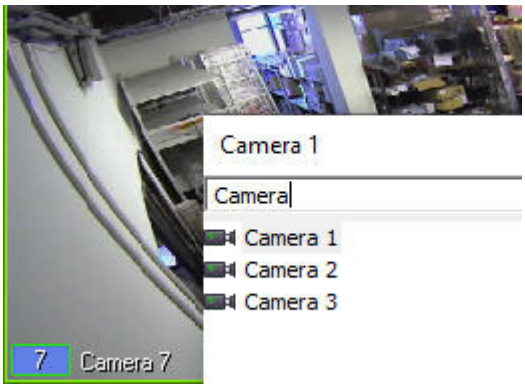
Selecting camera to display in Surveillance window

In case the selected layout does not display all Surveillance windows that are available on the Surveillance monitor, it is possible to select a camera displayed in the Surveillance window.

By default, this is possible using the function menu. Select the required camera from the list in the **Camera** submenu.



If the camera switching dialog is enabled in the **Monitor** settings (see Configuring Video surveillance windows interface), the special dialog for selecting a camera will open, when you select **Camera** in the Surveillance window function menu:

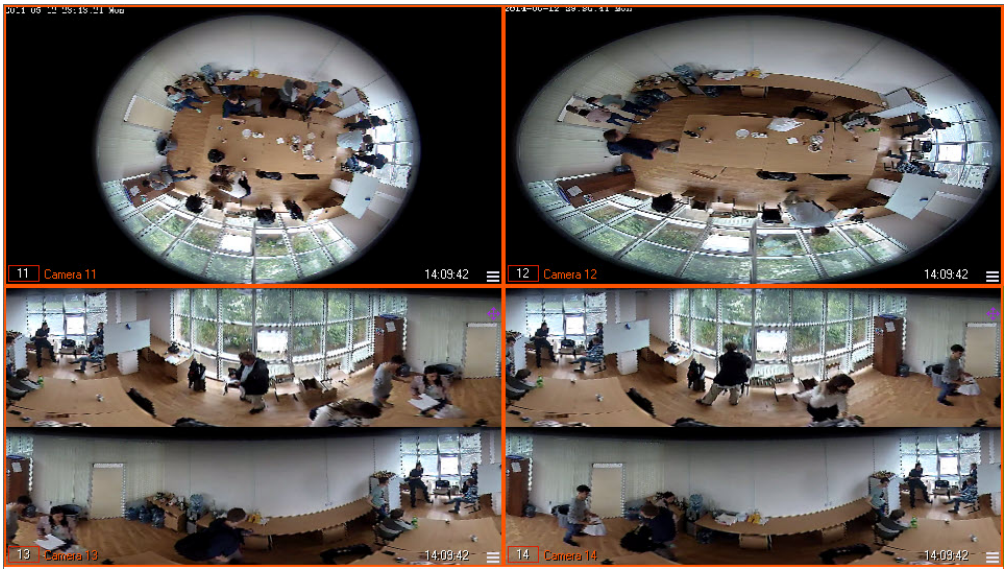


To find a particular camera, you need to enter its name or part of the name in the search field above the list of the cameras and press Enter on the keyboard.

Viewing video from fisheye camera

Video from fisheye cameras can be converted in the Video surveillance monitor in one of the following ways: **Panorama** (see Surveillance window 1) and **PTZ** (see Surveillance window 2).

> **Note.**
>
> See initial video from fisheye camera is displayed in the surveillance window 3 on the screenshot.



See how to enable fisheye conversion in the Enabling fisheye section. Information on how to configure fisheye cameras can be found in Configuring fisheye cameras section in Administrator's Guide.

When fisheye conversion is enabled, the icon is displayed in the Surveillance window of the corresponding camera. It is used to enable and disable video control features in the Surveillance window (see the table below).

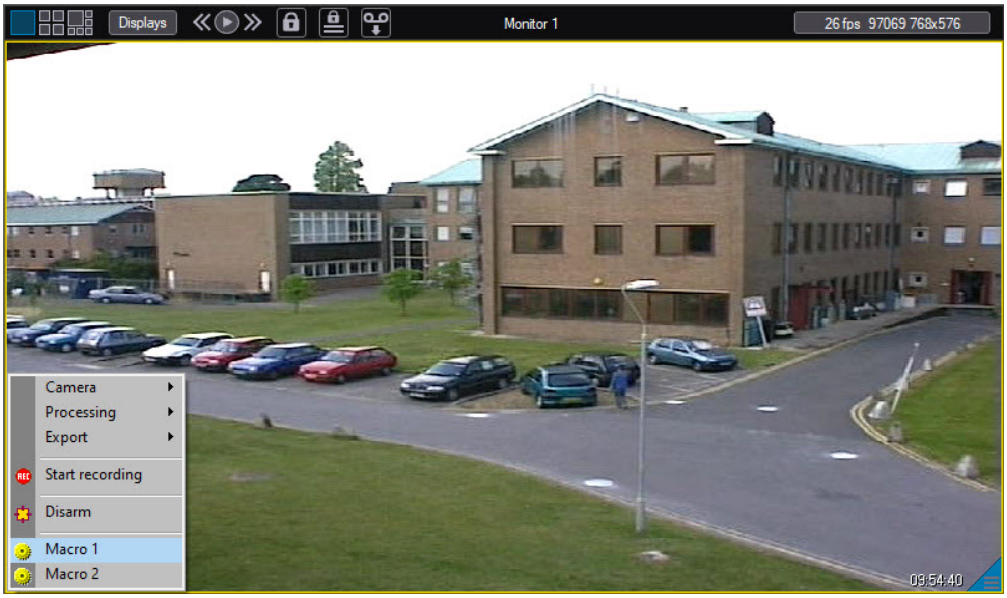
When video control features are disabled, the icon looks like this .

Action	**Function**
Left-click and hold moving the mouse pointer	Changing orientation of virtual camera lens towards the mouse pointer direction
Scrolling up/down	Digital zoom in/out

Running macros from the Surveillance window

Each camera added to the Video Surveillance Monitor can be assigned with two macros (see Selecting and configuring video cameras and Creating and using macros).

Rut the macro from the Video Surveillance Window functional menu:



Those menu items may not display if no macros were added to the camera when adding it to the Video Surveillance Monitor.

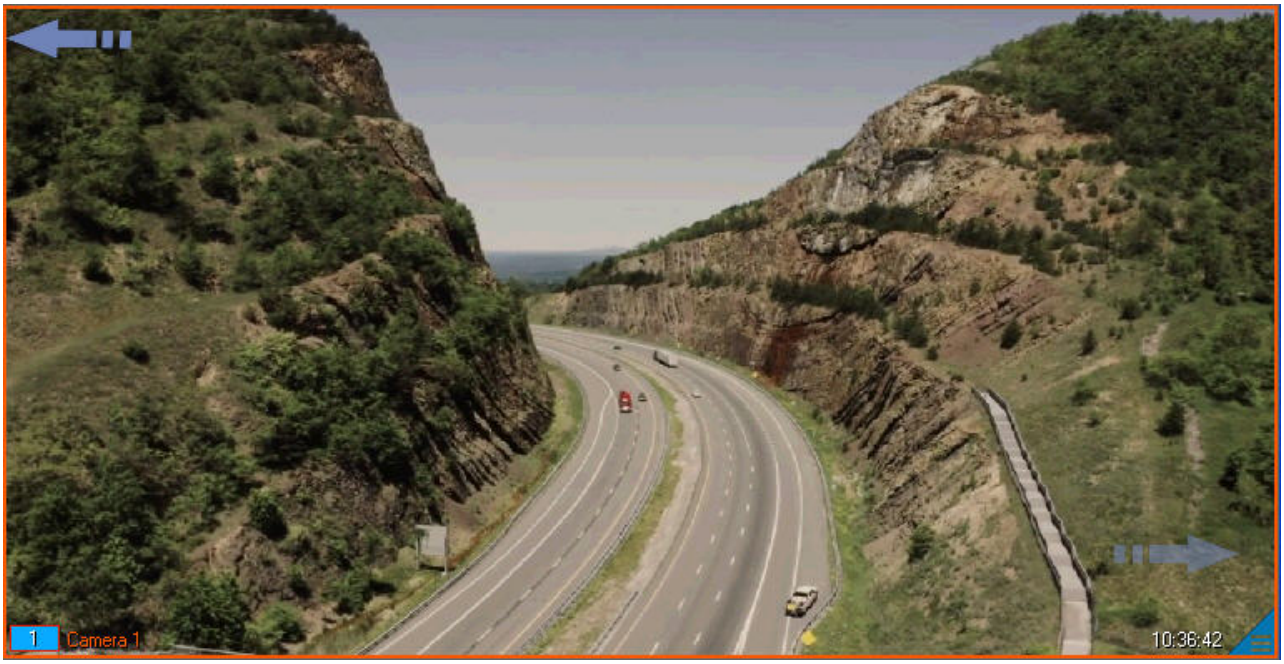
The Button object in the Surveillance window

The **Button** object can be attached to any **Camera** added to the **Video surveillance monitor**. The **Button** is displayed in the **Surveillance window** over the video image from the camera. The actions when clicking such a **Button** are the following:

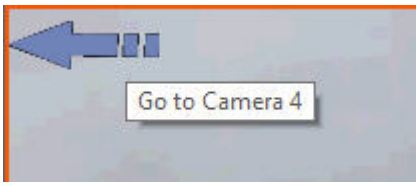
1. Switching to another camera. If only one **Surveillance window** is displayed in the **Monitor** (one-fold layout), then when you click the button in the current **Surveillance window**, the **Camera** will change and the video from it will be displayed. If there is more than one **Surveillance window** in the **Monitor** (multiple folds layout), the video images from the current **Camera** and the camera specified in the **Button** settings will swap.
2. Running a macro: when you click the button, the macro specified in the **Button** settings will start running.

The **Button** can also perform no actions. The appearance of the **Button** and the specified action depend on its settings (see Configuring a button to display on the Monitor). The number of **Buttons** is unlimited.

Example of displaying two **Buttons**:



If you hover the mouse pointer over the **Button**, a tooltip (its caption configured by the settings) will be displayed:



9.3.4 Camera arming and disarming

General information on camera arming and disarming

Analysis of the scene obtained from the surveillance camera is performed with the activity detector: Activity detectors are intelligent sensors with various functions: motion detection within the observed scene, face detection, camera tampering etc.

Each camera has its main activity detector. By default, camera arming/disarming means the main activity detector is switched on/off. An alarm event by the main detector takes place (and is registered by the system), when motion within the observed scene begins. If a camera is disarmed, the alarm event is not registered.

Moreover, special auxiliary detectors are available. Such detectors, unlike the main one, register not only the beginning of some motion in the camera, but lens closure and tampering, camera rotation, face recognition and so on.

Main and auxiliary detection zones can be masked Mask is the scene image area with no scene control (for example, if you mask the detector main zone, there is no scene control in progress inside the mask).

Indication of camera status

Note

This section describes the default parameters of the color indication of the video surveillance window border. They can be changed during the system configuration - see Configuring Video surveillance windows interface.

The colour of the video surveillance window border indicates the current camera status.

Colour of the video surveillance window border	Camera status
Green	Camera disarmed
Yellow	Camera armed
Red	Camera is armed, alarm event occurred on camera. OR Camera is disarmed, but one or more auxiliary zones are configured as alarmed and alarm is detected on them – see also Indication of detection tool status.

The colour of the camera number indicator border in the surveillance window indicates the current status of the video recording from the camera.

Colour of the camera number border	Camera status
Green	No video recording, camera is disarmed
Yellow	No video recording, camera is armed
Red	Video recording

The combinations of the video surveillance window border colour and the colour of the camera number border are described in the following table.

Colour of the window border	Colour of the camera number border	Camera status
Yellow	Yellow	Camera is armed, no video recording is performed
Red	Red	Alarm event occurred on the camera or alarmed detection zone, video recording is started by an alarm or the recording, started by Operator's command before the event, goes on,

Green	Red	Camera is disarmed, but there is recording by Operator's command or post-alarm recording.
Yellow	Red	Camera is armed, recording by Operator's command or post-alarm recording is done.
Green	Green	Camera is disarmed, no video recording is performed
Red	Yellow	Alarm event occurred on camera or alarmed detection zone, but no video recording by alarm is done.

Note.

If the auxiliary camera detector zone has been armed or disarmed, the border around the video surveillance window retains its colour, but after an alarm event in the auxiliary zone the window border becomes red. So, there is no indication of auxiliary detector zone arming and disarming for the camera by the frame of the Video Surveillance Window. See also Indication of detection tool status.

The icon of video absence  appears under the icon of "video camera number" only when there is no video signal. It can be in two cases: video camera is not connected or there is camera restart.

Note.

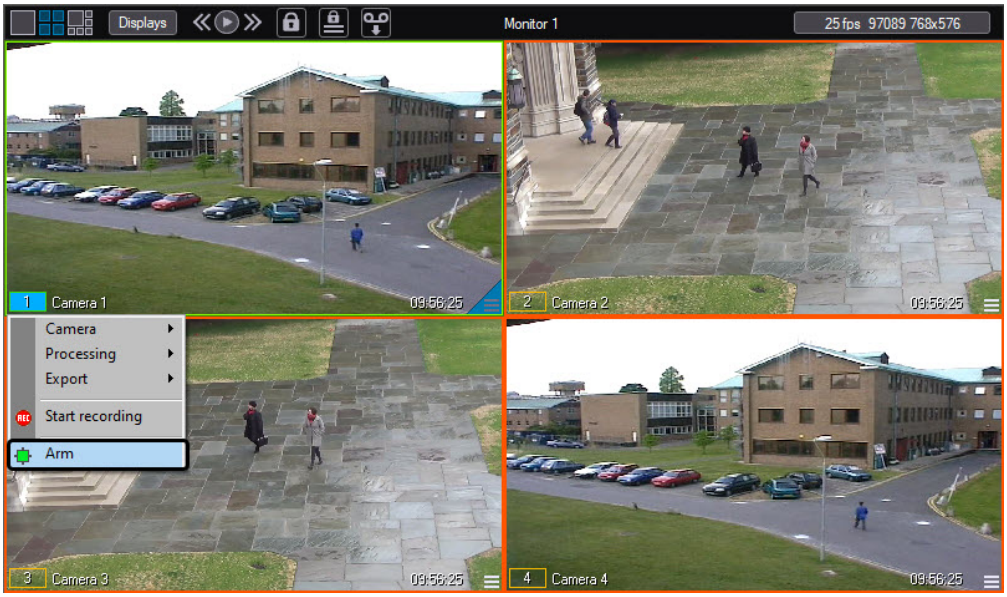
The last video frame or blue screen (depending on the video capture card) is displayed in the Video surveillance window if there is no video signal.

The icon of selected disk absence  appears over the icon of "video camera number" only when disk for archive saving is not selected.

When incorrect camera type is given, the icon of disconnect with the camera  appears over the icon of "video camera number" and the frame of video surveillance window becomes black.

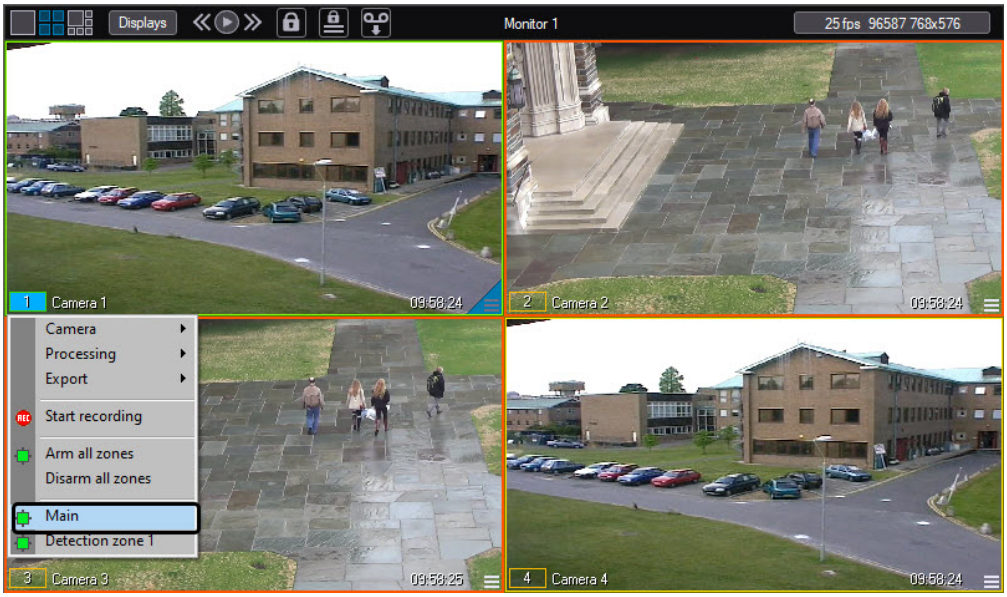
Camera arming

To arm the camera by the main detector zone, select the **Arm** option in the functions menu in the required camera window.



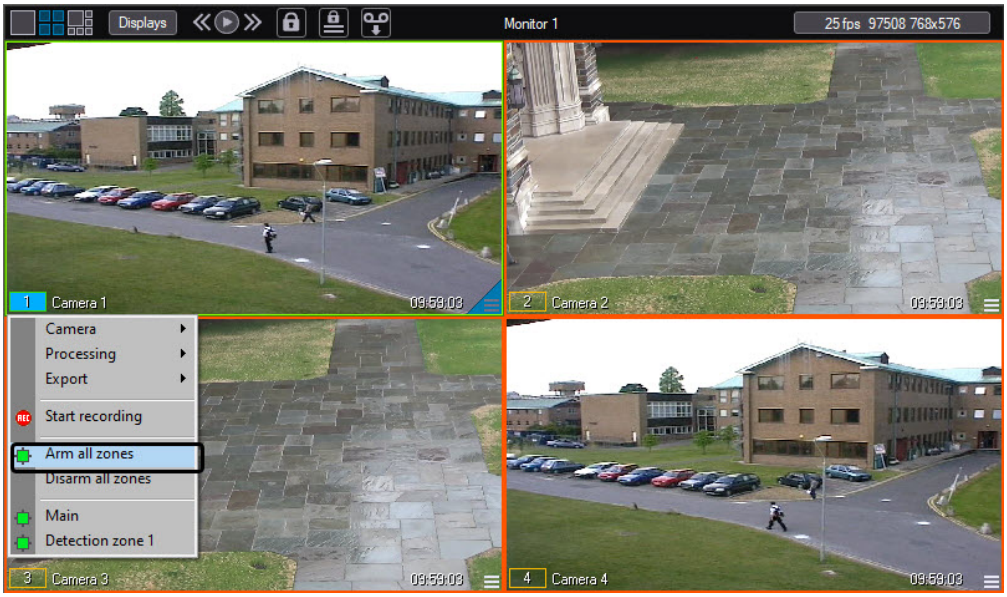
After this camera is activated, and if an alarm event occurs, video recording starts from the camera (if the system has been set up properly). Camera arming by the main zone is followed by colour indication: the surveillance window border becomes yellow and the camera indicator in the surveillance window functions menu becomes yellow too.

If auxiliary zones are assigned, camera arming by auxiliary zones is performed via the video surveillance window functions menu.



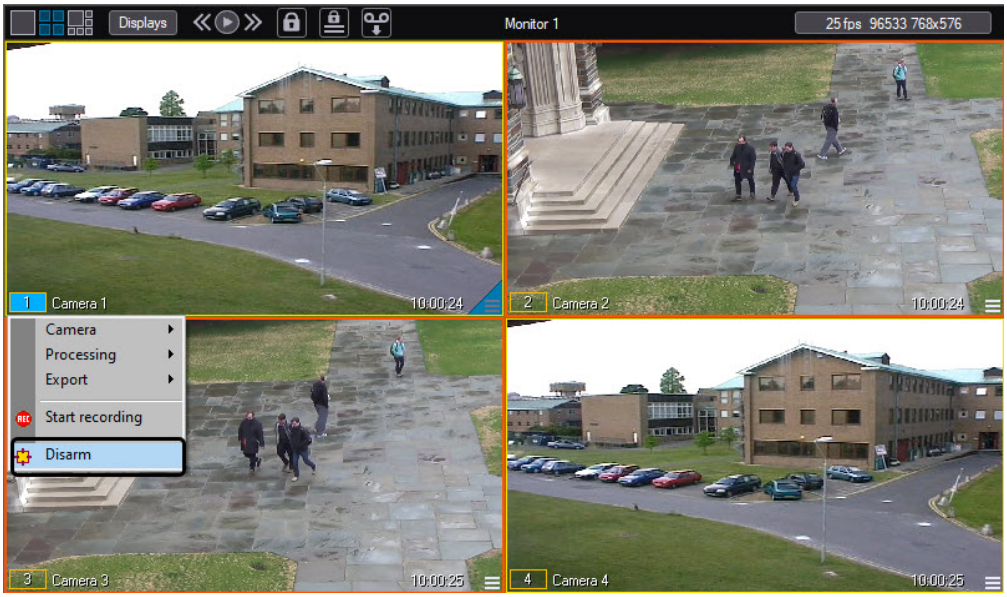
When auxiliary zones are armed, the camera indicator in the functions menu becomes yellow, but the surveillance window border retains its colour.

To arm the camera in the main zone and all auxiliary zones simultaneously, select the **Arm all zones** item in the video surveillance window functions menu.



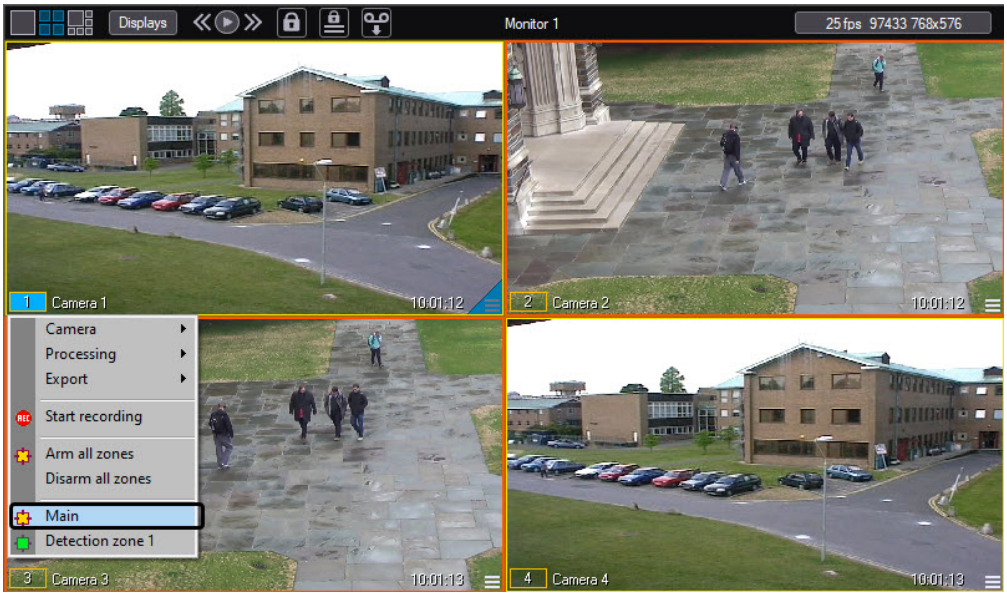
Camera disarming

To disarm a camera in the main detector zone, select the **Disarm** option in the camera window functions menu.



During camera disarming in the main zone, its colour indication changes: the surveillance window border becomes green, and the camera indicator in the surveillance window functions menu becomes green too.

If a camera is armed in the auxiliary zone, then camera disarming is performed via the video surveillance window functions menu.



When a camera is disarmed in the auxiliary zone, the camera indicator in the surveillance window functions menu becomes green, but the surveillance window border doesn't change colour.

To disarm the camera in the main zone and all auxiliary zones simultaneously, select the **Disarm all zones** item in the video surveillance window functions menu.



Masking the Main detector

Access to main detector mask editing is performed via the video surveillance window functions menu. To enter mask editing mode, select the **Detector mask** item from the **Processing** submenu.

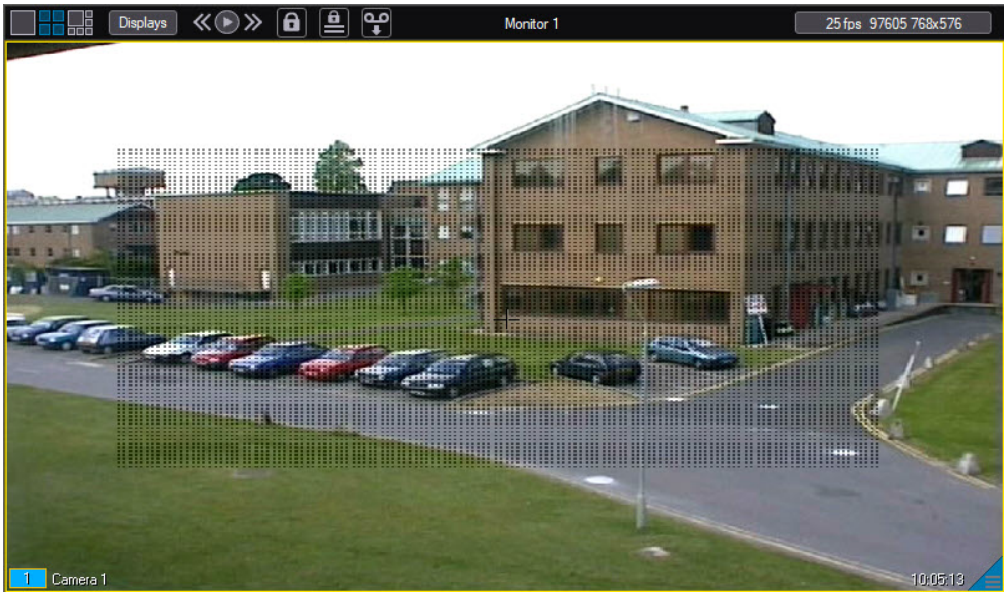


After masking is enabled, black crosshairs appear in the center of the video. The crosshairs can be moved up or down, by pressing the up arrow and down arrow keys on the keyboard.

Masks have a rectangular shape. A mask is initiated by a left click: select a dot on the screen, click the left mouse button and pressing the button draw a rectangle – the mask area will be filled with black dots.

> **Note.**
>
> If after applying the mask you press the Enter key on the keyboard, the mode is enabled, in which editing and deleting masks impossible. In this case, the crosshairs at the center of the video become white. To exit this mode, press the Esc.

In the mask area there will be no detecting.



Mask removal is performed in a similar way. To clear the screen area from the mask, select a dot on the screen, click the right mouse button and pressing the button draw a rectangle – the final rectangular area will be cleared.

To quit the main detector mask editing mode, select the **Detector mask** item from the **Processing** submenu of the video surveillance window functions menu once more.

> **Note.**
>
> When quitting the mask editing mode, rectangles with the dots, that have bordered mask areas, vanish from the surveillance window. Nevertheless, the mask areas are still active, i.e. no surveillance occurs in these areas.

9.3.5 Use of basic video detection tools

General information on video detection tools

Analysis of the scene obtained from the surveillance camera is performed with the activity detector. Activity detectors are intelligent sensors with various functions: motion detection within the observed scene, face detection, camera tampering etc.

Each camera has its main activity detector. By default, camera arming/disarming means the main activity detector is switched on/off. An alarm event for the main detector takes place (and is registered by the system), when motion within the observed scene begins. If a camera is disarmed, an alarm event is not registered.

Moreover, special auxiliary detectors are available. Such detectors, unlike the main one, register not only the beginning of some motion in the camera, but lens closure and tampering, camera rotation, face recognition and so on.

Main and auxiliary detection zones can be masked Mask is the scene image area with no scene control (for example, when a detector main zone is masked, there is no scene control inside the mask).

Detection tool types

On page:

- Main motion detection tool
- Infrared motion detection tool
- Face detection tool
- Lost items detection tool
- Focusing detection tool
- Video signal stability detection tool
- Background change detection tool
- Camera blinding detection tool
- Lens blocking detection tool

Main motion detection tool

The main motion detection tool discovers moving objects and establishes their direct of motion. Detected moving objects are automatically outlined in the surveillance window with their motion direction being marked with an arrow.

Infrared motion detection tool

Discovers moving objects within the scene. Detected moving objects are automatically outlined in the surveillance window. Contrary to common motion detectors, it can recognize small objects.

Face detection tool

The face detection tool recognizes every human face within the observed scene. A recognized face is outlined in the surveillance window.

Lost items detection tool

The lost items detection tool is capable of recognizing motionless objects, lost within the scene. If an item is present (or absent) within the scene for a certain time, it is outlined in the surveillance window.

Focusing detection tool

The focusing detection tool is used to identify camera signal distortion. It notifies the Operator about loss of camera focus.

Video signal stability detection tool

The video signal stability detector is used to identify camera signal distortion.

Background change detection tool

The background change detection tool is used to identify camera signal distortion. This detection tool is capable of discovering a change of the scene background due to physical (optical) tampering of the CCTV camera.

Camera blinding detection tool

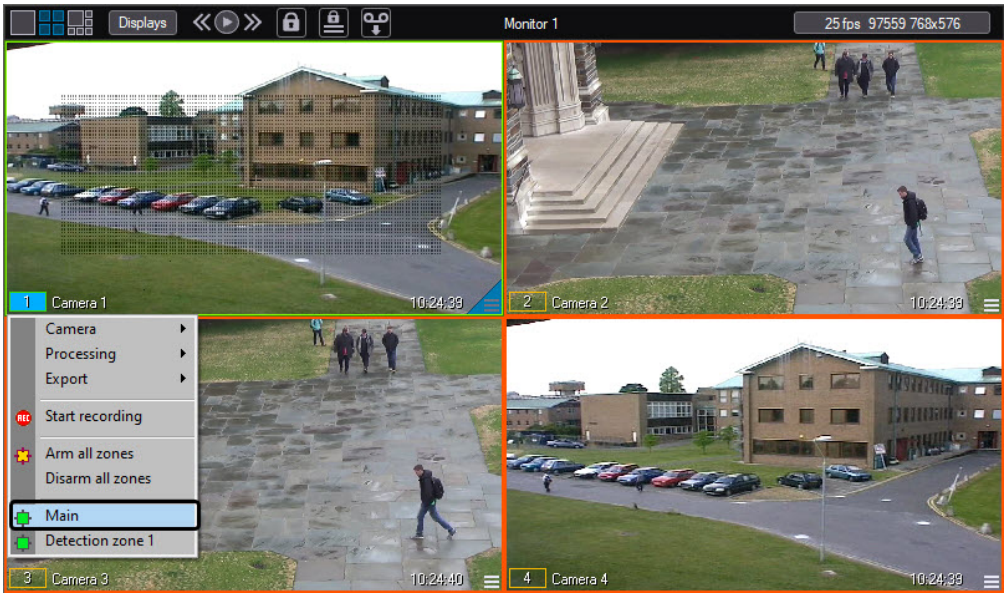
The camera blinding detection tool is used to identify camera signal distortion. It discovers attempts to over-illuminate the camera lens.

Lens blocking detection tool

The lens blocking detection tool is used to identify camera signal distortion. It recognizes lens blocking and plastering.

Indication of detection tool status

Indication of the surveillance camera detection tool may be found in the video surveillance window functions menu of the camera.



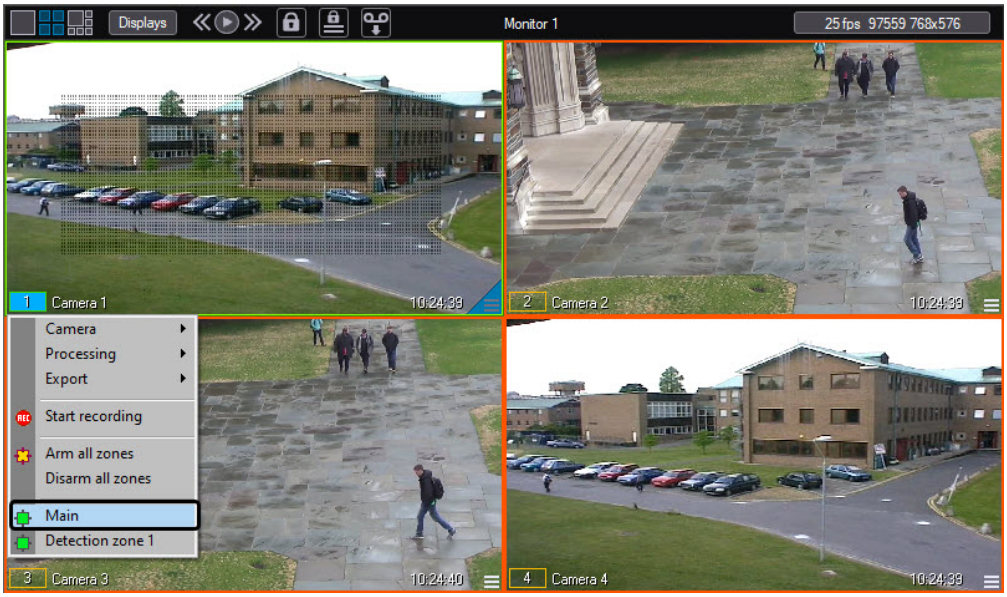
Detection tool status indication is a square field opposite the detector name. Detection tool status is shown by the colour of the indicator.

Indicator colour	**Detector status**
Green	Detector OFF
Yellow	Detector ON

Moreover, if a Detection zone was configured alarmed, the alarm on the Detection zone initiates an alarm on camera; in such case the alarm is indicated in the same way as for the Main detection zone – see Indication of camera status.

Switching detection tools on

Switching on a video surveillance camera detection tool is performed via the video surveillance window functions menu of the camera.



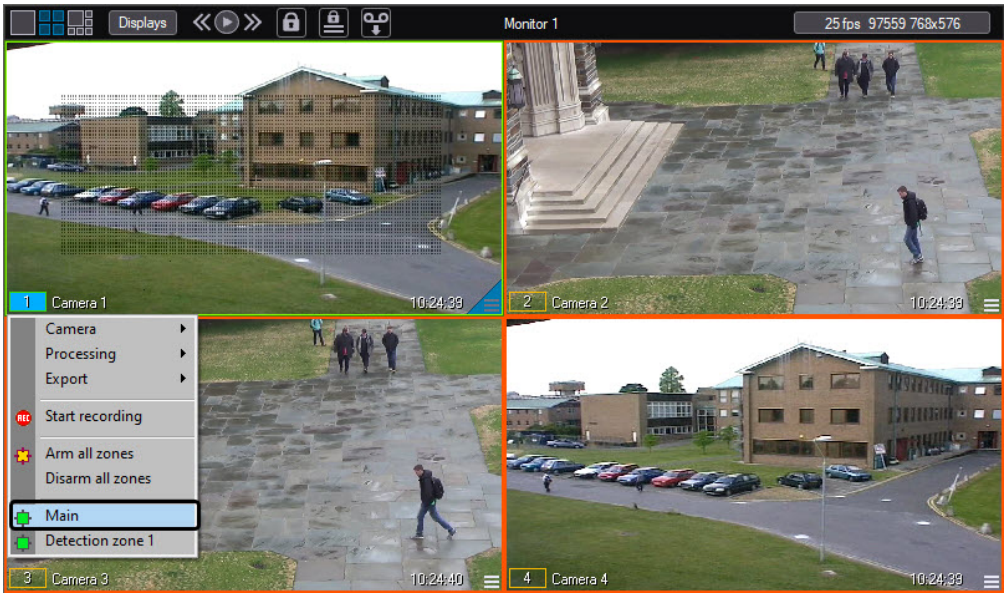
To switch a detection tool on, click its name or its indicator in the list of detectors. Then the green indicator of the detector will become yellow.

To switch on all available detection tools simultaneously, select the **Arm all zones** item in the video surveillance window functions menu.



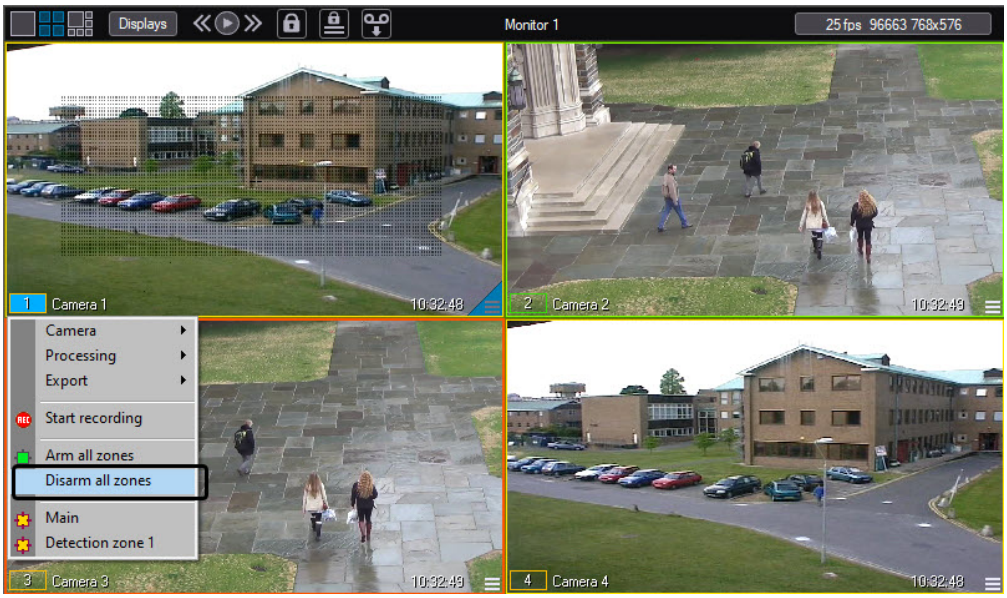
Switching detection tools off

Switching off a video surveillance camera detection tool is performed via the video surveillance window functions menu of the camera.



To switch a detection tool off, click its name or its indicator in the list of detectors. The detection tool indicator will become green.

To switch off all available detection tools simultaneously, select the **Disarm all zones** item in the video surveillance window functions menu.



Detection tool masking

To edit detection tool's masks, go to the Surveillance windows, **Processing** submenu.



To enter mask editing mode, select a detector in the **Detector mask** submenu. The first detection tool in the list is the main motion detector (**Main** item), followed by auxiliary video detection tools. If a main detection tool is the only detection tool, then the **Detector mask** item will be displayed instead of the detection tool selection submenu.

> **Note**
>
> You cannot access the archive in the mask editing mode. Vice versa, you cannot enter the mask editing mode in the archive viewing mode.



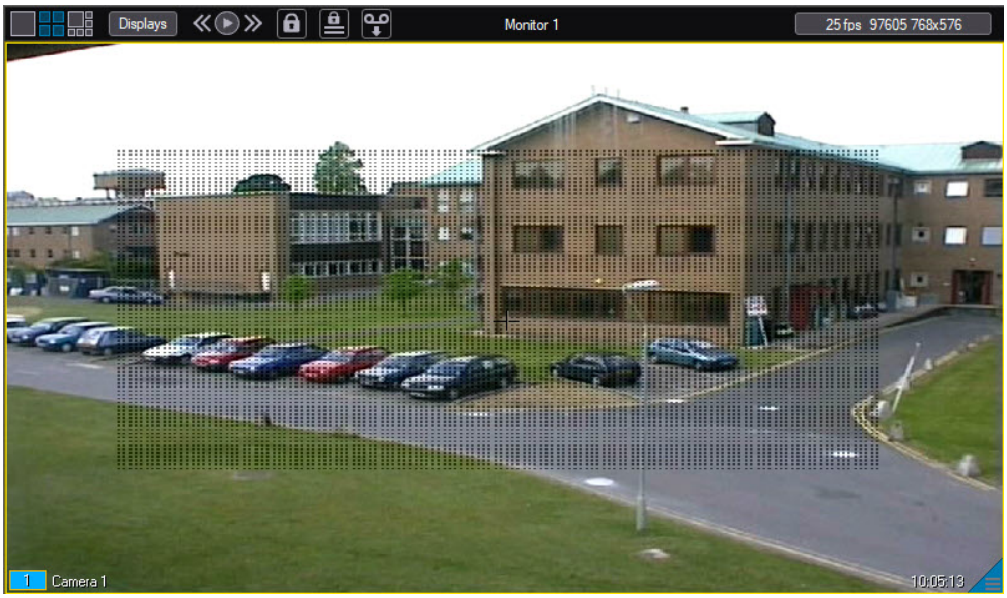
After masking is enabled, black crosshairs appear in the center of the video. The crosshairs can be moved up or down, by pressing the up arrow and down arrow keys on the keyboard.

Masks are rectangular areas. A mask is imposed by a left click: select a dot on the screen, click the left mouse button and pressing the button draw a rectangle – the mask area will be filled with black dots.

Note.

If after applying the mask you press the Enter key on the keyboard, the mode is enabled, in which editing and deleting masks impossible. In this case, the crosshairs at the center of the video become white. To exit this mode, press the Esc.

In the mask area, there will be no detection.



Mask removal is performed in a similar way. To clear the screen area from mask, select a dot on the screen, click the right mouse button and pressing it draw a rectangle – the final rectangular area will be cleared.

To quit the mask editing mode, select the **Detector mask** item from the **Processing** submenu of the video surveillance window functions menu once more.

Note.

When quitting the mask editing mode, rectangles with dots, that have bordered mask areas, vanish from the surveillance window. Nevertheless, mask areas are still active, i.e. no surveillance occurs in these areas.

9.3.6 Smart video detection tools operation

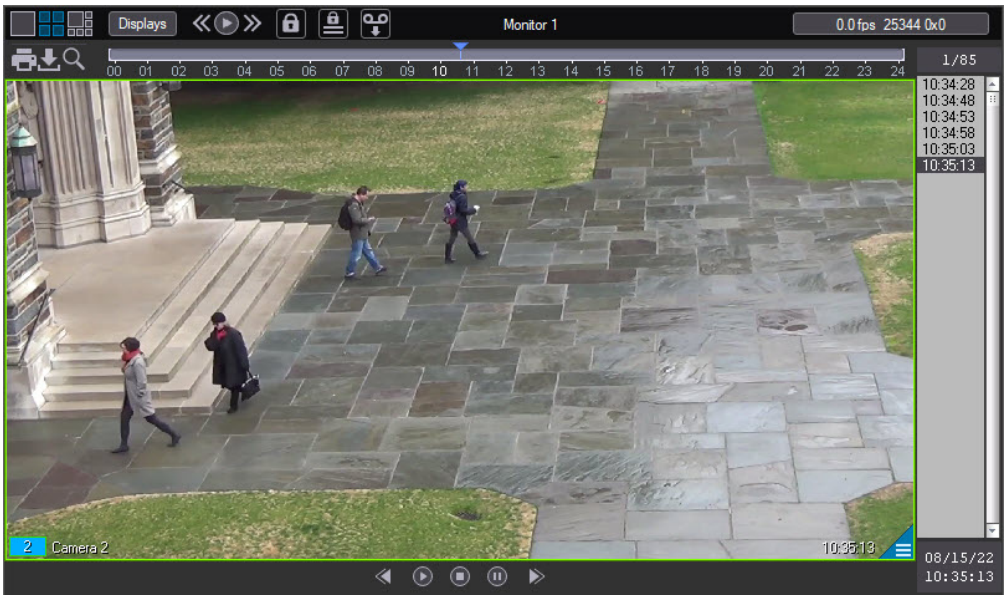
When smart video detection tools are configured in the system, frames around the detected objects may be displayed on the video image. The corresponding setting must be enabled either when configuring the **Tracker** object or when configuring the corresponding detection tool (see Creating and configuring VMDA detection). Abandoned objects can be highlighted with a frame if the corresponding setting is enabled when setting up the **Tracker** object.

Note.

In order for the frames to show when the Video Surveillance Window of a camera is displayed on a monitor designated for the active camera or alarm cameras (see Configuring the display mode of camera

windows), the corresponding camera must be added to this monitor at the system setup stage (see Selecting and configuring video cameras).

Frames around detected objects or items are present both in live video and during archive playback.

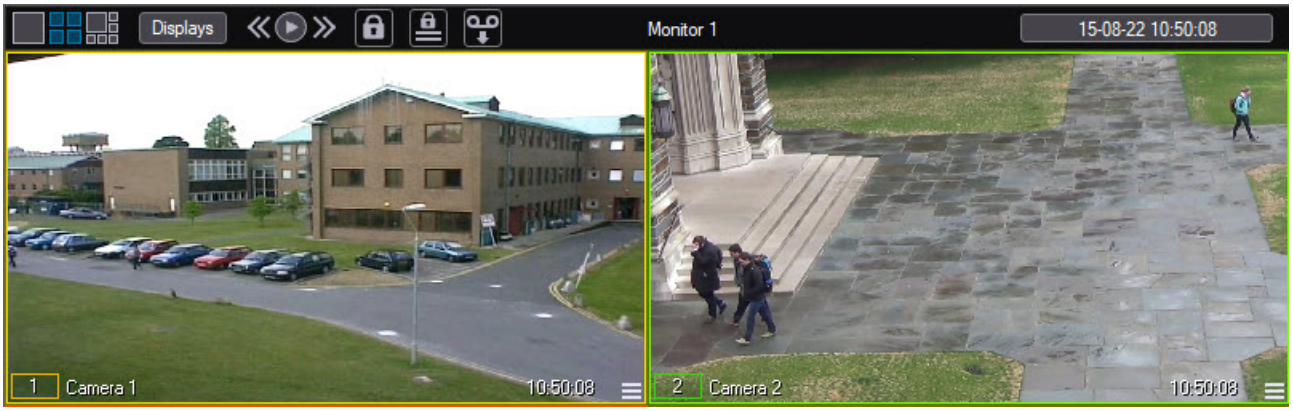


If the smart detection tools are configured to generate an alarm on camera when an object is detected, the alarm indication is standard – see Indication of camera status

The Smart search in the archive is also available if smart detection tools are configured correspondingly.

9.3.7 Using Tag&Track

If Tag&Track is configured in *Axxon PSIM* (see Tag&Track configuration), then Video Surveillance Monitor allows tracking any selected object on video. Two Video Surveillance Windows are required for the use of Tag&Track, i.e. for stationary and PTZ camera (see Configuring video display on Video Surveillance Monitor).

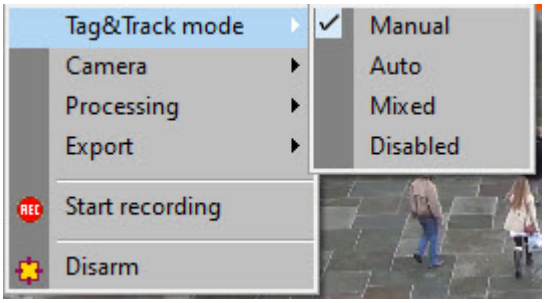


The Tag&Track function can be operated in one of the following modes:

1. **Manual** (default) – left-click the frame of any moving object in the Video Surveillance Window to start tracking the object. The selected frame is highlighted in blue. As a result, the PTZ camera will follow the object until the track is lost.
2. **Auto**:

   a. If switching to the next object is not configured, the first detected object is tracked until the track is lost.
   b. If switching to the next object is configured, the first detected object is tracked for a specified period of time and then switching to the next sequential object is performed.
3. **Mixed** – automatic mode operation until Operator manually select an object. When the selected object is lost, Tag&Track switches to automatic mode until Operator selects another object.
4. **Disabled** – objects are not tracked using the Tag&Track function.

Use the **Tag&Track Mode** menu item in the video surveillance window functional menu to switch modes.



9.3.8 Events recording

General information on events recording

Video recording can be performed in the modes:

1. alarm video recording;
2. recording by Operator command;
3. audio and video synchro recording.

Event recording options can be performed:

1. Automatic addition of the pre-event fragment with a pre-defined duration at the beginning of the entire recording.
2. Automatic addition of the post-event fragment with a pre-defined duration at the end of entire recording.
3. Forced stop of the video recording in any mode.

The video recording status is indicated by the colour of the camera number indicator border in the surveillance window and by the recording control item in the video surveillance window functions menu.

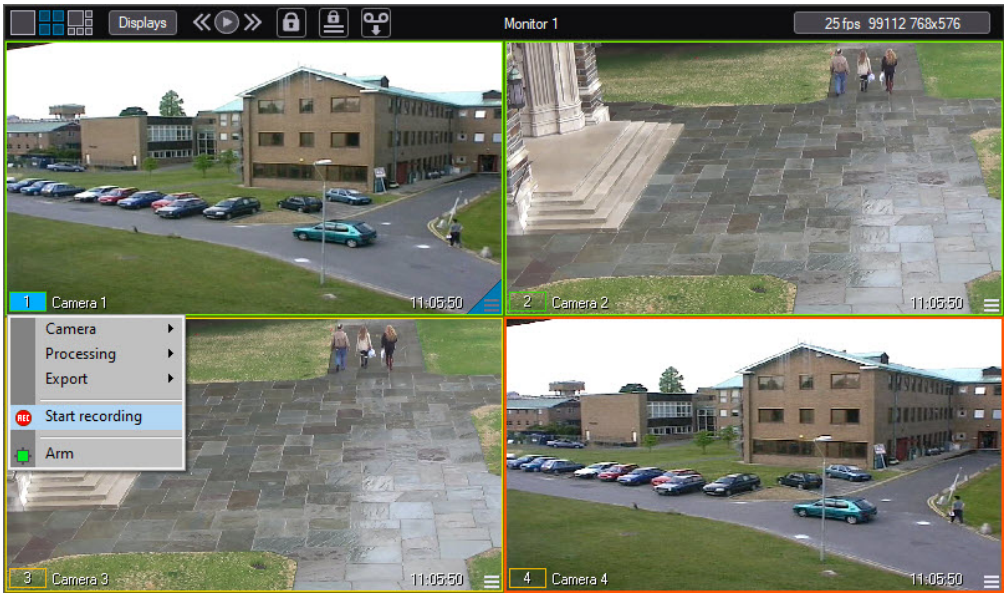
Recording indication

Surveillance camera recording is indicated by the camera number indicator border in the video surveillance window of the camera.

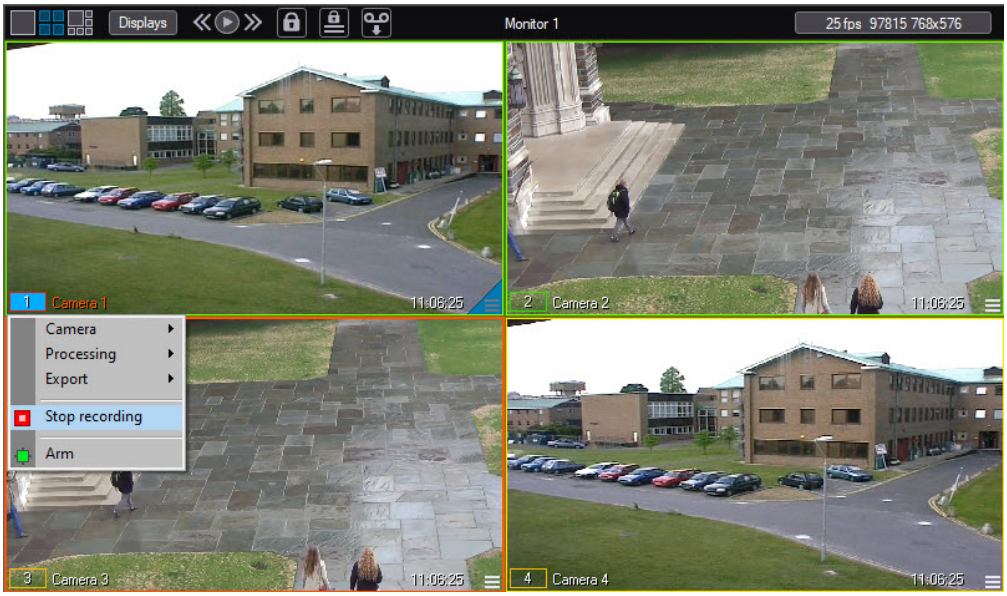
Colour of the camera number border	**Recording status**
Green or yellow	No video recording
Red	Video recording is being performed

The recording status is also displayed in the video surveillance window functions menu of the camera.

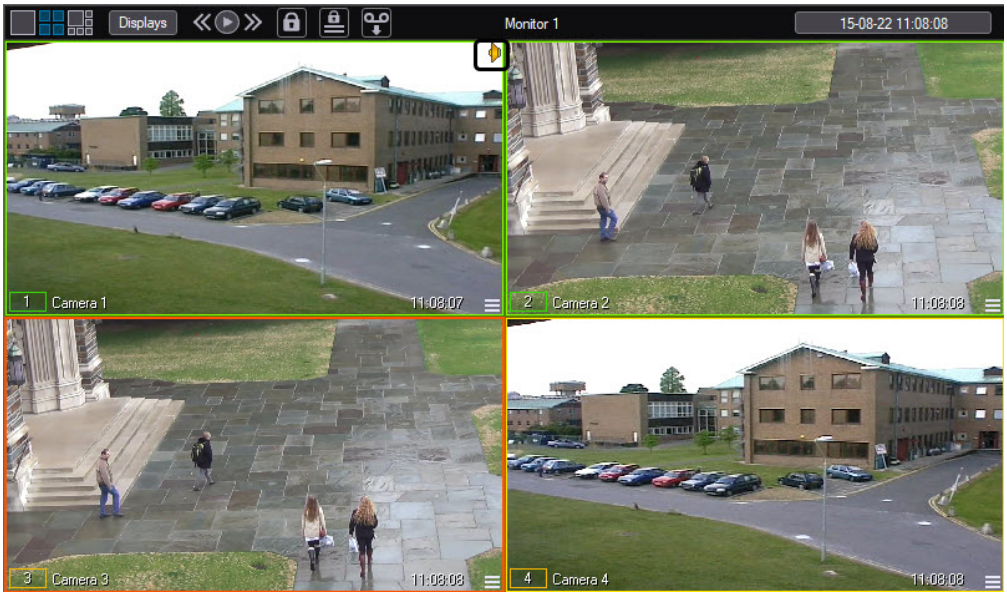
The  symbol means, that there is no video recording at the moment.



The  symbol means, that video recording is being performed at the moment.



The synchro audio recording and monitoring indicator is placed in the top right corner of the surveillance window.



Alarm recording

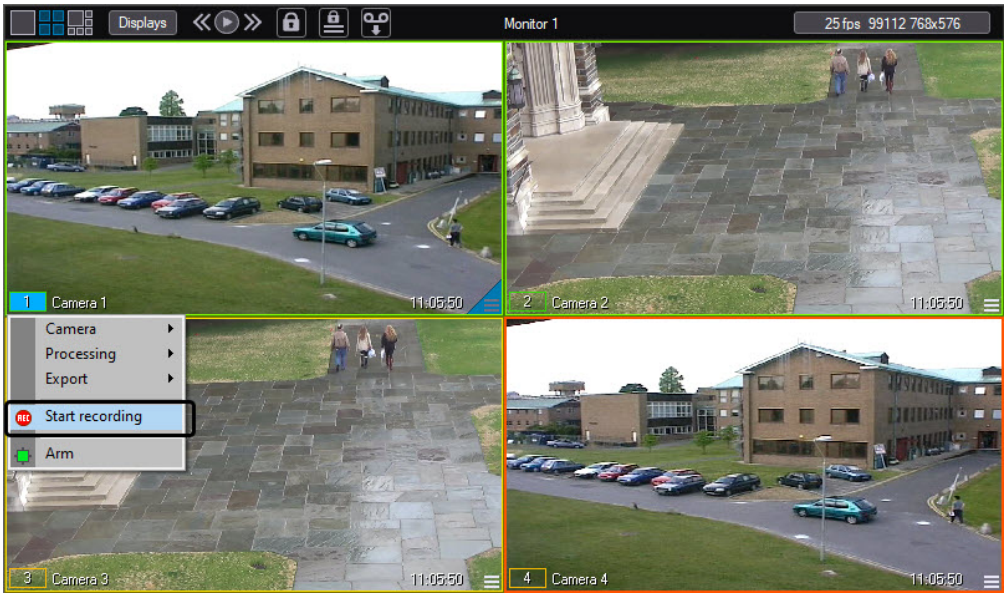
Alarm recording starts automatically, if any camera has registered an alarm event. Video recording stops immediately after the end of an alarm event or in a pre-defined time interval after it. With some program settings the pre-event fragment with a pre-defined duration may be automatically added to the beginning of the entire recording.

> **Note.**
>
> Alarm recording doesn't start, if:
>
> 1. the *Alarm recording* option has not been enabled for the camera –recording is not activated when the main detector registers an alarm event;
> 2. the *Alarm* option has not been enabled on the camera auxiliary detector – recording is not activated when the auxiliary detector registers an alarm event.

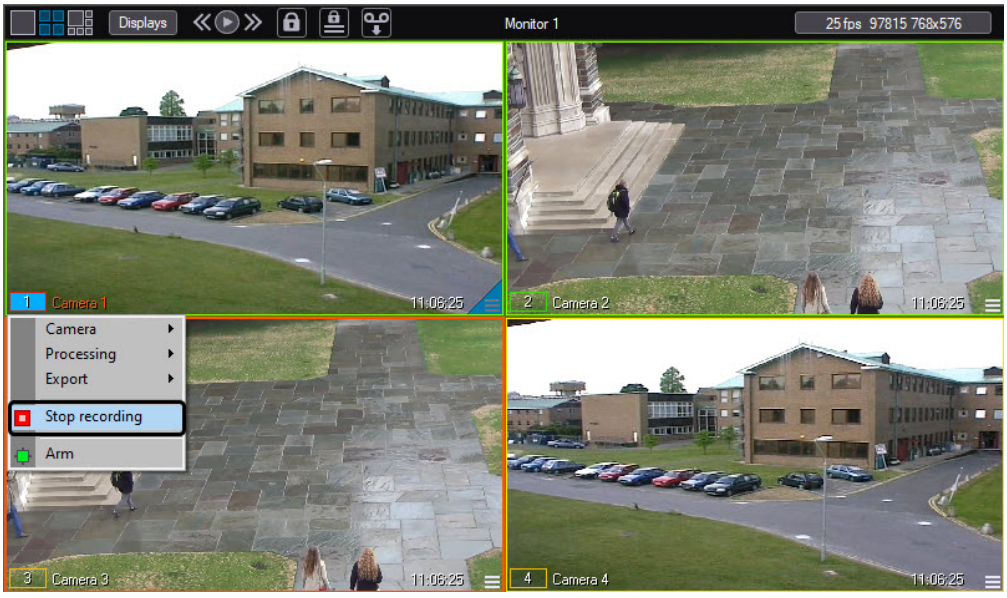
Recording by Operator command

Recording may be forced by Operator command. To control recording, select the **Start recording/Stop recording** item from the functions menu of the video surveillance window.

Select the  item to start recording.



When recording starts, the recording indicator changes to .

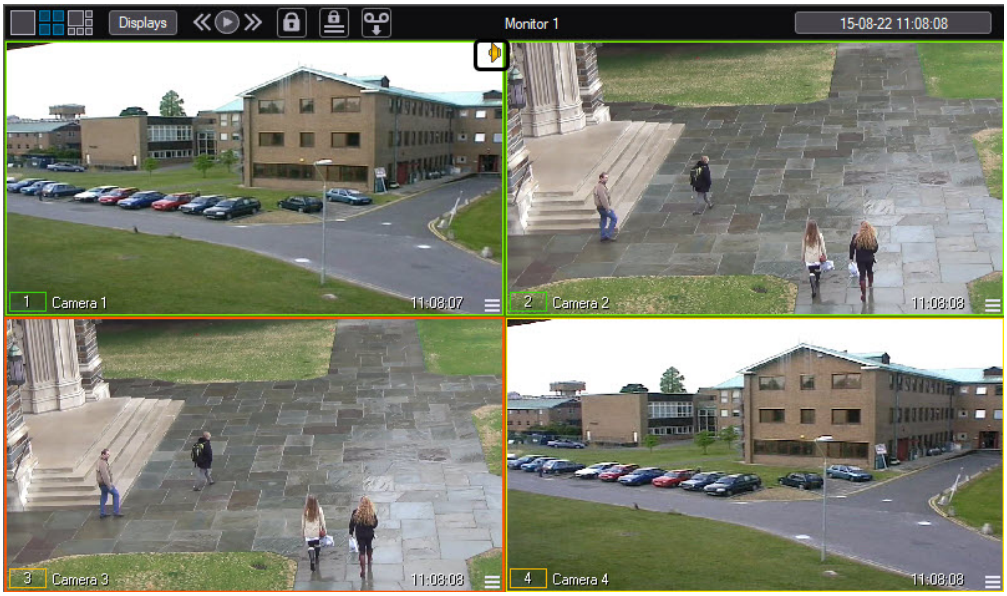


To stop recording, click the item. The indicator changes to .

Audio and video synchronous recording

Synchronous recording is switched on by Operator command or by an occurred alarm event. With this option in the top right corner of the surveillance window, the (or) icon is displayed.

> **Note**
>
> Synchronous recording is controlled only in the Surveillance window.



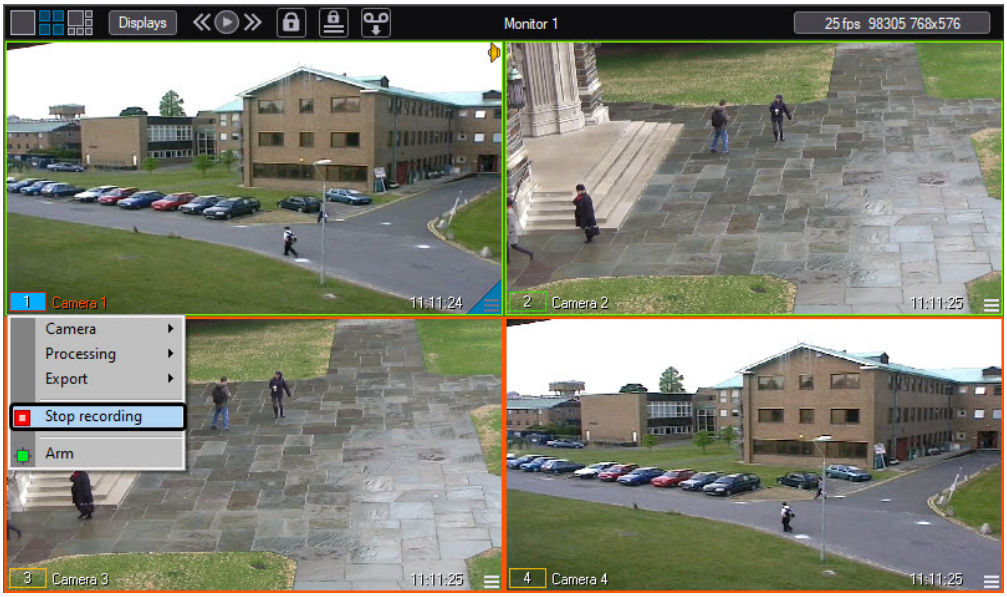
If synchronous recording was switched on by Operator command or by an occurred alarm event on a specific camera, an audio recording will start automatically from the attached camera microphone.

The color of the icon indicates if the Operator can hear the sound from a given microphone, which does not affect recording.

> **Note.**
>
> Synchronous audio playback is possible only along with video playback.
> When video recordings with synchronous audio recordings are copied to the backup archive, these audio recordings are stored with the video recordings if *Axxon PSIM* software package has the corresponding configuration.

Stopping the recording

The operator can stop video recording forcibly in any mode and at any time with the **Stop recording** item from the functions menu of the video surveillance window.



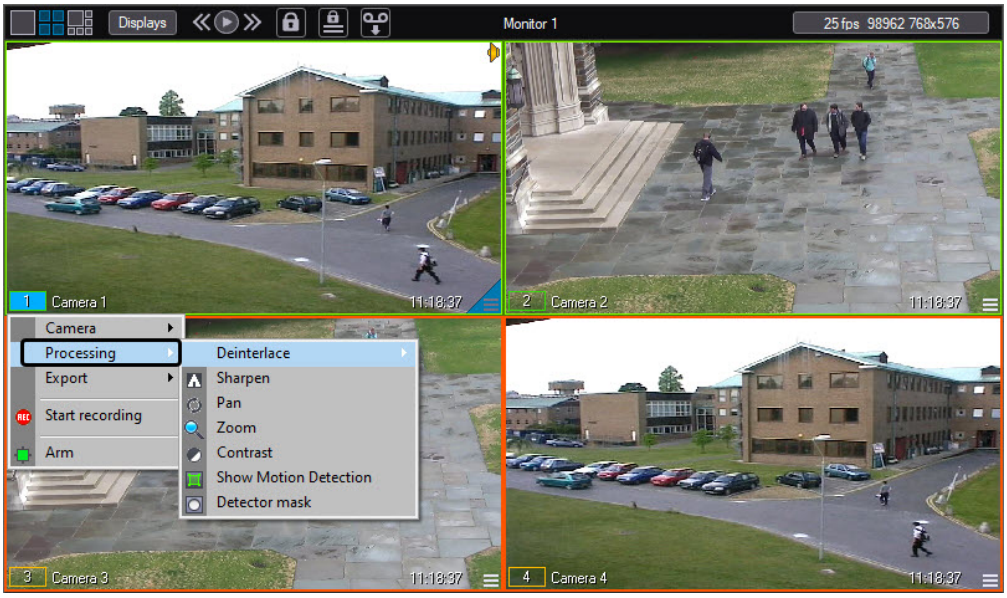
Note.

If recording is not currently activated, the **Start recording** item is displayed instead of the **Stop recording** item.

9.3.9 Image processing

General information on image processing

Image processing options are available through the video surveillance window functions menu: the **Processing** submenu displays options available for a given image.



The same image may be processed by several functions at once. Activated options are outlined in the list of options. To switch the option on, click its name or its icon in the list of options. To switch the option off, click its name or its icon once more.

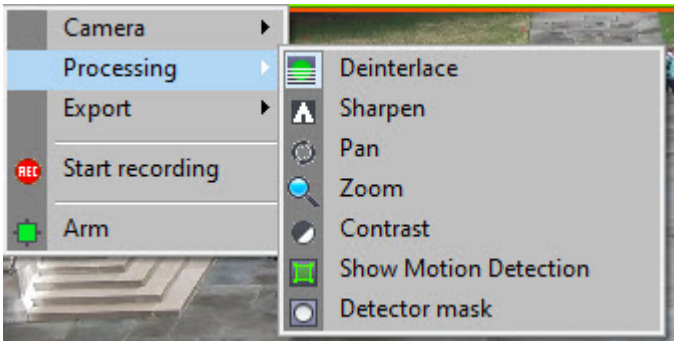
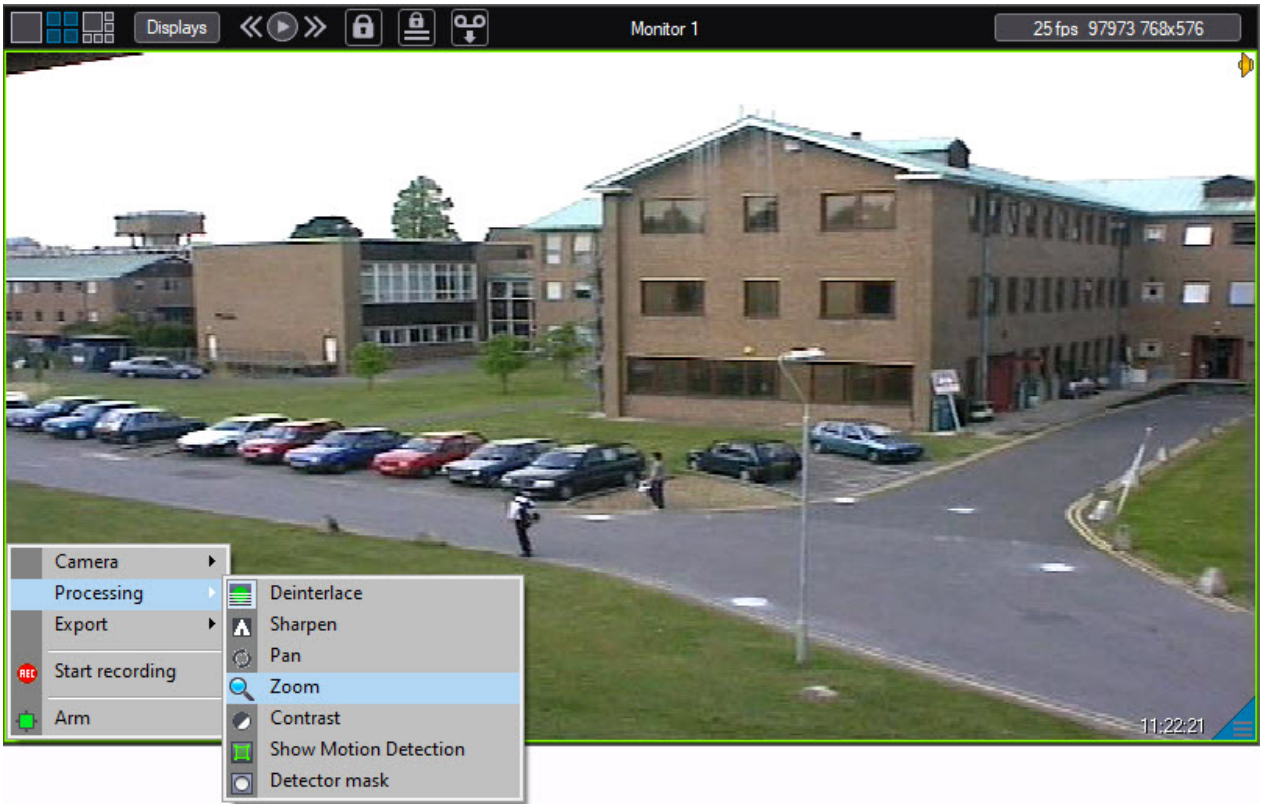


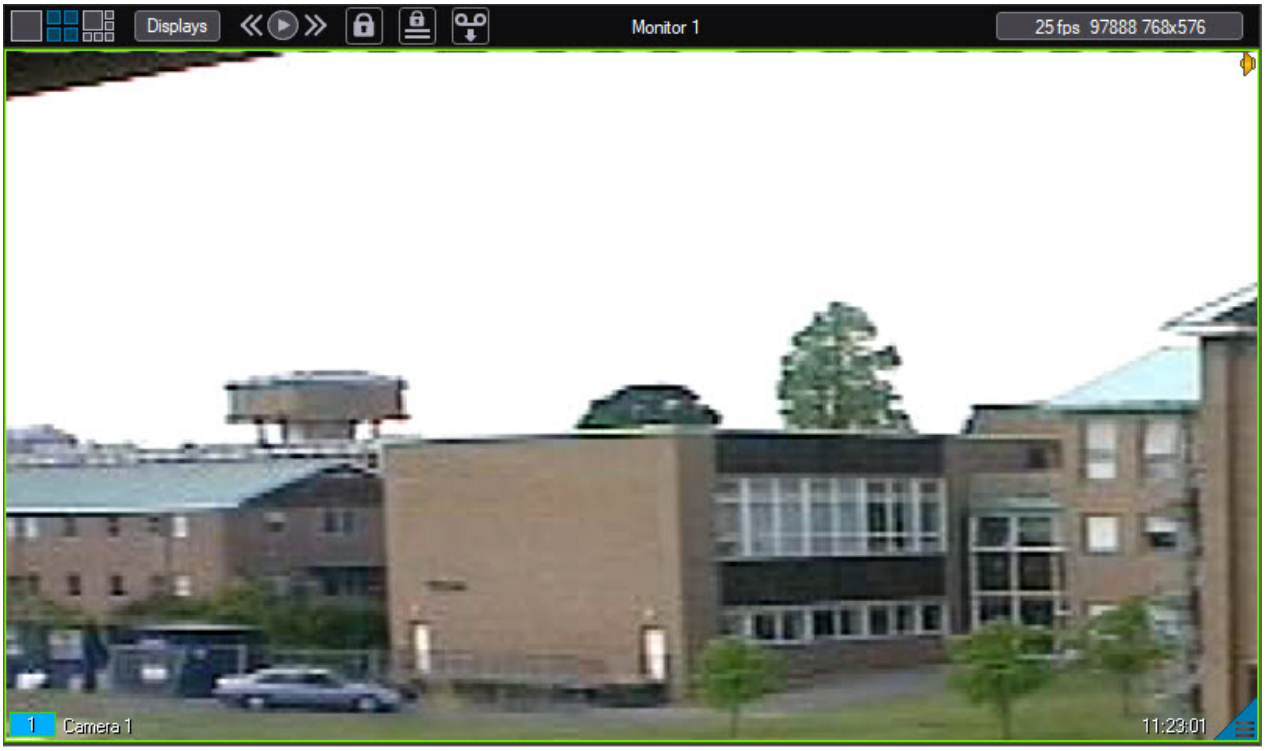
Image scaling

The **Zoom** option allows to scale the image.

Zoom option (original image):



Zoom option (processed image):



Switching on the **Zoom** option magnifies the image by a certain factor. After this, the scale may be gradually increased or reduced by fast left or right clicking on the image. To retract the previous scale value, left click the **Zoom** item again or right click the image.

Mouse wheel action is also supported for zooming convenience (see the Video image scaling in Surveillance window section).

The specified zoom ratio and zoom area of the video image are retained even after restarting the *Axxon PSIM*.

> **Note**
>
> The ability to scale and move the zoom zone can be blocked using the **blocking** registry key (for details, see Registry keys reference guide).

> **Note.**
>
> If the lens type was specified while configuring a camera, then the **Enable fisheye** feature (instead of the **Zoom** feature) is available (see Enabling fisheye).

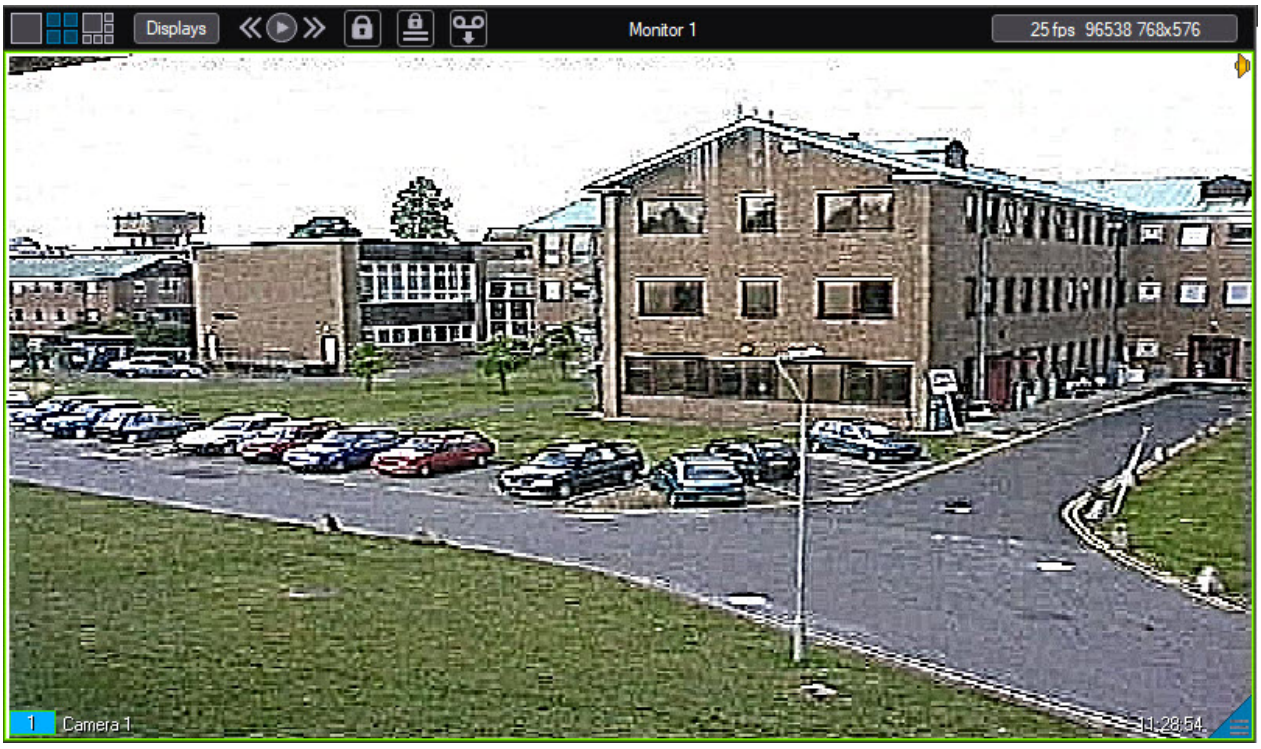
Maximizing the image contrast

The **Contrast** option provides maximum image contrast.

Contrast option (original image):



Contrast option (processed image):



Outlining of moving objects

Software supports real-time dynamic outlining of moving objects via the **Show Motion Detection** option. The figure shows how to use the **Show Motion Detection** option.

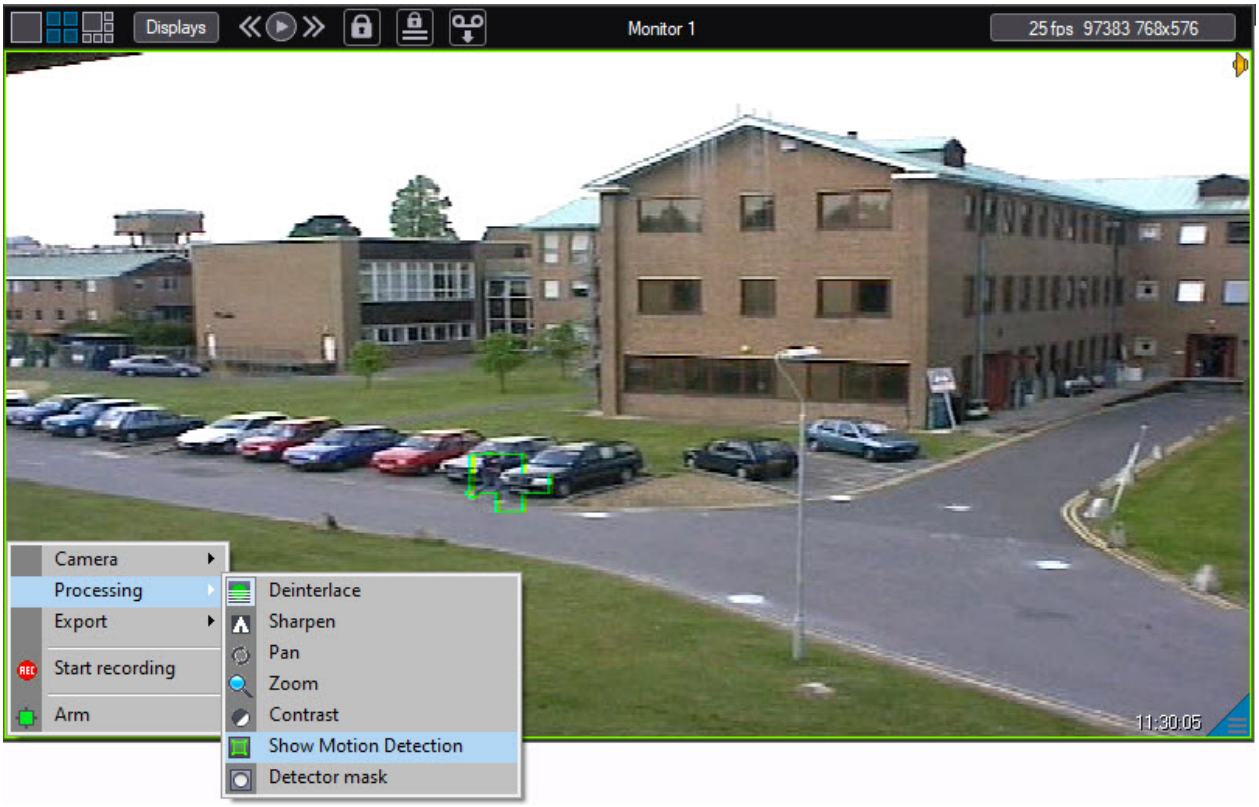
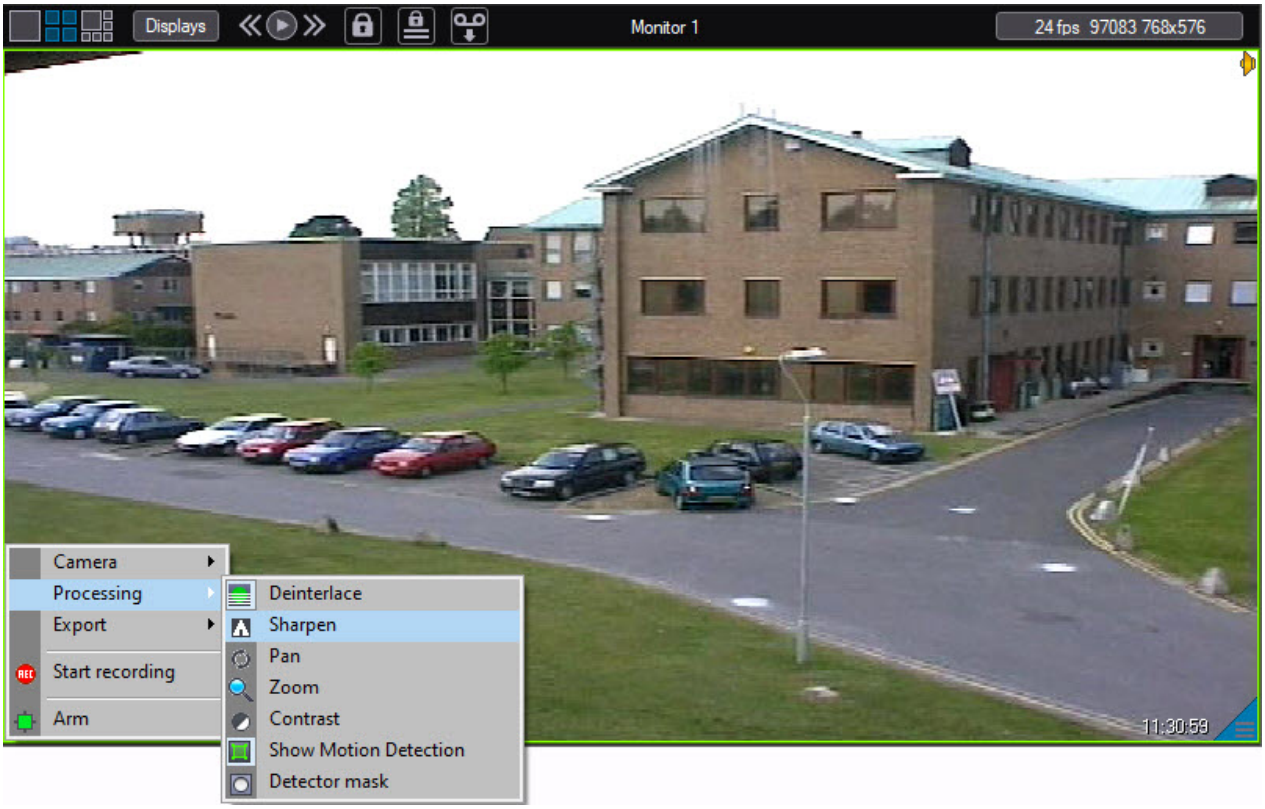


Image sharpening

The **Sharpen** option allows sharpening the whole image.

Sharpen option (original image):

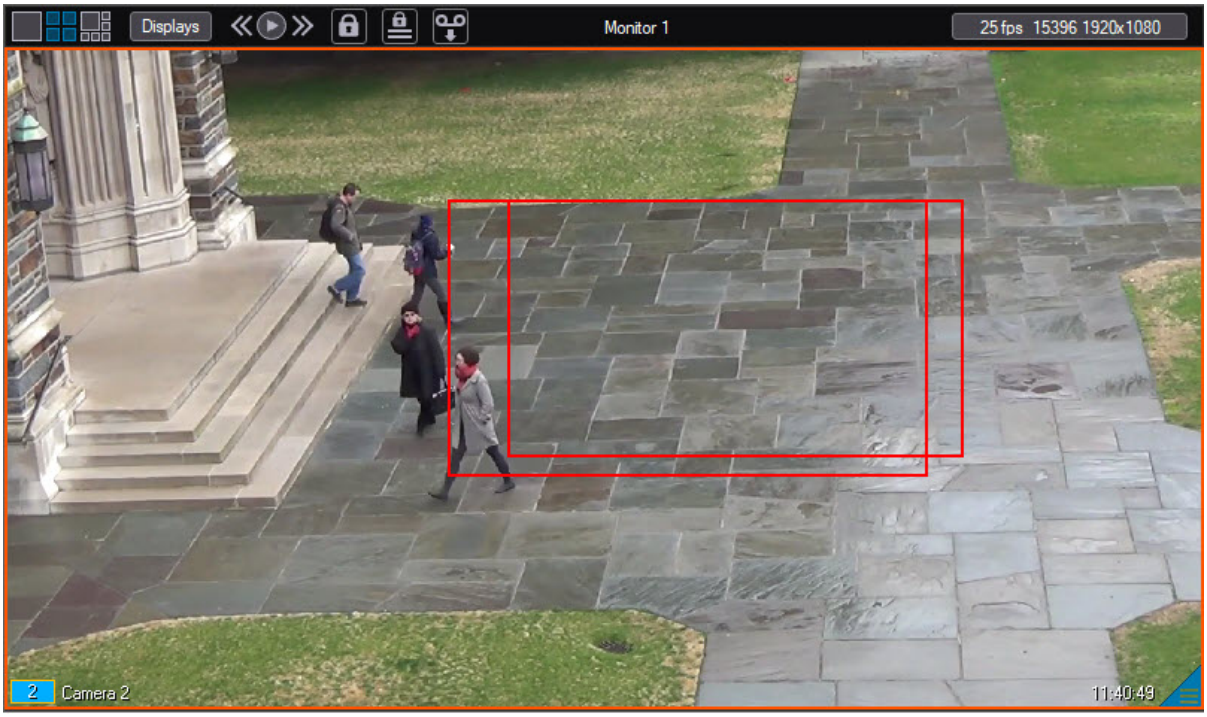


Sharpen option (processed image):

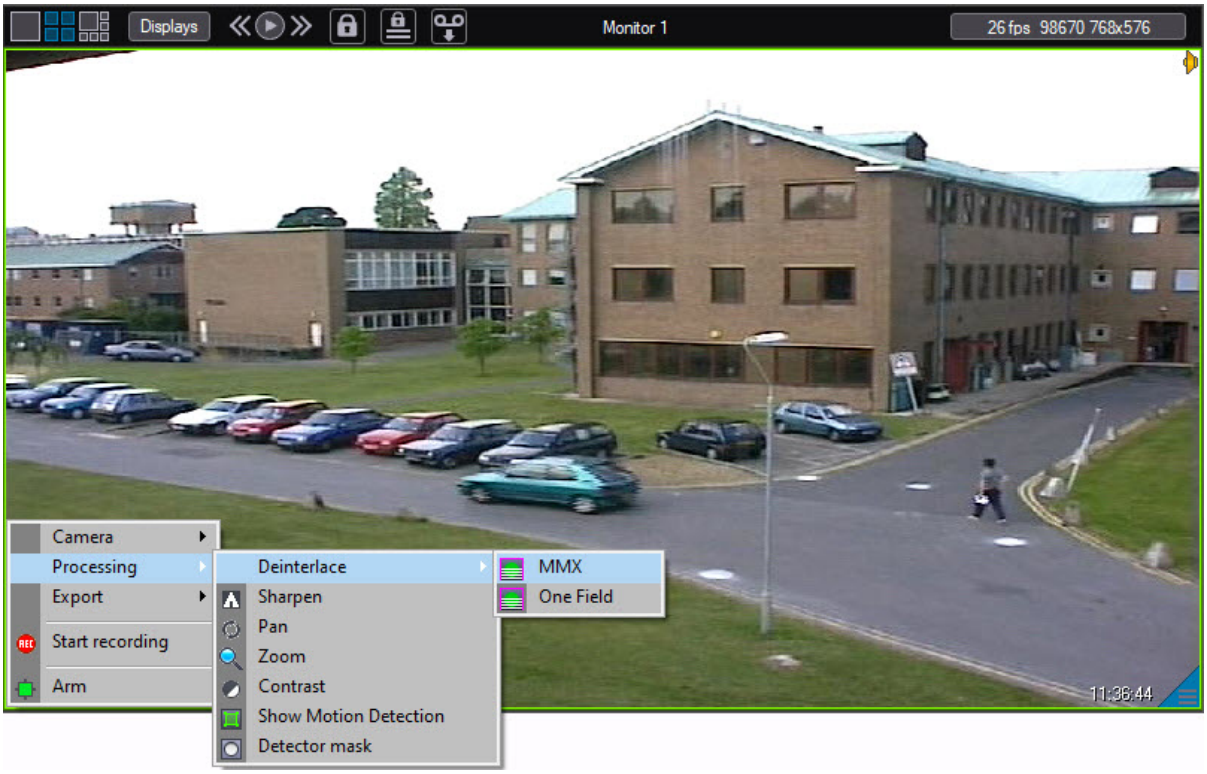


Image de-interlacing

The aim of de-interlacing is to remove image fluttering, which is observed when moving objects are displayed.



Deinterlace has two options: **Deinterlace 1** is used, when an object is moving slowly. If its speed is high, **Deinterlace 2** should be used. **Deinterlace 2** degrades the vertical resolution of the frame. These functions are available via the functions menu of the video surveillance window.



Note.

In some cases, interlace modes are inaccessible (for example, if camera resolution has not been set to "Full" or if the monitor window is relatively small).

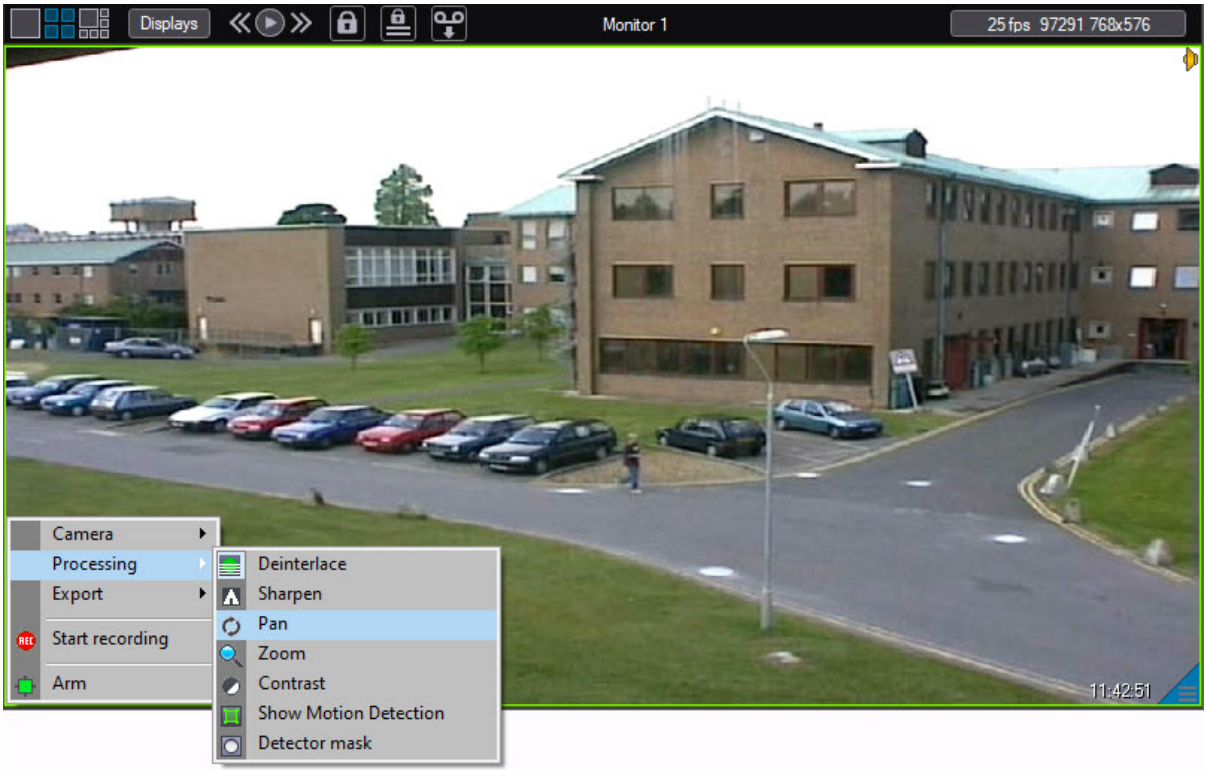
Video image rotation

The **Pan** function allows rotating the video image coming from the video camera on the preset angle – 90, 180 or 270 degrees (the angle is set while the system configuration – see the Configuring a rotation angle of video image section in the Administrator's Guide document). Counterclockwise rotation is performed.

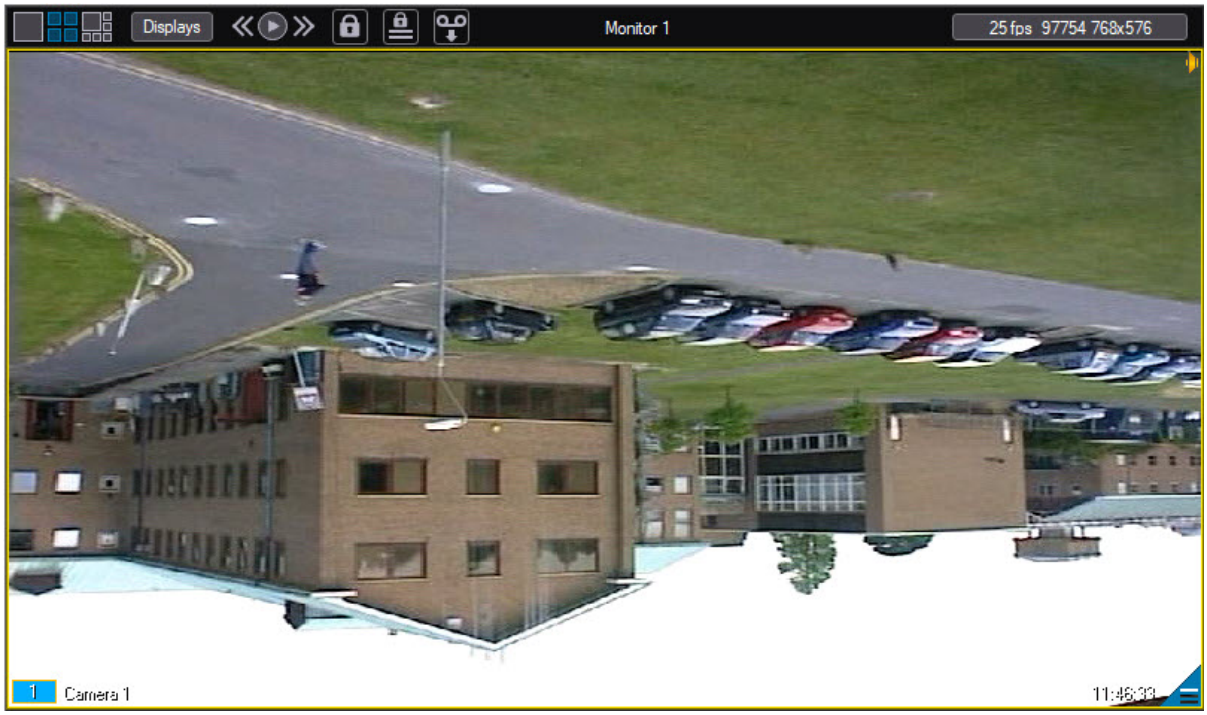
Attention!

The **Pan** item is available in the functional menu of the Video surveillance window regardless of switching on the possibility of video rotation while the system configuration. To use the rotation function activate this possibility – see the Configuring a rotation angle of video image section in the Administrator's Guide document.

Rotation function (the initial state):



Rotation function (video image after applying the function on 180 degrees):



Enabling fisheye

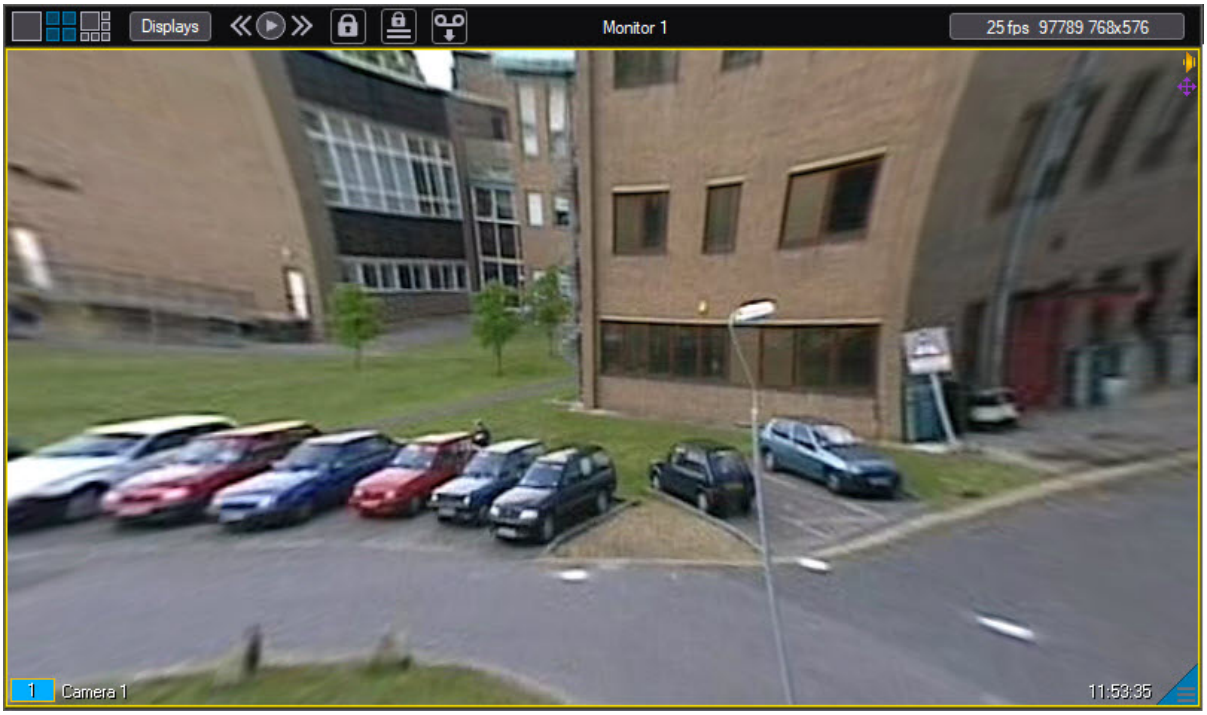
The **Enable fisheye** feature allows enabling conversion of video from camera.

This feature is available if the lens type is specified while configuring the camera (see Configuring fisheye cameras section in the Administrator's Guide).

The **Enable fisheye** (initial video) feature:



The **Enable fisheye** (**PTZ** conversion application result) feature:



9.3.10 Working with the archives

General information on working with archives

Video and audio archives store copies of video and audio recordings created by the *Axxon PSIM* software.

All archives are subdivided into the following types:

1. Main archive - the video server archive;
2. Backup archive – an archive developed with the assistance of the functional module Backup archive.
3. External archive – an archive stored in the embedded storage of the external IP device (NVR video recorder). There is no recording to this archive.
4. Video gate archive – an archive recorded with the Video gate functional module. The video gateway is used to reduce the load on the network when sizeable data flows are transmitted from the video servers to the remote workstations.
   If the video gateway is on, data from the video servers is not transmitted directly to the remote workstations, but through the video gateway, which in turn distributes received data among the workstations. The video gateway cannot function as a Backup archive, unless it is the case where recording should be resumed; if the communication line fails, video recording is resumed from the beginning, instead of from the cut-off point.

The table compares the characteristics of archives and the corresponding functional modules.

Characteristics	**Parameter**			
Archive Type	Main Archive	Backup Archive	External Archive	Video gate archive
Functional module used to create the archive	-	Backup archive	-	Video gate
Source of recording	Recordings made by specified cameras and microphones	Copying of recordings made by specified cameras	-	Video streams requested from Server
Distribution of archived recordings (available types of carriers)	Hard and network disks, removable disks	Hard and network disks, removable disks	Embedded storages of external IP devices	Hard and network disks, removable disks
Tools to access archived recordings	Playback control panel, Axxon_player.exe utility	Panel of Backup archiving, Axxon_player.exe utility	Playback control panel	Playback control panel, Axxon_player.exe utility

Recording modes	End-around (i.e., recording starts from the beginning, erasing all previous recordings, when there is no more free space left on the carrier), rerecording of archive data from the very first recordings is carried out	End-around (i.e., recording starts from the beginning, erasing all previous recordings, when there is no more free space left on the carrier), rerecording of archive data from the very first recordings is carried out	-	End-around (i.e., recording starts from the beginning, erasing all previous recordings, when there is no more free space left on the carrier), rerecording of archive data from the very first recordings is carried out
Saving sound (synchro audio recordings) together with audio recordings in the archive	Available	Available	-	Available
Recording term	Continuous recording	Continuous recording Recording during pre-set intervals	-	Constant recording Active cameras recording
Recording settings	FPS (number of frames per second), resolution, codec, key frame rate, video quality (set when configuring multistreaming – see Configuration of multistream video section of the Administrator's Guide).	FPS (number of frames per second), bit rate (data volume per second)	-	FPS (number of frames per second), resolution, codec, key frame rate, video quality (set when configuring multistreaming – see Configuration of multistream video section of the Administrator's Guide).
Selection of cameras for recording	Not available	Available	-	Available

Archive browsing modes

To work with the required archive, it is necessary to switch to its playback mode.

> **Note**
>
> Exiting the archive view mode if idle depends on the **restoremode** key (see Registry keys reference guide).

Server archive playback

To start main server archive playback, click  in the bottom right corner of the Web server surveillance monitor.



Note.

Where the surveillance window is not big enough, the  icon may sometimes not be displayed. In this case, the surveillance window should be enlarged.

The playback control panel will be displayed, which will contain recordings of the main video server archive.



Note.

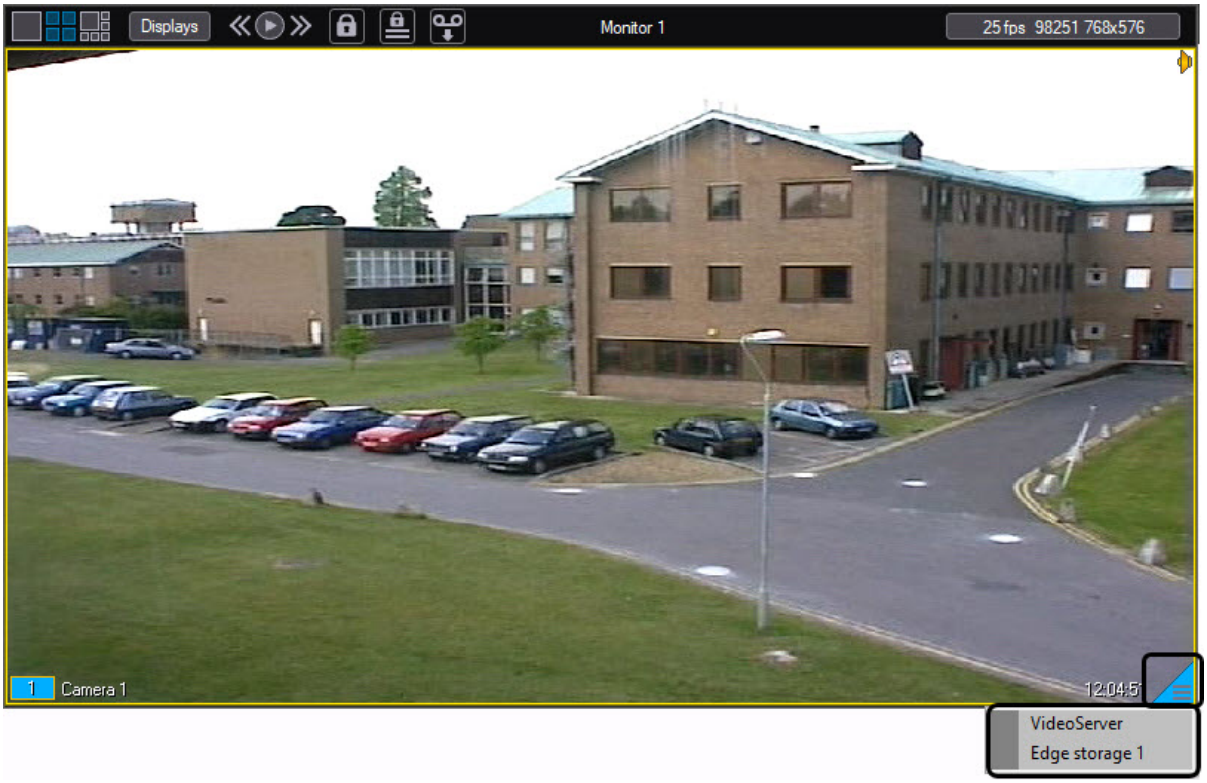
If Video Gateway was selected for the camera when adding it to the Monitor, the Video Gateway archive opens after the above procedure (see Video gateway archive playback).

Backup Archive Playback

To start playback of the backup archive, generated by the Backup archive functional module, the following steps are required:

1. point the mouse cursor at the  icon in the surveillance window of the appropriate camera;
2. press and hold the left mouse button for a few seconds.

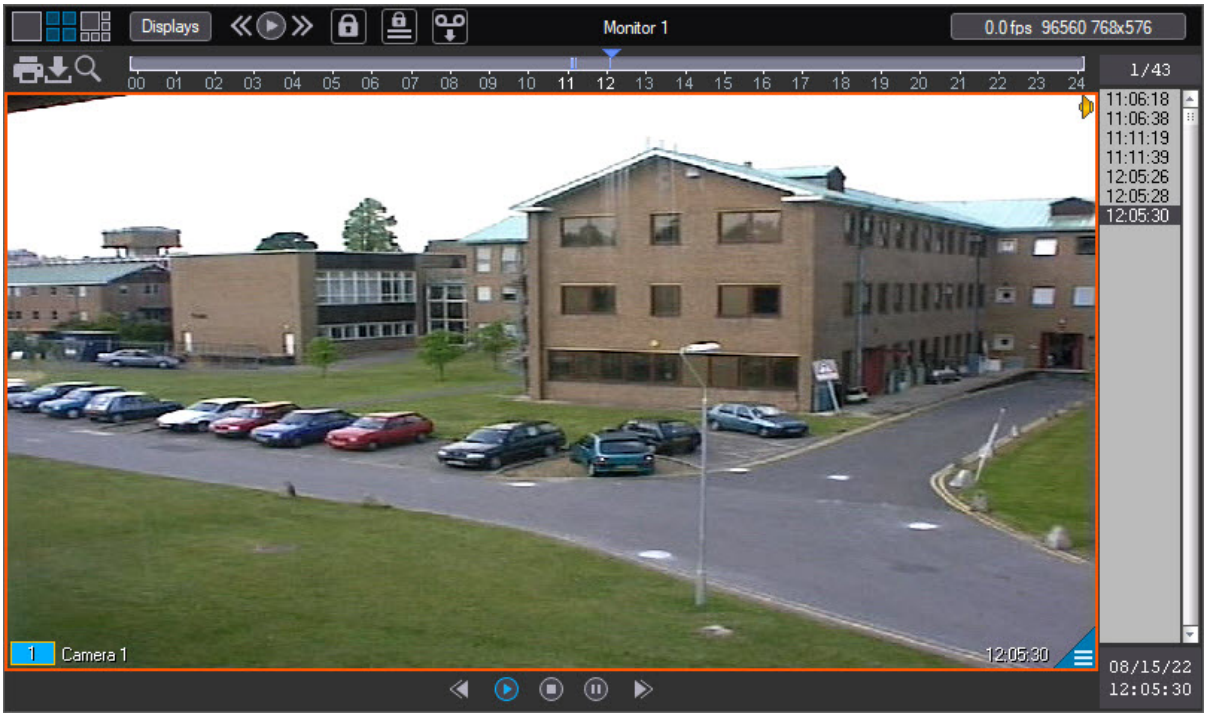
Then the context menu will be displayed.



Note.

Where the surveillance window is not big enough, the icon may sometimes not be displayed. In this case, the surveillance window should be enlarged. Also, certain program settings disable displaying the pop-up context menu. In this case, the program switches to the playback control panel of the main, instead of the backup archive.

Select **Archiver** in the displayed context menu. The playback control panel will be displayed, which will contain recordings of the backup video server archive.

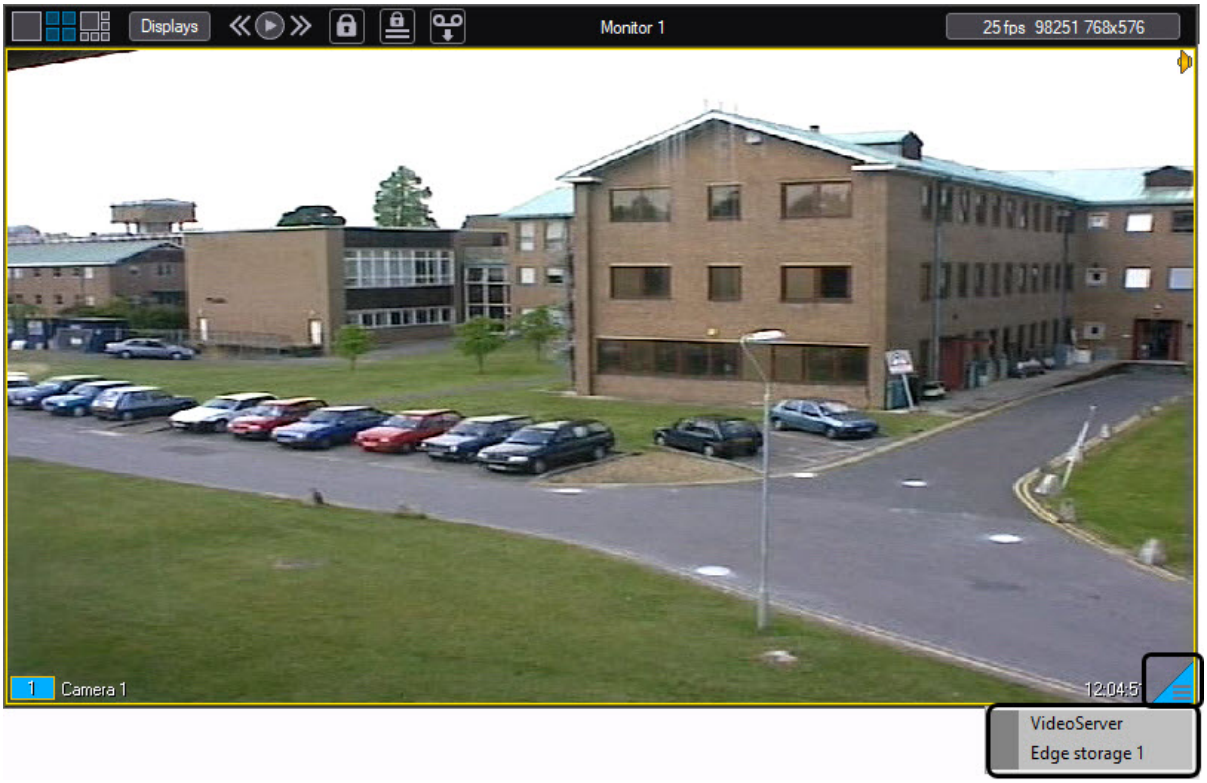


Edge storage playback

Access to the edge storage archive is performed via the Viewing tile. In order to enter the edge storage playback mode, do the following:

1. Drag the mouse pointer to the  icon in the Viewing tile corresponding to the required camera;
2. Click and hold for several second left mouse button.

The context menu is displayed.



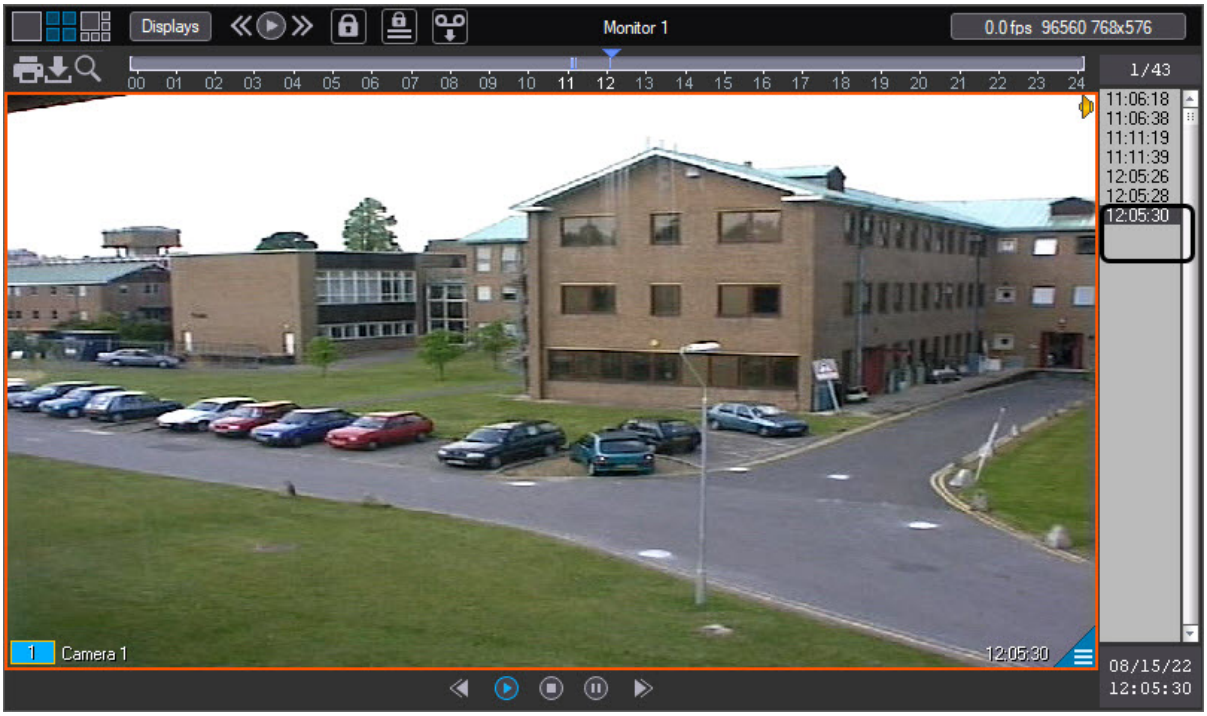
Note.

As the Viewing tile is of a small size, the  icon can be not displayed. In this case, the Viewing tile is to be enlarged.

In the context menu, select in the **Edge storage** item. The playback control panel with edge storage recordings is displayed.



Searching for recordings for the latest day is performed when entering the archive. Searching for recordings for the latest month is performed when going to the calendar. The range of dates for which the searching is performed is displayed in the first line of the list of recordings.



Playback is restarted at each edge storage archive entering.

Important!

The edge storage archive cannot be viewed while it is synchronized with *Axxon PSIM* file system (import). Information on how to configure import from edge storages is given in Administrator's Guide.

Video gateway archive playback

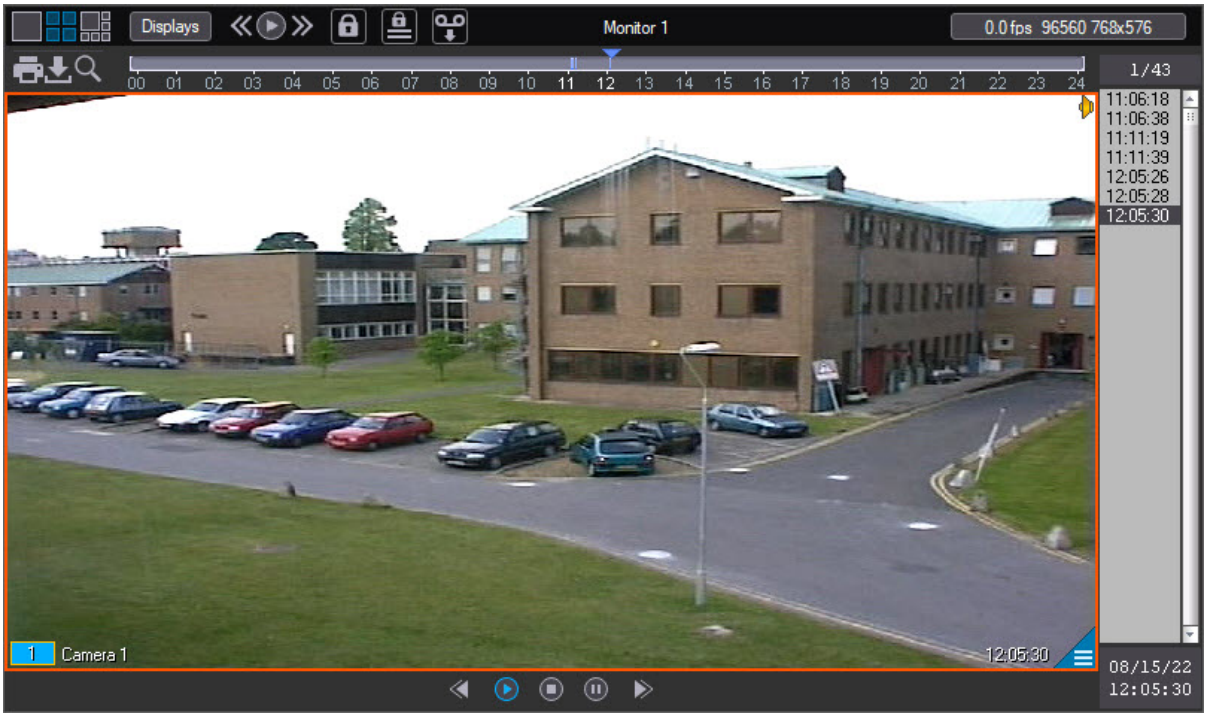
If Video Gateway was selected for the camera when adding it to the Monitor (see Selecting and configuring video cameras), the Video Gateway archive opens by default. The video gateway archive can be accessed via the surveillance window. To start video gateway archive playback, click  in the bottom right corner of the surveillance window.



Note.

Where the surveillance window is not big enough, the  icon may sometimes not be displayed. In this case, the surveillance window should be enlarged.

The playback control panel will be displayed, which will contain recordings of the video gateway archive.



Note.

If Video gateway was not enabled for the video camera displayed in the Video Surveillance Window, then the Server archive is displayed after the above procedure – see Server archive playback.

To open the Server archive instead of the Video Gateway archive, click and hold the  button.

If the camera has Backup archive (see Backup Archive Playback) configured in addition to the Server and Video gate archive, then the main server archive can be accessed through the following steps:

1. Point the mouse cursor at the  icon in the surveillance window of the appropriate camera.

2. Press and hold the left mouse button for a few seconds, until the context menu is displayed.



3. Select **Video Server** in the context menu and the playback control panel, which contains the main video server archive recordings, will be displayed.

Archive browsing

If the archive is created in the time zone different from time zone on which the archive is viewed, it is required to move the archive to the current time zone using the convert.exe utility before the viewing. Otherwise, some problems can occur when positioning on archive fragment. Working with this utility is described in the The Convert.exe utility for correcting modification dates of video archives section of the Administrator's Guide document.

To move archive to the required time zone, run the utility from command line with the following parameters:

convert.exe fullmode TZ +hh:mm

where +hh:mm – the time shift between the current time zone and zone in which archive is recorded.

Archive navigation using the timeline

You can navigate through the archive using the timeline (from 0 to 24 hours) shown in the figure.



Blue intervals correspond to the periods of recording, grey intervals show that no recordings were made.

If there are recordings for a certain hour in the archive, this hour is marked white (for example, the screenshot above indicates there are recordings for 13 and 14 hours). If there are no recordings, the hour is marked grey. When you left-click the hour for which there are recordings, the timeline displays the recordings for this hour and allows navigating by the minutes of the selected hour (from 0 to 60).



Right-click the timeline to return to the display of recordings from 0 to 24 hours.

All bookmarks created on all days are also displayed on the timeline. The color of the bookmarked time interval is selected when the bookmark is created. When you hover over the bookmarked time interval, the name of the bookmark (the comment entered when the bookmark was created) is displayed.



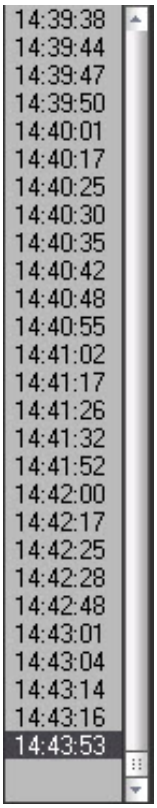
Note

See Create a bookmark and List of bookmarks.

When you click the timeline, you set the current playback position corresponding to the selected recording segment. For the smooth navigation through the archive recordings, move the cursor horizontally along the timeline holding down the left mouse button.

Video sequence browsing

In addition to navigating through the archive using the timeline, you can also navigate through the list of video fragments located in the timestamps column.



To switch over to the required video fragment, click on the corresponding timestamp.

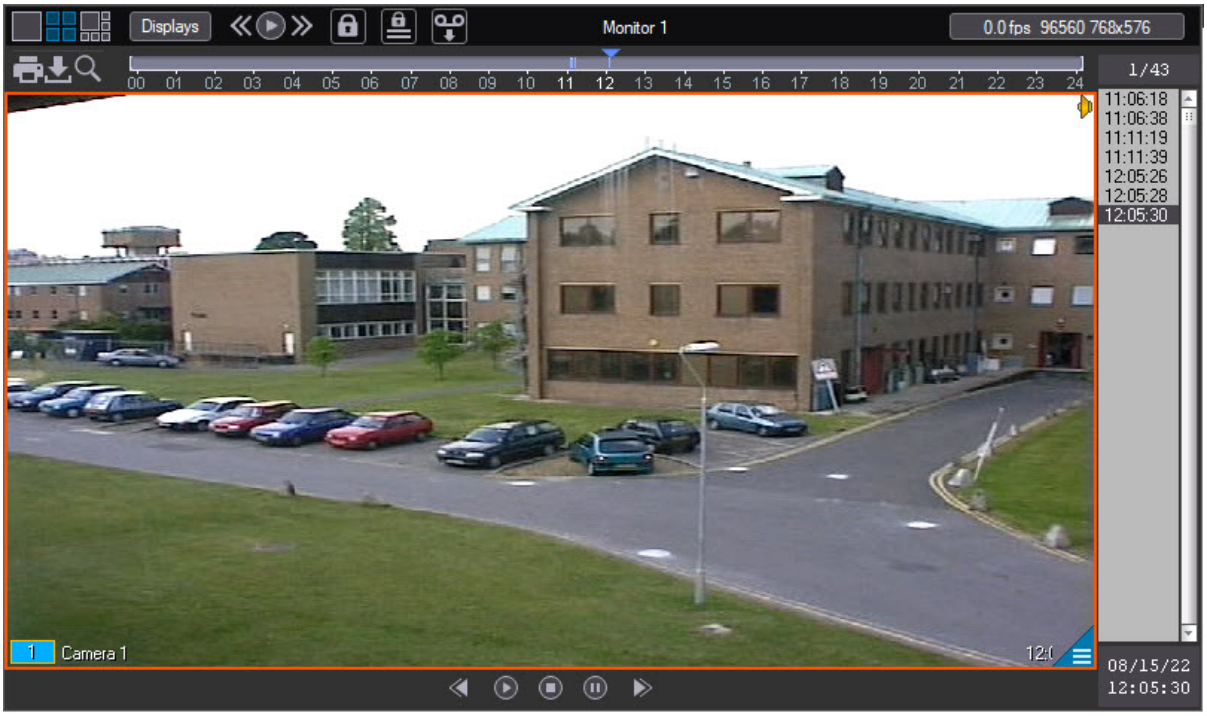
To scroll the list of videos up/down, left-click on the list of videos and scroll the mouse wheel. Instead of a mouse, you can use the navigation keys on the keyboard: ↑, ↓, ←, →.

> **Note**
>
> If you then left-click on the video image, the mouse wheel will again perform the function of scaling the video image.

Fragment search by the date and time of creation

Apart from time scale browsing, the playback control panel also allows searching for certain recording fragments by the exact date and time.

The time table displayed in the bottom left corner of the panel is designed for the above search.



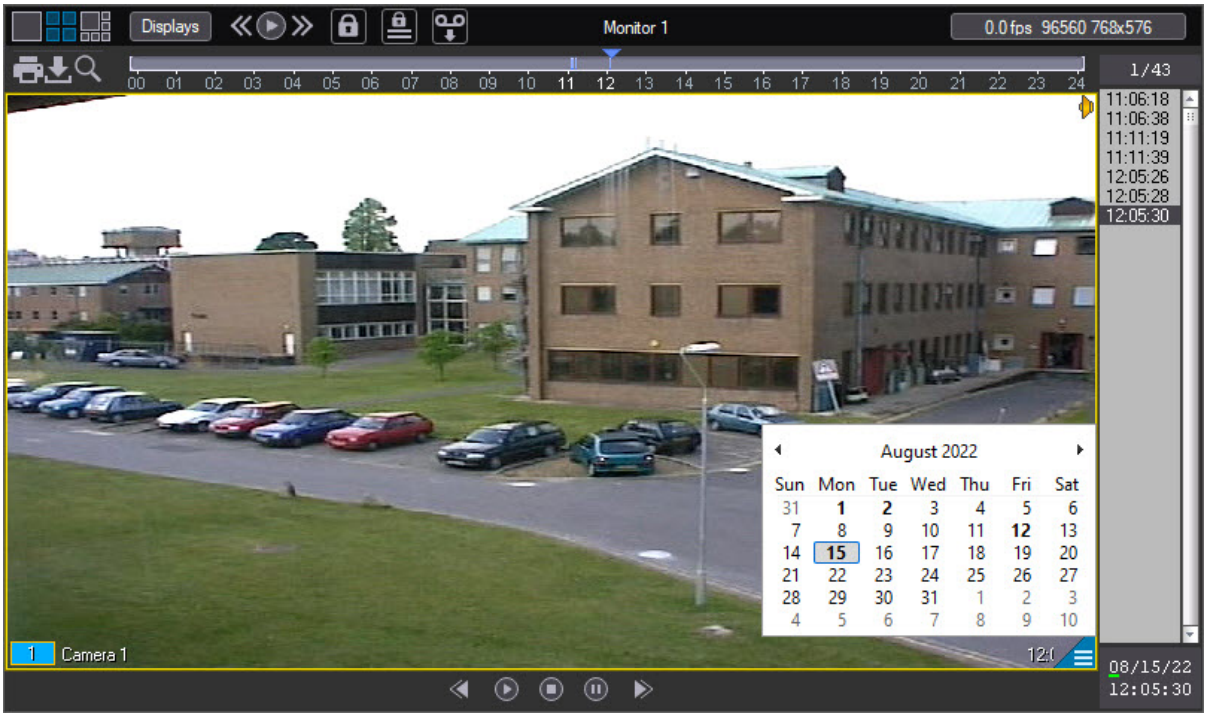
The upper part of the table shows the date, whereas the current playback position is shown in the bottom part.

To start the search, enter the date and time in the table. Double-click the date and time line and a green cursor will appear.



Now, using the keyboard, enter the required time of the recording.

If you double-click on the date, you will see not only the green cursor, but also a calendar to assist you visually in the selection of the required recording date.



Bold font in the calendar indicates the dates of the recordings. If there are any records for any days in the archive, but their viewing is forbidden by user rights, then such days are not marked in bold (see Permissions for working with archives section in Administrator's Guide).

Note.

Working with interface Windows Aero of OS Windows Vista, dates of the recordings are not bolded.

Having entered the date and time, press **Enter** to switch over to the required recording. If the recording with the requested date and time does not exist, the program will switch over to the recording with the nearest time of recording.

Note.

In case when the access restriction to the video archive play back is set (see Access restriction to the video (and audio) archives section in the Administrator's Guide document), the switch will be performed only among the available recordings in the displayed list of all the recordings.

Smart search in the archive

Smart search in the archive is a search in the video camera archive taking into account the trajectories of objects registered by the **Tracker** object and stored in the trajectory database.

The *Axxon PSIM* software supports the following smart search types:

1. Search by motion in the area
2. Search by moving from one area to another – see Search by motion in the area
3. Search by line crossing

An additional search condition – the color of the searched object – can be set for any of those smart search types, see Search by colour.

In order to use the smart search in the archive, configure the following:

1. Create the **VMDA metadata storage** and the **Tracker** objects for the camera that is used for searching in *Axxon PSIM* software package (see Configuring smart video detection tools).
2. Select the **VMDA metadata storage** for the corresponding camera on the **Monitor** object settings panel (see Selecting and configuring video cameras).

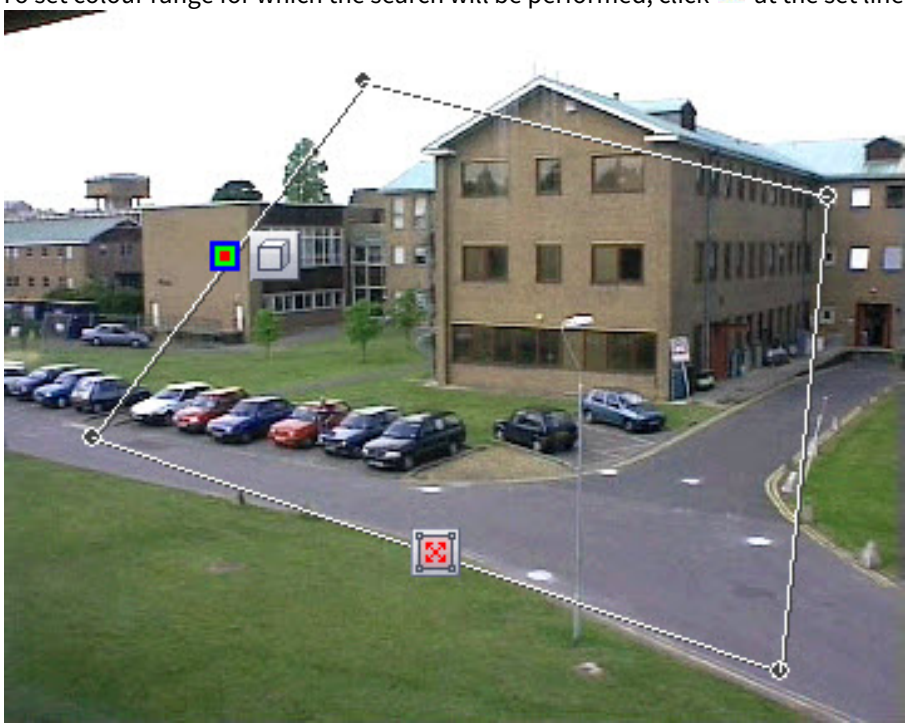
Search by colour

Search by colour is performed within the limits of search by line crossing or search by motion in the area.

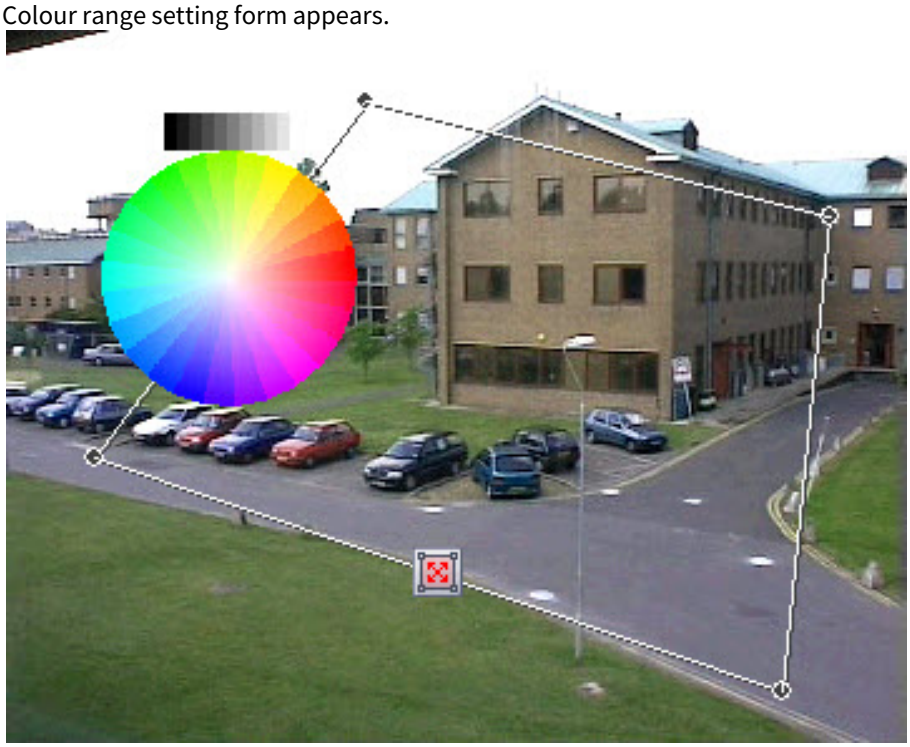
> **Note.**
>
> Colour range setting is a part of search by line crossing or search by motion parameters setting.

To search by colour do the following:

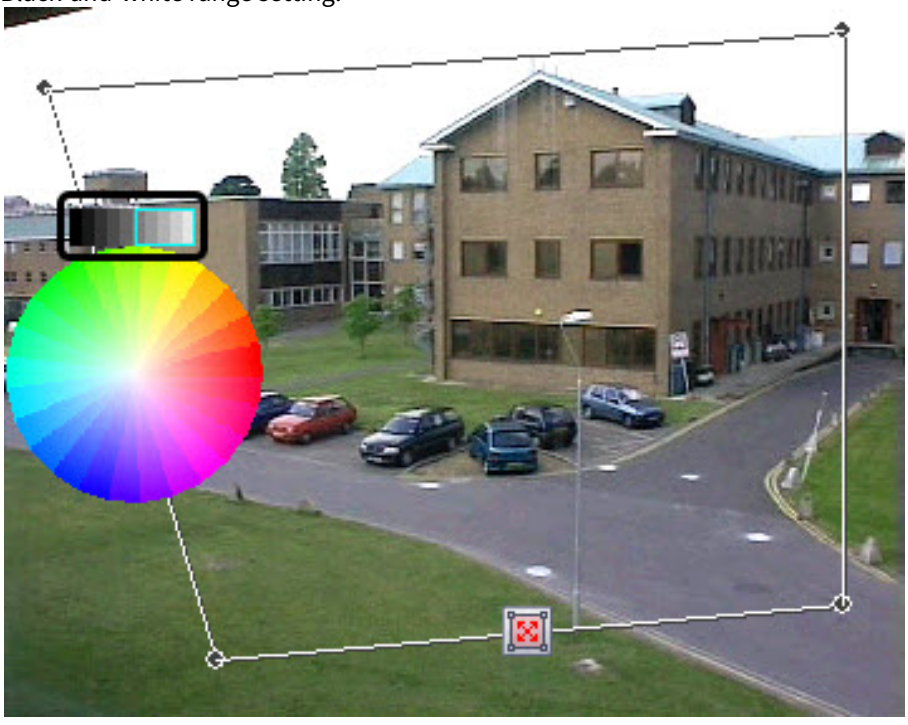
1. Select the type of search (search by line crossing or search by motion in the area).
2. Search by selected type (see Search by line crossing, Search by motion in the area parts).
3. To set colour range for which the search will be performed, click at the set line or area.



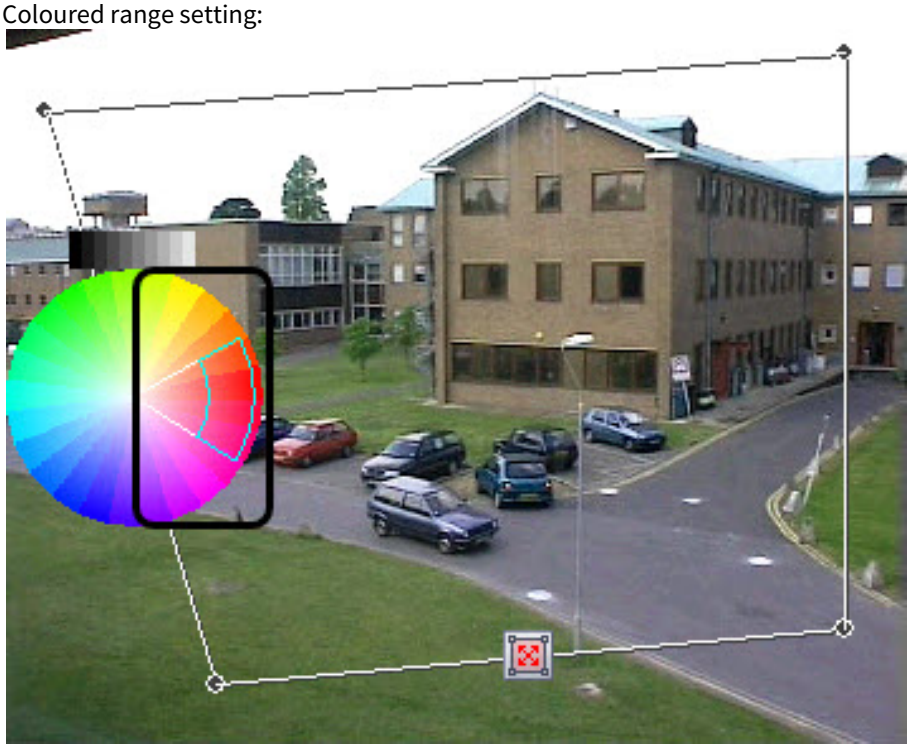
Colour range setting form appears.



4. Select colour range for search. Hover cursor over supposed range beginning (coloured or black-and-white) and pressing the left mouse button go till final colour in the circle.
Black-and-white range setting:



Coloured range setting:



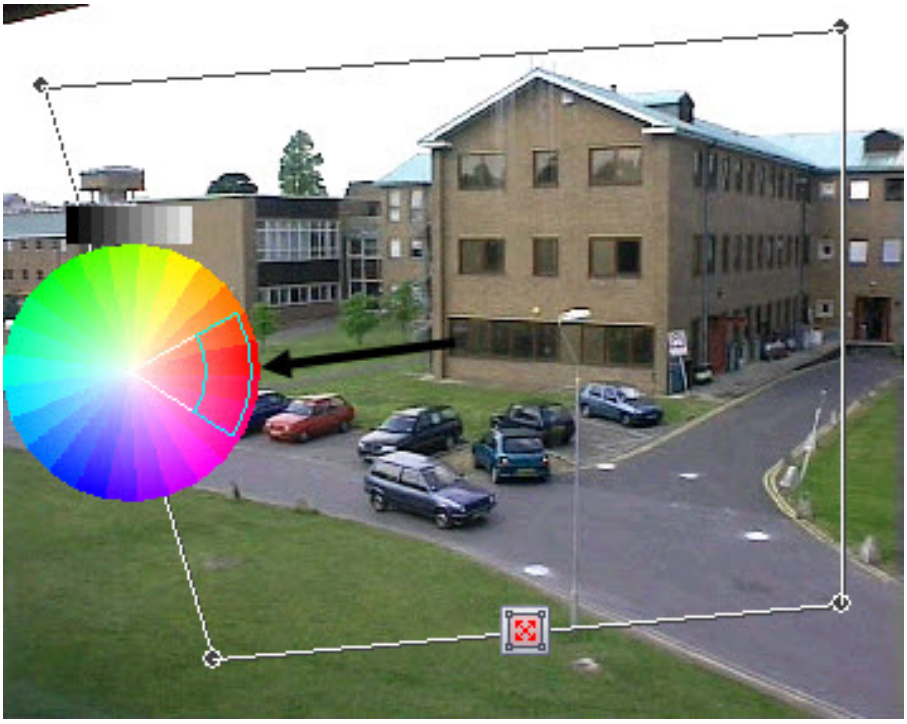
5. The Color range setting form will be automatically hidden after specifying the color range for search. To discard the specified color values open the form again (using the button) and click the right mouse button on it. The search will be performed without taking into account the color of moving object after discarding the color values.

Note.

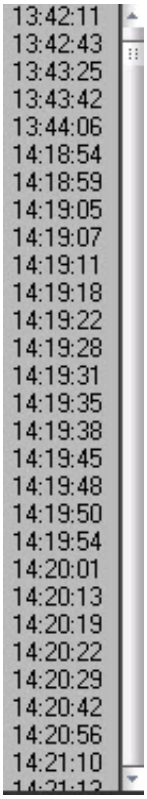
In case of clicking the left mouse button at one colour in spectrum, the search will be performed for adjacent (selected colour is specified by the arrow at the figure below).

Note.

For the search to be more effective not a specific colour (according to illumination conditions and other surroundings parameters) but a colour range is set. The search checks whether the object is coloured into the colour from colour1-colour2 range. If there is a yes-answer this video recording will be displayed in search results.



As a result, the search selects the video recordings that correspond to parameters of selected search (search by line crossing or search by motion in the area) and the video recordings in which the moving object contains at least one colour from the colour range. Search results are displayed in timestamps column.



Search by line crossing

It's possible to search the video recording by line crossing from the functional menu of Video archive window.

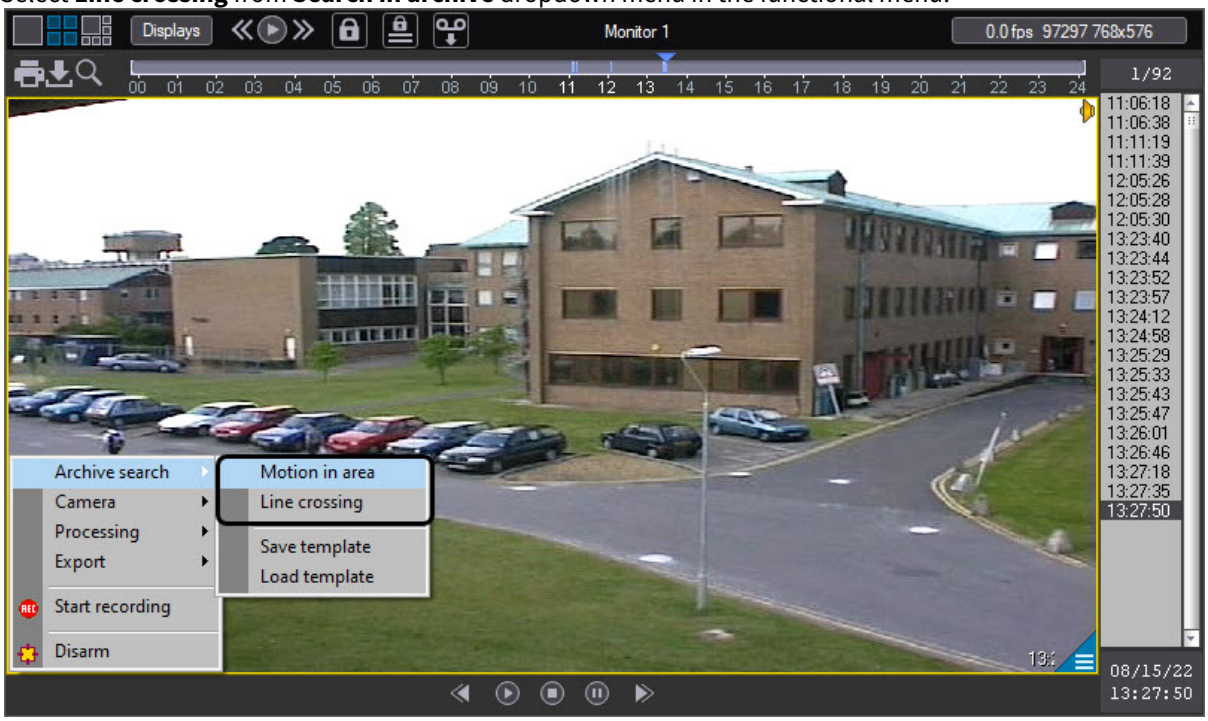
> **Note.**
>
> Search by line crossing is possible only when:
> 1. **VMDA metadata storage** and the **Tracker** objects are created for the camera that is used for searching in *Axxon PSIM* software package (see Configuring smart video detection tools); and
> 2. **VMDA metadata storage** is selected for the corresponding camera on the **Monitor** object settings panel (see Selecting and configuring video cameras).

Search by line crossing runs only on a given day.

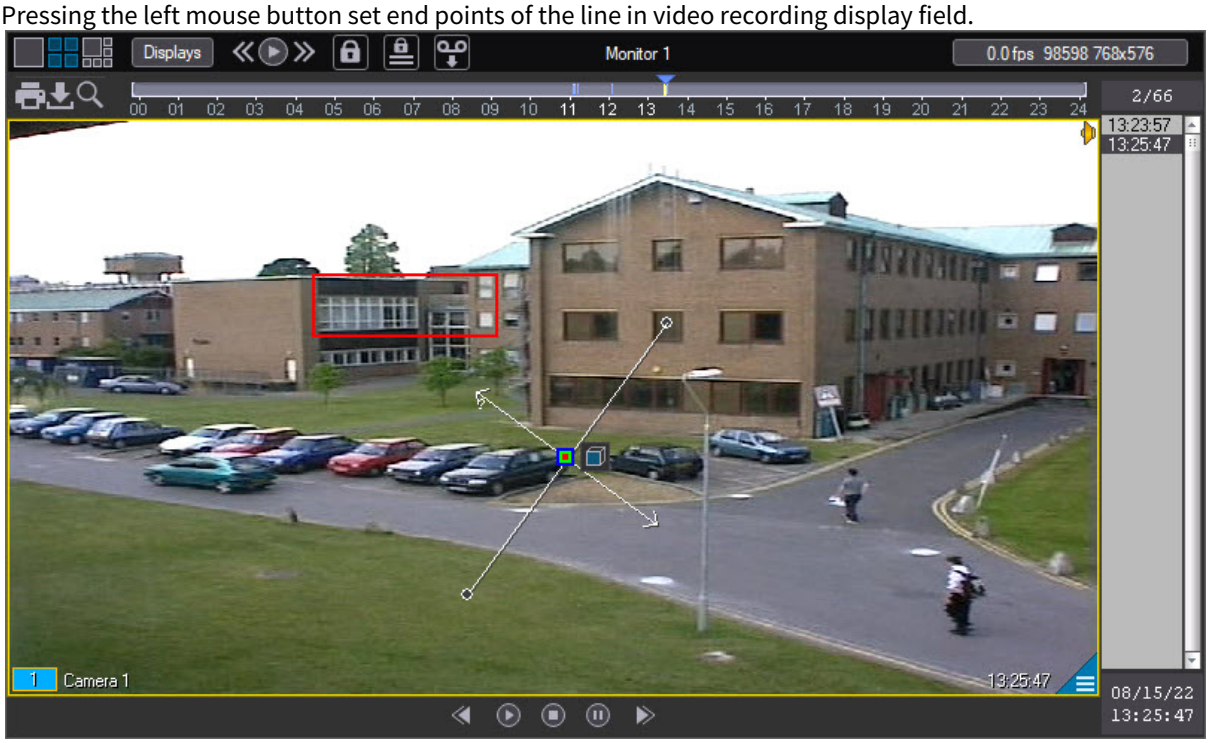
> **Note.**
>
> How to set a date is described in Fragment search by the date and time of creation section.

To search by line crossing, do the following:

1. Select **Line crossing** from **Search in archive** dropdown menu in the functional menu.



2. Pressing the left mouse button set end points of the line in video recording display field.



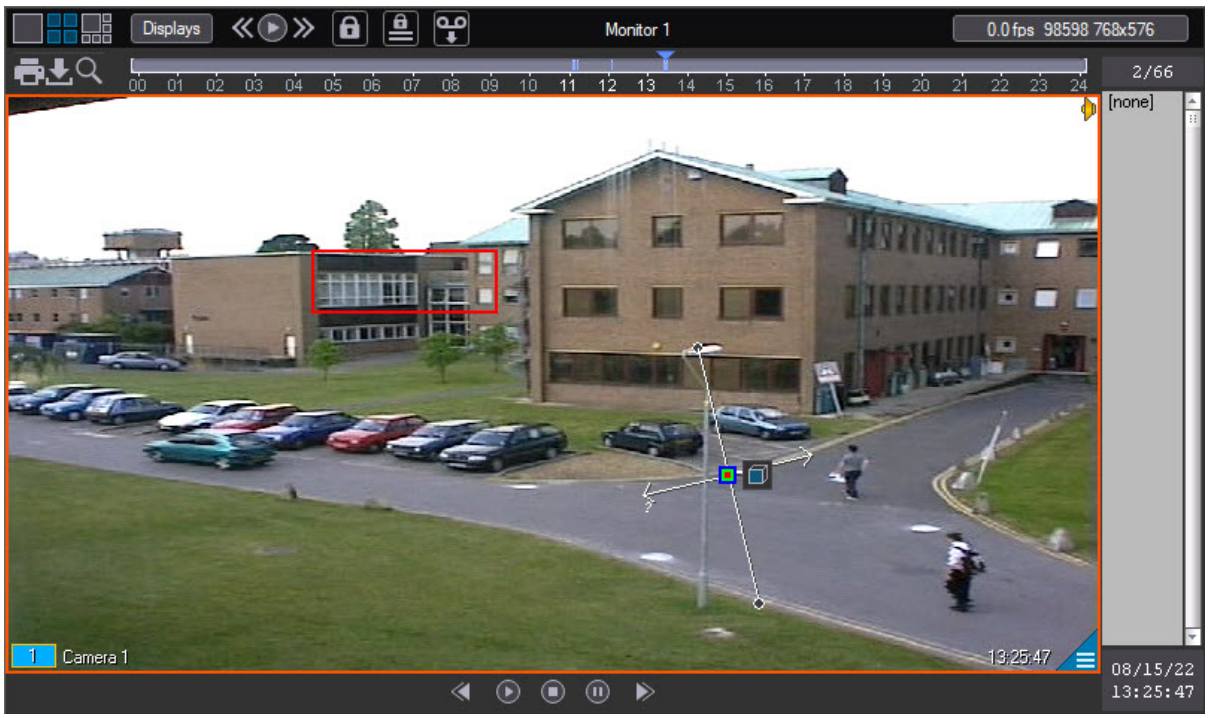
3. Do all necessary operations with the line. Operations with the line are performed in the table.

Operation	Operation result
Press the left mouse button in video surveillance window	End point of the line creating
Hover cursor over the end point and pressing the left mouse button shift the mouse	End point of the line shift
Hover cursor over the end point and click the right mouse button	Line deleting

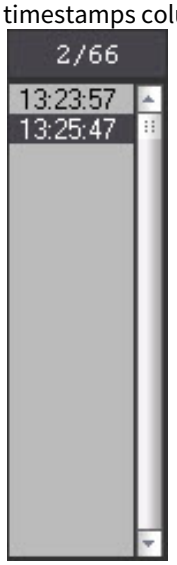
4. To select the type of the object that was crossing the set line it's necessary to click . Available types of the object are performed below.
   a. Any object. Search will give out the video recordings in which line is crossed by any object
   b. Human being. Search will give out the video recordings in which line is crossed by an object which width is less than height.
   c. Car. Search will give out the video recordings in which line is crossed by an object which width is greater than height.
5. By default, the search is set to find line crossings in both directions. Click the left mouse button to one of arrows to exclude crossings in one of the directions. De-selected arrow becomes gray.
   Approximate speed of objects which are to be found is displayed close to arrow. At minimal and maximal value of speed the "?" sign will display, and only records containing line crossing regardless of speed will be searched for. It is possible to change value of speed by changing arrow length moving arrowhead with pressed left mouse button.

Note.

Arrow has minimal length while adding.



As a result, the search selects the video recordings by given parameters. Search results are displayed in timestamps column.



Search by line crossing can be canceled at any time by pressing the **Esc** button on the keyboard. In this case, no search results are displayed, and the text **[none]** is displayed in the list of video fragments. After the search is completed, pressing the **Esc** key clears the list of search results, and exits the search by line crossing mode.

Note.

Setting the traffic direction of the object by VMDA detector depends strongly on **Tracker** object settings (see Administrator's Guide manual). With bad settings the traffic direction can be determined incorrectly and, consequently, results can be wrong while searching in line crossing archive. The settings of **Tracker** object should be used experimentally for every case.

Search by motion in the area

It's possible to search the video recording by motion in the area from the functional menu of Video archive window.

Note.

Search by motion in the area is possible only when:

1. **VMDA metadata storage** and the **Tracker** objects are created for the camera that is used for searching in *Axxon PSIM* software package (see Configuring smart video detection tools); and
2. **VMDA metadata storage** is selected for the corresponding camera on the **Monitor** object settings panel (see Selecting and configuring video cameras).

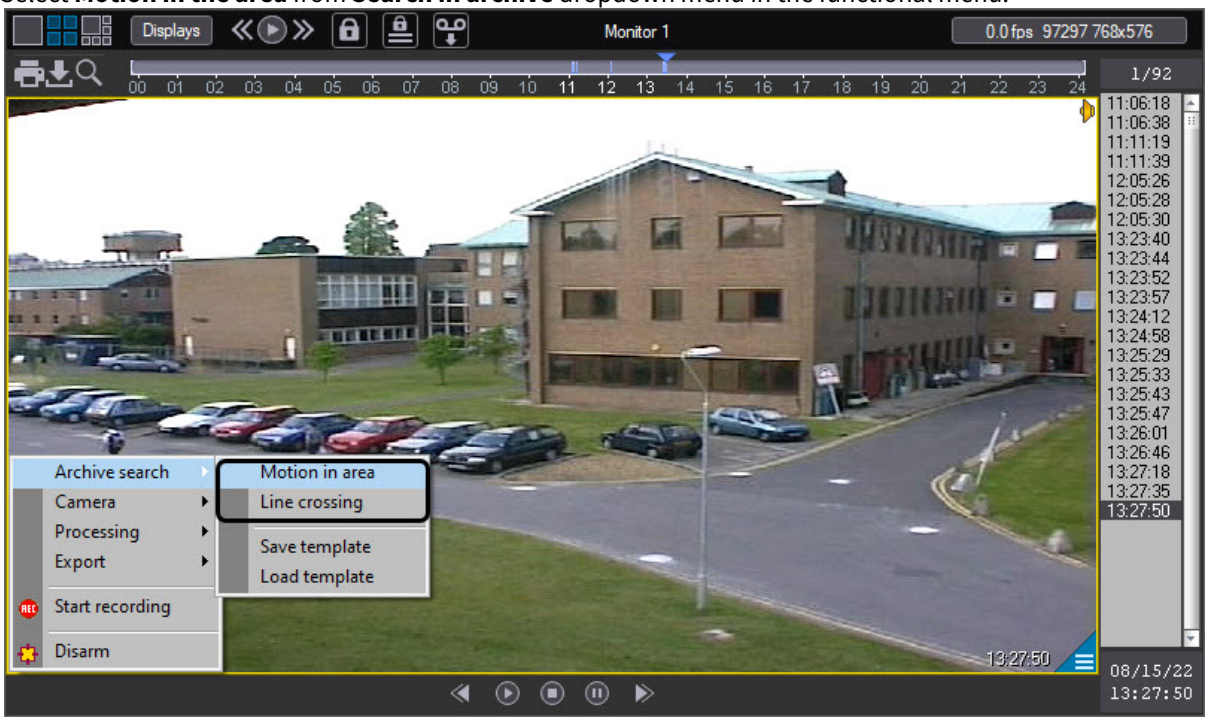
Search by motion in the area runs only on a given day.

Note.

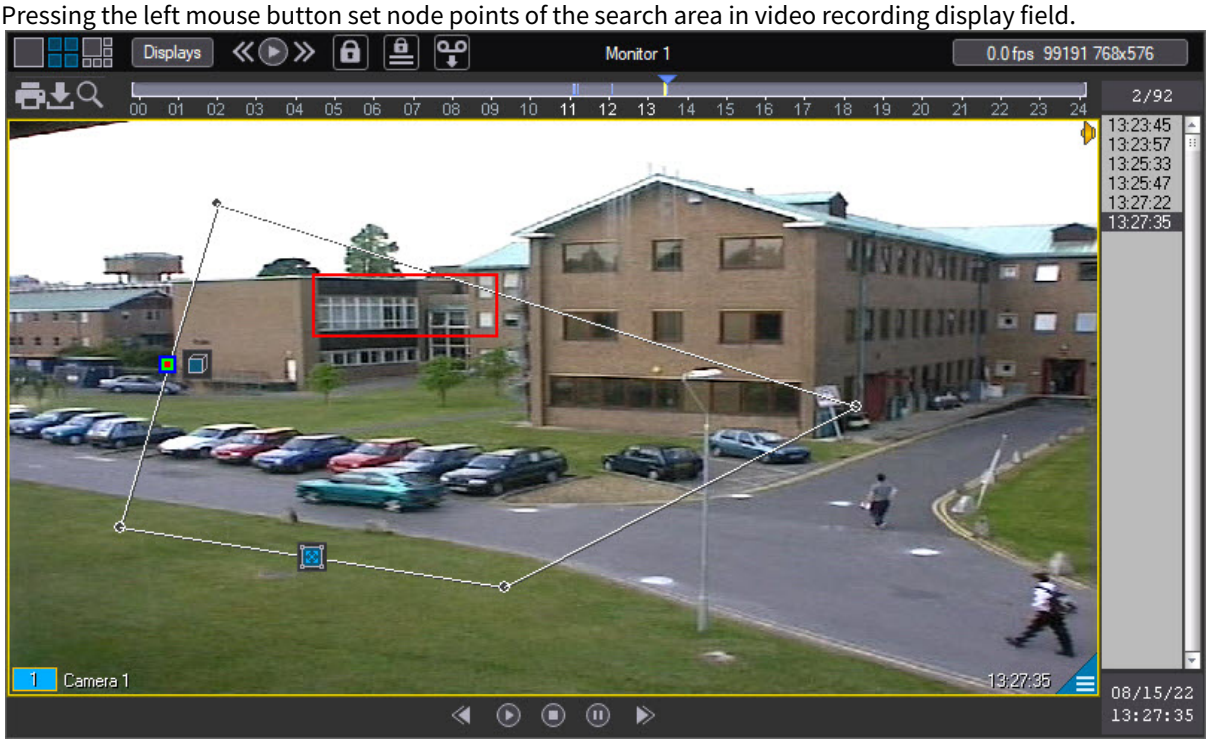
How to set a date is described in the Fragment search by the date and time of creation section of this manual.

To search by motion in the area, do the following:

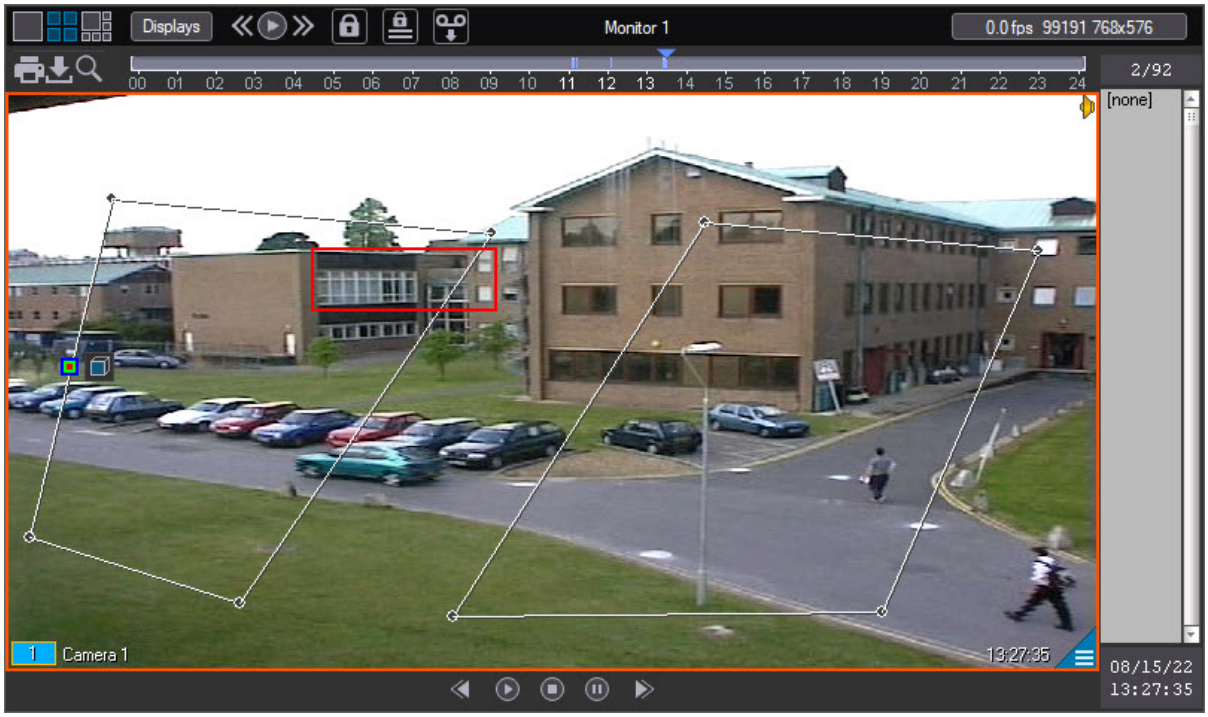
1. Select **Motion in the area** from **Search in archive** dropdown menu in the functional menu.



2. Pressing the left mouse button set node points of the search area in video recording display field.



Adding of two areas is possible. The search will find video recordings in which the object passed from one area to another.



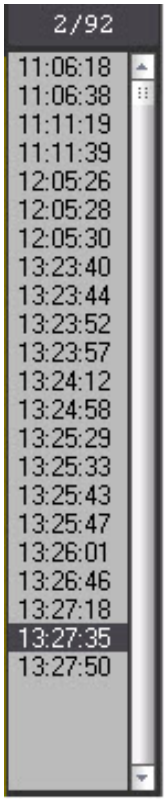
3. Do all necessary operations with the area. Operations with the area are performed in the following table.

Operation	Operation result
Press the left mouse button in video surveillance window	Node point adding
Hover cursor over the node point and pressing the left mouse button shift the mouse	Node point shift
Hover cursor over the node point and press the right mouse button	Line deleting. In the presence of three node points the whole area is deleted.

4. To select the type of the object that was moving in the area it's necessary to click  . Available types of the object are performed in the following table.
    a.  Any object. Search will give out the video recordings in which any object moves in the area
    b.  Human being. Search will give out the video recordings in which an object which width is less than height being moves in the area
    c.  Car. Search will give out the video recordings in which an object which width is greater than height moves in the area
5. To select the type of the search it's necessary to click  . Available types of the search are performed in the following table.
    a.  Any movement in the area. Video recordings of any motion in the area will be found
    b.  Entering the area. Video recordings of object entering the area will be found
    c.  Leaving the area. Video recordings of object leaving the area will be found.
    d.  Appearance in the area. Video recordings of object appearing in the area are found.
    e.  Disappearance in area. Video recordings of object disappearing in the area are found.
    f.  Stop in the area. Video recordings of object stop in the area will be found
    g.  Staying in the area for more than 10 sec (i.e. loitering detection). Video recordings of object being in the area more than 10 sec will be found
    h.  An abandoned object. Video recordings of left object in the area will be found

    > **Note.**
    >
    > **Appearance in the area** and **Disappearance in area** search types are not available.

6. As a result, the search selects the video recordings by given parameters. Search results are displayed in timestamps column.

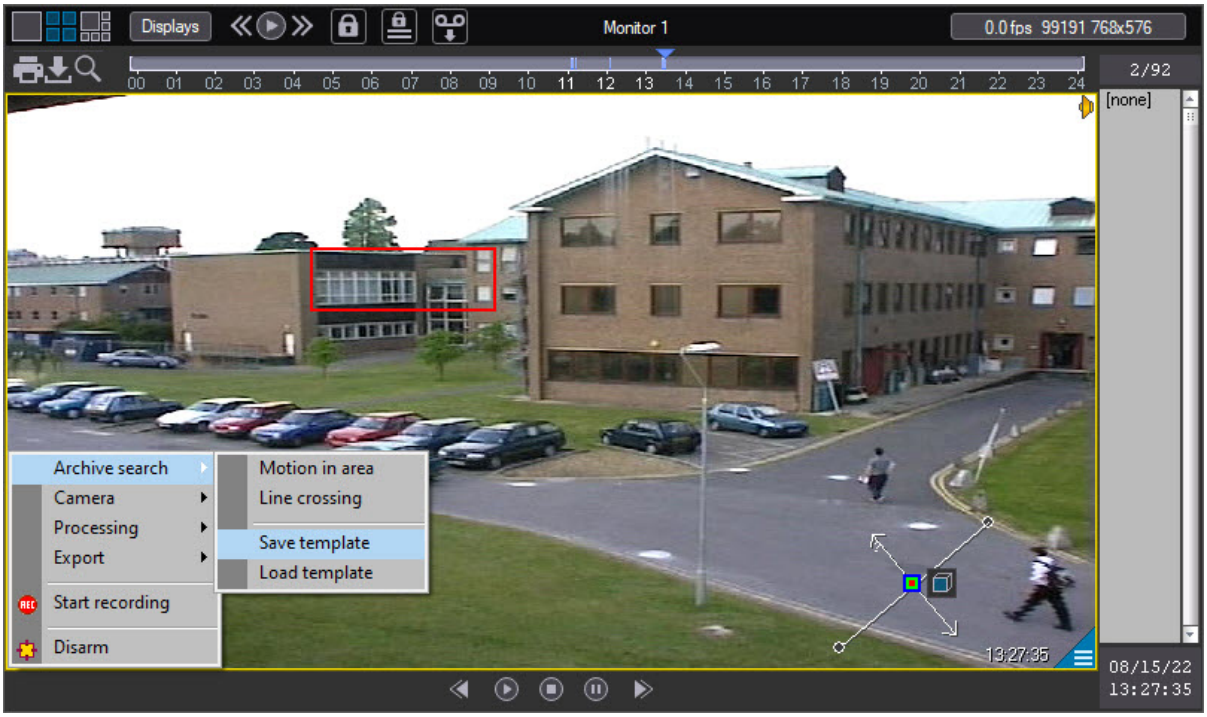


Search by motion in the area can be canceled at any time by pressing the **Esc** button on the keyboard. In this case, no search results are displayed, and the text **[none]** is displayed in the list of video fragments. After the search is completed, pressing the **Esc** key clears the list of search results, and exits the search by motion in the area mode.

Smart search templates

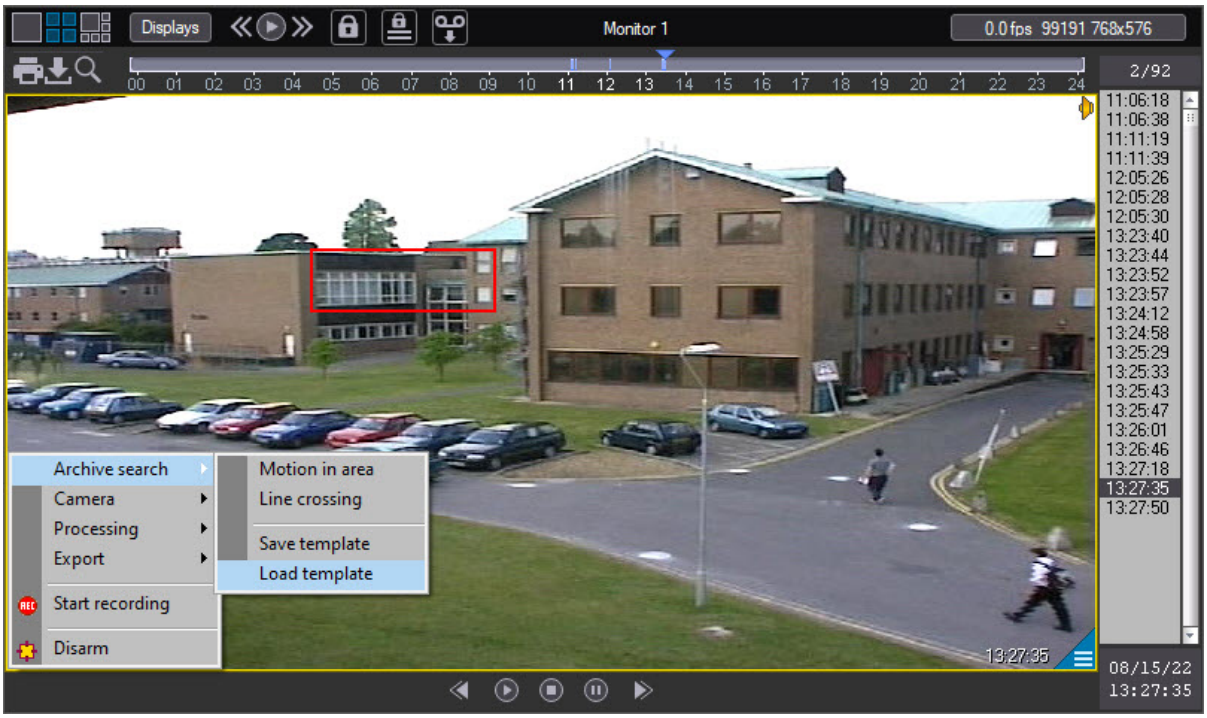
Having search by line crossing or search by motion in the area along with search by color (optionally) set up, you can save the search template and then use it to quickly start the search without setting any parameters.

To save the smart search template select the **Save template** item in the camera's functional menu after setting the search parameters.



A standard Windows dialog box will open for saving the template file in .ivmdaf format. By default, the template is saved in the Modules64\Filters folder in the *Axxon PSIM* software installation directory.

To open the template, select the **Load the template** item in the camera's functional menu.



A standard Windows **Open file** dialog box displays. After selecting the required file in the .ivmdaf format, the area or line with the configured search parameters (direction, speed, color, etc.) is displayed on the video and the search is launched automatically.

Video playback

Video playback controls

You can navigate through the selected fragment of the record using playback controls.



The button starts playing back the selected recording segment, the button stops playback.

When the button is left-clicked, the fast-forward playback is performed, when right-clicked—rewind playback.

Only the current selected recording of the archive is played back when the button is short-clicked. Hold the button to start playing pack the next recording after the end of playing back the previous one.

> **Note**
>
> You can change the way playback is controlled so that by short left-click the recordings are played back continuously, and only one selected recording is played back by long click. For this, use the LButtonClickContinuousPlayEnable registry key (see Registry keys reference guide).

The and buttons increase or decrease the frame rate or slide show rate in the pause mode.

During fast and slow playback, speed-up or speed-down level is displayed in the place of the button, while the functionality of the button remains the same. The maximum possible speed-up is 998 times, the maximum possible speed-down is 8 times.

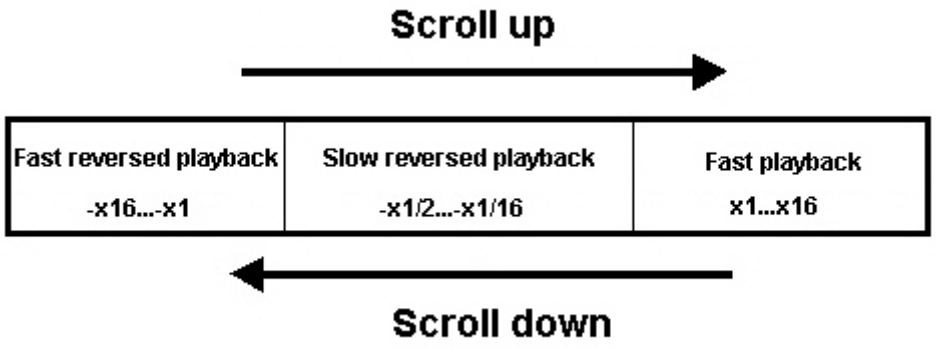


> **Attention!**
>
> If recordings from the Edge storage are used for playback, the maximum possible level of speed-up and speed-down depends on the limitations of a camera (see functional characteristics of an IP camera in the control panel of its Web interface).

When there is fast and slow playback of video from the archive, the recorded sound of the archive recording is not played back.

> **Note**
>
> When you fast playback the archive in H.264 and MPEG4 format, only the key frames are played back:
> - starting from 8x speedup when playing back backward regardless of the number of cameras selected for playback;
> - starting from 4x speedup when playing back forward if several cameras are selected;
> - starting from x12 speedup when playing back forward if one camera is selected. This setting is specified in the MonitorForwardSkipSpeed registry key (see Registry keys reference guide).

When hovering the mouse cursor over the playback control panel, the playback speed can be controlled using the mouse wheel. The playback speed changes smoothly as follows:



If playback is not started, then when hovering the mouse cursor over the playback control panel, mouse wheel scrolling allows switching between the archive recordings (see Video sequence browsing).

If the cursor is hovered over the video, then mouse wheel scrolling scales the video (see Video image scaling in Surveillance window). It is possible to enable playback speed control using the mouse wheel regardless of the cursor position in the Surveillance window - see the description of the MonitorPlaybackControlByMouseWheel registry key in the Registry keys reference guide. Also, this key enables pausing/resuming playback by clicking the mouse wheel. However, this action is no longer used to control telemetry (see Mouse PTZ control).

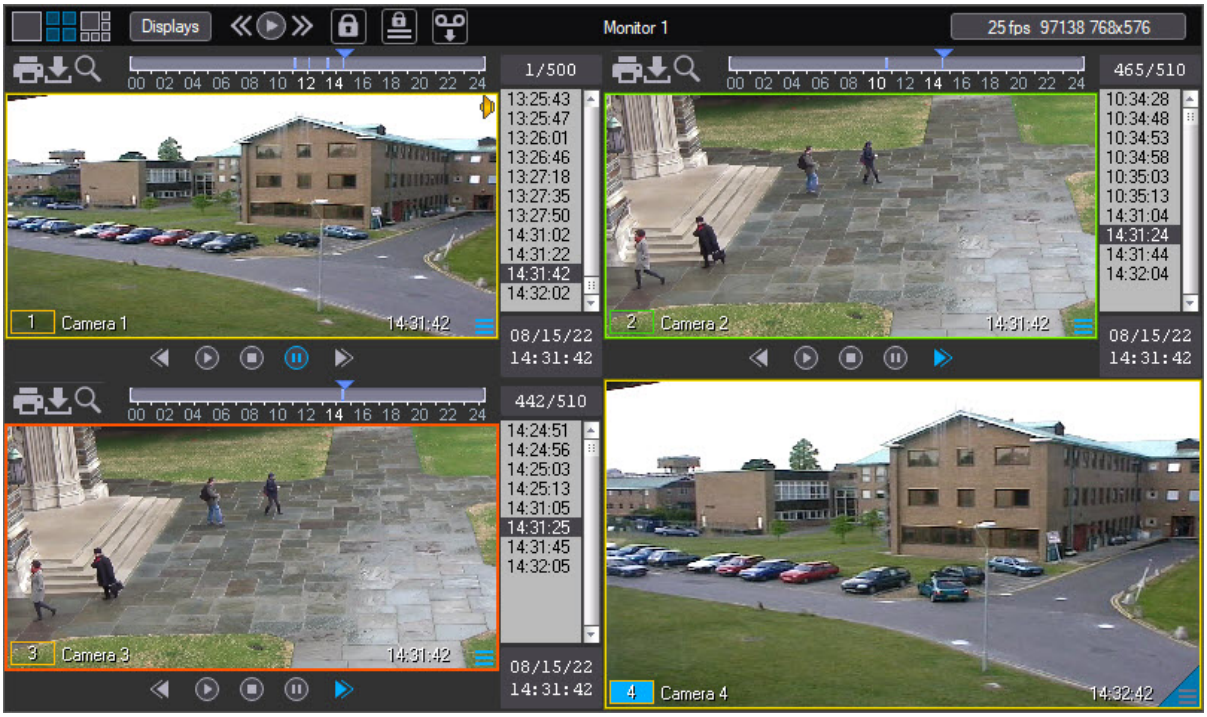
To shift to the pause mode, click the  button, to restore playback—click the  button.

Synchronous playback of several video recordings

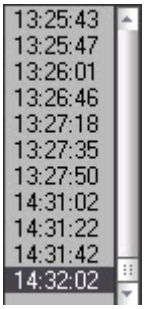
The program allows you to synchronously playback several archived video recordings on one **Video surveillance monitor**. The number of archived videos played back simultaneously is only limited by the hardware capacity.

> **Note**
>
> Synchro playback of video recordings is affected by the read rate of the disks on which the video archive is stored. If reading speed is slow, then playback problems may occur.

To use synchro playback, display the required **Surveillance windows** on the **Video surveillance monitor** and switch them to the archive viewing mode.

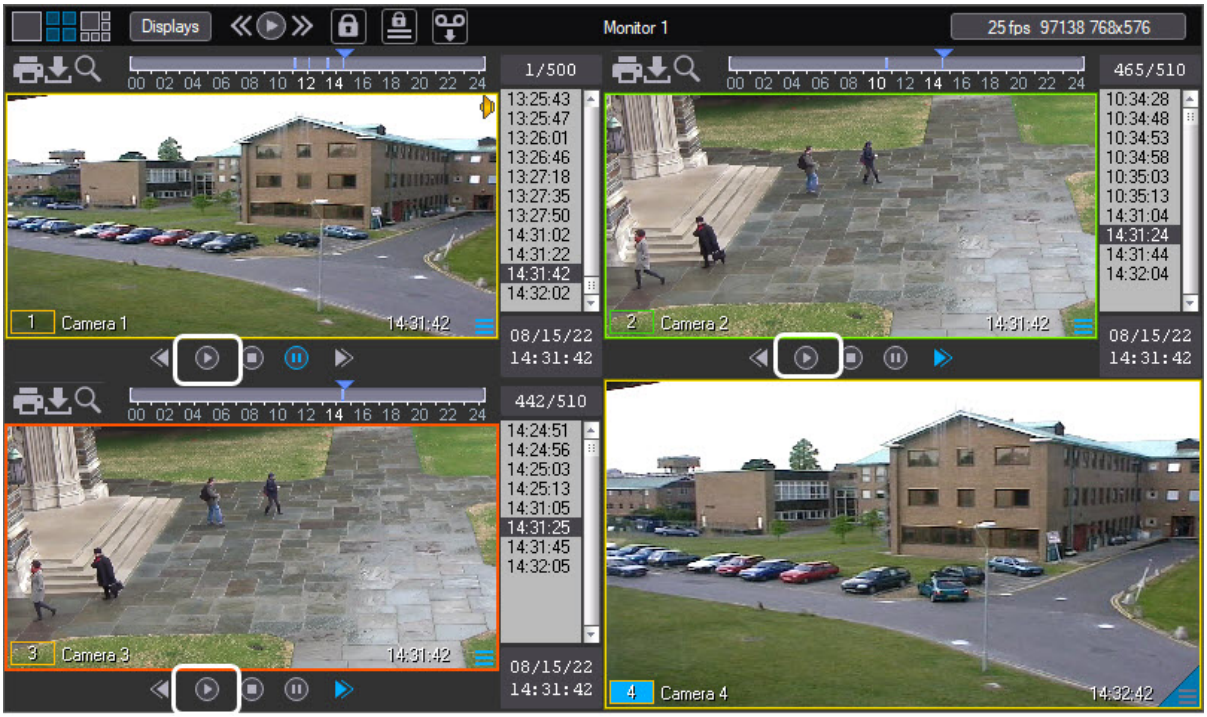


Set recordings in the **Surveillance windows**, as required, using, for instance, the time stamp column.

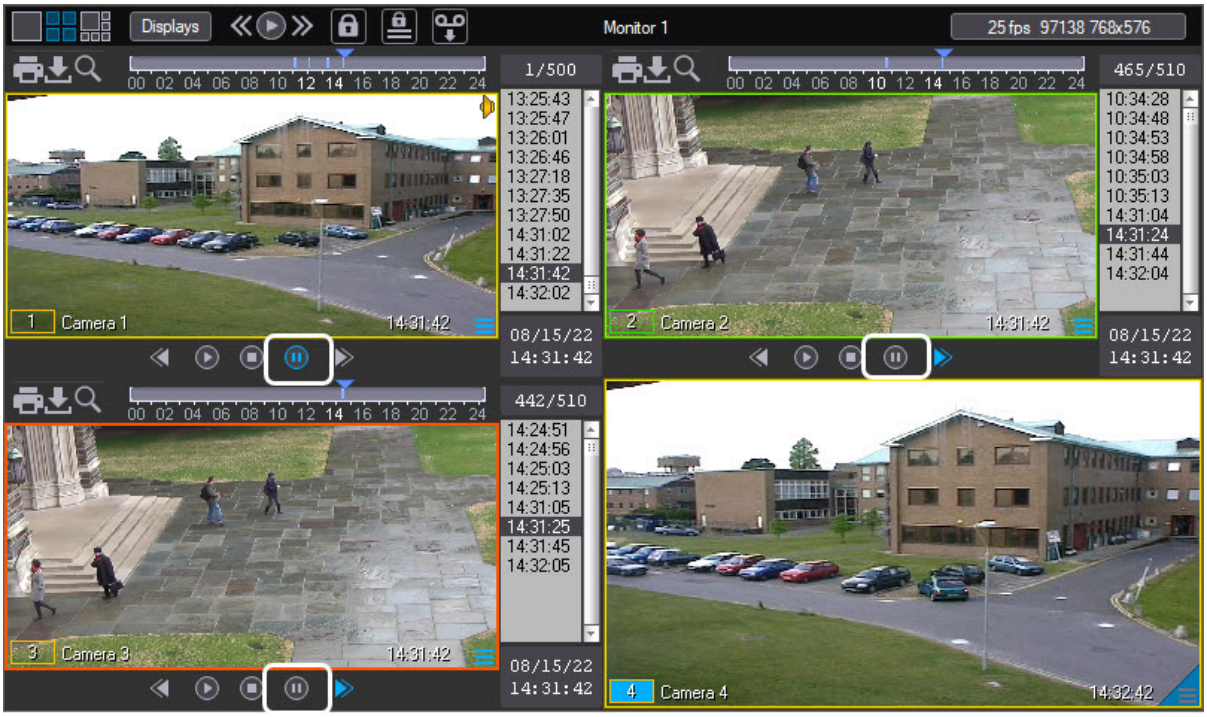


Now, controlling video playback in the active **Surveillance windows**, you will synchronously control the playback in other **Surveillance windows**.

Synchro playback of video recordings (playback is on):



Synchro playback of video recordings (playback is paused):



Note

When you synchronously playback the archive of several cameras, only the key frames are included in playback in the following cases:

- forward playback with 4x or greater speedup;
- backward playback with 8x or greater speedup.

Synchronous playback of video and audio recordings

To enable synchronous playback of video and audio recordings, click the icon in the upper-right corner of the frame. After this the icon looks like this and audio recording is played back synchronously with video recording in the archive playback mode.



To disable synchronous playback of video and audio recordings, click the icon. The icon will look like this and video recording will be played back with no sound.

Note.

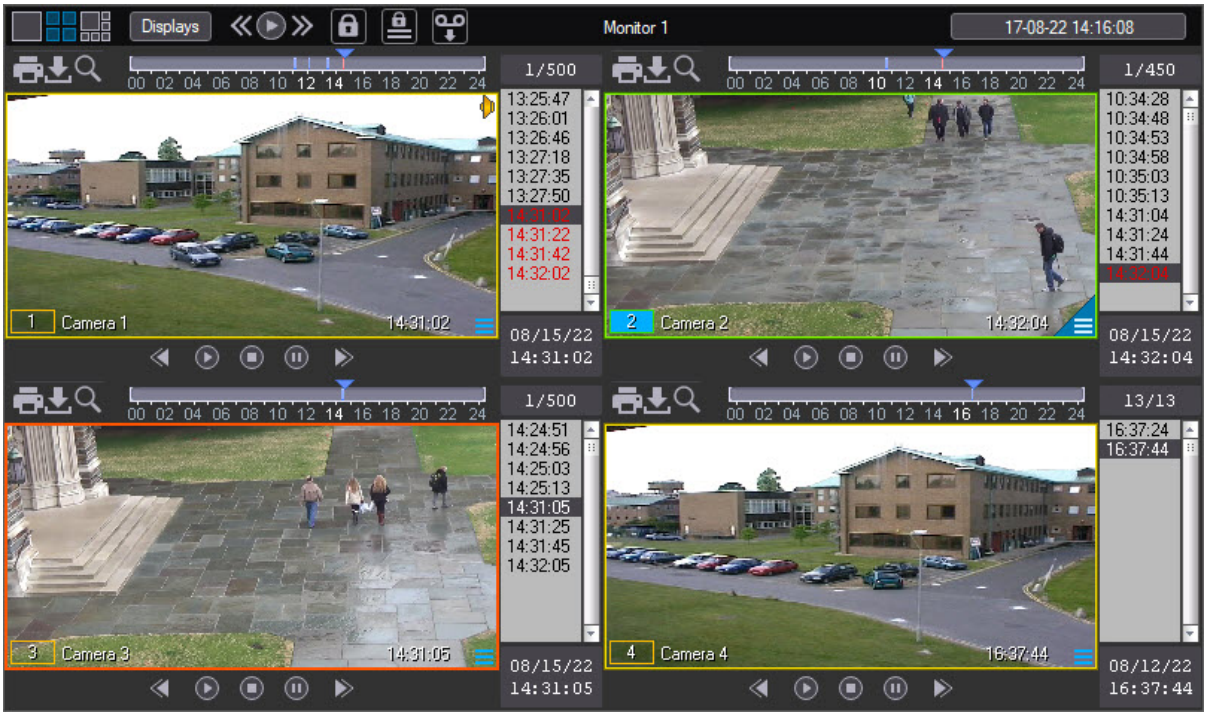
Absence of the icon means that camera is not configured for recording audio to the archive.

Note.

To get information on configuring synchronous playback of video and audio recordings see the Configuring audio signals playback using the video monitor section of the Administrator's Guide.

Synchronous enter to server archive playback mode

For synchronous enter the mode of server archive playback by all cameras on the layout click the right mouse button on the  button. For synchronous exit from the mode of server archive playback by all cameras on the layout click the right mouse button on the  button again.

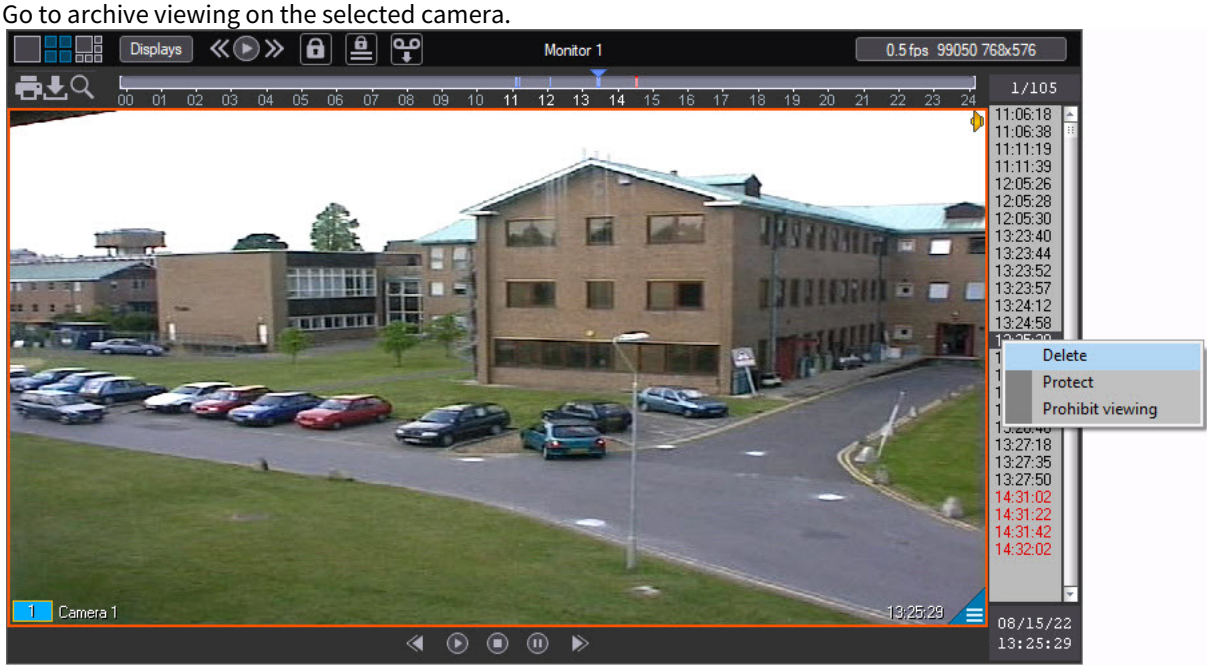


Deleting video recordings from the archive

> **Note.**
>
> Video recordings can be removed from the archive when:
> 1. At least one User is created and added to the rights in *Axxon PSIM*.
> 2. The User who started *Axxon PSIM* has rights to remove files from the archive.

To delete video recordings from the archive, do the following:

1. Go to archive viewing on the selected camera.



2. Right-click the recording to be deleted.

> **Note.**
>
> Multiple video recordings can be selected for deletion using the Ctrl or Shift keys left-clicking the video recordings.

3. In the feature menu, select the **Delete** item.

> **Note.**
>
> A video can also be deleted using a script or command – see CAM section of *Programming Guide* (not available in English).

The video recording is now deleted from the archive.

Rewrite protection of archive files

General information about rewrite protection and bookmarks

Record to archive is performed on a loop in the *Axxon PSIM* software package (see the General information on video archiving section). Therefore old archive records can be replaced by new one. But sometime it is required to protect important records against loop recording. In order to operator had possibility to protect records and reset protection, the corresponding rights are to be assigned to it (see Administrator's Guide document, Permissions to protect archive files from rewriting section).

There is possibility to protect records by ones or protect records for the specified period.

> **Note.**
>
> Records protection is supported only for the main archive of Server and doesn't support for Backup archive and Videogate archive (archive types are described in details in the General information on working with archives section).

Furthermore, Axxon PSIM allows creating bookmarks to facilitate archive navigation. The archive for the bookmark period can be automatically protected when the bookmark is created and the bookmark can be created automatically when the archive is protected.

Protection of separate record and disable of protection

Protection and disable of protection of the separate record is performed from the Monitor interface in the Video surveillance window in the archive mode. To protect the recording, select one or more videos in the video list, right-click the highlighted items and select **Protect**. To select multiple recordings, left-click the recordings while holding the Ctrl or Shift key on the keyboard.

> **Note.**
>
> The **Protect** menu item can be missed if user have no rights for records protection.

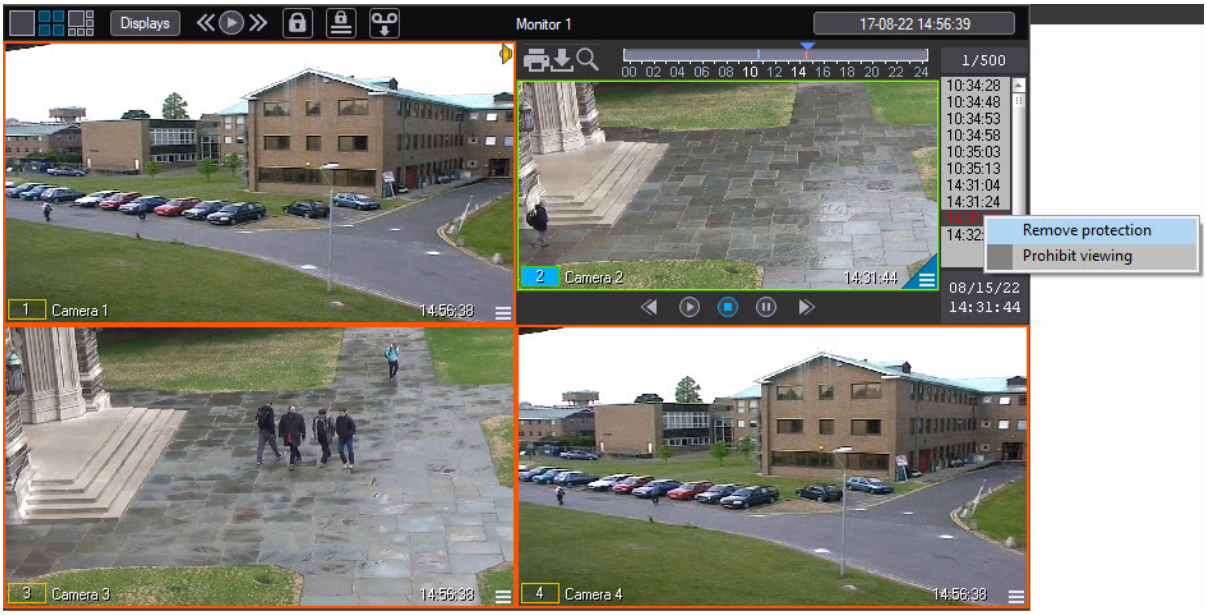
Protected record is highlighting red and file replaces to the PROTECTED subfolder of the VIDEO folder on the disk where archive is stored. The bookmark for the protection period can also be created given that there is corresponding setting (see List of bookmarks).



To remove protection, click the right mouse button on required record and select the **Remove protection** item.

> **Note.**
>
> The **Remove protection** menu item can be missed if user have no rights to reset protection of records.

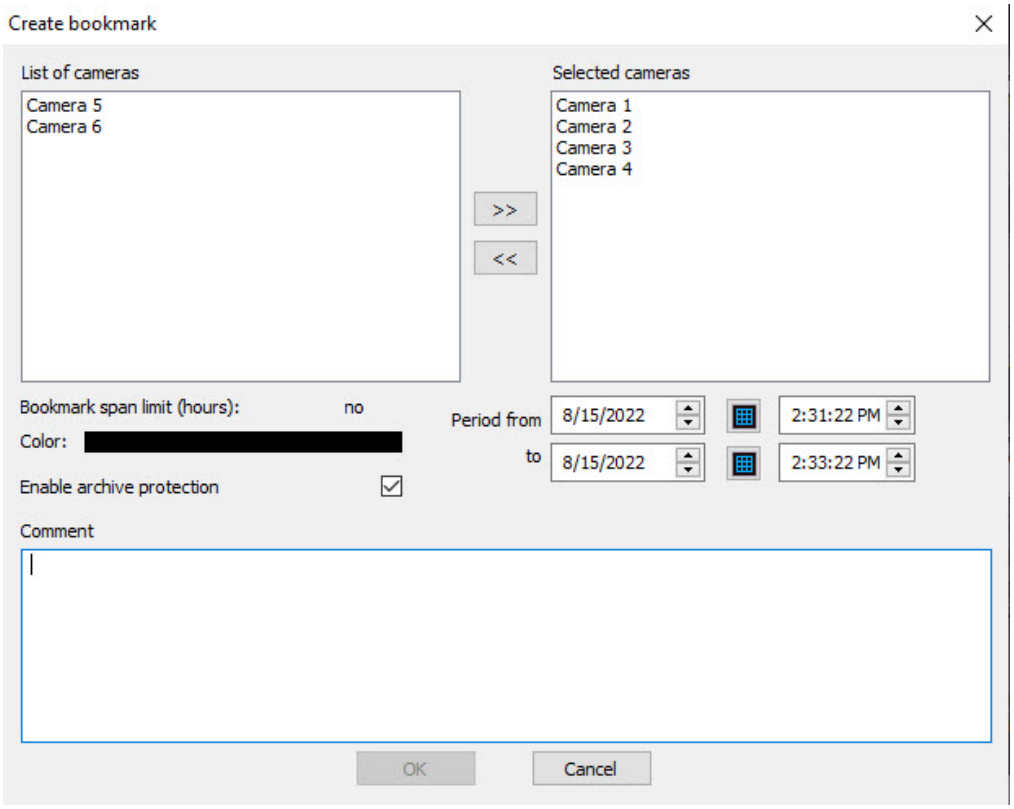
If in the disk there are records for the specified period as selected one, i.e. there is a folder in which file of protected record was initially located, then the file will be replaced to this folder, highlighting red in this list will be discharged and it will continue to display in the list. If the folder was removed in the process of loop recording, the record won't display in the list.



Create a bookmark

Bookmark is several protected or not protected video records for the specified period. To create a bookmark for the specified period, click the button. The **Create bookmark** window will open.

> **Note.**
>
> The button is not displayed if disk for record is not selected (see Administrator's Guide, Selecting the disks for video archive storage).



The list of cameras added to the Monitor is displayed in the left part of the window. Move cameras on which records are to be bookmarked to the **Selected cameras** list using the **>>** button.

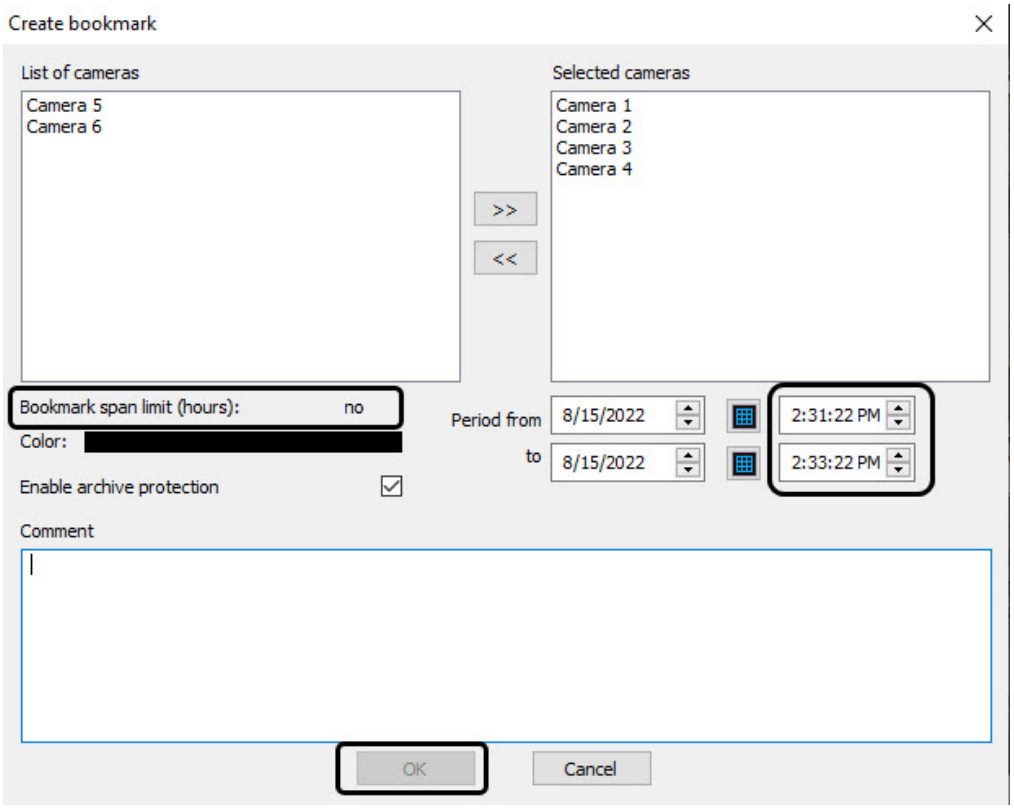
> **Note.**
>
> The **<<** button is used to move selected cameras from the **Selected cameras** list to the **List of cameras**.

In the **Period from** and **to** fields specify the time period during which archive records by selected cameras are to be bookmarked.

In the **Comment** field, enter a comment, e.g. reason of a bookmark creation.

> **Important!**
>
> A comment is to be entered. If the comment is not entered, then the bookmark cannot be created.

Bookmark span limit in hours is set using the BookmarkMaxLen registry key (see Registry keys reference guide). If the selected period is longer than the bookmark span limit, then **OK** button is disabled and the warning on the limit is highlighted in red. Shorten the period so that it would not go over the limit to create a bookmark.



The **Color** field is used to select the color that the created bookmark will be marked in Video surveillance monitor (on the time scale and in the list of video recordings - see Archive navigation using the timeline and Video sequence browsing).

The **Enable archive protection** checkbox allows protection of archive records when creating bookmarks. Changing the value of this parameter may not be available if the BookmarkProtectArchive key is created in the registry (see the Registry keys reference guide).

When all required fields are filled, enter the **OK** button to bookmark video records for the specified period.

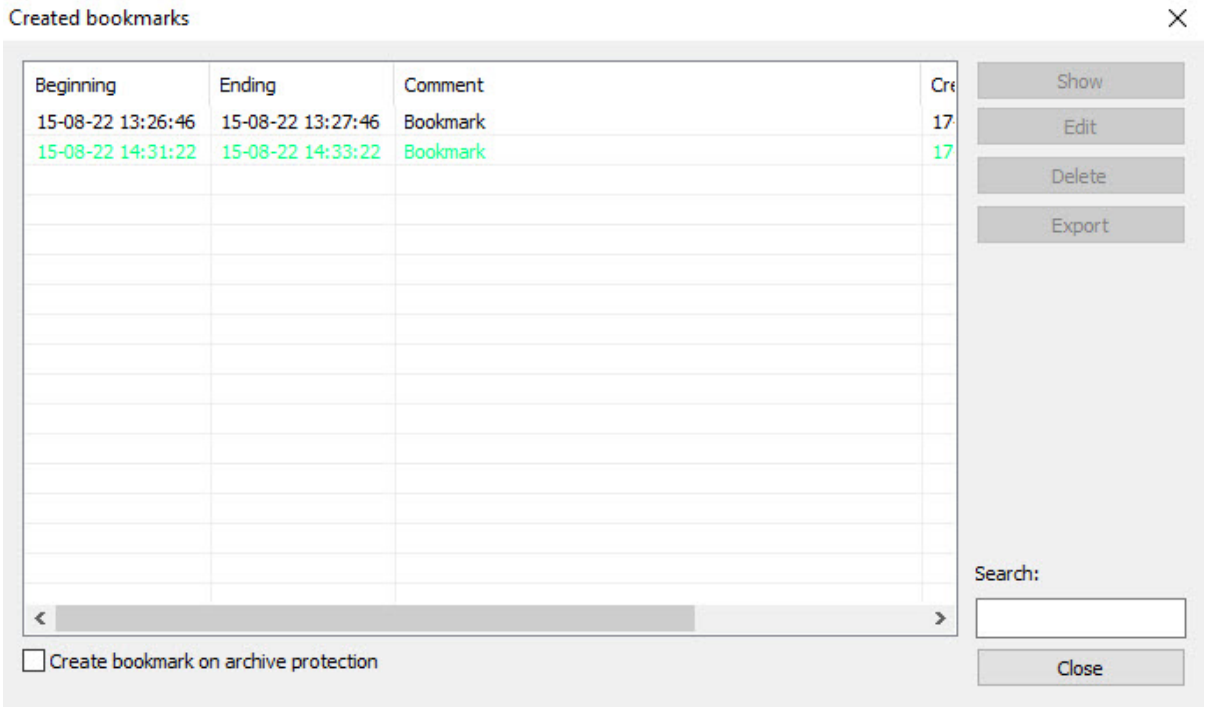
If the **Enable archive protection** checkbox is selected, the protected videos will be marked in red in the list in the Video Surveillance Monitor, and the protected video files will be moved to the PROTECTED folder in the VIDEO folder on the archive disk. If this check box is not selected, then files are not protected, and they can be subsequently deleted while loop recording.

List of bookmarks

To view the list of bookmarks, click the  button on the control panel of the **Monitor** object. The **Created bookmarks** window will open.

Note

The  button is not displayed if the disk for recording is not selected (see Selecting the disks for video archive storage).



The list of bookmarks is presented as a table. The fields of the table are described below.

Field	**Description**
Beginning	Date of start period included in the bookmark
Ending	Date of end period included in the bookmark
Comment	Comment entered when the bookmark was created
Created	Date of the bookmark creation
Exported	Date of the bookmark export (see The AviExport utility)

To sort the list of the bookmarks by any column, click on the heading of the column. Sorting can be performed both by dates and text fields.

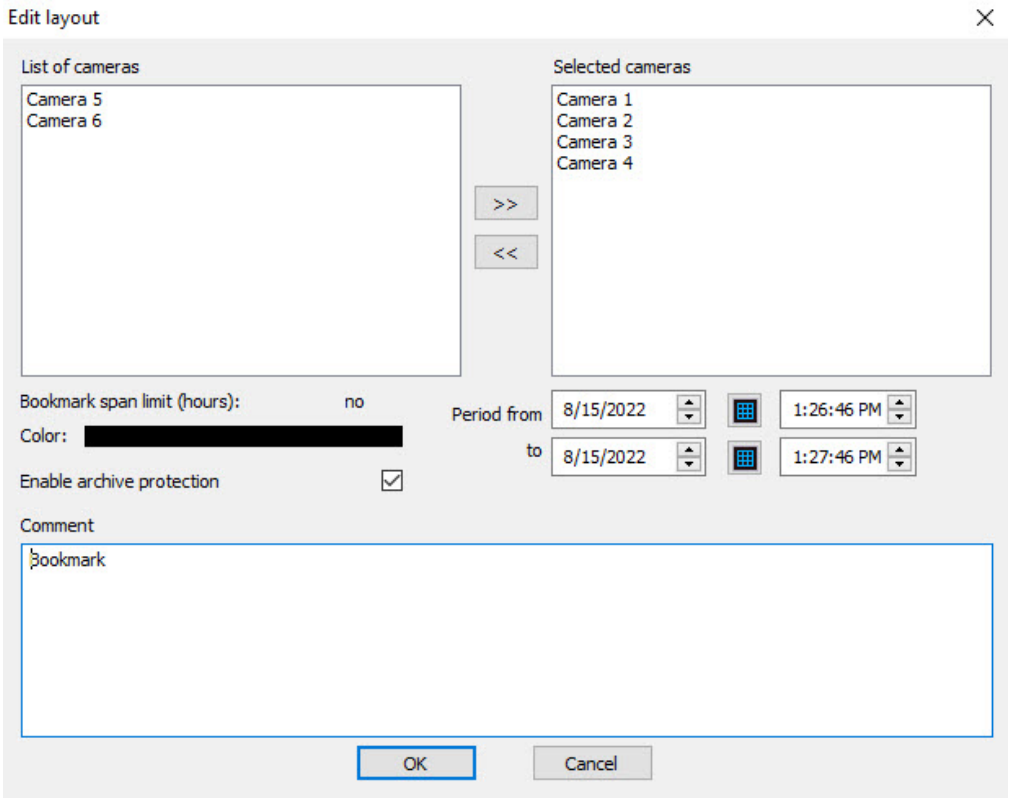
The **Search** field is used to search for the bookmarks by the comment. If more than one search term is specified, then the comments containing all these words will be found.

The **Show** button is used to jump to the first of the protected records for the specified period in the Video surveillance window in the archive mode. The **Created bookmarks** window closes.

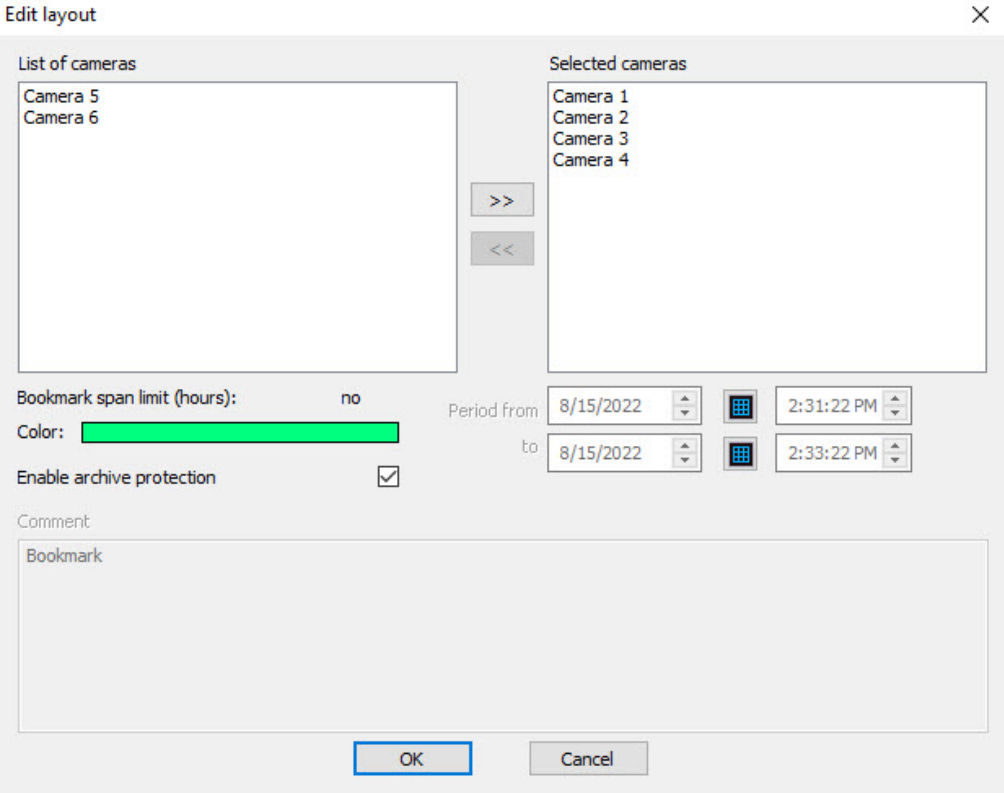
Note

You can jump to viewing the bookmark recording only if the video from the camera to which the bookmark belongs is displayed in the Monitor in one of the Video surveillance windows. If the camera is not displayed in any of the Monitor windows, nothing will happen after clicking the **Show** button. In order for the bookmark recording to be displayed, you should first add the camera corresponding to the bookmark to the Video surveillance window.

The **Edit** button allows changing the bookmark: set a different list of the cameras, time period and comment. Editing is performed in the **Edit layout** window, the interface of which is similar to the **Create bookmark** window (see Create a bookmark).



If a user has no permissions to create and delete bookmarks, they can only add cameras to the bookmark. Other parameters of the bookmark are not available for editing.



The **Delete** button is used to delete the bookmark and remove protection from the video recordings.

The **Export** button opens the **Export** window in which the required cameras are selected and the export period corresponding to selected bookmark in the list of the created bookmarks is specified (see The AviExport utility).

> **Note**
>
> The **Delete** and **Export** buttons may not be displayed if the User does not have the corresponding permissions.

The **Create bookmark on archive protection** checkbox enables the automatic creation of the bookmarks when the archive is protected (see Protection of separate record and disable of protection). The bookmark will be assigned a name in the format "User Name + Camera Name + Start Date and Time + End Date and Time".

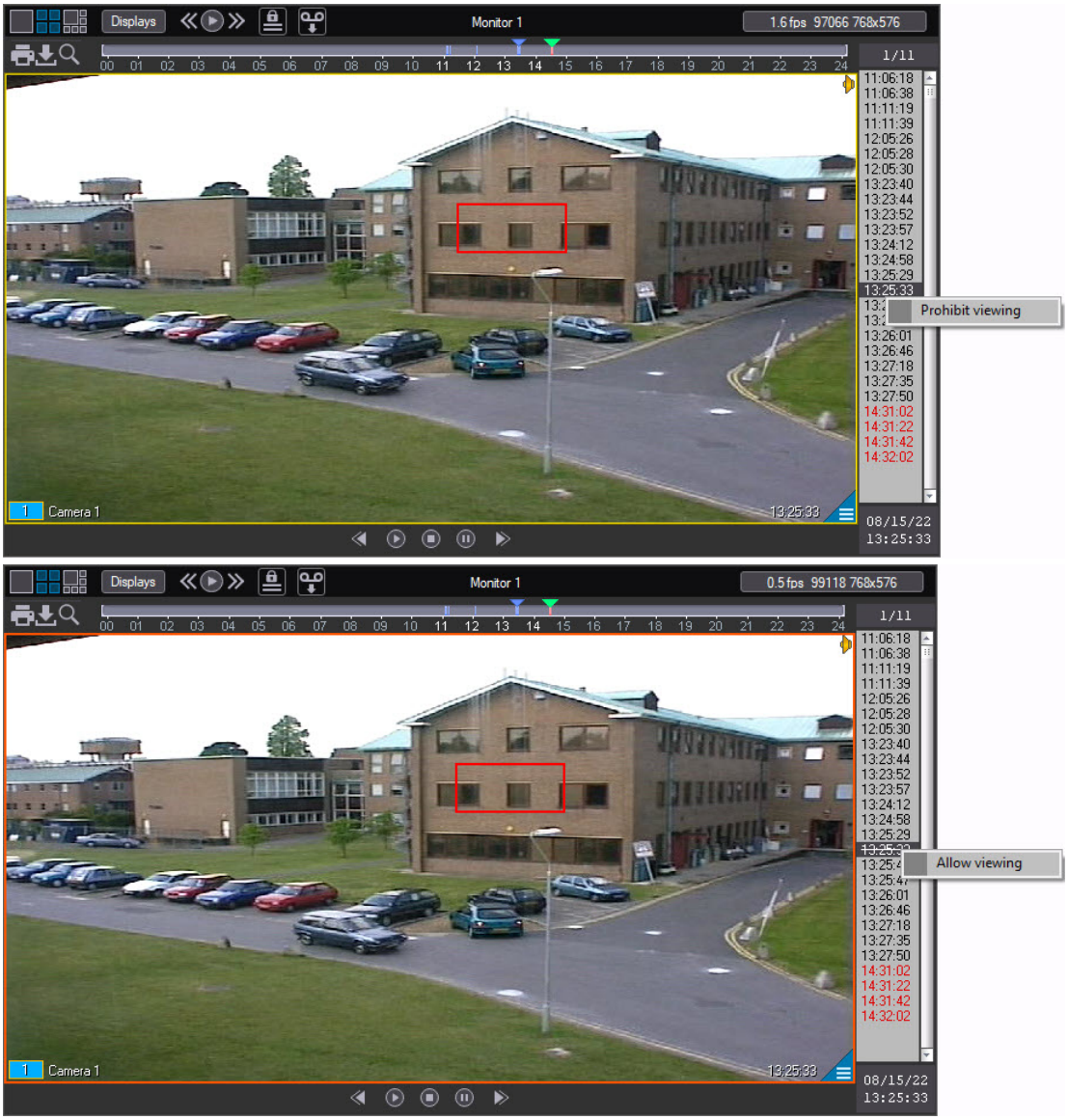
The **Close** button is used to close the **Created bookmarks** window.

Working with the hidden archive

The functions for working with the hidden archive may be available in the Video Surveillance Monitor depending on the Operator's permissions. Viewing the hidden archive may also be available. See also Permissions to the hidden archive.

The hidden archive functions are available for the main Server archive, Backup archive and Video Gateway archive. See also Archive browsing modes.

If the Operator has the permission to view the hidden archive, then the hidden archive entries are displayed crossed out in the list of videos and can be viewed the same way as the ordinary archive entries. If there are no rights, then hidden archive records are not displayed.



Right-click the archive entry and select **Prohibit viewing** to hide the archive record.

Right-click the archive entry and select **Allow viewing** to unhide the archive record.

9.3.11 Export and print out

General information on export and print out

Many graphic modules of the Program support the following operations with the video image:

1. Frame export – saving the current frame as a standard Windows graphic file (in Bitmap, JPEG formats).
2. Frame print out – sending the current frame to the printer for printing.
3. Video recording export – saving video recording as standard Windows video files. Video recording in this case may be saved together with the synchro sound.

Note

When exporting, the date and time are displayed in the right bottom corner of the video image or video frame. The date and time are displayed in the format specified by the regional system settings (switching to the regional system settings is performed from the **Start -> Control panel -> Language and regional standards** menu). It does not apply to the printed frames and to the video received with the help of the Converter.exe utility.

To demonstrate the above functions, we use the Video surveillance window as an example.

Note

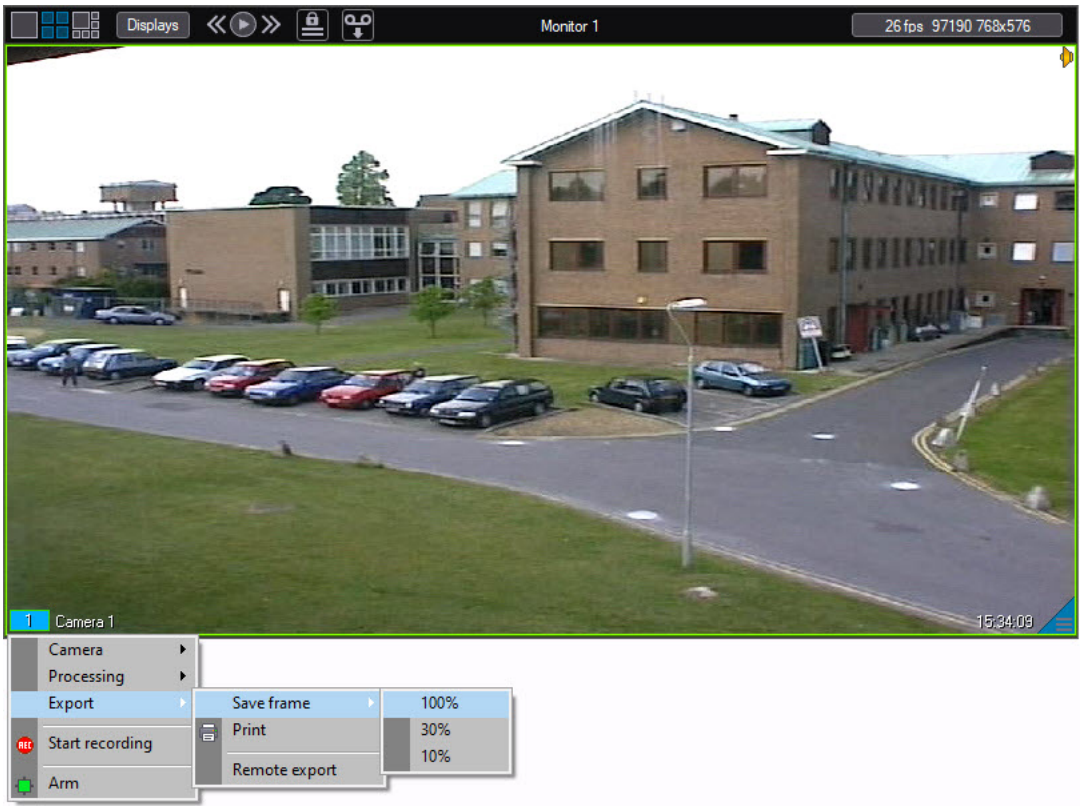
You can also use the AviExport utility to export the video archive for a specified period with the possibility of changing the coding format (codec) (see The AviExport utility).

Frame export

To save a frame, select the following in the functions menu of the surveillance window: **Export** -> **Save frame** -> **Scale** (100%, 30%, 10%). Here, the percentage defines the amount of video compression.

Note

100% – lossless compression. Frames are stored in BMP format.
30% – stronger (lossy) compression. Frames are stored in JPEG format.
10% – strongest (lossy) compression. Frames are stored in JPEG format.

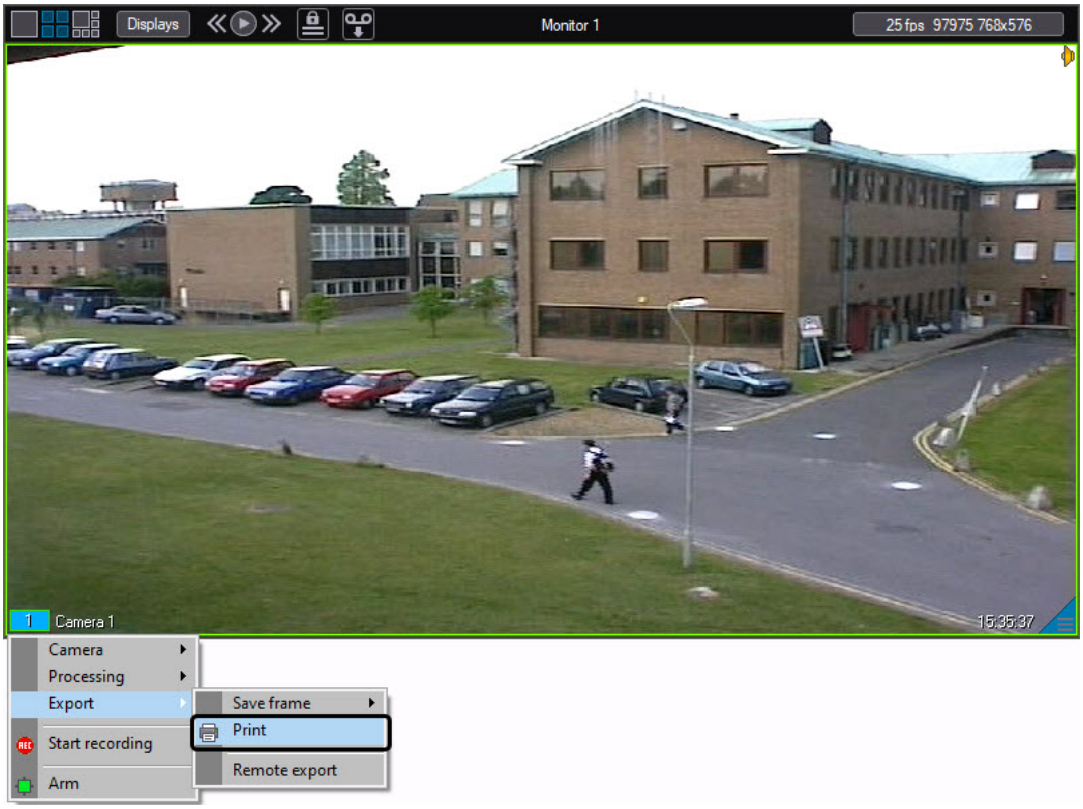


The file containing the saved frame is saved to the C:\Users\%current user name%\Documents\Axxon PSIM\export\ directory. The file name is generated as follows: *<camera number> (<date> <time>)*. For instance, *02 (03-10-07 16'28'06).jpg*.

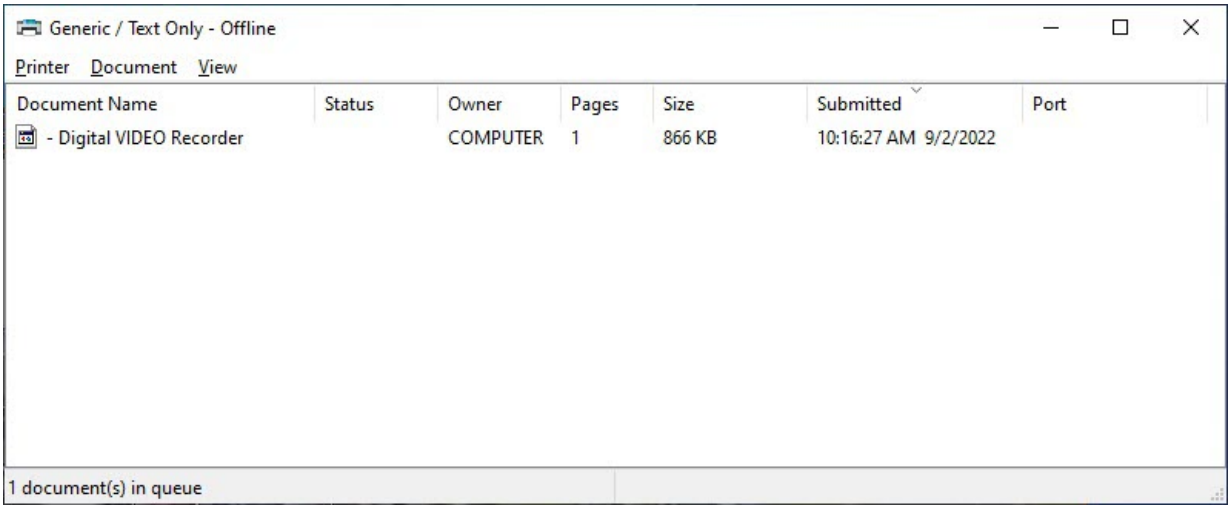
> **Note**
>
> If the additional information was specified while configuring the camera (see Administrator's Guide), then the file is named in another way: *<number of the camera> <additional information> (<date> <time>)*. For example, *02 Information (03-10-07* 16'28'06)*.jpg*.
> If captions are added to the video image (see Configuring the captions showing), they will be present in the exported frame. The caption size is set on the **Captioner** object settings panel and may change during export if the frame resolution is reduced. To enable adaptive title size, use the ExportFontAdaptive registry key (see Registry keys reference guide).

Printing the still frame

To send a frame for printing, choose the **Print** command from the **Export** menu.



As a result of the above actions, the frame image will be queued for printing by default.



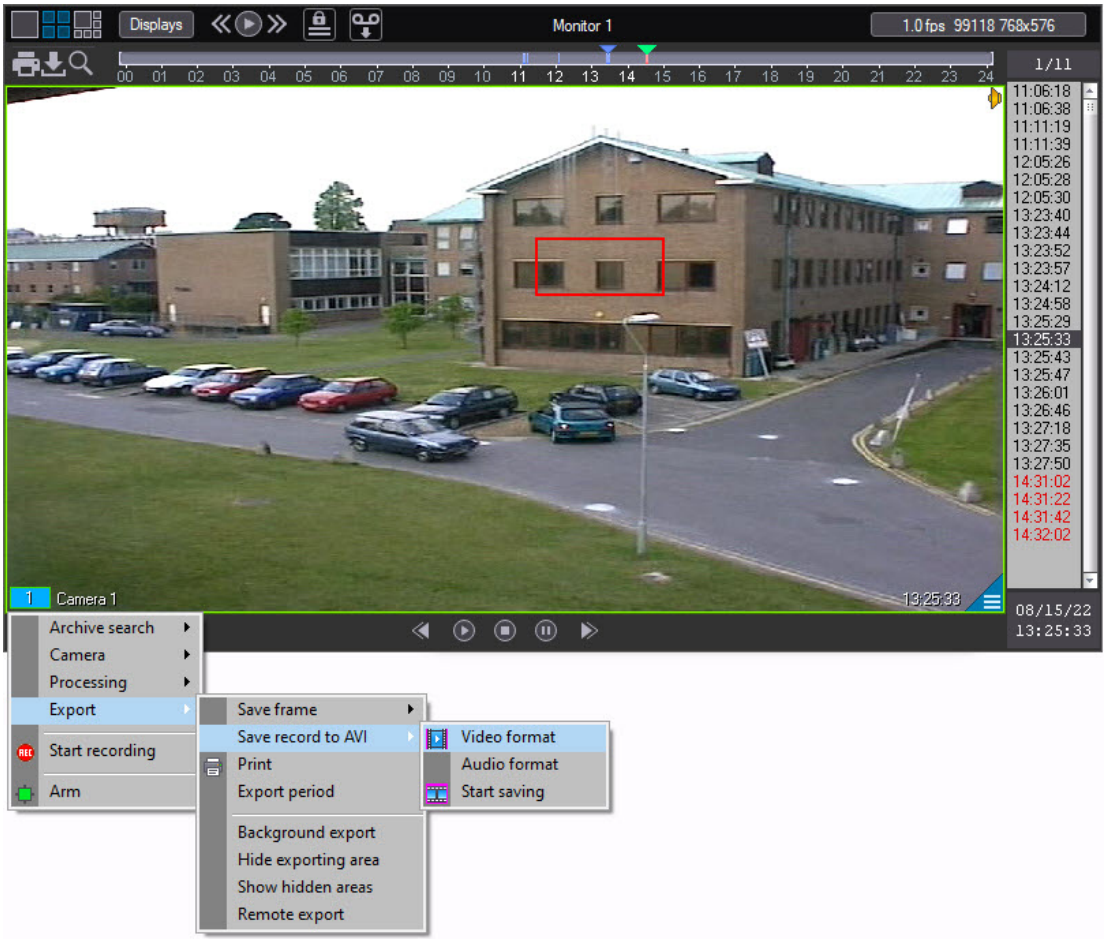
Note.

Standard Printout List of the printer dialog box (OS Windows) does not belong to the *Axxon PSIM* software and is not automatically displayed as soon as the print command is sent.

Export of silent video recordings

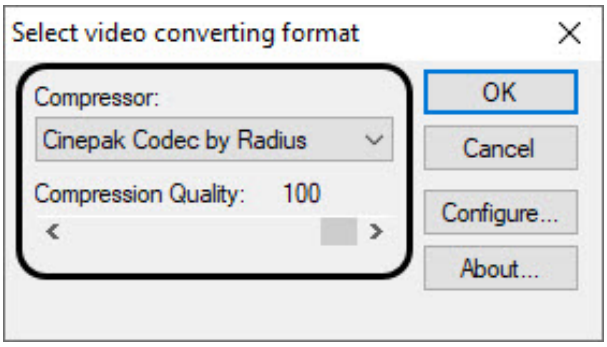
The video recording segment without sound is exported using the playback control panel. The main archive of the video server can be exported as well as the backup archive, the video gate archive and the external archive depending on the playback mode selected (see Archive browsing modes).

Choose **Export** in the function menu of the video surveillance window and then select **Save Recording to AVI**.



Parameters of the video and audio, which will be saved, may be configured in the displayed menu.

Compression quality is selected in the standard Windows dialog box.



Select **Codec** in the dialog box and, if available, compression quality.

> **Note**
>
> Settings of video compression will be ignored if export of the archive period in original format was performed (see Export of the archive period).

As soon as recording saving parameters are selected, the video segment may be exported to the file by selecting the **Start Saving** command. If you want to export a fragment starting from some other frame, not the first one, then play the video up to the desired moment before you start saving.

The **Playback** button will be highlighted in the course of saving, whereas the playback position indicator will count down the frame currently being processed.

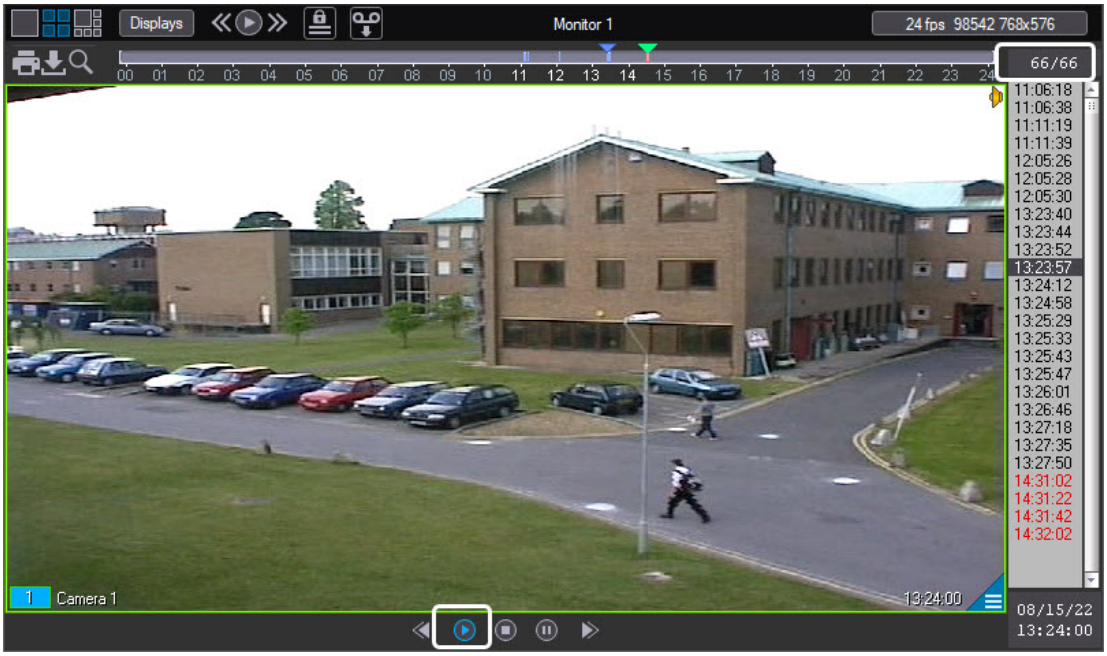


Click the  button after the start of saving for quick export (export of speeded video record). This button double speeds up export of video record. Maximal available speed up is 8 times.

> **Note**
>
> When speeding up the video record export, only the key frames are played back. Hence, only the key frames are saved to the file when exporting.

To terminate export, click  or  . In this case, only the part of video fragment before the moment you click one of these buttons is exported.

As soon as the video segment saving process is complete, the **Playback** button is no longer highlighted.



The file containing the saved video recording is saved to the C:\Users\%current user name%\Documents\Axxon PSIM\export\ directory. The file name is generated as follows: *<camera number> (<date> <time>)*. For instance, *02 (03-10-07 16'28'06).avi* (file extension depends on the compression quality configuration).

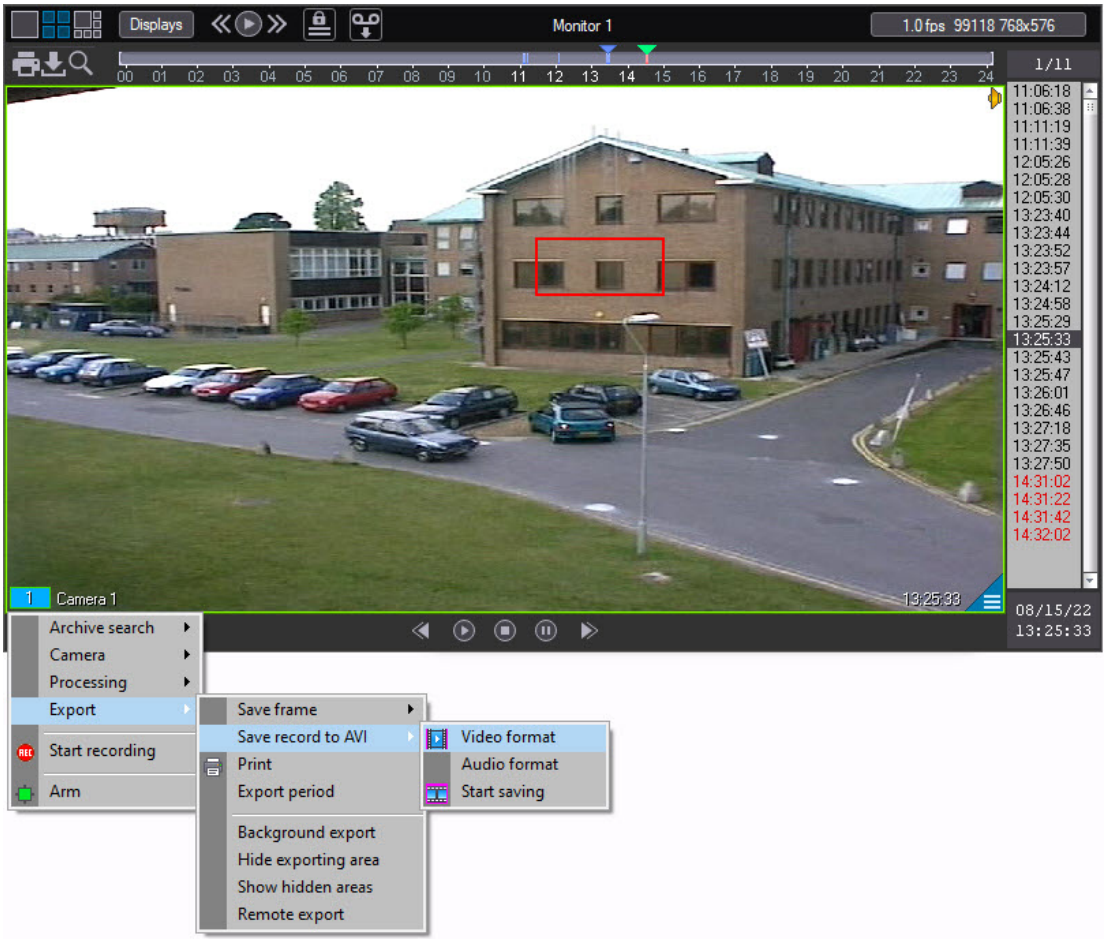
> **Note**
>
> If captions are added to the video image (see Configuring the captions showing), they will be present in the exported video recording. The caption size is set on the **Captioner** object settings panel and may change during export if the video resolution is reduced. To enable adaptive title size, use the ExportFontAdaptive registry key (see Registry keys reference guide).

> **Note**
>
> If AVI format is used, the resulting file cannot be bigger than 2 GB.

Export of video recording with sound

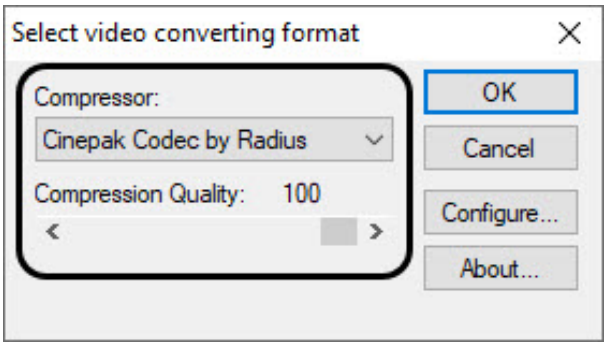
Video recording segment with sound is exported using the playback control panel. The main archive of the video server can be exported as well as the backup archive, the video gate archive and the external archive depending on the playback mode selected (see Archive browsing modes).

Choose **Export** in the function menu of the video surveillance window and then select **Save Recording to AVI**.



Parameters of the video and sound, which will be saved, may be configured in the displayed sub-menu.

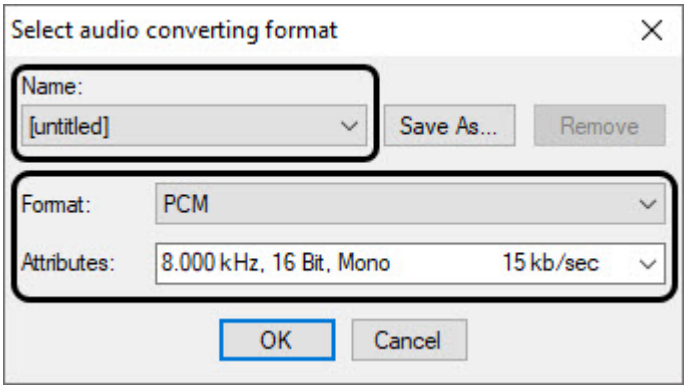
Compression quality is selected in the standard Windows dialog box.



Select **Codec** in the dialog box and, if available, compression quality.

> **Note**
>
> Settings of video compression will be ignored if export of the archive period in original format was performed (see Export of the archive period).

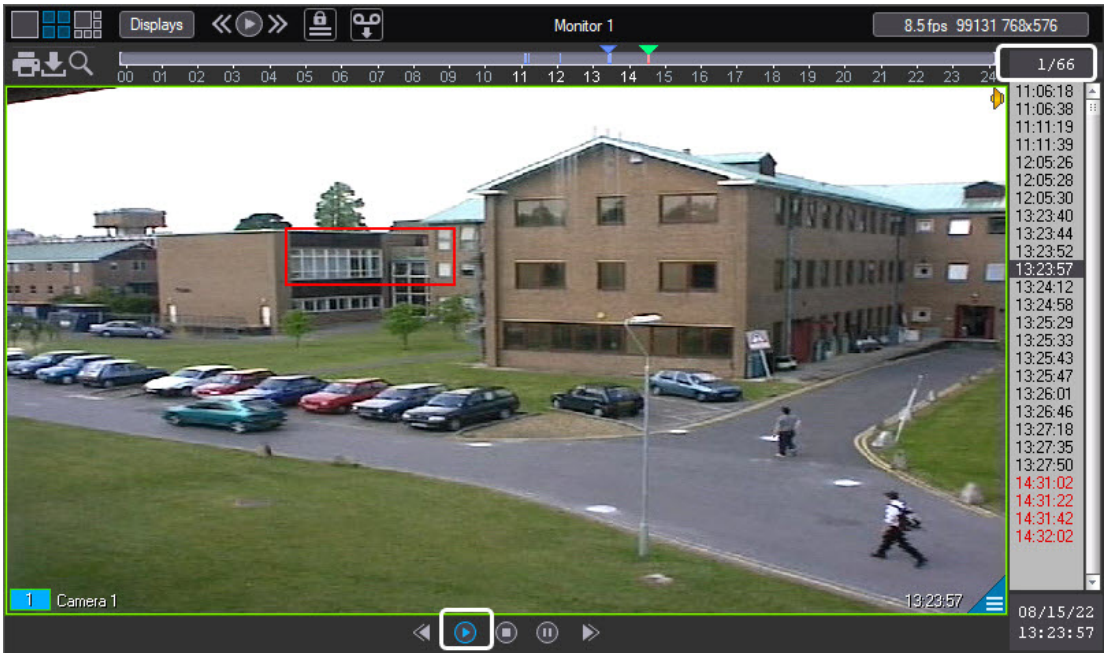
Compression quality of the synchro sound is selected in the standard Windows dialog box.



Choose the audio format in the dialog box and select a set of sound quality parameters, or a pre-defined settings profile.

As soon as recording saving parameters are selected, the video segment may be exported to the file by selecting the **Start Saving** command. If you want to export a fragment starting from some other frame, not the first one, then play the video up to the desired moment before you start saving.

The **Playback** button will be highlighted in the course of saving, whereas the playback position indicator will count down the frame currently being processed.



Click the  button after the start of saving for quick export (export of speeded video record). This button double speeds up export of video record. Maximal available speed up is 8 times.

Attention!

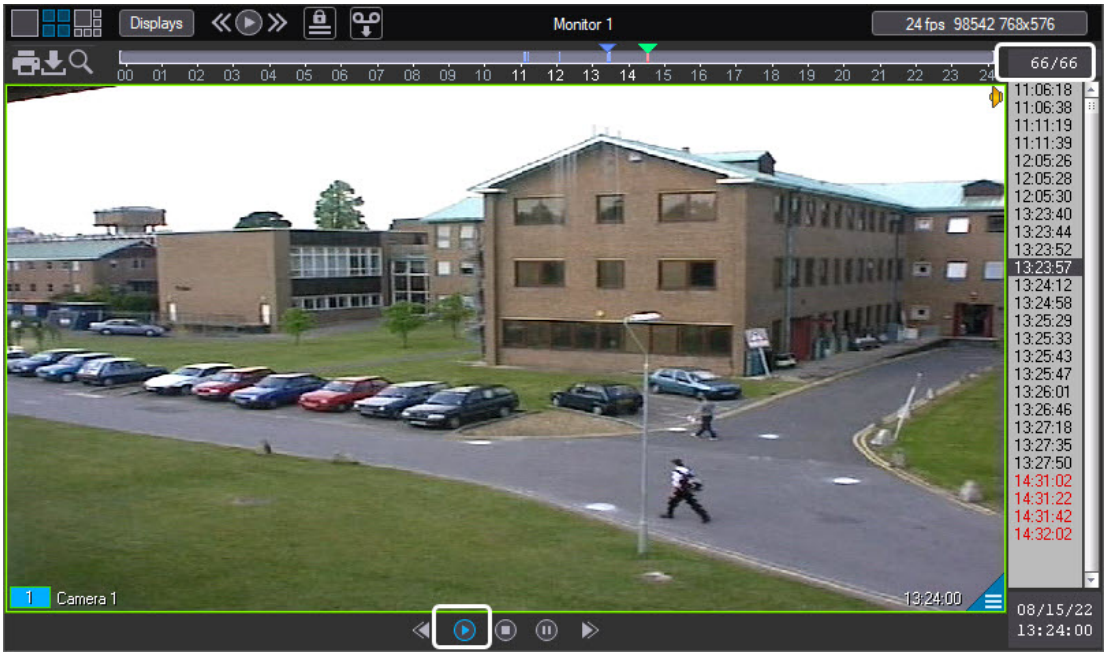
If you export a speeded video record, the sound will not be exported. If sound is required, then it is necessary to export without speed-up.

Note

When speeding up the video record export, only the key frames are played back. Hence, only the key frames are saved to the file when exporting.

To terminate export, click  or  . In this case, only the part of video fragment before the moment you click one of these buttons is exported.

As soon as the video segment saving process is complete, the **Playback** button is not longer highlighted.



The file containing the saved video recording supported with sound is saved to the *C:\Users\%current user name% \Documents\Axxon PSIM\export* directory. The file name is generated as follows: *<camera number> (<date> <time>).* For instance, *02 (03-10-07 16'28'06).avi* (file extension depends on the compression quality configuration).

Note

If captions are added to the video image (see Configuring the captions showing), they will be present in the exported video recording. The caption size is set on the **Captioner** object settings panel and may change during export if the video resolution is reduced. To enable adaptive title size, use the ExportFontAdaptive registry key (see Registry keys reference guide).

Note

If AVI format is used, the resulting file cannot be bigger than 2 GB.

Export of the archive period

On the page:

- Exporting a period of Axxon PSIM main archive
- Exporting a period of an archive located on the edge storage

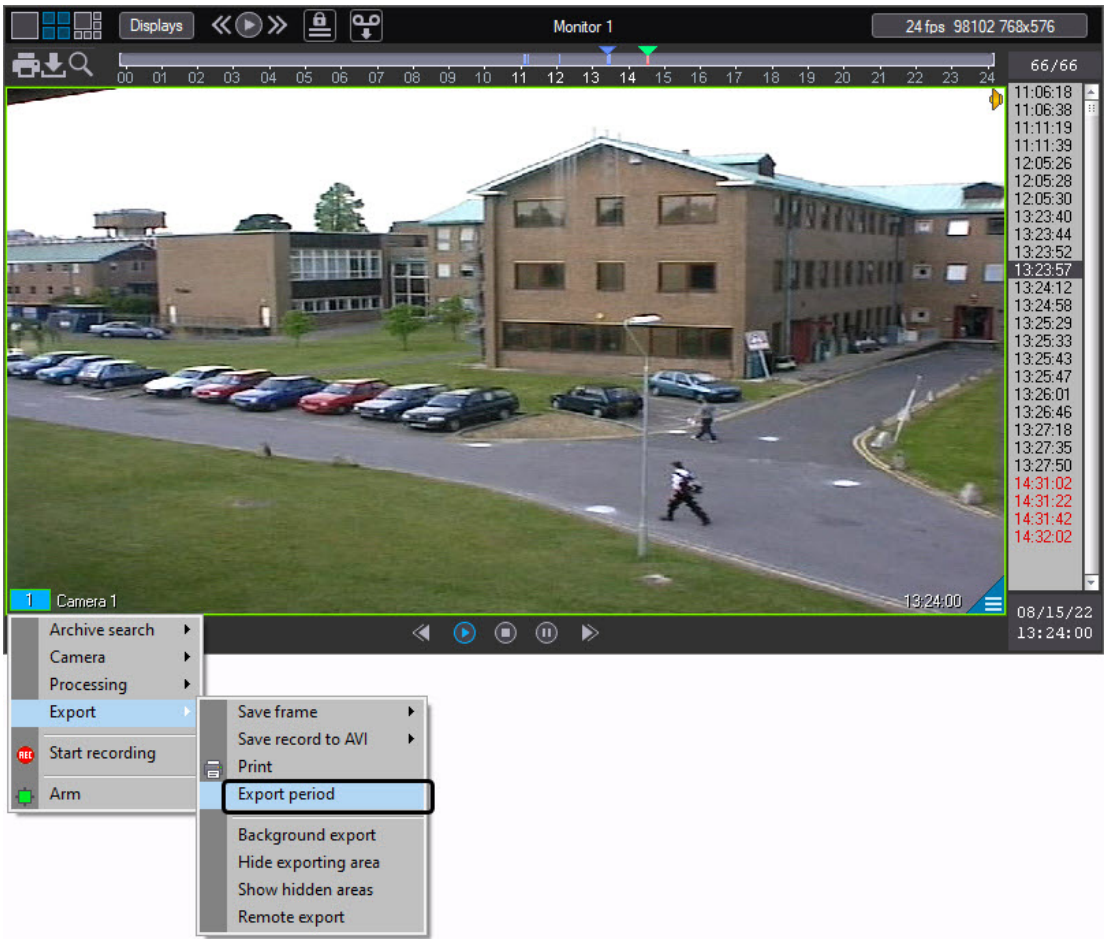
Exporting a period of Axxon PSIM main archive

Export of the archive period allows exporting video recordings for a specified period into a single AVI file.

Export of the archive period is performed via the playback control panel.

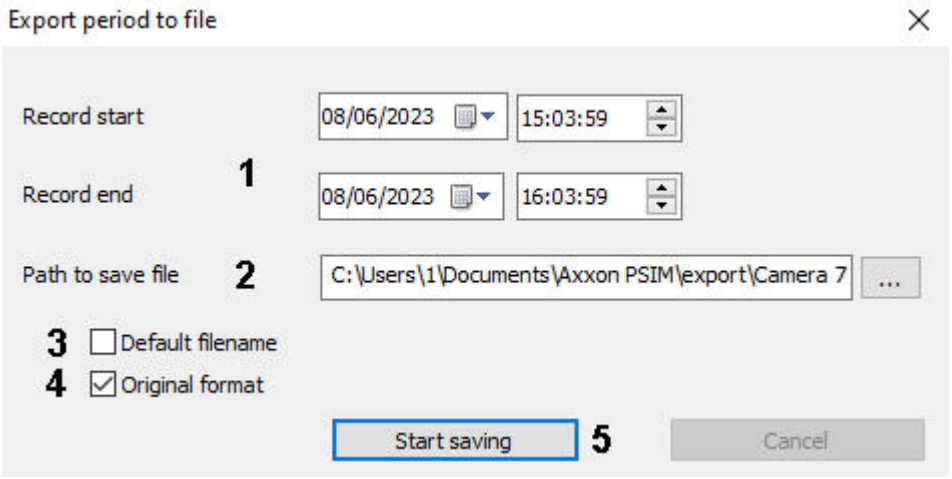
To export the archive period, do the following:

1. Go to the archive browsing mode (see Archive browsing modes).
2. In the function menu of the **Surveillance window**, select the **Export** submenu, select the **Export period** item in the submenu.



In the **Export period to file** window, set the export parameters:

1. Date and time of the record start and end (**1**).



2. The full path to the file to which the record will be exported (**2**). By default, the file is exported to C:\Users\%user name%\Documents\Axxon PSIM\export\. The file name is formed as follows: <Camera name><Start date and time specified in the export window>_<Scene number>.avi. For example, "Camera 1 2022-12-02 15-57-22_001.avi". If you set the **Default filename** checkbox (**3**), this field will be unavailable for editing.
3. If you want to save the record in the format, in which the archive is stored on the disk, set the **Original format** checkbox (**4**). The record will be saved in AVI format.

> **Note**
>
> By default, the **Original format** checkbox is not set, and export is performed in the specified format (see Export of video recording with sound and Export of silent video recordings). If you close the **Export period to file** window without clearing the **Original format** checkbox, the record will be exported in the original format ignoring the codec settings. To export a record with encoding, open and then close the **Export period to file** window, or set the value of the NativeFormat parameter to 0 in the HKEY_LOCAL_MACHINE/SOFTWARE/AxxonSoft/Axxon PSIM/Video registry section.

4. Click the **Start saving** button (**5**).

To stop the export process, click the **Cancel** button. When video saving is cancelled, the AVI file will contain only that part of the archive that has already been exported at the moment of cancelling.

> **Note**
>
> If captions were added to the video image (see Configuring the captions showing), they will be present in the exported record. The captions size is set when configuring the **Captioner** object and may change if the video resolution is reduced. To enable the adaptive captions size, use the ExportFontAdaptive registry key (see Registry keys reference guide).

> **Note**
>
> The size of the resulting file must not exceed 2 GB.

Exporting a period of an archive located on the edge storage

Exporting a period of an archive from the edge storage is performed in the same way as exporting a period of *Axxon PSIM* main archive, except for the following differences:

1. To export a period of an archive from the edge storage, you must switch to the edge storage playback mode.

2. Files will be exported to the format supported by the edge storage, not necessarily .avi.
3. If the edge storage does not support exporting video records, then the period of the archive cannot be exported. In the function menu of the **Surveillance window**, the **Export period** item won't be available in the **Export** submenu.

9.3.12 The AviExport utility

General information about the AviExport utility

On the page:

- Features
- Running the utility
- Interface

Features

The AviExport utility is used for exporting video archive for the specified period in the format of the file system of *Axxon PSIM,* or in the avi format with possibility to change the coding format (codec). AviExport allows exporting the main archive as well as the backup archive or the videogate archive (see General information on working with archives).

Features:

1. You can specify the size of exported files, i.e. the size of a volume.
2. You can export video after fisheye conversion or rotation (see Selecting the format and recompression for the exported file).
3. When converting video and audio recordings created synchronously, the output file will be with sound.
4. You can export by schedule and by connecting USB, CD, or DVD storage media.
5. You can record the exported files to a CD or a DVD, or a USB, formatted for use as a flash drive.

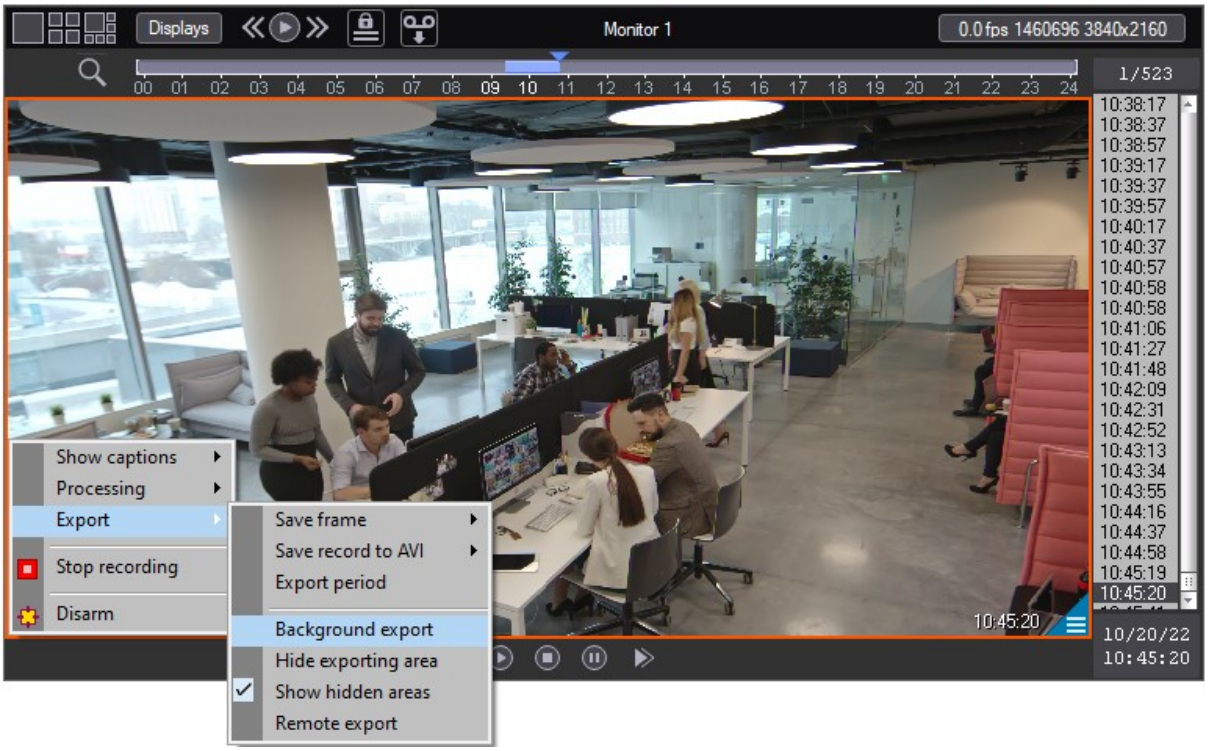
Both 32-bit and 64-bit versions of the AviExport utility are available. The 64-bit version is run when the 64-bit modules are enabled (see Configuring of using 64-bits modules).

Running the utility

You can run the AviExport utility in the **Video surveillance monitor** interface in one of the following ways:

1. Click the  button on the control panel. The control panel must be enabled in the **Video surveillance monitor**—see Setting the parameters of the Monitor interface box.
2. In the **Created bookmarks** window (see List of bookmarks).

3. In the archive mode using the **Export** → **Background export** item of the **Surveillance window** function menu.



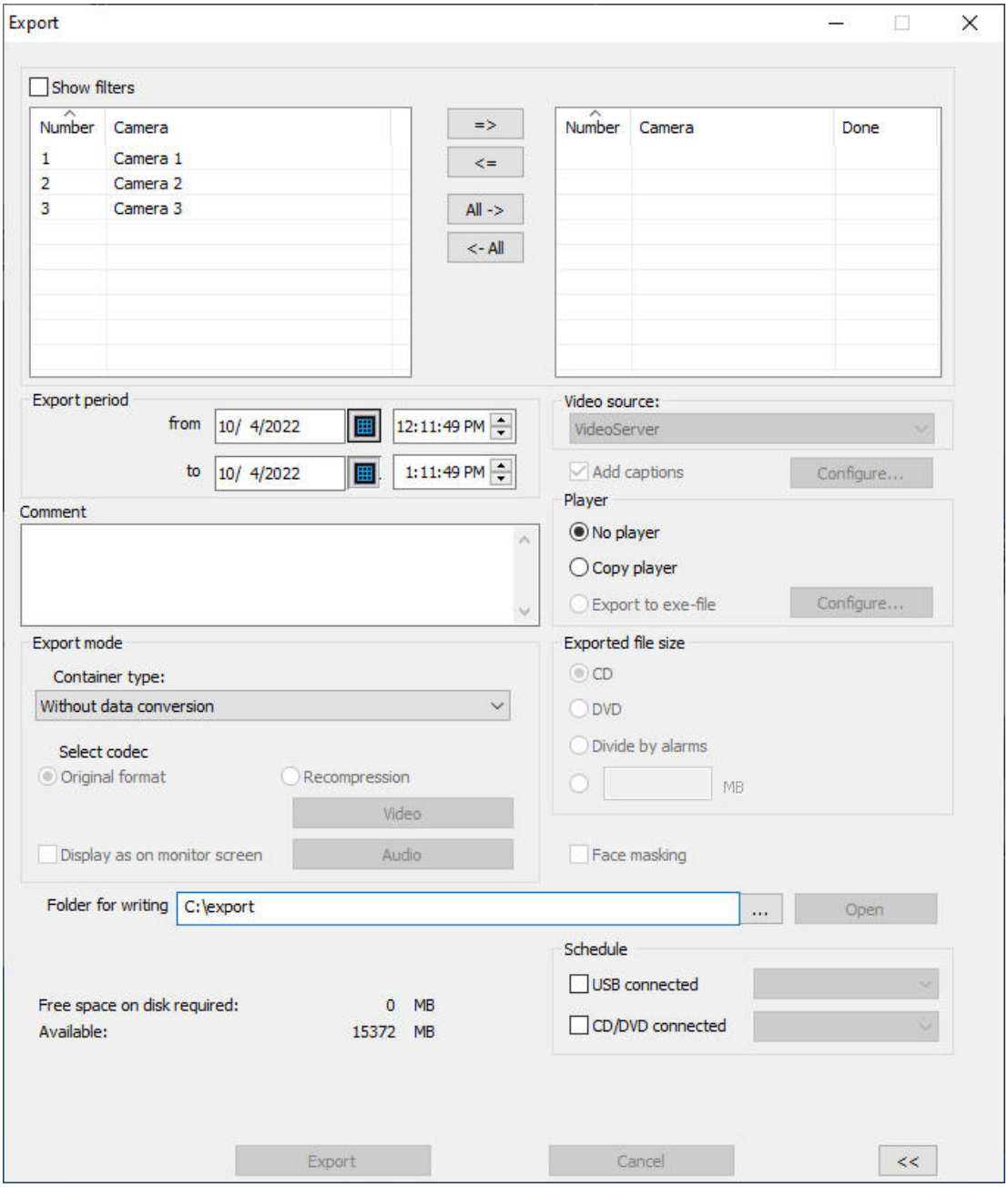
Note

The  button and the **Export** → **Background export** menu item are not displayed if the disk for recording is not selected (see Selecting the disks for video archive storage). They also are not displayed if the export is forbidden in the user rights.

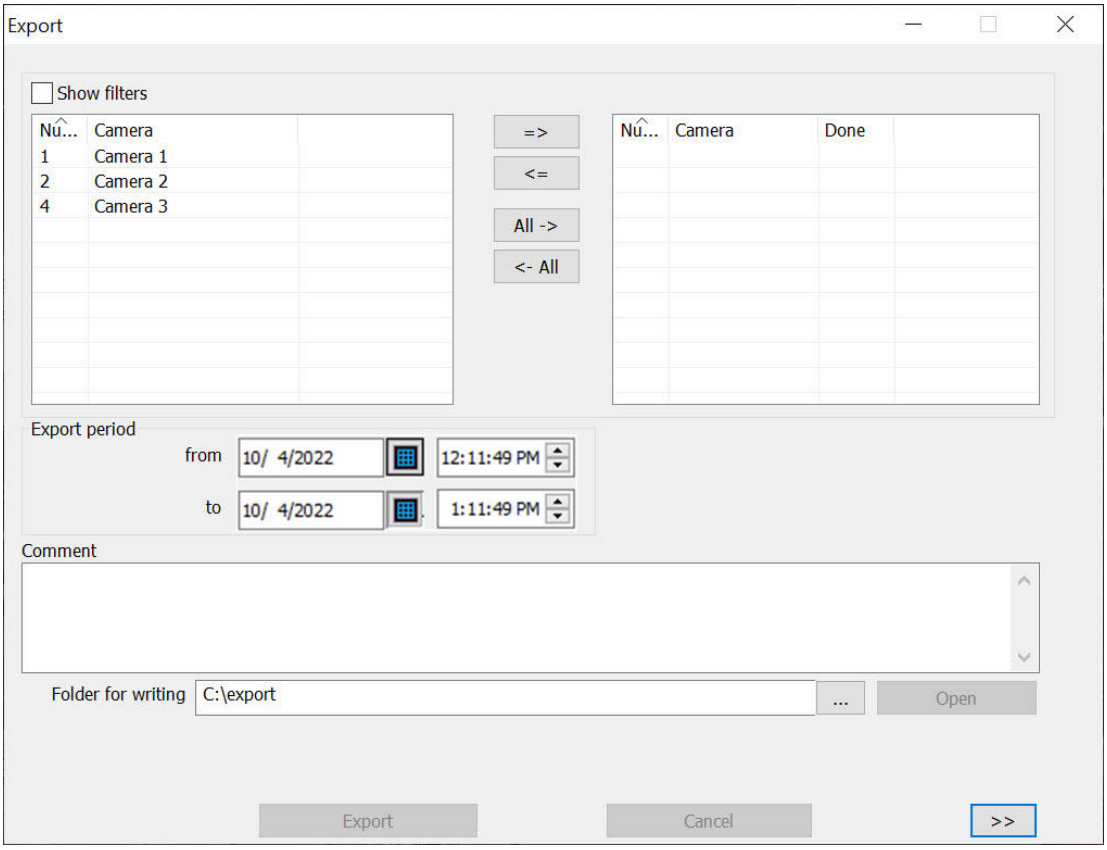
You can open several utility windows to execute several export tasks simultaneously.

Interface

The interface of the AviExport utility is presented in the figure.



Click **<<** in the bottom right corner to hide advanced settings leaving cameras selection and basic export settings only. At the next starts, the utility is launched in the expanded or basic mode depending on the mode it was shut down in.



Note

The button to switch between the expanded and basic settings may not be available when the SimpleDlgModeLock registry key is set to 1 (see Registry keys reference guide).

Note

A vertical scroll bar may appear in the AviExport Utility window at low screen resolutions.

Working with the AviExport utility

You can work with the AviExport utility in the following way:

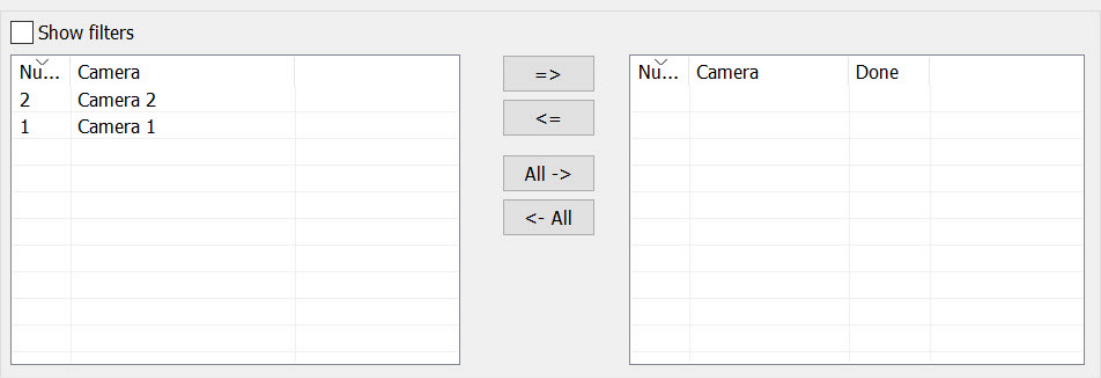
1. Select video cameras for archive export (see Selecting video cameras).
2. Select video source—main archive, backup archive, or videogate archive (see Selecting video source).
3. Specify the general parameters of export (period, folder for saving files, etc.) (see General settings of export).
4. If necessary, change the export parameters of captions (see Setting caption export parameters).
5. Select the export mode: without converting or export to AVI in the initial or specified format (see Selecting the format and recompression for the exported file).
6. If necessary, select the required size of the exported file (see The size of the exported file).
7. If necessary, configure the schedule of export (see Configure export by connecting removable media).
8. Start export (see Starting export).

Note

If the AviExport utility is launched from the **Created bookmarks** window, selection of cameras and specifying the period are performed automatically (see List of bookmarks).

Selecting video cameras

There are two lists of cameras in the top part of the AviExport utility window.

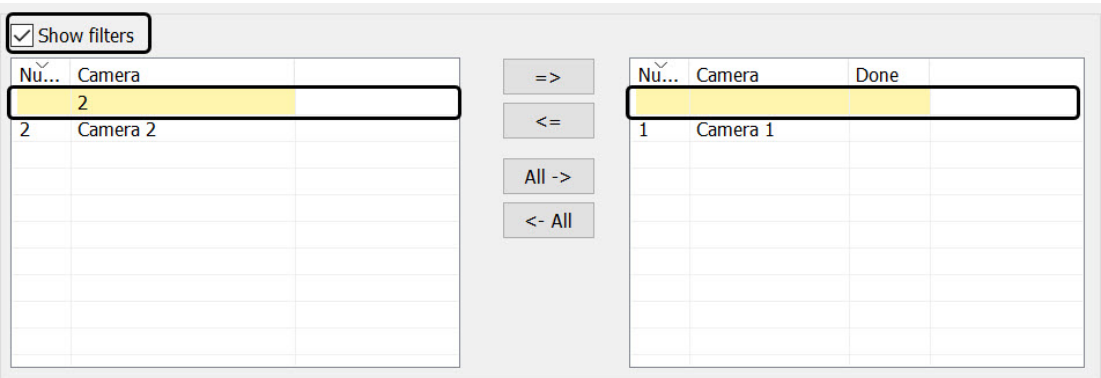


The cameras available to be selected are displayed in the left list. The cameras selected for the archive export are displayed in the right list. Select a camera in the list and use the => or <= buttons to move the camera from one list to the other.

Use the All -> button to move all cameras from the left list to the right list. Use the <- All button to move all cameras from the right list to the left list.

The cameras in the lists can be sorted by name or by ID. Left-click the header of the corresponding column to enable sorting.

Also, the search (filtering) by name and/or camera ID function is provided to facilitate the camera lists navigation. Set the **Show filters** checkbox to perform the search. As a result, the first lines of the tables will display fields for entering the search conditions. Press Enter on the keyboard or left-click in any field, except for the search condition input field, to apply the search criteria.



Note

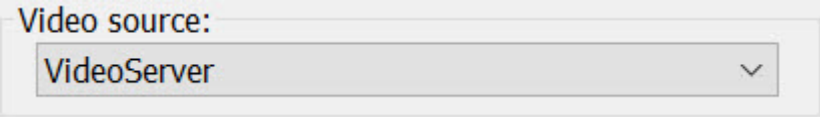
If a video camera was selected in the **Monitor**, then when you open the Export window, it will be displayed in the list on the right.

Selecting video source

> **Note**
>
> This setting is only available in the extended mode of the **Export** box. Click **>>** in the bottom right corner to display it.

The AviExport utility is used for exporting the main archive as well as the backup archive, or videogate archive, or edge storage archive (see General information on working with archives).

Video source is selected from the **Video source** drop-down list.



> **Attention!**
>
> Source selection is available if a video camera is selected—see Selecting video cameras.

The following items may be available in the list:

1. **VideoServer**—export of the main archive.
2. **Archiver**—export of the backup archive.
3. **Gate**—export of the videogate archive.
4. **Edge storage**—export archive from the Edge Storage.

> **Note**
>
> Archive from the edge storage can be exported only with the container type selected, the export won't start without data conversion (see Selecting the format and recompression for the exported file).

When configuring the Video surveillance monitor, if no **Videogate** or **Backup archive**, or **Edge Storage** (see Selecting and configuring video cameras) was selected for any camera added to the list for export (see Selecting video cameras), then the corresponding list items will not be available for selection.

> **Attention!**
>
> If **Videogate** (see Selecting and configuring video cameras) was selected for the camera added to the list for export (see Selecting video cameras) when configuring the Video surveillance monitor, then the exported video file will not contain any audio regardless of the selected video source.

If **Videogate** is used without archive, and the **Gate** source is selected, the main archive of the Video Server will be exported instead of the Videogate archive.

General settings of export

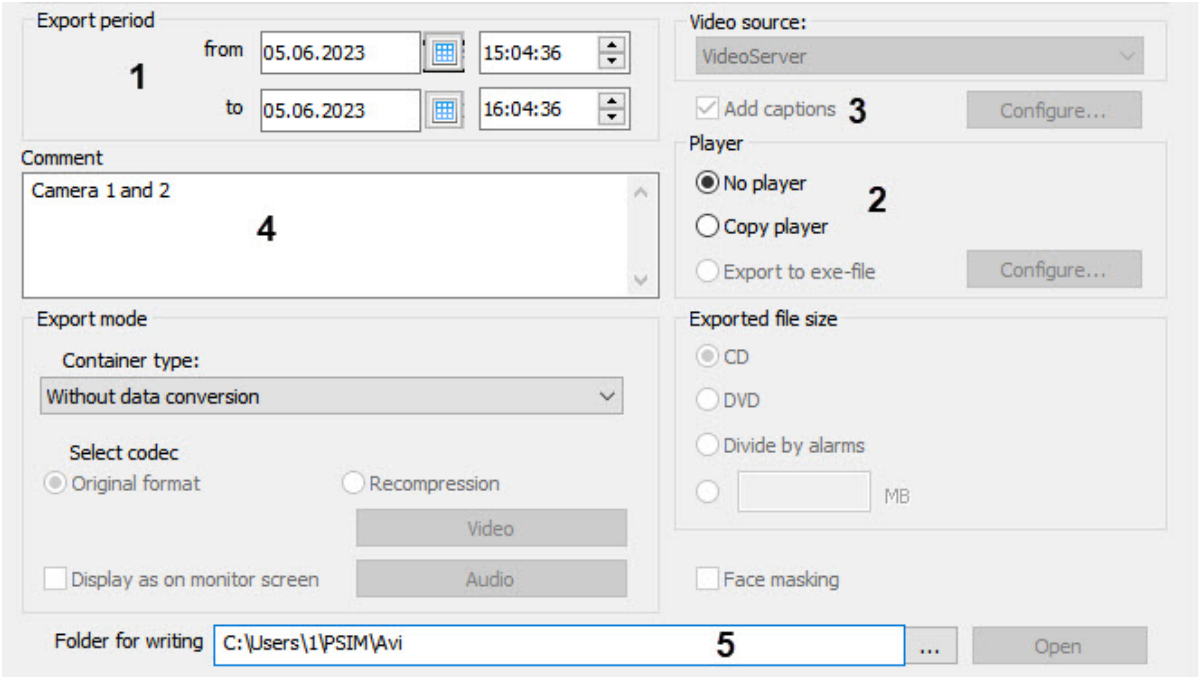
On the page:

- Export period
- Player
- Adding captions
- Comment
- Folder for writing

General settings of export consist of:

1. Export period (**1**). It is specified in the **Export period from** and **to** fields. When the utility is launched, the period is set depending on the initial conditions described in the table:
   Expand the table with the default export periods

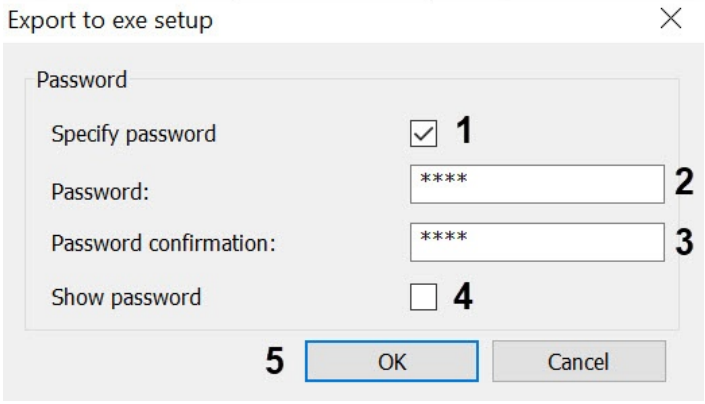
Surveillance window condition at the moment of launching the AviExport utility	**Export period, the from field**	**Export period, the to field**
Live video mode	One hour less than the current system time	Current system time
In the archive view mode, several video fragments were selected in the list	Start time of the earliest selected fragment	End time of the last selected fragment
In the archive view mode, the last fragment of the video is selected, which is not on the first frame	One hour less than the current system time	Current system time
In the archive view mode, one video fragment is selected	Start time of the selected fragment	End time of the selected fragment
In the archive view mode, several cameras and several fragments are selected	Start time of the earliest selected fragment of the camera active at the moment of launching *AviExport*	End time of the last of the selected fragments of the camera active at the moment of launching *AviExport*
Archive view mode without a selected active camera	The period will be set to the time of the selected fragment of the previous active camera, if the camera is in archive mode. If there was no previous active camera, then the time of the selected fragment of any camera in the archive mode will be set, if there is only one such camera. In other cases, the last hour will be set (period [one hour less than the current system time;current system time])	



2. Copying of the *Axxon Player* Portable to the export folder is set in the **Player** (**2**) radio button group:

> **Note**
>
> This setting is only available in the extended mode of the **Export** dialog box. Click **>>** in the bottom right corner to display it.

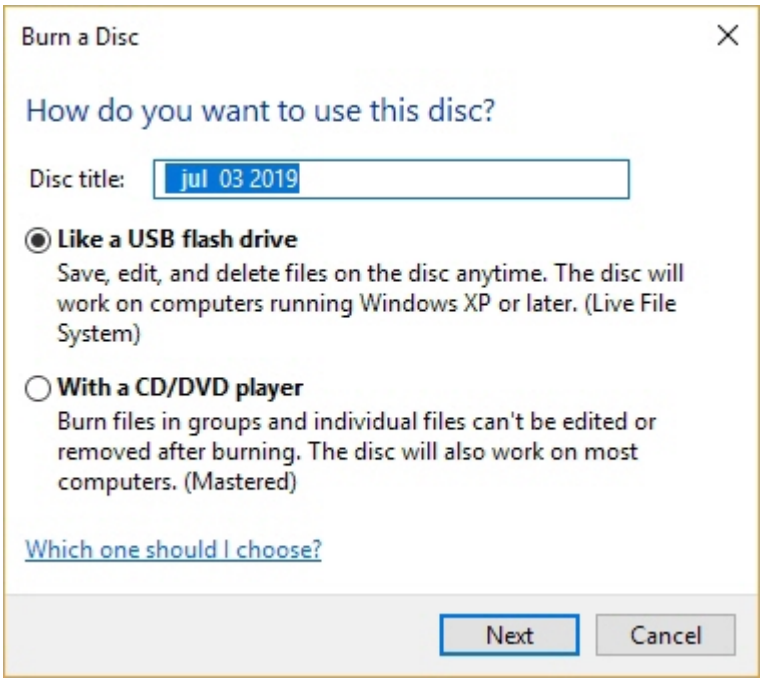
   a. If the switch is set to the **No player** position, then only archive files in the specified format will be exported.
   b. If the switch is set to the **Copy player** position, then AxxonPsim_player_portable.exe file along with archive files will be stored to the folder. The file includes a portable version of *Axxon Player*. Information on how to work with this utility is given in Axxon Player documentation.
   c. If the switch is set to the **Export to exe-file** position, then the archive will be exported to exe file that can be played back without *Axxon PSIM* or *Axxon Player* installed. If required, it is possible to set a password to open the exported exe-file, which you will need to enter every time you start it. To set a password, do the following:
      i. Click the **Configure** button. The **Export to exe setup** dialog box appears.



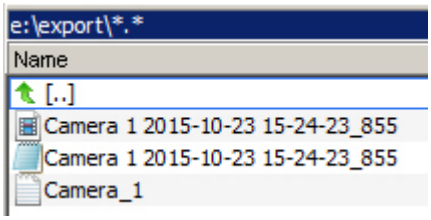
      ii. Set the **Specify password** (**1**) checkbox.
      iii. Enter the password (**2**) and confirm it (**3**).

iv. By default, all specified password characters are masked. If you want these characters to be displayed, then set the **Show password** (**4**) checkbox.
v. Click the **OK** button (**5**).

3. Adding captions to video image. If the **Add captions** checkbox (**3**) is set, then video is exported with captions saved in the captions database. Features of adding captions:
   a. if there are captions from POS terminals or ATMs, then these captions are also exported;
   b. if you selected the export mode without data conversion, you cannot disable captions overlay—see Selecting the format and recompression for the exported file;
   c. you can configure the parameters of the exported captions—see Setting captions export parameters;
   d. it is recommended to view video with captions in the *Axxon Player* utility (see Axxon Player documentation). The video with captions can also be viewed in other players, for example, in Windows Media player with enabled captions display function, though proper display of captions is not guaranteed.
4. A comment is entered in the **Comment** field (**4**). When exporting, it is saved in the "Camera_<camera id>.txt" text file in the folder specified for writing.
5. Select a folder for export using the ... button next to the **Folder for writing** field (**5**). The **Open** button is used for going to the specified folder in the Windows Explorer.
   If a CD or a DVD is selected as export destination (see The size of the exported file), the **Burn a Disc** dialog box will appear. Enter the disc title and set the switch to **Like a USB flash drive**.



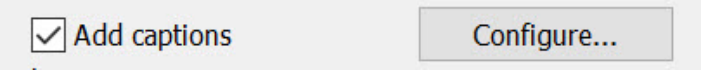
Here is an example of the selected folder contents after export (see Starting export) with the **Add captions** checkbox is set (with captions saved in a separate file) and the **Comment** field is filled in:



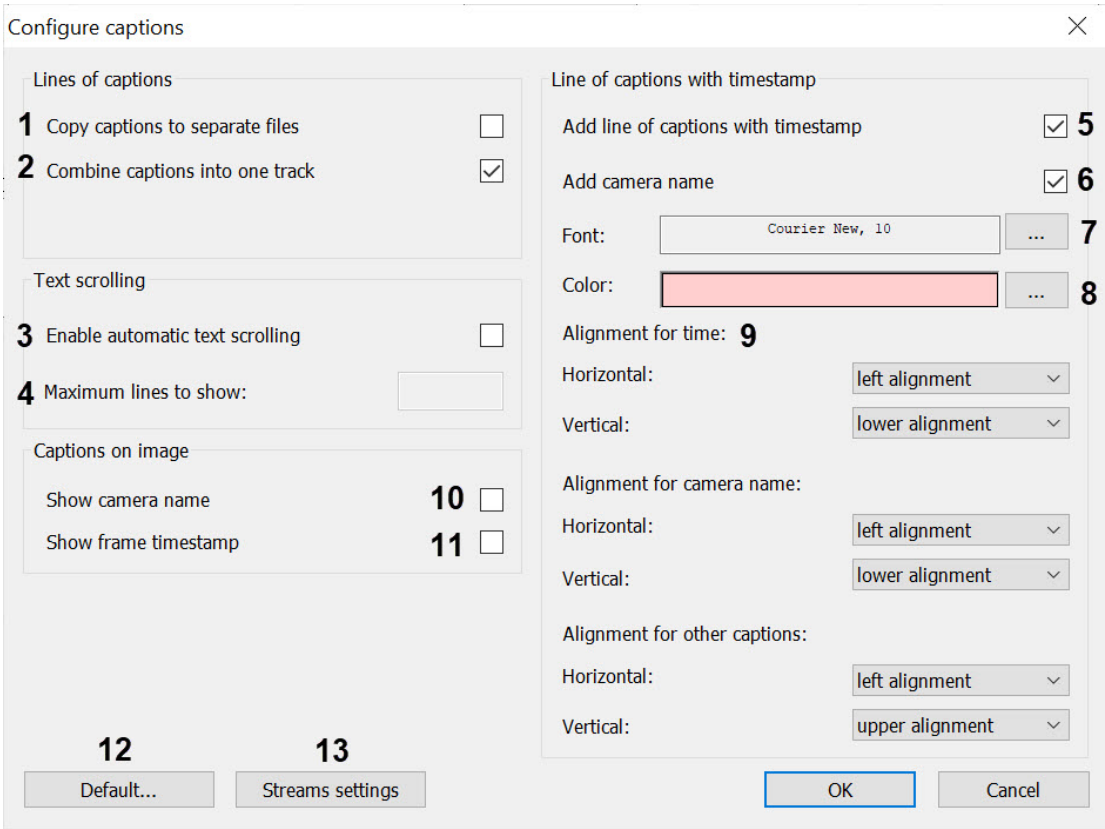
Setting captions export parameters

> **Note**
>
> This setting is only available if the **Export** dialog box is expanded. If the setting is not displayed, click **>>** in the bottom right corner of the utility dialog box to display it.

By default, when the **Add captions** checkbox is set, only the captions stored in the captions database overlay the exported video with the default display parameters. These parameters can be changed, and the captions specifying the timestamp and/or camera name can be added. To do this, click the **Configure** button next to the **Add captions** checkbox.



The **Configure captions** dialog box will appear:



You can set the following parameters in this dialog box:

1. Export parameters of the line of captions:
    a. The **Copy captions to separate files** checkbox enables saving the exported captions as a separate file with the .srt extension (**1**). The file with captions has the .srt extension and is saved to the specified folder for recording. Captions are exported as a separate line.
    b. The **Combine captions into one track** checkbox enables saving captions of all kinds into one track (or one .srt file) (**2**). If the checkbox is clear, then the timestamp and camera name captions are exported separately from the captions from the captions database.

> **Note**
>
> Set both the **Copy captions to separate files** and the **Combine captions into one track** checkboxes in order to view all captions in Windows Media Player (WMP). This is due to WMP feature: it does not allow selecting or switching the captions tracks (only enabling or disabling them).

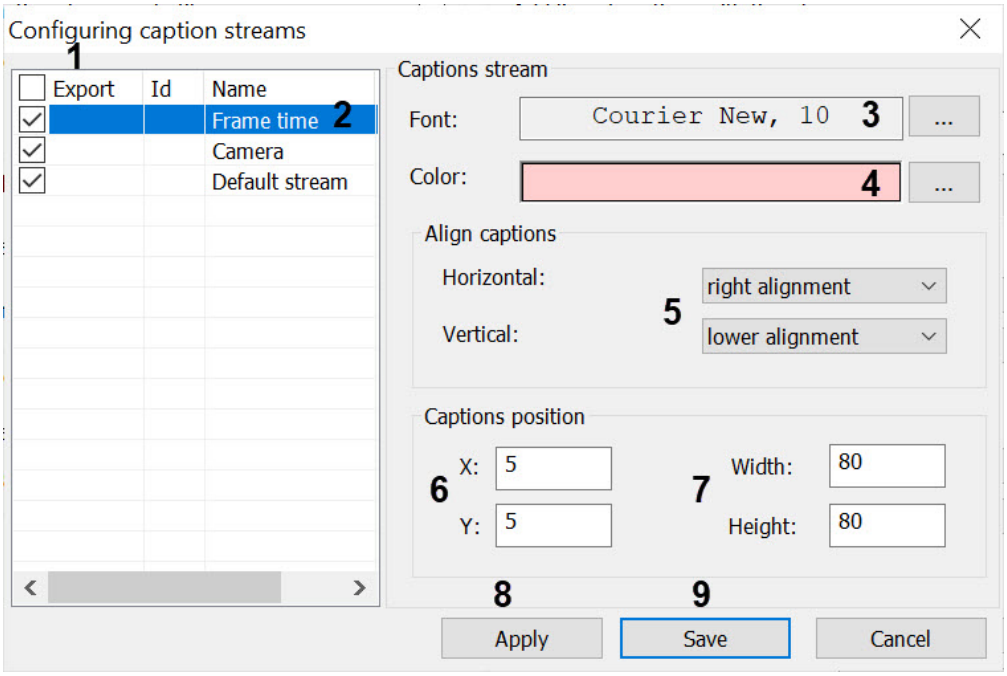
> **Note**
>
> To ensure that the caption streams combined into one track don't overlap on the video during playback, configure one of the option to display them:
> - set left alignement for each stream;
> - set different values of captions position for each stream using the X and Y coordinates;
> - set different alignement options for each stream.
>
> See Configuring caption streams. If you don't configure the display, captions may overlap during playback because their display areas overlap.

2. Text scroll parameters:
   a. The **Enable automatic text scrolling** checkbox is used to limit the number of lines in captions overlaying the exported video (**3**).
   b. The maximum number of captions lines that can overlay the video is set in the **Maximum lines to show** field (**4**). If there are more lines in the captions that should be displayed in the video, then the lines will be displayed in parts with 1 second interval between the parts.
3. The captions with timestamp and date may be added as a track or built-in over the video.
   a. Parameters of line of captions with timestamp and camera name:
      i. The **Add line of captions with timestamp** checkbox enables overlaying a line of captions with camera timestamp and date on the exported video (**5**).
      ii. The **Add camera name** checkbox enables overlaying a line of captions with camera name on the exported video (**6**).
      iii. The **Font** button opens the standard Windows OS dialog box for setting the parameters of the captions fonts (**7**).
      iv. The **Color** button opens the standard Windows OS dialog box for selecting the captions color (**8**).
      v. The **Horizontal alignment** and **Vertical alignment** drop-down lists allow positioning of timestamp, camera name, and other captions on the video (**9**).
   b. Parameters of the built-in captions:
      i. The **Show camera name** checkbox enables the built-in captions with the camera name (**10**). These captions are always located in the bottom left corner on the exported video.
      ii. The **Show frame timestamp** checkbox enables the built-in captions with the frame timestamp (**11**). These captions are always located in the bottom right corner on the video.

      > **Note**
      >
      > Use FontCamNameHeight, FontCamTimeHeight, ExportFontAdaptive registry keys to set the built-in captions size (see Registry keys reference guide).

If it is necessary to return the default settings, click the **Default** button (**12**).

If it is necessary to apply the settings specified in the **Captioner** object for the captions (see Configuring captions display on a video image), click the **Streams settings** button (**13**). The dialog box for configuring caption streams will open:



You can set the following parameters in this dialog box:

1. Set the checkboxes in the **Export** column for those caption streams that should be displayed in the exported video file (**1**).
2. Configure the settings of the displayed stream:
    a. Left-click the required stream to select it (**2**).
    b. To configure the font, click the ... button next to the **Font** field (**3**). The button opens a standard Windows OS dialog box for setting the parameters of the captions font.
    c. To configure the color, click the ... button next to the **Color** field (**4**). The button opens a standard Windows OS dialog box for selecting the captions color.
    d. In the **Horizontal** and **Vertical** drop-down lists, select the captions alignment option (**5**).
    e. Set the coordinates of the upper left corner of the captions display area: the **X** (horizontal indent from the left screen border) and the **Y** (vertical indent from the upper screen border) fields (**6**).
    f. Set the dimensions of the captions display area: the **Width** (captions display area width) and the **Height** (captions display area height) fields (**7**).
    g. Click the **Apply** button to save the specified settings (**8**).
3. Configure settings for other streams by repeating the sub-steps from step 2.
4. Click the **Save** button (**9**).

Selecting the format and recompression for the exported file

On this page:

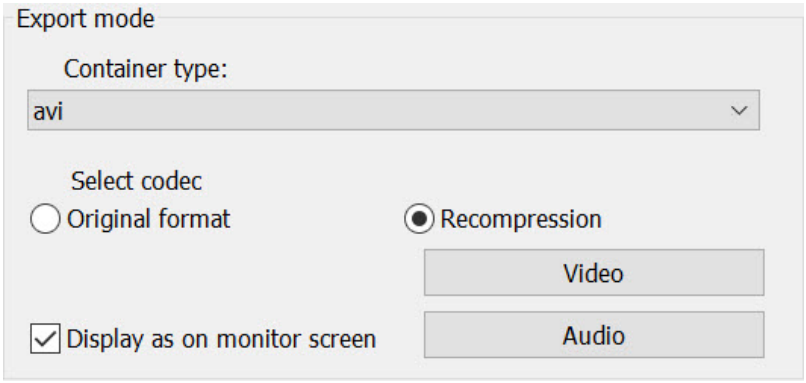
- Selecting the format of the exported file
- Video converting format
- Audio converting format

Note

This setting is only available in the extended mode of the **Export** dialog box. Click the **>>** button in the bottom right corner to display it.

Selecting the format of the exported file

Configuring the **Export mode** is selecting the format of a file (container type) and codec (original or specified recompression):



Different combinations of settings and their limitations are described in the table:

Container type	Codec	Result	Limitations and features
Without data conversion	**Original format**	Export is performed in the format of *Axxon PSIM* file system, i.e. the format in which archive is stored on a disk	Export without conversion is not available for the external repositories. 1. The following functions are NOT available in this mode: • Watermark is not added to the video image. • Captions enabling and disabling are not available when exporting. If an archive recording has captions, they will be exported. When switching to the **without data conversion** position, the **Add captions** checkbox is set automatically and becomes unavailable for editing. • The conversion is not available—the **Display as on monitor screen** checkbox is unavailable. • Export in the .exe format is not available

Container type	Codec	Result	Limitations and features
AVI / MKV / MP4 / FLV / ASF	**Original format**	Export to the selected format is performed without recompression (without changing of the codec)	Watermark is added to the video image. It is displayed over the video image when playing back the video archive in the *Axxon Player* utility (see Watermarks)

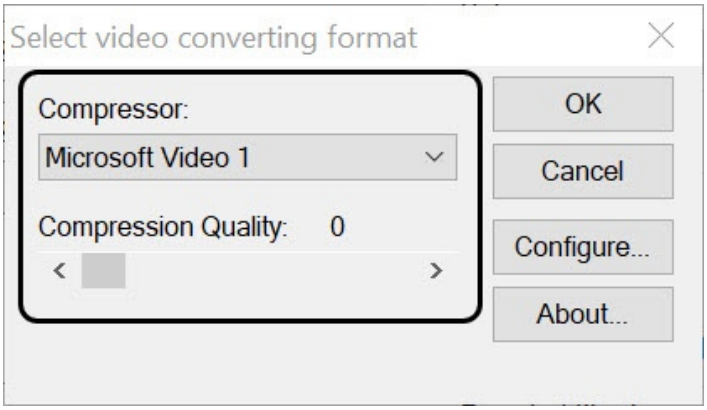
<table>
<tr><th>Container type</th><th>Codec</th><th>Result</th><th>Limitations and features</th></tr>
<tr><td>AVI / MKV / MP4 / FLV / ASF</td><td>Recompression</td><td>Export to the selected format with the selected audio and video codec. Video codec is specified using the Video format button, audio codec is specified using the Audio format button (described below)</td><td>
Attention!
The availability of the codec (recompression method) depends on the selected container (file format).
Expand the table of the container and codec compatibility
Available codecs when exporting with recompression:
<table>
<tr><th>Codec / container</th><th>AVI</th><th>ASF</th><th>FLV</th><th>MKV</th><th>MP4</th></tr>
<tr><td>Intel IYUV</td><td>+</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Microsoft Video 1</td><td>+</td><td>+</td><td>-</td><td>-</td><td>-</td></tr>
</table>
</td></tr>
</table>

Container type	Codec	Result	Limitations and features
			x264 + + + + + LagarithLossless + + - - - MPEG4 + + - + + FullFrames + - - - - Features:

Container type	Codec	Result	Limitations and features
			• If fisheye conversion, rotation or scaling is applied to the image in the **Surveillance window**, then in order to export the video using this conversion, it is necessary to set the **Display as on monitor screen** checkbox (see Image processing). The video is stored in the archive in the original format, and when being exported, the video angle is selected at the current moment for the camera in the **Surveillance window**. • Watermark is added to the video image. It is displayed over the video image when playing back the video archive in the *Axxon Player* utility (see Watermarks). • The 100 FPS value will be displayed in the properties of the exported AVI file. This value is set by the software, as the frames of the original video can be arranged unevenly. When exporting, frames are distributed so that the final AVI file is played back smoothly. • The size of the exported AVI file is limited to 1.97 GB. For other formats and modes, there is no size limit. • By default, if the selected export period contains a recording from several streams that have different video resolutions, then each video fragment of such a stream will be exported to a separate file. It is possible to splice such video fragments into one file using the **UseFfmpegConcat** registry key (for details, see Registry keys reference guide). In this case, the resulting exported file will be in **MKV** format regardless of the selected container type

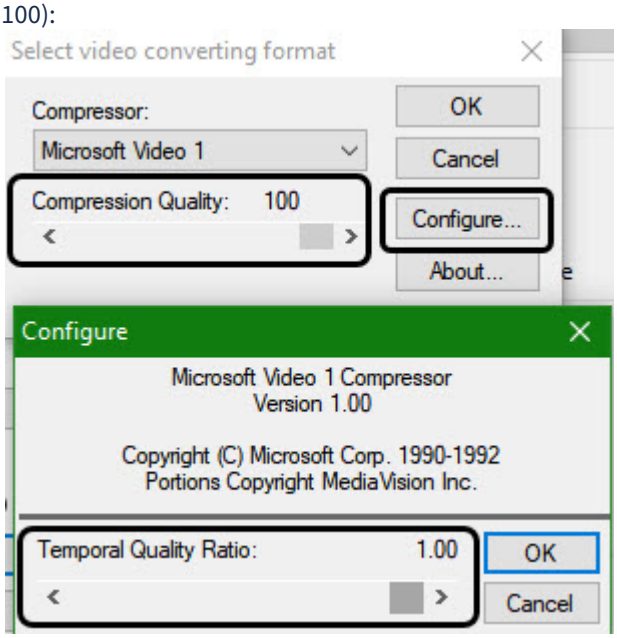
Video converting format

When clicking the **Video format** button, the dialog window will open, in which codec and compression ratio should be selected.



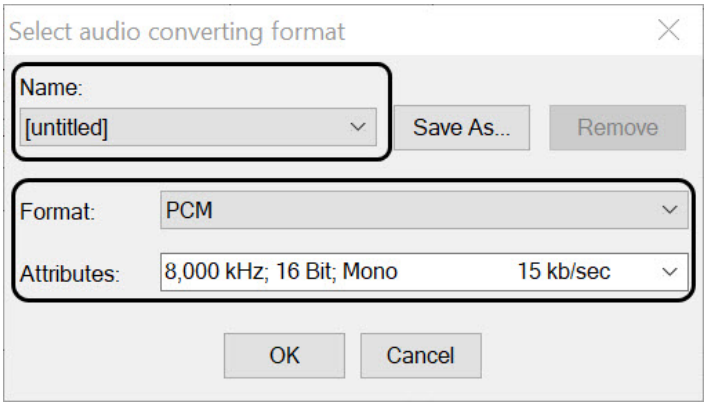
Features of recompression for different formats:

- Recompression without compression is only available for **AVI** container.
- When recompressing to **Xvid MPEG4 Codec/Microsoft Video 1** format, the resulting exported file may be several seconds longer.
- When recompressing to **x264vfw−H.264 / MPEG-4 AVC codec** format, the first few seconds in the resulting exported file may be lost.
- When recompressing to **Microsoft Video 1** format, click the **Configure** button and move the **Temporal Quality Ratio** slider to the maximum value (1), and select the maximum **Compression Quality** (slider to 100):



Audio converting format

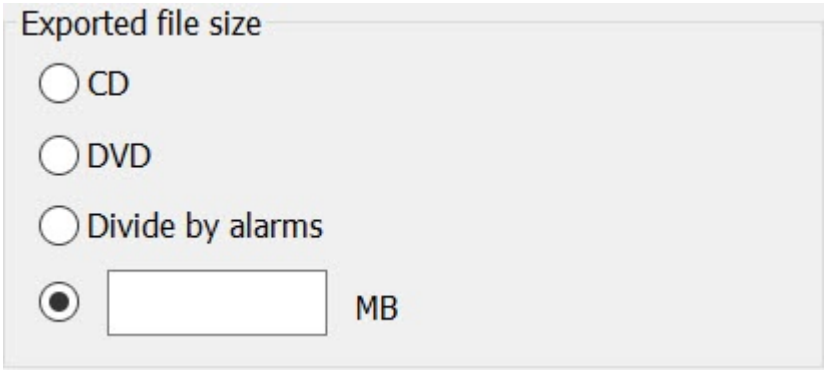
When clicking the **Audio format** button, the dialog box will open, in which the format of the audio file and the set of sound quality parameters or ready settings profile should be selected.



> **Note**
>
> For the **ASF** and **MKV** containers, when exporting with recompression, it is necessary to select an attribute value of 8,000 kHz or less in the PCM audio format parameter.

The size of the exported file

When exporting to AVI, MKV, MP4, FLV, ASF (see Selecting the format and recompression for the exported file), it is possible to specify the size of the exported file using the same-name switch. If the size of the exported file is larger than the specified value, then the file will be divided into several parts—volumes. Positions of the **Exported file size** switch correspond to following ways of defining the volume size:

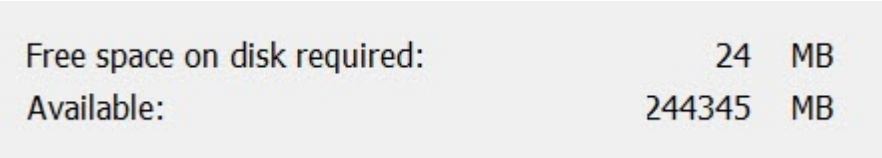


1. **CD**—the files of this size are suitable for record on CD disk (670 MB).
2. **DVD**—the files of this size are suitable for record on DVD disk (4,7 GB, for AVI file—2 GB).

   > **Note**
   >
   > If you selected CD or DVD, and the size of the archive that needs to be exported is larger than the disk size, the recording will go as follows: the part of the exported archive will be recorded on the inserted disk. Then the disk drive will open for the next disk to be inserted. After inserting a new disk, the next part of the archive will be recorded on it. And so on, until all video recordings are exported

3. **Divide by alarms**—division into files is performing if there are time intervals between the records. If the recording is continuous, alarms are not considered.
4. Specify the volume size in megabytes in the text field. The AVI file should not be set to more than 2048 MB. If you set a larger value, the size of the resulting files will still not exceed 2 GB.

When you change the period (see General settings of export), the disk space required for saving the specified period of archive is automatically calculated and displayed:



Information about the required disk space is displayed when exporting without data conversion and when exporting in the original format, but it is not displayed when exporting with recompression (see Select export mode). Information about available disk space is always displayed.

If there is not enough disk space to save exported files, the **Export** button (see Starting export) becomes inactive and the "It is not enough free disk space" message is displayed at the bottom of the window.

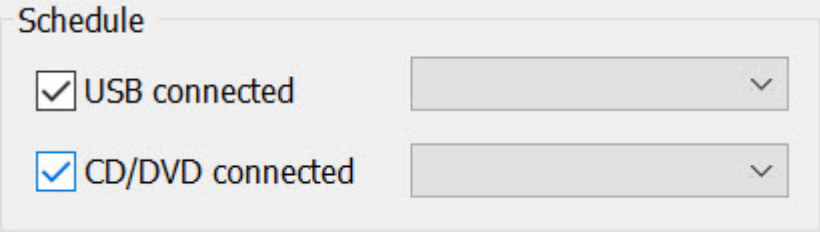
Configure export by connecting removable media

> **Note**
>
> This setting is only available in the extended mode of the **Export** dialog box. Click **>>** in the bottom right corner to display it.

The AviExport utility allows exporting archive when connecting a USB or a CD/DVD to computer.

In this case, non-exported bookmarks are exporting. Information about date and time of export, exported bookmarks is displayed in the **Created bookmarks** window—see List of bookmarks.

You can configure a schedule in the **Schedule** group.



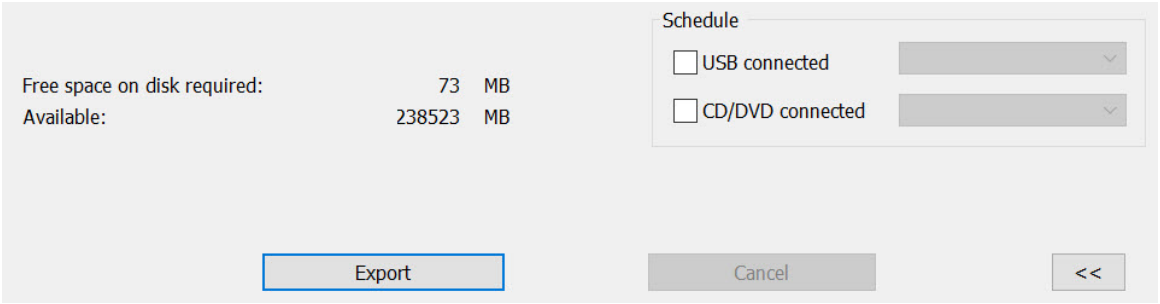
Set the **USB connected** checkbox and select the character of the USB if bookmarks should be exported when a USB is connected.

Set the **CD/DVD connected** checkbox and select the character of the CD/DVD if bookmarks should be exported when a CD/DVD is connected.

> **Note**
>
> Export by schedule can also be configured. Export by schedule is performed using macros or scripts and time zones. For detailed information about their creation, see Administrator's Guide and Programming Guide (JScript).

Starting export

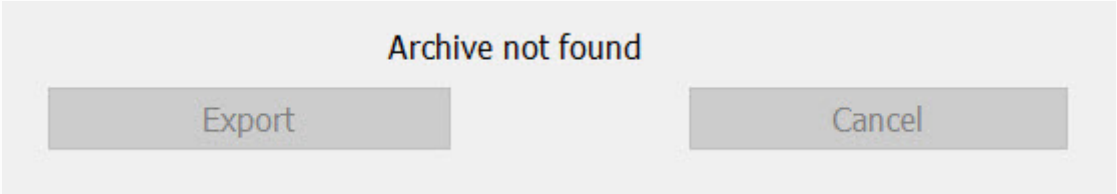
After configuring the required export parameters, click the **Export** button to start the process.



Note

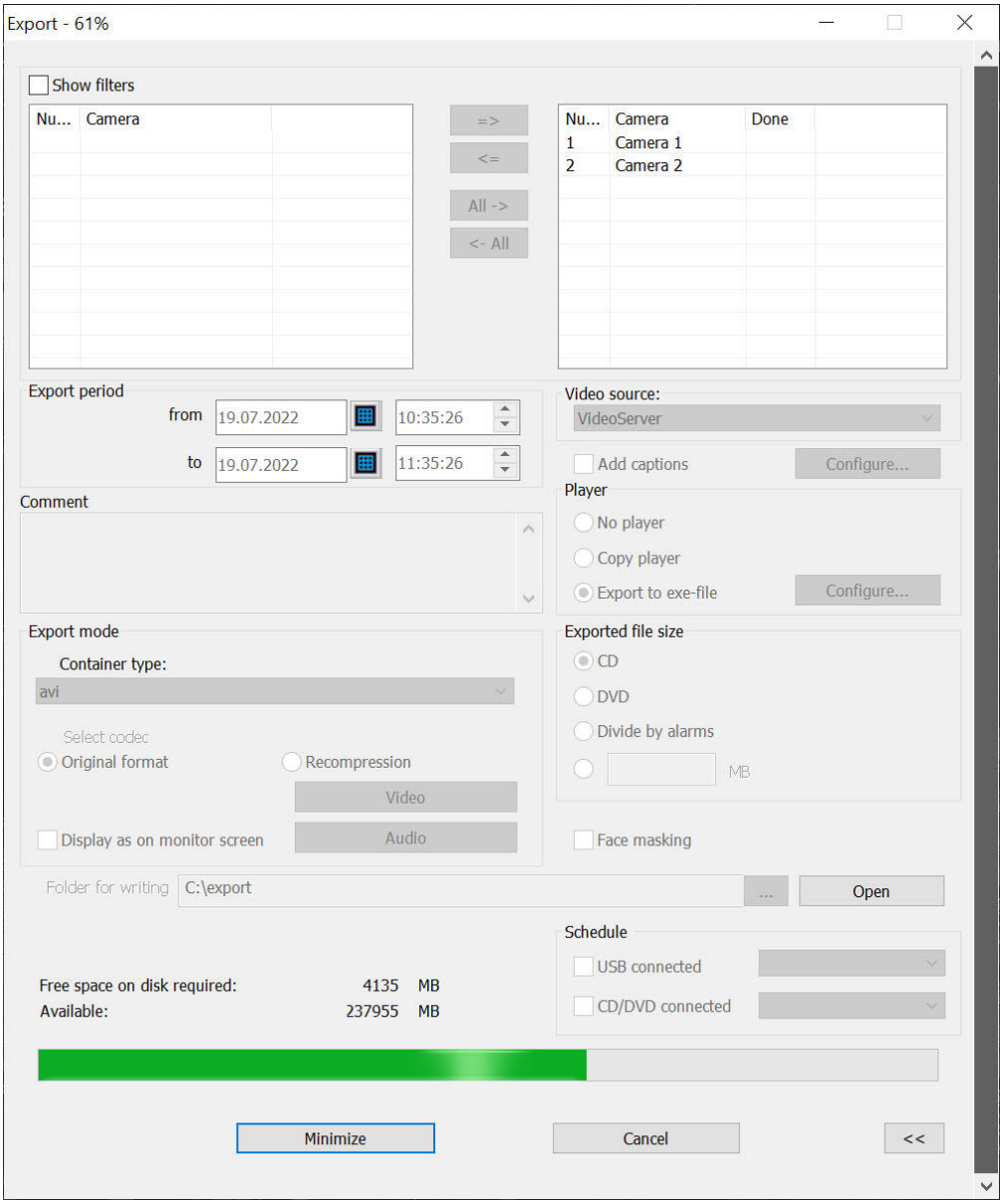
The **Export** button can be inactive if

- there are no archive files by the selected cameras for the specified period. Also, the corresponding message is displayed above the button in such a case:



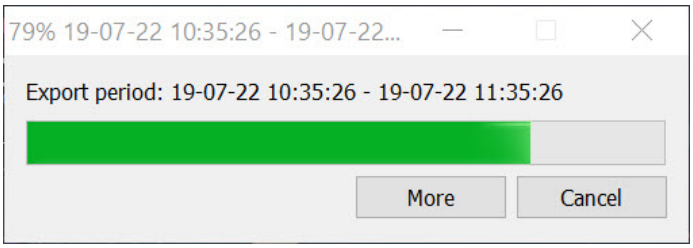
- there is not enough space to save the exported files (see The size of the exported file).

After clicking the **Export** button, all elements of the utility configuration will become inactive, and the bar of export progress will be displayed at the bottom of the utility window. The percentage of export will be displayed in the window title and next to each camera name.



It is possible to stop export at any time by clicking the **Cancel** button.

When the AviExport utility window is minimized during export, the progress is displayed in the smaller window:



To expand the AviExport utility window, click the **More** button.

Export result

After export is completed, a file of the specified type will be created in the specified folder—for example, AVI file with the name in the "camera_id_YYYY-MM-DDTHH-MM-SS.avi" format, or a VIDEO folder containing archive files if export is performed without conversion.

Export features:

1. The duration of the exported file may be longer than the specified export period. This is because the export starts with the last reference frame before the specified time period. For example, if you export 30 seconds of recording, the resulting file may be 31 seconds long.
2. If there are special characters in the camera name, such as \, /, :, *, ?, |, ", they will be replaced by underscore _ in the file name. If videos have captions with camera name, it will be displayed with special characters (see Setting captions export parameters).
3. If video resolution was changed during export, then the exported file will be divided into several parts containing archive intervals with different resolutions. If the **UseFfmpegConcat** registry key is enabled to merge such parts into one file (for details, see Registry keys reference guide), the exported file will be in **MKV** format regardless of the selected container type. If only codec (not the resolution) was changed during export, then the exported file won't be divided into parts. The change of codec and resolution can be caused by selection of different streams for recording upon alarm and continuous recording—see Configuration of multistream video.
4. If you select several cameras for export and at least one of them has no recorded archive in the specified time interval, the files will be successfully created, but the export will end with the "Export error" message. The error occurs because the cameras without archive didn't generate the resulting file.

Working with the AviExport utility from command line

You can work with the AviExport utility from the command line using the AviExport.run file located in the <*Axxon PSIM* installation folder>\Modules folder for 32-bit Windows OS or <*Axxon PSIM* installation folder>\Modules64 for 64-bit Windows OS.

> **Attention!**
>
> You can work with the AviExport utility from the command line only when *Axxon PSIM* is running.

The following parameters are used when working with the AviExport utility from the command line:

-format:format—output container format. This is an optional parameter, the default is avi.

Available values:

- **fs**—*Axxon PSIM* file system;
- **avi**—avi container;
- **mkv**—mkv container;
- **asf**—asf container;
- **flv**—flv container;
- **mp4**—mp4 container.

-extr:path—the path to the portable version of the player (Axxon_player_portable.exe for x32 or Axxon_player_portable64.exe for x64), it also includes the exe file mapping mode. This is an optional parameter. Disabled by default.

-period:[start time;end time]—export period. Time is set in the YYYY-MM-DDThh:mm:ss format, for instance, 2015-09-29T12:10:50. This is a mandatory parameter.

-dst:path—path to the file or folder. If the path ends with '\' symbol, then it is identified as a path to folder, file names are generated automatically. The path is always identified as the path to folder when exporting to *Axxon*

PSIM file system. If the path does not exist, then the utility tries to create it automatically. This is a mandatory parameter.

-src:[path to source]—data source (audio and video) and its parameters. At least one (or more) data source must be specified.

There are several ways to specify a path:

1. [ip-address:port;id=camera ID]. Example -src:[127.0.0.1:900;id=5]
2. [ip-address:port;id=camera ID;ipstorage_id=Edge storage ID]. This is for Edge storage archive export. Example -src:[127.0.0.1:900;id=500;ipstorage_id=500]
3. ["path to Axxon PSIM archive";id=camera ID]. Example -src:["C:\Path to Axxon PSIM Archive\";id=5]

When the data source is specified, optional parameters can be specified separated with ";":

- **vcodec: value**—video codec settings. It is not used when packing to *Axxon PSIM* file system is performed. Available values:
- **vcodec:auto**—bin packing with no conversion (used by default).
- **vcodec:axxn**—bin packing with no conversion (AXXN codec is specified).
- **vcodec:[codec parameters]**—for example, vcodec:[fourcc=DIVX;r=-1;k=-1:q=6]
- **audio:value**—audio source settings. Available values:
- **audio:auto**—audio is exported automatically if it is configured and present in the archive (used by default).
- **audio:off**—audio is not exported for this camera.
- **audio:[path]**—specifying the path to the audio source in the [ip-address:port;id= microphone ID] or ["path to Axxon PSIM archive";id=microphone ID] format.
- **titles:[parameters]**—titles settings. It is not used when packing to *Axxon PSIM* file system is performed. Parameters:
- **int**—titles are exported in the bin body.
- **ext**—titles are exported to external .srt file.
  By default, titles are not exported.

-options:[parameters]—extra options during export. All parameters are optional. It is not used when packing to *Axxon PSIM* file system is performed.

Possible parameters:

- **holesplit=[number]**—time (in milliseconds) allowed between archive intervals during which intervals are merged in one file. If time between intervals exceeds the specified value, then there is no merging. Following data is recorded to a new file. By default, all intervals are merged. When multiple channels are exported into .avi file, the parameter is not used.
- **maxsize=[number]**—maximum size of a file (in MB). If the size is exceeded, then following data is recorded to a new file. Maximum allowed value as well as default value is 4096.
- **duration=[number]**—maximum duration of one file (in seconds). If the duration is exceeded, then following data is recorded to a new file. By default, there is no duration limit.

Export examples with different codecs:

- **DIVX:**
  -dst:"E:\test\export1\" -format:avi -extr:"E:\test\export1\Axxon_player_portable.exe" -src:[127.0.0.1:900;id=5];vcodec:[fourcc=DIVX;r=-1;k=-1:q=6];audio:[127.0.0.1:910;id=2];titles:[ext;int] -period:[2015-09-29T12:10:50;2015-09-29T12:40:50]
- **xvid mpeg-4:**
  -dst:"C:\Users\AxxonSoft\Documents\Axxon PSIM\export\" -tmp:"C:\Users\AxxonSoft\Documents\Axxon PSIM\export\132CCBFA-18F3-E811-AA66-1C1B0DE52EED\" -format:avi -period:[2018-11-28T17:20:00.000;2018-11-28T17:21:00.000] -options:[maxsize=670] -src:[127.0.0.1:900;id=1];vcodec:[fourcc=xvid;r=0;k=0;q=0];titles:[ext;int]

- **x264vfw:**
  -dst:"C:\Users\AxxonSoft\Documents\Axxon PSIM\export\" -tmp:"C:\Users\AxxonSoft\Documents\Axxon PSIM\export\F533AE2C-19F3-E811-AA66-1C1B0DE52EED\" -format:avi -period:[2018-11-28T17:20:00.000;2018-11-28T17:21:00.000] -options:[maxsize=670] -src:[127.0.0.1:900;id=1];vcodec:[fourcc=x264;r=0;k=0;q=0];titles:[ext;int]

Face masking at export

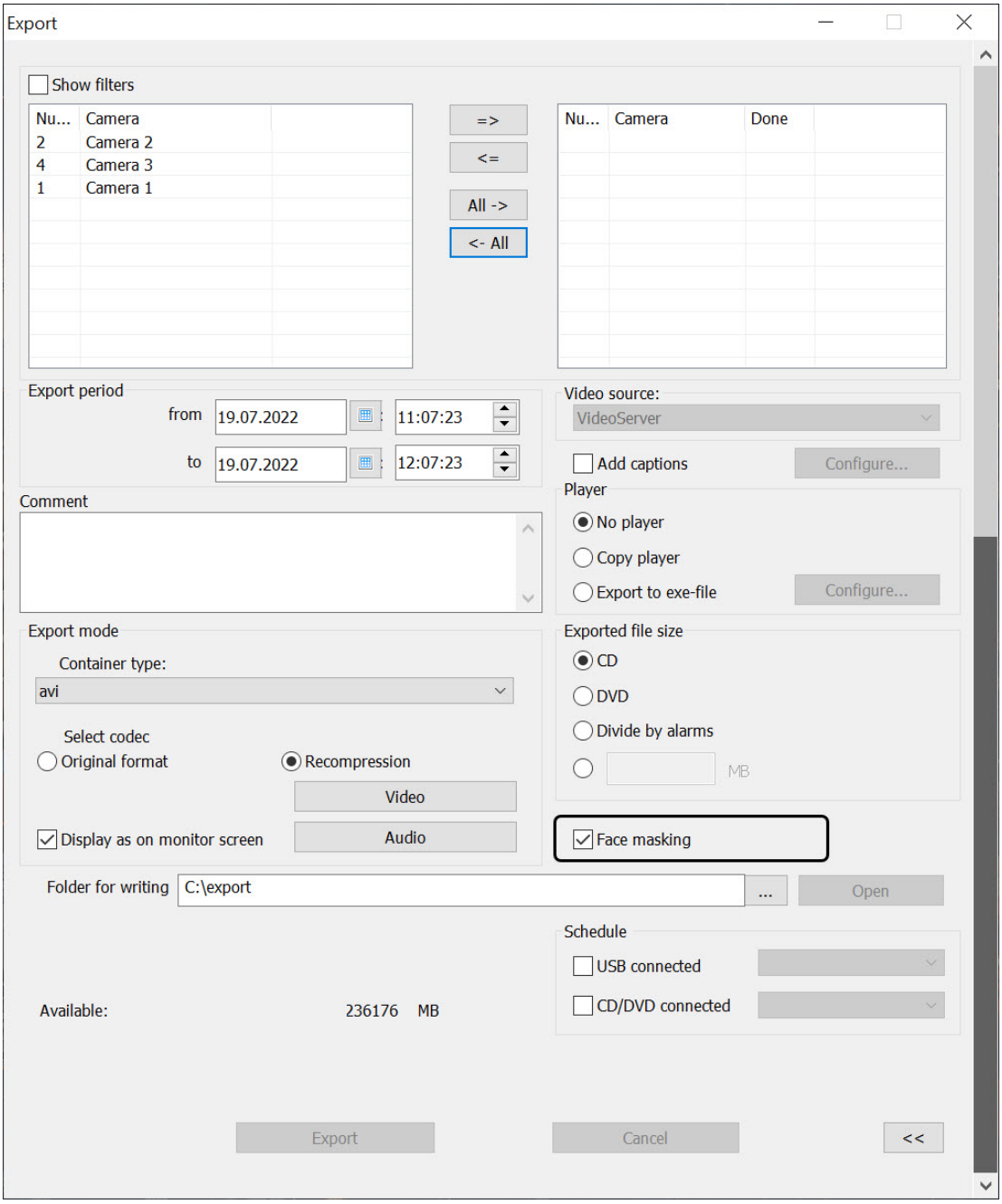
The *AviExport* utility allows face masking in the exported video. This function is based on neural network.

> **Note**
>
> Faces can also be masked on live video if the *Face detection* module is used—see Configuring Face detection tool.

Configure the following settings to make the face masking function available:

1. Install *DetectorPack* for the Remote Administrator's workstation. The distribution package and documentation are available on the AxxonSoft website: https://www.axxonsoft.com/support/downloads/axxon-psim
2. Enable the 64-bit modules—see Configuring of using 64-bits modules.
3. Select the export mode with data conversion and recompression in the *AviExport* utility—see Selecting the format and recompression for the exported file.

As a result, the **Face masking** checkbox will be available in the *AviExport* utility. If the checkbox is set, then a mask appears over the faces in the exported file.



Example of face masking in the exported video:



This function is configured using the SmallFacesDetector.config configuration file located in the *Axxon PSIM* installation directory in the Modules64/caffewrapper folder. The following parameters can be configured:

- mode—calculation mode: CPU or GPU.
- deploy_file, model_file—neural network configuration file. At the time of creating the documentation, there are only those configuration files that are used by default, so it is not required to change these parameters.
- count_classes—number of classification classes (default 2). Do not change this setting.
- trek_trsh—new face tracking threshold (default 0.2). After exceeding this threshold, face tracking is carried out taking into account the result_filter parameter.
- result_filter—confidence threshold (default 0). If the result of face recognition on the exported video is reliable with a probability above the specified threshold, then the face is considered detected. The higher the value, the less likely the false face recognition, but the greater the likelihood of skipping.

Masking areas on video at export

The described functionality is affected by Permissions to view video before and after inverted mask.

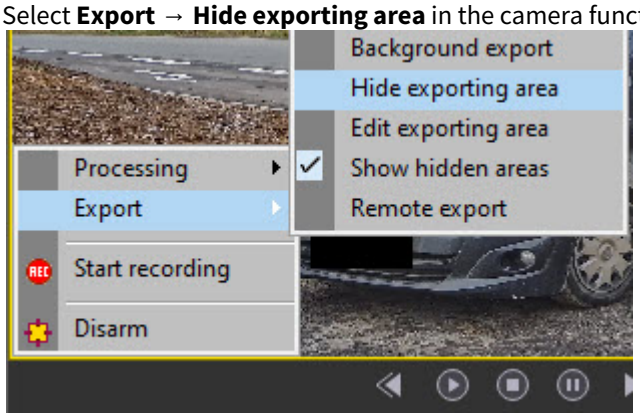
In exported videos, you can either hide any object by masking it, or hide the area around the selected object.

In order for the masked area to be displayed in the exported video file, select the export with recompression in the AviExport utility—see Selecting the format and recompression for the exported file. The masked area will not be displayed if the export is performed in any other way.

You can set the mask as follows:

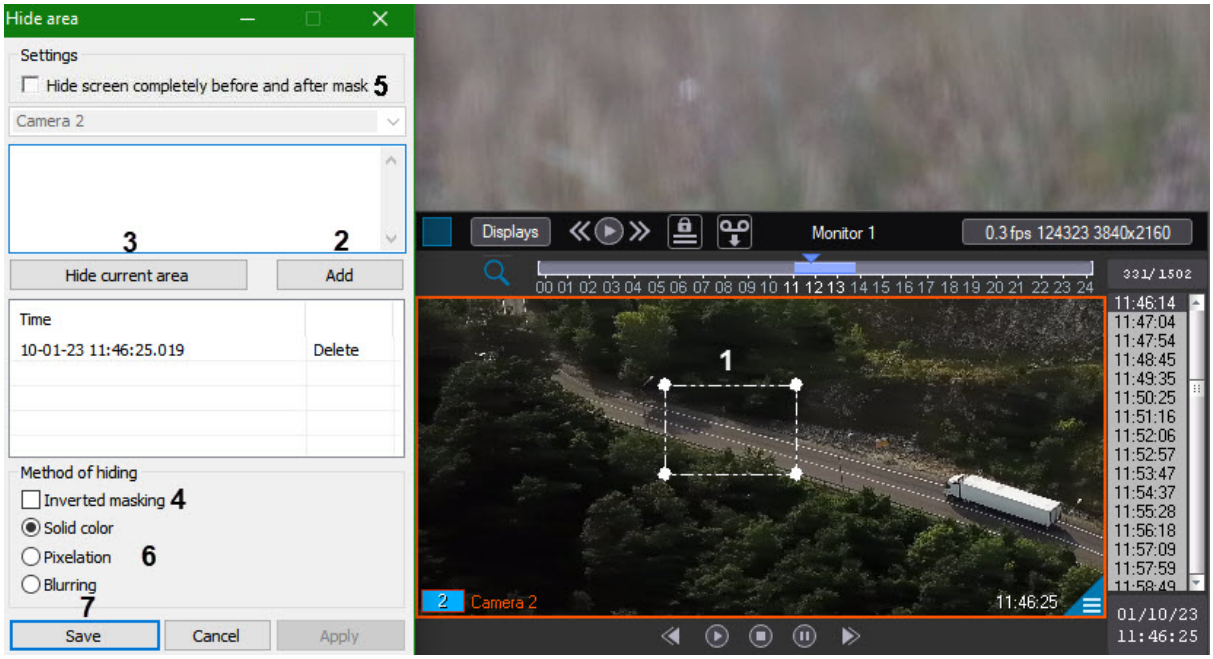
1. Go to the archive playback mode

2. Select **Export** → **Hide exporting area** in the camera function menu.



> **Note**
>
> Later, when viewing the archive, you can set or clear the **Show hidden areas** checkbox to hide or show the mask when playing back the archive.
> When setting up a mask, the checkbox must be set.

3. As a result, the **Hide area** window opens, and an area with anchor points will be displayed in the **Surveillance window**.



4. Find a frame on which the object appears for the first time. You can search for videos using one of the methods described in Archive browsing.
5. Set the required position and size of the mask by dragging an area with anchor points across the **Surveillance window** (**1**).
6. Click **Add** in the **Hide area** window (**2**). As a result, the date and time of the beginning of the mask display is added to the table, and the position of the area is saved in the internal database.

> **Note**
>
> To delete a time interval, click **Delete** in the corresponding row of the table.

7. Start archive playback. If the hidden object moved, repeat steps 4-6 to set the new mask position. The mask will smoothly move between the specified points to follow the object movement.
8. Repeat steps 4-7 until the object disappears from the frame.

> **Note**
>
> You can set mask only in the first frame and in the last frame where the object is visible. However, the more points you set, the more precisely the mask hides the object.

> **Note**
>
> For the convenience of tracking an object, you can hide the mask using the **Hide current area** button (**3**). When the area is hidden, the **Add** button is disabled.

9. If necessary, you can enter a comment in the text field in the **Hide area** window.
10. If it is necessary to hide the area around the selected object in the exported file, then set the **Inverted masking** checkbox (**4**). As a result, the specified mask will be displayed on the video, and the area around it will be masked.
11. If, when viewing a live or archive video in the Monitor, as well as during export, it is necessary to completely hide the screen before and after the selected segment with inverted masking, set the **Hide screen completely before and after mask** checkbox (**5**). If at the same time it is necessary that the screen is not hidden before and after when playing a live video, then set the WholeScreenHideMode key (see Registry keys reference guide).

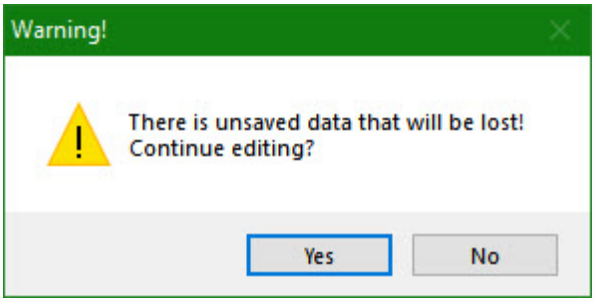
> **Note**
>
> The **Hide screen completely before and after mask** setting works only for the **Inverted masking**. Example of use: in a video recording you want to show only the appearance of an object at a certain moment, the rest cannot be shown. In this case, an inverted mask is created around the object, and the screen before and after is hidden with the appropriate checkbox.

12. By default, the area is masked with solid black color. You can change the value of the **Method of hiding** switch (**6**) so that the mask looks like a blurred or pixelated area.

> **Note**
>
> The selected method of hiding is applied in the exported file. When viewing the archive in the Video surveillance monitor, the area is masked in black.

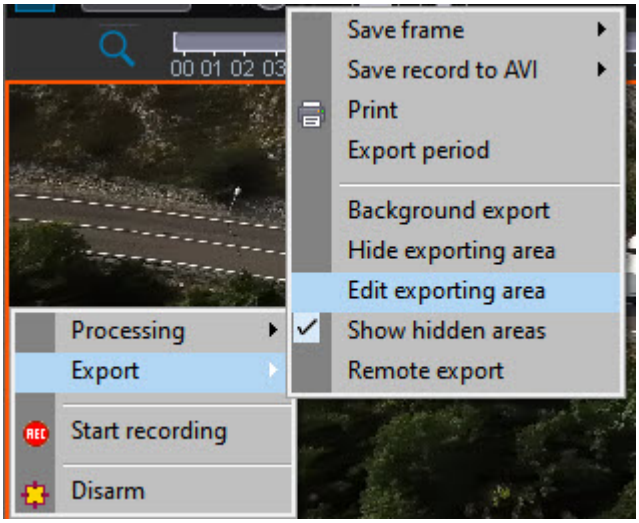
13. After completing the settings for masking areas, click the **Save** button (**7**).

> **Note**
>
> If you do not save the changes, then when you try to close the **Hide area** window, a warning will be displayed:

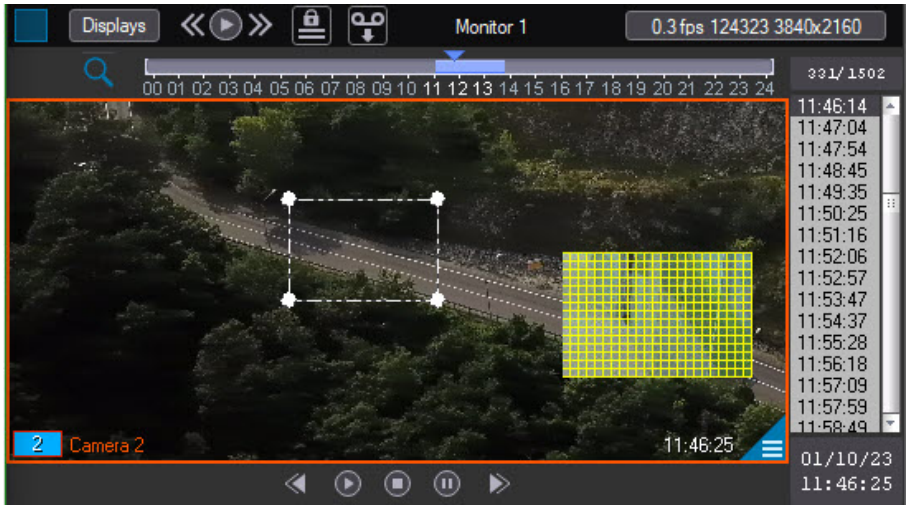


A similar window will be displayed when trying to close the archive playback mode in the Video surveillance monitor if the changes to the masking areas settings were not saved.

To change the previously created masking area, select **Export** → **Edit exporting area** in the camera function menu:



As a result, an editing window will open, in which the masked area is shown in the form of a grid:



To edit a previously created area, repeat the steps 4-13.

Exporting archive to a Remote Server, Remote Administrator's workstation or Remote Client

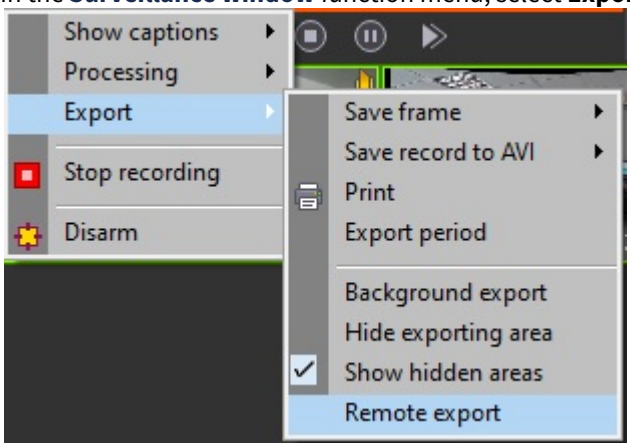
Example

Cases, in which the remote export can be used:

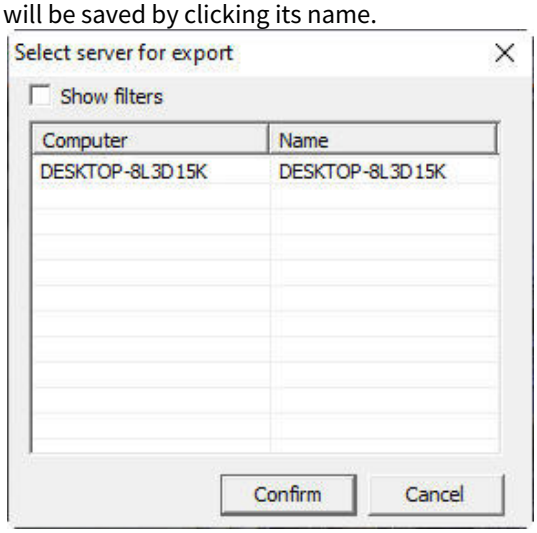
- the operator works on a Remote Client;
- the operator needs to export the video so that the resulting file is stored not locally on the Remote Client, but on a Remote Server.

To save the exported video on a Remote Server, Remote Administrator's workstation or Remote Client, do the following:

1. Go to the archive playback mode.
2. In the **Surveillance window** function menu, select **Export** → **Remote export**.



3. In the **Select server for export** window that opens, select the computer on which the resulting export file will be saved by clicking its name.



Note

The list displays all computers available to this Server, Remote Administrator's workstation or Remote Client (see Configuration of distributed architecture).

> To find the required computer using a filter, set the **Show filters** checkbox. As a result, the top line will turn yellow. Specify a filtering condition in this line and then select a computer from the list of filtered results.

4. Click **Confirm**.

As a result, the AviExport utility window will open. In this window, specify the export settings and initiate the export —see Working with the AviExport utility.

The resulting export file will be saved on the selected Remote Server, Remote Administrator's workstation or Remote Client.

Viewing files exported using AviExport utility

You can use any player to view the exported videos, but note that different players have different sets of built-in codecs for video playback, that is why it is necessary to choose a player depending on the required format and recompression of the file (see Selecting the format and recompression for the exported file).

Below is the example list of players that can be used to view the videos exported using the AviExport utility:

1. Axxon Player. Files in .mkv, .mov, .mp4, .asf, .flv, and .avi formats are supported, as well as *Axxon PSIM* file system format (see The Axxon Player User Guide).
2. VLC Media Player. For supported file formats, see the official documentation: https://docs.videolan.me/.
3. Windows Media Player. Additional installation of the K-Lite codec pack is required to play most formats (see the official website https://www.codecguide.com/). For example, if x264 recompression is selected, the following file formats are supported:

K-Lite codec pack	Container type	Can be viewed using Windows Media Player
Not installed	asf	⛔
	avi	✅
	flv	⛔
	mkv	⛔
	mp4	⛔
Installed	asf	⛔
	avi	✅
	flv	✅
	mkv	✅
	mp4	✅

9.4 Audio player operation

9.4.1 General information about audio surveillance

The audio recording surveillance subsystem allows audio monitoring (eavesdropping on the audio component of the events) and audio recording (recording the audio component of the events), supporting the following functions:

1. Audio monitoring;
2. Synchro recording of audio and video signals;
3. Setting audio recording mode by the Operator's command and using acoustic start;
4. Export of audio recordings.

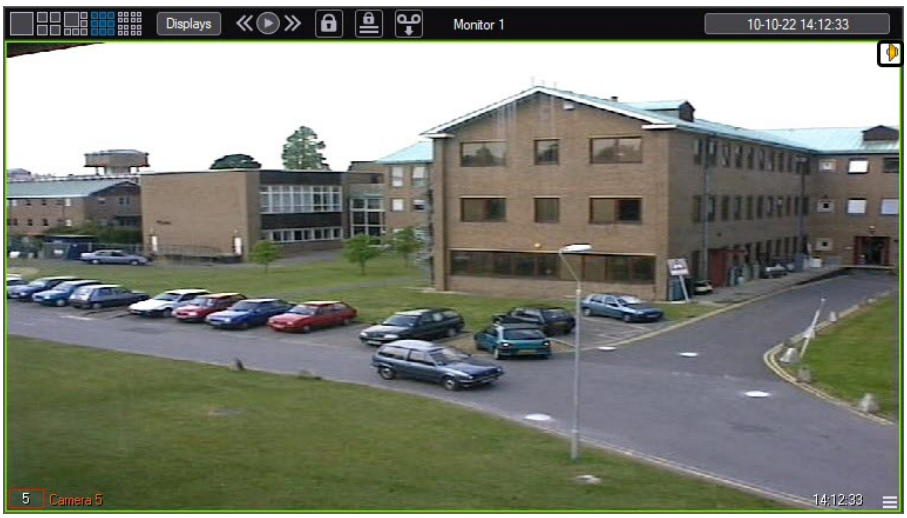
> **Note.**
>
> Operations with the audio monitoring (audio surveillance) subsystem are enabled through the connection of earphones or any other acoustic device to the sound card of the PC.

9.4.2 Listening to the audio signal through microphones

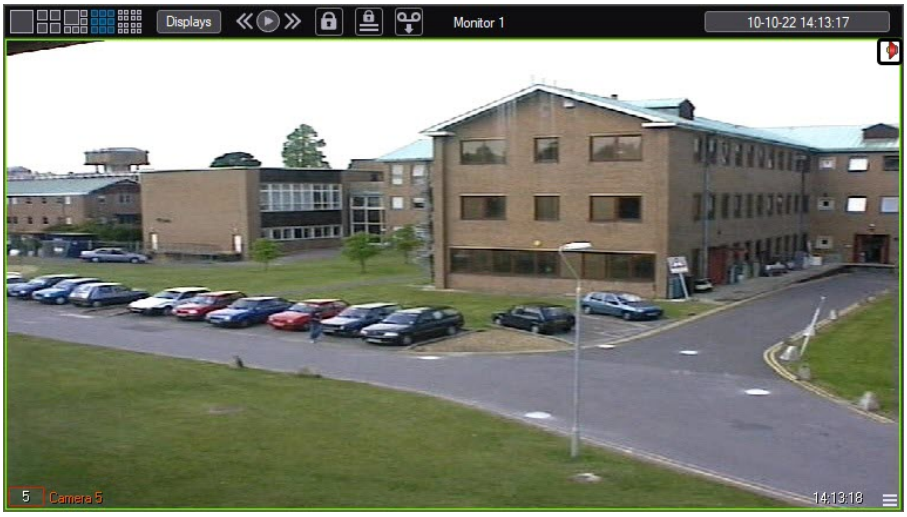
Listening to audio signals through the microphones configured to the synchro recordings

You can listen to audio signals from a microphone configured for recording by acoustic trigger and by the Operator's command using the Audio Player.

To listen to incoming audio signals from the microphone, matching the given Camera window, use the button shown in the upper right corner of the window.



If the button is shown red, it means that listening to the audio signal with the given microphone is currently on.



To enable listening, click with the left mouse button, and the button will become red. To disable listening, click again.

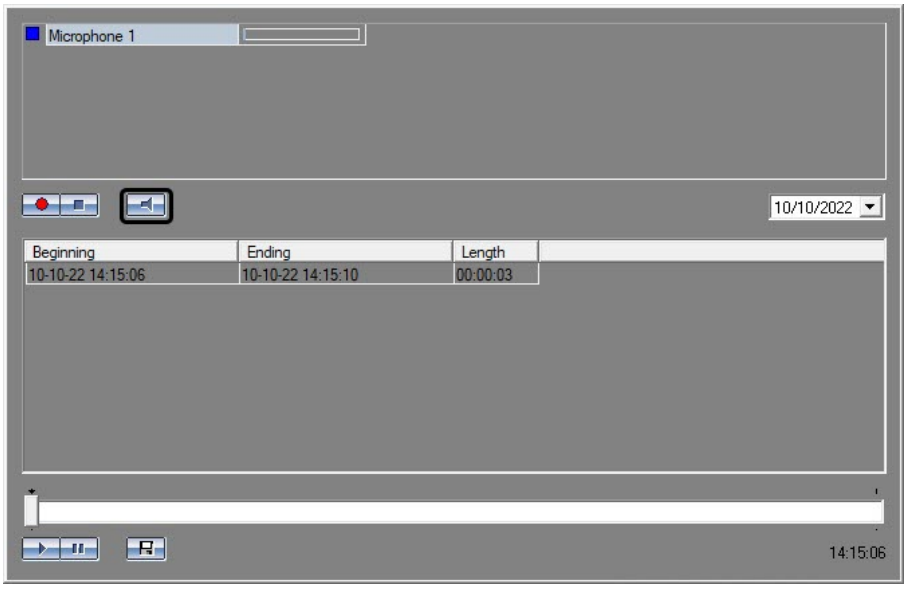
Note.

If no microphones are selected for synchro recording with a camera, the button will not be displayed in the Video surveillance window for that camera.
If you hide the **Display** under which the **Audio Player** is created to play the synchro audio signal, the audio signal will not be played.
To get information on configuring listening to audio signals through the microphones configured to the synchro recordings see the Configuring audio signals playback using the video monitor section of the Administrator's Guide.

Listening to audio signals through the microphones initiated through acoustic start and operator commands

Listening to the audio signals through the microphones initiated through acoustic start and Operator commands uses the audio player.

To enable and disable listening, the button is used.



If the button is displayed like  , it means that audio signal listening through the microphone is on at the moment. If the button is displayed like  this indicates that the listening mode is off.

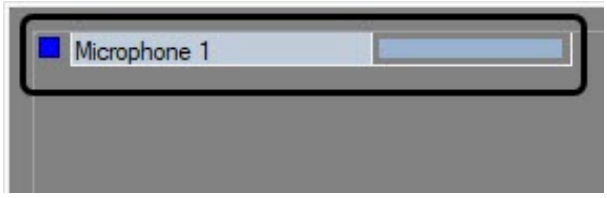
> **Note.**
>
> If the **Display** object, on the basis of which the **Audio Player** object was created, is assigned to several computers in the distributed system, then commands to enable and disable listening are performed simultaneously on all computers where this **Audio Player** is displayed. If the display with the **Audio Player** is hidden on a computer, the command to start listening is not executed on that computer.

9.4.3 Microphone arming and disarming

Microphones are armed to use audio recording initiated by acoustic start (see the Recordings by acoustic start section).

Microphone status indication

The microphone status indicator is shown in front of the corresponding name of the microphone as enumerated in the list of microphones.



Microphone status indication is shown in the table.

Indicator Color	Microphone status	Comments

Blue	Microphone is ready for recording, but is not armed	Signal strength of the microphone exceeds the threshold level, required to start recording
Red	Microphone is recording, alarm was triggered	
Green	Microphone is not ready for recording, and is not armed	Signal strength of the microphone is lower than the threshold level, required to start recording
Yellow	The microphone is armed	

Arming the microphone

To arm a microphone, select it in the microphone list and click  .



If the signal strength of the microphone, while being armed, exceeds the threshold, recording will start. Otherwise, the microphone will be armed, and recording will start, when the pre-defined threshold level of the microphone is exceeded. The current status of the recording process is indicated by the microphone indicator (see the Recordings indication section).

Disarming the microphones

To disarm a microphone use the  button.



If the microphone is being disarmed while recording, the recording will be suspended. As soon as the microphone is disarmed, the microphone indicator becomes blue or green (see the Recording by acoustic start section).

9.4.4 Audio recording of events

General information about audio recording

The program supports the following modes of audio recordings:

1. recordings at the Operator's Command;
2. recordings by Acoustic Start;
3. synchronously with the video recordings.

Audio recording initiated by the Operator's command or acoustic start uses the *Audio Player* module, while synchronous recording is controlled only through the Surveillance window.

The current status of the recording is displayed by the microphone indicator.

Audio recording indication

The status of microphone recordings is displayed through the corresponding microphone indicator.

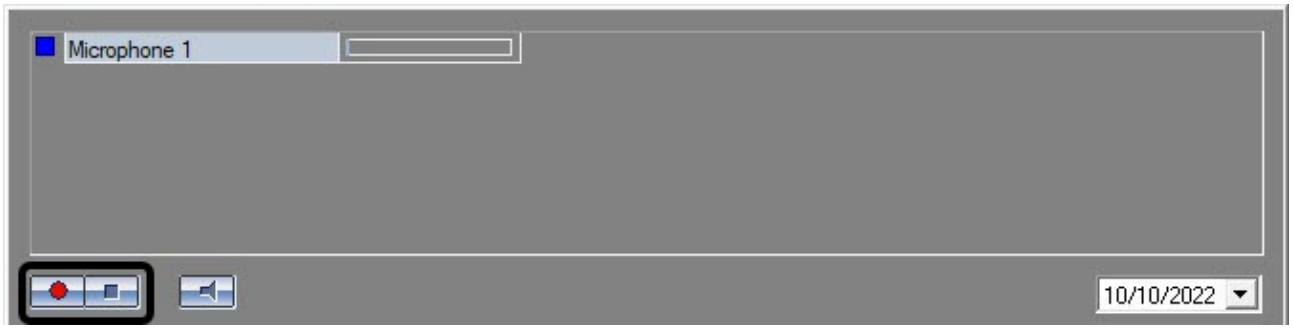


The microphone recordings status indication is shown in the following table.

Indicator Color	Recording Status
Red	Microphone is currently recording
Blue	Microphone is not currently recording
Green	
Yellow	

Recordings by acoustic start

To initiate recording by acoustic start, the microphone should be armed. To arm a microphone, select it in the microphone list and click  .



If the sound level when arming a microphone is lower that the threshold acoustic start level, the microphone indicator becomes yellow.



If the sound level at the time of arming (or any other time after the microphone has been armed) exceeds the threshold acoustic start level, the recording starts and the microphone status indicator becomes red.



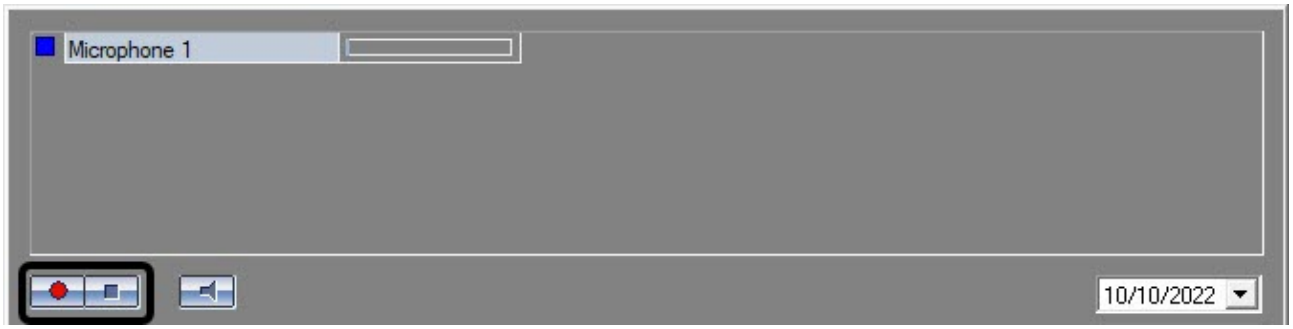
The recording will continue as long as the microphone sound level is above the threshold acoustic start level. If the microphone sound level decreases below the threshold acoustic start level, the recording stops and the microphone status indicator becomes yellow.

To disarm the microphone and stop recording, press the  button.

> **Note.**
>
> The  buttons control recordings through the microphone, initiated both by the Operator's command and by acoustic start. Selection of the recording mode depends on the program settings.

Recordings by the Operator's command

To start recordings via a microphone, select it in the microphone list and click  .



The microphone indicator becomes red to show that recording has started.



To stop the recording, press  .

Note.

The  buttons control recordings through the microphone, initiated both by the Operator's command and by acoustic start. Selection of the recording mode depends on the program settings.

Synchronous audio and video recordings

Video recording with synchronous audio is performed in the same way as video recording without synchronous audio (see Synchronous playback of video and audio recordings). Synchronous recording is controlled only in the Surveillance window. In this case, the synchronous recording icon is displayed in the video surveillance window, to which a microphone is associated in addition to the video camera.



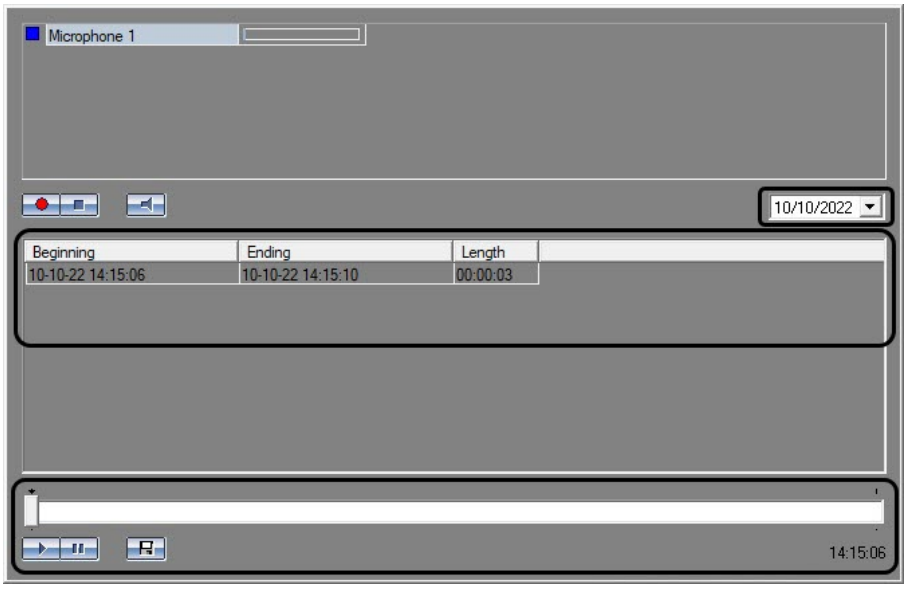
9.4.5 Operations with the audio archives

Archived audio recordings, depending on the method of generation thereof, may be played back either with the Audio Player or the archive viewing mode of the Camera window.

Audio playback

General information about audio playback

Audio recordings generated at the Operator's command or by acoustic start are played back using the Audio Player.

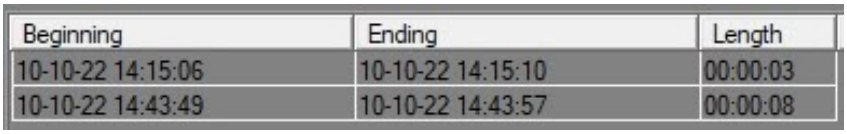


To playback a recording, follow the steps as shown below:

1. select a microphone, which was used for the recording;
2. select the recording date (to filter the recordings made by the given microphone);
3. select the recording;
4. use the playback control panel.

Select audio recordings from the list

To playback a recording, select the one you need from the list, reflecting all the recordings available for the selected date (see the Search for audio recordings by date section).



Beginning	Ending	Length
10-10-22 14:15:06	10-10-22 14:15:10	00:00:03
10-10-22 14:43:49	10-10-22 14:43:57	00:00:08

Each audio recording is described with the following attributes: beginning of recording time, end of recording time and length. To select a recording, click on the line with one of the attributes of the given recording.

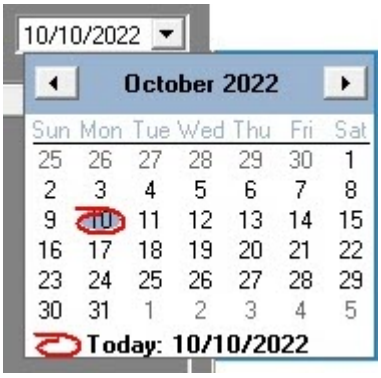
Search for audio recordings by date

To select the date for viewing a list of recordings created on a certain selected date, use the field displayed above the list of audio recordings.



The date specifying can be performed as manually by entering values in fields and using the calendar tool. The calendar is opened by clicking 

button in the field of date select.



The list of audio recordings is updated automatically with the selected date, whenever the recording date field is modified.

Audio playback control panel

The playback control panel is displayed at the bottom of the Audio Player.



The  and  buttons are designed to playback and pause playback of a selected recording. The slide is used to browse across the audio recording. The current playback position is displayed as: "HOURS:MINUTES:SECONDS" and is displayed in the right bottom corner of the playback control panel.

Synchro playback of audio and video recordings

The synchro audio recording is played back with the corresponding archive playback (see the Synchronous playback of video and audio recordings section). On the video image from camera with assigned microphone the icon of synchronous recording is displayed in the upper right corner.

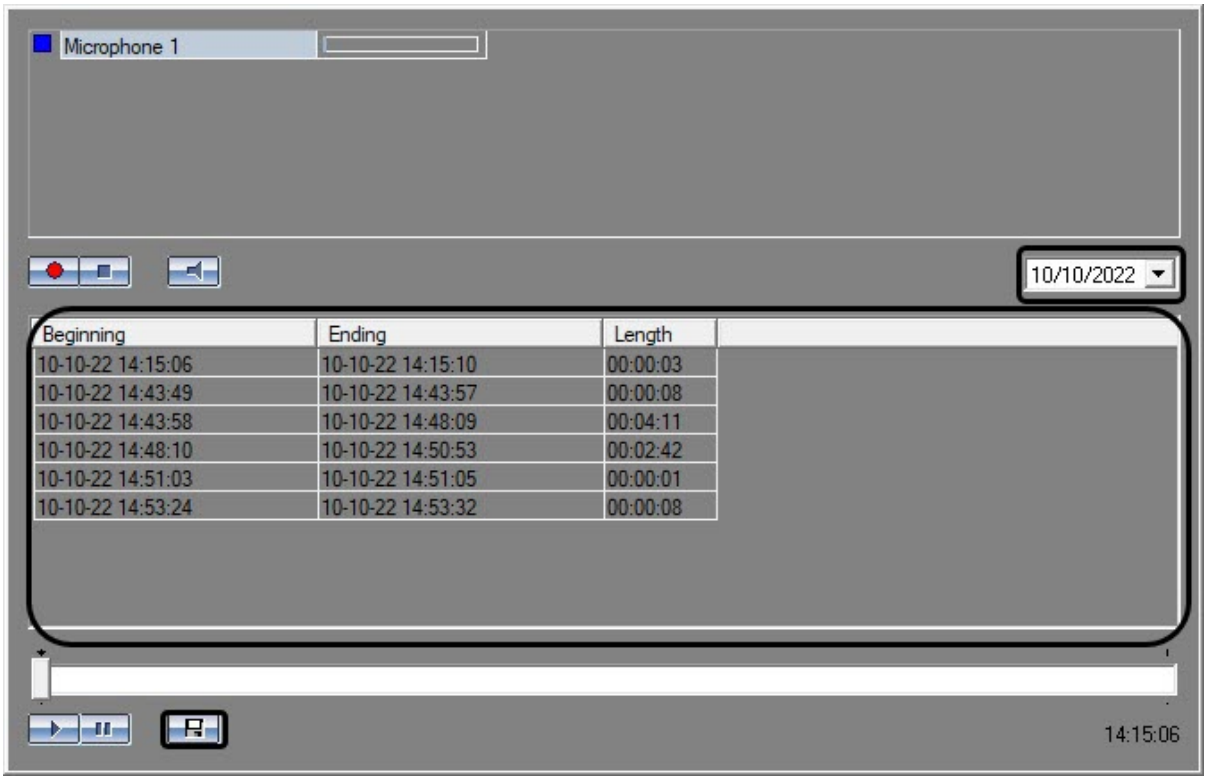


Export of audio recordings

Export of audio recordings created by acoustic start and Operator command

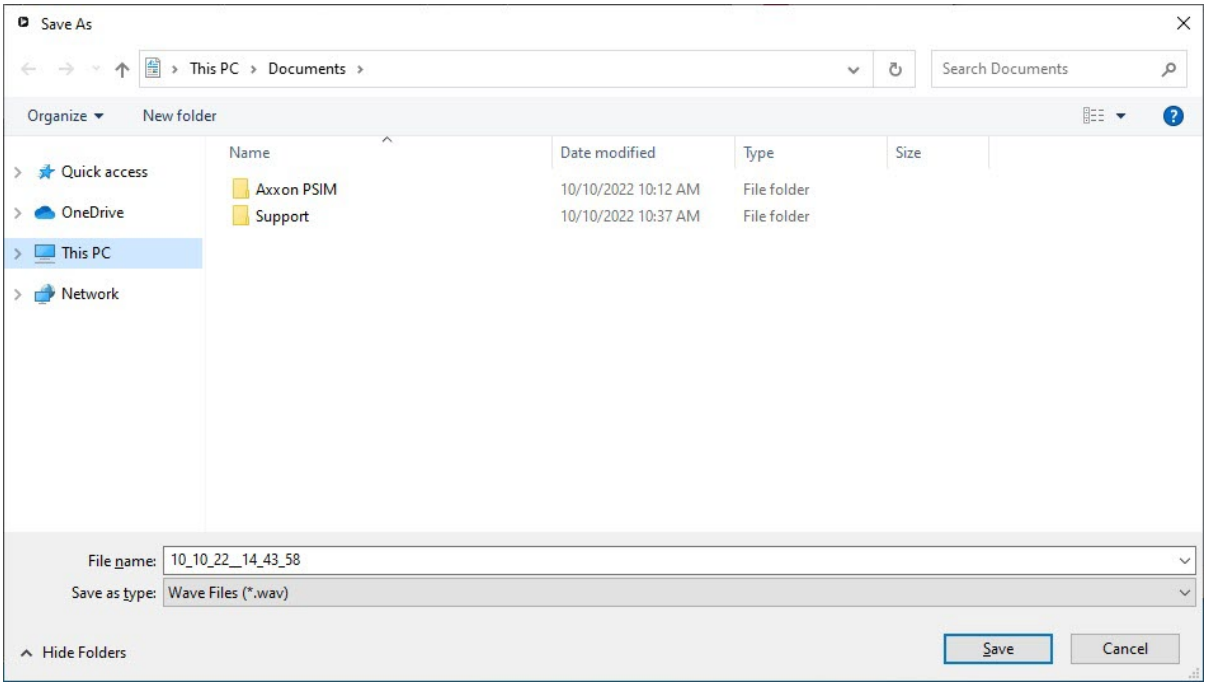
File export of the audio recordings created by acoustic start or Operator command uses the Audio Player.

> **Important!**
>
> Audio export is possible only in the WAV format using the ADPCM codec.



To export audio recordings, the following steps are required:

1. Select the audio recording date in the date field (displayed in the middle part of the Audio Player window);
2. Select an audio recording from the list by clicking one of its attributes (beginning of recording date, end of recording date and length of recording);
3. Click  ;
4. Enter the path and file name in the displayed dialog box.

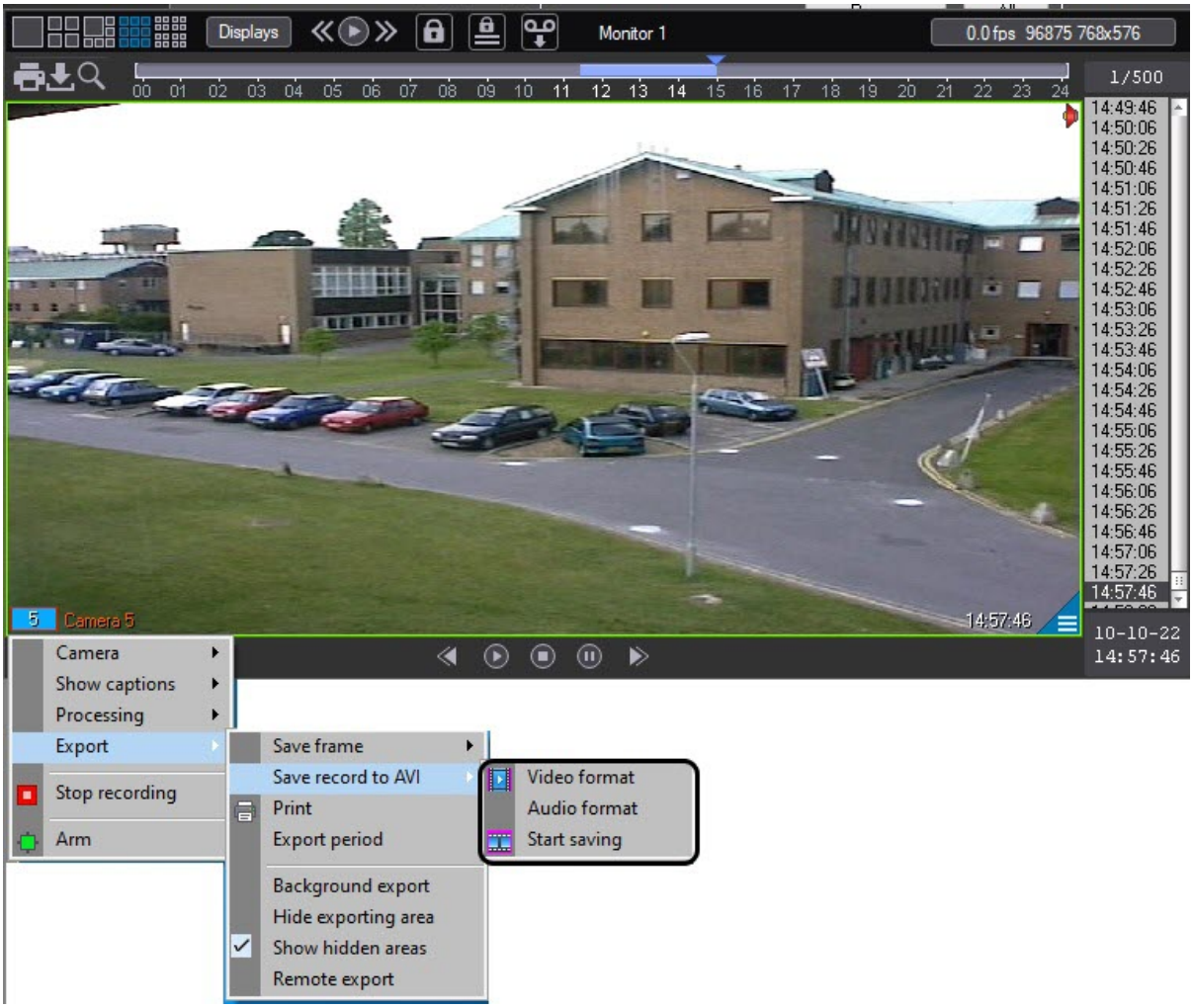


As soon as the **Save** button is pressed, the file with the given name will appear in the selected directory.

Synchro export of audio and video recordings

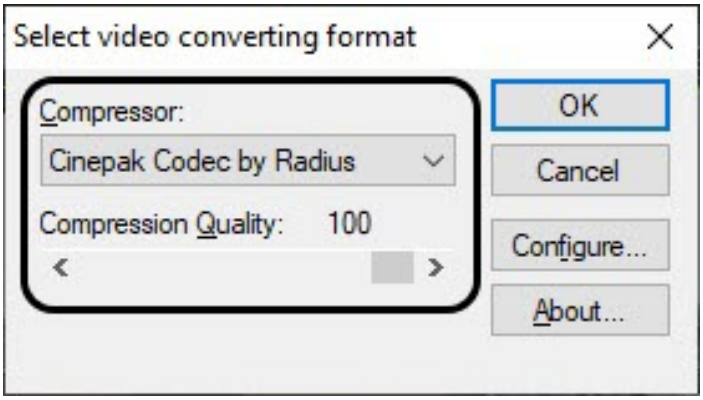
Synchro export of audio and video recordings is controlled through the playback control panel.

Choose **Export** in the functions menu of the video surveillance window and then select **Save Recording to AVI**.

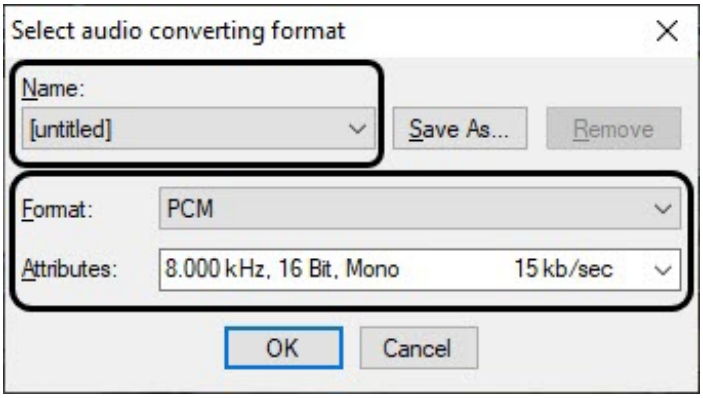


Parameters of the video and sound signals, which will be saved, may be configured in the displayed sub-menu.

Compression quality is selected in the standard Windows dialog box.



Select **Codec** in the dialog box and, if available, compression quality.
Compression quality of the synchro audio recording is selected in the standard Windows dialog box.



Choose audio format in the dialog box and select a set of sound quality parameters, or a pre-defined settings profile.

As soon as recording saving parameters are selected, the video segment may be exported to the file by selecting the **Start Saving** command. The **Playback** button will be highlighted in the course of saving, whereas the playback position indicator will count down the frame currently being processed.



As soon as the video segment saving process is complete, the **Playback** button is no longer highlighted.



The file containing the saved video recording supported with sound is saved to the C:\Users\%current user name% \Documents\Axxon PSIM\export\ directory. The file name is generated as follows: <camera number> (<date> <time>). For instance, 02 (03-10-07 16'28'06).avi (file extension is controlled through the compression quality configuration).

9.5 Telemetry control

9.5.1 General information about PTZ units

PTZ units connected to the system may be controlled with the following manipulators and interface windows:

1. Keyboard;
2. Mouse;
3. Joystick;
4. Control panel;
5. Universal PTZ control panel;
6. Search box of the Operator.

9.5.2 Keyboard PTZ control

PTZ control of the camera can be regulated with the keyboard (hot keys). The description of hot keys is given in the table.

Note

To control PTZ device using the keyboard, enable the PTZ control panel. To enable the PTZ control panel, left-click on it.
The use of hotkeys is to be enabled while configuring the PTZ control panel – see Telemetry control panel configuration section in Installing and configuring security system components guide.

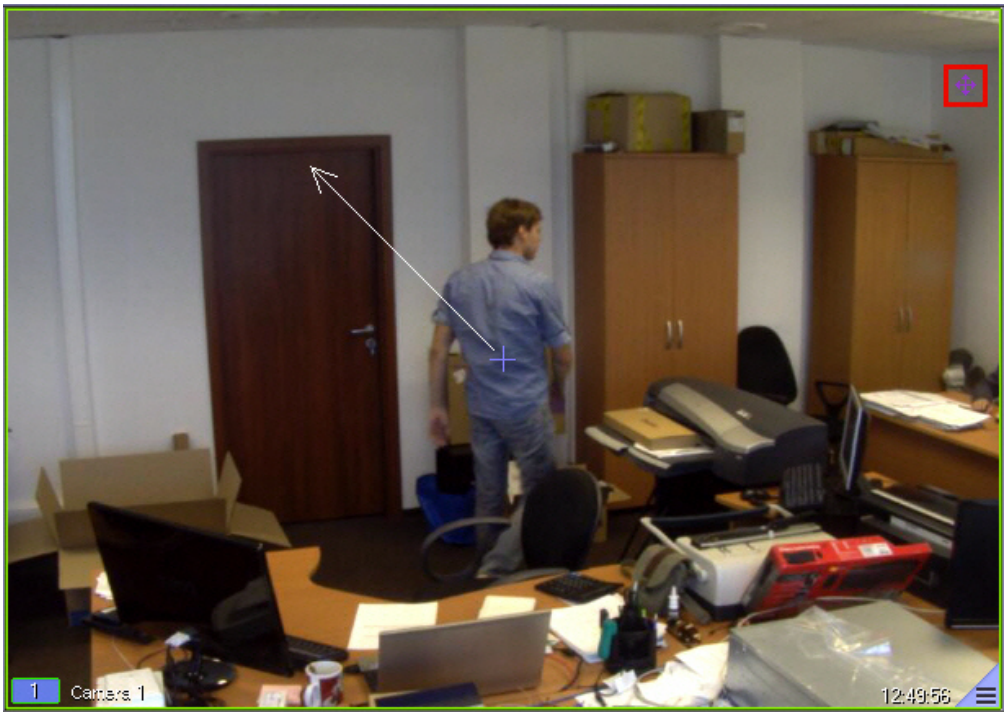
Keys	Description

Main keyboard	**Numeric (Num) keyboard**	
«**↑**», «**↓**», « → », « ← »	8, 2, 6, 4	Changing video lens orientation
PgUp, PgDown, Home, End	9, 3, 7, 1	Changing video lens orientation in diagonal directions
«**<**», « **>**»	no	Speed up/down video camera rotation
«**+**», «**–**»	«**+**», «**–**»	Video camera zoom in/out
no	«**0**», «**.**»	Lens focusing
no	«*****»	Autofocus
1-**9**	no	Presetting

9.5.3 Mouse PTZ control

PTZ control of the camera can be regulated with the mouse in the Camera window corresponding to the given Camera.

> **Note.**
>
> To control PTZ device using the mouse, enable the PTZ control panel. To enable the PTZ control panel, left-click on it.



Default functions supported by the mouse PTZ controls are given in the following table. In Axxon PSIM 4.9.5 and later versions the PTZ control mechanism has been changed. In the viewing tile corresponding to the PTZ camera there is an icon used to enable/disable PTZ control using the mouse. PTZ control using the mouse is available only when PTZ control is enabled on the camera, i.e. the icon looks like this . If the icon looks like this , then PTZ control using the mouse is not available. Enabling and disabling PTZ control using the mouse is performed by clicking the left mouse button on the icon or using the hot key combination Ctrl+L.

Important!

When the PTZ camera uses digital zoom, the PTZ control icon disappears and PTZ control is blocked. In particular, if exiting the archive viewing mode using digital zoom, then PTZ control will not be available. To restore PTZ control features, digital zoom is not to be in use.

New control features are used by default and their description is given in the **New function** column. If the previous PTZ control features are to be used, then set 0 value for the TelemetryMouseAlternative registry key – see Registry keys reference guide.

Action	Old function	New function
Click the left mouse button	Camera's objective stop	-

<table>
<tr><th>Action</th><th>Old function</th><th>New function</th></tr>
<tr><td>Press and hold the left mouse button moving the pointer</td><td>Re-focus the camera lens to the mouse pointer direction</td><td>Re-focus the camera lens to the mouse pointer direction (see the figure). Only half of arrow is displayed on default. To change the length of displayed arrow use the TelemetryArrowLen registry key –see the Registry keys reference guide.

Re-focus speed depends on how far the pointer is from center of video marked with a cross. The faster the speed, the longer the arrow.

Camera lens can be re-focused in continuous and discrete modes. Continuous mode will be in use on default if camera supports it. Otherwise, discrete mode will be in use and camera lens is refocused in 8 directions: up, down, right, left, up-left, up-right, down-right and down-left. The continuous mode is disabled on the system configuration stage (see Configuring PTZ devices in Axxon PSIM™ section of Installing and configuring security system components guide). To find out if a video camera supports the continuous mode see DriverPack documentation (see Documentation Drivers Pack).</td></tr>
<tr><td>Click the middle mouse button</td><td colspan="2" rowspan="2">Automatic re-focus of the camera objective to the area of the mouse click (Point&Click). Positioning is with the minimum rate that does not depend on the value specififed on the Universal PTZ control panel. This rate can be changed in tweaki.exe tool, but it can affect the functionality performance (see Administrator's Guide, The settings panel of the Telemetry section).

Note.
Reorientation by middle mouse click is done using Axxon PSIM software package algorithms and operates with any PTZ devices, however, it may operate unpredictably unstable in some cases. Use camera built-in Point&Click if possible.
Reorientation by right mouse click is calculated by the camera and will be done only if this functionality is supported by the camera driver and is integrated in the Axxon PSIM software package</td></tr>
<tr><td>Click the right mouse butto</td></tr>
<tr><td>Click and hold the right mouse button</td><td colspan="2">Point&click processed by the camera driver triggers in equal time intervals. Time intervals are specified with the help of TelemetryPointAndClickDelay registry key (detail information about it see in the Registry keys reference guide section.</td></tr>
<tr><td>Left hold</td><td>Lens zooming in</td><td>-</td></tr>
</table>

<table>
<tr><th>Action</th><th>Old function</th><th>New function</th></tr>
<tr><td>Right hold</td><td>Lens zooming out</td><td>-</td></tr>
<tr><td>Select area by moving the pointer with holding pressed the right mouse button and Ctrl button

Note
The area is selected by frame which disappears after release the mouse button.</td><td colspan="2">Increasing and centering image in selected area (AreaZoom).
Note. The action will be performed only if the AreaZoom functional is supported by camera driver and integrated to the Axxon PSIM software.</td></tr>
<tr><td>Left click combined with Shift</td><td colspan="2">Focus In</td></tr>
<tr><td>Right click combined with Shift</td><td colspan="2">Focus Out</td></tr>
<tr><td>Scrolling up</td><td>Digital zooming in</td><td>Lens zooming in</td></tr>
<tr><td>Scrolling down</td><td>Digital zooming out</td><td>Lens zooming out</td></tr>
<tr><td>Scrolling up + Ctrl</td><td rowspan="2">-</td><td rowspan="2">Digital zooming in</td></tr>
<tr><td>Scrolling up while PTZ control is disabled (the icon looks like this )</td></tr>
<tr><td>Scrolling down + Ctrl</td><td rowspan="2">-</td><td rowspan="2">Digital zooming out</td></tr>
<tr><td>Scrolling down while PTZ control is disabled (the icon looks like this )</td></tr>
</table>

Note.

The above mouse functions are not supported in the Camera windows, corresponding to the surveillance cameras without PTZ.

9.5.4 Joystick PTZ control

Camera PTZ may be controlled with the joystick.

Below we give an example of PTZ control with the use of the *Shuttle PRO-2* joystick.

> **Note.**
>
> Functions of the joystick in each case are configured with the program and may differ from the example given below.

The layout of *Shuttle PRO-2* joystick control elements are given in the following figure.



Example of the PTZ joystick control elements configuration is given in the table.

1. Move right-left



2. Move up-down



3. Save position preset.



4. Automated re-focus of the camera to the area of the middle mouse click.



5. Zoom in (enlarge the image)



6. Zoom out (reduce the image)



7. Increase the focal length



8. Reduce the focal length



Note.

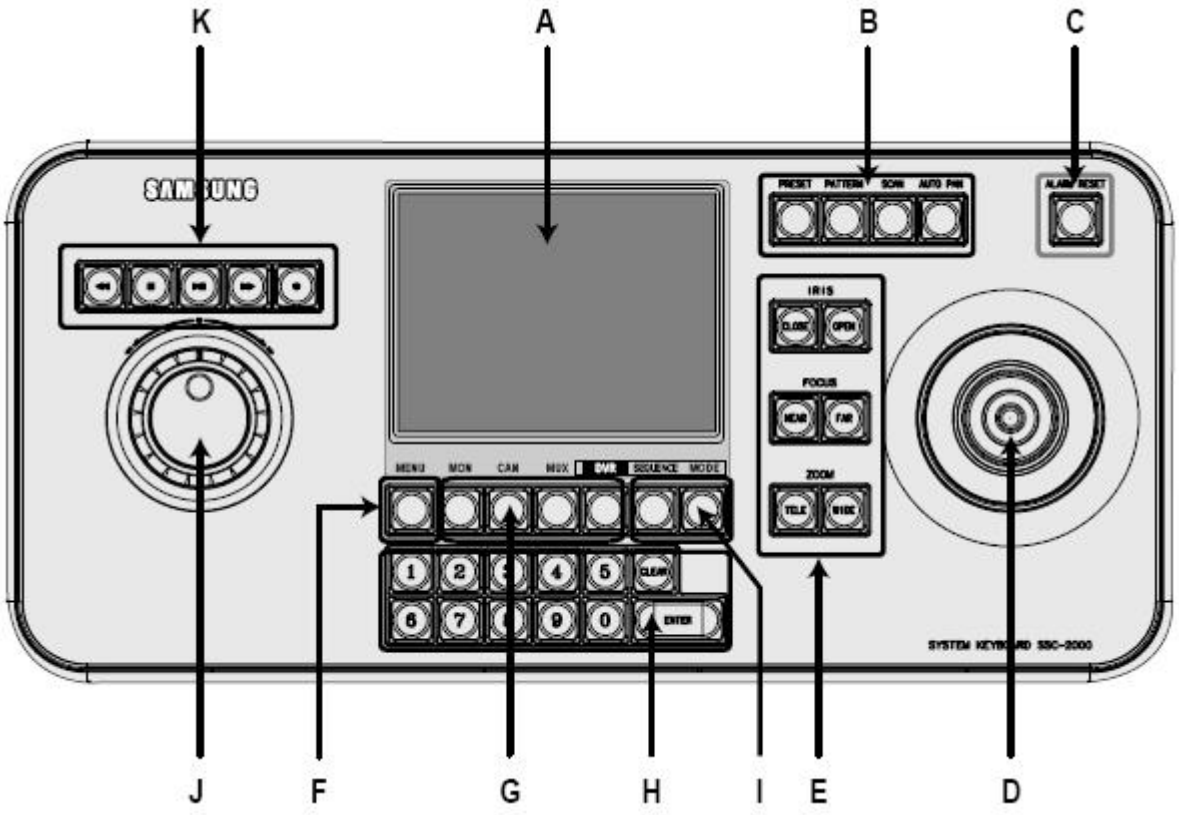
The above mouse functions are not supported in the Camera windows, corresponding to the surveillance cameras without PTZ.

9.5.5 PTZ control with control panel

PTZ units may also be regulated with the use of control panels – special manipulators, connected to the PC.

Below we give an example of using *Samsung SSC-2000* device to control the camera.

The layout of *Samsung SSC-2000* control elements is shown in the figure.



Samsung SSC-2000 control elements are described in the table.

Control Element	Element	Function
A	LC-display	Displays operation conditions of the control panel
B	Set of buttons to control PTZ unit focus	PRESET PATTERN SCAN AUTO PAN
C	Alarm reset button	ALARM RESET
D	Joystick for manual control of PTZ unit focus	UP DOWN LEFT RIGHT

Control Element	Element	Function
E	Set of buttons to control the camera lens (iris, focus, zoom)	IRIS CLOSE/OPEN FOCUS NEAR/FAR ZOOM TELE/WIDE
F	Menu button	Path to the control panel settings
G	Unit select button	MON/CAM/MUX/DVR
H	Digital keyboard unit	Is used to enter digits when required for control panel operations
I	Control over camera operating mode	SEQUENCE MODE
J	Rotating disk manipulator	Is used to browse across recording archives
K	Control over camera recordings and archive viewing from the camera	PLAY/PAUSE STOP FAST FORWARD REWIND RECORDING

Note.

For more detailed information refer to the original User Manual for the given device.

9.5.6 PTZ control with Universal PTZ control panel

PTZ control panel allows controlling all types of PTZ devices connected to the system.

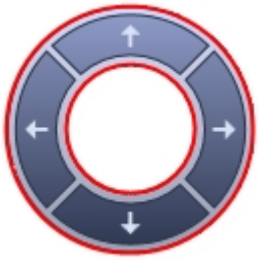
To access PTZ controls, select 

fin the list corresponding to the given PTZ device.



The elements of the PTZ control panel are described below.

Move camera lens up-down and left-right:



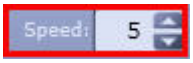
Move camera lens across and diagonally:



Camera lens stops moving while changing the orientation:



Set conditional speed of the camera lens movement while changing the focus:



Note

The conditional speed is set separately for each of the cameras. The default speed is 5. The set value is automatically saved for all users within one server.

Certain types of cameras allow adjusting focus and image scale.

Focus is adjusted with the following control element:



Focus is set with the  and  buttons. Apart from that, the focus may be set automatically. To do so, select 

with the mouse pointer and, when the text in the box changes to **Auto,** click it with the left mouse button.

Zoom lens (zoom-in) is set with the following control elements:



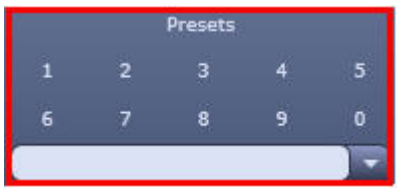
Zoom-in and zoom-out is set with the  and  buttons.

In addition, to make control of PTZ units more convenient, the PTZ units may also be controlled with the user settings. User settings include the data describing PTZ focus, as well as camera lens zoom and focus.

PTZ user settings are selected and adjusted by the **Preset** group of control elements.

To select a preset user setting, click the corresponding number of the setting with the left mouse button. After a short delay, the number of the selected setting becomes highlighted in red and the heading of the given control element group changes to **Go to present No. <number of the selected setting>**, whereas current PTZ settings will be coordinated with the selected user setting.





To adjust a user setting, click the setting number with the left mouse button and hold it for a few seconds until the setting number becomes highlighted in red and the heading of the control elements group changes to **Save preset No. <number of the selected setting>**.



After this operation, the current settings of the PTZ unit will be recorded into the selected user setting.

Note.

When IP device Lilin is used, user setting is done differently:

1. set the number of user setting with the left mouse click upon it;
2. set the PTZ unit to the required position;
3. press and hold the left mouse button upon the set number of user setting for a few seconds until the number is lighted in red and text of the headline of PTZ units will be changed to **Save preset №<number of the selected setting>**.

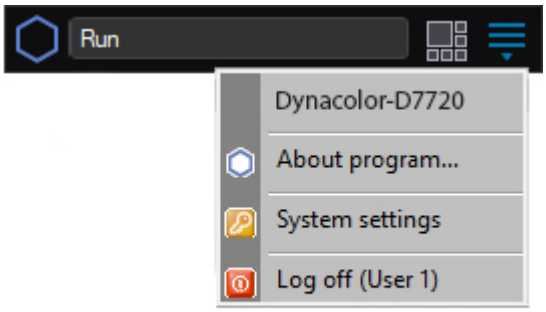
To change the size of the PTZ control window, move the mouse pointer holding the left mouse button pressed in the lower right corner of the window.

9.5.7 PTZ control using the Operator's search box

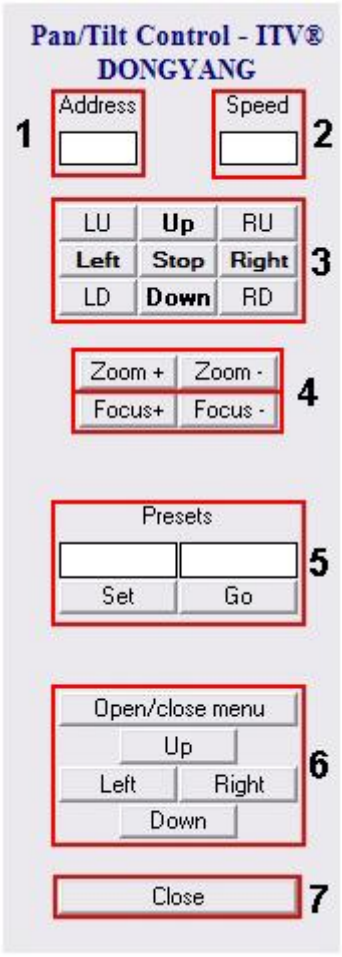
The Operator's search box can be used to control specific types of PTZ.

Below we give an example of how to control *Dynacolor-D7720* PTZ.

To call up the Operator's search box, select *Dynacolor-D7720* in the **Run** menu of the main control panel of *Axxon PSIM*.



The appearing window will allow controlling *Dynacolor-D7720*, which is connected to the system.



The table gives a brief description of the control panel interface for operating *Dynacolor-D7720*.

Element number	**Function**
1	PTZ unit address
2	Conventional PTZ unit speed with the change of direction
3	PTZ direction controls
4	Setting the lens zoom (zoom-in)
5	Setting of the camera lens focus
6	Selection and setting of PTZ user settings

7	Path to and control of the in-built OSD menu of the Dynacolor-D7720 camera
8	Dynacolor-D7720 hidden panels

Note.

Certain types of system units are operated with a separate control panel (Operator's search box), which has an appropriate interface and functionalities. In addition, the box for calling up the control panel (Operator's search box) in the **Run** menu is configured with the program settings and may differ from the PTZ type corresponding to the given control panel.

9.6 Using sensors

A sensor is an external security device connected to the system.

The sensor may be operated in the following modes:

1. **Circuit closure**: the sensor is armed when the circuit is open, and whenever the sensor circuit is closed, an alarm event is registered.
2. **Circuit interruption**: the sensor is armed when the circuit is closed, and whenever the sensor circuit is interrupted, an alarm event is registered.

Whenever an alarm event is registered by a sensor, the Operator should confirm that the event did take place.

Each security device of the **Sensor** type is equipped with an intrusion sensor, which is a physical device, giving a specific warning to the Operator that an alarm event has occurred. The map displays symbols of the following types of intrusion sensors:

1. Infra Red;
2. Ceiling;
3. Glass;
4. Heat;
5. Window;
6. Flue gas;
7. Hermetic contact;
8. No specified type.

To operate the sensors, the Operator uses the map (see the Using sensors section) or pre-defined macro commands (**Run** menu in the main control panel).

9.7 Operations with relay

Relay is an external security device connected to the system.

The relay can be setup in one of the following statuses:

1. On;
2. Off.

Each executive object like relay is furnished with an executive device, which is a physical device, switched on and off with the relay. The map displays symbols of the following types of executive devices:

1. Light;
2. Acoustic alarm;

3. Lock;
4. No specified type.

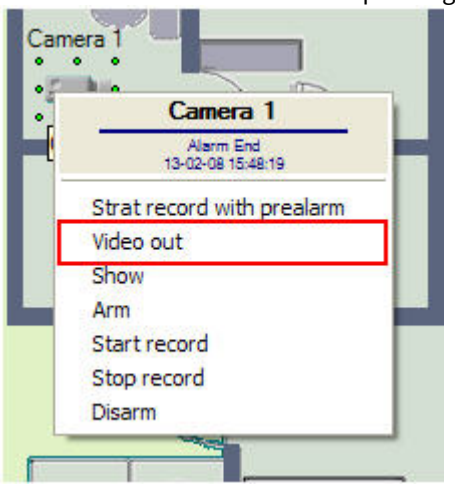
To operate the relay, the Operator uses the map (see the Operations with the relay section) or pre-defined macro commands (**Run** menu in the main control panel).

9.8 Video surveillance using an analog monitor

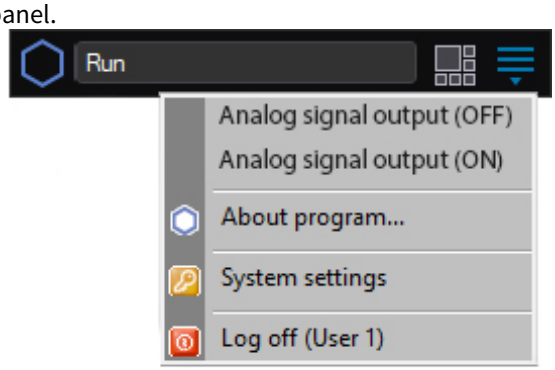
Where the program is configured in a certain way, an analog video image can be output to the external devices connected to the system (for instance, to the analog monitor).

If the program supports the above functionality, the output of the analog signal can be switched on (off) using one of the following tools:

1. Press a command in the context menu of the object on the map. To do so, use the **Video out** box (**Video in**) in the context menu of the corresponding object on the map.



2. Use a macro command to use this option, select an appropriate box in the **Run** menu of the main control panel.



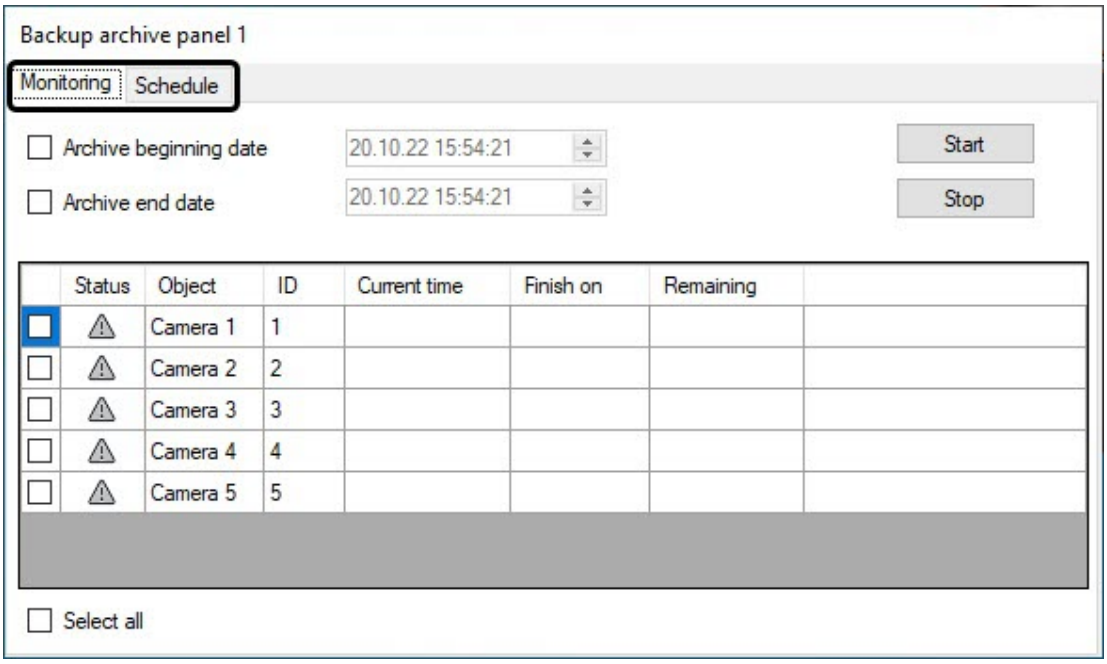
> **Note.**
>
> The availability and names of the macro commands in the **Run** menu used to switch on and off the analog signal output to the external devices, depends on the program configuration.

9.9 Copying video sequence to the Backup archive

9.9.1 General information about copying video sequence to the Backup archive

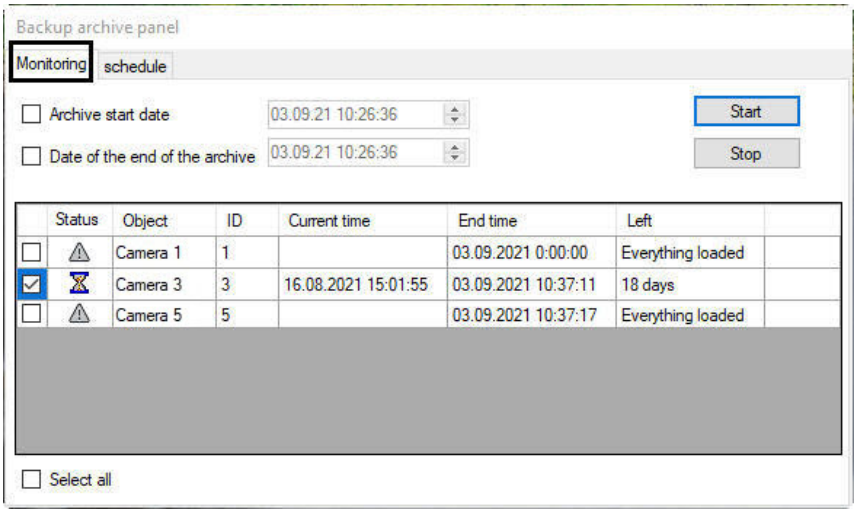
Video sequences may be copied to the Backup archive both manually and automatically using the Backup archive panel.

The **Monitoring** tab is used for manual control of the Backup archive, whereas the **Schedule** tab is used to set parameters for automated operation of the Backup archive.



9.9.2 Backup archive monitoring

Backup archive monitoring and control uses the **Monitoring** tab on the Backup archive panel.



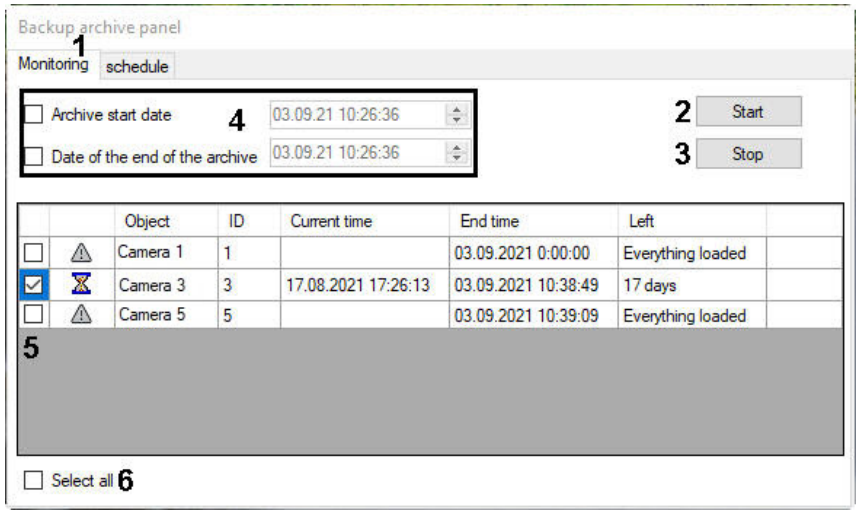
The table shows the copying status data for all the available cameras. Information in the columns may differ depending on the copying mode, manual or automated (see the table below).

	Manual	**Automated**
Status	, — the recordings of the given camera are currently being copied; — the archive copying of the given camera did not start.	
Object	Camera name	
ID	Camera identification code	
Current time	Date and time of the archive frame currently under processing	
Finish on	Date and time of the last archive fragment to be transferred to the Backup archive	Date and time set in the **Archive end date** field
Remaining	Number of days left to process (end time minus current time)	

Time in **Finish on** and **Remaining** columns do not depend from status of archive copying and continue to count even after copying completion in the manual mode or after copying stop by schedule.

9.9.3 Manual copying

Manual copying uses the **Monitoring** (**1**) tab.



Manual copying can be started and stopped using the **Start** (**2**) and **Stop** (**3**) buttons, correspondingly. Elements for setting time intervals for copying recordings of all available cameras can be found to the left of the copying controls (**4**).

To start copying, do the following:

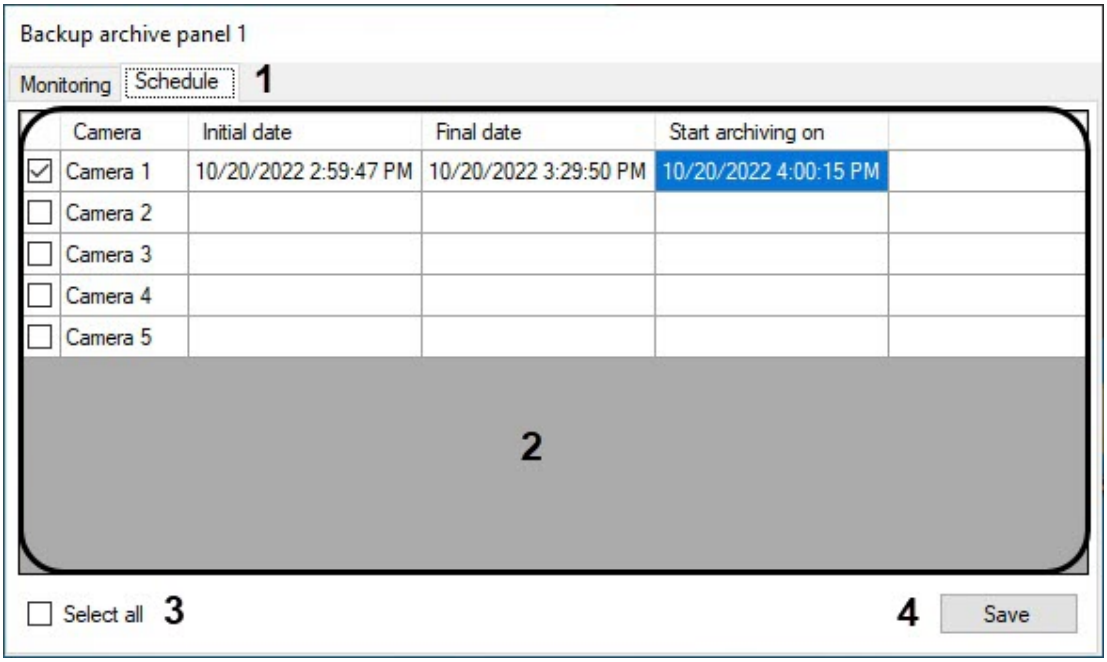
1. Specify the date and time of the archive start and end in the appropriate fields by setting the check boxes (**4**). If the start and end date and time for copying are not identified, all recordings from the pre-defined cameras will be copied to the Backup archive.

2. Select the cameras, whose recordings will be copied. To select cameras, check the corresponding boxes (**5**). In addition, the **Select all** (**6**) checkbox is used to select (or cancel the selection) all cameras in the table concurrently.
3. Initiate copying by clicking **Start**. After some time, the  icon will appear opposite the selected cameras in the **Status** column to confirm that recordings of the selected cameras are now copying.
4. To stop copying, click **Stop** (**3**).

> **Note.**
>
> The copying process may start with a rather long delay after clicking the **Start** button.

9.9.4 Automated copying

Automated copying is configured with the **Schedule** (**1**).



The table (**2**) shows the current schedule for copying recordings from all available cameras. Copying start and completion dates will be identified for each camera, as well as the actual start time for copying.

To activate and de-activate the specified schedule for the camera, check (double check) the corresponding box. In addition, the **Select all** (**3**) checkbox is used to select (or cancel the selection) all cameras in the table concurrently.

An existing schedule may be modified by changing the contents of the corresponding table cells. For instance, to modify the completion date of the first camera recording, double click **Camera 1: Completion Date**.



Specify the date and time in the appearing dialog box and click **OK.**

After setting up a schedule for all the required cameras click **Save** (**4**)**.**

Note.

To perform scheduled automated copying, the program should always be running, even if the Panel of Backup archive is not on.

9.10 Events control and processing

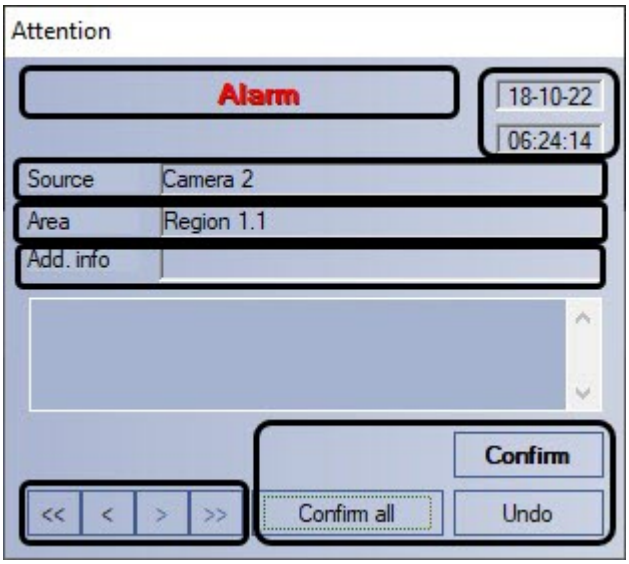
The events registered by the system can be controlled and processed by the Operator using the following:

- Alarm notification window
- Event log
- Operator protocol
- Incident manager

In addition, there is an option for fast creation and printout of reports from the log of events registered by the system based on pre-defined criteria.

9.10.1 Events control and processing using the alarm notification window

An Operator can receive on-line notifications whenever the system registers any alarm or information events, if the program is set appropriately. Where this function is on, an alarm notification window appears as soon as the system registers any alarm or information event.



The appearing alarm notification window shows information about the latest registered event: name, date and time, source object of the event, conventional field (region) of the event source object location, as well as additional information describing the event (if any).

An Operator can confirm the event by pressing the Confirm button or cancel it using the Undo button. Accepting the event, the Operator confirms the actual occurrence of the event and initiates an appropriate response of the Program.

As soon as the event is confirmed or cancelled, the alarm notification window hides. However, if an event still remains unprocessed, the alarm notification window will not be hidden and the system will transfer to processing the next event in line. To select the event for processing manually, use the set of event browsing controls:

1. << Transfer to the first notification in line
2. >> Transfer to the last notification in line
3. < Transfer to the previous notification in line
4. > Transfer to the next notification in line

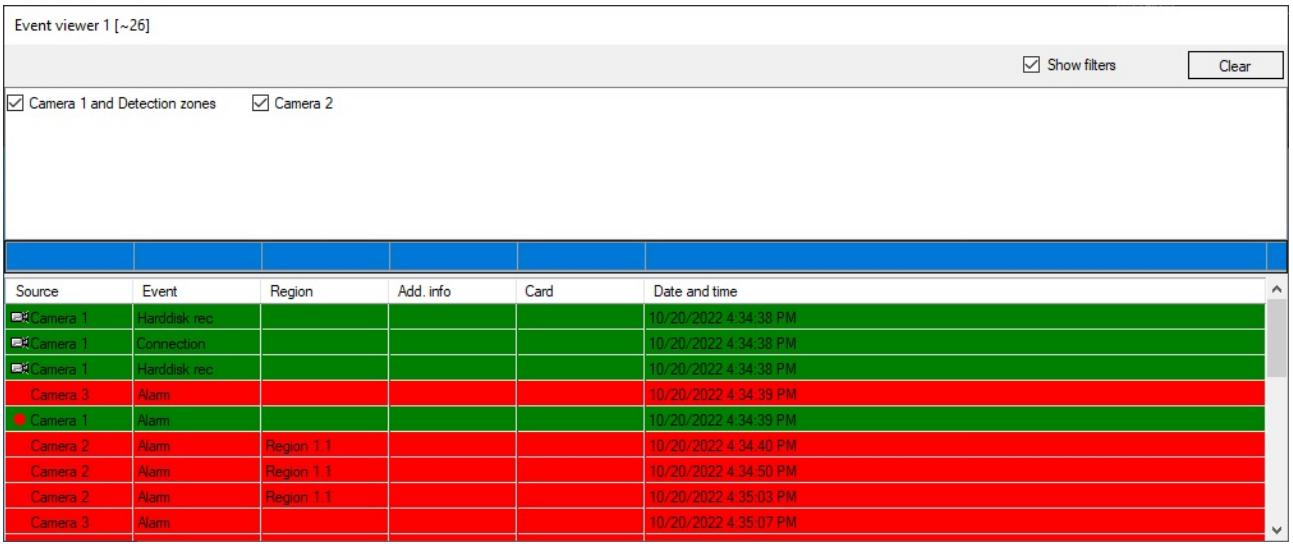
In addition, all notifications in line can be confirmed immediately by pressing Confirm all.

9.10.2 Event control via Event Viewer

On the page:

- Filters
- Operations with the event list
- Event source objects

All events registered in the system or those events that match preconfigured filters are displayed in the Event viewer.



Important!

A blank filter (i.e. filter with blank columns) is to be created in order to display all events for all objects in the system in the Event viewer. All events are also displayed in the Event viewer when there is no filter at all. See Configuring event filters for displaying in the Event viewer.
If you delete all previously created filters, an "empty" filter will be left. When selected, it will display all events.

Filters

The **Show filters** checkbox opens the list of filters configured while system setup (see Configuring event filters for displaying in the Event viewer section). To activate the filter, set the checkbox next to it's name. Several filters can be activated simultaneously. Options for using filters are described in the table:

Filter use option	Filter settings made beforehand	Result in Event viewer
Filter checkbox is set	Certain objects and their events are selected	Only events that match the filter are displayed
Several filter checkboxes are set	Certain objects and their events are selected in each of the filters	Only events that match at least one of the selected filters are displayed
No filter is selected (all filter checkboxes are clear)	Certain objects and their events are selected in each of the filters	Only events that match at least one of all created filters are displayed
"Empty" filter checkbox is set	No object or event is selected	All events from all system objects are displayed
There are no filters created for the Event viewer in the system, there are no filter checkboxes available	-	All events from all system objects are displayed

Filter selection and filter display setting are stored at *Axxon PSIM* restart, i.e. if some filters are selected and filters list is hidden, then events according to those filters are displayed in the Event Viewer after *Axxon PSIM* restart.

Events of different types are highlighted in different colors depending on the filter settings. The string color may change to another custom color or to the default color after filter switching.

A dynamic filter in the top of a column can be applied to show only events from the objects satisfying the search condition. This filter is applied by Enter.

Operations with the event list

The event log window shows a table containing a list of events registered by the system, which are broken down according to object type. Object types, registered events for which are displayed in the event log, as well as the number of events simultaneously displayed within one event window, are specified at the system configuration stage.

By default, events are sorted by date and time in the Event Viewer window. Events can be sorted by any of the columns. To enable or disable sorting, left-click the header of the required column. In this case, when changing the filters, sorting is saved. When changing the filters, the sorting is saved.

When sorting by time, new events are added to the end of the list in the Event Viewer. The list is scrolled in such a way that the last event is always displayed in the box and it is marked. When the event (different from the last one) is marked, the list is fixed and there is no scrolling, new events are added to the end of the list. Scrolling is resumed in the following cases:

1. The last event is marked out in the list. This can be done using the Ctrl+End or Ctrl+Home keyboard shortcuts.

2. The user did not perform any actions in the interface window for 3 minutes. This time can be changed using the UserActivityTimeout registry key—see Registry keys reference guide.
3. The list was sorted by the new column or the filter was changed.

The table gives the following data for each event:

Column name	Source	Event	Region	Add. info	Card	Date and time
Description	Source object of the event. *Note. The information in this column is received from the objid column of the dbo.PROTOCOL table of the Axxon PSIM database*	Event name. *Note. The information in this column is received from the action column of the dbo.PROTOCOL table of the Axxon PSIM database*	Conventional field (region) of the event source object location. *Note. The information in this column is received from the region_id column of the dbo.PROTOCOL table of the Axxon PSIM database*	Additional information describing the event (if any). *Note. The information in this column is received from the param0 column of the dbo.PROTOCOL table of the Axxon PSIM database*	Card code for the access-related events (i.e. ACCESS_IN). *Note. The information in this column is received from the param3 column of the dbo.PROTOCOL table of the Axxon PSIM database*	Date and time of the event. *Note. The information in this column is received from the date column of the dbo.PROTOCOL table of the Axxon PSIM database*
	For details about the dbo.PROTOCOL table, see Base Axxon PSIM database tables.					

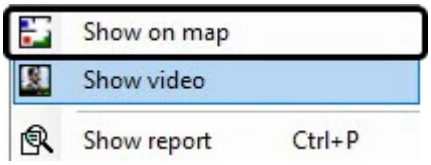
Additionally, a symbol near the source object of the event reflects the current status of the given source object.

The **Clear** button is used to clear the list of events in the Event viewer.

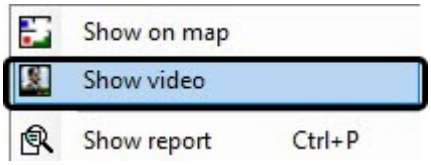
> **Note.**
>
> After the Event viewer is cleared and if hidden events are to be displayed again, then *Axxon PSIM* is to be restarted with the **Load protocol** checkbox set checked (see Event viewer parameters).

Event source objects

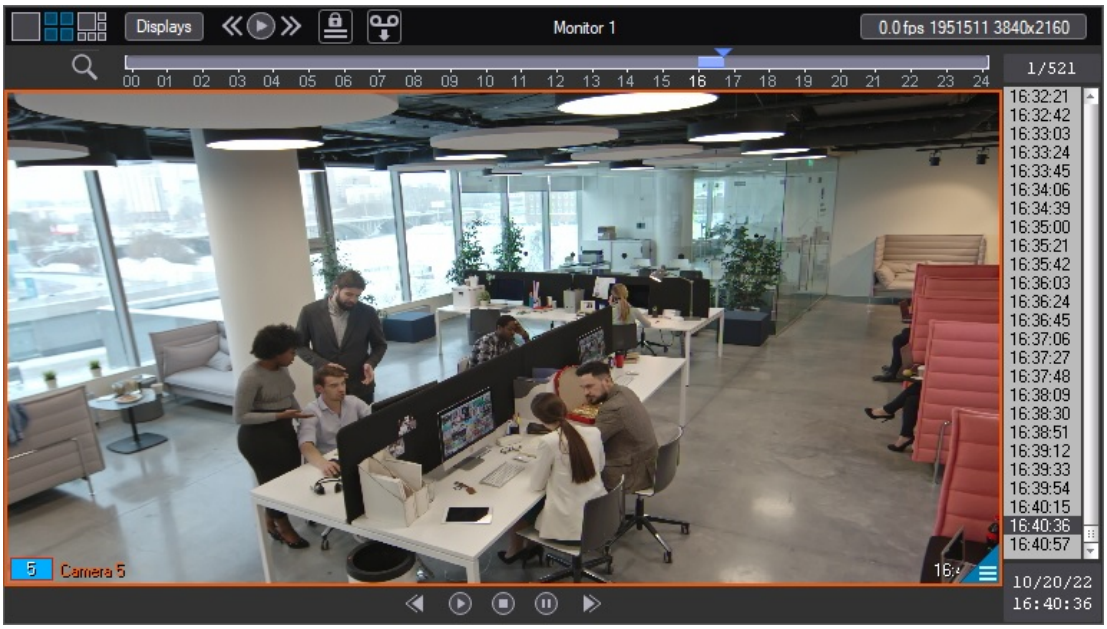
To show the actual location of the source object of the event, use **Show on map** function in the source object menu. As soon as this function is on, the map depicting the location of the given source object is displayed (see the Working with the map section). The corresponding object is highlighted with green dots and marked with concentric black-and-white circles.



To play the video sequence of the event from the event source camera, use the **Show video** function in the source object menu.



The camera window pops up in the archive playback mode.



The current playback position will be set to the position corresponding to the video recording start time.

Note.

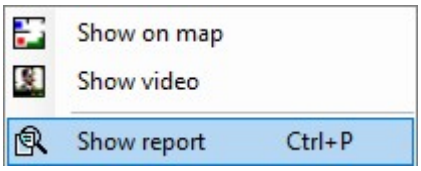
If the detection of abandoned objects is configured (see the Configuring smart video detection tools), abandoned objects are framed in the video when the playing back the video.



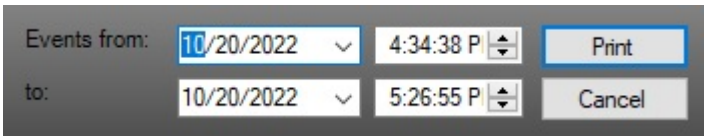
Generation, printout and export of the registered events report using Event Viewer

Event Viewer allows for the expedient generation and printout of the event list based on the specified criteria.

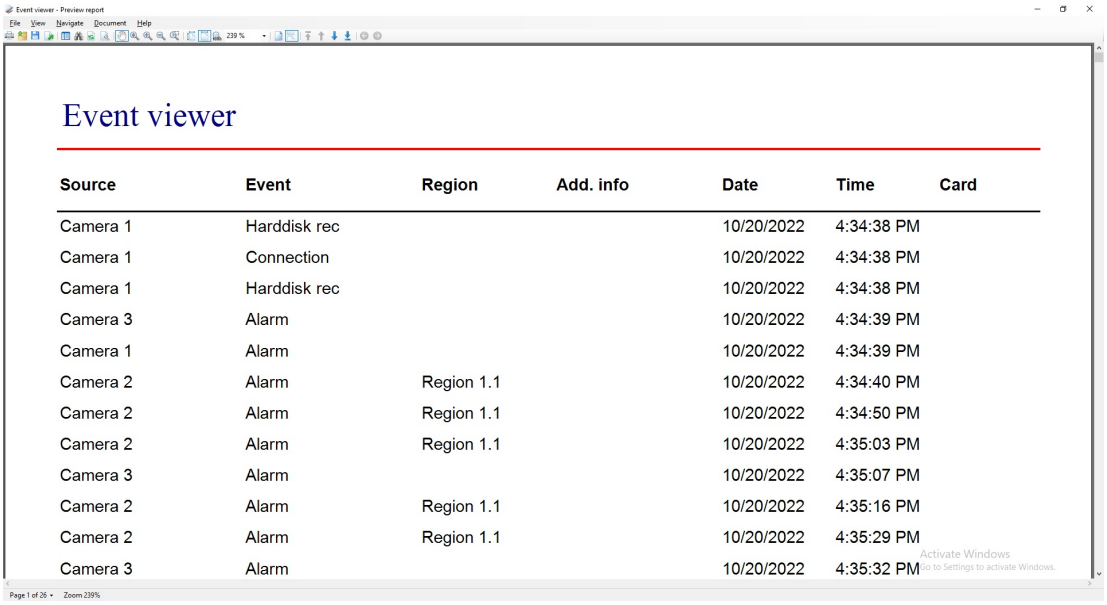
To generate and printout a report, select the **Show report** function in any source object menu in the table or press simultaneously **Ctrl + P**.



Specify the start and completion date and time of the event, which will be used in the report.



As soon as you press the **Print** button, the preview window of the generated list of events appears, the interface of which is shown in the figure. By default, the report start date and time (**from:**) are set equal to the date and time of the first, the oldest event displayed in the Event Viewer according to the filter, and report end date and time (**to:**) are set to the date and time of the last, the newest displayed event.



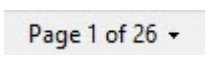
Event viewer

Source	Event	Region	Add. info	Date	Time	Card
Camera 1	Harddisk rec			10/20/2022	4:34:38 PM	
Camera 1	Connection			10/20/2022	4:34:38 PM	
Camera 1	Harddisk rec			10/20/2022	4:34:38 PM	
Camera 3	Alarm			10/20/2022	4:34:39 PM	
Camera 1	Alarm			10/20/2022	4:34:39 PM	
Camera 2	Alarm	Region 1.1		10/20/2022	4:34:40 PM	
Camera 2	Alarm	Region 1.1		10/20/2022	4:34:50 PM	
Camera 2	Alarm	Region 1.1		10/20/2022	4:35:03 PM	
Camera 3	Alarm			10/20/2022	4:35:07 PM	
Camera 2	Alarm	Region 1.1		10/20/2022	4:35:16 PM	
Camera 2	Alarm	Region 1.1		10/20/2022	4:35:29 PM	
Camera 3	Alarm			10/20/2022	4:35:32 PM	

The appearing window will show the generated report as it will be printed out.

> **Note.**
>
> If the **Region** and/or **Card** columns are hidden in the **Event Viewer** window according to settings, they will be included into the report nevertheless.

The upper part of the window displays a tools panel with the report control elements:

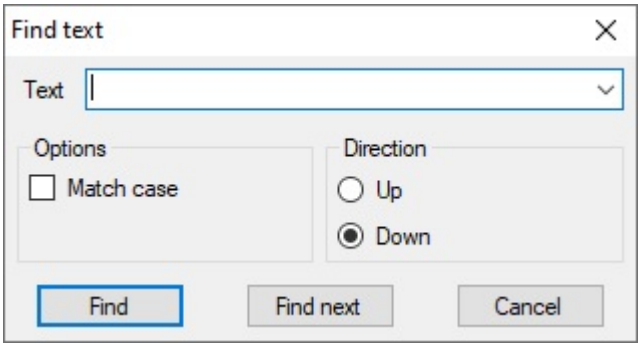
1. 

Set of elements for browsing report pages
2.  Report printout and print pre-setting

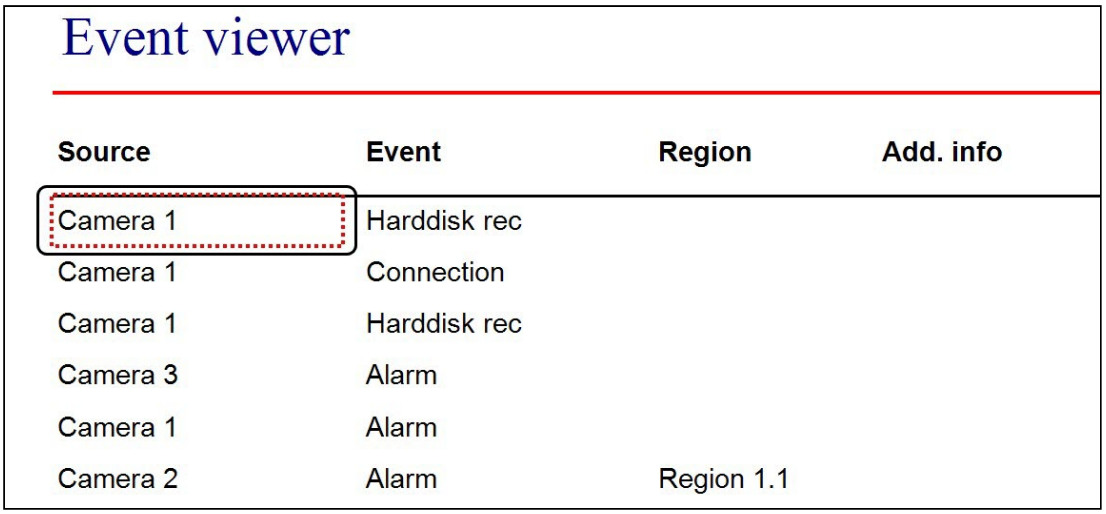
3. Report export
4. 239 % Report display scale
5. Search through the report text

Browsing through the report uses the following set of elements Page 1 of 26 . Report view scale is specified using 239 % .

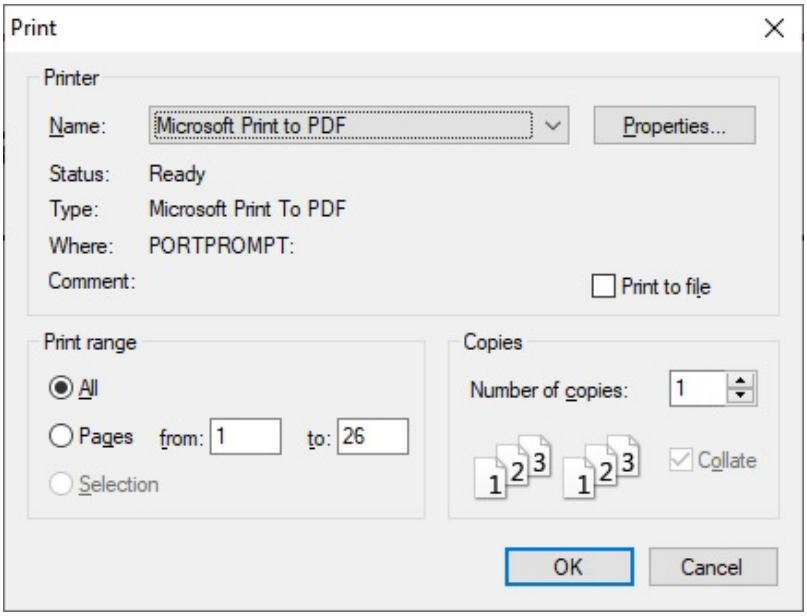
Click to search through the report text. The Find text dialog box opens to set up the parameters: search string, case sensitivity, search direction.



Click **Find** to run the search or **Find next** to go to the next result. Found items will be highlighted in the report text.



To send the generated report for printing, press . A standard dialog box opens for print pre-setting.



Note.

Standard dialog box **Print** (OS Windows) does not refer to the *Axxon PSIM* system and is a Windows system dialog box.

Additionally, the report may be exported to a specified file format, saved to a disk, opened in an associated application or sent by e-mail. To export the report press . A standard dialog box opens to save the file. The following export file formats are available: pdf, rtf, htm, xls, csv, gif, jpg, bmp, emf, tif, png.

Note.

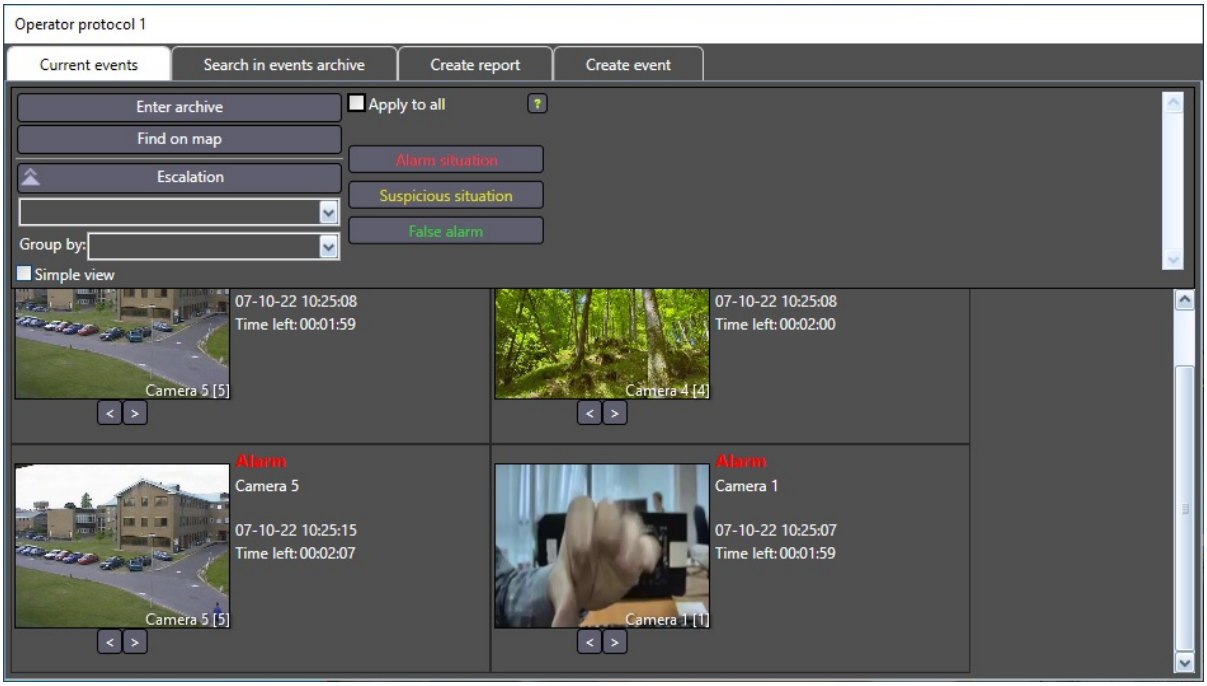
All further operations with the exported report file are controlled through the associated applications and do not depend on the *Axxon PSIM* system.

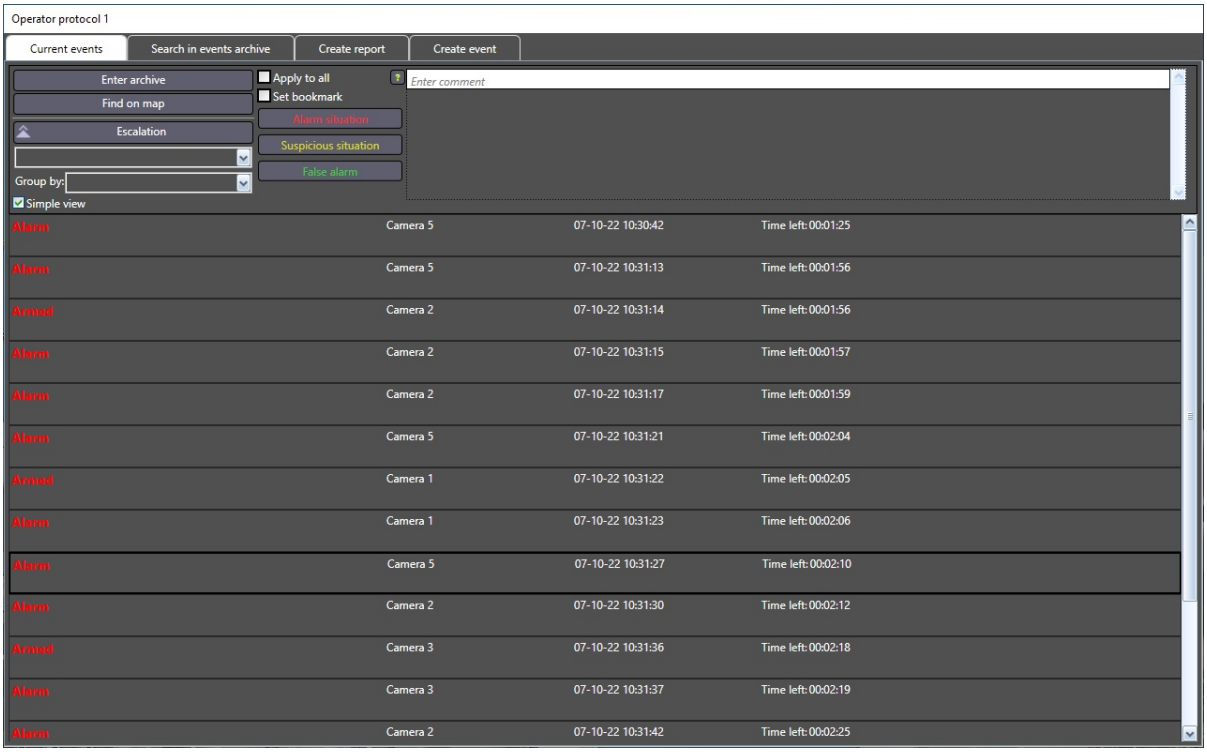
9.10.3 Event processing using the Operator protocol

On the page:

- Current events
- Checklist
- Assigning a type to the event
- Frames, archive and the Map

Events are processed in the **Current events** tab of the Operator protocol. The examples of the tab display:





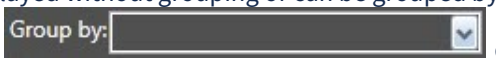
Current events

Events registered by alarm objects with no type assigned and events escalated from a lower level are displayed in the **Current events** tab. The event control panel is at the top of the tab, and the information on events is at the bottom of the tab.

The details of event display:

1. Depending on the Operator protocol configuration, current events can be displayed as cells with screenshots or lines without schreenshots (see Configuring the Operator protocol interface). The number of horizontal cells is determined by the Operator protocol window width. However, the Operator Protocol can be configured in such a way that the cell size fits the size of the free area under the event control panel. In this case only one cell is horizontal, and its height is equal to the height of the free area. To display events as lines, set the 

checkbox, if this option is enabled in the settings for the Operator.
2. Depending on the Operator protocol configuration, the events are displayed in the order they are received or by the priority and importance, ascending or descending. When there is ascending sorting - the newest (of higher priority) event is in the upper left corner or on the top line, when there is descending sorting - it is in the bottom right corner or on the bottom line.
3. If one or several events are selected by the Operator, then their position in the Operator protocol is not changed and new events continue appearing in the window - they shift in accordance with the sorting order. In this case, the Operator protocol can be configured in such a way that when a new event is received, its cell or line automatically becomes active.
4. The screenshot of the event is displayed in the cells of the events of the **Camera** objects as well as events of objects linked to cameras (see Connection of objects with cameras). If there are several cameras linked to the object, you can use the 

buttons to browse the screenshots. The name of the corresponding camera is displayed on the frame.
5. Events can be displayed without grouping or can be grouped by object, event or region. Event can be grouped using the 

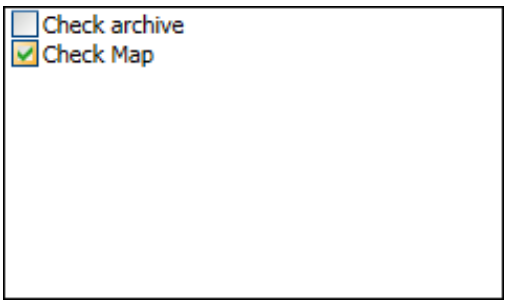
drop-down list, if this option is enabled in the settings for the Operator.

Note

Temporary images (event screenshots) are stored in the C:\Users\<User name>\AppData\Local\Temp\OperatorProtocol folder. They are automatically deleted at normal *Axxon PSIM* shutdown or restart.

Checklist

On the right there is a checklist of actions that should be performed during the event processing. This list is set up by the Administrator during the Operator Protocol configuration. After you perform the required action, set the checkbox next to it, and the information about the task completion will be added to the comment field along with the date and time indication.



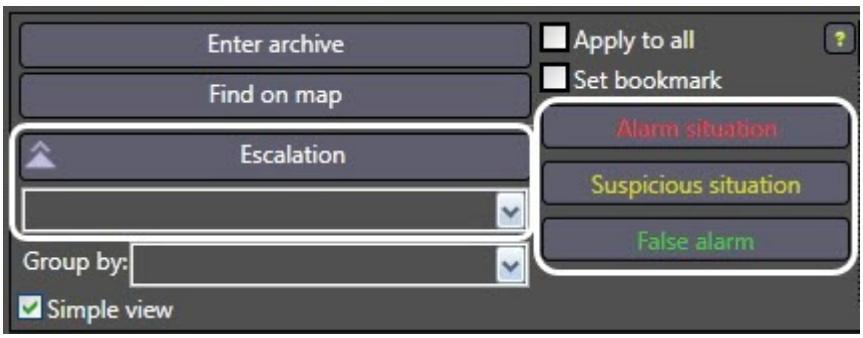
Assigning a type to the event

To assign a type to the event, select one or several event cells or lines using the left mouse button (hold down the Ctrl key to select several events, if this feature is enabled in the system settings) and then click one of the buttons on the event control panel. The buttons for event processing may not be available until a comment is entered if the

corresponding setting is enabled. If the helping guides were added during the Operator Protocol configuration, you can click the button and open the helping guide about the event processing.

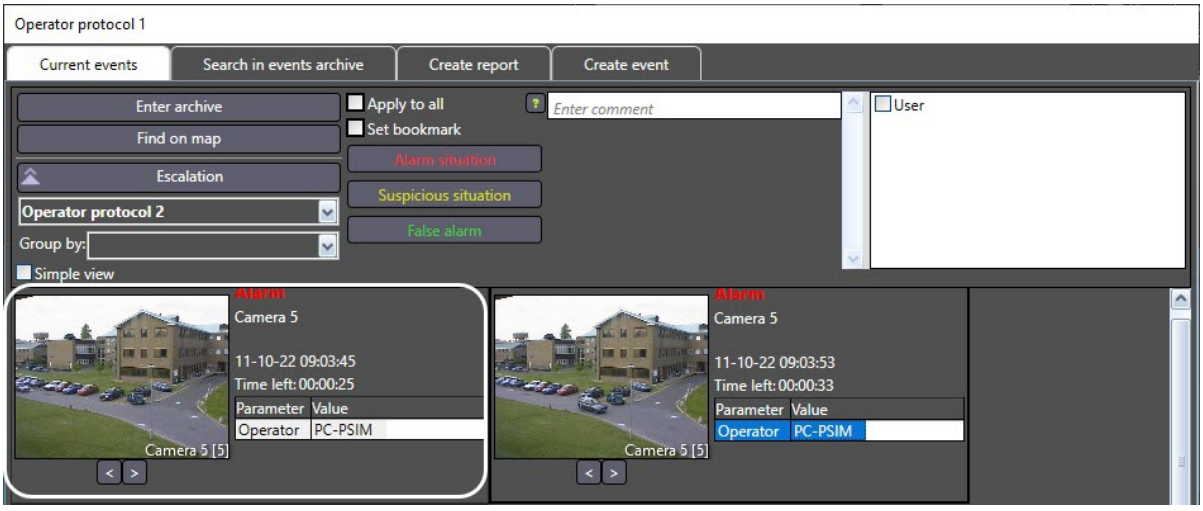
> **Note**
>
> If the events are grouped, then selecting a line with the grouping name will select all events from this grouping. The presence of the event processing buttons depends on the settings of the Operator Protocol.

The button names can be changed during the Operator Protocol configuration.



> **Note**
>
> When you select the event cell or line, the camera (linked to the corresponding object) activation event is generated. If the Active monitor is configured in the system (see Configuring the display mode of camera windows), then video from the corresponding camera is displayed in it. If several cells are selected, then cameras are displayed one-by-one on the Active monitor.

After the type is assigned to the event, it is removed from the **Current events** tab in the Operator protocol window. If the event (after being processes) is not removed from other Operator protocols when configuring the Operator protocol (see Setting the options for handling events in the Operator protocol), then the processed event is marked grey in other Operator protocol windows. But other operators can process this event once again.



> **Note**
>
> If all non-processed events are to be assigned with the type of the selected event, then set the **Apply to all** checkbox.

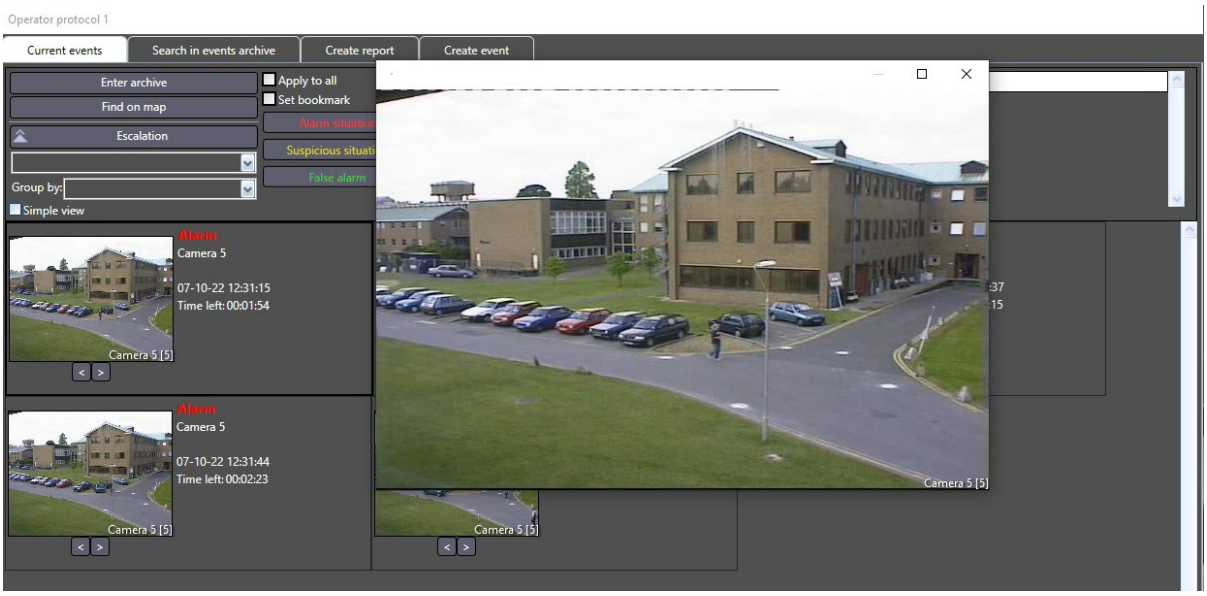
In order to delay the event processing once for the time period specified when configuring the Operator protocol, click the **Delay** button. The event will not be removed from the Operator protocol windows and it will not be marked grey in other Operator protocols.

> **Note**
>
> If the time of waiting for the response from the Operator (specified in the settings of the **Operator protocol** object) (see Administrator's Guide) is exceeded, then the event is escalated and if the chief interface is not assigned to the Operator protocol, then it is removed from the **Current events** tab and the **Non-processed** type is assigned. When *Axxon PSIM* is restarted, the non-processed events are saved.

Frames, archive and the Map

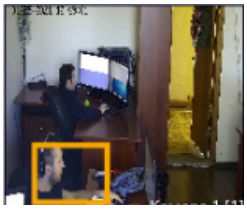
If the bookmark for the selected events is to be created in the archive, then set the **Set the bookmark** checkbox before processing the event. The comment will be used as the bookmark name. See List of bookmarks.

If the events are displayed as cells, then the frame of the moment of alarm (screenshot of the event) can be enlarged. To do this, double left-click on it. The window with zoom-in frame appears. This window can be moved around the screen by dragging the title bar with the left mouse button; in this case, the position of the window will be remembered for each type of event and window of the Operator Protocol. To close this window, click the **X** button in the upper right corner or press Esc on the keyboard.



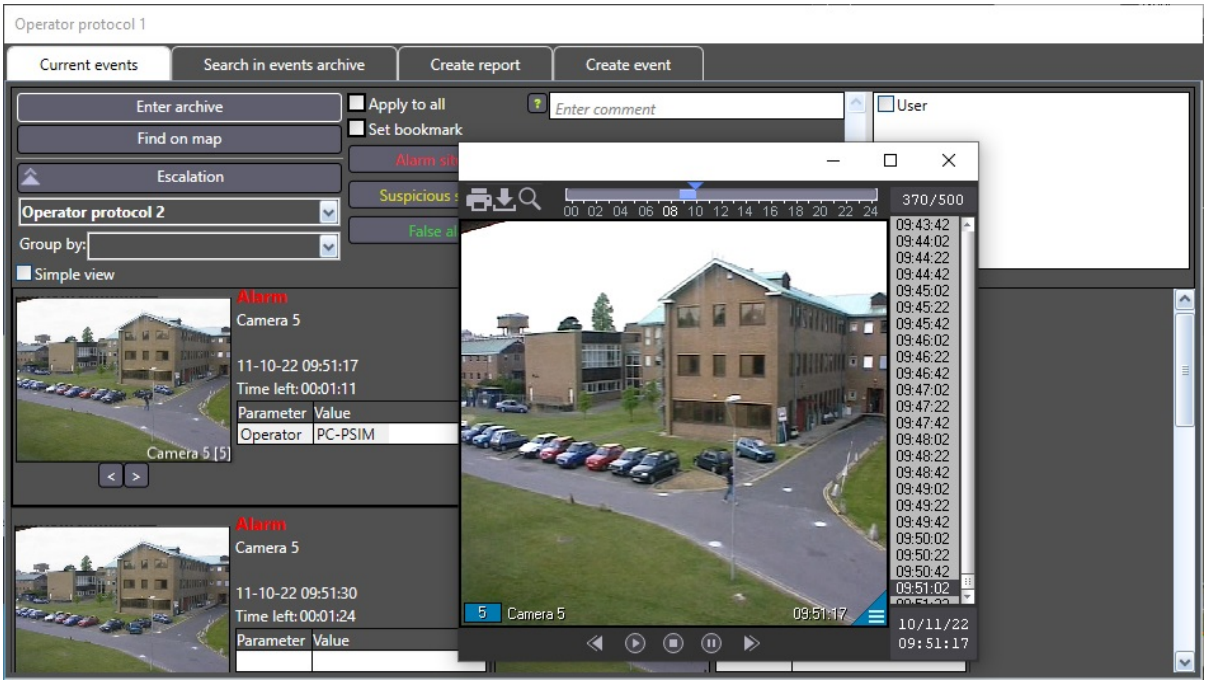
> **Note**
>
> The window with enlarged alarm frame may not appear if the corresponding value is set for the hide_image_preview registry key (see Registry keys reference guide).

If the **Tracker** object is created and configured for the camera, the objects displaying on the image is enabled and metadata source is *VideoIntellect*, the frames around detected objects may be shown on the frame. The frame color and thickness can be changed by RectColor and RectLineWidth registry keys (see Registry keys reference guide).



Also, if captions are configured for the camera, then the event screenshot may contain captions.

To view or export the video of the event, select the event in the list and click the **Enter archive** button on the control panel. The enter the archive feature is available for events from **Camera** objects and objects linked to them (see Connection of objects with cameras).



If the ActiveX video display method was selected during the Operator Protocol configuration, the window for the video viewing and exporting will open. The ActiveX window interface is the same as the Video Surveillance Monitor interface. This window can be moved around the screen by dragging the title bar with the left mouse button; in this case, the position of the window will be remembered for each type of event and window of the Operator Protocol. To close this window, click the **X** button in the upper right corner or press Esc on the keyboard.

If the Monitor video display method was selected, then the required camera(s) will be displayed on the selected Video Surveillance Monitor in the archive viewing mode. In this case, the current playback position will be set to the position corresponding to the beginning of the video recording. The ArchShift registry key can shift the playback position (see Registry keys reference guide).

To view the object from which the event comes on the interactive Map, select the event cell and click the **Find on map** button on the control panel. As a result the required layer of the interactive Map is displayed. The corresponding object is highlighted with green dots and marked with concentric black-and-white circles.



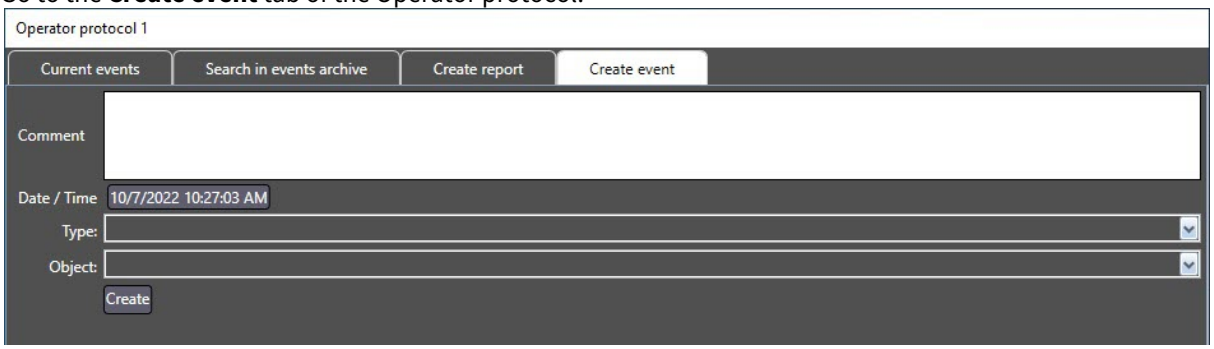
Creating events using the Operator protocol

The function of creating events using the Operator protocol allows generating alarm events manually. This function is used, for example, when the event in the frame was not detected by standard means but is to be in the archive.

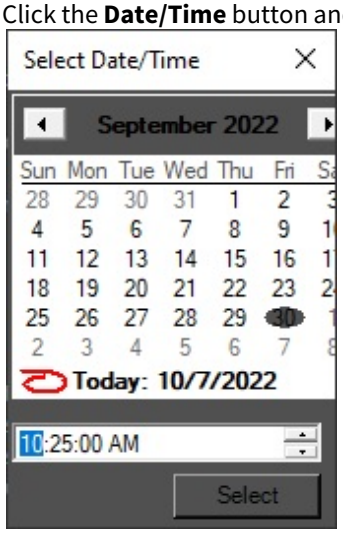
There is **Created by Operator** message in the **Initial Event** column when displaying events created this way (see Search in events archive).

To create an event, do the following:

1. Go to the **Create event** tab of the Operator protocol.



2. Type in the event description in the **Comment**.
3. Click the **Date/Time** button and specify the date and time of the event in the opened box.



4. Select the object type in the **Type** dropdown list.
5. In the **Object** drop-down list, select the object which registered the event.
6. Click the **Create** button.

The event of the **Alarm situation** type will be added to the archive.

> **Note.**
>
> In order to view the video recording on the event created by the Operator, one is to start recording on the required camera manually (see Recording by Operator command section).

The event is now created.

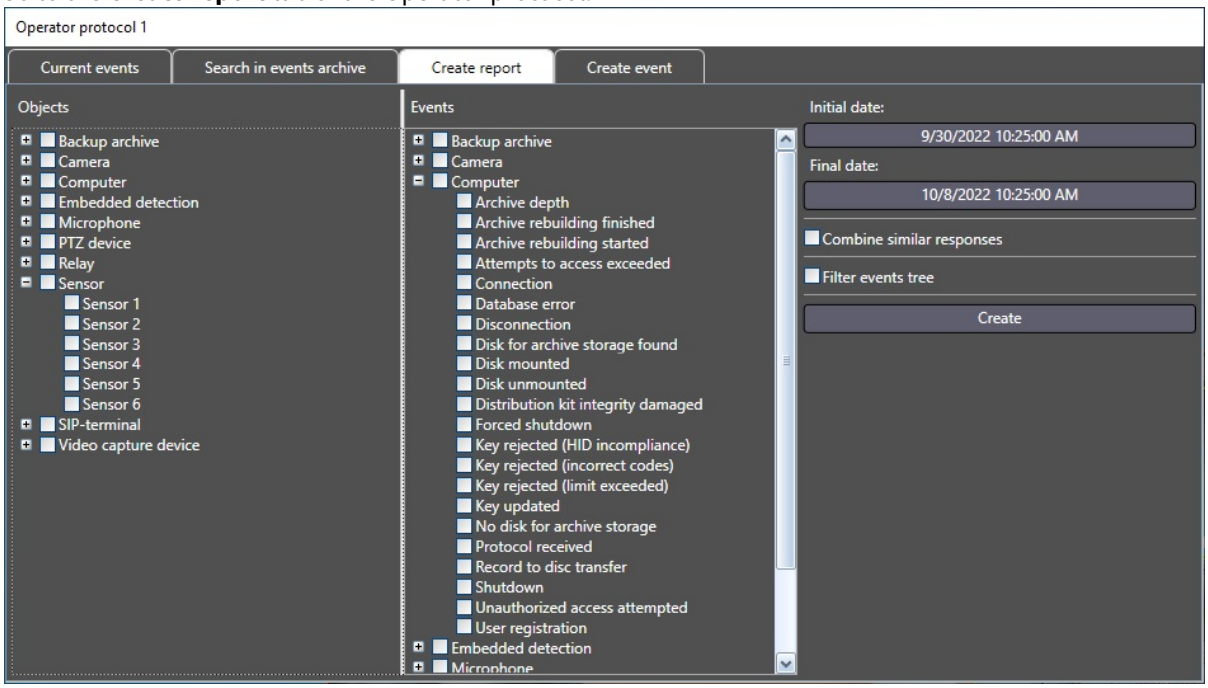
Creating report by events logged using the Operator protocol

In *Axxon PSIM* software one can create reports by events logged using the Operator protocol.

> **Note.**
>
> A report by operator actions can also be created – see Search in events archive.

To create a report, do the following:

1. Go to the **Create report** tab of the Operator protocol.



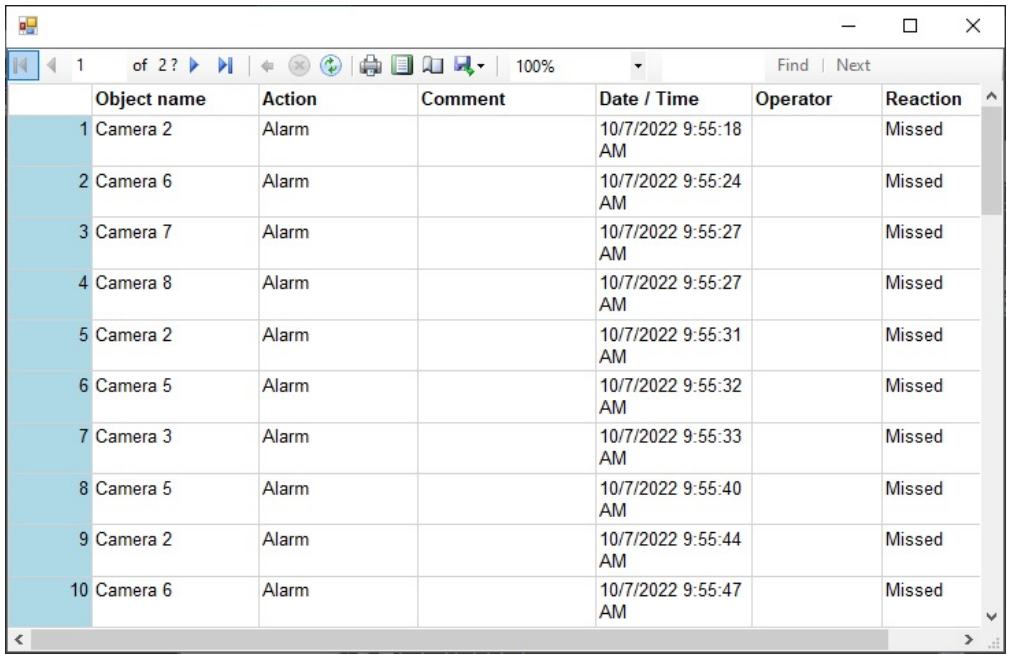
2. In the left column, set the checkboxes next to the objects the events from which are to be in the report.
3. Set the checkboxes next to the events the data on which are to be in the report.

> **Note.**
>
> The left and right lists are independent by default, i.e. the events of not selected objects may be included in the report. Set the **Filter events tree** checkbox before selecting data for report to avoid selecting events without selecting objects.

4. Click the **Initial date** button and set the date and time the events starting from which will be in the report.
5. Click the **Final date** button and set the date and time the events after which will not be in the report.

6. If events are to be displayed only once in the report, then set the **Combine similar responses** checkbox checked. If this checkbox is set unchecked, then one event will be displayed for each Operator protocol in the report.
7. Click the **Create** button.

As a result, the report is displayed on the monitor.

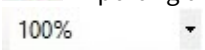


	Object name	Action	Comment	Date / Time	Operator	Reaction
1	Camera 2	Alarm		10/7/2022 9:55:18 AM		Missed
2	Camera 6	Alarm		10/7/2022 9:55:24 AM		Missed
3	Camera 7	Alarm		10/7/2022 9:55:27 AM		Missed
4	Camera 8	Alarm		10/7/2022 9:55:27 AM		Missed
5	Camera 2	Alarm		10/7/2022 9:55:31 AM		Missed
6	Camera 5	Alarm		10/7/2022 9:55:32 AM		Missed
7	Camera 3	Alarm		10/7/2022 9:55:33 AM		Missed
8	Camera 5	Alarm		10/7/2022 9:55:40 AM		Missed
9	Camera 2	Alarm		10/7/2022 9:55:44 AM		Missed
10	Camera 6	Alarm		10/7/2022 9:55:47 AM		Missed

Note.

If the reactions were renamed while configuring the **Operator protocol** interface, the custom names are displayed in the **Reaction** column.

There are some operations one can do with the report. They are described below:

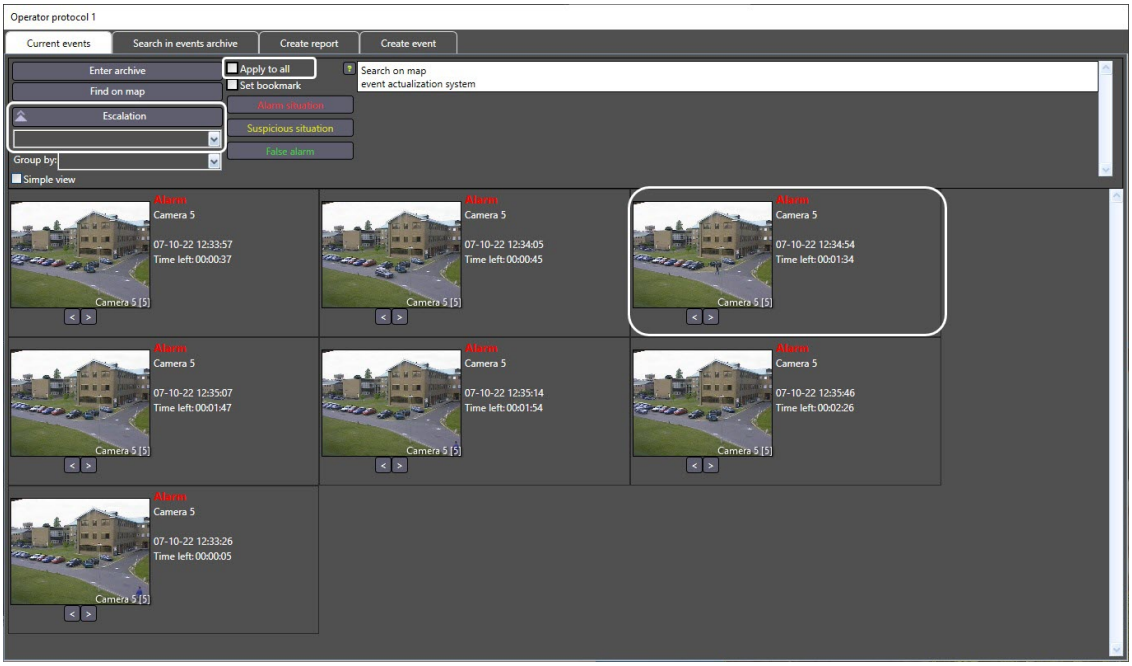
1.  Navigating the report's pages
2.  Refreshing data in the report
3.  Printing the report
4.  Previewing the report
5.  Going to the report settings
6.  Exporting the report to xls, pdf or doc format
7.  Selecting the report's scale
8.  Searching over the report

Events escalation in the Operator protocol

When the event is escalated it is removed from the Operator protocol and sent to the Operator protocol that is set as a superior interface. There are two ways of escalation:

1. Automatically, on the expiry of waiting time for Operator's response.

2. Manually:
    a. Select one or several events in the **Current events** tab or set the **Apply to all** checkbox checked if all events are to be escalated.



    b. Select the **Operator protocol** where the event is to be escalated to.
    c. Click the **Escalation** button.

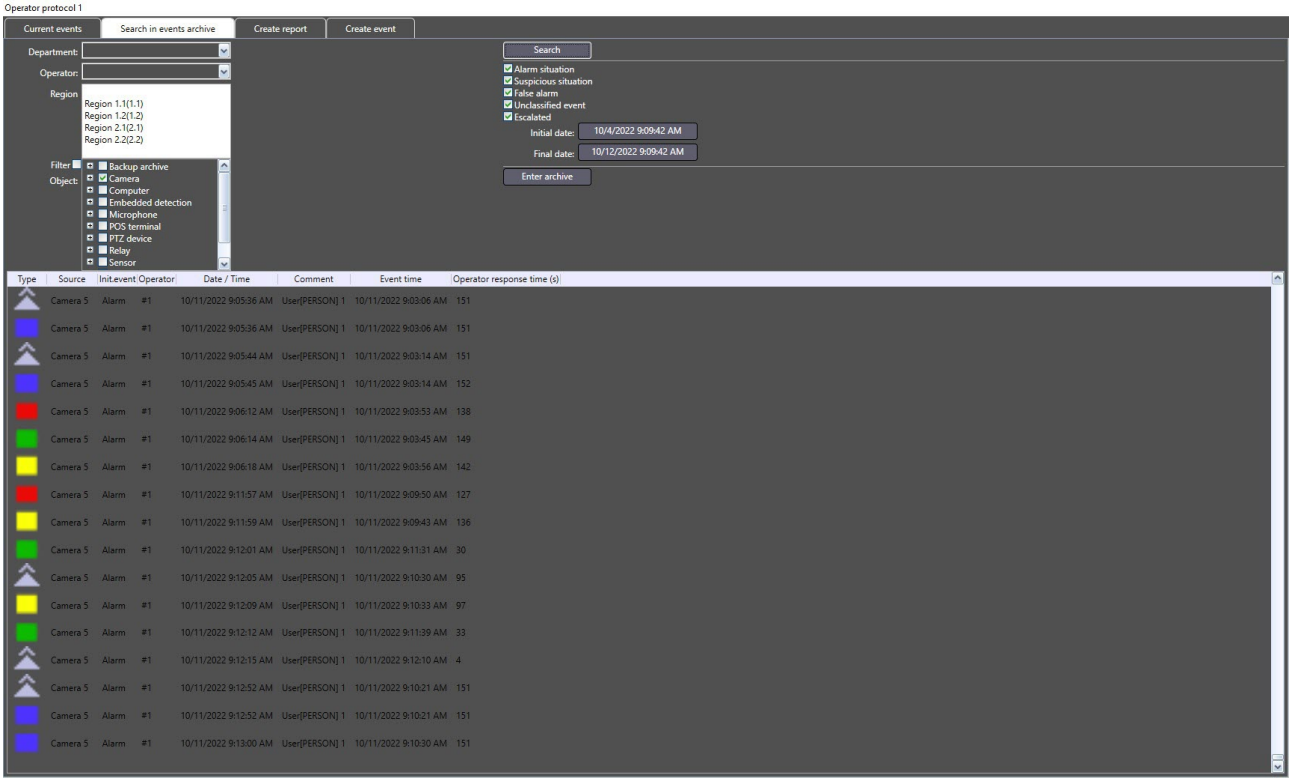
> **Note**
>
> If the events are grouped, then when you select a line with an unexpanded group, all events from this group will be selected.

Search in events archive

A report by operator actions includes info on assigning events with a type, escalation and missing events.

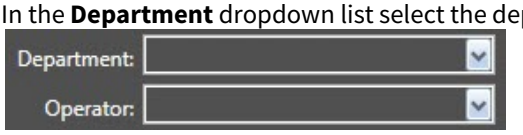
> **Note.**
>
> A report by events themselves can also be created – see Creating report by events logged using the Operator protocol.

Creating a report by operator actions is performed in the **Search in events archive** tab of the Operator protocol.

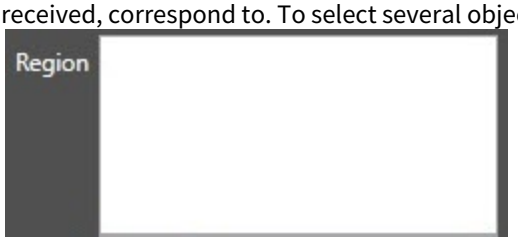


To create a report by operator actions, do the following:

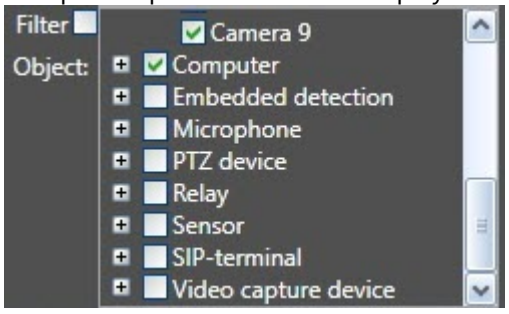
1. In the **Department** dropdown list select the department which the operator belongs to.



2. In the **Operator** dropdown list select the operator that processed the required events.
3. In the **Region** dropdown list select one or several Region objects the objects, from which the events are received, correspond to. To select several objects hold the Ctrl key and left click the required regions.

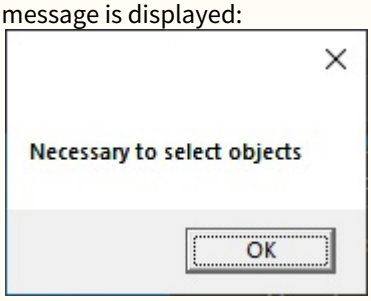


4. In the **Object** list select the object by which the search of events will be performed. If only objects added to the Operator protocols are to be displayed in the list, then set the **Filter** checkbox checked.

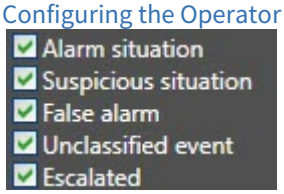


Important!

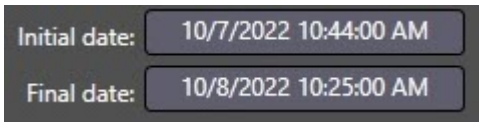
If none of the objects has been selected, the report cannot be created and the corresponding message is displayed:



5. Select the types of events to search for by setting the checkboxes checked next to the names corresponding to the required types. Checkbox names may differ depending on configured buttons names – see Configuring the Operator protocol interface.



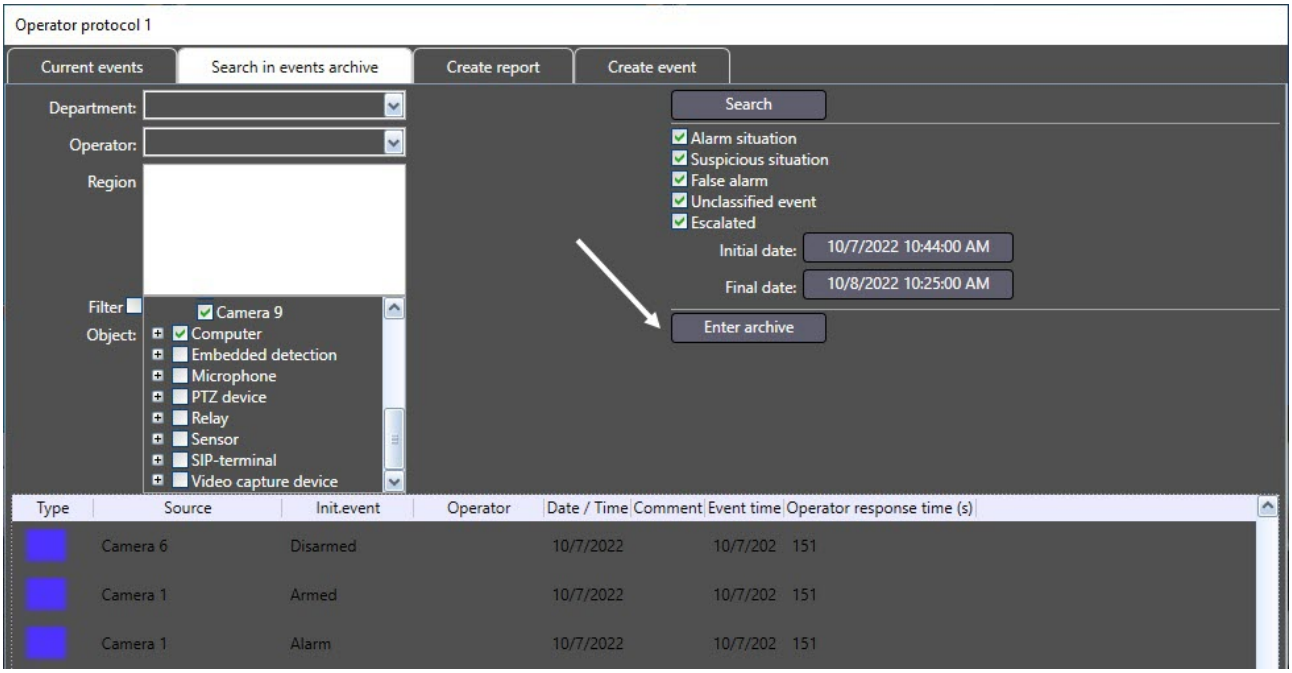
6. Set the time period of search by specifying the initial and final date using the **Initial date** and **Final date** buttons.



7. To start the search click the **Search** button.

The operator actions corresponding to the search requirements will be displayed in the protocol table.

In order to view or export the video recording of the event, in the protocol table go to the event the video of which is to be viewed and click the **Enter archive** button.



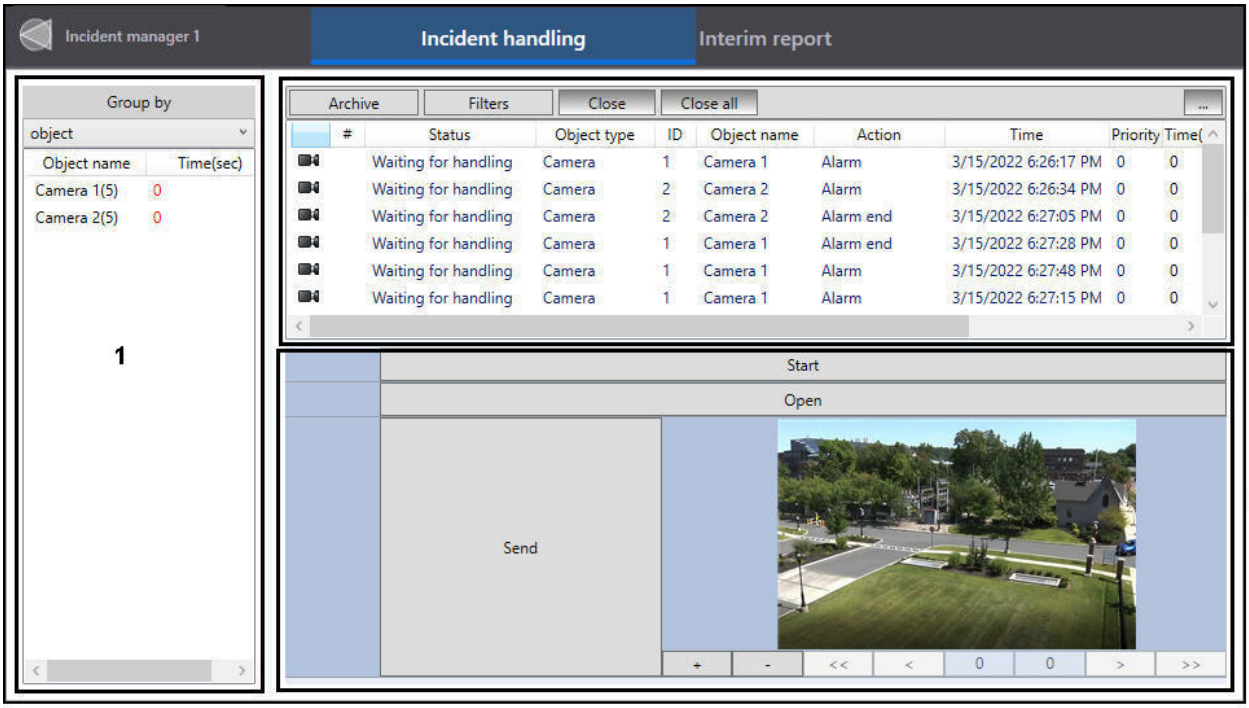
The archive of video recordings opens in a separate dialog box and the current position of playback is set at the position corresponding to the beginning of video recording. The interface of the dialog box is similar to the Video surveillance monitor.

> **Note.**
>
> The archive can be opened in the Video surveillance monitor instead of the separate dialog box depending on the **Operator Protocol** object settings.

9.10.4 Events control and processing using the Incident manager

The Incident manager interface consists of three parts:

1. Event grouping interface (**1**) — see Grouping events.
2. Table with a list of events (**2**) — see Event information.
3. Event handling interface (**3**) — see Processing events.



In addition to monitoring and processing events in the Incident manager, you can generate a report on the operator's actions — see Interim report, and view the video or object corresponding to the event on the map — see Displaying video and object on the map.

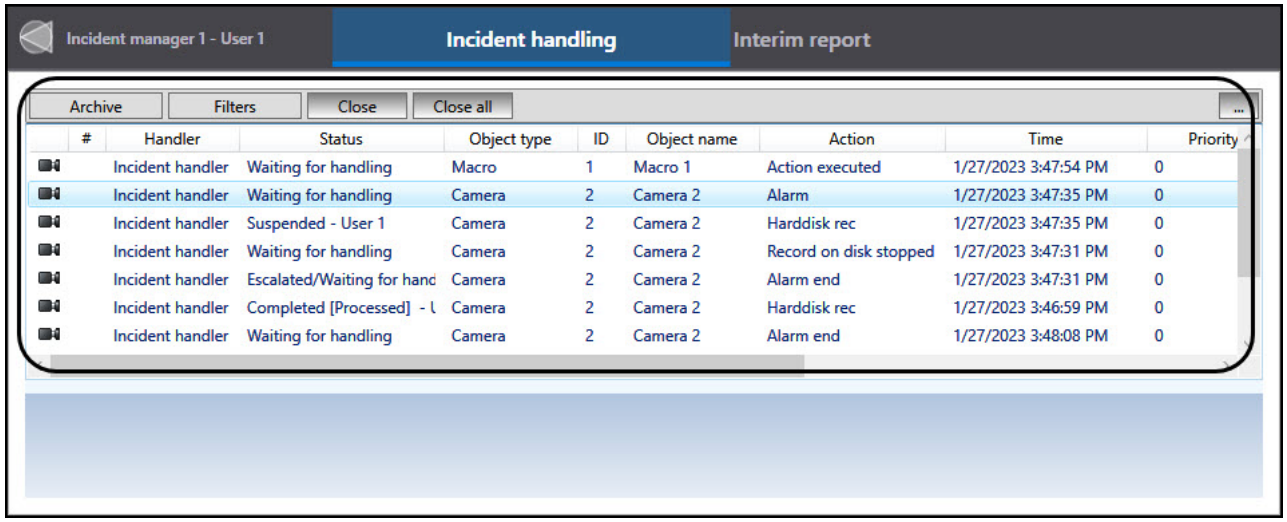
Event information

On this page:

- Viewing current events
- Event statuses
- Grouping events in the list
- Sorting events
- Filtering events
- Events archive

Incident manager interface description

Information about **Incident manager** events is displayed in the events table located in the upper part of the window:



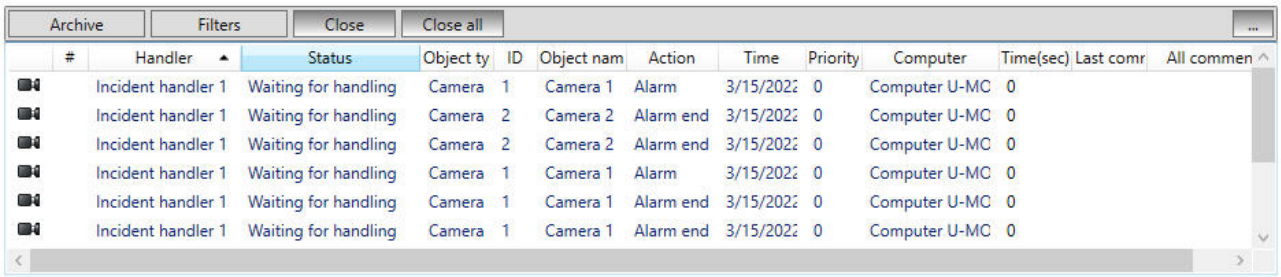
You can group, filter, and sort the events. The list displays the event status, and you can take the event into processing from there (see Processing events).

When you open the **Incident manager**, the events **Monitoring** mode opens by default, which displays only current events that need to be processed. To view all **Incident manager** events, go to the Archive.

Viewing current events

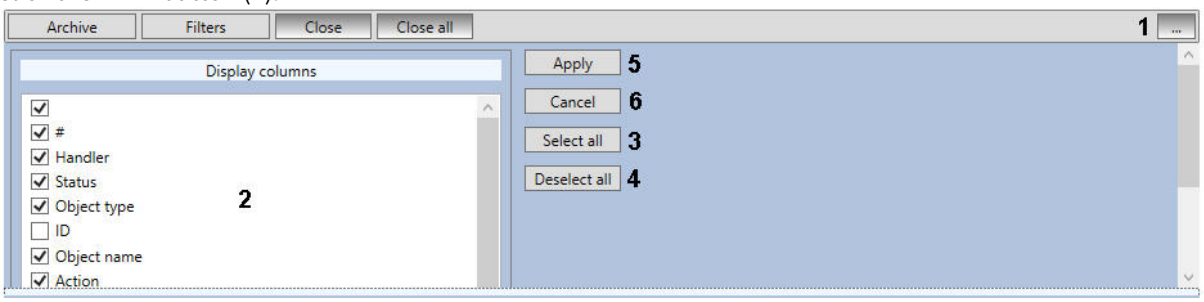
The following information is displayed for each event by default:

1. Indicator of the presence of the camera associated with the event .
2. Incident handler—the name of the Incident handler that will process the event.
3. Event status.
4. Object type.
5. Object ID.
6. Object name.
7. Action—description of the event.
8. Time the event occurred.
9. Priority.
10. Computer—the name of the computer from which the event was received.
11. Time (sec)—the number of seconds since the event occurred.
12. Last comment—only the last comment entered while processing the event.
13. All comments—all comments entered while processing the event.



To change the displayed information columns, do the following:

1. Click the ... button (**1**).



2. Set the checkboxes next to the columns you want to display (**2**). To set checkboxes for all columns at once, click the **Select all** button (**3**), to clear the checkboxes, click the **Deselect all** button (**4**).
3. Click the **Apply** button (**5**). To cancel the changes, click the **Cancel** button (**6**).

Event statuses

By default, an event has an empty status in the Incident manager. Eventually, an event may receive the following statuses, depending on the operator actions (see Processing events):

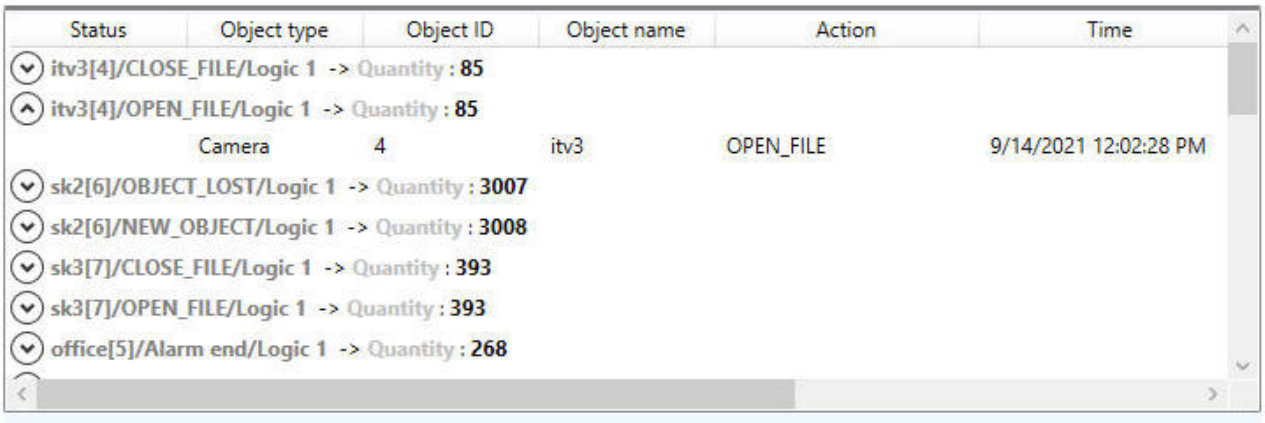
1. **Acknowledged**. This status is displayed if an event is taken into processing and is currently being processed.
2. **Suspended**. This status is displayed if event processing was started and not completed but suspended.
3. **Taken by others/<Last name of the operator who took the event into processing>**. This status is displayed if the event is being processed by another operator.
4. **Suspended by others**. This status is displayed if event processing was started and not completed but suspended by another operator.
5. **Escalated**. This status is displayed if the event was escalated to another operator. The following options are available:
   a. **Escalated/Suspended by others**—status immediately after escalation.
   b. **Escalated/Taken by others**—the escalated event was taken into processing by another operator.

   > **Note**
   >
   > Depending on the Incident manager settings, when an event is escalated, it may not change its status, but disappear from the list for the person who escalated the event.

6. **Escalated/<Last name of the operator who escalated the event>**. This status is displayed to the operator to whom the event was escalated.
7. **Escalated/Acknowledged**. This status is displayed to the operator to whom the event was escalated when he took it into processing.

Grouping events in the list

If event grouping in the list is enabled in the settings (see Configuring the events grouping in Incident manager), then the events in the list will be grouped by object type / object ID / event type / logic ID.



To view the events within the group, click the button.

Depending on the settings, when you expand a group, either the first event or all events in the group will be displayed.

Sorting events

To sort events alphabetically, click on the name of the required column.

Filtering events

To filter out and display specific events, do the following:

1. Click the **Filters** button (**1**).



2. Apply the filter in one of the following ways:
   a. Set the checkboxes next to those values in the columns by which you want to filter out the events (**2**). As a result, only those objects that match all the filter criteria at the same time will be displayed. To clear all selected checkboxes, click the **Reset** button (**4**).

> **Note**

In order to display the events assigned to the current Operator or other Operators, it is necessary to set the checkbox next to the **Assigned to me** or **Assigned to others** value in the **Assigned** column, respectively. In order to display the events assigned to both the current Operator and other Operators, set the checkboxes next to both the **Assigned to me** and **Assigned to others** values.

b. In the **Text filter** field, enter the object name, object ID, or the action of the event (for example, Activated), by which you want to filter out the events (**3**). It is not necessary to enter full object name, object ID, or action. The filter will display all found matches based on the value entered in the **Text filter** field. To delete the entered value, click the **Cancel** button (**5**).
c. Apply the filter using both the checkboxes and text at the same time. To do this, enter the object name, object ID, or the action of the event (**3**) in the **Text filter** field, and set the checkboxes next to the column values by which you want to filter out the events (**2**). As a result, events that match both the entered text and the selected checkboxes will be filtered out. To clear all selected checkboxes and delete the entered value in the field, click the **Cancel** button (**5**).

3. Click the **Apply** button (**6**).

As a result, objects and events that match all selected filter criteria will be displayed. For example, if the checkboxes next to the **Acknowledged** and **Assigned to me** statuses are set, then all work events that are assigned to the current user will be displayed.

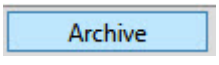
Note

If you set all the check boxes in the **Statuses** column, it will mean the same as if none is set. The same applies to the **Assigned** column.

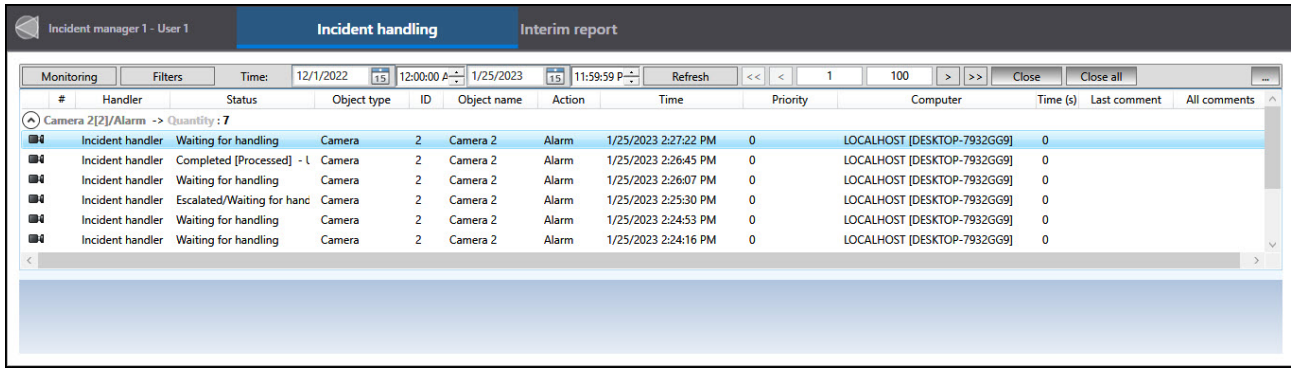
Example of applying the event filter by object ID:



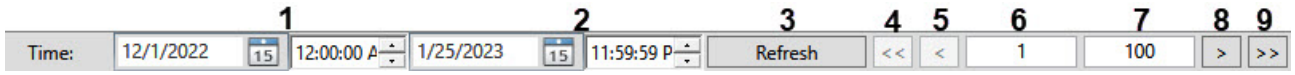
Events archive

To go to the events archive, click the 

button on the top panel. As a result, a list of archived events will open:



In the events archive mode, you can do the same actions as in the events **Monitoring** mode: apply filters, use the **Close** and **Close all** buttons, generate an interim report, and select columns to be displayed in the table. Besides that, on the top panel you can set the parameters for displaying the archive:



where:

- the period for displaying the archived events is specified by the date and time of its beginning (**1**) and end (**2**);
- the **Refresh** button is used to update the events list if the display period has changed (**3**);
- item **6** is the number of the displayed page;
- item **7** is the total number of pages;
- buttons **<** and **>** are used to go to the previous/next page (**5** and **8**);
- buttons **<<** and **>>** are used to go to the first/last page (**4** and **9**).

To return to current events, click the  button.

Grouping events

On the page:

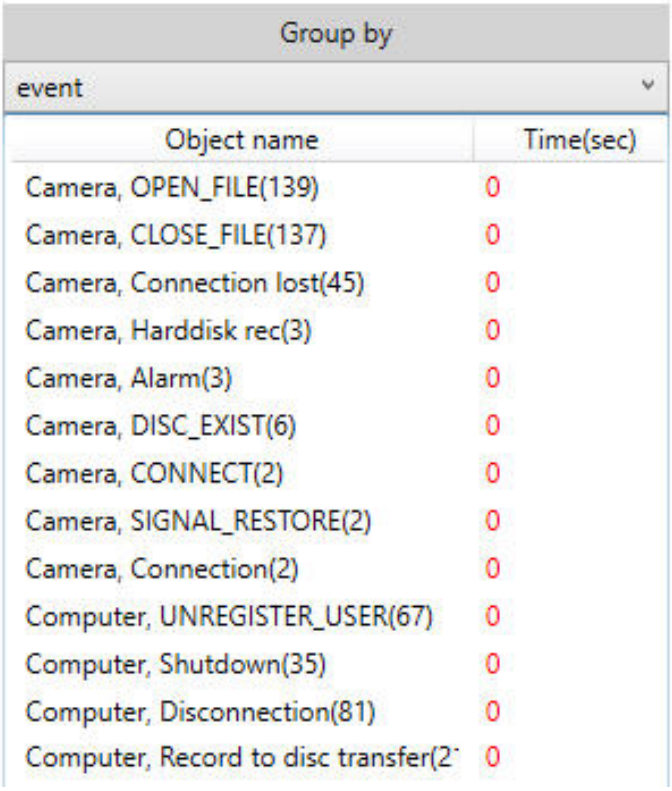
- Grouping options
- Viewing events in group
- Group color
- Sorting the group

Grouping options

Grouping events sets the event groups according to the specified parameters in the table with the list of events. Possible grouping options are set in the Configuring the events grouping in Incident manager:

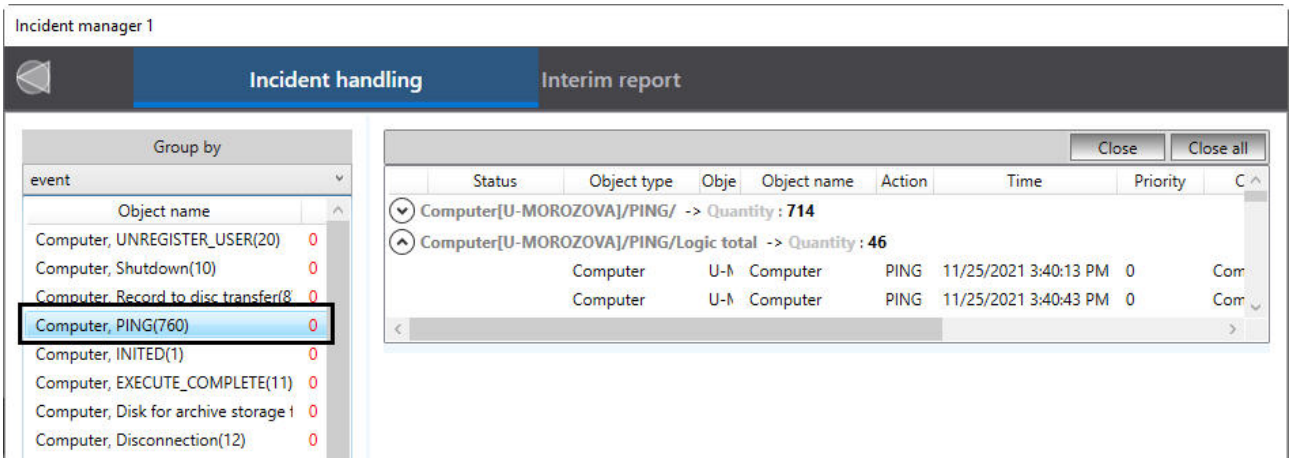
1. **disabled** — grouping is disabled, all events are displayed in the list.
2. **region** — events are grouped by region.
3. **event** — events are grouped by event type.
4. **object** — events are grouped by object.

The **Object name** column contains the grouping parameter and the number of events in the group (in brackets). The **Time(sec)** column shows the time in seconds until the countdown timer expires. In this case, the last generated event with timer is taken into account for the group.



Viewing events in group

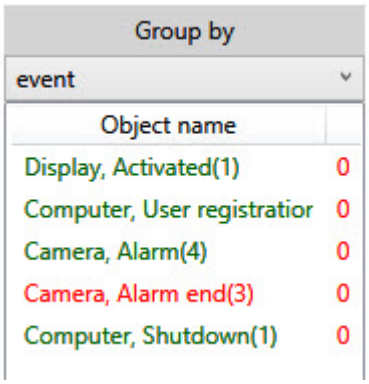
To view the events in the group, click on its name. Events or subgroups of events of this group will be displayed in the table with the list of events:



Group color

If the settings allow processing the events of the entire group at once, then the group names will be highlighted in color depending on the status of the events in the group:

- Green, if events in group are pending, taken into processing, escalated or suspended by the current Operator.
- Red, if the events in group are taken into processing or suspended by another Operator, and also if the processing of events in group is completed by any Operator.
- Black, if there are no Operators in the system (not a single User is registered in *Axxon PSIM*).



Note

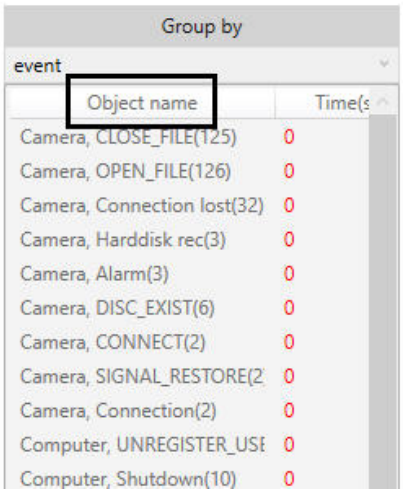
Specific cases of color highlighting of group names:

- if the current Operator takes into processing an event from the “red” group, then after they complete the first step of event processing, the group will become “green”;
- if different Operators take into processing different events of the same group, then the group will be “red” for both operators.
- if Operators use different grouping options, then after one of the Operators completes the first step of event processing, all groups for both Operators will be "red".

Example: Operator 1 uses grouping by objects (cameras), Operator 2 uses grouping by events. Events are generated by cameras. Operator 2 takes into processing an alarm event of any camera. The group becomes "green" for Operator 2. For Operator 1 all groups become "red", because Operator 2 took into processing an alarm event of all cameras. Because of this, for Operator 2 all groups also become "red".

Sorting the group

To sort the groups alphabetically, click on the **Object name** field:



Processing events

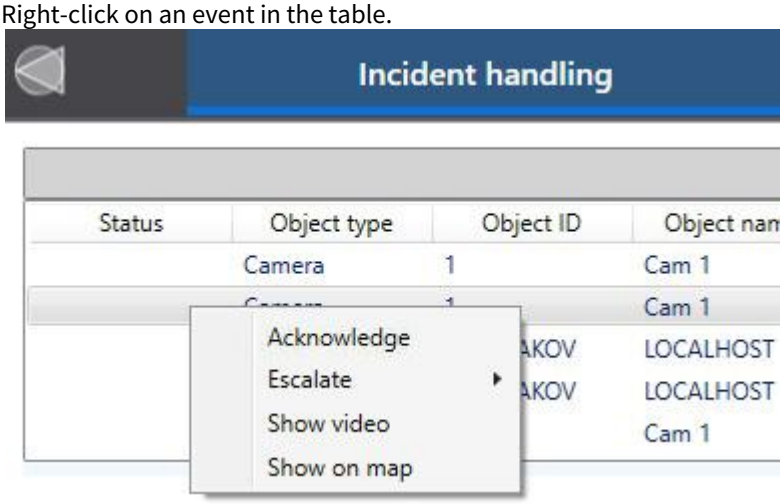
On this page:

- Processing events
- Suspending events
- Escalating events
- Processing event group
- Closing events without processing

Processing events

To start processing an event, do the following:

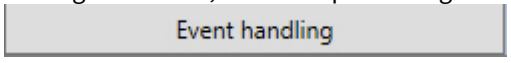
1. Right-click on an event in the table.



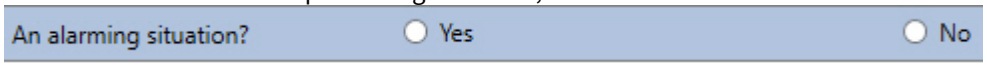
2. Select **Acknowledge**.

After that, the first element will be displayed in the event handling interface. After processing each element, the next element will be displayed. The last element will always be the button. There are 6 different types of elements available:

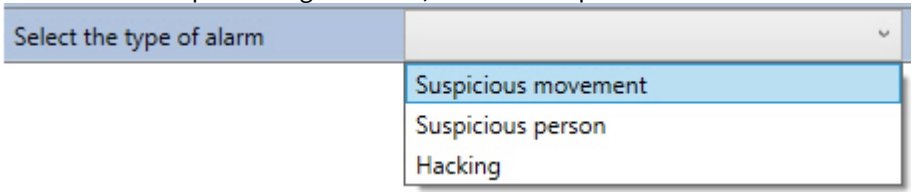
1. **Button**. To continue processing the event, click the button. If this element is the last in the logic, then after clicking the button, the event processing will be completed.



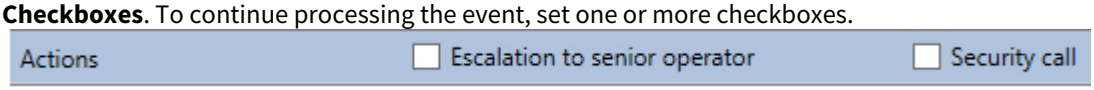
2. **Radio button**. To continue processing the event, select one of the values.



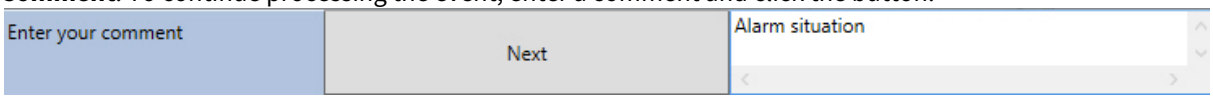
3. **List**. To continue processing the event, select the required value from the list. There can be several lists.



4. **Checkboxes**. To continue processing the event, set one or more checkboxes.

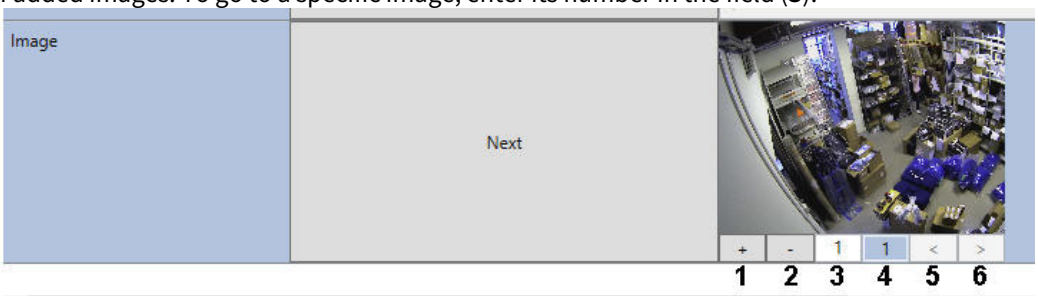


5. **Comment**. To continue processing the event, enter a comment and click the button.



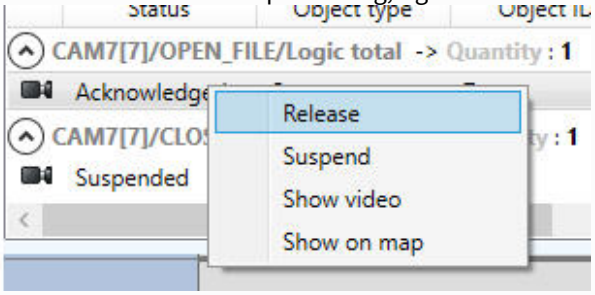
> **Note**
>
> Depending on the Incident manager settings, the comment can be filled in automatically and blocked from editing.

6. **Image**. To continue processing the event, add an image and click the button. The text on the button depends on the Administrator settings. In the example below, it is the **Next** button. The following options for working with an element are available:
   a. The element already displays the image specified by the settings or the image from the camera or the map associated with the event. The event can be associated with several cameras. In this case, the images are generated from each camera, and you need to select one image. To do this, use the following buttons:
      i. to update the image, click the **+** button (**1**) (the image from the camera or the map will be added at the moment when the event occurred. The button is applicable if the image has been deleted or needs to be updated, for example);
      ii. to delete the image, click the **-** button (**2**);
      iii. to scroll through the images, use the **<** and **>** buttons (**5**, **6**).
      The field (**3**) displays the number of the selected image, the field (**4**) displays the total number of added images. To go to a specific image, enter its number in the field (**3**).



   b. The element doesn't have any images, and they need to be uploaded. To do this, click the **+** button (**1**), and a standard Windows Explorer window will open, in which you can select an image in JPG, PNG or BMP format.

> **Note**
>
> An event with the **Acknowledged** status is available for processing only by the operator who took it. To release an event without processing, right-click the event and select **Release**:

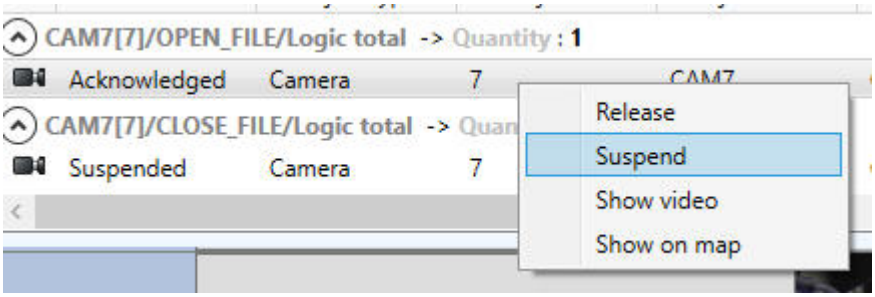


After you complete all the stages, the event processing interface will close and, if it was specified in the logic settings, a report will be displayed indicating the actions and the user who performed them (see Interim report).

Suspending events

If the Operator proceeds to process another event without completing the processing of the current event, the event will have the **Suspended** status, and the processing elements will become inactive. In this case, the event will be unavailable for processing by other operators.

The operator can independently suspend the processing of an event if the appropriate permissions are given (see Configuring user rights in Incident manager). To do this, right-click on the event and select **Suspend**:

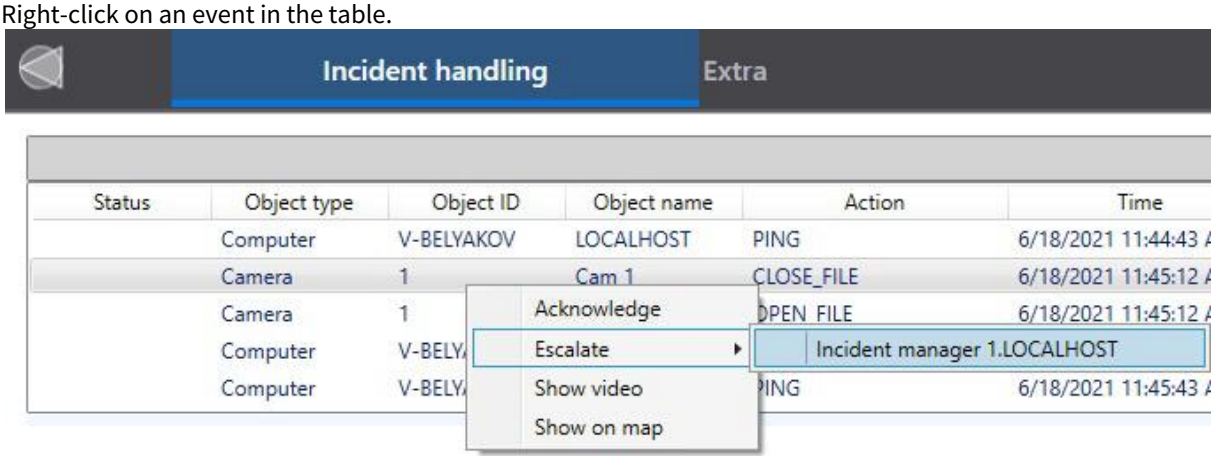


To continue processing the paused event, right-click on the event in the table again and select **Acknowledge**.

Escalating events

The ability to escalate an event for processing by another operator of the system can be enabled in the settings—escalating (see Configuring user rights in Incident manager). Escalate the event manually as follows:

1. Right-click on an event in the table.



2. Click **Escalate**.

If the option to see and work with the escalated events isn't configured in the settings (see Configuring user rights in Incident manager), after escalation, the event will disappear from the list and will be displayed for another operator with the **Escalated/<Last name of the operator who escalated it>** status. In this case, the event will be in the state that was at the time of escalation: if the operator started processing, then the event will be at an unfinished stage of processing.

Additionally, the events can start escalating automatically after specified time (see Selecting events to display and handle). In this case, the automatically escalated event will become unavailable for processing by the current operator and will be displayed with the **Escalated/Waiting for processing** status.

Processing event group

Processing an event group is possible if it is enabled in the Configuring the events grouping in Incident manager. Possible options:

1. After processing one of the group events, all remaining events of this group will be automatically closed.
2. Only the first event of the group is displayed in the event list display window. The rest of the group events will be automatically closed after the first event is processed.
3. When one event in a group is escalated, all events of the entire group are automatically escalated too.

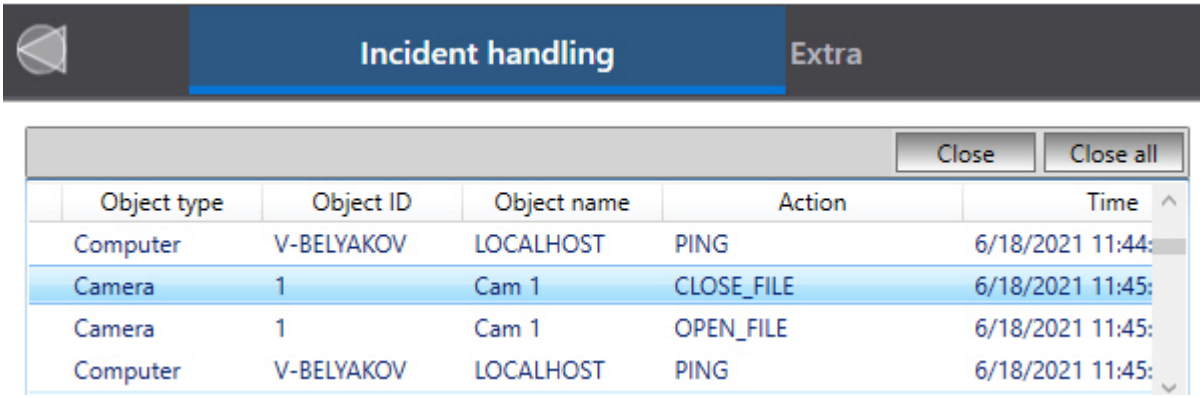
If the operator processes an event from a group, all events of this group will be blocked for other operators, and new events of the group will automatically change their status. In other words, all events of the selected group, including incoming new events, will be available for processing only to one operator until they process all events of the group. Other operators won't be able to process events from this group. When they try to process an event from this group, a message "Group is blocked" will be displayed.

> **Note**
>
> If the operator took one event from a group into processing and released it without processing, the blocked events of the group are released again for other operators.

The color of the group name can also change during group processing, see Grouping events.

Closing events without processing

If the ability to close events without processing them is enabled in the settings (see Configuring user rights in Incident manager), then 2 buttons are displayed in the upper right corner of the events table:



1. **Close**. It is used to close one event; select the required event in the table and click this button.
2. **Close all**. It is used to close all events.

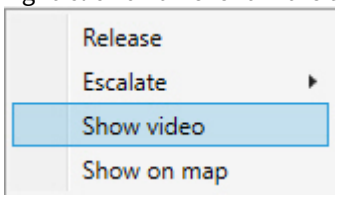
> Event statuses are described on the Event information page

Displaying video and object on the map

You can view the video recording of events and highlight the object that triggered the event on the map.

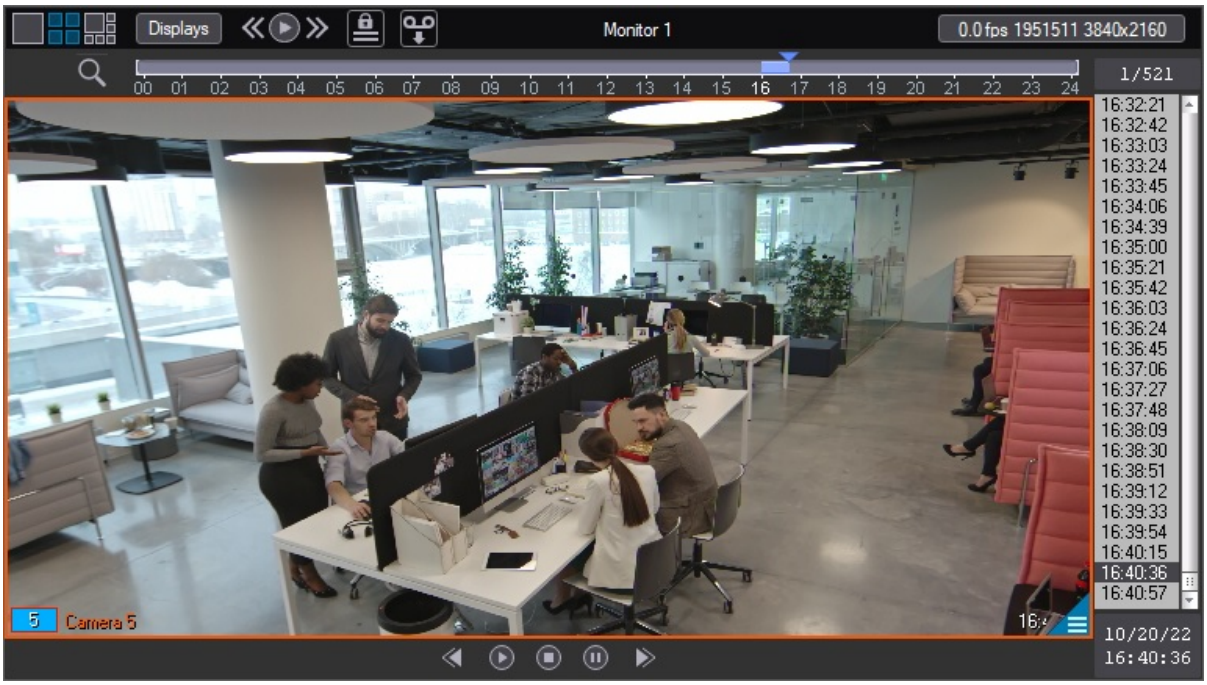
To view the video, do the following:

1. Right-click on an event in the table.



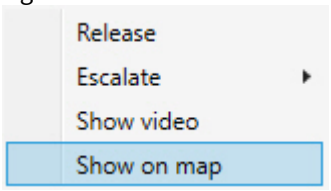
2. Select **Show video**.

As a result, a window for viewing the video archive will open:



To highlight an object on the map, do the following:

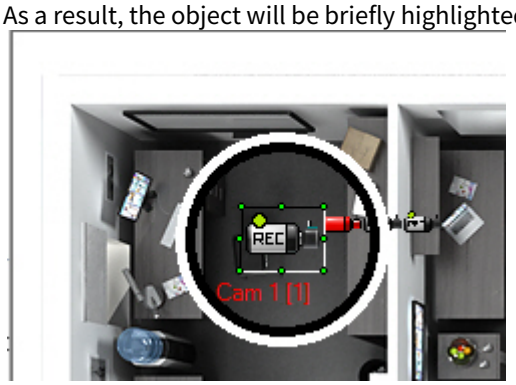
1. Right-click on an event in the table.



2. Select **Show on map**.

> **Note**
>
> If the Incident manager is not linked with the map in the settings, then this item will not be available (see Configuring the main parameters of the Incident manager).

As a result, the object will be briefly highlighted on the map.

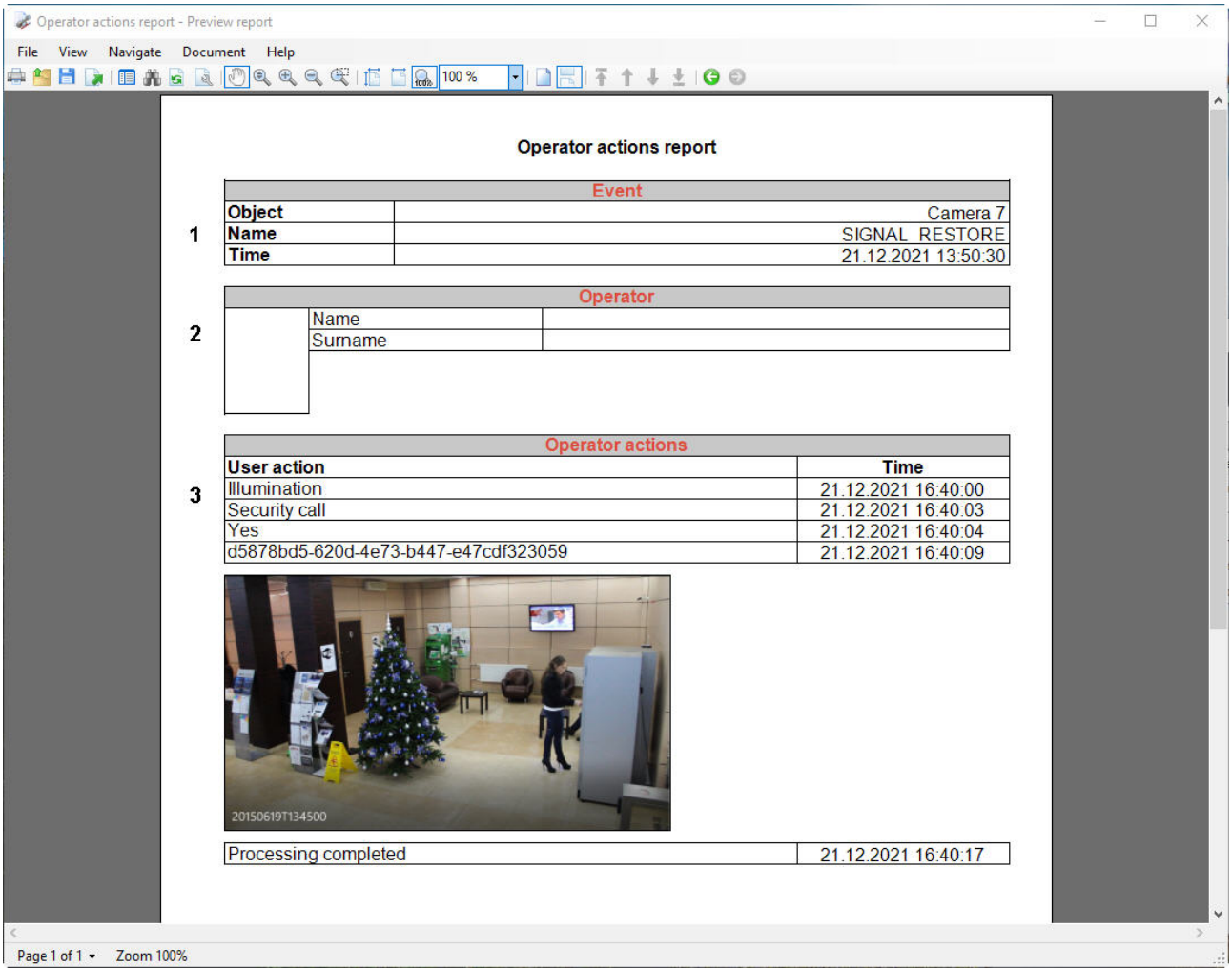


Interim report

To view the report on the operator's actions during event processing, select an event in the list and click the **Interim report** button:



As a result, the **Operator actions report** window will open:



The report displays the following information:

1. The event, the object that initiated the event, the date and time the event occurred (**1**).

   > **Note**
   >
   > The time format in the report depends on the localization of the *Windows* OS.

2. Information about the Operator who processed the event (**2**):
   a. **Name** corresponds to the value of the **Name** field in the Operator account (see Registration of Operator accounts);
   b. **Surname** corresponds to the value of the **Name** field in the Operator account.
3. Description and time of operator's actions (**3**).

The report is also generated automatically upon completion of event processing, if it is specified in the logic settings.

The actions panel is located at the top of the window:



1 — print a report;

2 — open another report saved as a file;

3 — save the document in rsd or xml format;

4 — export the document to pdf, xls, png and other formats;

5 — view the content;

6 — find text;

7 — update the report: a new report window will open with updated data. The current window will also remain open;

8 — edit the report;

9 — enable scrolling mode;

10 — enable the dynamic scaling mode: the scale will change depending on the movement of the mouse up/down or scrolling the mouse wheel;

11 — reduce and enlarge the display scale;

12 — view the highlighted region of the report on a larger scale;

13 — fit to page size;

14 — fit to page width;

15 — show in real size;

16 — select the display scale;

17 — enable one page view mode;

18 — enable the mode of viewing the sequence of pages;

19 — go to the first/previous/next/last page;

20 — move back/forward.

9.11 Working with the map

9.11.1 General information about working with the map

Map is an interactive graphic diagram of a distributed system designed to monitor and control external system devices (cameras, microphones, sensors, relays).

Security devices are displayed on the map as symbols: each device is described by its status; access to the device functions is provided via the functional menu, which is called up by a right mouse click on the required device image on the Map. Macro commands are also displayed in the Map as symbols, which are started from the functional menu of the given macro command symbol.

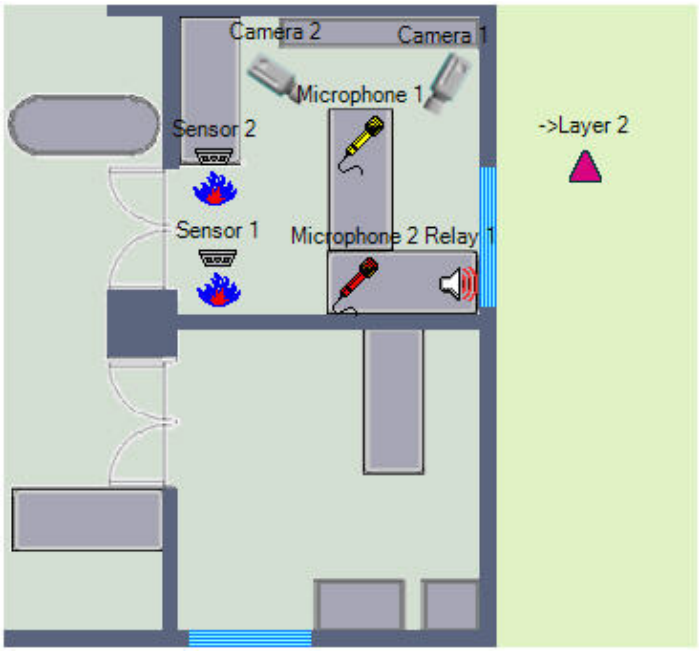
If the distributed system diagram has only one level (for instance, one protected floor of a building), the Map will consist of one level depicting the system diagram (single level map). If the protected territory has a few levels (for instance, a multi-floor protected building), the Map will be made up of a corresponding number of levels, where each level will depict a system diagram of the corresponding level (multilevel map). Additionally, the system diagram may be shown on the Map broken down into conventional fields and regions.

If the Map is multilevel, the level switch-over function shall be provided. To enable this, special links between the Map levels are established at the program configuration stage. To switch between the Map levels use the  interlayer link button. Additionally, the interlayer link button shows the device status on the corresponding Map

level. In addition, automated switch-over between the Map levels and recursive search for alarm links in the Map are supported.

9.11.2 Graphic objects on the Map

Security devices of the System (cameras, microphones, sensors, relays) are reflected on the Map as symbols (conventional characters, see figure).



The graphic symbol of the device in the Map shows the current status of the given device.

Graphic symbol of device on the Map	Status of device
Green	Device is disarmed
Grey	Device is armed
Red blinking	Device registers an alarm event
Grey blinking	Device is not connected to the system

Note.

This display circuit is not used for all types of security devices of the system. Certain modifications are possible for certain types of devices.

If the object has several states, then the device symbol changes in accordance with these states in some time. When the object is marked on the map, then all its states are displayed next to it as diminished icons.



Note.

The display of the thumbnails can be disabled at the stage of the system configuration – see Operations with objects in the Map editor utility section in Administrator's Guide.

The selected object is framed. If required, the frame can be not shown – set 1 as the AlternativeSelect parameter value – see Registry keys reference guide.

Interlayer links integrated in the given level reflect the status of devices on other Map levels.



Whenever any security device registers an alarm event on any of the existing levels, the interlayer link symbol starts blinking. The interlayer link symbol continues blinking as long as the current registered alarm event is occurring, whereas no other alarm events arise within the given level.

Device functions can be accessed via a functional menu called up by a right mouse click on the symbol of the device shown on the Map. Some functional menu commands are common to objects of different types - see Common commands in the functional menu. The example of the functional menu of the **Camera** object is shown in the figure.



Actions on several devices of the same type can be performed at once. To do this:

1. Select several object icons, for example, several cameras, by left-clicking and holding the Ctrl key on the keyboard.
2. Right-click on one of the selected icons.
3. Select an action.

If TouchScreen=1 registry key is set, you can also double left click on an object icon to call the functional menu (see Registry keys reference guide for more details on the key).

A tooltip with the name of the last event received from the object can be displayed above the object's icon (see Configuring the event tooltips). The tooltip size does not depend on the map scale.



9.11.3 Common commands in the functional menu

Most of the commands available in the object's functional menu on the Map differ depending on the object type. The commands that are common for all or most of the objects are described in the subsections.

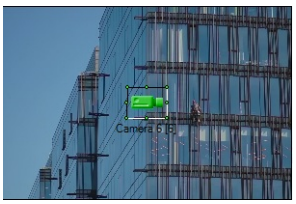
Requesting frames or video from the Map

The ability to request frame or live/archive video is disabled by default. It can be enabled while configuring the system – see Enabling the frame or video request function.

The frame, live video and archive video can be requested for **Camera** objects as well as for objects linked with cameras (see Connection of objects with cameras).

To request frames and videos, use the following function menu commands:



Command	Result of execution	Illustration
Request frame	The last frame received from the camera is displayed in the Map window behind the object.	

Command	Result of execution	Illustration
Request video	Live video from the camera is displayed in a separate window. The controls in this window are similar to the standard Video Surveillance Monitor.	
Request archive	A separate window similar to the Video Surveillance Monitor in archive playback mode opens. The archive is positioned on the last entry.	

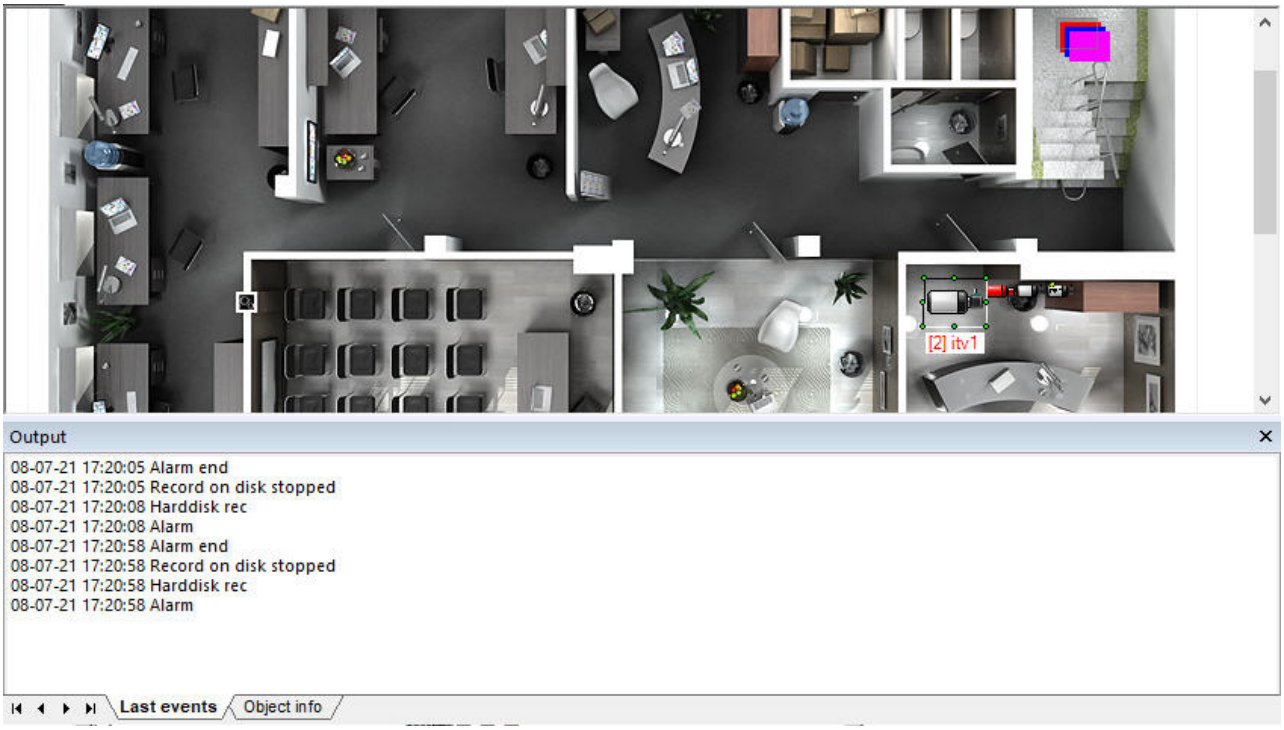
Viewing recent object events on the map

By default, 10 most recent object events can be displayed in the Map window. You can change this number when you configure the corresponding Map object (see Configuring the number of events displayed in the Map window).

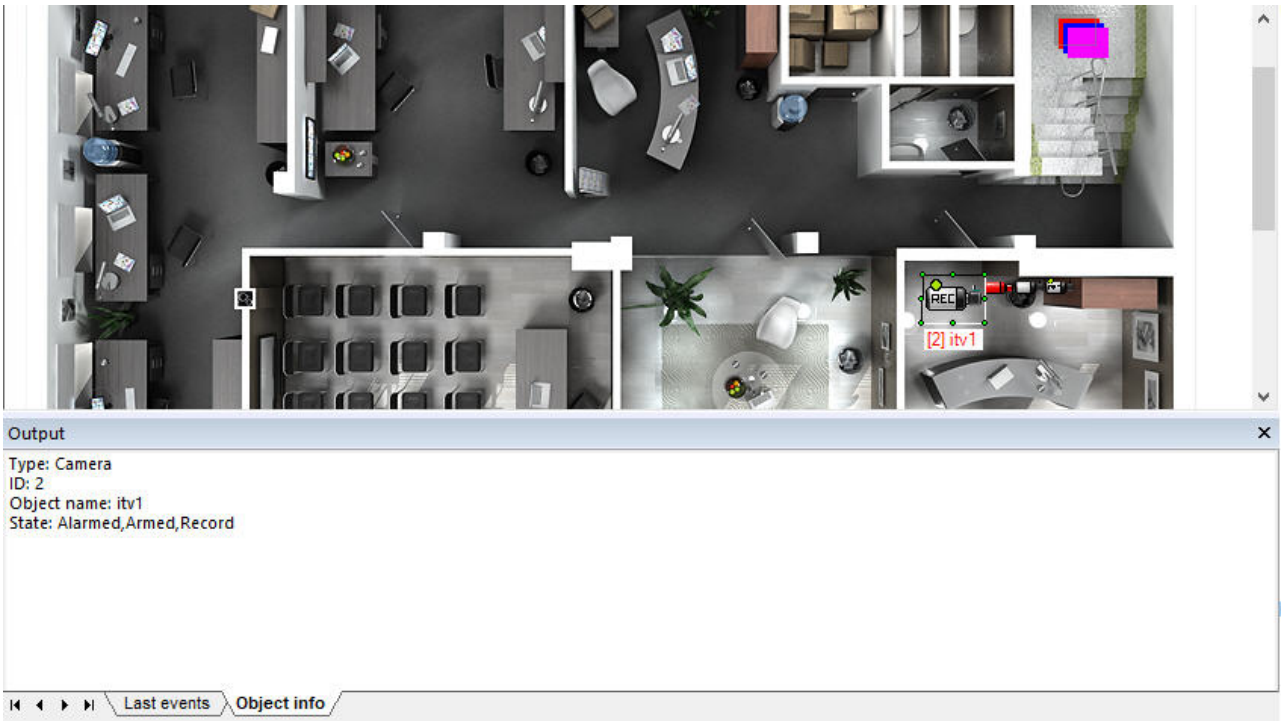
To display the most recent object events in the Map window, select the **Show last events** item in the object function menu.



The **Output** window is displayed at the bottom of the Map window. The most recent events of the selected object are displayed in the **Last events** tab. The events registered before *Axxon PSIM* start may not be displayed depending on the settings.



The general information about the object (type, ID, object name and state) is displayed in the **Object info** tab.



You can change the size of this window by moving any of its borders with the left mouse button. You can also move the **Output** window by left-clicking on its title panel and dragging the window to the required part of the screen.

Click the ✕ button in the upper right corner in order to close this window.

9.11.4 Switch-over between Map layers

On the page:

- Switch over the Map layers using the links
- Switch over the Map layers using the feature menu

If the Map is multilayered, the layer switch-over will be required. Switching over the map layers is performed in one of the following ways:

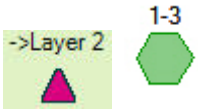
1. Using the links between layers.
2. Using the Map feature menu.

Auto switch-over between Map layers is also supported. If auto switch-over is enabled, the program automatically switches to the Map layer where one of the devices has registered an alarm. For instance, if the Map window is displaying **A** layer and at this point of time an alarm is registered on **B** layer, the program will automatically switch-over to **B** layer and show it in the window. In this case a window displaying the Map may be shown over all other windows. Auto switch-over between Map layers is configured and enabled during the Program configuration.

Switch over the Map layers using the links

To switch over the map layers create the special links between the Map layers during the Program configuration.

To switch between the Map layers use the appropriate  or  icon.



Each layer of the Map may accommodate an indefinite number of interlayer link icons referring to any layer existing on the Map. The icon of link to the previous layer can also be added.

To switch to another Map layer, left-click the icon corresponding to the required layer.

Moreover, the recursive search for alarm links on the Map is also supported. If this feature is enabled, devices which have registered an alarm, are searched for automatically across all Map layers. For instance, there are 3 layers, where layer 1 is linked to layer 2, and layer 2 is linked to layer 3. If the **Recursive alarming links search** option is enabled, a layer 3 link icon on layer 2 and also a layer 2 link icon on layer 1 will start blinking as soon as an alarm is registered on layer 3. Otherwise, if **Recursive alarming links search** is disabled, only a layer 3 link icon on layer 2 will be blinking. The **Recursive alarm links search** option is initiated during the Program configuration.

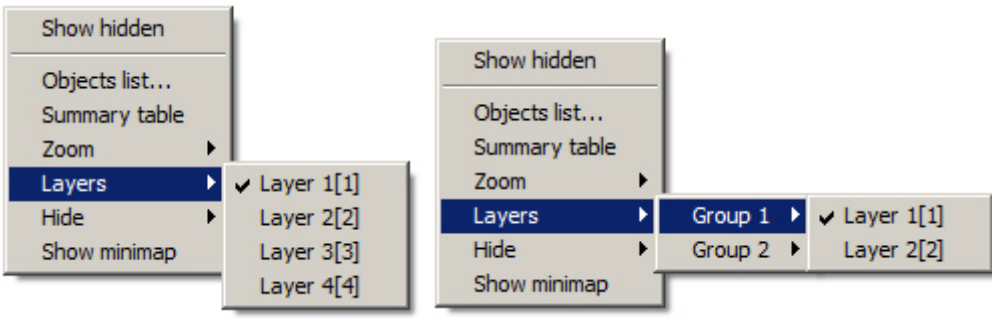
Note

If additional alarm indication on the layer is configured using the special alarm icon, then the icon will be changed to the icon specified in the settings and it will blink while detecting an alarm (see Linking the layers of the interactive map).

Switch over the Map layers using the feature menu

To switch over the map layers using the feature menu right-click on the map area free from the object icons.

In the opened feature menu select the **Layers** item and specify the layer to switch to. If Map layers were grouped into folders in the object tree at the system configuration stage, then at first select the corresponding folder and then the required layer.



This way of switching over the map layers does not require the previous settings and allows switching over the current layer to any other layer permitted to the user by rights.

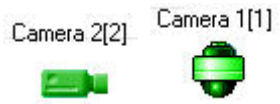
9.11.5 Operations with the cameras

On page:

- Camera status indication
- Camera operations
- Displaying camera on Video surveillance monitor when selected on Map

Camera status indication

The camera symbol as shown on the Map is given in the figure.



The camera status is indicated through different colours and intermittent blinking of the given camera symbol on the Map.

Description	Camera Symbol		Camera Status
	Common	PTZ	
Green, the symbol is not blinking			Camera disarmed
Grey, the symbol is not blinking			Camera armed
Red, the symbol is blinking			Camera is armed, an alarm event is registered OR Camera is disarmed, an alarm is registered on an alarmed auxiliary detection zone
Grey, the symbol is blinking			No signal from the camera

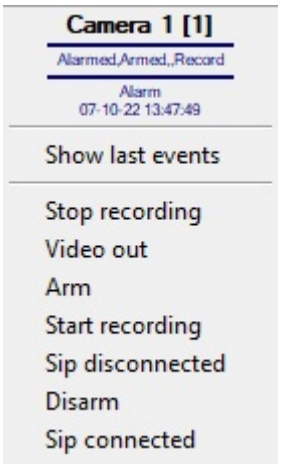
Note.

If camera performs recording, then the camera icon is marked with REC:  or  .

Camera operations

The camera is operated via the feature menu of the given camera symbol shown on the Map.

The feature menu of the camera is called up by a right mouse click on the corresponding camera symbol.



The feature menu of the camera provides access to various operating functions of the camera.

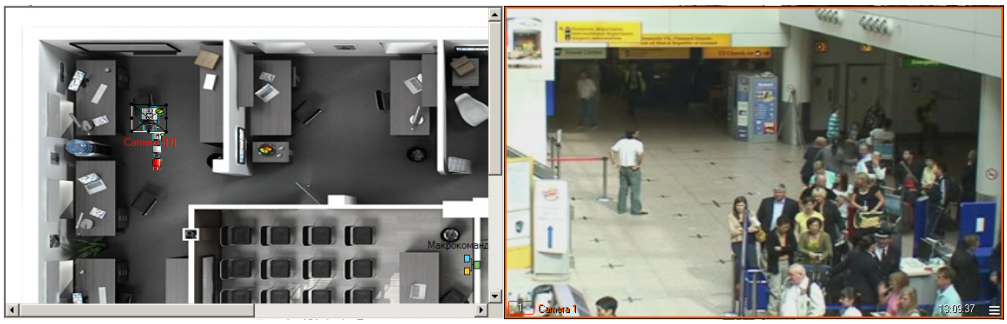
Feature menu item	Function	Comments
Camera No./Connection	Displays the selected camera identifier, as well as the date and time of the first connection of the camera	
Stop recording	Stops recording	See section: Stopping the recording
Video out	Outputs the camera image to the analogue monitor connected to the system	See section: Video surveillance using an analog monitor
Arm	Arms the camera in the main detector zone	See section: Camera arming and disarming
Start recording	Starts recording at the Operator's command	See section: Recording by Operator command
Sip disconnected	Disconnection of a Sip device	See Intercom subsystem reference and information Guide
Disarm	Disarms the camera in the main detector zone	See section: Camera arming and disarming
Sip connected	Connection of a Sip device	See Intercom subsystem reference and information Guide
Request frame	Sends the GET_FRAME reaction to the system without the path<> parameter. As a result, the FRAME_SENT event is generated with the data<> parameter. Please see the details on how to process this event in The SaveToFile method section of the Programming Guide (JScript). *Note. This function will not work for a virtual camera playing video in avi format.*	

Note

The **Start video export** and **Stop videp export** menu items cannot be used on the Map, because the reactions corresponding to them need extra settings. You can use these reactions using macros and scripts (see Administrator's Guide).

Displaying camera on Video surveillance monitor when selected on Map

If Video surveillance monitor in **Active camera** mode was configured at system setup (see Configuring the display mode of camera windows section of the Administrator's Guide), then video from a camera is displayed on such Video surveillance monitor when the camera icon is clicked on Map.



9.11.6 Operating the microphones

On page:

- Microphone status indication
- Microphone operations

Microphone status indication

The microphone symbol as shown in the Map is displayed in the figure.



The microphone status is indicated by the colour of the symbol used to show the microphone on the Map.

1. Blue  Microphone is ready for recording, but is not armed
2. Red  Microphone is recording, an alarm event has been registered
3. Green  Microphone is ready for recording, but is not armed
4. Yellow  Microphone is ready for recording, but is not armed

Microphone operations

The microphone is operated via the functional menu of the given microphone symbol shown on the Map.

The functional menu of the microphone is called up by a right mouse click on the corresponding microphone symbol.



The functional menu of the microphone provides access to various operating functions of the microphone.

Functional menu item	Function	Comments
Microphone No./Recording date and time	Reflects an identifier of the selected microphone in the program, as well as the type, date and time of the latest recording	
Start recording	Arms the microphone, starts recording	See the Microphone arming and disarming section
Stop recording	Disarms the microphone, stops recording	

9.11.7 Operations with sensors

On page:

- Sensor status indication
- Operations with sensor

Sensor status indication

Identification of the sensor symbol on the Map depends on the current operating mode and sensor status, as well as the type of intrusion sensor. The sensor is always in 2 states simultaneously, therefore its icon on the map blinks and changes once in a certain period. State icons for different sensor types are shown below. The state written to the dbo.STATES database is given in the **dbo.state** column.

Heat sensor:

State	dbo.state	Symbol on the Map
Armed	ARMED	
Disarmed	DISARMED	
Alarm	ALARMED	 *

State	dbo.state	Symbol on the Map
Alarm confirmed	CONFIRMED	
Connection lost	DETACHED_DISARM	 *
Normal (off)	OFF	
Active (on)	ON	

Glass sensor:

State	dbo.state	Symbol on the Map
Armed	ARMED	
Disarmed	DISARMED	
Alarm	ALARMED	 *
Alarm confirmed	CONFIRMED	
Connection lost	DETACHED_DISARM	 *
Normal (off)	OFF	
Active (on)	ON	

Ceiling sensor:

State	dbo.state	Symbol on the Map
Armed	ARMED	
Disarmed	DISARMED	
Alarm	ALARMED	 *
Alarm confirmed	CONFIRMED	
Connection lost	DETACHED_DISARM	 *
Normal (off)	OFF	
Active (on)	ON	

Window sensor:

State	dbo.state	Symbol on the Map
Armed	ARMED	
Disarmed	DISARMED	
Alarm	ALARMED	 *
Alarm confirmed	CONFIRMED	
Connection lost	DETACHED_DISARM	 *

State	dbo.state	Symbol on the Map
Normal (off)	OFF	
Active (on)	ON	

Infrared sensor:

State	dbo.state	Symbol on the Map
Armed	ARMED	
Disarmed	DISARMED	
Alarm	ALARMED	 *
Alarm confirmed	CONFIRMED	
Connection lost	DETACHED_DISARM	 *
Normal (off)	OFF	
Active (on)	ON	

Smoke sensor:

State	dbo.state	Symbol on the Map
Armed	ARMED	
Disarmed	DISARMED	

State	dbo.state	Symbol on the Map
Alarm	ALARMED	 *
Alarm confirmed	CONFIRMED	
Connection lost	DETACHED_DISARM	 *
Normal (off)	OFF	
Active (on)	ON	

Reed sensor:

State	dbo.state	Symbol on the Map
Armed	ARMED	
Disarmed	DISARMED	
Alarm	ALARMED	 *
Alarm confirmed	CONFIRMED	
Connection lost	DETACHED_DISARM	 *
Normal (off)	OFF	
Active (on)	ON	

Note

Reference «*» means that the image of the given symbol is blinking.

For a **Sensor** security device type with the **Circuit closure** operation mode, an alarm event is generated in case of the sensor closure. For a **Sensor** security device type with the **Circuit interruption** operation mode, an alarm event is generated in case of the sensor interruption.

If the Sensor is armed, then the "Alarm" event is generated in case of the sensor on/off switch depending on the specified alarm mode (see Creating and configuring the Sensor system object). If the Sensor is disarmed, then the "Closed"/"Opened" events are generated correspondingly. If the connection between the *Axxon PSIM* and the sensor is lost, the "Connection lost" event will be generated.

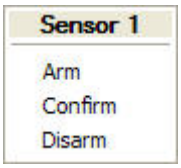
Note.

When an alarm is registered by any sensor, connected through IP-device Samsung SNC-M300P, Sensor symbol with 1channel number is activated (the given IP device supports two connection channels of sensors).

Operations with sensor

The sensor is operated via the feature menu of the given sensor symbol shown on the Map.

The feature menu of the sensor is called up by a right mouse click on the corresponding sensor symbol.



The feature menu of the sensor provides access to various operating functions of the sensor.

Feature menu item	Function	Comments
Sensor No./Date and time of the latest status modification	Shows the identifier of the selected sensor in the program, the current status of the sensor, the date and time of the latest sensor status modification	See the Using sensors section
Arm	Arms the sensor	
Confirm	Confirms alarm event registration by the sensor	
Disarm	Disarms the sensor	

9.11.8 Operations with the relay

On page:

- Relay state indication
- Operations with relay

Relay state indication

The relay image on the Map depends on the current state of the relay, as well as on the relay type.

Relay state	Relay image on the Map			
	Relay type			
	No specified type	Light	Acoustic alarm	Lock
Off				
On				
Connection lost				

Note.

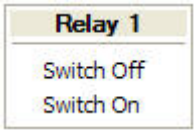
Reference «*» means that the image of the given symbol is blinking.

If the connection between the *Axxon PSIM* and the relay is lost, the "Connection lost" event will be generated.

Operations with relay

The relay is operated via the functional menu of the given relay symbol shown on the Map.

The functional menu of the relay is called up by a right mouse click on the corresponding relay symbol.



The functional menu of the relay provides access to various operating functions of the relay.

Functional menu item	Function	Comments
Relay No./Date and time of the latest status modification	Shows the identifier of the selected relay in the program, the current status of the relay, the date and time of the latest relay status modification	See the Operations with relay section
Switch-off	Switches the relay off	
Switch-on	Switches the relay on	

9.11.9 Region operation

To delimit protected territory in *Axxon PSIM,* the **Region** object is used. Protected territory delimiting helps to monitor and control objects of the security system more efficiently.

Monitoring function is performed by giving information about the **Region**—relative area of event source-object location. If any event comes from alarm object (camera, sensor and so on), this event will contain information on the region where this object is. Information on object's belonging to one or another Region is displayed in the **Alarm notification window** (see Alarm notification window) and **Events log** (see Events log).

The **Map** is used for Region operation in *Axxon PSIM* software package. Markings of the **Region** object on the **Map** are given below.

1. Security mode is deactivated in the region:



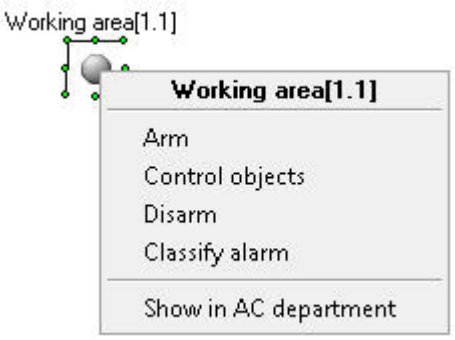
2. Security mode is activated in the region:



3. Alarm in the region. Alarming event from one or several objects that belong to this region is detected:



You can set any state to **Region** by right-clicking at the Region symbol and select command in the feature menu:



There is general information at the top of the feature menu: Region name, name and time of the latest completed action. After general information the list of possible commands goes.

Commands of the feature menu of the **Region** object are described in the table.

Command	Description
Control objects	Sets states to the objects of Region **Note 1** *To start the **Control objects** command in the feature menu of the **Region** object, add a plug-in* **Note 2** *This command is available in **Macros** (see Axxon PSIM Software Package.Administrator's Guide)*
Arm	Starts monitoring objects states of the Region. Region becomes alarmed when it gets corresponding events from objects
Accept alarm	Accepts Region alarm
Disarm	Stops monitoring objects states of the Region
Show in Access Manager	The command can be used if *ACFA PSIM* software is installed and the **Access Manager** window is displayed on the same display as the **Map**. The command displays the region and the users in it on the **Regions and areas** tab of the Access Manager. See also Access Manager Module Settings and Operation Guide

9.11.10 Macro commands operation

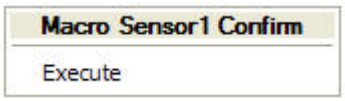
The macro command determines how this or that object would react to events, that have happened in the system. The macro command symbol as shown on the Map is given in the figure.



With the help of macro commands one can work with area objects (section). Cameras, microphones, sensors and relays may be combined in the group with the help of these objects and the system will respond to the events that have happened with them. The following events can be received from the area:

1. Safety locking;
2. Safety locking is;
3. Fire unlocking;
4. Fire unlocking is disarmed;
5. Arm;
6. Disarm;
7. Armed locking;
8. Armed locking is disarmed.

Each macro command integrates a functional menu providing access to the execution of the given macro command and output of the data about the macro command.



The name of the macro command, the date and time of the latest macro command execution are entered into the functional menu, where the Execute command to start the macro command is initiated.

To execute the macro command, right click the mouse on the corresponding macro command and select **Execute**.

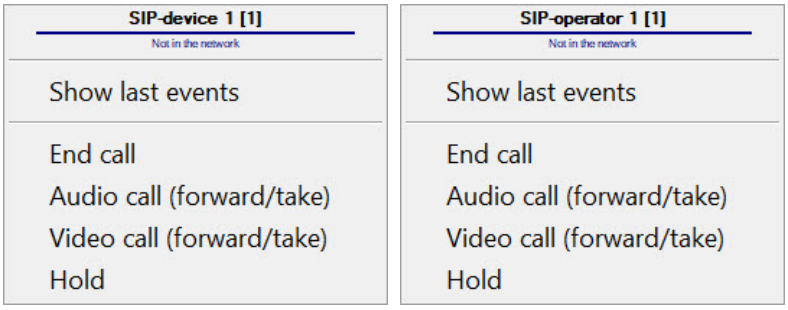
9.11.11 Working with SIP-devices and SIP-operators from the map

The icons of the **SIP-device** and the **SIP-operator** objects created during the SIP-terminal configuration can be placed on the map to execute commands, for example, if the **Display only when calling** option was enabled at the stage of the SIP-panel object configuration (see Advanced settings of the SIP-panel interface object).

In this case, the SIP-panel is not displayed if there are no incoming calls, and you can initiate a call using a macro (see Macros for working with SIP-terminal) or from the Map in the function menu of the **SIP-device** and/or the **SIP-operator** objects with the following commands:

1. **Audio call (forward/take)** – the device and/or the operator will forward or take the audio call.
2. **Video call (forward/take)** – the device and/or the operator will forward or take the video call.

As a result, the SIP-panel window will be displayed. You can also put the current call on hold, resume the call, or end the call from the map using the corresponding commands.



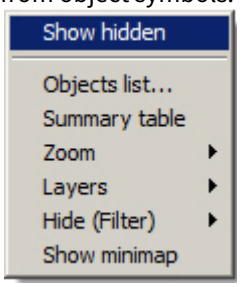
Note

If there is no call, the icon of the camera assigned to the SIP-device displays the **Detach** state, because no video from the camera is received. For details on object icons on the Map, see Graphic objects on the Map.

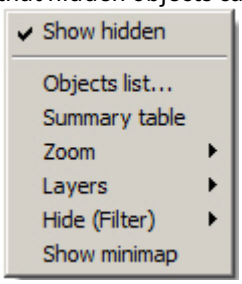
9.11.12 Hide or display graphic objects on the Map

The object symbol on the Map may be visible or hidden. An object can be hidden in one of the following ways:

1. At the system configuration stage. Visible objects are always reflected on the Map, whereas hidden objects are reflected only in "view hidden objects" mode. To switch-on "view hidden objects", use the **Show hidden** command of the Map functional menu called with a right mouse click on any place on the Map, which is free from object symbols.



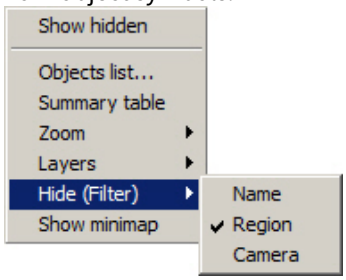
The status of the mode is indicated by a checkmark near the **Show hidden** objects button, which indicates that hidden objects can be viewed.



Note.

Hidden objects view and hide function applies across all Map levels.

2. With the filter on the map layer. This filter applies only to the current layer and hides all objects of the specified type or the names of objects. Hiding and displaying objects is performed using the **Hide (Filter)** command in the Map functional menu called with a right mouse click on any place on the Map, which is free from object symbols.



Hidden objects are checked with tick mark. The hiding on the system configuration stage takes precedence over the hiding on the map layer, i.e. an object hidden on the configuration step is not displayed, even if the **Hide (Filter)** tick mark is unchecked.

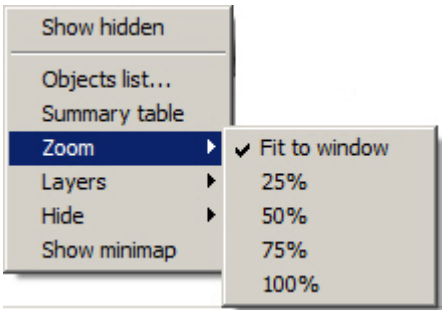
The **Name** menu item is intended to hide the names of all objects on the current map layer. If an object is hidden by any of the above methods, then its name is not displayed, even if the **Name** tick mark is unchecked. If the **Name** tick mark is checked, then only graphic symbols (icons, lines, etc.) without captions are displayed on the layer.

9.11.13 Map scaling

Map scaling allows enlarging and reducing the size of the image shown in the Map window.

Scaling a map with an image or color background

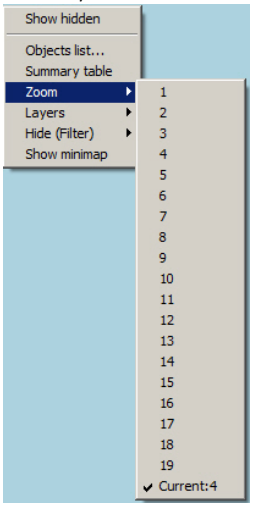
The scale is selected via the functions menu of the Map, which is called up by a right mouse click on any place on the Map, which contains no object symbols.



To set the scale, select the required scale value in the **Scale** sub-menu or click the **Fit to window** point, which is designed to set the scale allowing the full Map image to fit into the Map window. The selected scale is restored after *Axxon PSIM* software restart.

Scaling an external map

If an external map is selected the layer background (see Configuring the external Map server), then the map scale is also selected using the **Zoom** item in the functional menu, however, the scale is set as a number from 1 to 19 (4 by default). The current value is displayed on the bottom line of the **Zoom** submenu.

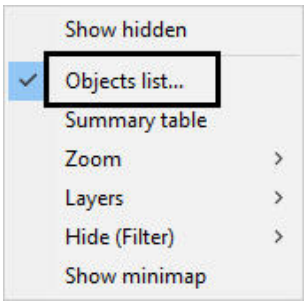


You can also scale the external map using the mouse wheel while holding down the Ctrl key on the keyboard.

9.11.14 Object status monitoring with the objects list

The object status can be monitored not only by object symbols depicted on the Map, but also by using the Object list.

The Object list can be accessed via the **Object list** functions menu of the Map, which is called up by a right mouse click on any place on the Map, free from object symbols.



The interface of the **Object list** window is shown in the figure.



When an object is selected in the list, it is also selected on Map while Map is centered by the object. The object is selected in list when selected on Map.

The middle part of the **Object list** window displays a table describing object statuses on all levels of the Map: each object is described by the name and current status. The table shows both visible and hidden objects, regardless of

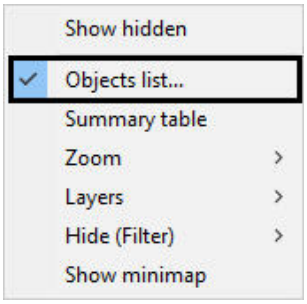
the display mode selected to show hidden objects on the Map. Each object of the **Object list** has a functions menu (which is called up by a right mouse click on the line displaying the object name), which is completely identical to the functional menu of the object on the Map (see the General information about working with the map section).

The upper part of the **Object list** window contains the fields for filtering the object in the status table:

1. The **Type** field is used to filter the objects according to their types.
2. The **State** field is used to filter the objects according to the status of the given object type. Type-based object filtering is only possible, if the type of object in the **Type** field is selected. If the **Disabled** state is selected, the object of the specified type that were disabled while configuring the system are shown (i.e. objects wit the **Disable** checkbox checked).
3. The **Layer** drop-down list allows selection of a layer to which the searched object is attached; the layer is not necessary to be displayed in the Map window.
4. The **Name** field is intended for dynamic search for an object by its name taking into account the other filters. Search by name is launched automatically after typing into the field.

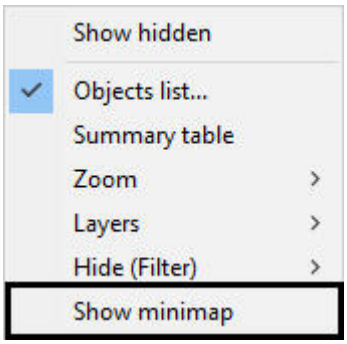
The lower part of the Object list window contains the **Latest event** and **Additional information** fields, which is designed to display the information about the object selected within the table (to select the object, click the left mouse button on the line containing the object in the table). The **Latest event** field reflects the data about the latest event registered for the selected object: name, and date and time of the event. The **Additional information** field is designed to display additional information about the event (if any).

To open the **Object list** window, click ✕ in the upper right corner of the window or select **Object list** in the functional menu of the Map again.



9.11.15 Minimap

To show the minimap, right click in the map area spare from object icons and select the **Show minimap** in the menu.



Note.

Axxon PSIM can be configured so that the minimap appears when pointing the cursor to the top left corner of the map. This is set by the ShowOnMouseMove key (see Registry keys reference guide).



Minimized object icons are shown on the minimap. Blue rectangle indicates the part of the layer currently displayed in the map box. The map box is centered when left-clicking the minimap.

The minimap box can be dragged by its header when holding left-click. The minimap size can be changed – make it bigger or smaller.

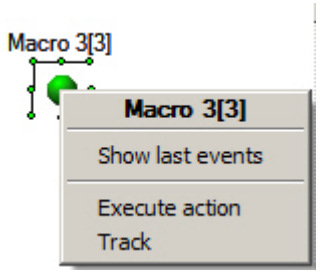
Map scale control panel is in the upper right of the minimap box:

- The and buttons are for upscale and downscale Map by 10%
- The button corresponds to **Fit to window** function.
- The ×1 ×2 buttons set scale of 100% and 200% correspondingly.

To shutdown the minimap box click the button in the upper right corner.

9.11.16 Enabling object tracking on interactive map

It is possible to use PTZ cameras that support positioning by absolute coordinates to track objects on the map in *Axxon PSIM*. Information about this feature is given in Using absolute telemetry section of Installing and configuring security system components guide.
To start tracking, select the **Track** menu item in the feature menu of the object on the map.

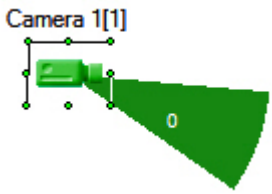


The **Track** item appears in the object menu on the Map only if the following conditions are met:

- Object tracking monitor on the Map is selected.
- Geo tagging is added.
- Object is added to the map as an Image.

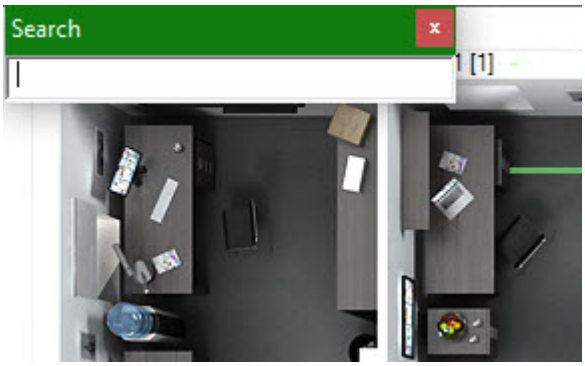
If the **Track** menu item is selected, then if coordinates of the tracked object are changed, the camera, in the FoV of which it appeared, rotates to the point where it appeared, and the video from this camera is displayed on the object tracking monitor. When all the objects leave the PTZ camera FoV, it stops being displayed on the object tracking monitor.

If the camera viewing angle display on the Map is pre-configured, then the viewing sector position changes when the camera is rotated, and the numerical value of the rotation angle is displayed on top of the viewing sector.



9.11.17 Searching object on the map by its name and ID

To search for an object on the map by its name or ID, press Ctrl+F on the keyboard. The Map search box is displayed in the upper-left corner of the Map window.



Specify the name or ID of the object and press Enter. If an object ID is specified for the search, then the search is performed both by the ID and by name. Press F3 on the keyboard to show the next search result, press Shift+F3 to show the previous result. These hotkeys function if you are positioned on the Map window, i.e. left-click in the Map window.
The found objects are outlined with green dots and black-and-white circles. After the object is found, its icon flashes for a few seconds.
If the object is not on the displayed layer, then there is a switch to the required layer.

9.12 Operations using the Client

On page:

- General information
- Starting the Client
- Connecting to the Server

9.12.1 General information

Client is a PC, where *Axxon PSIM* system with the **Remote Monitoring Work Station** configuration is installed.

9.12.2 Starting the Client

The Client can be started in one of the following ways:

1. Automatically: the program is started automatically as soon as the operating system is downloaded.
2. Manually: to start the program manually, select **Client workstation** in Start menu of Windows (Start/All Programs/Axxon PSIM/Client workstation) or use an appropriate shortcut on the Desktop.

9.12.3 Connecting to the Server

As soon as the Client is started, the system automatically starts a search for an active kernel of the server program.



Note.

When the Client is started for the first time, the search uses IP-address 127.0.0.1 (localhost). In all following cases the search will use the latest entered IP-address.

If the program kernel is not found, the Operator will be suggested to manually enter the IP-address or DNS-name of the PC, where the server program is operated, or quit the program.



To complete the operations, press the **Exit** button. To start a search using another IP-address or DNS-name, type in the required address or name in the **IP-address** field and click the **Register** button. As soon as the **Register** button is clicked, the system will start searching for the active program kernel at the specified address.

If the active program kernel is found at the given IP-address or DNS-name, the system will automatically connect to the established program kernel. If required, an access password to the server program will be requested.



Having entered the password, click the **Register** button. If connection is established successfully, the user interface of the Client will start downloading. Otherwise, the system will request the password again.

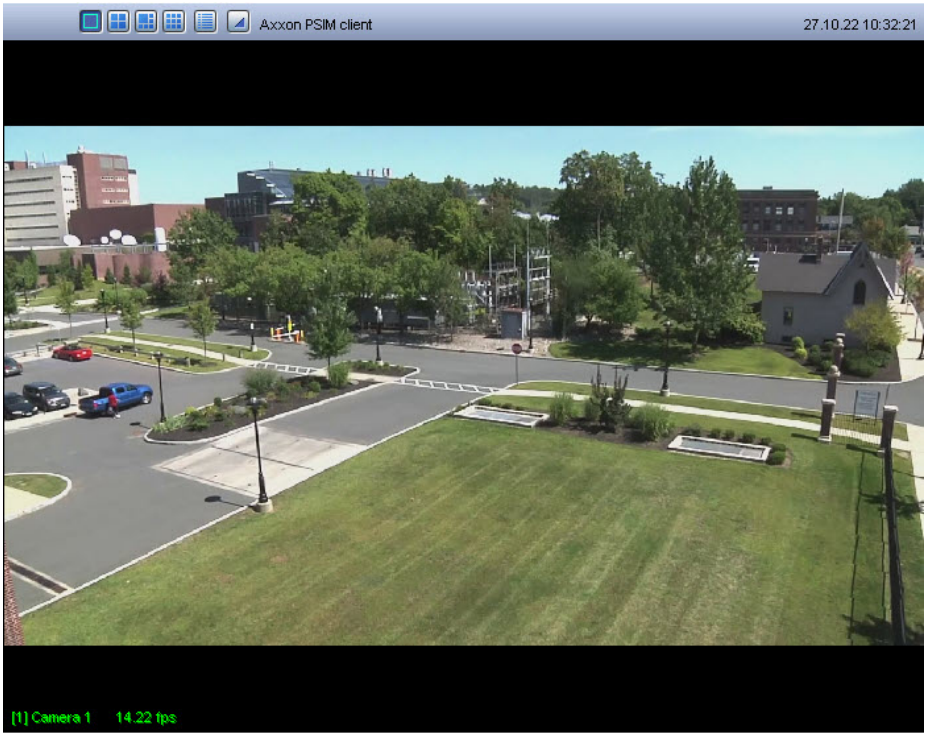
9.13 Video surveillance using the Web browser

9.13.1 General information about video surveillance using the Web browser

The video surveillance monitor for the Web-browser is designed for remote video surveillance over the protected facilities using the Web browser and TCP/IP communication environment. However, remote video surveillance through the Web browser does not require *Axxon PSIM* software to be installed.

Attention!

The browser you are using should support Java. This is why video surveillance using Firefox 52 and later is not supported.



The colour of the video surveillance window border and text of the camera name reflect the status of the surveillance camera corresponding to the given surveillance window.

Color of the window border	Color of the camera number border	Camera Status
Yellow	Yellow	The camera is armed, no video recording is in process
Red	Red	An alarm event has been registered with the camera, alarm response recording starts and recording initiated at the Operator's command before the alarm, continues
Green	Red	Camera is disarmed, recording initiated by the Operator's command or alarm response recording is underway

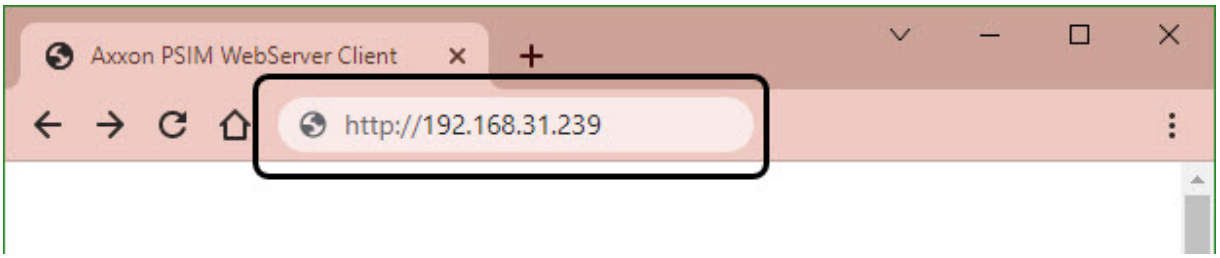
Color of the window border	Color of the camera number border	Camera Status
Yellow	Red	Camera is armed, recording initiated by the Operator's command or alarm response recording is underway
Green	Green	Camera is disarmed, no recording in process
Red	Yellow	An alarm event has been registered with the camera, however no alarm response recording starts

Note

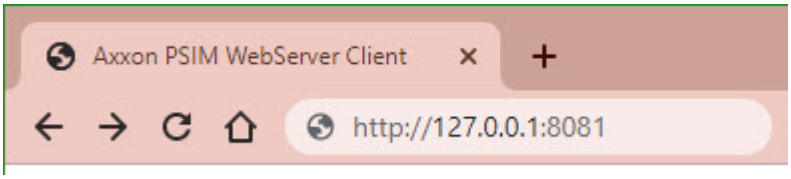
All indication diagrams as presented correspond only to the basic detector zones, without auxiliary zones. Whenever a camera is armed or disarmed within auxiliary detector zone, the colour of the video surveillance window border remains unchanged, however in case of an alarm event in the auxiliary zone, the window border becomes red. That is why camera arming and disarming within an auxiliary zone is not indicated.

9.13.2 Connection to the Server

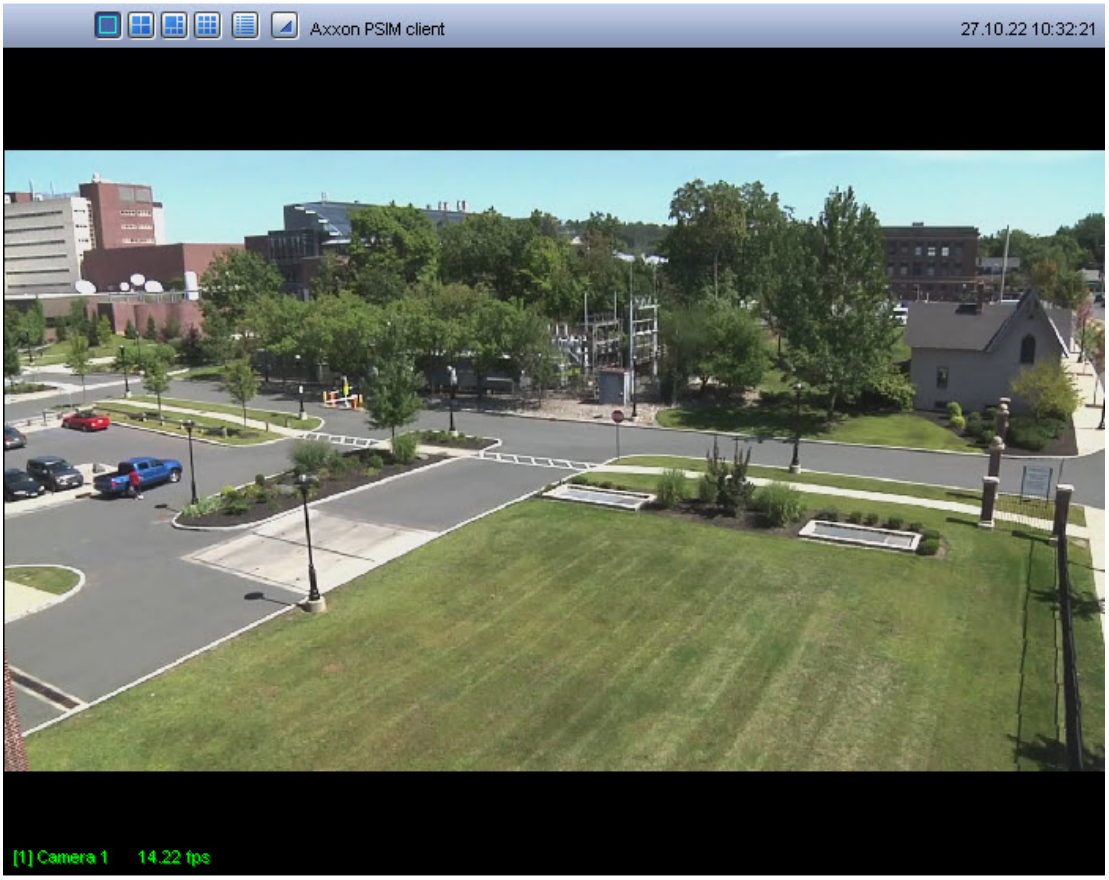
To launch the Web server surveillance monitor, enter the IP-address of the corresponding video server in the browser address line and press **Enter**.



If default value of the HTTP-server port was changed while the **Web-server** object configuring, it's required to set IP-address and the specified port number to connect to the Web-server. See also Administrator's Guide, the Setting the parameters of connecting Clients to the Web-server section.



Interface of the surveillance monitor for the given Web server will be downloaded in a few minutes.



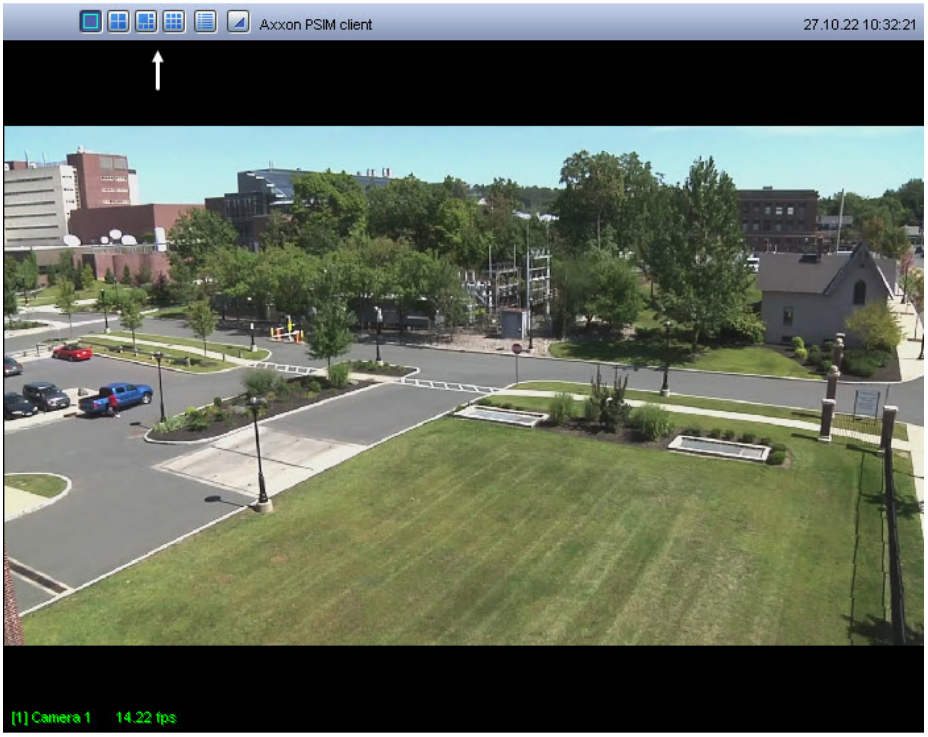
Note.

Remote access to the Web-server can be restricted due to the certain settings. In this case, a login and user password will be required to access the Web-server. Depending on the user permissions configured in *Axxon PSIM*, the login/password can as follows:

1. The login and password assigned to the user during the user permissions adding.
2. The login and password of the Windows user outside the domain. In this case, the user name is entered in the \\COMPUTER-NAME\ format – for example, \\USER-COMP\
3. The login and password of the Windows user within the domain. In this case, the user name is entered in the \\DOMAIN-NAME\user_name format – for example, \\DOMAIN\user.name

9.13.3 Changing the number of windows

The number of surveillance windows within one Web browser monitor is changed using the set of buttons  in the video monitor tools panel of the Web browser.

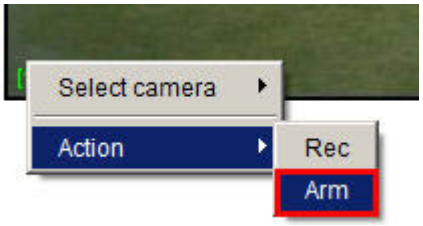


The button  opens only one window, all the others are used when a few windows are required to be displayed simultaneously (4, 6 or maximum 9) in the Web server surveillance monitor.

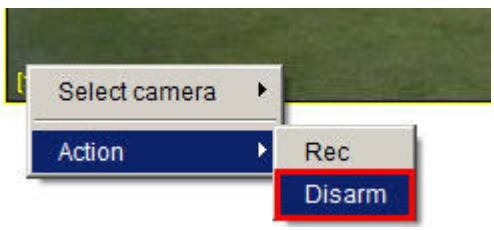
9.13.4 Camera arming and disarming in Web server video surveillance window

Cameras are armed and disarmed via the feature menu of the Web server video surveillance window.

To arm the camera, select **Arm** in the feature menu.



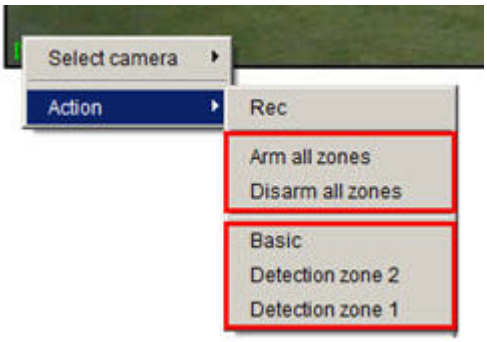
To disarm the camera, select **Disarm.**



Camera arming and disarming is supported with the appropriate indication (see the General information about video surveillance using the Web browser section).

9.13.5 Switching video motion detectors on and off

Camera detectors are switched on and off via the feature menu of the Web server surveillance window.



To switch a detector on or off, click its name in the detector list in the **Action** sub-menu of the feature menu of the video surveillance window.

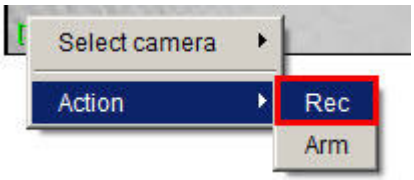
To switch on (off) all detectors of the camera simultaneously, select **Arm all zones** (**Disarm all zones**).

Switching detectors on and off is indicated appropriately (see the General information about video surveillance using the Web browser section).

9.13.6 Video recording

Video recording on the camera is controlled via the feature menu of the Web server video surveillance window.

To start video recording on the camera, select **Start recording** in the feature menu of the video surveillance window, which corresponds to the given camera.



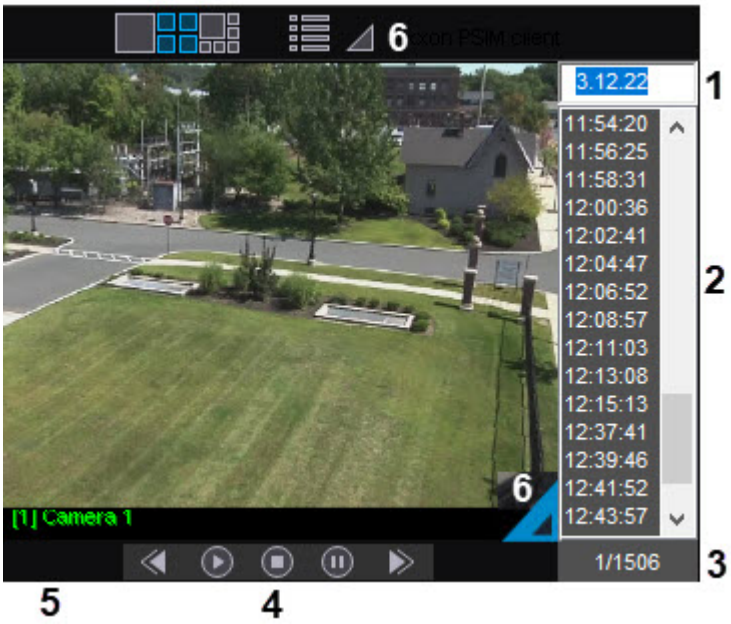
To stop recording, select **Stop recording** in the feature menu of the video surveillance window.



The current status of recording is indicated by the colour of the camera number border in the surveillance window (see the General information about video surveillance using the Web browser section).

9.13.7 Working with the archive

To access the archive playback mode, click the  icon in the bottom right corner of the Web server viewing tile or the  icon on the Web Server client toolbar. The archive playback control panel will be displayed.



Elements of the playback control panel are described in the table.

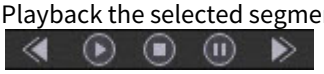
Element Image	Description	Comments
1	Recording date filter	Editable field used to filter displayable recordings by date
2	List of recording segments	Lists recording segments made on the date indicated on the recording date filter
3	Playback position indicator	CC Shows the current playback position in the frame against the selected recording segment
4	Playback control panel	Controls video playback
5	Camera indicator	Indicates the camera status and calls up the feature menu of the video surveillance window
6	Quit archive playback mode	Quits archive playback mode and returns to video surveillance

An algorithm for browsing through the archive may be as follows:

1. Select, appropriately, the camera, the archive of which will be accessed, using the feature menu of the video surveillance window.

2. Select the day during which the required archive was recorded, specifying the appropriate date in the recordings date filter.
3. Select the video sequence segment based on the time tag out of the list of recording segments.

4. Playback the selected segment, using the control panel.



The button starts playing back the selected recording segment, the button stops playback.

The and buttons are used to rewind and fast forward the recording segments in the playback mode, as well as to list the frames in the pause mode. If the recording playback is stopped using the button, then the button is for going to the beginning of the recording and the button is for going to the end of the recording. To shift to the pause mode, press the button, to restore playback – press the button.

9.13.8 Control of PTZ units through the Web server surveillance monitor

The window of the Web server surveillance monitor allows controlling PTZ units if the PTZ unit control function is enabled, the surveillance window of the camera will display .

To access PTZ unit controls, click with any mouse button. You will get an image of the PTZ unit control panel. Elements of the PTZ unit control panel interface are described below.

1. Control unit for camera lens adjustment:



   a. – upward movement of the lens
   b. – downward movement of the lens
   c. – left-side movement of the lens
   d. – right-side movement of the lens

2. Control unit for zoom adjustment of the camera lens:



   a. – reduce image scale (zoom out)
   b. – enlarge image scale (zoom in)

> **Note.**
>
> To perform action click the left mouse button on the control elements. Long-time holding of the left-mouse button doesn't lead to repeated performing of the specified actions.

3. PTZ control panel element:

   – hide/display the PTZ control panel

To hide PTZ unit controls, click with any mouse button again.

9.14 Video surveillance using the mobile clients

The remote connection of the *Axxon PSIM* Server can be performed using devices based on iOS and Android operating systems.

Please refer to the AxxonSoft mobile Clients. Documentation for detailed information about mobile clients capabilities, configuration and operation.

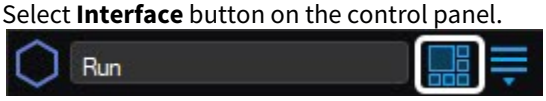
9.15 Working with panoramic video surveilance window

The Panoramic video surveillance window is designed for creating and using the panoramic image.

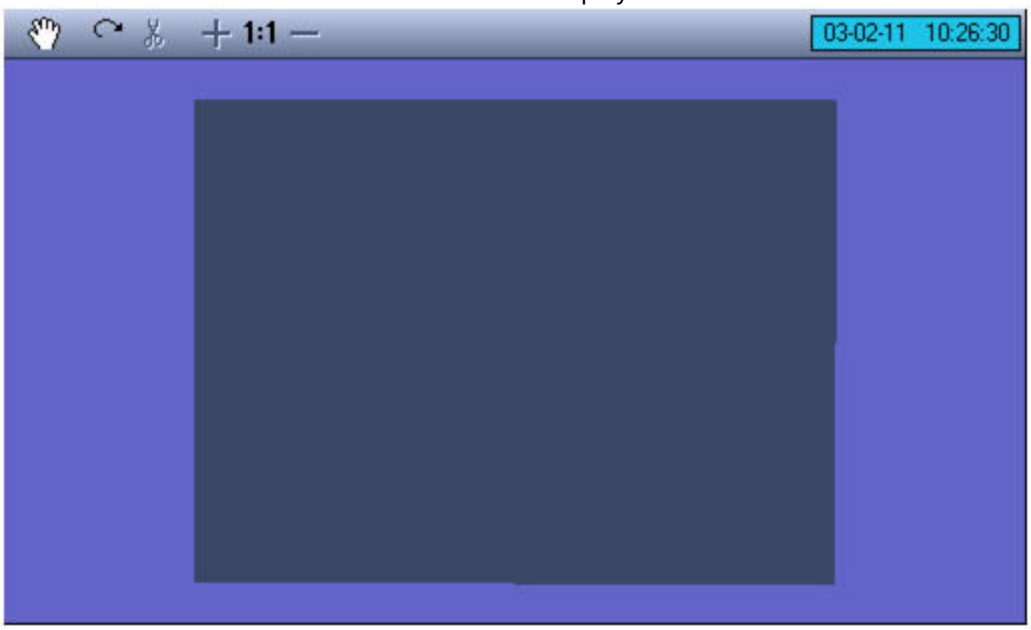
9.15.1 Starting the panoramic video surveillance

Starting the Panoramic video surveillance window is done in the following way:

1. Display the Main control panel (see Main control panel section).
2. Select **Interface** button on the control panel.



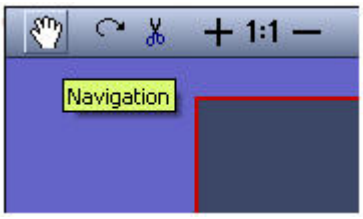
3. Control menu of the Axxon PSIM software user interface will be displayed in result
4. Select the **Screen** point.
5. The Panoramic video surveillance window will be displayed in result.



9.15.2 Navigation mode

Navigation mode is used for monitoring the scene. To enable this mode click **Navigation** button. With this mode doesn't let enabling the other modes of image processing (inactive buttons).

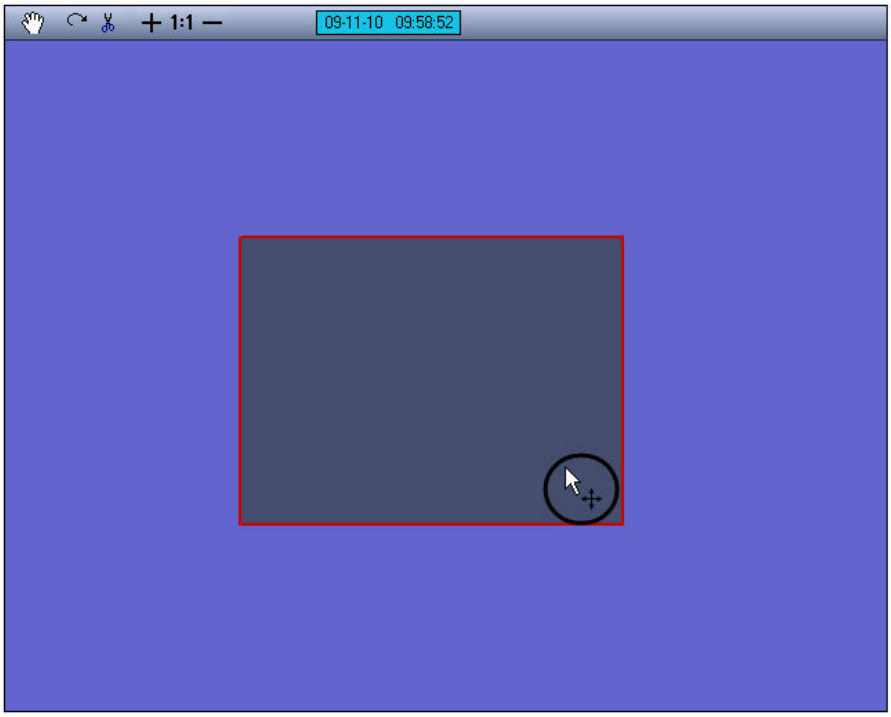
By default this navigation mode is disabled.



9.15.3 Image arrow mode

Image arrow mode is designed for comfortable placing the images within the video displaying window. Moving the images is performed by means of the mouse.

Enabling the Arrow mode is performed by clicking upon the displayed video that has to be moved. The moving indicator is the evidence of Arrow mode activation.



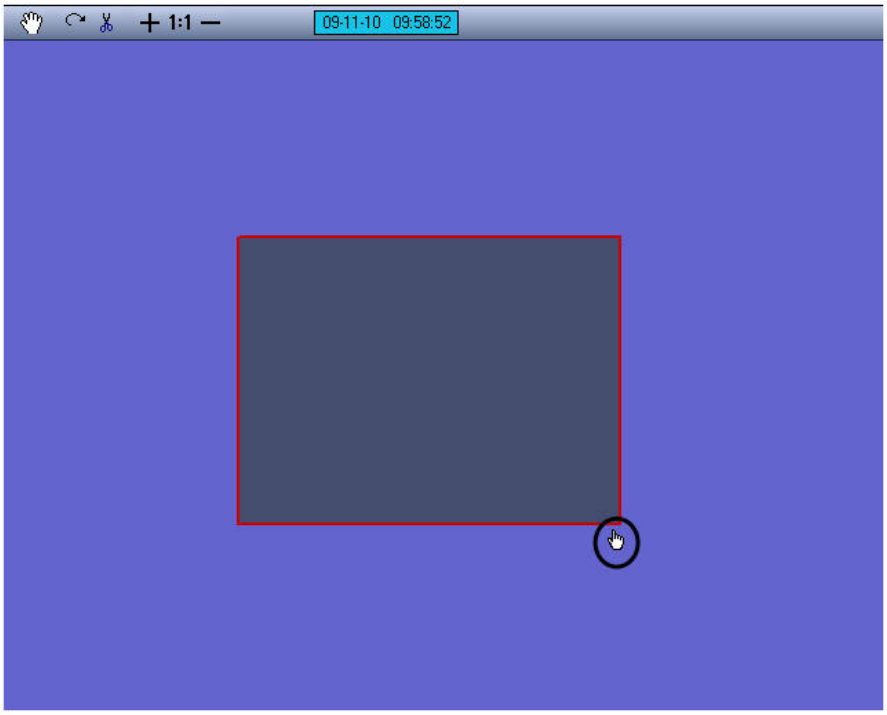
To move images do the following:

1. Activate the Arrow mode.
2. Navigate the mouse cursor to the object that has to be moved.
3. Press left mouse button and holding it move the cursor to a required area of video displaying window.
4. Release left mouse button.

9.15.4 Perspective correction mode

Perspective correction mode is designed for changing the shape of video Image by user-defined manner.

Perspective correction mode activation is performed by mouse click upon the image. The perspective indicator near the framed video image is the evidence of Perspective correction mode activation.



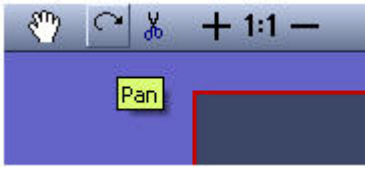
To correct the video image perspectives do the following:

1. Enable the Perspective correction mode.
2. Navigate the mouse cursor to one of the corners of active image. The cursor will be in the form of a hand with forefinger up.
3. Click left mouse button and holding it move the image corner to a required video displaying window.
4. Release left mouse button.

9.15.5 Video panning mode

Video panning mode is designed for panning the video about video image perpendicular plane and running through its centre. The video can be panned about this axis to any desirable angle.

Video panning mode activation is performed by clicking the **Pan** button on the control panel.



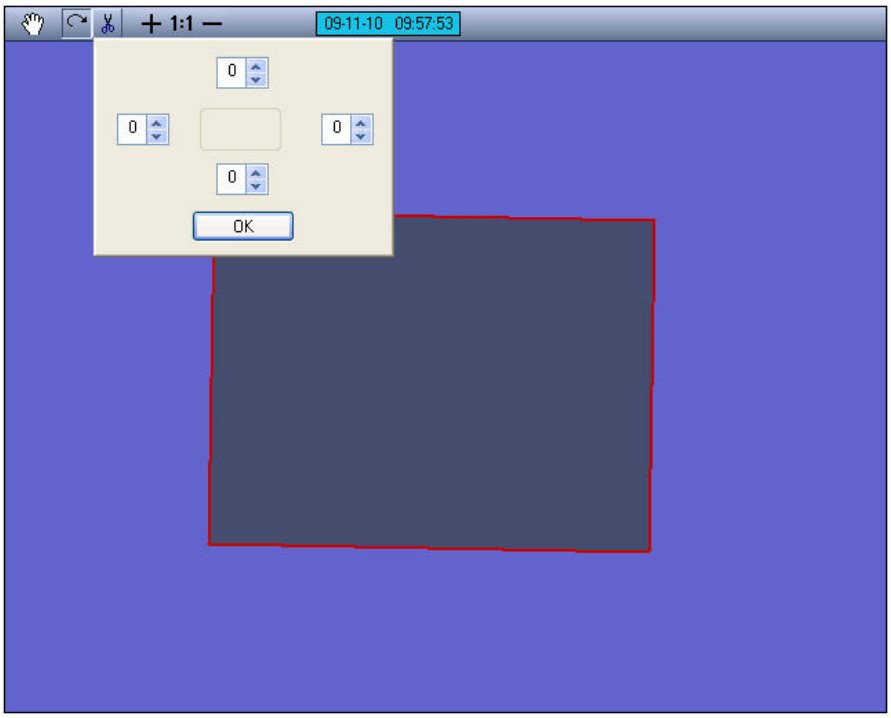
To pan the video image do the following:

1. Activate the Video panning mode.
2. Navigate the mouse cursor to video image that has to be panned.
3. Click left mouse button and holding it move the cursor to a required area of video displaying window.
4. Release left mouse button.

9.15.6 Cut borders mode

Cut borders mode is designed for more detailed video images adjustment. Cutting the borders is performed by the set number of pixels, calculated from the image borders. The area, left after cutting the borders, will be increased up to initial image sizes.

Select the video image that has to be cut and click **Cut borders** button on the control panel to activate the Cut borders mode.



The panel of setting the sizes of image area that has to be cut will be displayed. In the fields of this panel there is set the width of image area that has to be cut in pixels. Every field corresponds to one of the image borders: upper field –upper border, right field – right border e.t.c.

Click **OK** button in the bottom part of the panel after setting the width of image area that has to be cut.

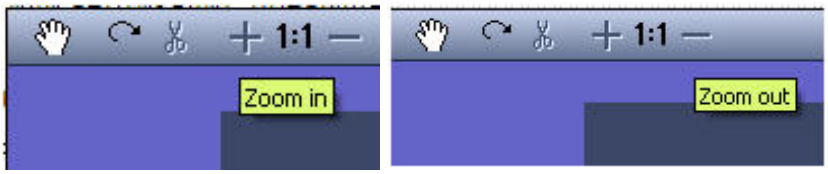
> **Note.**
>
> If **Accept** button has been pressed after setting the width of image area that has to be cut one can return to initial image sizes only by zeroizing the set cut borders and clicking **OK** button.

> **Note.**
>
> The maximum cut of each border of the selected video image is equal to 15 pixels.

9.15.7 Zooming in and out

Modes of scaling in and out the image are available in any mode of video processing.

For zooming in select the image that has to be processed and hold zoom in button indicated by **+** sign until the image gets required size.



Zooming the image in until the sizes (horizontally and/or vertically), exceeding the size of **Scene** object window are attended by appearance of scroll bar in the bottom and/or right part of **Scene** object window. Transfer to a hidden part of an image that has been zoomed in is performed by moving the square scroll box to a required position.

To zoom out the video image it is necessary to select an image that has to be processed and keep clicking zoom out button presented by **–** sign until image gets required size.

> **Note.**
>
> Restrictions for minimum size of the image are not posed while working with **Scene** interface object. Pay attention that the image may get out of sight while repeated zooming out.

9.15.8 Image restore

Image restore mode is designed for image restoring (to restore the sizes, shape and location parameters, used by default).

The video image may be restored in ratio 1:1. Ratio 1:1 corresponds to video image displaying in accordance with its real resolution. For example of the video signal frame has resolution 352x288 pixels (standard),in ration 1:1 its sizes on the screen will be 352 pixels horizontally and 288 pixels vertically.

Image restore mode is available in any mode of video processing.

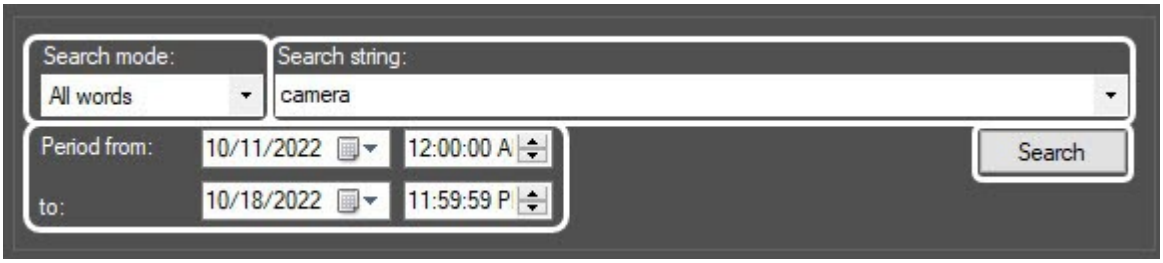
To restore the image in ration «1:1» select the image (it will be framed in red in result) and click **Restore** button presented by **1:1** sign.



9.16 Working with Captions search interface object

9.16.1 Search in the captions database

Before start searching a query is to be created.



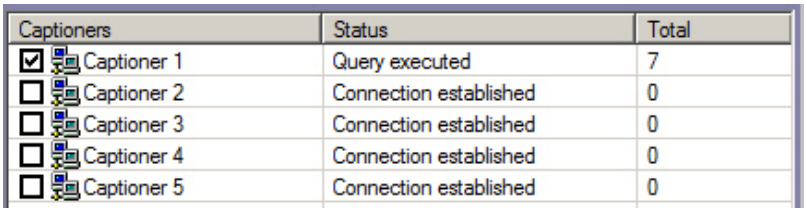
When making a key phrase for combining several elements (words and/or word phrases) select one of the following search modes in the **Search mode** dropdown list:

1. **All words** – to search captions containing all elements of a key phrase (a space is a separating symbol).
2. **Any word** – to search captions containing at least one element of a key phrase (a space is a separating symbol).
3. **Substring** – to search captions containing all the key phrase elements in the specified order (the number of spaces is ignored).

* symbol can be used when making a key phrase – it means any number of any symbols in a word.

Time interval for data search is set in the **Period from** and **to** fields.

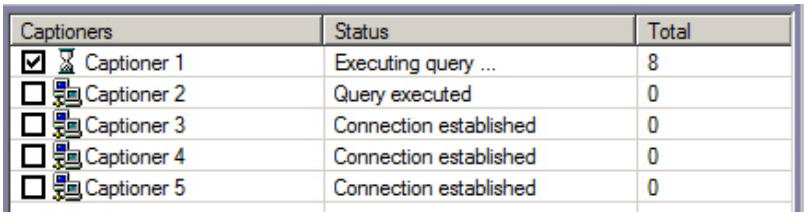
Before searching you are to select captions databases by setting the checkboxes next to required captions databases in the captions database state table.



Captioners	Status	Total
Captioner 1	Query executed	7
Captioner 2	Connection established	0
Captioner 3	Connection established	0
Captioner 4	Connection established	0
Captioner 5	Connection established	0

To start searching, click the **Find** button.

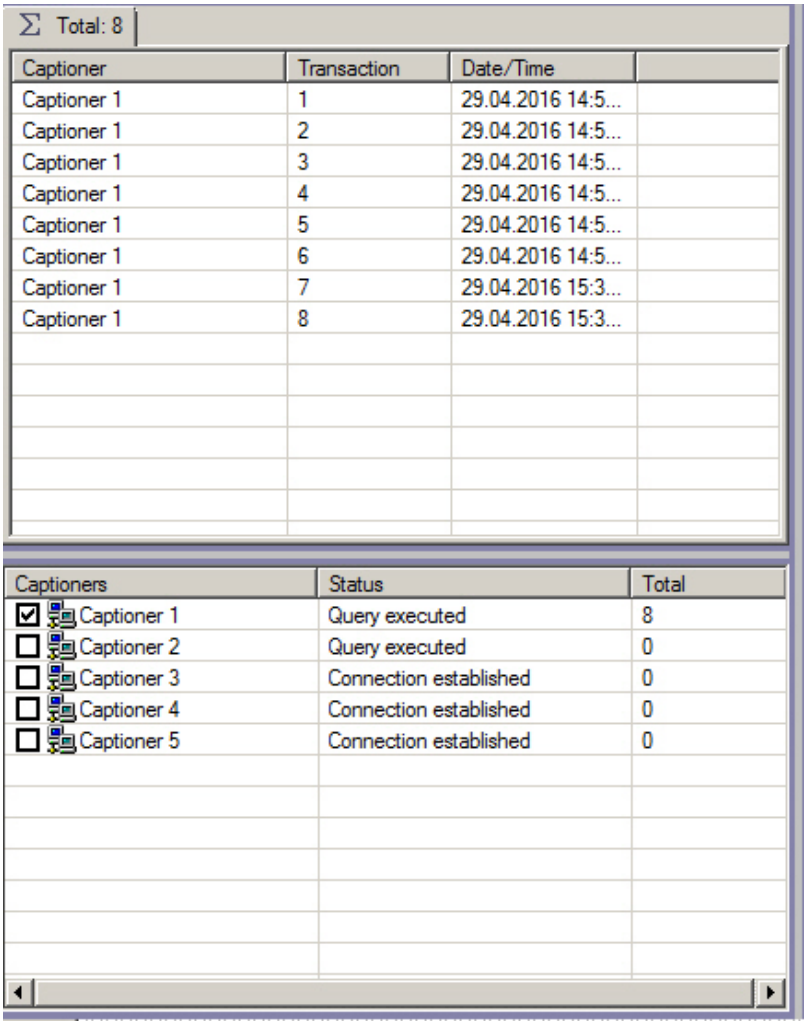
When the search is performed, the query status is displayed in the table of captions databases states (Query executing state for all selected captions databases).



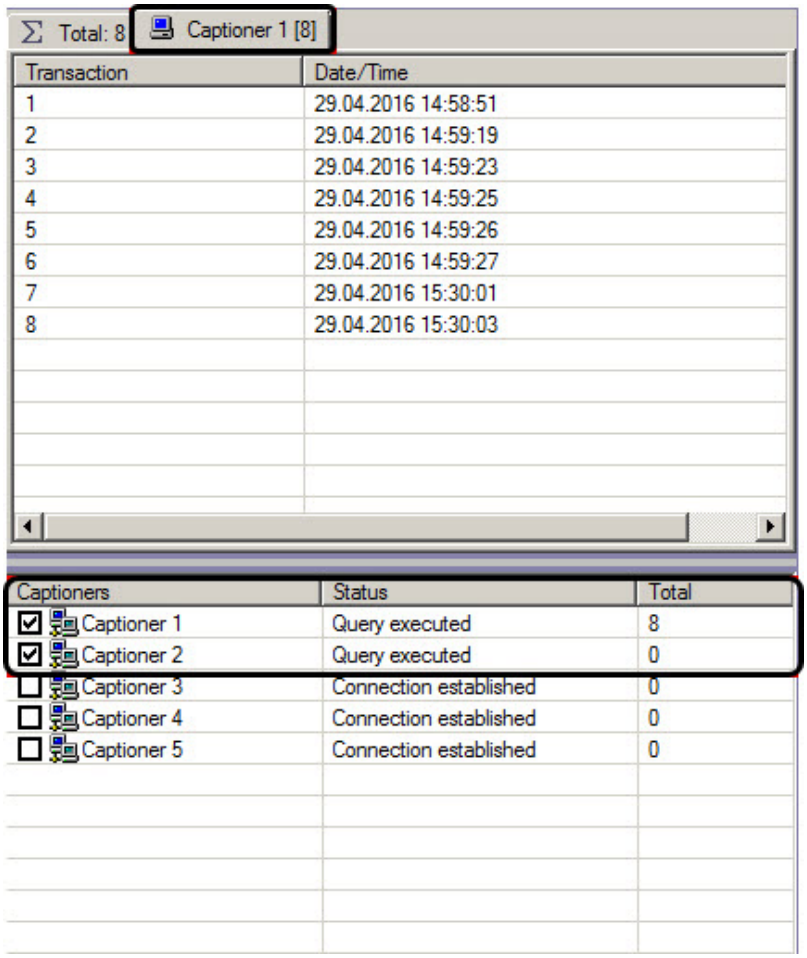
Captioners	Status	Total
Captioner 1	Executing query ...	8
Captioner 2	Query executed	0
Captioner 3	Connection established	0
Captioner 4	Connection established	0
Captioner 5	Connection established	0

Yo can cancel search by clicking the **Cancel** button.

When the search is complete, all transactions found in the selected captions databases are displayed in the search results table.



By default search results by all captioners are displayed in the **Total tab**. Double clicking the captioner name the tab containing the search results for the selected captioner appears.



To view the search results, select the tab with the required captions database and then select the required transaction in the search results table.

The corresponding captions are displayed as the text in the search results field.



Note.

If in the search results there are no captions that were recorded before *Axxon PSIM* reinstallation, then indexing of the captions archive is to be performed. For this select **Tools – Reindex** menu item in the Captioner debug window that is called by double left-clicking the icon in the taskbar.

The video corresponding to the selected transaction is displayed in the search results field.



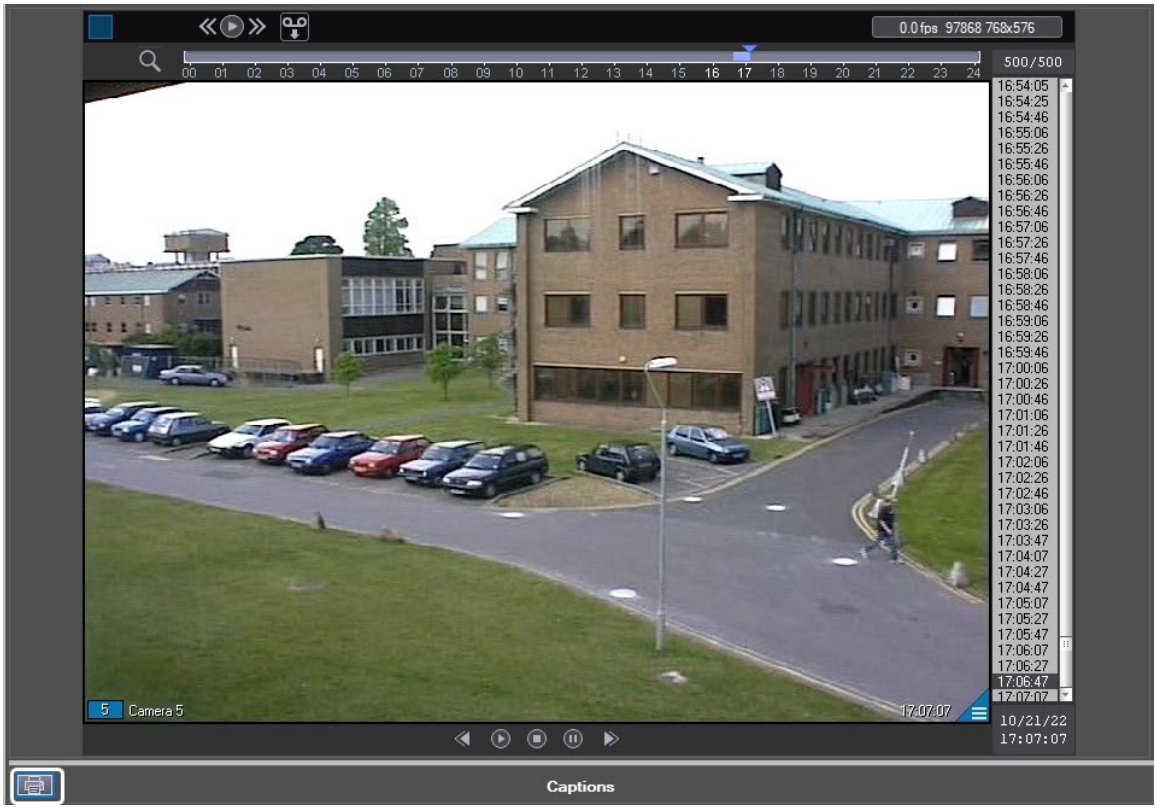
Export and processing functions similar to those of Video surveillance monitor are available in this window, including video clips export with subtitles. For more details on using Video surveillance monitor functions, see Operator's Guide.

While watching a video, the selection of caption text in the search results field is shifted in accordance with the time of the video archive. Transactions are not switched if the video continues to play after transaction end.

9.16.2 Printing the search results

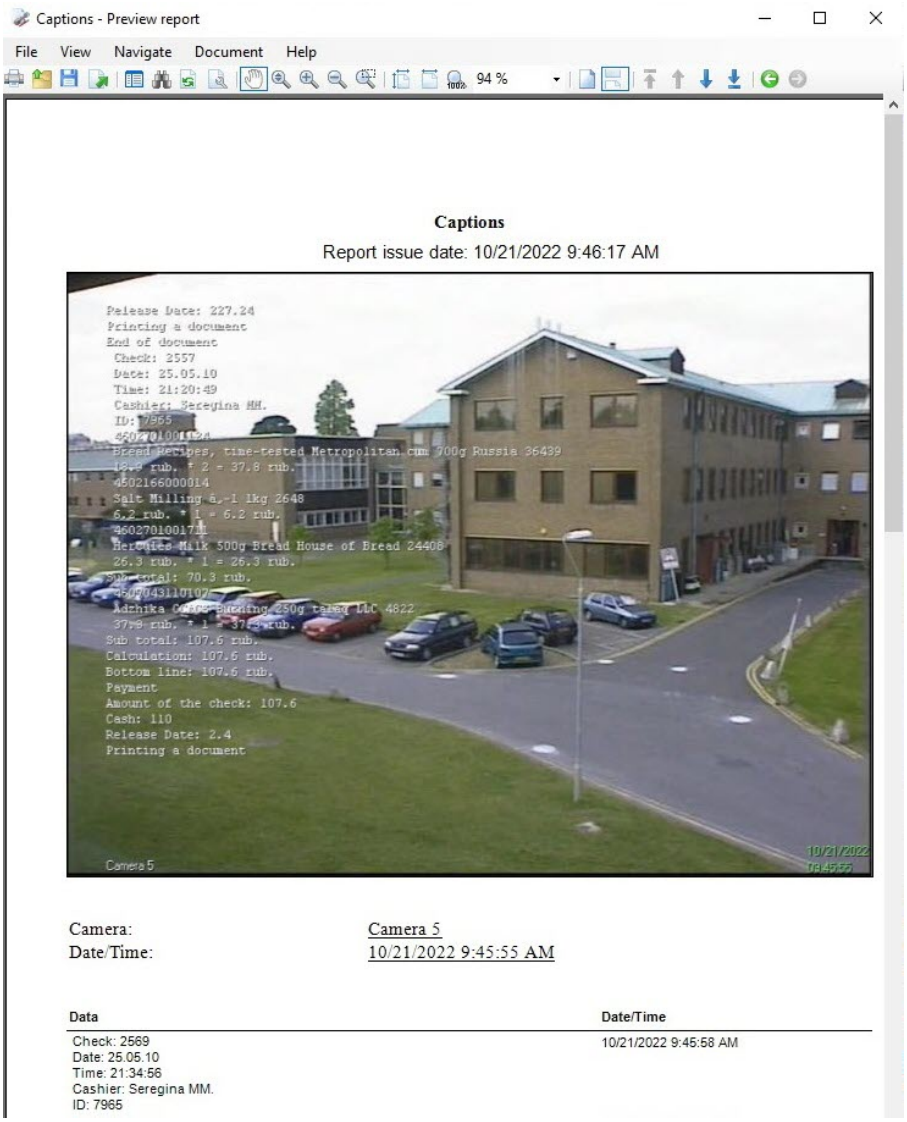
The search results including video snapshot can be printed as well as exported to different formats.

Use the **Print** button  to print the search results.



The availability of this feature depends on system settings - there can be no **Print** button.

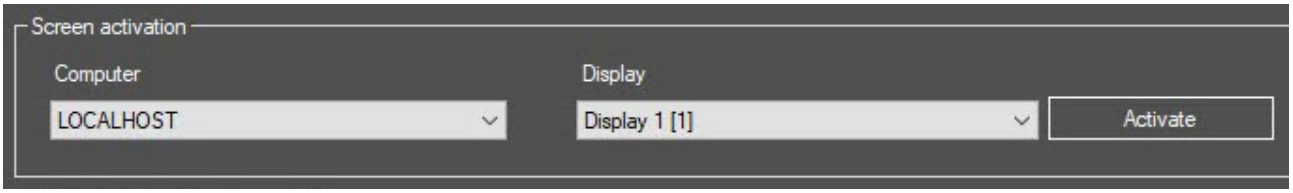
The search results report is automatically created and displayed in a new window.



9.17 Managing the displays using the Display manager

9.17.1 Selecting and activating the display

To select a display, in the **Computer** drop-down list, select a computer to which the required display is assigned (see Assigning the screens to the operator workstations). Then in the **Display** drop-down list, select the required display.



As a result, the required Video surveillance monitor objects, created on the basis of the **Display** object will be available in the **Setting and activation of monitors** group.

In order to display the selected display on the desktop of the specified computer, click on the **Activate** button.

9.17.2 Configuring and activating the layouts

The procedure of configuring and activating the layouts

The layout are configured and activated in the following order:

1. Selecting the Video surveillance monitor.
2. Selecting or creating a layout.
3. Configuring the cells and adding the Surveillance windows to the layout.

Selecting the Video surveillance monitor

The Video surveillance monitor is selected using the **Monitor** drop-down list:

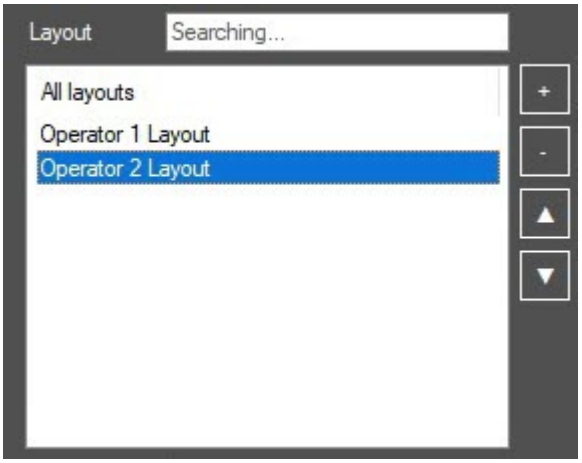


After the Video surveillance monitor is selected, its coordinates and dimensions are displayed on the right, as well as the number of the physical monitor on which it is displayed.

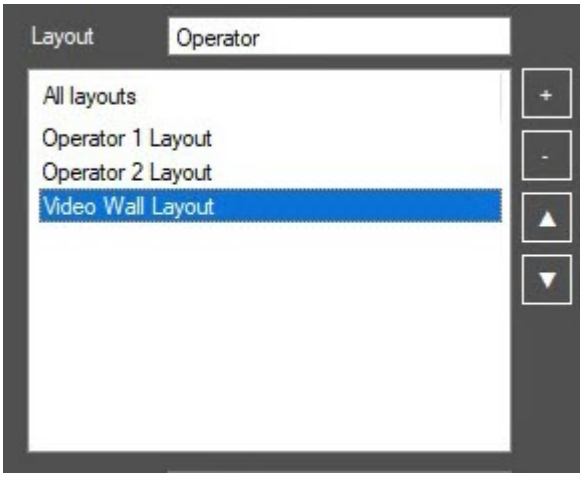
The Video surveillance monitor objects created on the basis of the selected **Display** object are available in this list (see Selecting and activating the display).

Selecting or creating a layout

To select, create, delete, rename, sort and search layouts, the following settings group is used:

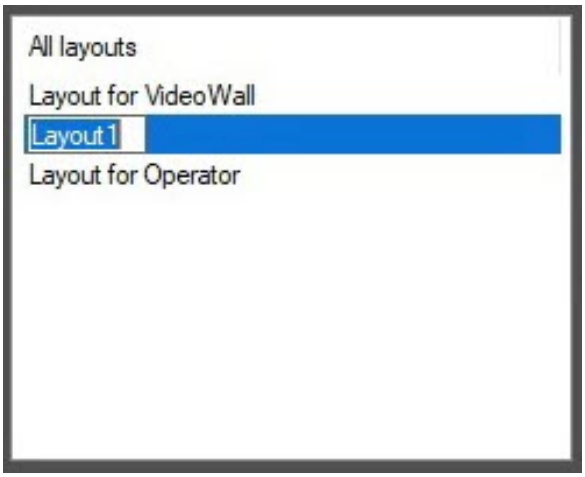


To search for the required layout, start typing the layout name in the **Layout** field. The found items will be highlighted in gray.



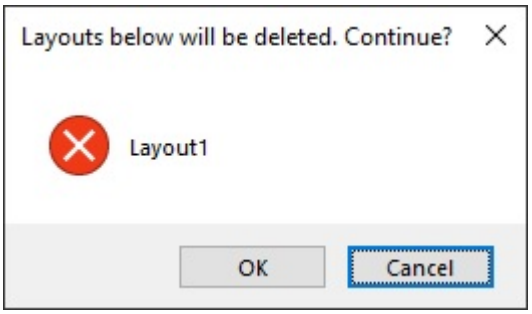
To select a layout to be displayed on the layout creation panel, left-click its name in the list.

To create a layout, click the + button. The layout will be added to the list with the default name ("Layout <number>"). To rename the layout, select it in the list, then left-click its name and enter a new name.

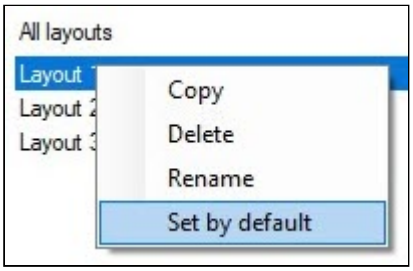


To delete a layout, select it and click the - button. Several layouts can be selected with Ctrl key pressed on the keyboard.

The confirmation dialog box with the list of layouts to be deleted opens on clicking the - button. Click **OK** to delete the layouts of **Cancel** to abort the operation.



To move the layout up or down in the list, use the  and  buttons respectively.
A layout can also be deleted or renamed using the corresponding commands in the menu opened by right click on the layout name:

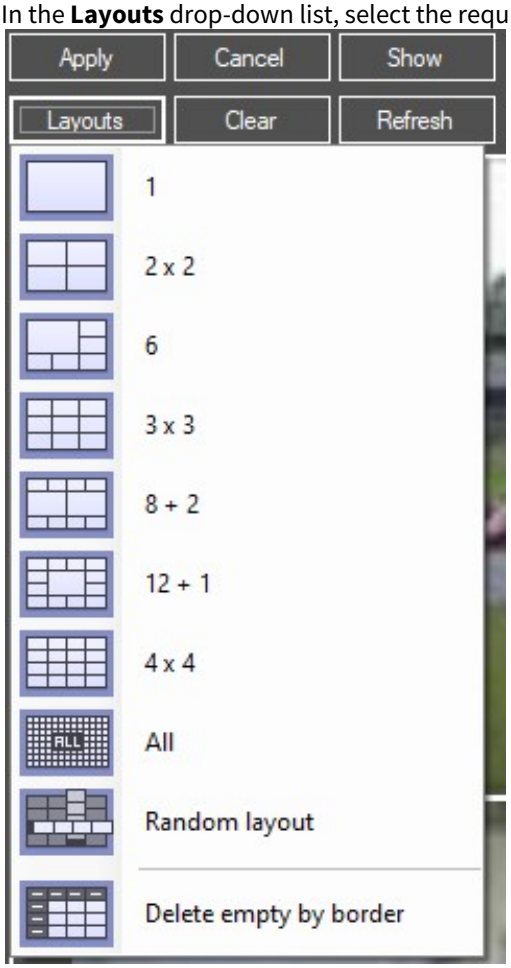


Configuring the cells and adding the Surveillance windows to the layout

After selecting or creating a layout, it is necessary to adjust the location and size of the layout cells and add the Surveillance windows to them.

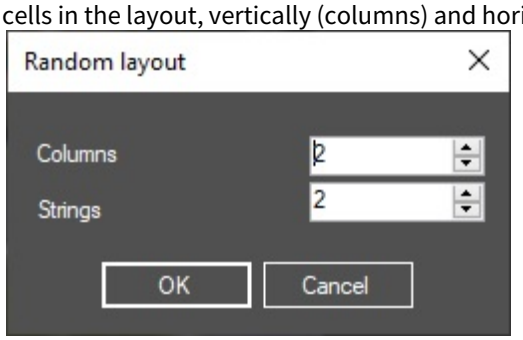
The cells number and layout shape is selected in one of the following ways, or both at the same time:

1. In the **Layouts** drop-down list, select the required layout shape.



If you select the **Random layout** item, the window will open, where it is necessary to specify the number of

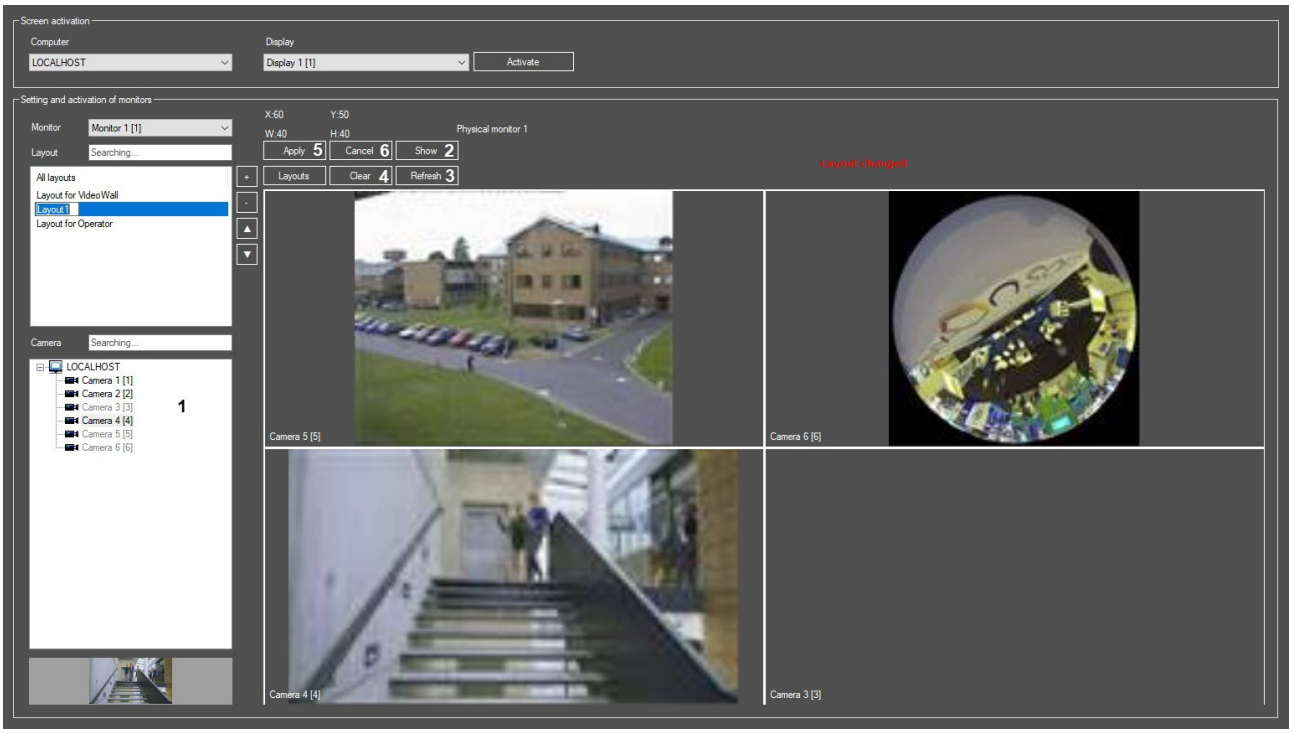
cells in the layout, vertically (columns) and horizontally (strings).



2. You can adjust the layout shape manually using the **<**, **>**, ⋁, ⋀ buttons. Each click of these buttons expands the cell by 1 position in the corresponding direction.
   In order to remove unnecessary empty cells along the border, select the **Delete empty by border** item from the **Layouts** drop-down list.

> **Note.**
>
> The space or delimiters between camera Surveillance windows inside a layout are 2 pixels width.

After the required layout shape and cells number are configured, it is necessary to add the Surveillance window to the layout. To do this, drag the cameras from the list (**1**) to the layout cell using the left mouse button. The Surveillance window of a single camera can be added to the layout only once. The cameras which are already added to the layout are highlighted in gray in the list.



The (1) list displays cameras added to the **Monitor**(s) (see Selecting and configuring video cameras) created under the selected **Display** object (see Selecting and activating the display).

To search for a camera, start typing the camera name or ID in the **Camera** field. The first found camera will be highlighted in the list. To move to the next search result, press Enter on the keyboard.

> **Note**
>
> If no layout is selected, or if no matches are found when searching for a layout, no cameras are displayed in the list.

To display the configured layout on the Video surveillance monitor without saving it, click the **Show** button (**2**).

If the layout was created using the Display manager, then the frames displayed in the camera at the moment when it was added to the layout will be displayed in the Surveillance windows. If the layout was created using the Video surveillance monitor, then in order to display these frames in the Surveillance windows, it is necessary to click on the **Refresh** button (**3**).

To delete all cells from the layout, click the **Clear** button (**4**).

To save the layout, click the **Apply** button (**5**).

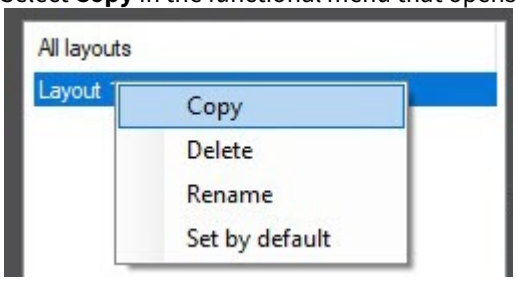
To undo the changes and return to the last saved layout, click the **Cancel** button (**6**).

> **Attention!**
>
> If after changing the layout, you select another layout, another **Monitor** or another **Display**, the changes are automatically saved and cannot be undone.

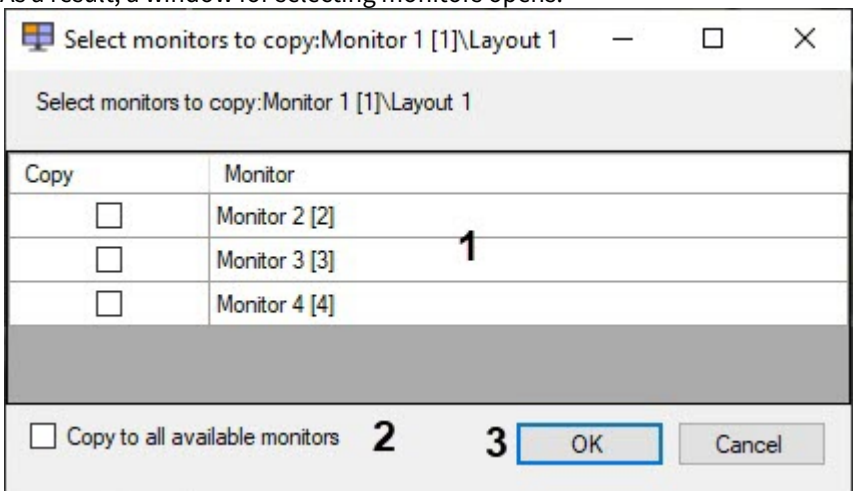
Copying a layout

After the layout is set up (see Selecting or creating a layout and Configuring the cells and adding the Surveillance windows to the layout), it can be distributed it to other monitors. To do this, follow these steps:

1. Select **Copy** in the functional menu that opens by right-clicking on the layout name.



2. As a result, a window for selecting monitors opens:



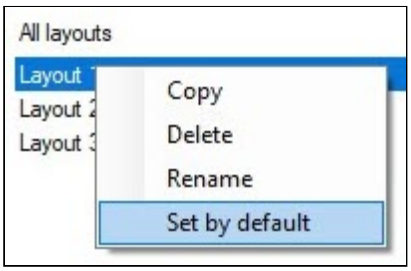
3. Set the checkboxes next to the monitors to which the layout should be copied (1).
   If at least one of the cameras on the layout is not added to the monitor, then the monitor name will be grayed out in the list. The layout cannot be copied to such a monitor.
4. To select all available monitors, set the **Copy to all available monitors** check box (2).
5. Click **OK** (3).

As a result, the layout will be available in all selected monitors.

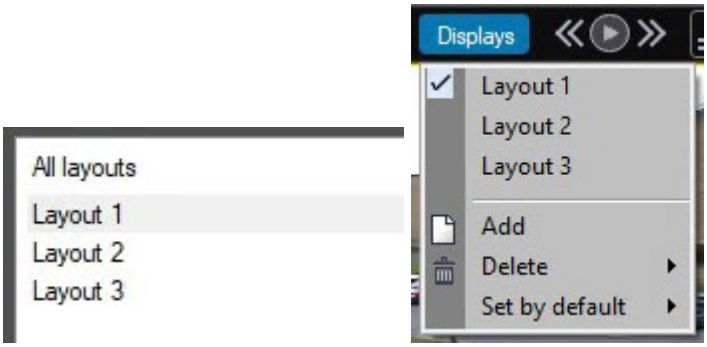
Selecting the default layout

Any of the created layouts can be set as default. The default layout will be displayed when *Axxon PSIM* is launched. Use the UseDefaultLayoutOnlyAtStartup registry key to display the default layout each time the corresponding screen with the Video surveillance monitor is displayed (see Registry Keys Reference Guide).

To select the default layout, right-click the desired layout in the list and select **Set by default** in the opened functional menu.



The default layout is highlighted in the lists in the Display Manager and in the Video Surveillance Monitor:

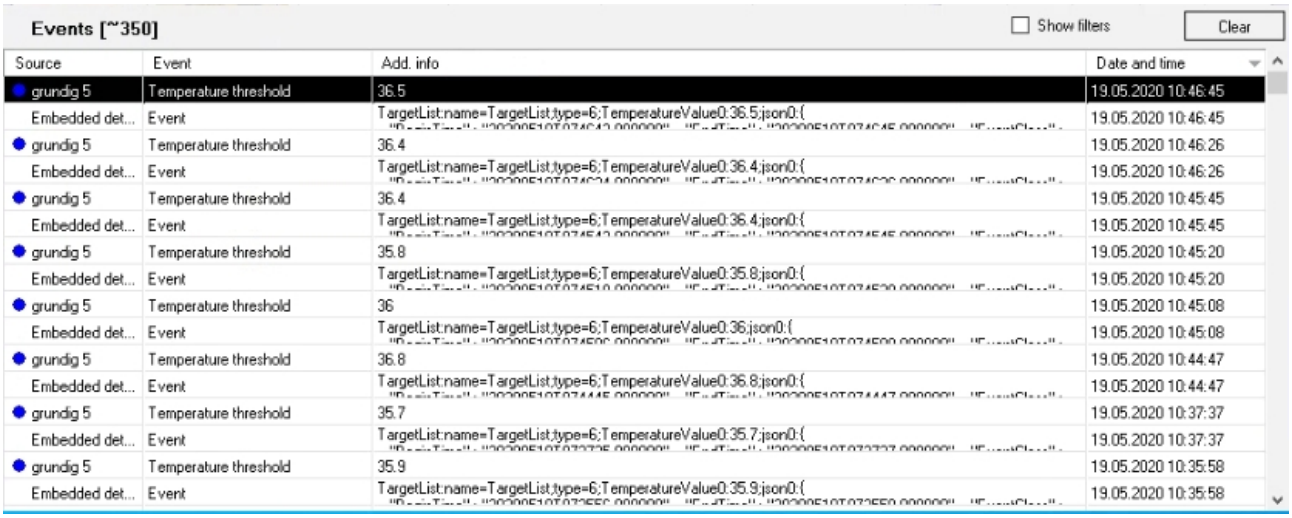


9.18 Thermal camera operation

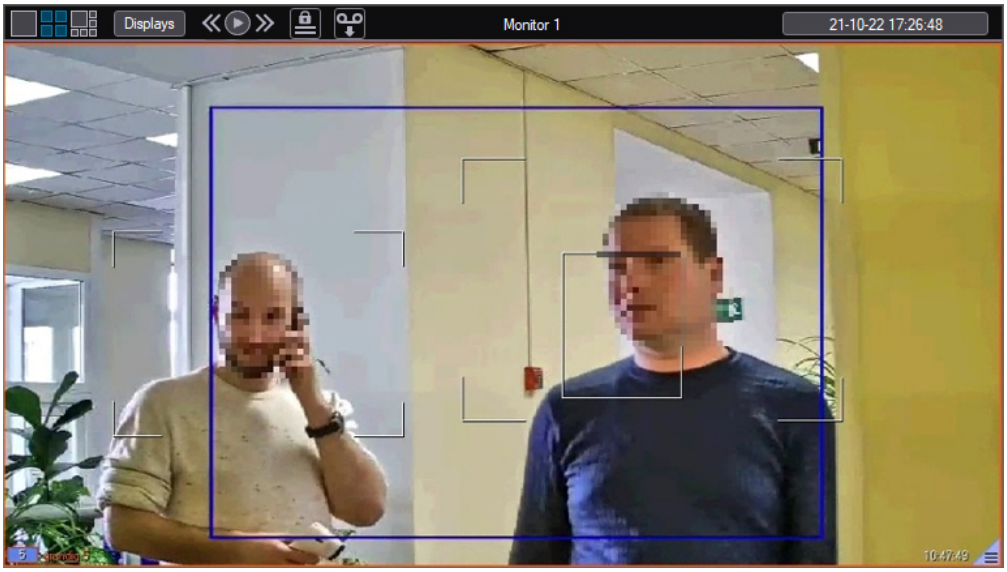
Axxon PSIM software supports working with thermal cameras. In addition to the conventional infrared detection tool, it is also possible to receive data from the embedded detectors of the thermal imager, provided that this function is integrated into the Drivers Pack. Any additional settings other than setting the embedded detector are not required.

The temperature data received from the built-in detectors are displayed in the Event Viewer:

- The **Event** event from the **Embedded detector** object contains metadata in a string format. Further processing of these data is carried out using scripts.
- The **Temperature threshold** event from the **Camera** object shows the temperature value. The temperature threshold is set in the thermal camera web interface.



The face to which the temperature refers is shown in the Video surveillance monitor with a frame:



Furthermore, the processing of obtained body temperature data is also implemented in *Face PSIM* software (see the *Face PSIM Administrator Guide* in AxxonSoft documentation repository for more details about this function).

9.19 Working with SIP-panel

The **SIP-panel** is used for making calls within a distributed system configuration. With the **SIP-panel** you can make calls and group calls between the operators and SIP-devices.

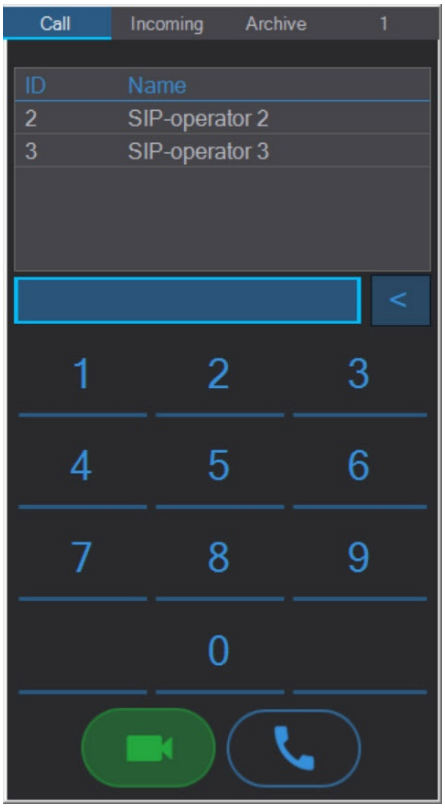
9.19.1 Making calls using SIP-panel

On the page:

- Starting a call
- Displaying the SIP-panel when calling
- Managing a call
- Ending a call

Starting a call

The calls are made on the **Call** tab of the SIP-panel.



To make a call from the panel, select a number in the address book or dial the number manually, and then click one of the following buttons:

-  — to start a call with video and audio. If the camera, the microphone and the operator speaker were selected at the system configuration stage and the SIP-device supports the corresponding function, video and audio from the camera and audio from the operator microphone will be transmitted to the device.
-  — to start a call with audio only.

In both cases, both video and audio are transmitted from the SIP-device, but in the second case, the video stream from the operator camera is not transmitted to the device.

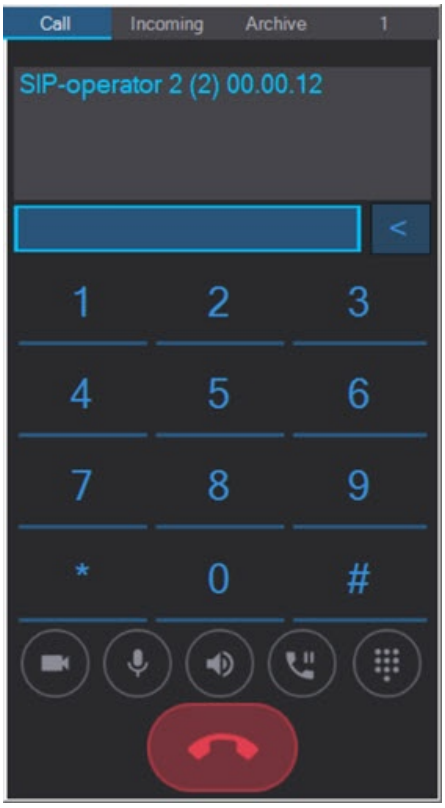
> **Note**
>
> If a microphone and a speaker weren't selected at the system configuration stage, the call from the SIP-device will be transmitted to the device, but you won't be able to transmit the audio message or hear it.

Note

You can also make calls using the macros (see Macros for working with SIP-terminal).

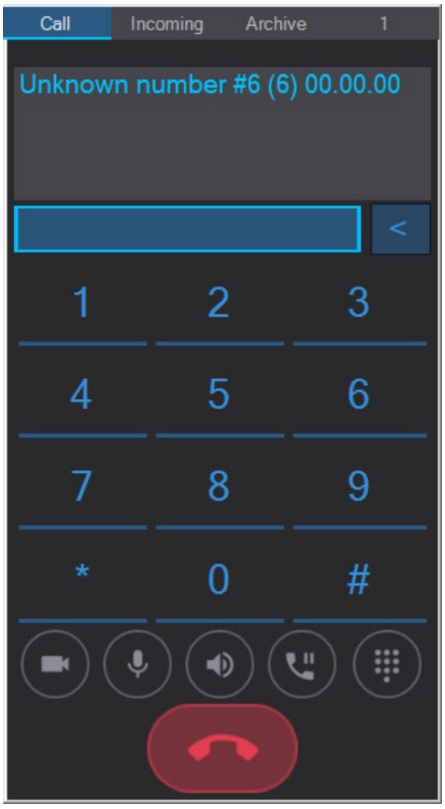
Displaying the SIP-panel when calling

During the call, the SIP-panel window will be displayed on top of all windows and will look like this:



The information field at the top of the window displays the number and duration of the call.

If the option to call unknown subscribers is enabled, then when you call an unknown number, it will be displayed as "Unknown number + #number".



If an unknown number exists, the call will be successful, if not, the call will be ended.

Managing a call

The buttons at the bottom of the panel manage the call:

 — Enable/disable the operator camera.

 — Enable/disable the operator microphone.

 — Enable/disable the operator speaker.

 — Hold the call. The **Incoming** tab will open with a list of all incoming calls that can be accepted/resumed using the buttons  (with the video from the operator) and  (without the video from the operator):

> **Note**
>
> When the call is on hold, the image and the sound of the SIP-operators are not transmitted. The audio message "Call on hold" is played back on the SIP-operator that was put on hold.

> **Note**
>
> By default, clicking the buttons on the SIP-panel, macros dialing and calls are accompanied by sound signals. The sound of clicking the buttons can be turned off at the stage of configuring the SIP-panel interface object (see Advanced settings of the SIP-panel interface object).



The calls in the list are sorted by the SIP-operators and SIP-devices priority, that was set at the system configuration stage. If several operators or devices have the same priority, the calls from them are sorted by the receiving time. By default, the new calls are added to the top of the list, but the sorting order can be changed during the system configuration, so that the new calls are added to the end of the list regardless of the operators and devices priority (see Advanced settings of the SIP-panel interface object).

The window with the call list is displayed on top of all windows during a call and a call on hold.

> **Note**
>
> If the **Switch to incoming** checkbox was not set at the SIP-panel configuration stage (see Advanced settings of the SIP-panel interface object), then the **Incoming** tab will not automatically open for incoming calls or calls on hold.

 — Display/hide the dialing panel in the tone mode. This panel displays the macros added while configuring the SIP-device (see Configuring SIP-devices of the Axxon PSIM's SIP server).



Ending a call

To end a call, click the  button.

If there is no answer, the call automatically ends in 30 seconds (this timeout is configurable by the CallTimeout registry key, see Registry keys reference guide).

> **Note**
>
> If you use a playback file after answering a call, the call will end automatically as soon as the file is played back. For example, a playback file lasts for 10 seconds. When you answer after 10 seconds, the call will end automatically.
> If the file playback loop was set, the file will be played back until the manual end of the call (the playback file, as well as the playback file loop can be set using the macro, see Macros for working with SIP-terminal).

9.19.2 Making group calls using SIP-panel

On the page:

- Starting a call
- Displaying the SIP-panel when calling

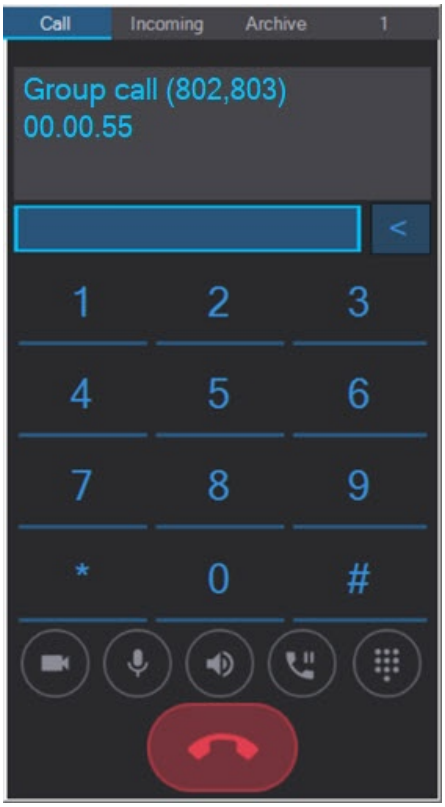
- Ending a call

Starting a call

A group call is made as a regular call from the SIP-panel to a number with configured forwarding to several numbers (see Configuring numbers of SIP-terminal).

Displaying the SIP-panel when calling

During the group call, the SIP-panel window will be displayed on top of all windows and will look like this:



The information field at the top of the window displays the numbers to which the forwarding was made and the duration of the call.

Note

When making a group call, if there is an unknown number in the list of the subscribers, only the number of the unknown subscriber is displayed in the SIP-panel call window.
For example, a group call is made to the numbers 1, 2 and to the unknown number 3. In this case, the unknown number will be displayed as "Group call (1,2,3)" in the SIP-panel call window.

Managing a call

Group call controls are similar to regular call controls.

Ending a call

Ending a group call is similar to ending a regular call.

Note

If you use a playback file after answering a group call, the call will end automatically as soon as the file is played back for each subscriber (see Macros for working with SIP-terminal).

Note

There are two options for ending a call when using a loop file:

1. The operator who makes the call can end the call — then the call will end for all subscribers.
2. The subscriber who receives the call can end the call — then the call will end for them and continue for other subscribers.

10 Operator's Guide. Conclusion

More detailed information on the Axxon PSIM software package is presented in the documents titled:

1. Installing and configuring security system components guide;
2. Programming Guide (JScript);
3. Administrator's Guide.

If while operating the given software product you have faced difficulties and problems, you are welcome to contact us. However before addressing us, we kindly ask you to answer the following questions:

1. What is the problem?
2. When did the problem occur and what had happened before it occurred?
3. Which conditions gave rise to the problem?

Remember, that the more detailed and precise information you give us, the faster our experts will resolve your problem.

We are striving to improve the quality of our products, and hence welcome any proposals and suggestions how to improve our software and documentation.