User's guide

Eocortex

Version 4.1

eocortex.com
Published on 04.03.2024

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Introduction

This guide describes the operation process of the **Eocortex** software suite designed for intelligent analysis, processing, archiving and display of video data, and one point to manage cameras in a video surveillance system based on IP cameras.

The guide may contain screenshots of previous versions or other products of **Eocortex** software. In this case it is supposed that the functionality described in these screenshots have not changed in the current version of **Eocortex**.

After the release and publication of the next version of **Eocortex** software the manual can be supplemented with changes. To receive up-to-date documentation, please check the publication date of the **Eocortex** on site.

Client applications

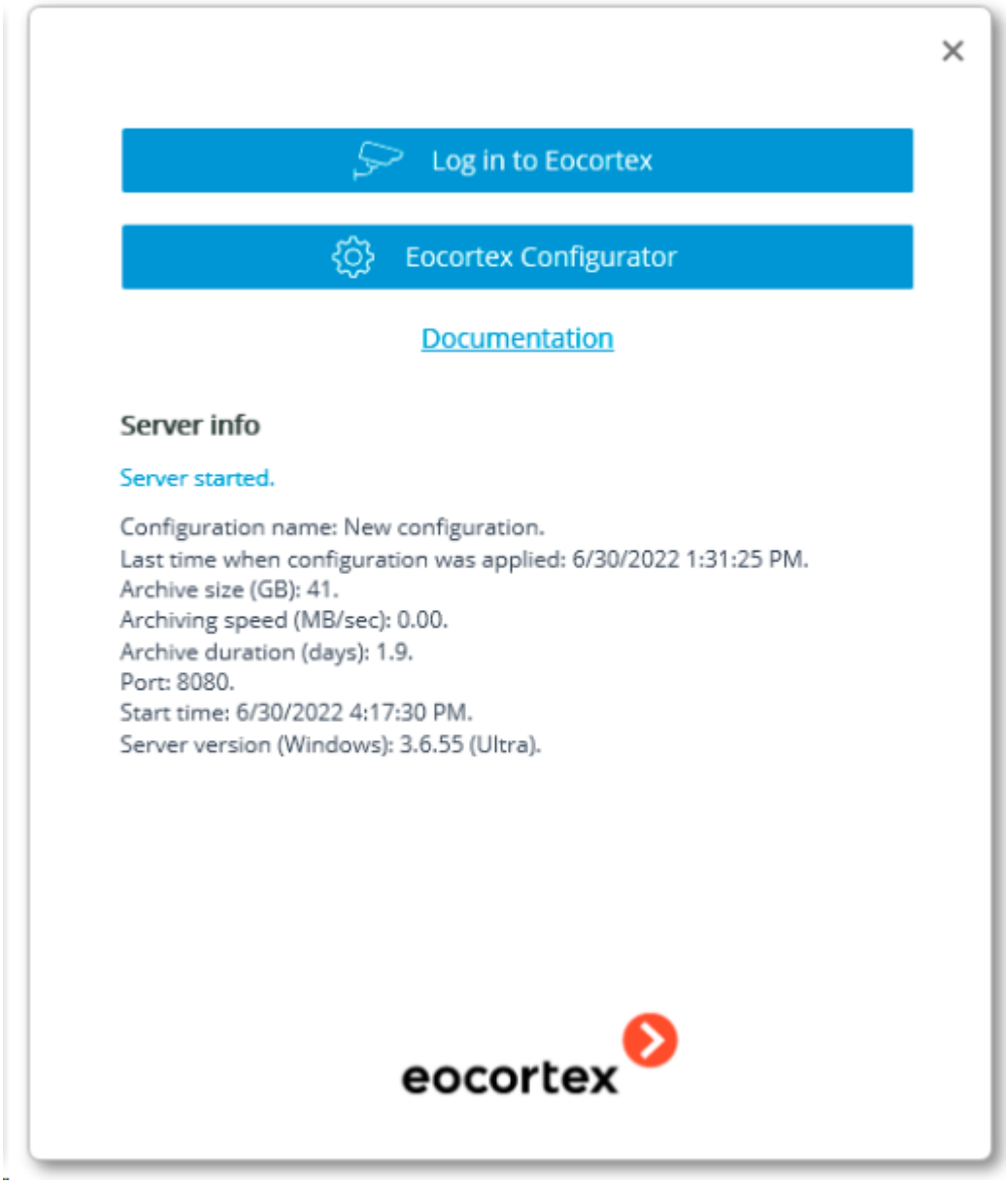
Eocortex Client

Eocortex Client is used for work in the **Eocortex** video surveillance system.

Launch and Login

Run the application from the **Start Menu / All applications / Eocortex / Eocortex**; or using a **Eocortex Client** shortcut on the Desktop.

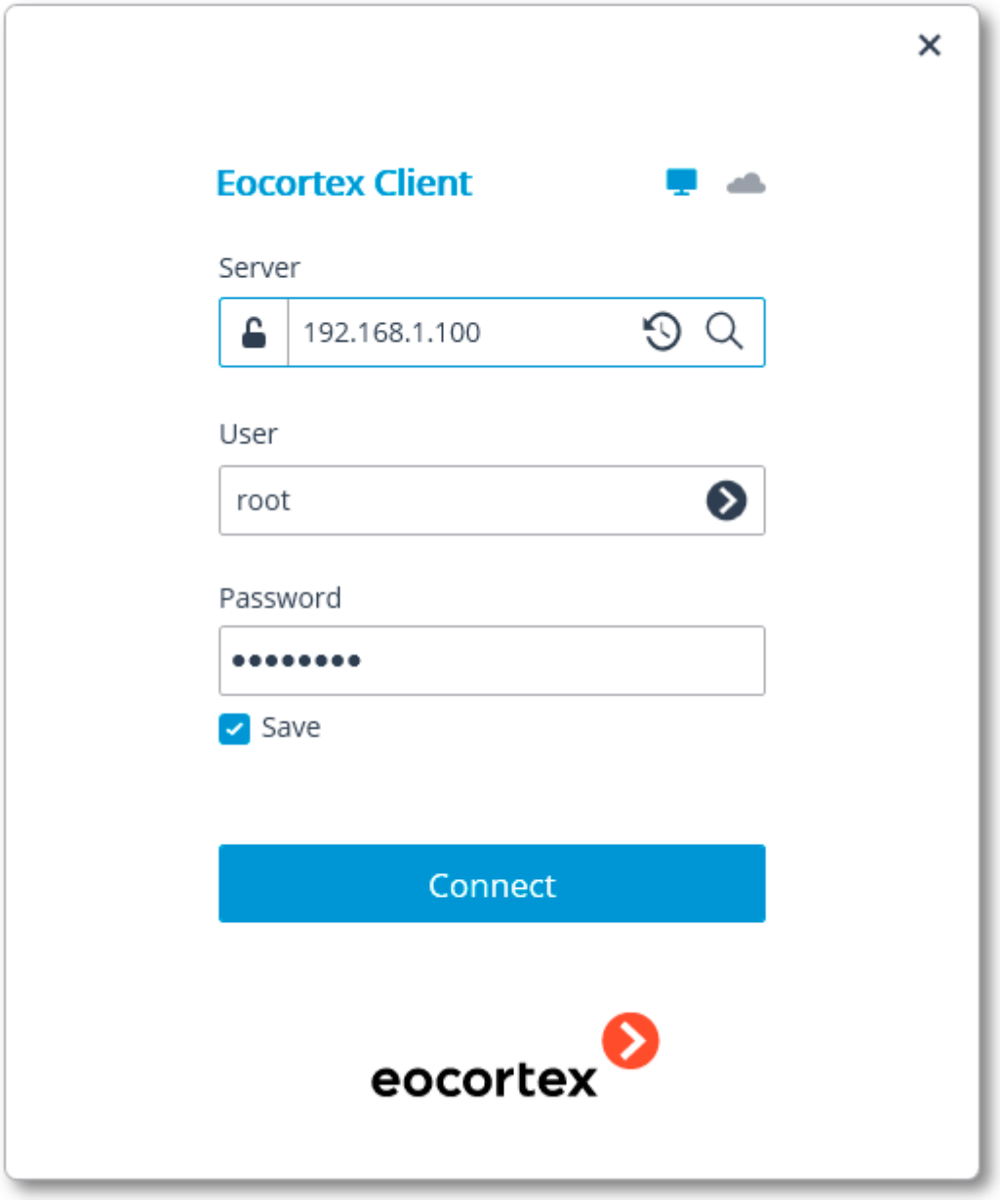
When using **Eocortex Standalone** click **Log in to Eocortex** button in the start screen to run **Eocortex Client**.

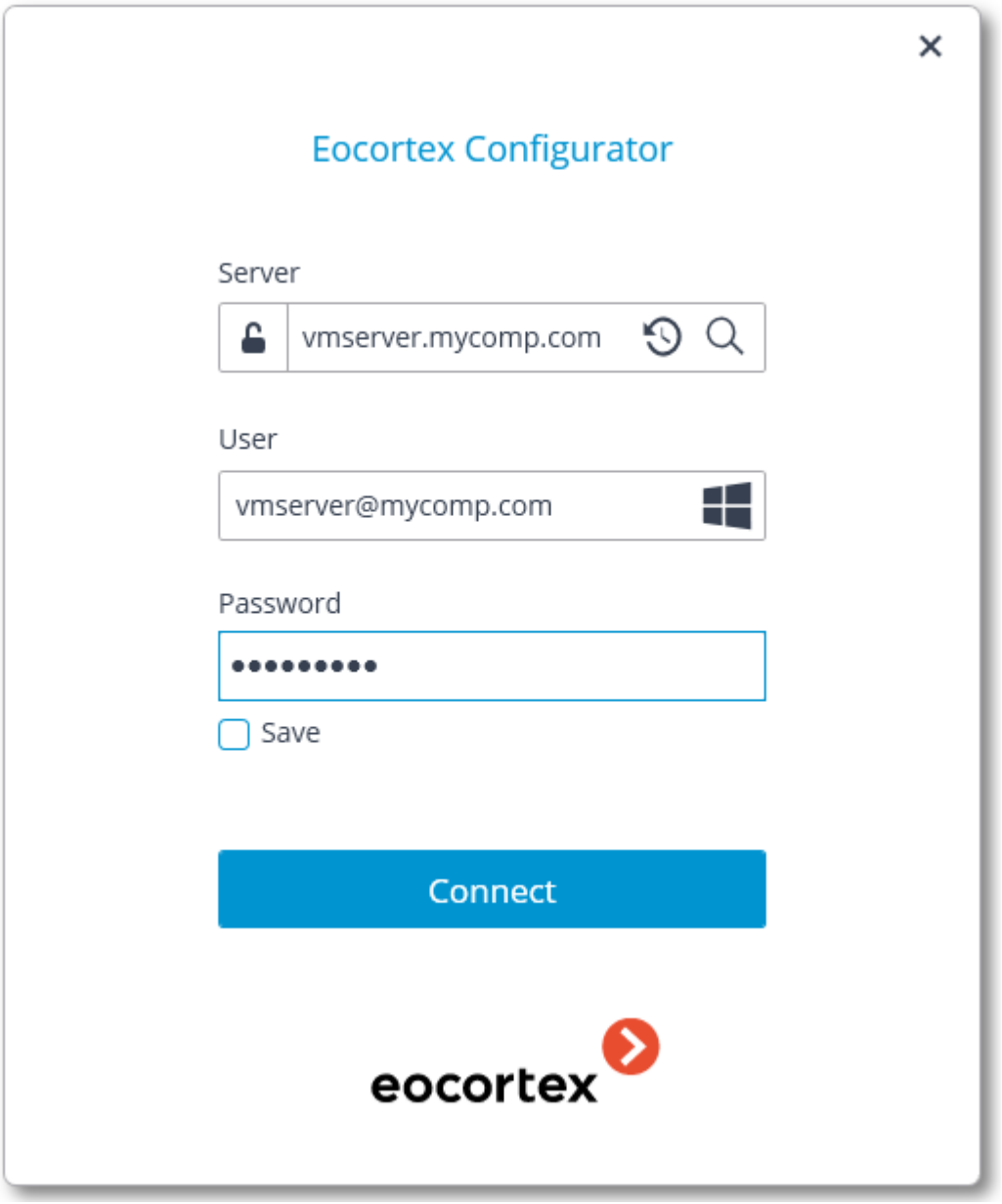


The authorization window will open. It is required to indicate the server address there in the **Server** field (or select the address in the dropdown list to the right of the input field) and the account type (only for **Enterprise** and **ULTRA**), username and password, then press the **Connect** button.

Account type: **Eocortex**; **Active Directory**.

For **Active Directory** accounts, the user name is specified as: **username@domain**; where **domain** is the domain name, **username** is the name of the user in the domain. Registration under an **Active Directory** account is available not for all types of licenses.





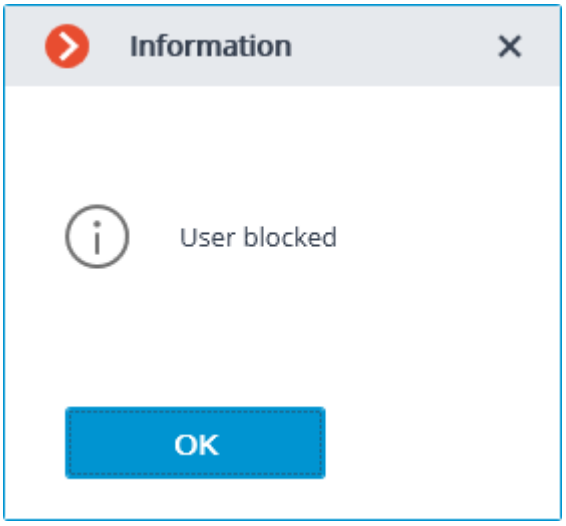
The secure connection to the server via HTTPS is enabled by pressing button located in the left side of the field with the server's address.

Since the capability of a secure connection to the server is set up by the system administrator on the server itself, the parameters of such connection must be obtained from the administrator.

In the cases when it is impossible to obtain the secure connection parameters from the system administrator, it is important to keep in mind that the port explicitly indicated after the two-spot in the end of the connection address line is used for the secure connection. If no port is explicitly indicated, the port **18080** will be used for the secure connection.

The system administrator can forbid the connection to the server using the insecure protocol. Such servers will always require a secure connection.

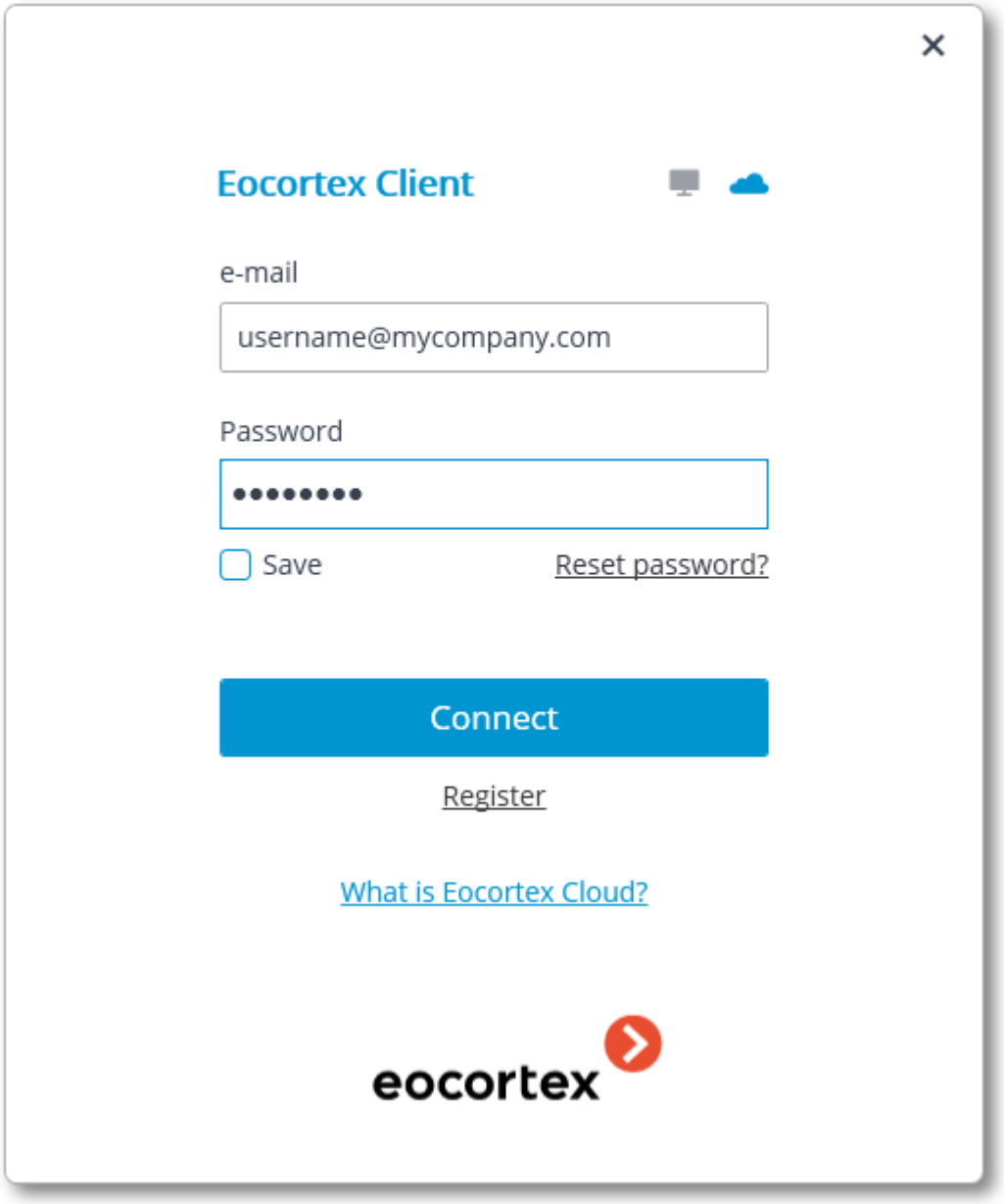
A user can be blocked by the video surveillance system administrator. In this case, a window with a corresponding message will open.



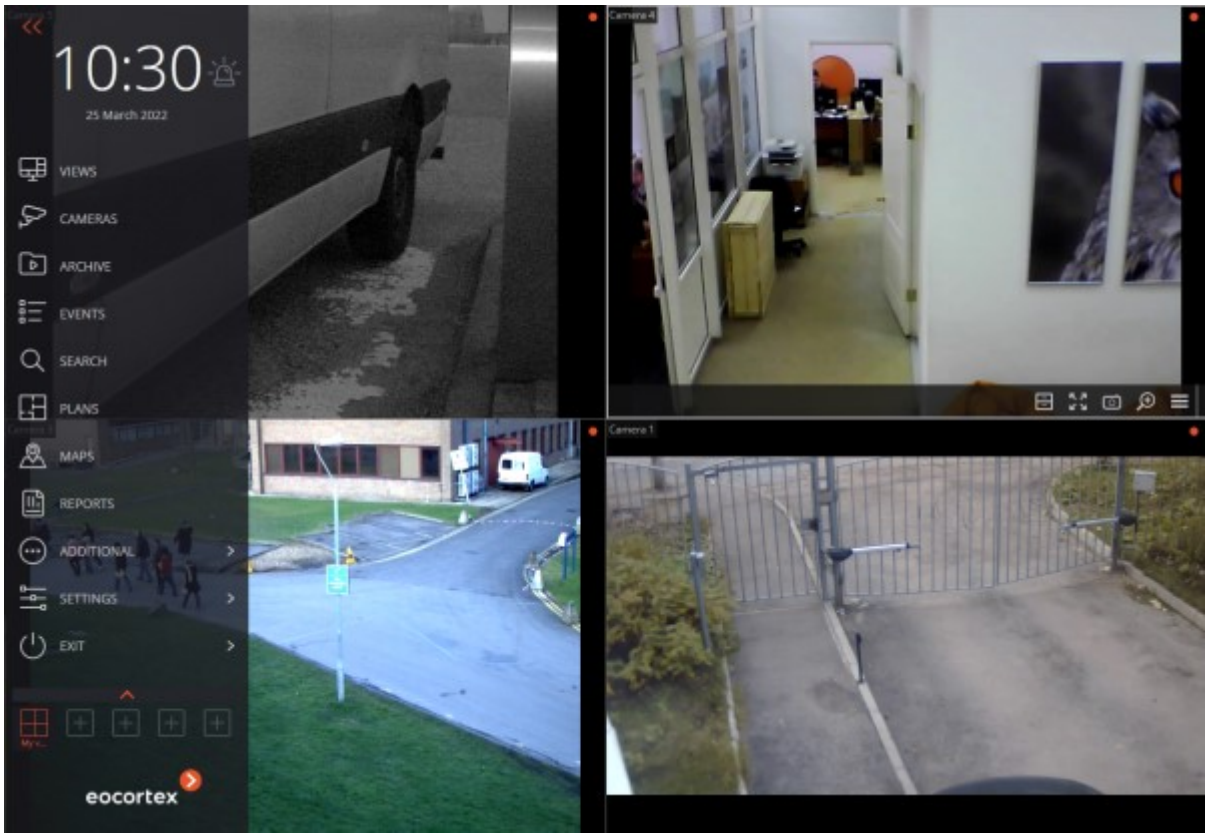
Contact the **Eocortex** system administrator for user name and password, server address and account type.

The opened login window when turning on the computer means that **Eocortex Client** starts automatically.

When logging into **Eocortex Cloud**, it is not required to specify the server address, since it is the same for all users. In addition, the authorization form for the cloud service allows not only logging in, but also registering in **Eocortex Cloud**.


Eocortex Client
e-mail
username@mycompany.com
Password
Save
Reset password?
Connect
Register
What is Eocortex Cloud?
eocortex

Main Window



Eocortex Client main window consists of the **Workplace** (with the channel grid) and the **Control Panel**. The active cell in the channel grid is framed.

Control panel

In order to display the control panel, it is required to click on the button located in the upper left corner of the window.

The clock and the user alarm activation button can be found in the upper part of the control panel. The items of the main menu are located under the clock. The view selection menu is in the lower part of the panel.

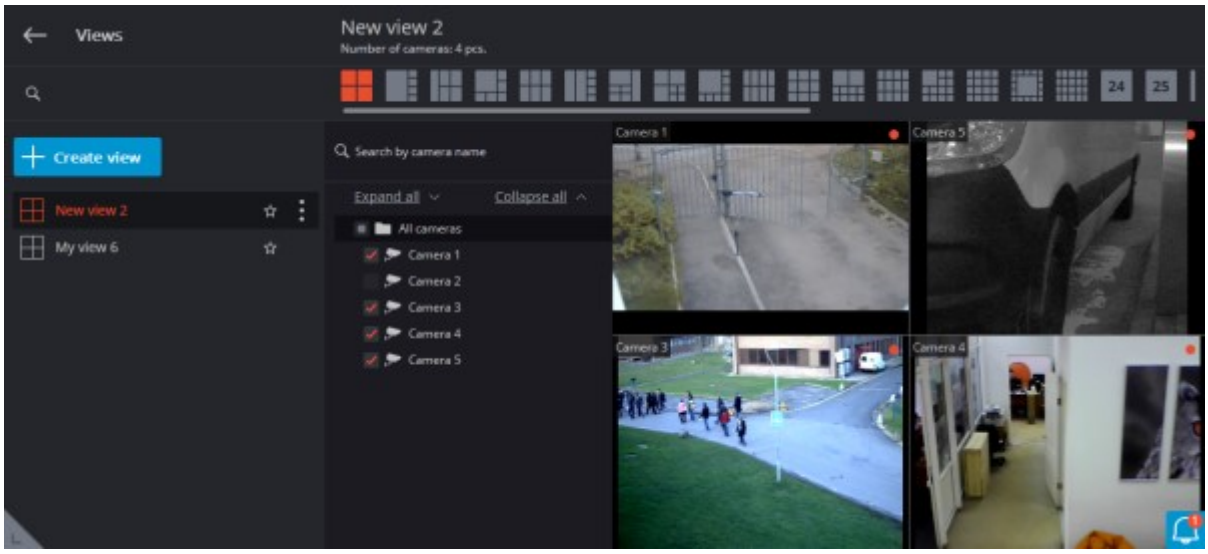
Some items are only displayed when the corresponding features are available for the user.

The **Alarm activate/deactivate** button that enables/disables the user alarm is placed to the right of a clock.

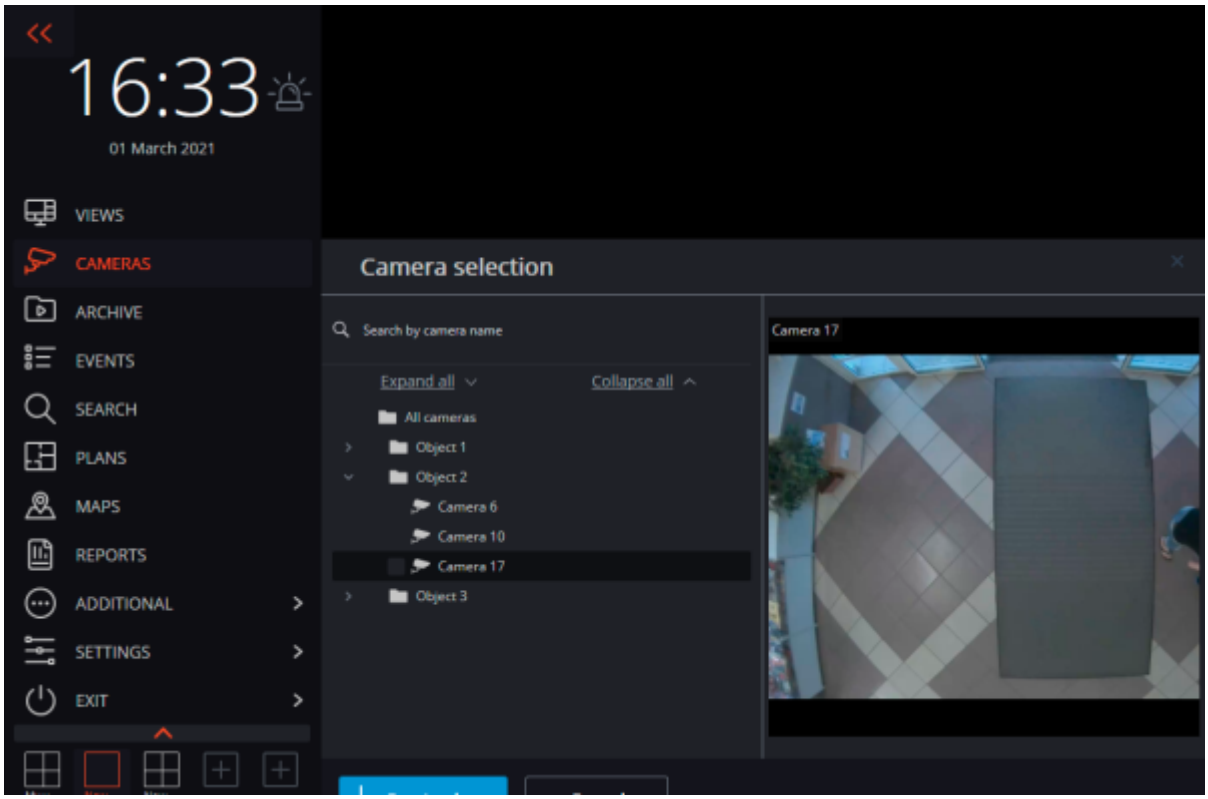
The cameras for which the user alarm is enabled, the actions that are performed upon the activation of the user alarm, and the displaying of the **Alarm activate/deactivate** button are set in the workstation settings.

Below you will find the description of the control panel items:

Views opens the **Views** page.



Cameras item allows to select the cameras to be displayed on the screen.



After selecting cameras, it is required to press the **Create view** button. This will display the selected cameras on the screen without names, using the most suitable grid.

Synchronous archive opens Simultaneous archive viewing from multiple cameras.

Events opens Events log.

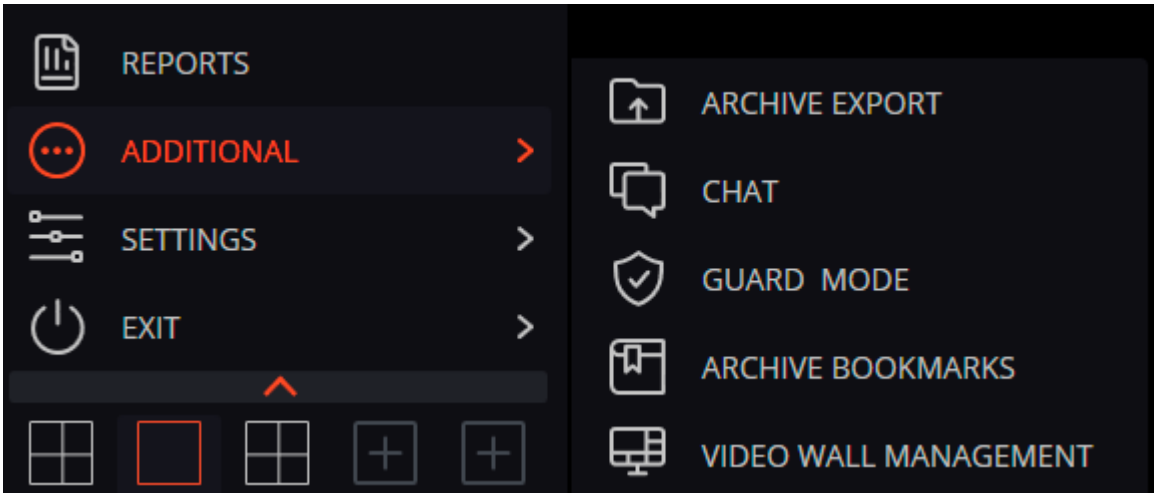
Search opens Search for Objects.

Plans opens Object plans.

Maps opens Maps.

Reports permits to create reports available for the current user.

Additional opens the submenu that contains the following items:



Archive export performs the export of the archive.

Chat opens the internal chat.

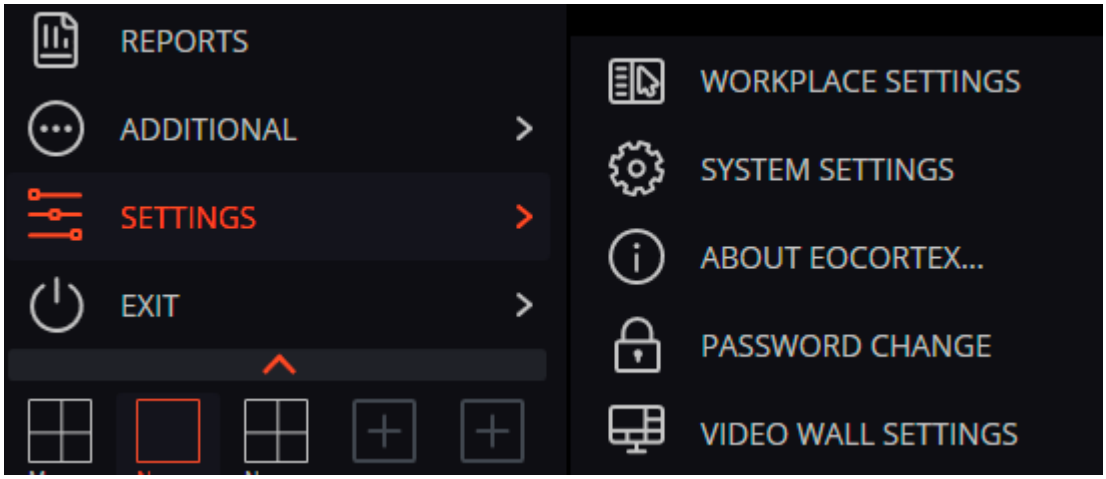
Guard mode allows setting up the guard mode.

Archive bookmarks opens the archive bookmark log.

Video wall management permits to manage the video wall.

This submenu can also contain items that open the face and license plate recognition databases in case the corresponding modules are used in the system.

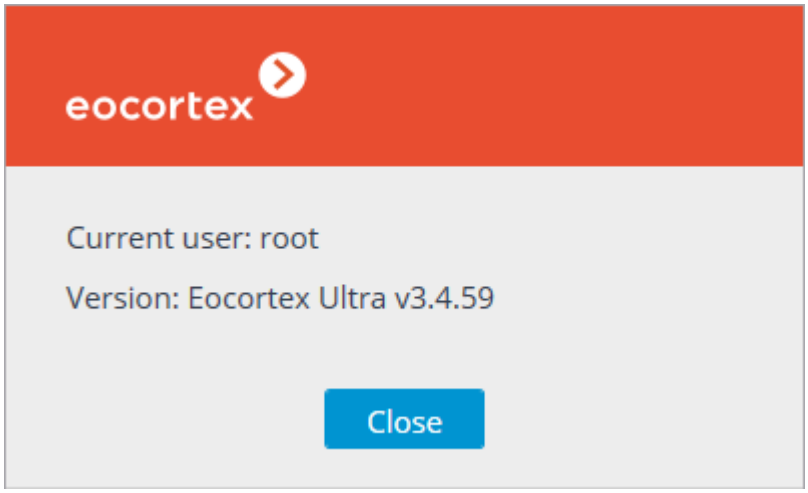
Settings opens the submenu that contains the following items:



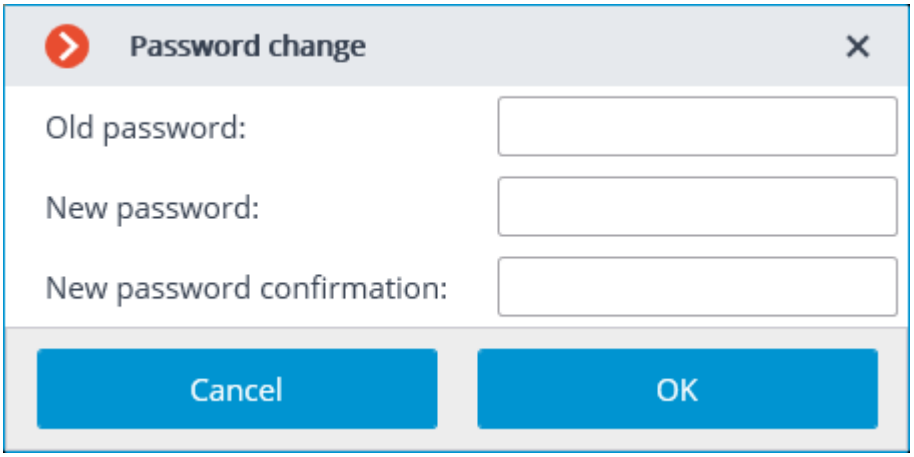
Workplace settings opens the Workstation settings.

System settings launches the Eocortex Configurator application.

About Eocortex... opens the information window.

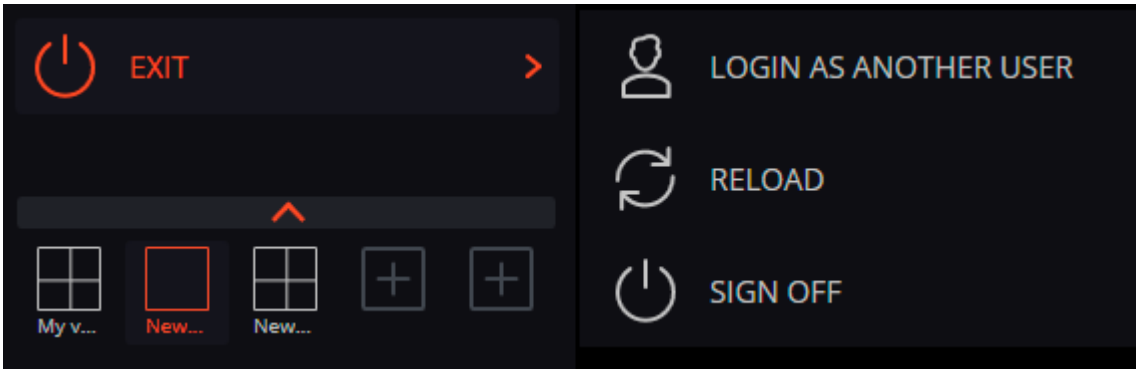


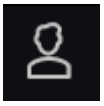
Password change permits to change the password.



Video wall settings allows to set up the video wall.

Exit opens the submenu that contains the following items:





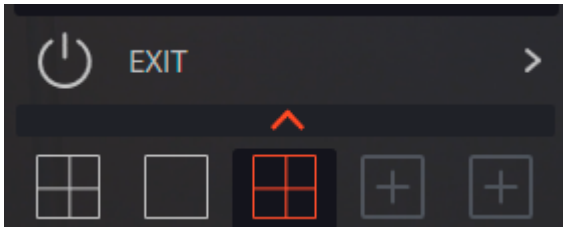
Login as another user allows changing the user. When this item is selected, the main window closes and the authorization window opens.

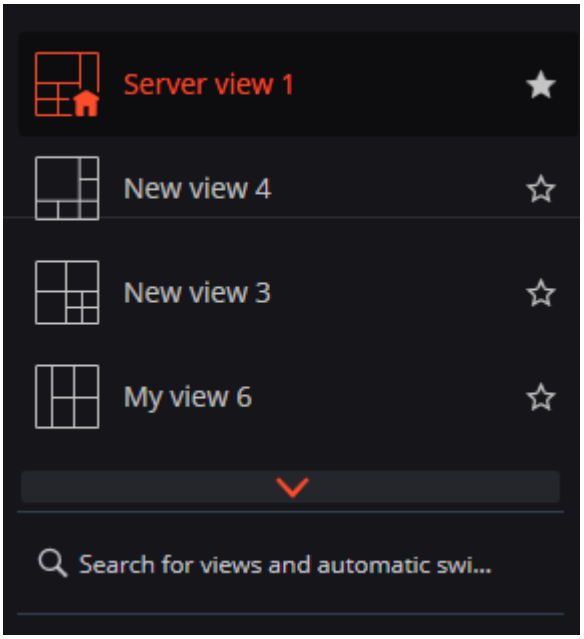
Sign off shuts down the application.

Reload restarts the application without the necessity to perform a reauthorization.

Selection of views

In the lower part of the control panel there is a menu that permits to choose one of the preset screen views, or to activate the automatic screen view switching mode.





Setting the server views and the automatic screen view switching lists is performed by the administrator of a video surveillance system in the **Eocortex Configurator** application. Client views are set up in the view editor.

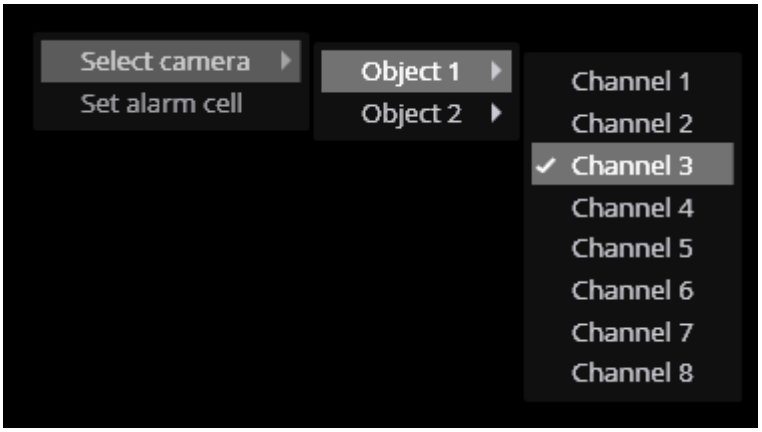
This menu does not display views and automatic switches that do not contain any cameras available for the current user.

Current view

The cameras can be dragged between the cells of the current view by holding the left mouse button. If the view cell where the camera is being moved is occupied, the cameras swap their places.

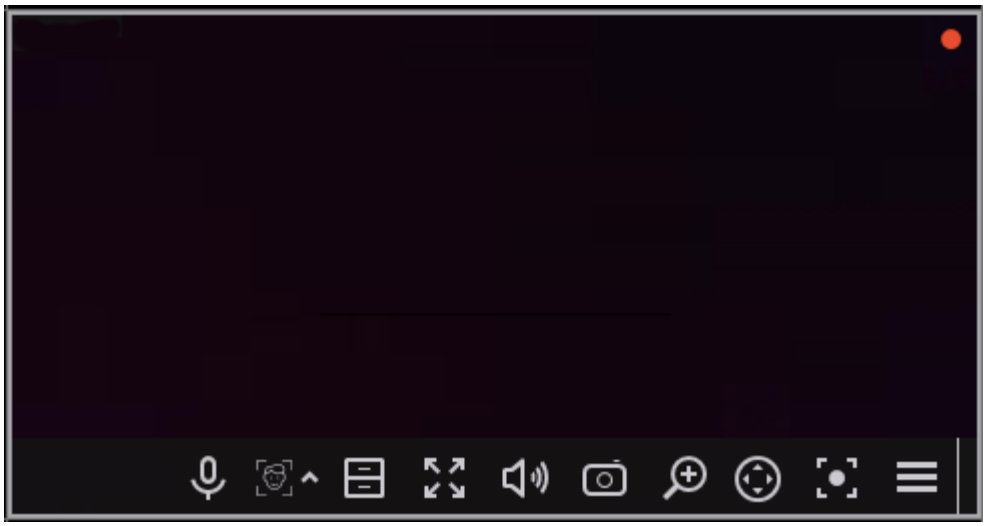
One of the cells of the view can be active. The active cell is highlighted by a frame. To activate a cell, it is required to click inside it with the mouse.

By clicking in the empty view cell, it is possible to select a camera in the list that opens, or in the camera selection window.



It is also possible to select a camera in the active cell using the context menu by opening it and choosing the **Select camera** item.

Camera view cell



To make the control buttons of the camera cell available, click somewhere inside the cell.

All commands that can be executed by pressing buttons in the interface of the cell, can be performed through the context menu as well.

Cell control buttons

If the archive is being recorded for the camera placed in the cell, the recording indicator is displayed in the right top corner of the cell: .

: enables audio transmission from the microphone of the client workstation to the camera speaker.

Two operation modes are available:

Holding the button: The microphone works as long as the button is held down;

Switching the button: Clicking the button turns the microphone on and off.

The microphone mode must be specified by the system administrator in the settings of the current workstation.

: Switches the cell to the single camera archive view mode.

: Expands the cell to full screen.

Switching between grid mode and full screen mode can also be done by double-clicking in a cell.

: saves a frame to disk.

: Opens the volume control.

The icon appears in the following cases:

- Receiving sound from the camera is not configured.
- Receiving sound from the camera is configured, but no sound is being transmitted from the camera.
- The sound from the camera is being transmitted, but the user has muted the sound in the cell.

: enables the zoom mode. When this mode is enabled, selecting areas of the frame with the mouse enlarges them by the entire cell.

: displays the PTZ control interface in the cell.

: enables the recording of the next 15 minutes to the archive.

If any of the described buttons is not displayed in the cell, it means that the corresponding feature on the camera is either not enabled or not available to the current user.

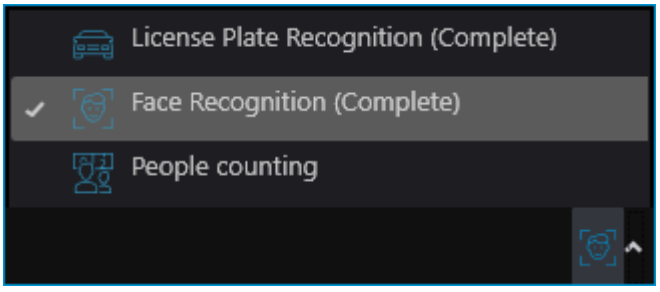
Buttons for video analytics modules

If any video analytics modules are enabled for the camera, additional interface elements of some of them can be enabled using the buttons. The following buttons are available:

: Crowd Monitoring

: Auto Zoom

: The button that allows to display and hide the interface of the selected module. The visual appearance of the button depends on the selected module, displaying its icon. The module to control by this button can be selected by clicking the button.



The following modules can be selected:

Face Recognition

License plate recognition

Object Classification and Counting

People Counting

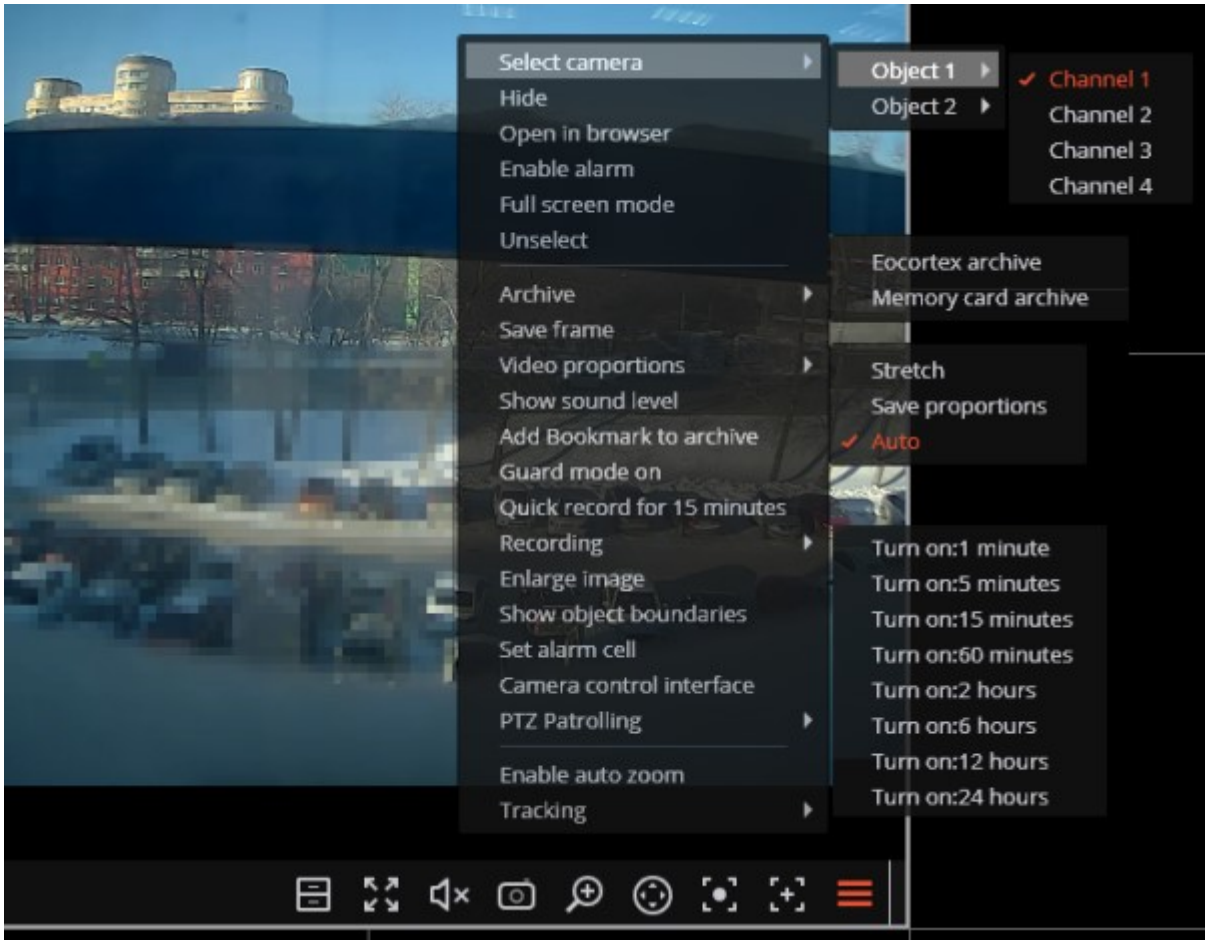
Cell context menu

The context menu can be invoked in two ways:

By clicking the icon in the right bottom corner of the cell.

By right-clicking anywhere in the cell.

The number of menu items may be different from below, depending on the settings of camera, archive and client workstation.



Description of the menu items:

Select channel: Allows selecting one of the available cameras to be displayed in the selected cell.

Hide: Removes the camera from the cell (frees the cell).

Open in browser: Opens the camera web interface in browser.

Enable alarm: Turns on the alarm in the cell.

Full screen mode / **Exit Full screen mode**: Switches the camera display between full screen and grid mode.

Switching between grid mode and full screen mode can also be done by double-clicking in a cell.

Unselect: Removes selection from the cell (makes it inactive).

Archive: Switches the cell to View the single camera archive mode.

The access to the following archive types is possible:

Eocortex Archive: The archive stored on the Eocortex server.

Memory card archive: The archive stored on the memory card of the camera.

Save frame: Saves the frame (frame fragment) to the selected location.

Video proportions: Allows selecting frame proportions.

Show sound level: Displays the volume control element at the bottom of the cell.

Add Bookmark to archive: Opens the Archive bookmark creation window.

Guard mode on/off: Enables/disables the **Guard mode** for the camera.

Quick record for 15 minutes: Enables the compulsory video recording from the camera to the archive for 15 minutes

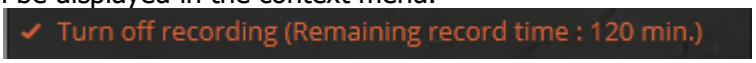
Recording: enables the compulsory video recording from the camera to the archive for the time interval selected in the submenu.

Compulsory recording to the archive will only be available if the system administrator has set permissions for the camera and the user to record to the archive.

If the compulsory recording is enabled, the recording to the archive will be continuous during the specified time, no matter what recording mode was set by the system administrator for this camera.

When the compulsory recording ends, the recording to the archive will be in the mode set by the system administrator for this camera.

When the compulsory recording is enabled, the **Turn off recording** item with the remaining recording time (**remaining recording time: XX min.**), which stops the recording, will be displayed in the context menu.



To disable compulsory recording, select this option.

If the context menu does not contain **Quick record for 15 minutes** and **Recording** items, it means that archive recording for this camera is set up to the **Always on** (continuous) mode or completely disabled.

Enlarge image: Allows to zoom in on a selected fragment of the frame.

Show objects boundaries: Enables the display of colored rectangular frames for moving objects (when using the software motion detector) and for detected faces (using Face Detection module).

Set alarm cell: The cell in the alarm mode will display the cameras on which the **Alarm** was triggered

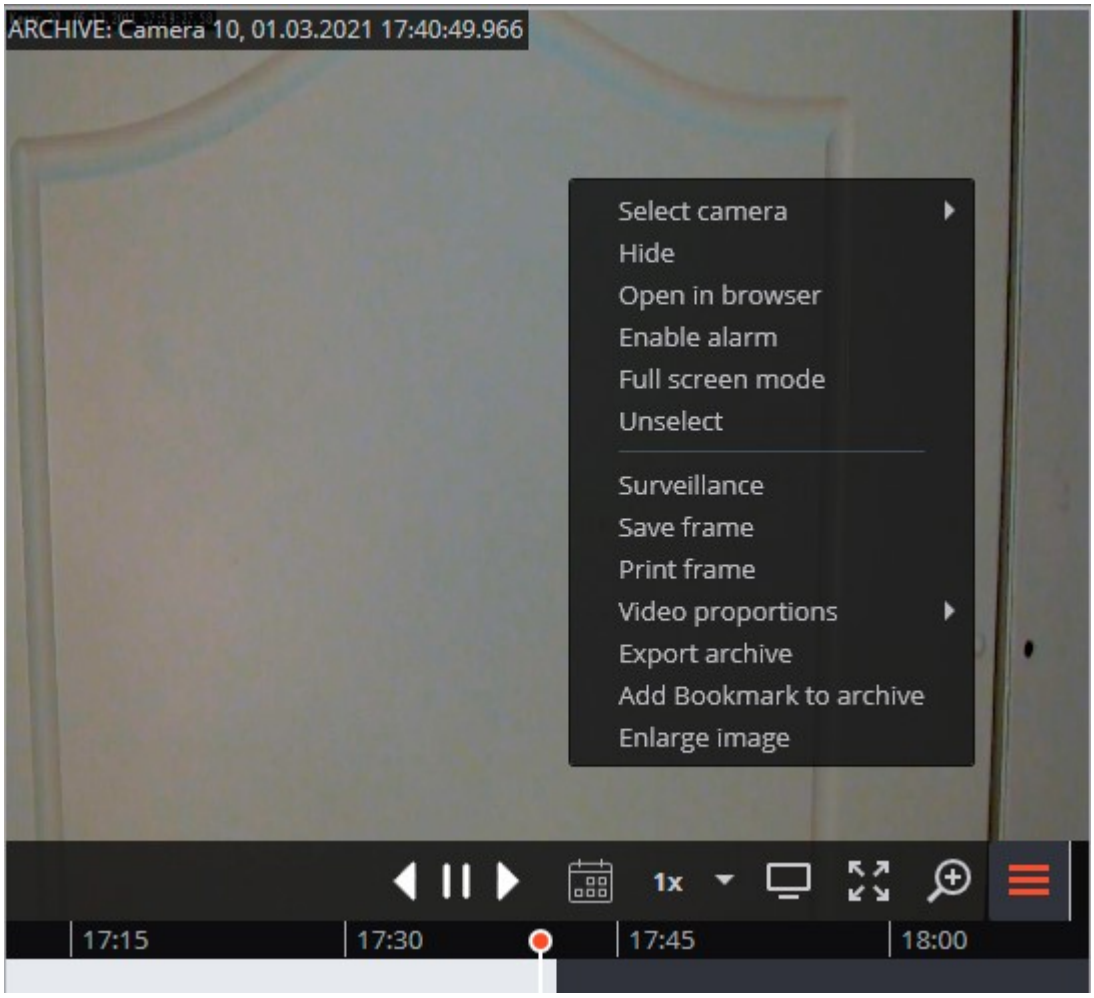
Camera control interface: Enables/disables the PTZ control interface.

Camera position: Allows to set the camera to the pre-configured position (preset).

The items associated with the intelligent modules related to this camera are located at the bottom of the menu. For descriptions of these items, refer to the sections describing the corresponding intelligent modules.

Viewing the single camera archive

To open the camera archive (from the real time view mode), click in the active cell or select **Eocortex Archive** in the context menu: the cell will switch to the archive view mode.



In the bottom part of the cell, there is a **Timeline** with the fragments marked in grey that correspond to the video recordings of the given camera that have been saved in the archive.

The decimated archive is marked with hatching.

The vertical bar shows the place in the archive that is being displayed currently.

To go to the required time moment, click on the corresponding point on the timeline.

To shift the timeline backward or forward, click on it and, holding the mouse button, shift the scale in the required direction.

The time scale can be changed by rotating the mouse wheel while holding the Ctrl button.

Calendar allows going to a particular place in the archive by specifying the exact date and time.

The timeline displays the time of the archive recordings in accordance with the local time of the computer on which they are viewed, while the server stores the archive according to the **Universal Coordinated Time (UTC)**.

As an example:

The server with the **UTC+03:00** time zone settings recorded a fragment of the archive from 12:00 to 12:05 server time.

When viewing this fragment in the **Eocortex Client** application running directly on the server, it will be displayed on the timeline between 12:00 and 12:05.

But when viewing this fragment on a computer with **UTC+05:00** time zone settings, the fragment time on the timeline will be from 14:00 to 14:05.

And when viewing the same fragment on a computer with **UTC+01:00** time zone settings, the fragment time on the timeline will be from 10:00 to 10:05.

Frames encoded in H.264, H.265 and MPEG-4 may freeze during playing, since only the reference frames are displayed. This is due to the specifics of H.264, H.265 and MPEG-4 codec, because the

decoding of intermediate frames requires the whole chain, starting with the last reference frame; when playing backwards it can lead to unnecessary consumption of computer resources.

The playback speeds in the range of 0.1x to 120x are available.

For frame-by-frame playback, move the mouse pointer to the cell and scroll the mouse wheel (down is forwards, up is backwards).

The controls available in the cell in a single camera archive view mode are described below:

Hide/show fragment panel: Hides or shows the fragment panel in the cell.

Surveillance: Switches the cell in the real time video viewing mode.

Suspect Tracking: Switches to Suspect Tracking.

Cross-camera Tracking is only available for cameras for which the Search for Objects module is enabled.

Full-screen mode expands the cell full-screen; in full-screen mode - returns to the grid mode.

The transition between the grid mode and full screen mode is also performed by double-clicking in a grid cell.

Save frame: Saves the frame (frame fragment).

Volume control allows adjusting the sound volume, translated from the archive, and enabling or disabling audio playback. Click the speaker icon to display the volume control. If the sound recording is not set for the archive, then the icon is displayed as in case of the disabled playback. This icon is displayed only when the sound recording to the archive is set for the camera.

The context menu can be invoked in two ways:

By clicking the icon in the right bottom corner of the cell.

By right-clicking anywhere in the cell.

The number of menu items may be different from below, depending on the settings of camera, archive and client workstation.

Select channel: Allows selecting one of the available cameras to be displayed in the selected cell.

Hide: Removes the camera from the cell (frees the cell).

Open in browser: Opens the camera web interface in browser.

Full screen mode / **Exit Full screen mode**: Switches the camera display between full screen and grid mode.

Switching between grid mode and full screen mode can also be done by double-clicking in a cell.

Unselect: Removes selection from the cell (makes it inactive).

Surveillance: switches the cell in the real time video viewing mode.

Save frame: Saves the frame (frame fragment) to the selected location.

Print frame: Prints the frame (frame fragment).

Video proportions: Allows selecting frame proportions.

Show sound level: Displays the volume control element at the bottom of the cell.

Export archive: Exports the archive.

Add Bookmark to archive: Opens the Archive bookmark creation window.

Enlarge image: Allows to zoom in on a selected fragment of the frame.

Set alarm cell: The cell in the alarm mode will display the cameras on which the **Alarm** was triggered

Fragment mode: shows the archive as fragments.

Simultaneous viewing of archive of multiple cameras

Simultaneous archive viewing mode allows simultaneously view the videos from the archive from all the cameras in the grid, in this case the video corresponding to the same point in time will be displayed in all cells.

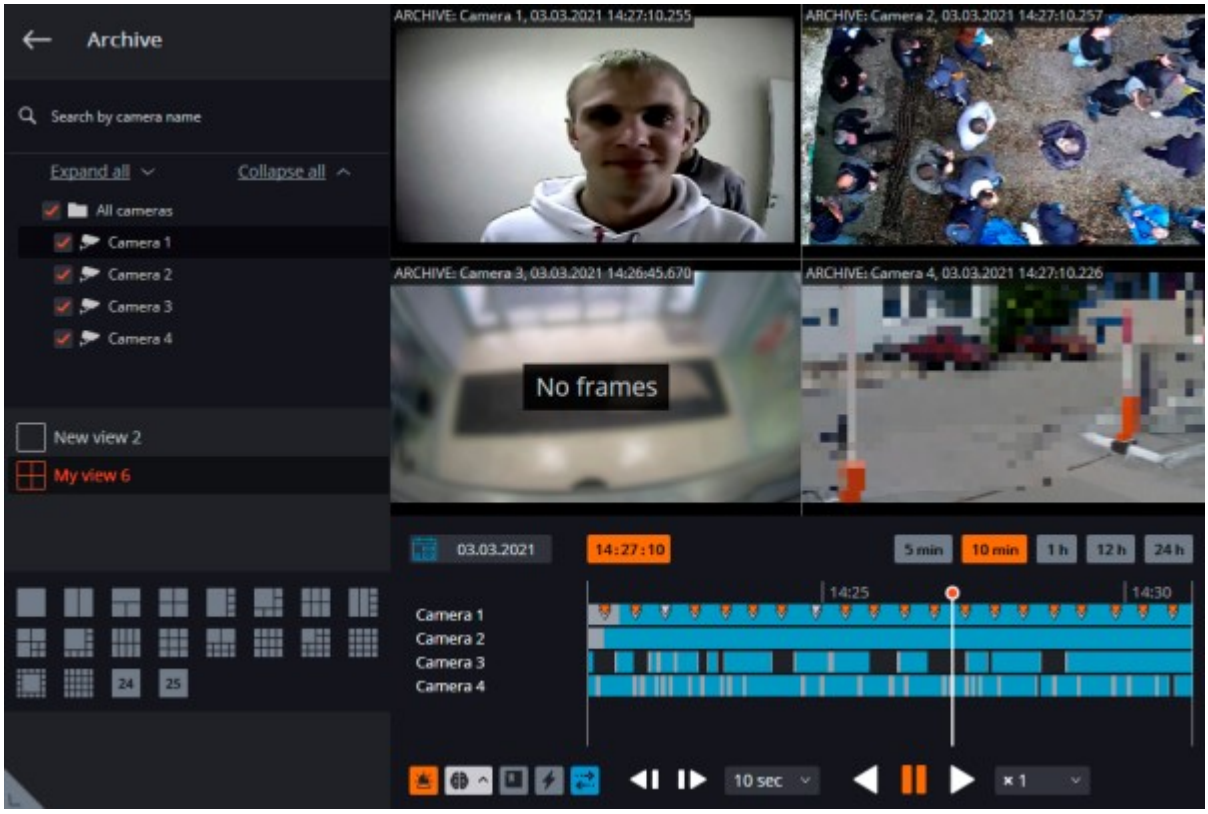
It is possible to simultaneously play back video from up to 25 cameras.

In the **Eocortex Client** application, when simultaneously playing back the archive hosted on a Linux server, in some situations, the archive may not play back when selecting a playback speed higher than x1.

However, the archive will be kept on archive disks in accordance with the archive storage parameters set in the system settings.

The problem described above may be caused by the specifics of the hardware used, the limitations of the data transmission network, and the peculiarities of the system software used on the server.

To switch to **Simultaneous archive viewing mode**, select the **Synchronous archive** sub-item of the **Archive** item in the **Main menu**.



The **Timeline** is located in the lower right part of the page. The fragments of the timeline corresponding to the video recordings for each camera placed on the screen are marked in gray.

The decimated archive is marked with hatching.

The vertical bar shows the place in the archive that is being displayed currently.

To go to the required time moment, click on the corresponding point on the timeline.

To shift the timeline backward or forward, click on it and, holding the mouse button, shift the scale in the required direction.

The time scale can be changed by rotating the mouse wheel while holding the Ctrl button.

Calendar allows going to a particular place in the archive by specifying the exact date and time.

The timeline displays the time of the archive recordings in accordance with the local time of the computer on which they are viewed, while the server stores the archive according to the **Universal Coordinated Time (UTC)**.

As an example:

The server with the **UTC+03:00** time zone settings recorded a fragment of the archive from 12:00 to 12:05 server time.

When viewing this fragment in the **Eocortex Client** application running directly on the server, it will be displayed on the timeline between 12:00 and 12:05.

But when viewing this fragment on a computer with **UTC+05:00** time zone settings, the fragment time on the timeline will be from 14:00 to 14:05.

And when viewing the same fragment on a computer with **UTC+01:00** time zone settings, the fragment time on the timeline will be from 10:00 to 10:05.

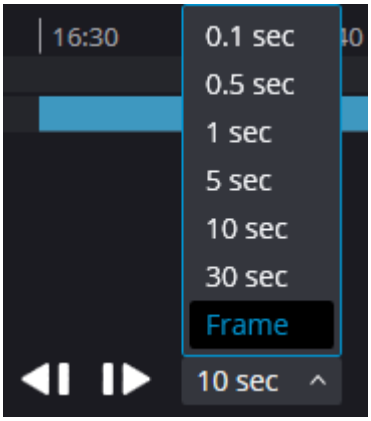
Frames encoded in H.264, H.265 and MPEG-4 may freeze during playing, since only the reference frames are displayed. This is due to the specifics of H.264, H.265 and MPEG-4 codec, because the decoding of intermediate frames requires the whole chain, starting with the last reference frame; when playing backwards it can lead to unnecessary consumption of computer resources.

The scaling buttons that are used for setting the interval to be displayed on the timeline are located above the latter.

The playback controls common to all the cells and the filter buttons are located under the timeline.

The playback speeds in the range of 0.1x to 120x are available.

Frame-by-frame archive playback is available with the following step length: **Frame**, **0.1 sec**, **0.5 sec**, **1 sec**, **5 sec**, **10 sec**, **30 sec**.



With the **Frame** step length, pressing the **Step forward** button performs synchronous playback (considering all selected cameras) up to the first available frame.

Frame-by-frame playback is not available:

- if a camera with an archive source **Archive on data storage card** is used;
- if the playing speed is other than 1x;
- if the archive is playing back.

It is possible to enable the display of movement and various events on the timeline using the filter buttons.

The events will be displayed only when the scale of the timeline is in the range of 1 hour to 5 minutes.
The events located next to each other may be combined under the same mark. In such a case, the events can be divided into separate marks when the scale is enlarged.
Should several events be registered simultaneously, they will be indicated with the same mark whatever the scale. In such a case, it will be possible to view them separately in the Event log.

Filter buttons:

Alarms;

Video analytics;

Bookmarks;

Actions;

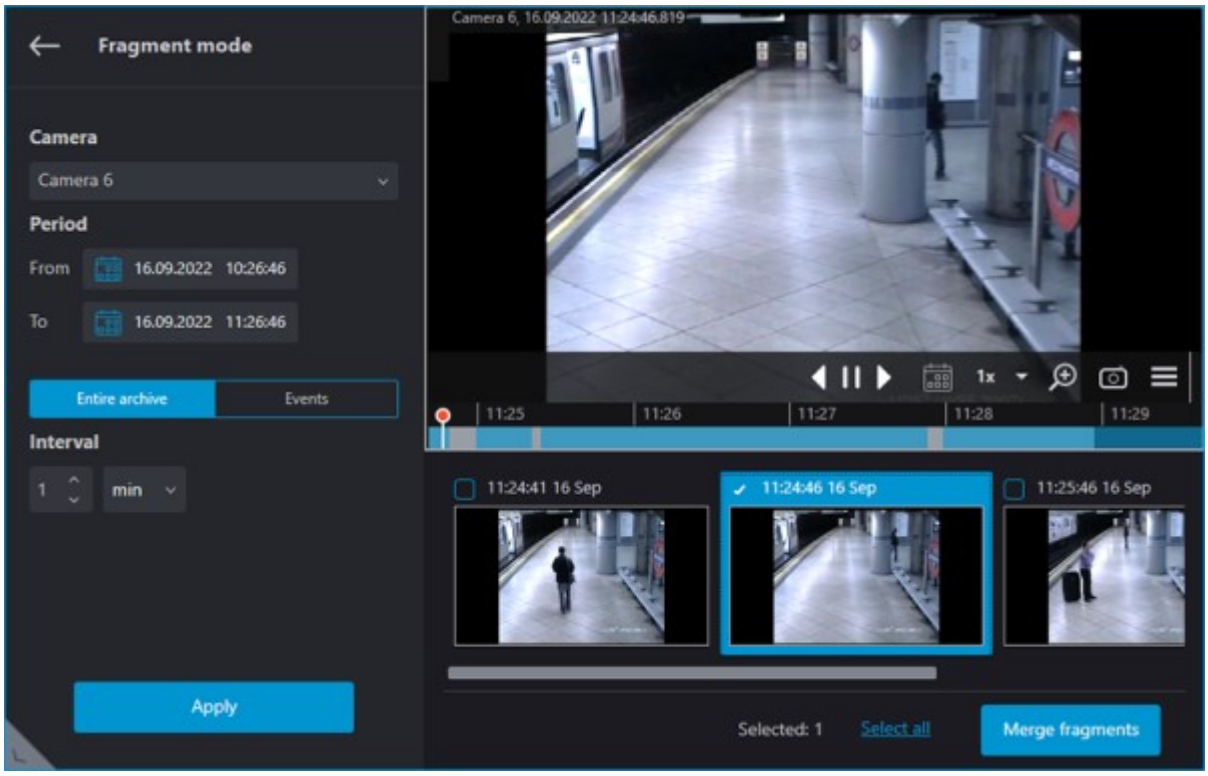
Motion;

Camera analytics.

In the simultaneous mode, one of the cells can be made active — to do this, click inside the cell. In the active cell of this mode available the same control elements, as in the single camera archive viewing mode.

Viewing archive fragments

The **Fragment mode** window displays and plays back fragments of the video archive of one of the cameras.



Fragment mode is available only to those users who have access for viewing the camera's archive.

The **Fragment mode** page displays only the archive stored on the **Eocortex** servers.

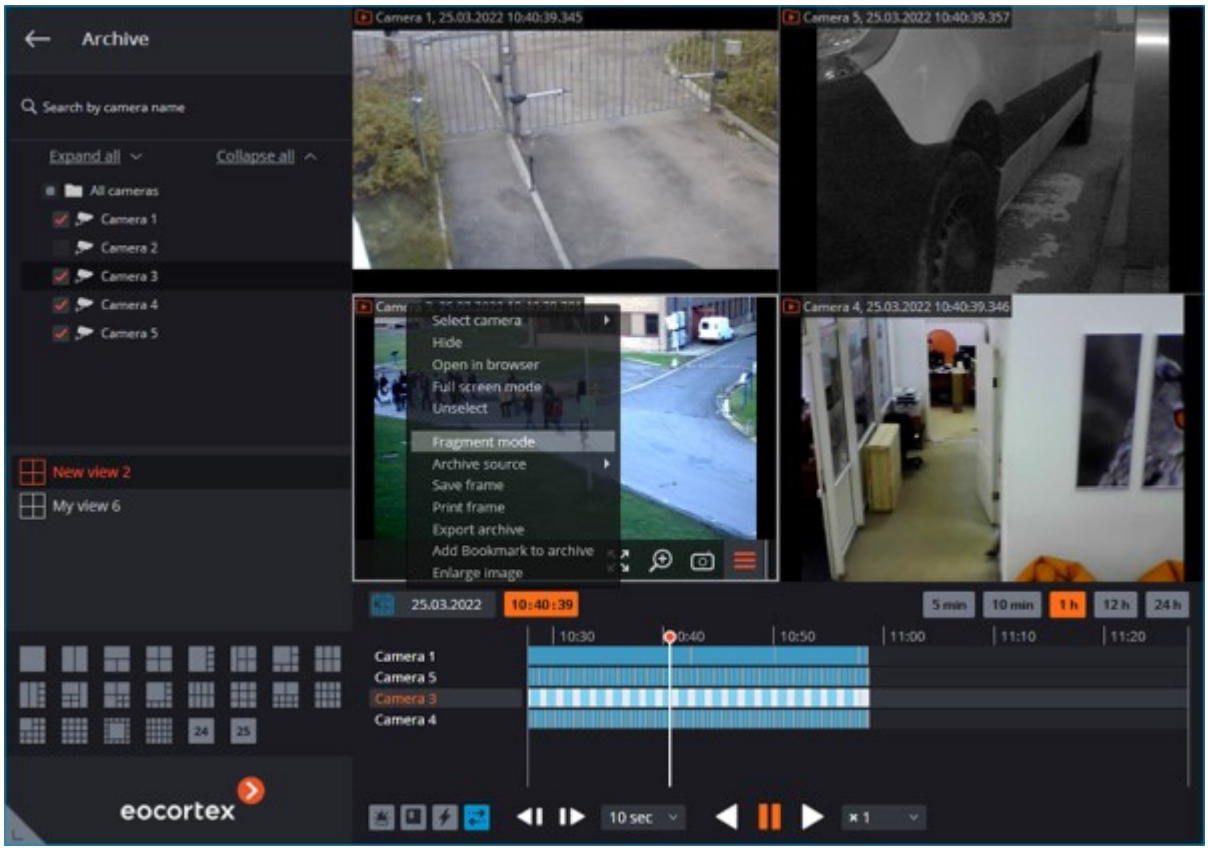
Switching to Fragment mode

Option 1

Select the **Fragment mode** sub-item of the **Archive** item in the **Main menu**.

Option 2

Select the **Fragment mode** item in the context menu of the camera cell when viewing archive in the Single camera or Simultaneous viewing of multiple cameras mode.



To close the **Fragment mode** window, select the **Exit fragment mode** in the context menu or click the ← button in the left upper corner.

The main part of the window in the fragment view mode is filled by the archive playback screen, under which there is a timeline and the archive fragment panel. The left side of the window contains the parameters panel.

Parameters

Switching to **Fragment mode** will automatically generate fragments with default parameters.

Fragments can be generated in accordance with specific criteria. To do this, set the desired values in the parameters panel and click the **Apply** button.

The following parameters are used when generating fragments:

Camera: the camera for which archive fragments will be generated.

Period: the time interval for which the archive fragments will be generated. Allowed values: from 5 minutes to 4 days.

Clicking the **Entire archive** and **Events** buttons defines the fragments generation logic.

Entire archive: fragments will be generated for the entire archive. When using this option, it is necessary to set the length of an individual fragment with the **Interval** parameter.

Events: fragments will be generated for the specific event types.

Message types:

Motion detector

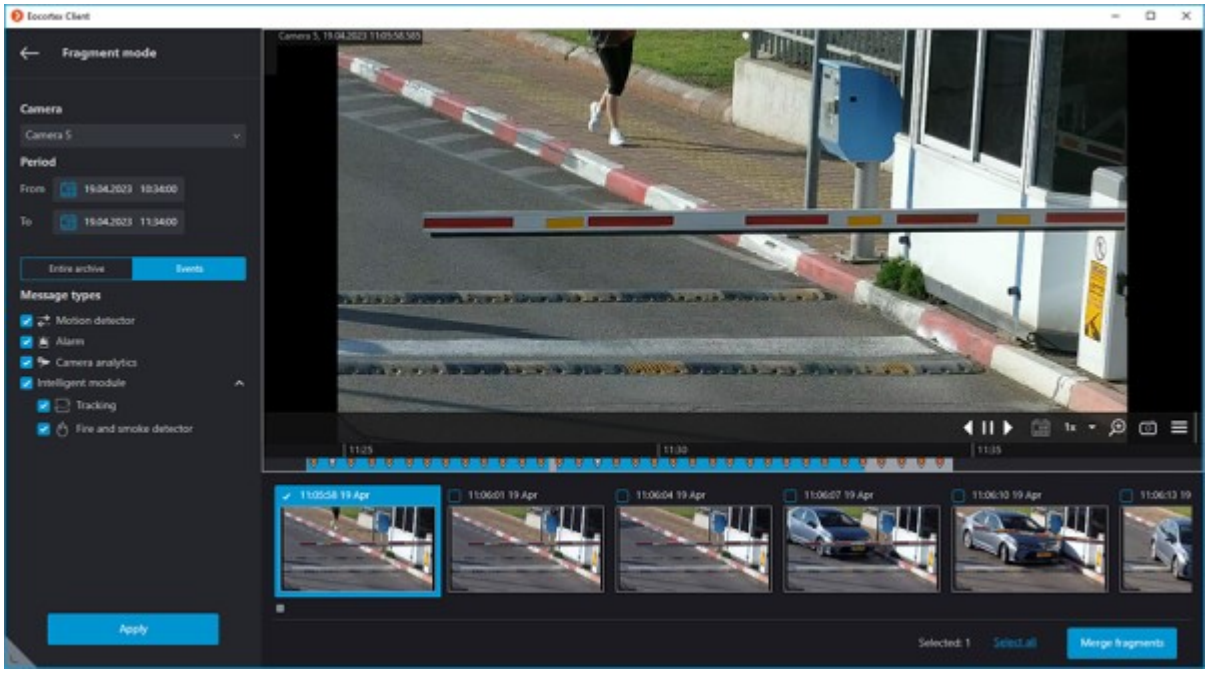
Alarm

Camera analytics

Intelligent modules

The timeline displays marks for recorded events. When several events happened at the same time, they will be marked with the same mark.

In the event selection list, only those video analytics modules available for selection that are enabled and configured for the selected camera.
The event types selection will be retained when switching to another camera.



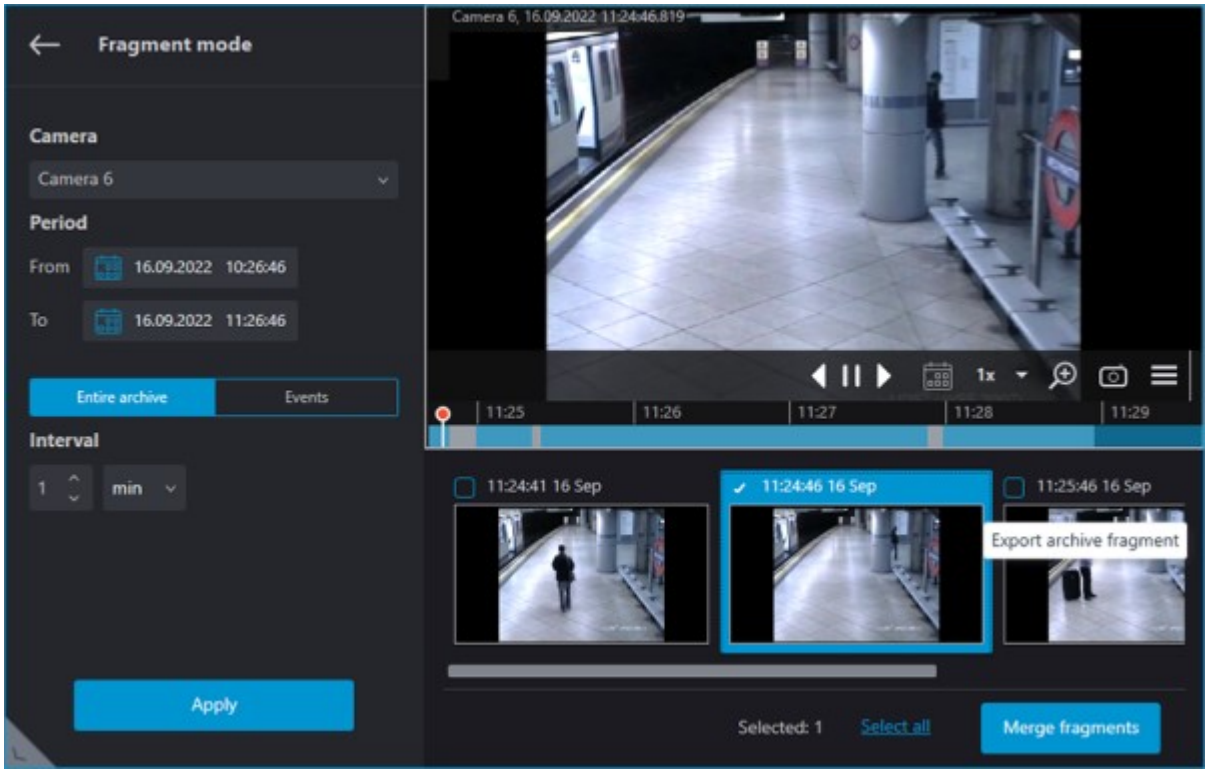
Selected parameters will not be saved when closing the **Fragment mode** window.

Fragments panel

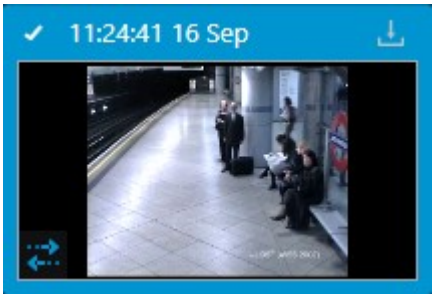
The generated fragments are located in the fragments feed at the bottom part of the window and can be scrolled by rotating the mouse wheel.

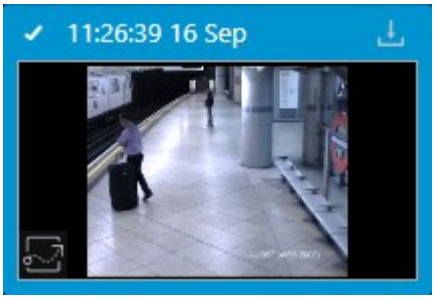
Switching fragments can be performed by pressing ←, →, **Page Up** and **Page Down** buttons. Jumping to the first or last fragment in the sequence can be carried out by pressing the **Home** and **End** buttons, respectively.

Each object in the fragment feed contains a preview with the first frame of the fragment in the middle and the date and time of the fragment in the left upper corner. The right upper corner contains the fragment export button.

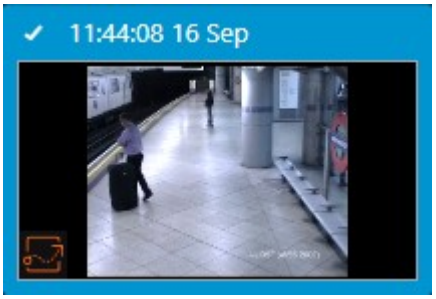


Fragments generated by events have an icon in the lower left corner corresponding to the event type.

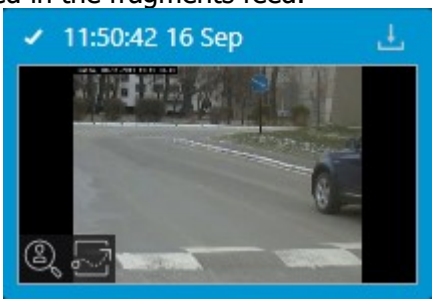




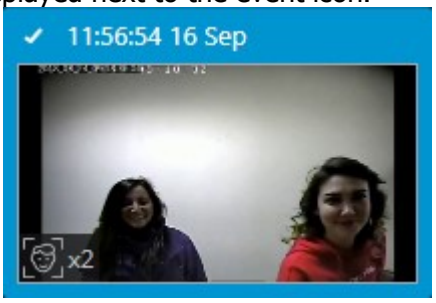
If the event is an alarm event, the icon displayed will be orange.



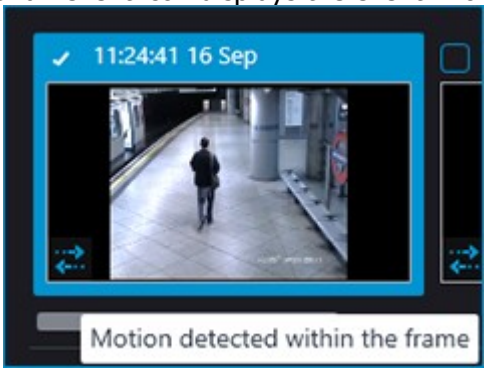
If two different events occurred within the same fragment, the respective icons for each event will be displayed in the fragments feed.



If multiple events of the same type occurred within the same fragment, the number of detected events will be displayed next to the event icon.

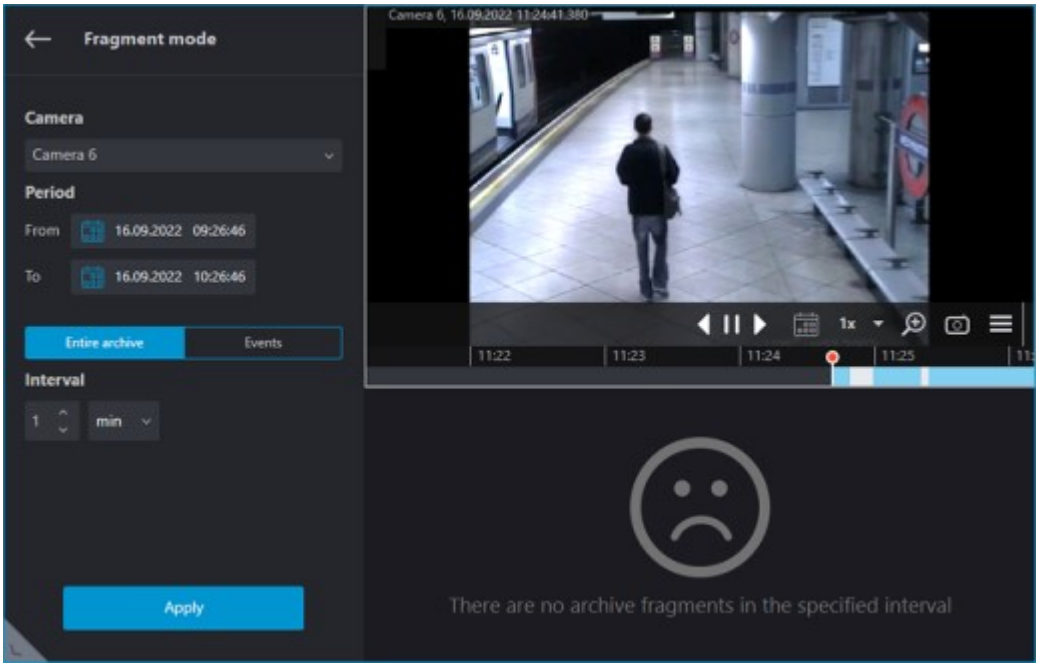


Hovering the cursor over an event icon displays the event information.



If a fragment does not have archive records throughout its length, then such fragment will not be displayed in the fragments feed.

If there are no fragments within the specified period, the feed will remain empty.



The selected fragment is loaded into the playback buffer. In such a case, a download indicator is displayed below the playback screen.

Playback can be controlled with the buttons.

When a fragment is selected, the time pointer on the timeline will be automatically set to the moment the selected fragment starts.

If any fragment is selected during archive playback, the time pointer on the timeline will jump to the start of the selected fragment and playback will continue from this position.

When the playback of the selected fragment is finished, the playback will continue from the next fragment of the archive, but the selection will remain on the fragment from which playback began.

Viewing and exporting fragments

To view and export fragments as a single video, select the desired fragments and merge them.

Multiple fragments can be selected in the following ways:

By enabling checkboxes in the upper left corner of the desired fragment in the feed.

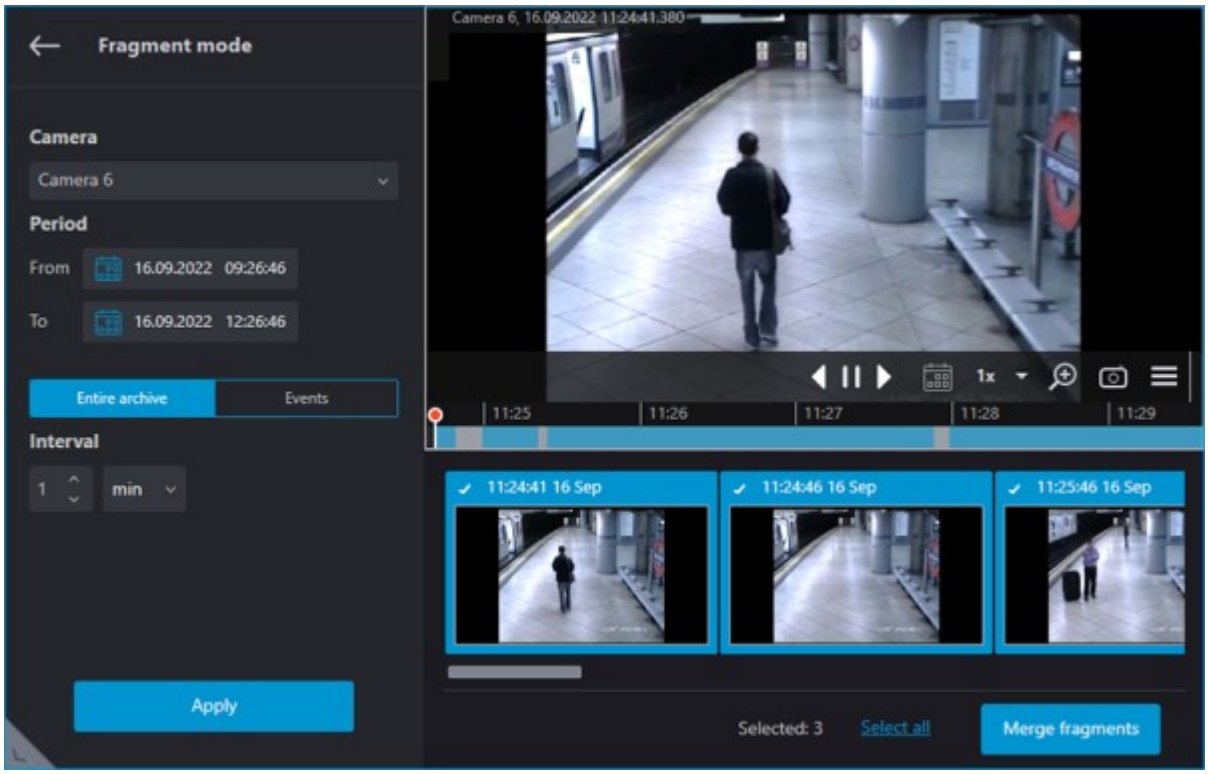
By clicking fragments in the feed while holding down **Ctrl**.

Having selected the first desired fragment and holding **Shift**, select the last desired fragment. All fragments between the first and last will be selected.

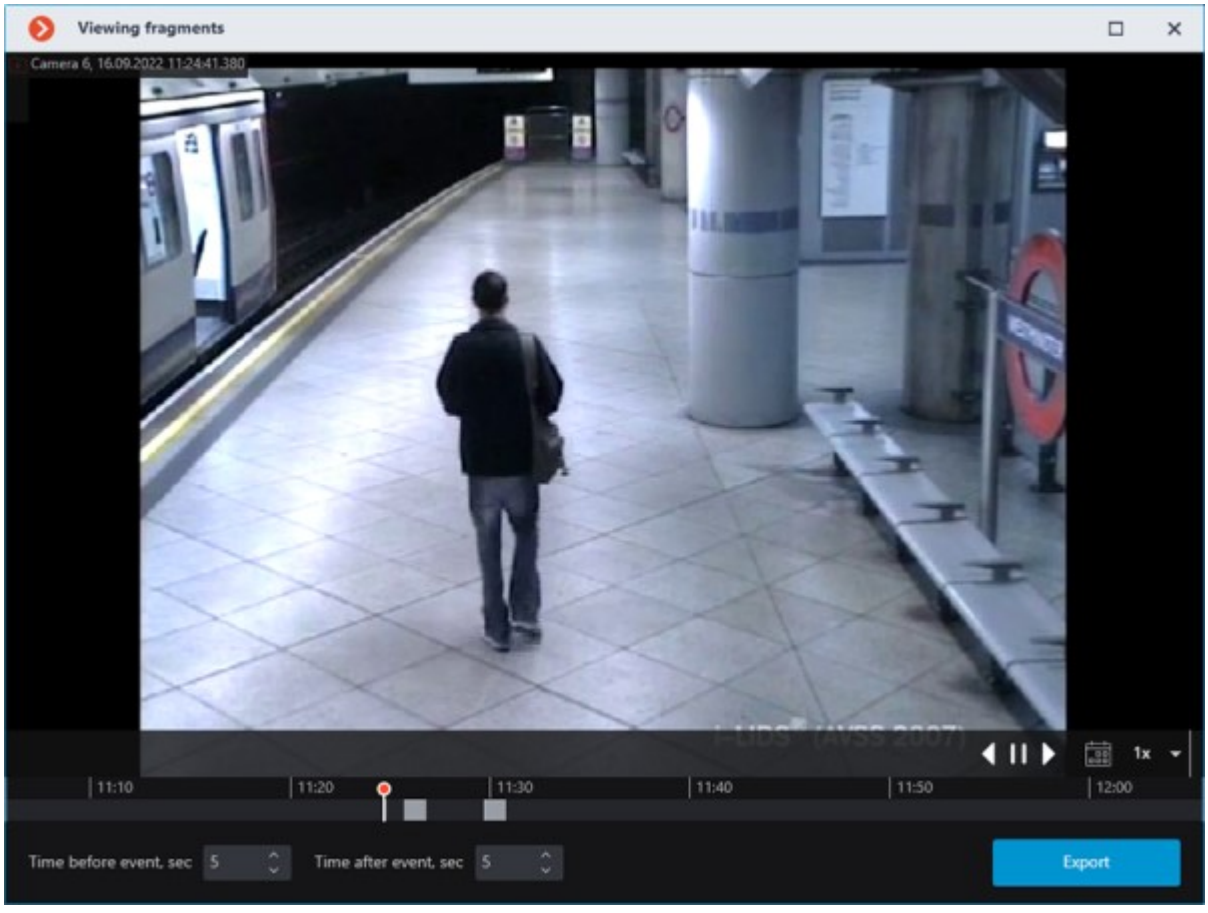
To select all fragments in the feed, click the **Select all** button.

Selection of multiple fragments can be removed by clicking one of the not yet selected fragments.

One fragment is always selected by default.



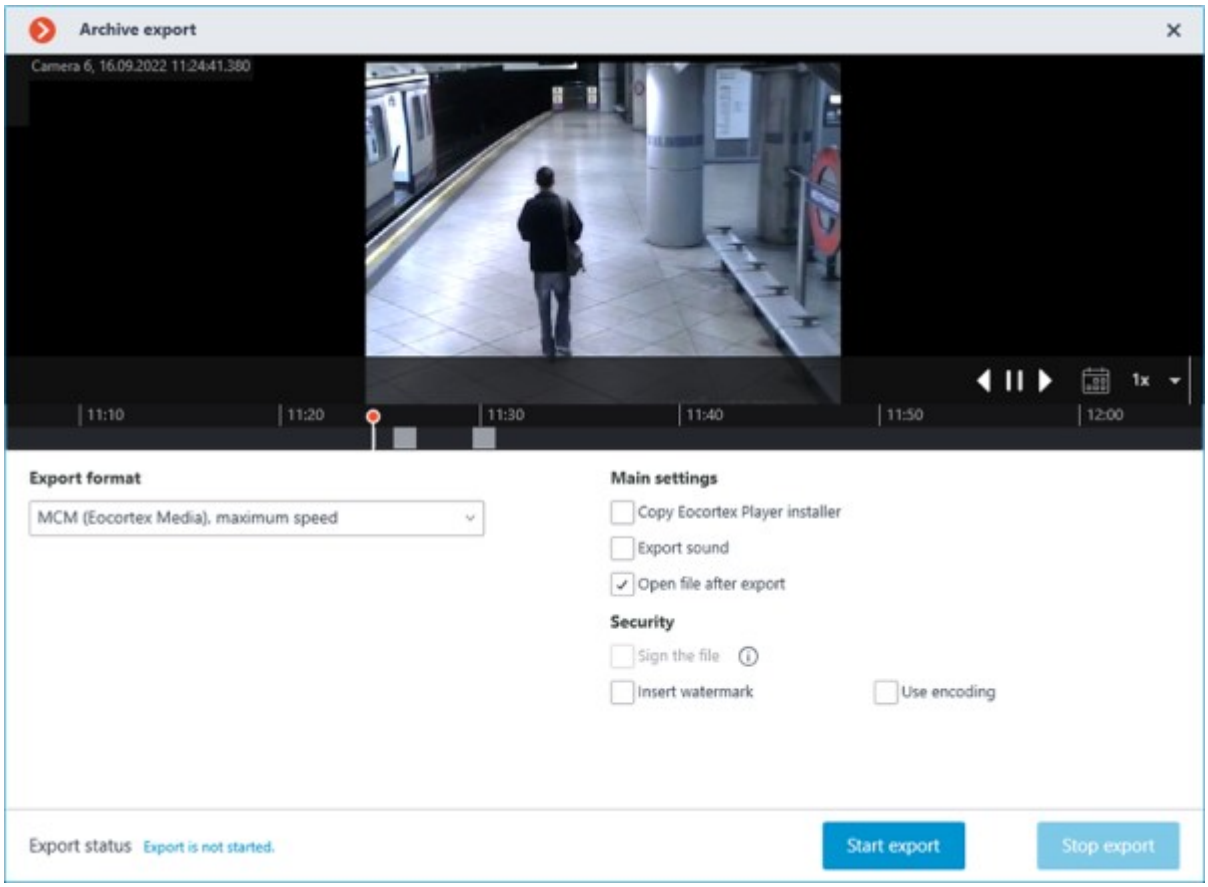
To merge the selected objects to a single video, click the **Merge fragments** button. In the window that opens, the timeline will display archive with only those fragments that have been selected.



The **Time before event, sec** and **Time after event, sec** parameters increase the fragment length by specified time before and after the event. Allowed values: from 5 minutes to 4 days.

Fragments with increased length must not exceed the value of the **Period** parameter.

Clicking the **Export** button opens a window for exporting a video clip merged from selected fragments.



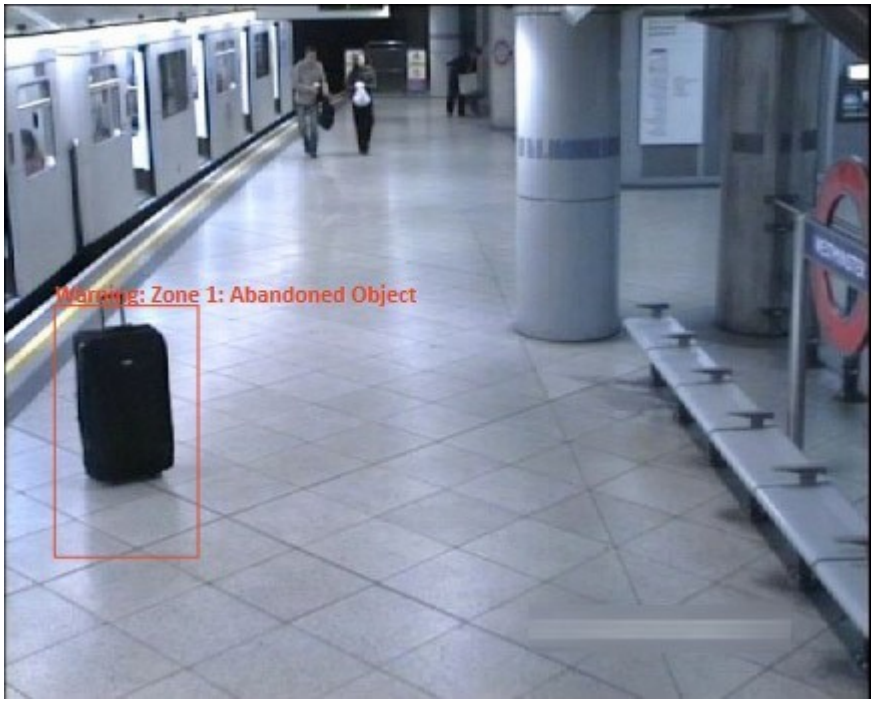
Video analytics

Abandoned Objects Detection

This intelligent module is designed to detect abandoned objects — if an object is left in the frame for over the specified period of time, the operator receives a corresponding alarm and the object itself is "highlighted" on the screen.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

To enable the display of abandoned objects select **Show abandoned** objects in the cell context menu, the abandoned objects will be color framed with **Alarm!** header upon the expiration of time, set by the administrator.



The operator must click inside the frame to react on the event, and the frame will disappear.

All the module events are recorded in the Events log.

Auto Zoom

This displays a separate enlarged area with moving objects.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Auto Zoom functions only when the frame resolution from the camera exceeds the cell size. If the resolution from the camera is less than or equal to the cell size, the separate area will not be zoomed.

To enable **Auto Zoom** during real-time viewing select **Enable Auto Zoom** in the cell context menu.

Thereafter, in real time mode when fixing the motion in the frame the zoomed area with the objects detected by motion detection software will be displayed.

The image will be scaled in such a way that all currently moving frames were included in the frame.

The following method may be helpful:

One and the same channel that uses **Auto Zoom** is located in **Eocortex Client** in neighboring grid cells. The **Enable Auto Zoom** is activated only for a single cell. Thus, it is possible to simultaneously display both the entire frame and the zoomed area with moving objects.

The figure below shows such example: In the left frame **Enable Auto Zoom** is enabled, in the right it is disabled.

Cross-camera Tracking

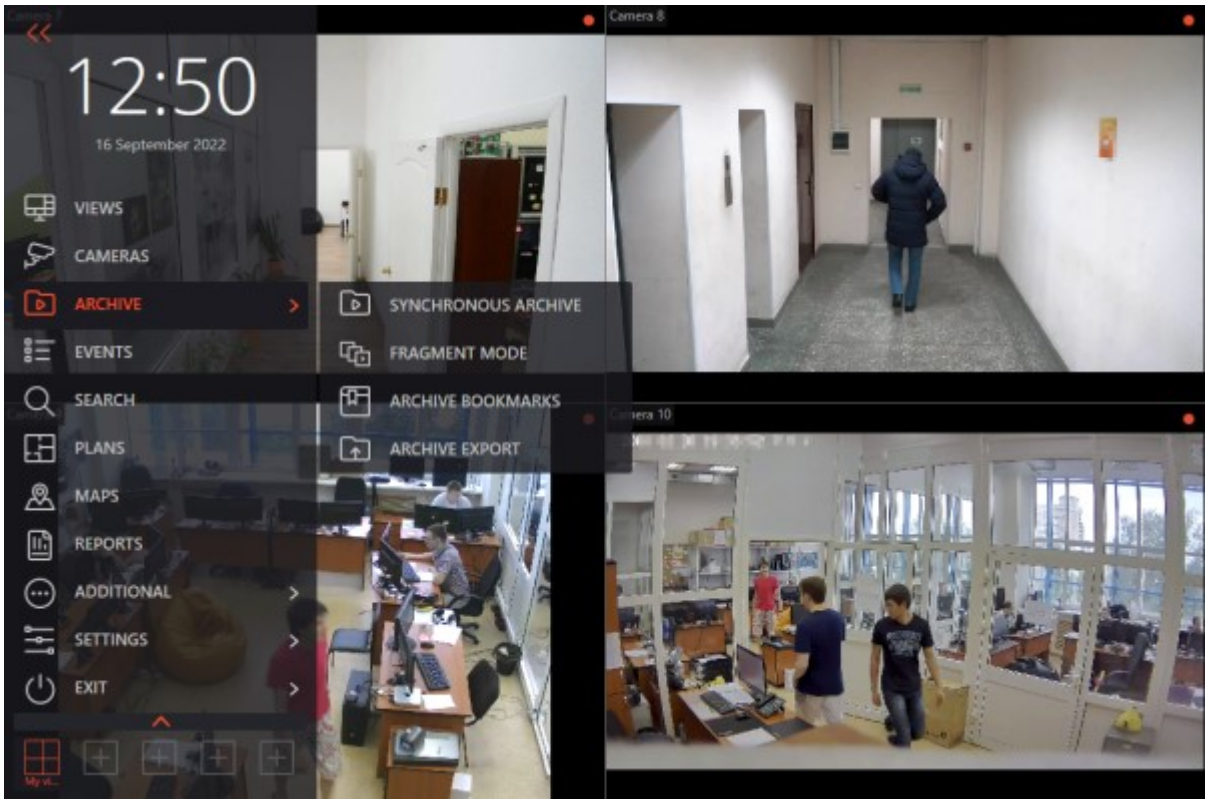
Cross-camera Tracking allows to sequentially track the movement of a person going through different cameras of video surveillance system.

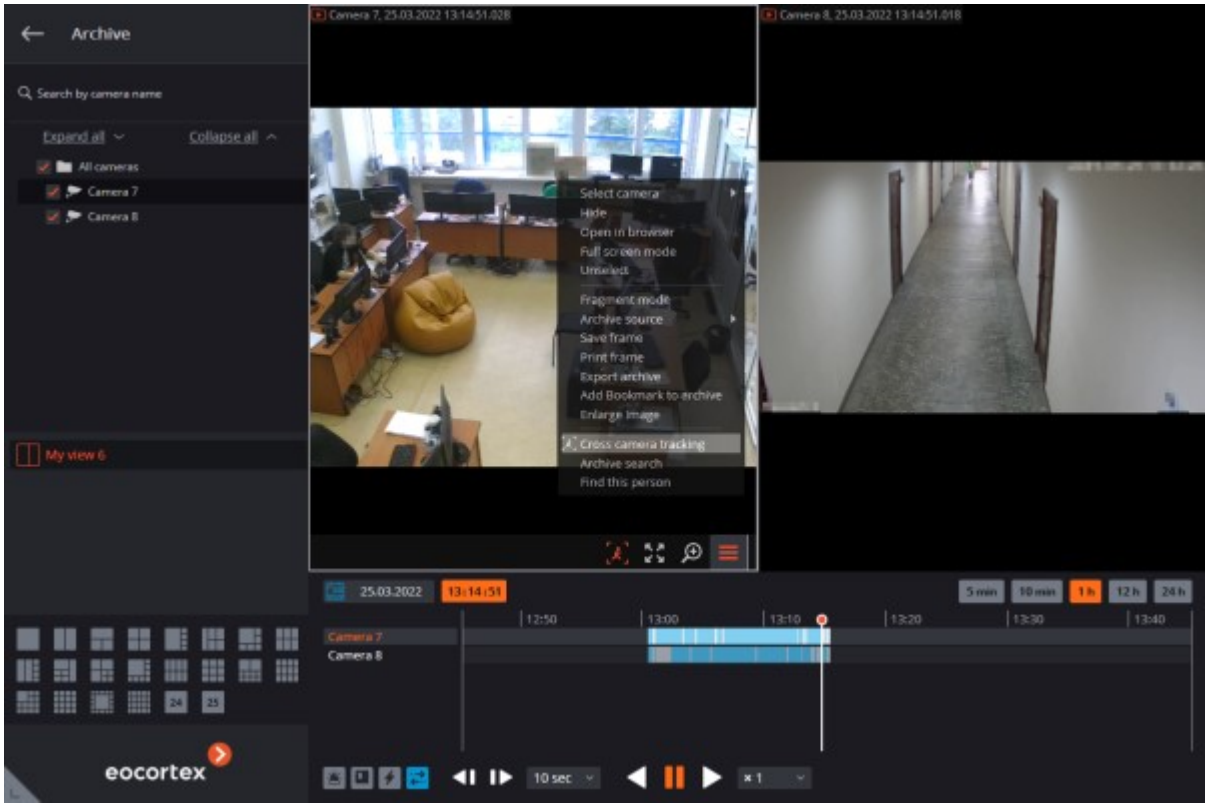
Cross-camera Tracking is only available for the cameras on which the **Search for Objects** video analysis module has been enabled and properly configured.

The video analysis modules are enabled and configured by the administrator of the video surveillance system.

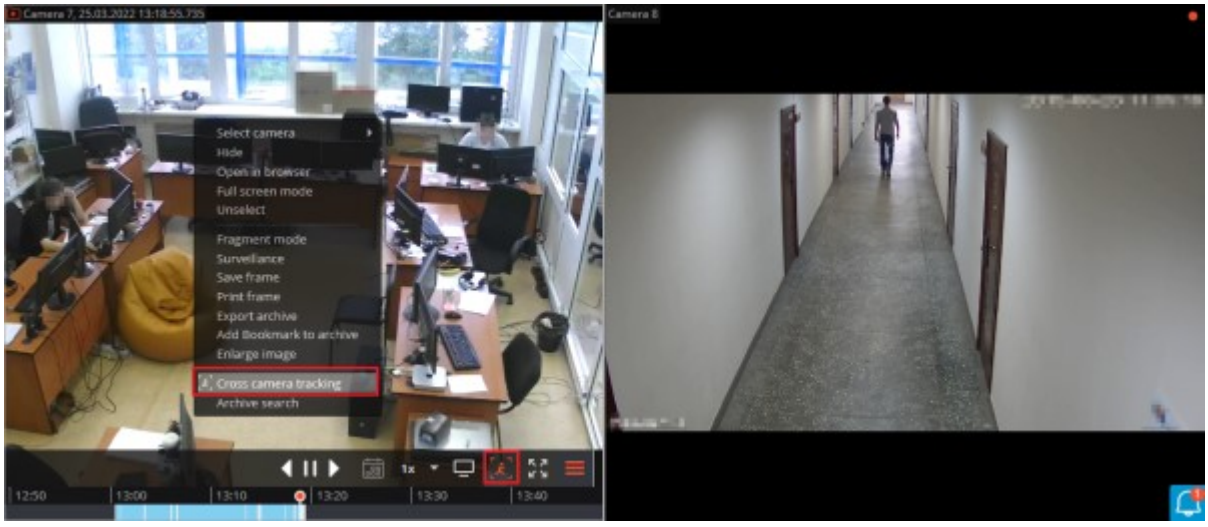
Cross-camera Tracking can be enabled in three ways:

- In simultaneous archive viewing mode (to switch to this mode, select the **Synchronous archive** sub-item of the **Archive** item in the Main menu), select a cell and click on , or select **Cross-camera Tracking** in the cell's context menu;

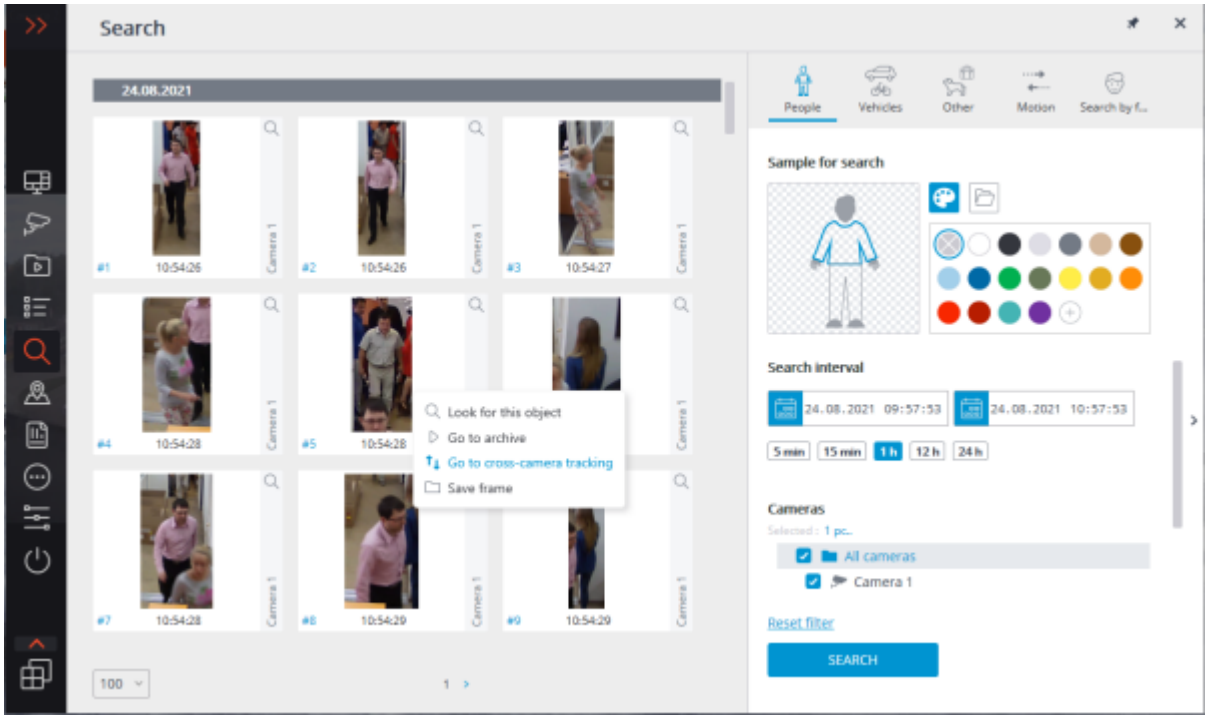




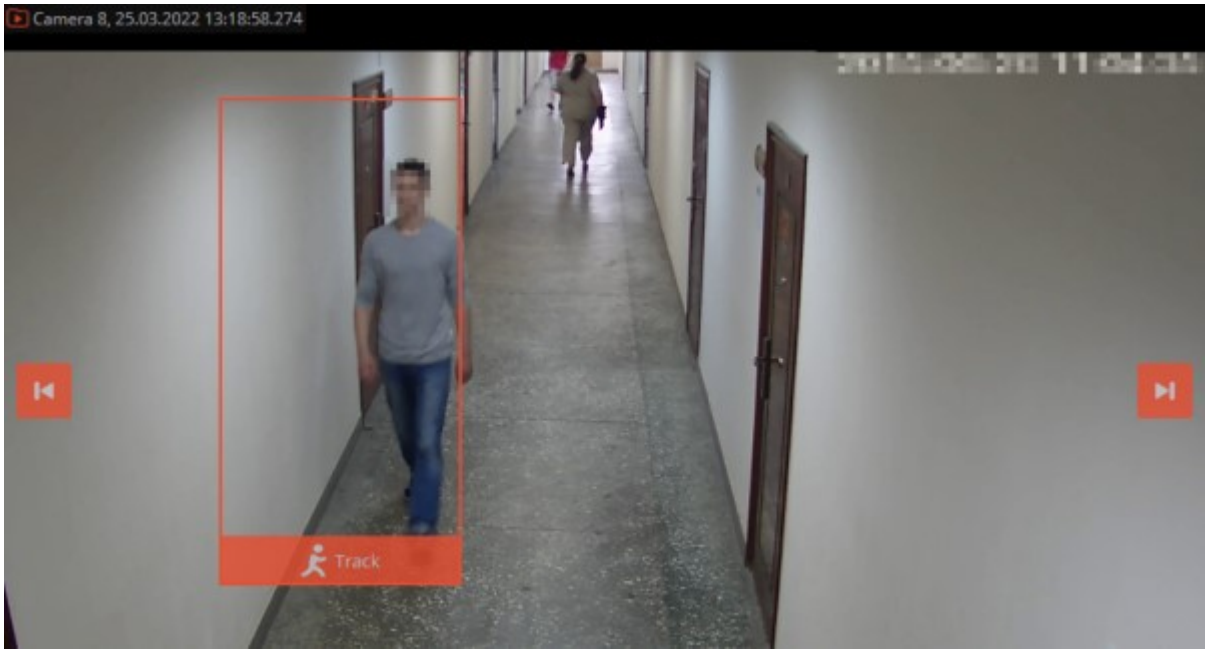
- In individual camera archive viewing mode, select a cell and click on , or select **Cross-camera Tracking** in the cell's context menu;



- In Archive search mode, select a fragment, open the context menu with the right mouse button and choose **Cross-camera Tracking**.



The figures of people will be boxed by frames.

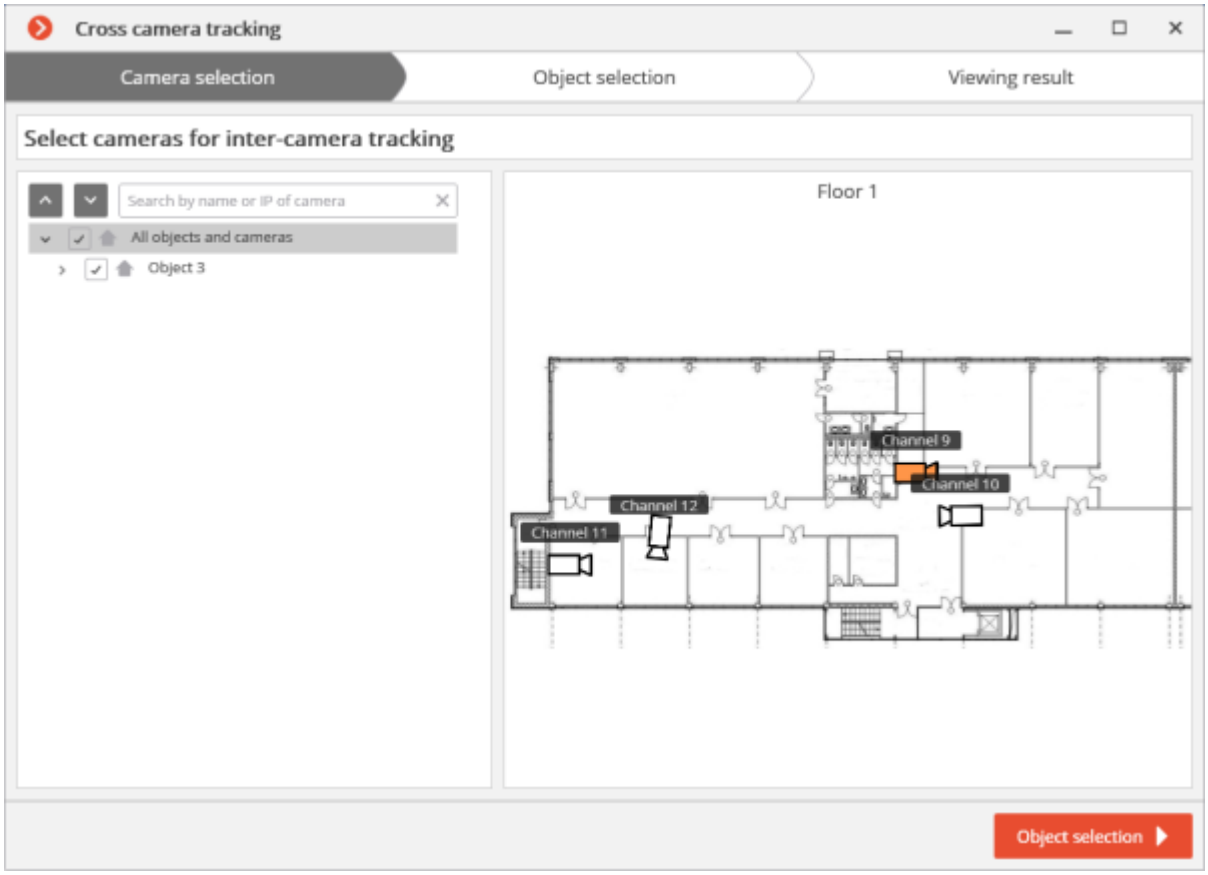


If the figure of a person is absent or not boxed in the frame, or if there are no figures of people at all, you can go to the previous or to the next frames with people using and buttons.

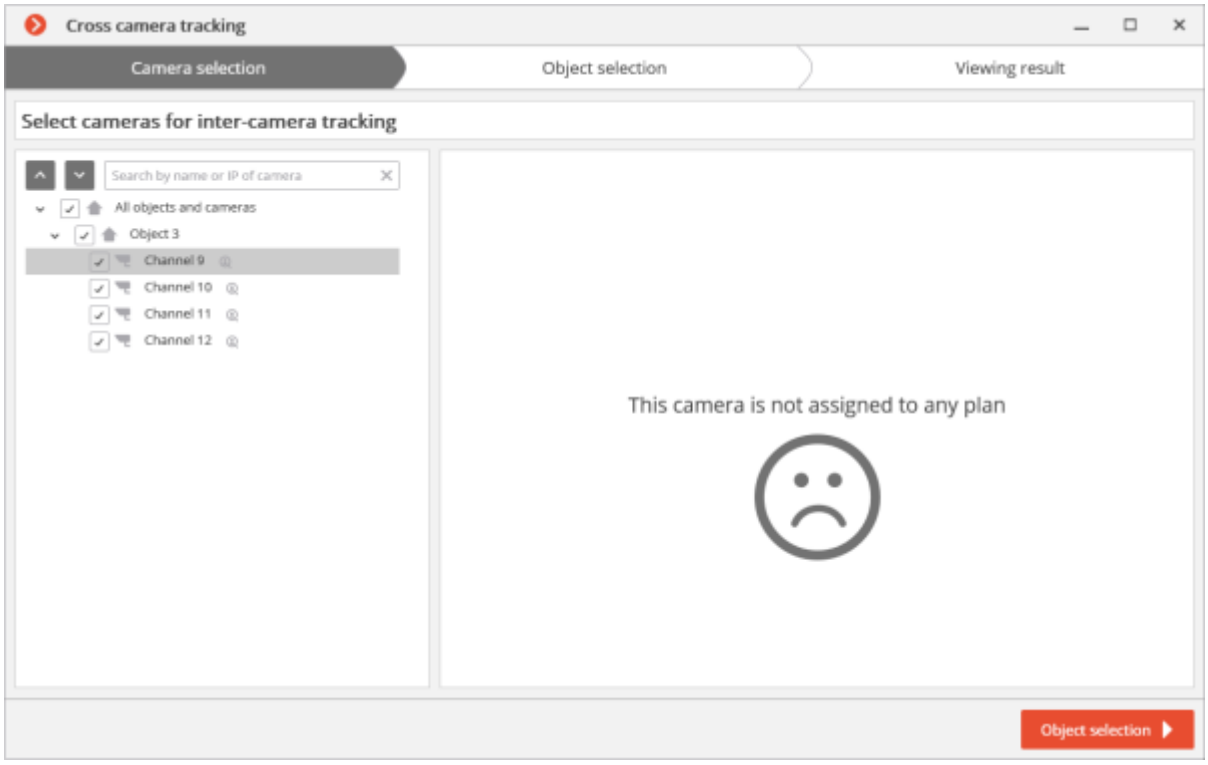
To look for fragments with a sought person, use button located in the lower part of the frame with this person. This will open Cross-camera Tracking master window.

On **Camera selection** tab, select the cameras to perform the search on.

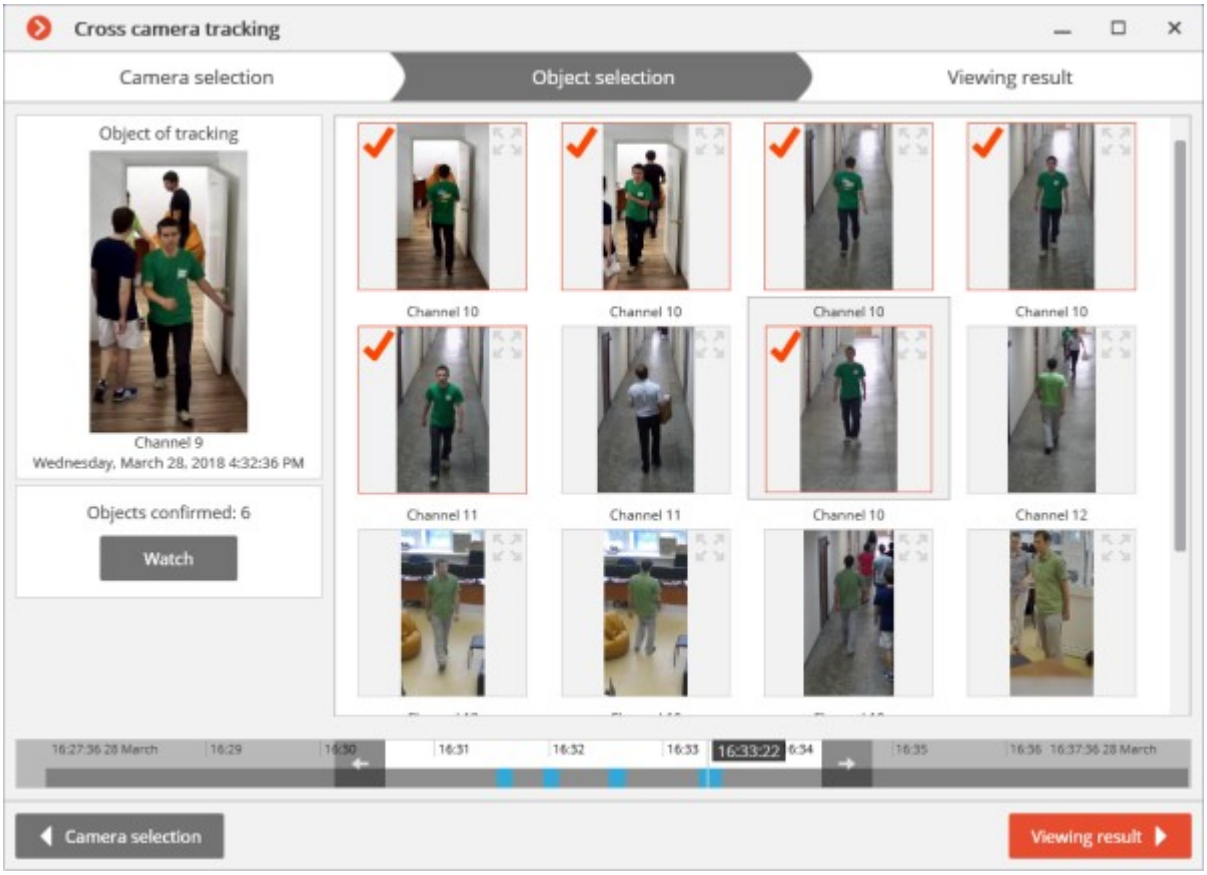
If the camera is present on a site plan, on the right side of the page the plan will be shown on the camera highlighted on it.



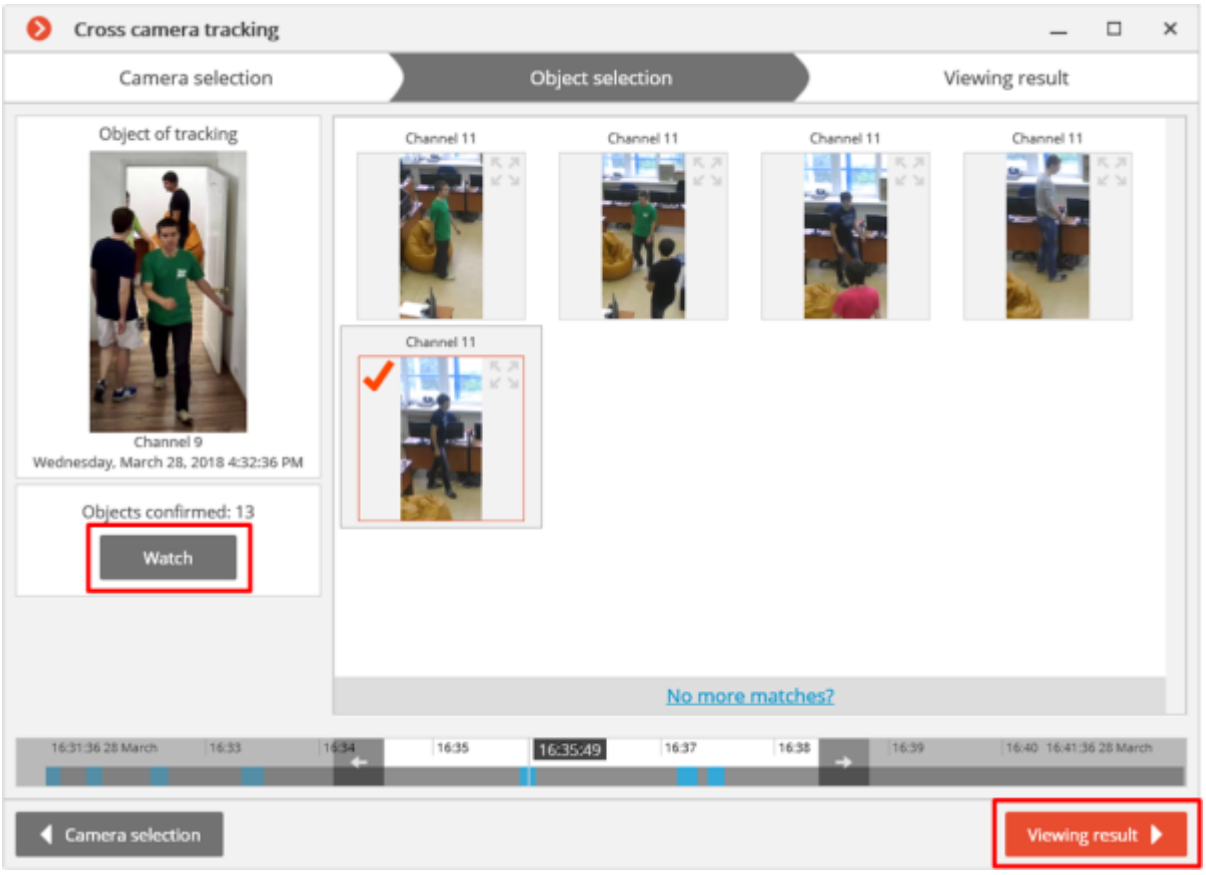
If the camera is not located on any plan, as well as when the plans are not used, a corresponding warning will be displayed on the right side. The search will be performed on this camera, but the route fragments found will not be displayed on the plans.



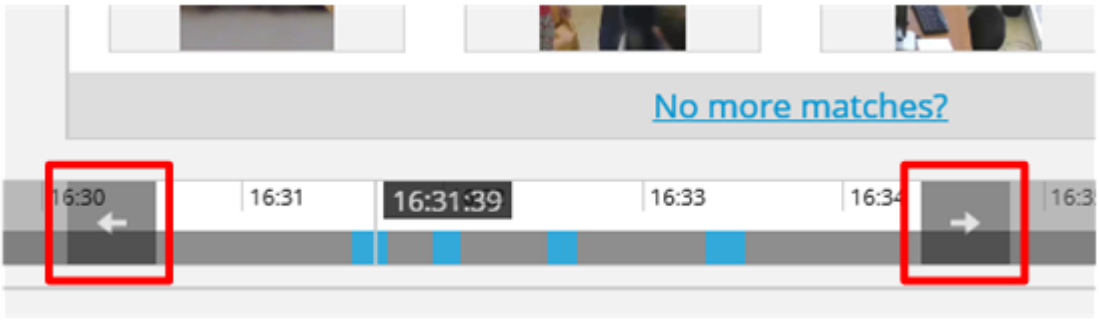
After selecting the cameras, go to Object Selection tab by pressing the button with the same name or clicking on the tab's header. This tab will show fragments with the sought object within ±2 minutes from the first fragment. It is required to tick only those fragments where the sought person is shown, because similar-looking people may also be in the list.



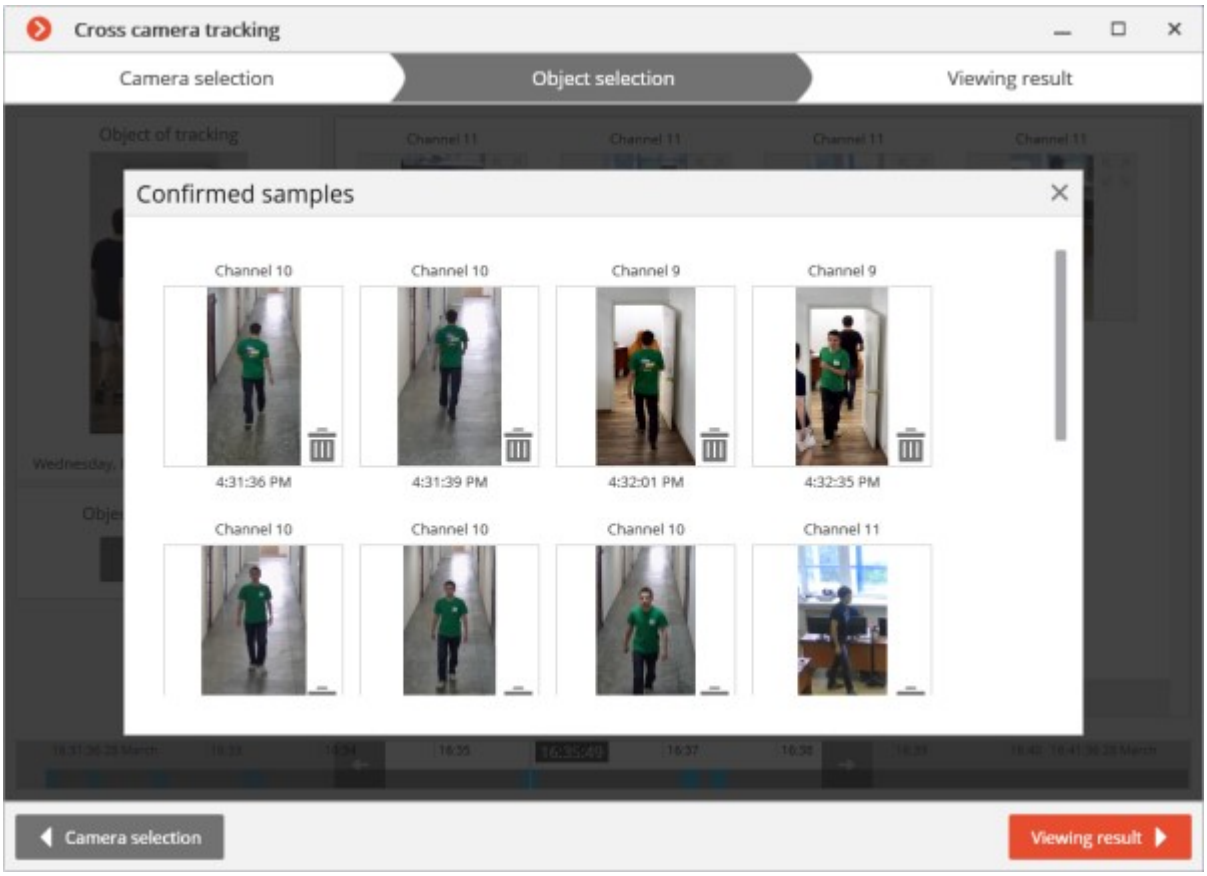
After ticking all the fragments with the sought person, you can click on **No more matches?** link in the lower part of the page. The more precise search will be performed based on the ticked samples within the current timeframe. If such samples are found, they will be displayed on the object selection page.



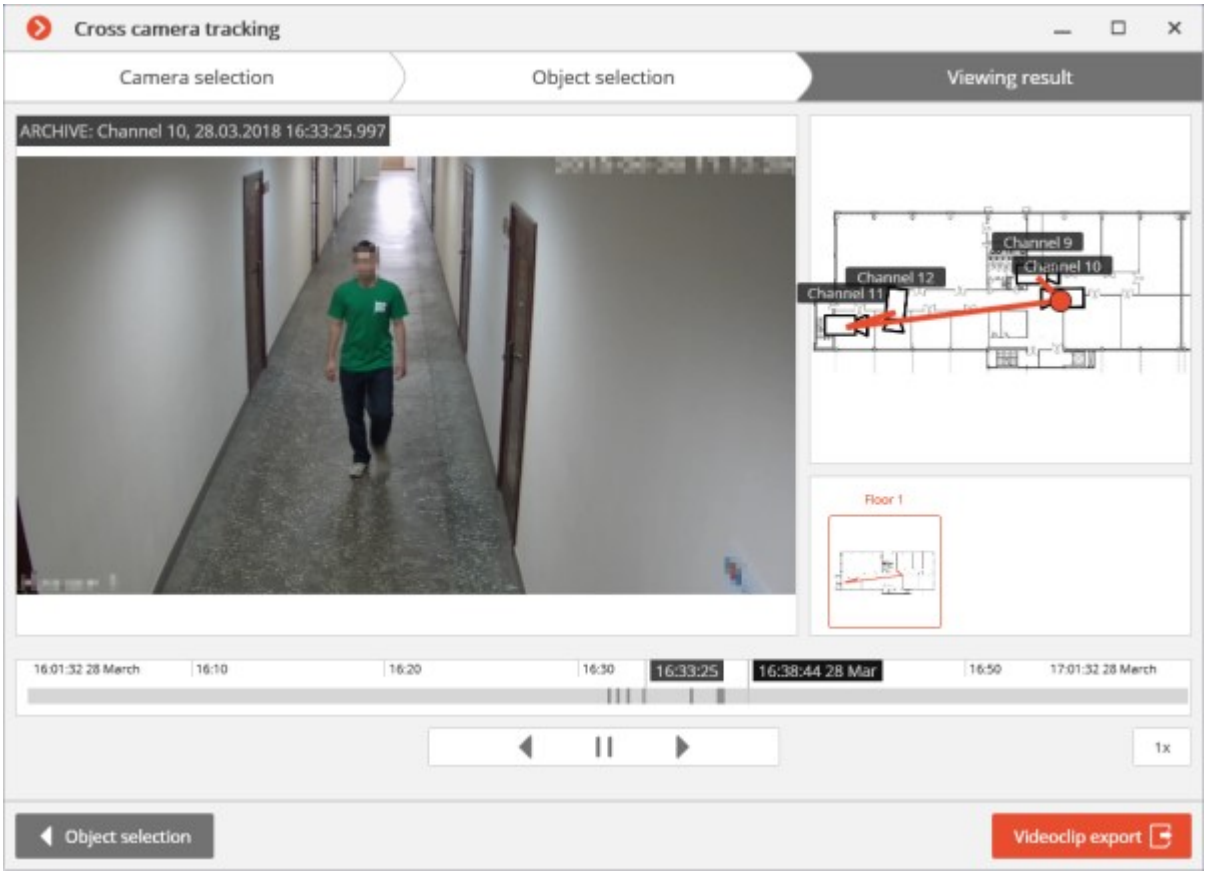
To change search interval, use arrow buttons on the timeline.



To view all the confirmed samples, use **View** button.



After selecting samples, go to **View result** tab pressing the button with the same name or clicking on the tab header. The video fragments with the sought object will be sequentially displayed on this tab.



The conventional trajectory of the sought object will be displayed for cameras placed on the plans.

You can export a video to ***.avi** or ***.mcm** format by pressing a **Videoclip export** button.

Crowd Monitoring

This module allows to detect the crowds in the frame.

When configuring the module you have to specify the frame area to be monitored, as well as a quantitative criterion — maximum acceptable level. If the number of people in specified frame areas exceeds this level, an appropriate alarm event will be generated.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Besides generating system events the module allows you to construct a graph showing the number of people on a timeline.

The number of people is estimated analytically, on the basis of special-purpose algorithms, so the estimate will be different from the actual one — degree of error may amount up to 30%. One of the factors that affect the estimate is the speed of movement of people in the frame: if people move fast enough — the estimated amount will be higher than the actual; if people in the frame move very slowly or stand still — the estimated amount will be lower than the actual.

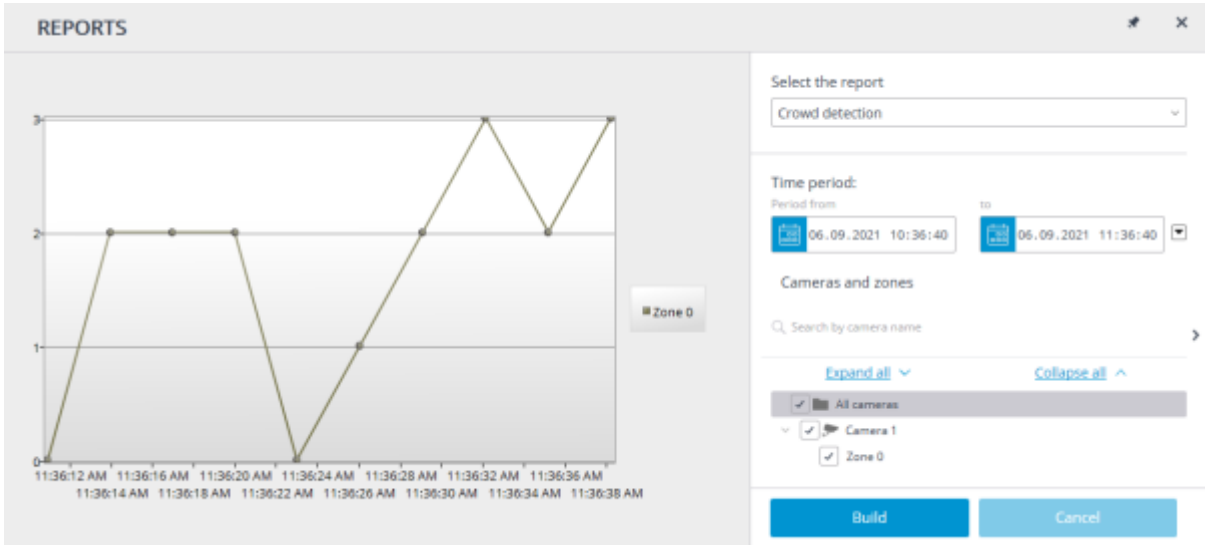
During real-time viewing the camera cell in which the crowd counting is performed will display the zone in which the name of the zone, the estimated and maximum acceptable number of people in it will be indicated. In case of exceeding the maximum number of people in the area, the frame and the text will become red, and an exclamation mark will appear before the text.

The system administrator may set the additional actions in response to the acceptable level exceeding: for example, the alarm generation.

To enable the display of areas select **Show crowd detection zones** in the cell context menu.

All the module events are recorded in the Events log.

To generate the reports select **Reports** in the Main menu.



In the **Select the report** field, set the **Crowd detection** option.

Set the **Time period** for which the report will be generated. The field with the list allows to set the interval prior to the current time, for which the report must be generated, by selecting one of the values: **Minute**, **Hour**, **Day**, **Week**, **Month**.

Select the **Cameras and zones** by which the report will be generated.

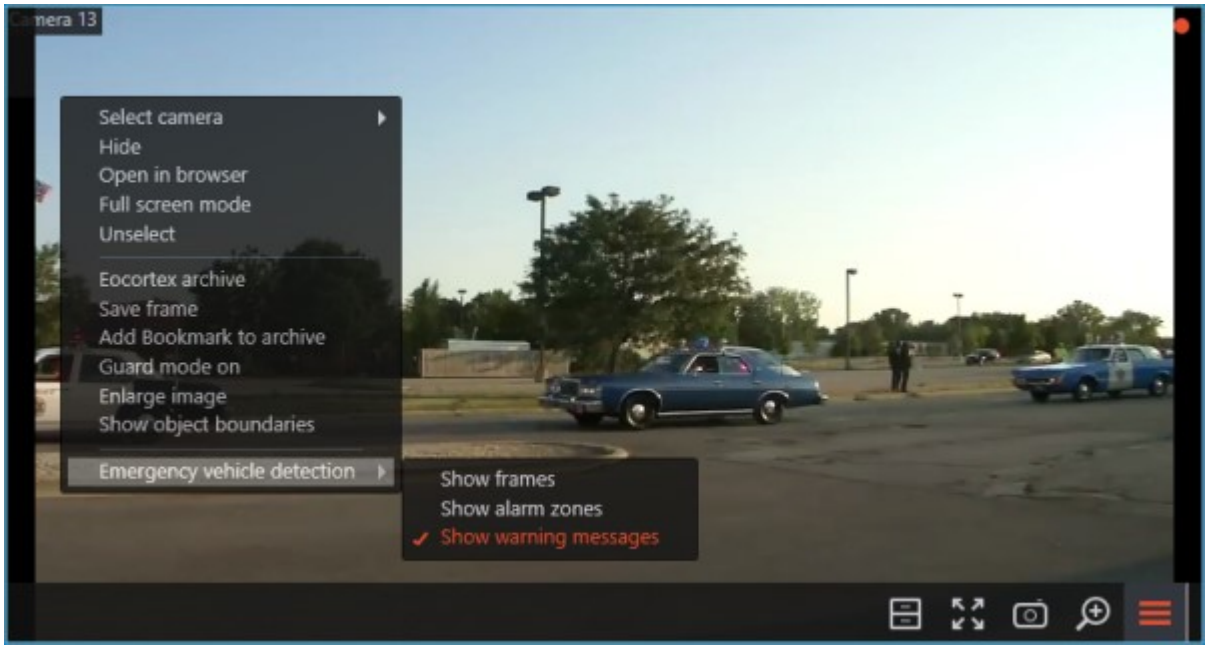
To generate the report click **Build** (to abort the report building process click **Cancel**).

Emergency Vehicle Detection

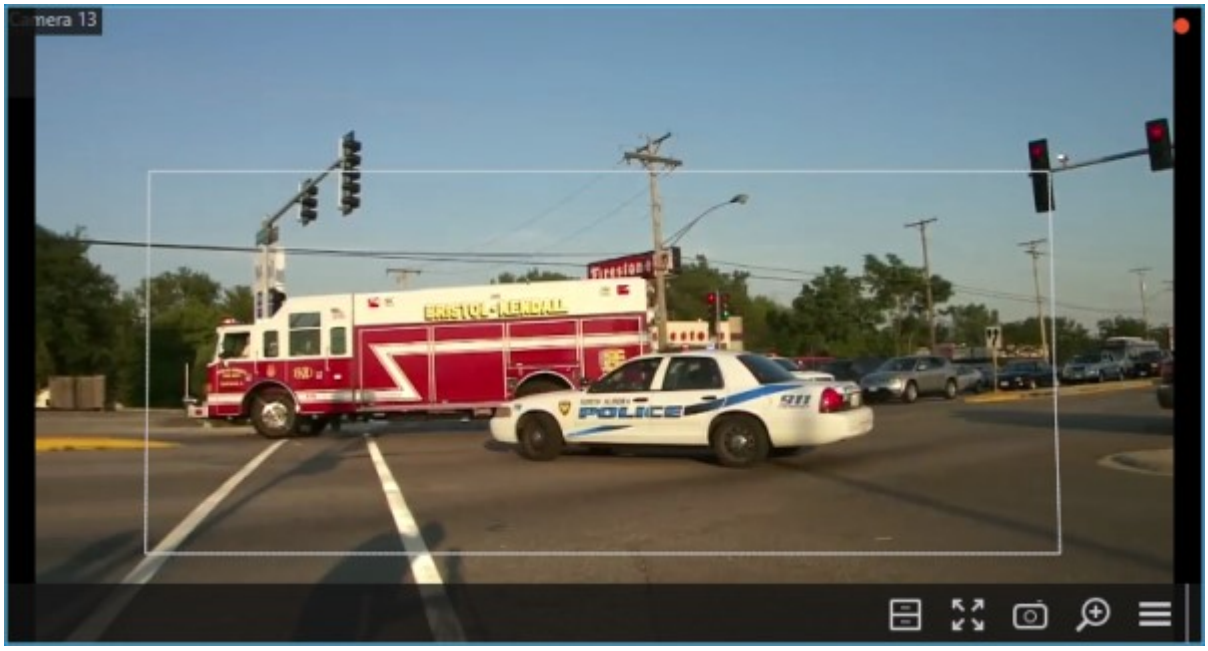
The **Emergency Vehicle Detection** module allows recognizing fire, ambulance, and police vehicles in the real-time mode. The recognition is available for predefined areas of the frame. To avoid false positives, a minimum time can be set for special vehicles to be in the area. Recognition events can be used in automation scenarios. For example, to automatically open the barrier.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

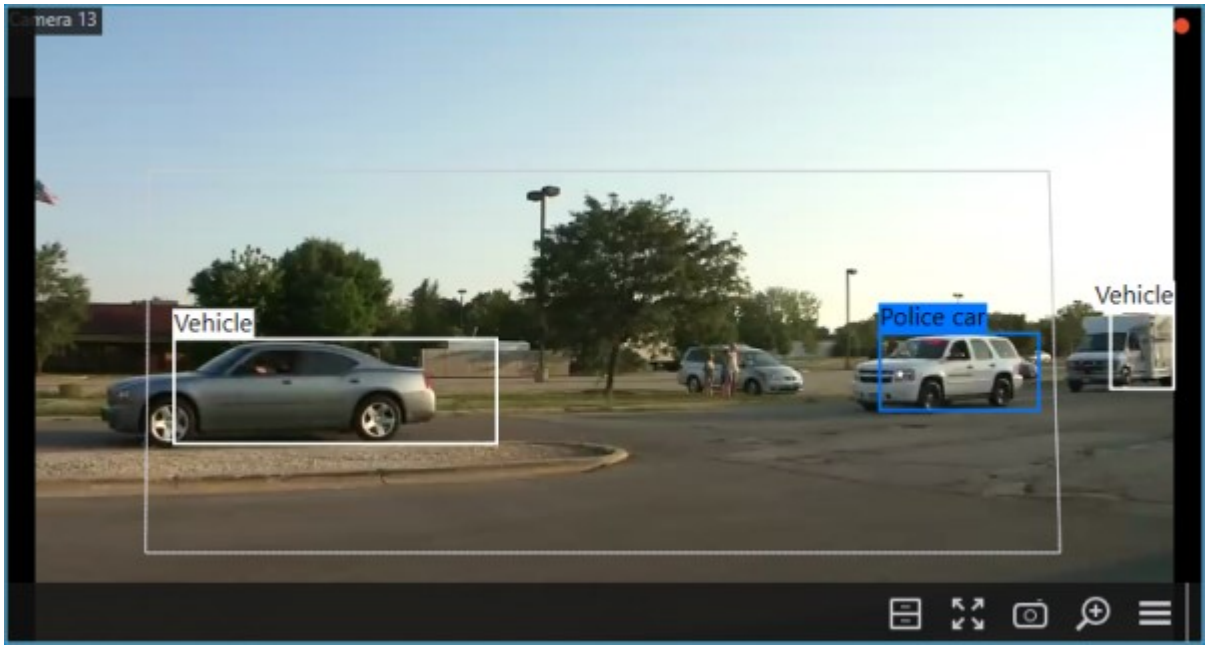
The display of emergency vehicles in the **Eocortex Client** application can be configured via the context menu.



Selecting the **Show alert zones** option allows displaying zones for recognizing emergency vehicles.



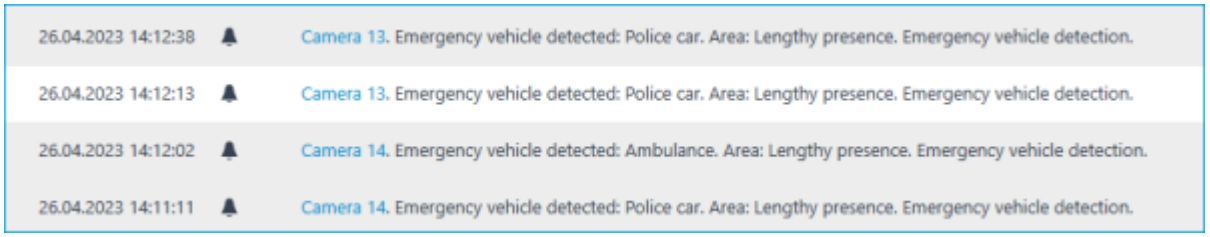
Enabling the **Show coloured boundaries of objects** option puts a frame around each recognized emergency vehicle. The frames have different colors depending on the vehicle category. Also the type of the recognized special vehicle is written above the frame.



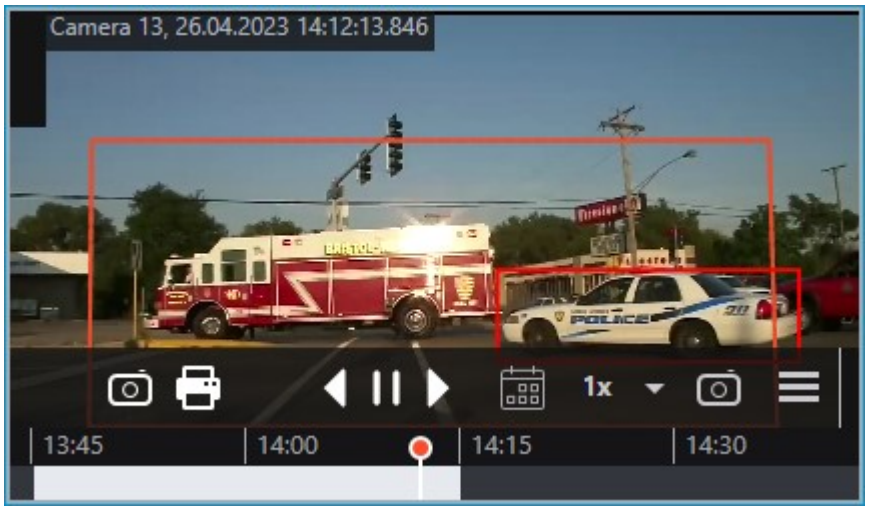
Enabling the **Show warning messages** option will display various warning messages alarming about problems with the module. These warnings take place in the upper left corner of the cell.

Viewing in the Events log

If an emergency vehicle remains in the detection zone longer than the specified time, the **Emergency vehicle detected** event will be generated. Such events can be viewed in the Events Log:



When viewing such an event, the zone and vehicle for which the event was generated will be displayed on the archive record:

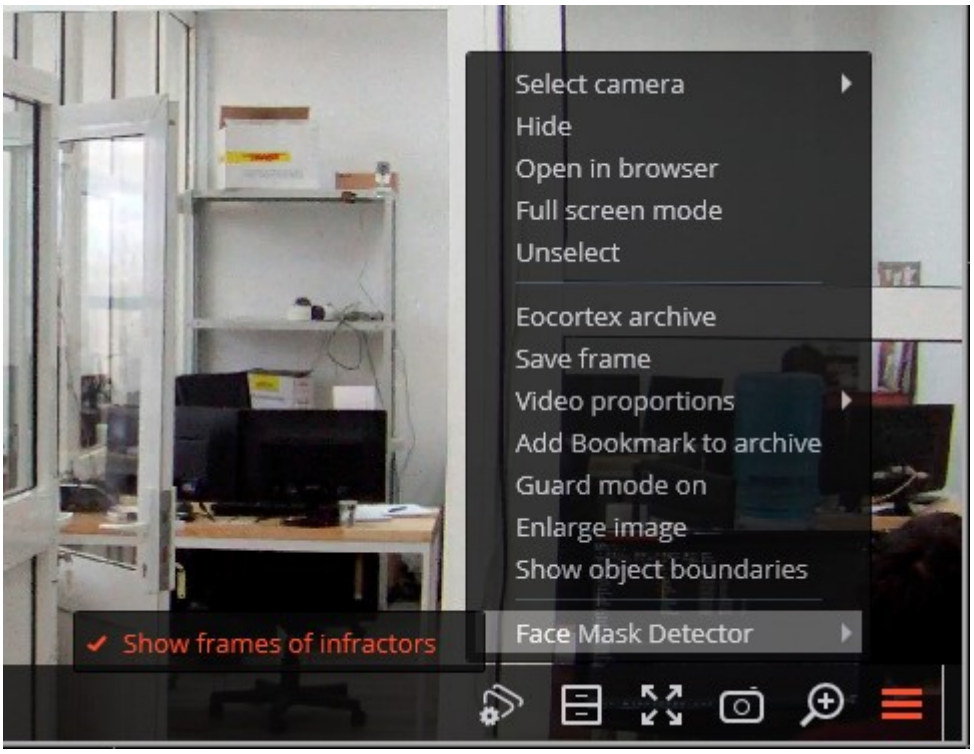


Face Mask Detector

The **Face Mask Detector** module is designed to detect people not wearing medical face masks in the frame. When such persons are detected, the module highlights them in the frame with a square in real time and enters the event in the event log.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

To display the frame around people not wearing face masks, select **Show frames of infractors** subitem in **Face Mask Detector** item of the cell's context menu.



All the module events are recorded in the Events log.

Face Recognition

Eocortex allows to use several modules that perform Face Recognition using a database: **Face Recognition (Complete)**, **Face Recognition (Light)** and **Unique Visitor Counting**.

However, it is not possible to use **Face Recognition (Light)** module with otherFace Recognition modules on one camera at the same time.

The modules ensure high recognition accuracy and can be used together with access control systems at the facilities with high security requirements, for example, at banks or restricted access facilities.

Another important use of the modules can be automatic identification of the hotel guests, restaurant customers, and the visitors of other similar enterprises.

Details

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

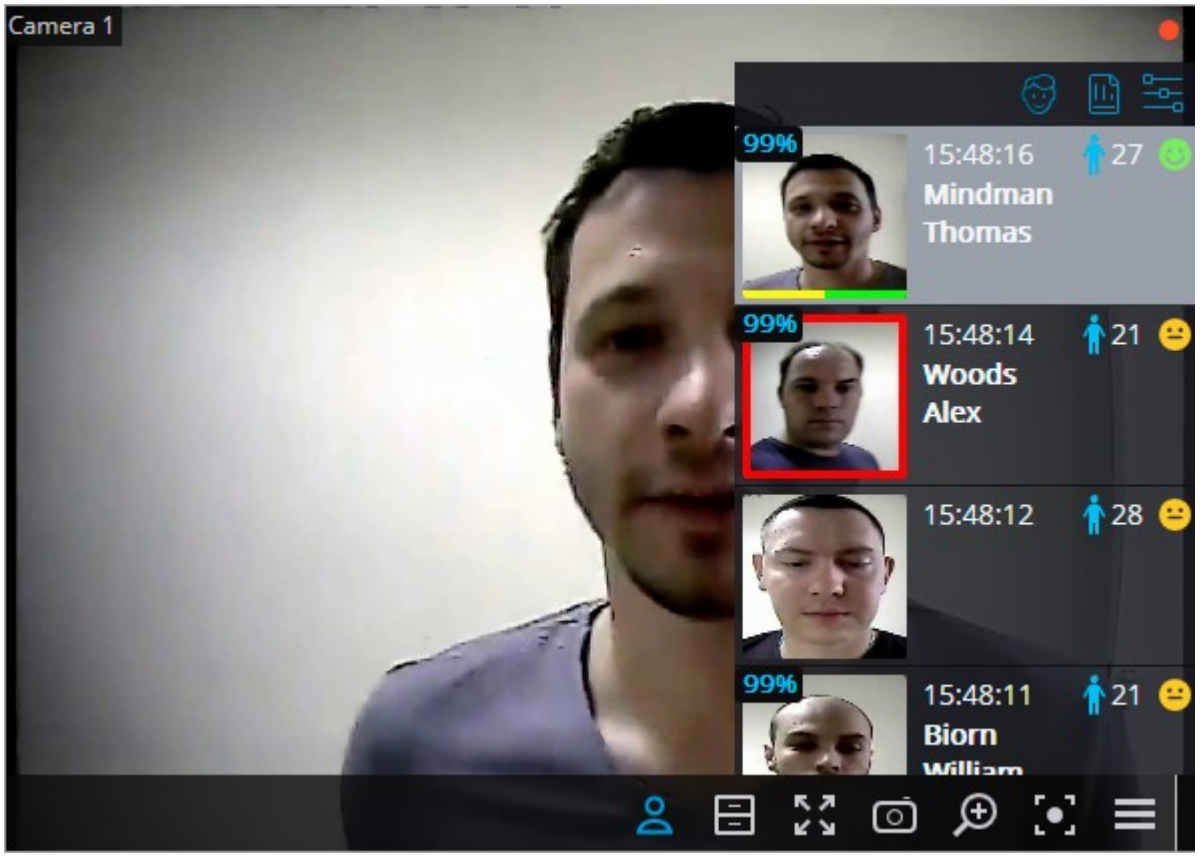
The **Face Recognition (Complete)** and **Unique Visitor Counting** modules also define sex, age and emotions of recognized people.

The following emotion recognition results are available: **Positive**, **Neutral**, **Negative** and **Unknown**.

The **Face Recognition (Complete)** module can identify masked faces with high accuracy; provided that the database contains samples of these persons without a mask. Also, this module can recognize turned faces; despite the fact that only images of faces looking directly into the camera are entered into the database.

Live view

In the live view displaying of the recognized faces may be activated. To enable this option, select the cell and click icon. Recognized faces panel will be opened:

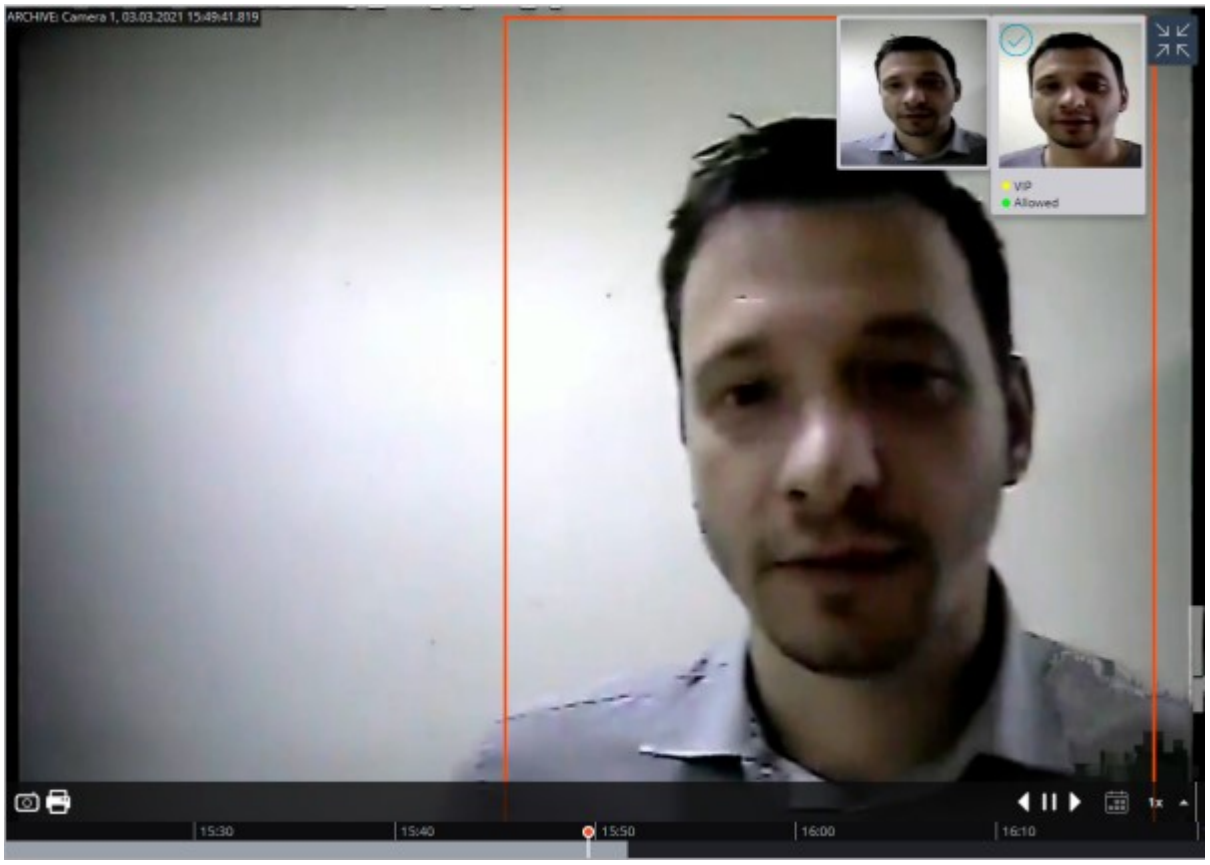


There are the buttons at the top of the panel for addition of a face into the database and switching to reports page .

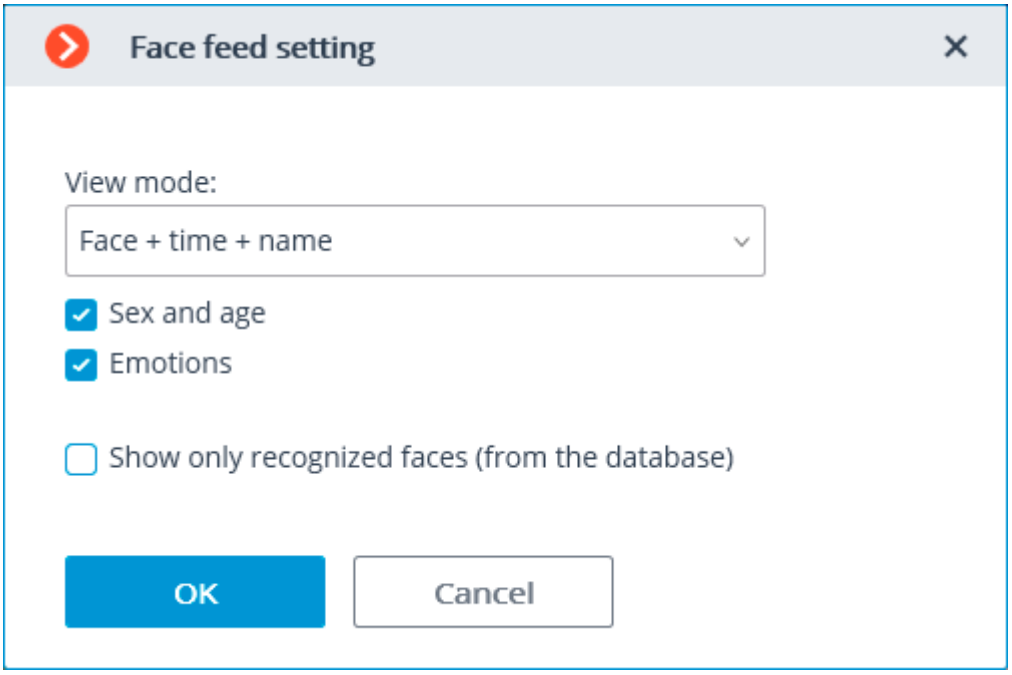
Below there is the list of recognized faces in descending time order.

If the face belongs to one or more groups, a bar with the colors, assigned to these groups, shall be placed below it.

Double-clicking on the row in the list opens the archive window with the moment of recognition of this face.



The module settings window.

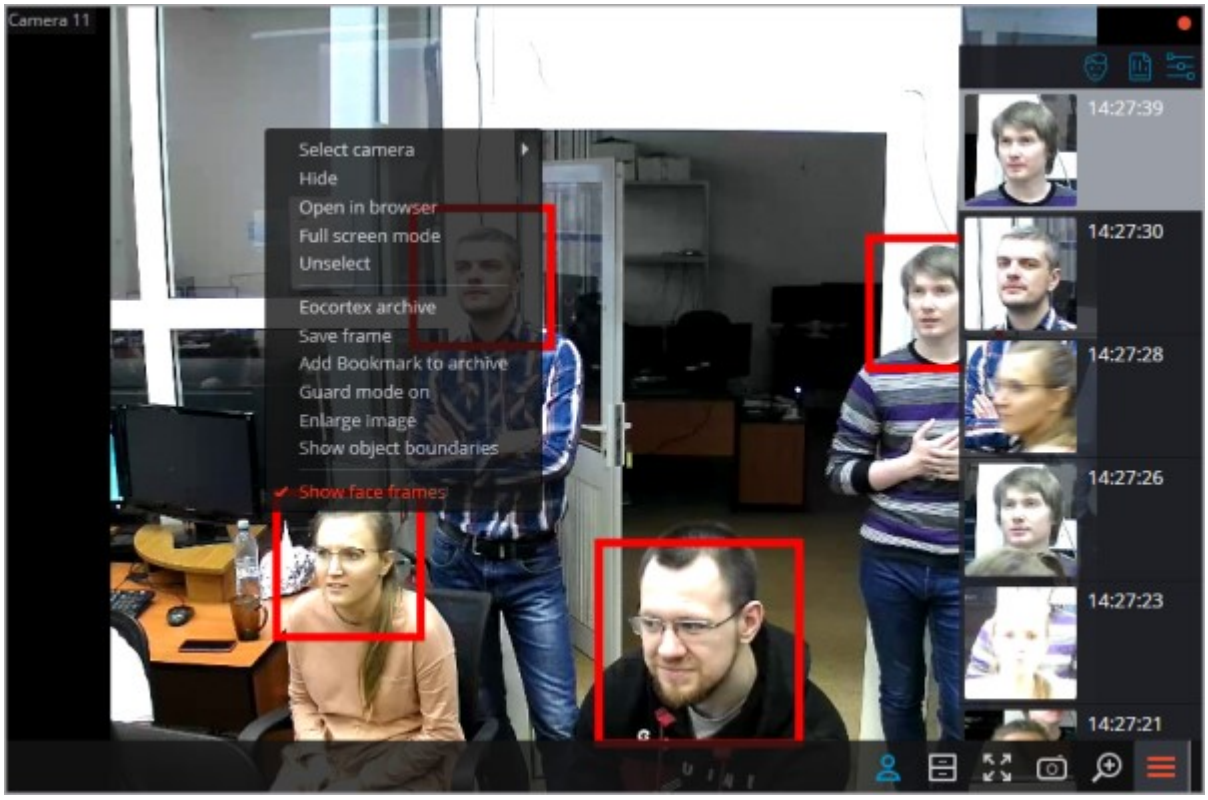


The following settings are available in this window:

View mode: allows to configure the displayed information.

If **Show only recognized faces (from the database)** is checked, only those faces which exist in the database will be displayed in the recognized faces list.

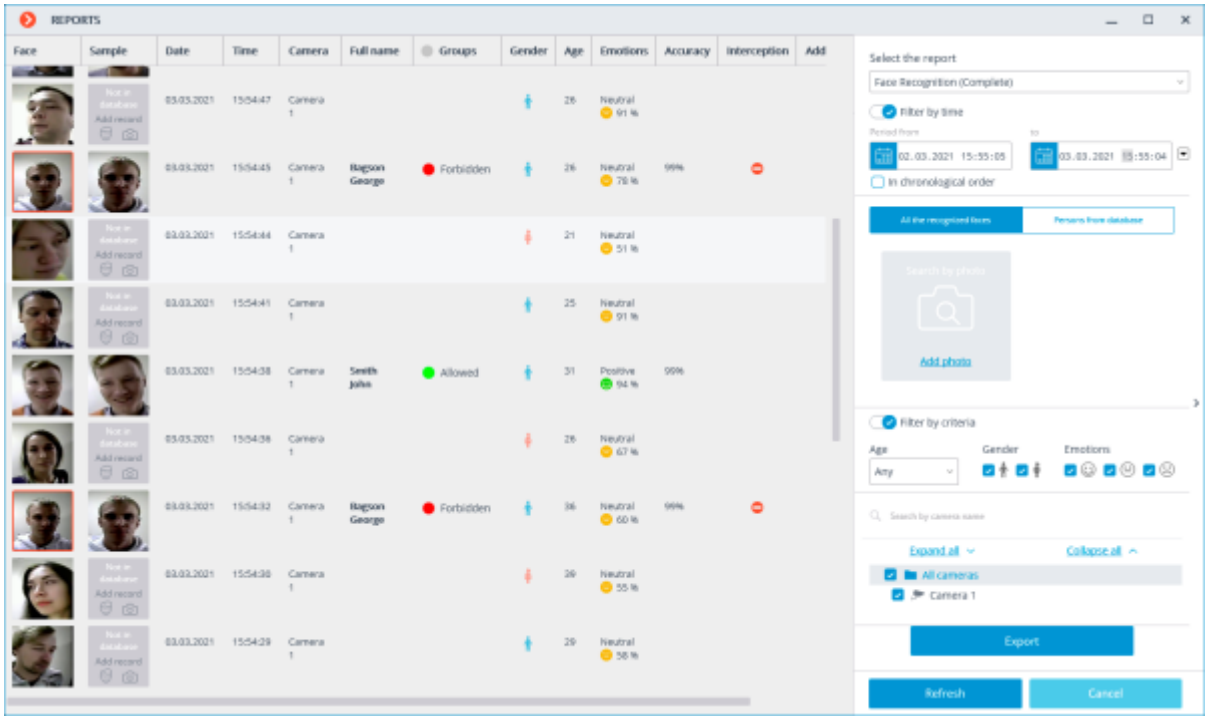
When viewing a camera in the live view mode, it is possible to enable/disable the displaying of frames for recognized faces using the cell context menu.



Face Recognition report

Face Recognition report displays the recognized faces.

The reports of all the modules are similar, with some differences in the interfaces and features.



This report is a table, in which each row contains the recognized face, date and time of recognition, camera name, as well as the person's data in the database (if this face exists in the database): his name, groups, additional info.

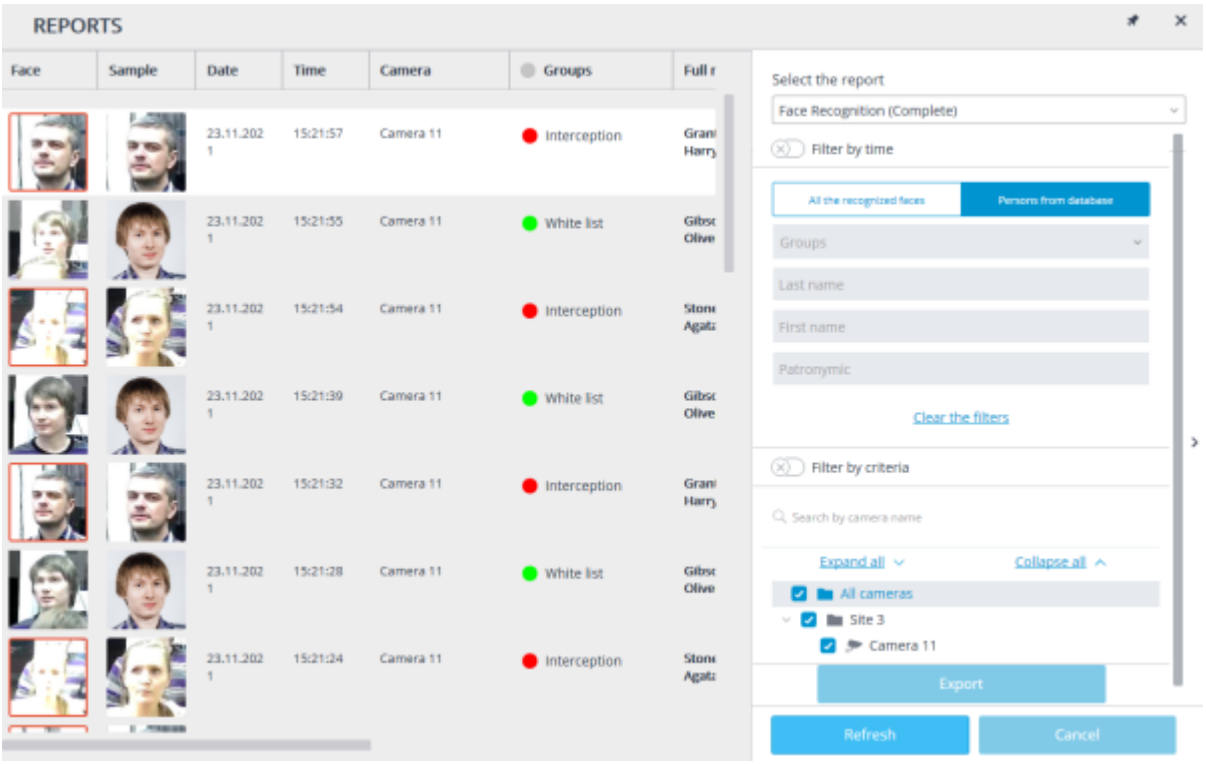
Using the mouse, you can change the order and width of the columns.

Double clicking on the row opens the face recognition moment on the archive view page.

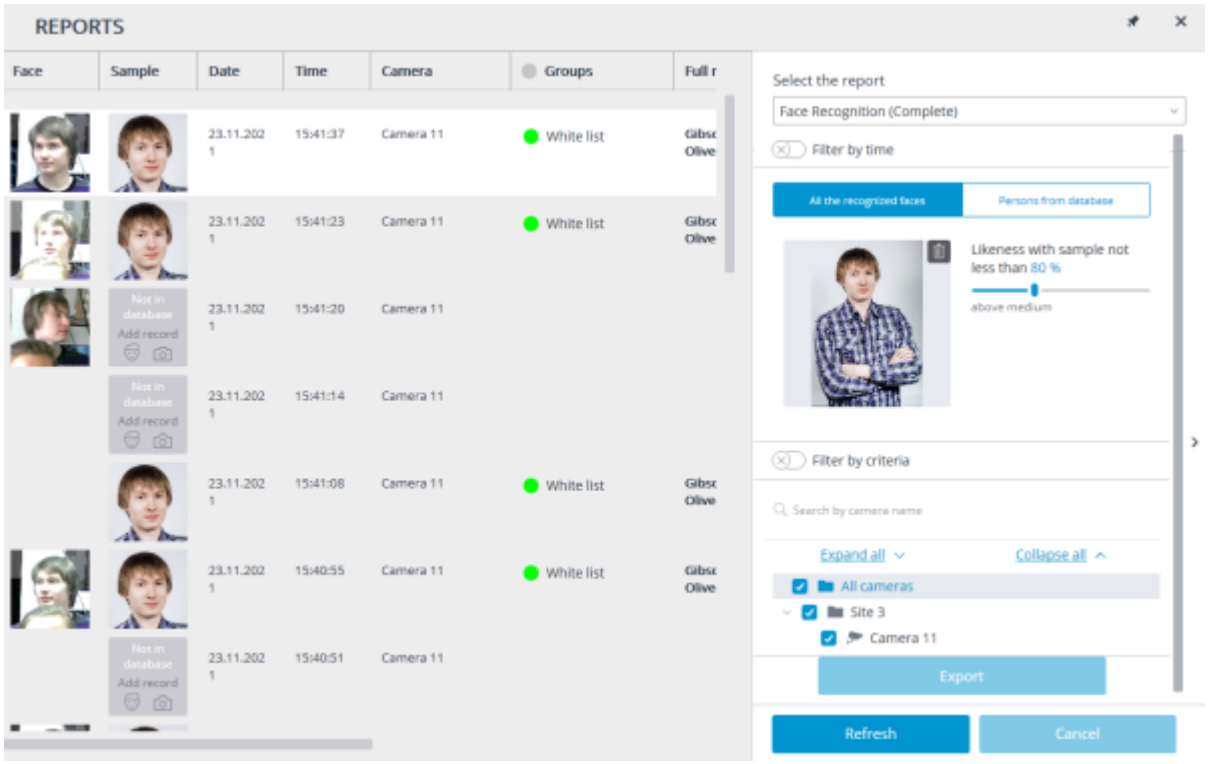
By default, the recognized faces are displayed in a descending time order.

The list and order of the displayed recognized faces in the report may be changed using the filter panel, located on the right. This list may be filtered by time, cameras, groups and person's names. When filtering by time, also may change the chronological order of items. The filter will be applied after pressing the Refresh button.

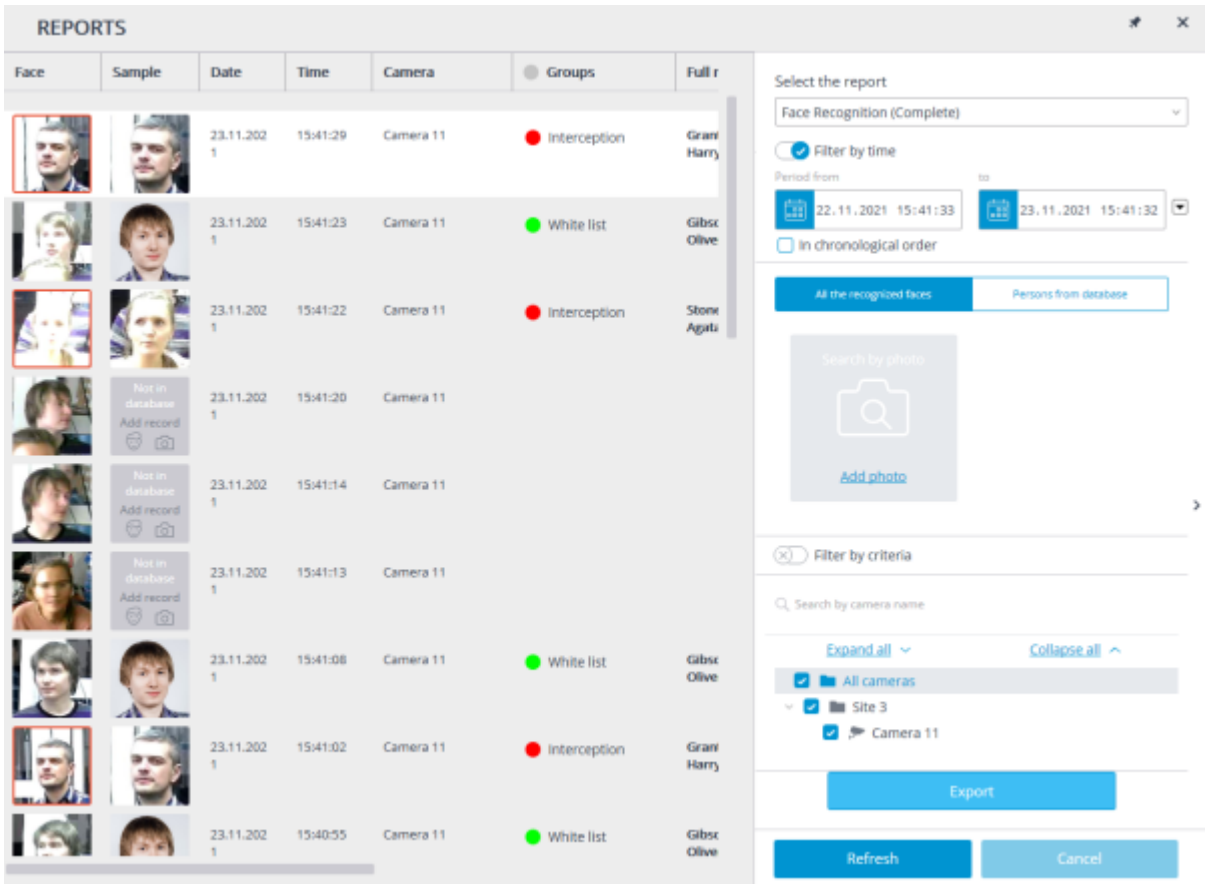
Selecting **Persons from database** it is possible to filter recognized persons using the data stored in the database.



It is also possible to search for recognized persons based on their similarity to a recognized face or to an image from an uploaded file.



If a period has been specified for the report, the report will be downloaded to disk upon pressing the **Export** button.



This will open a window where it will be possible to select the location and format of the file: CSV, Excel or PDF.

Report regarding groups of face database

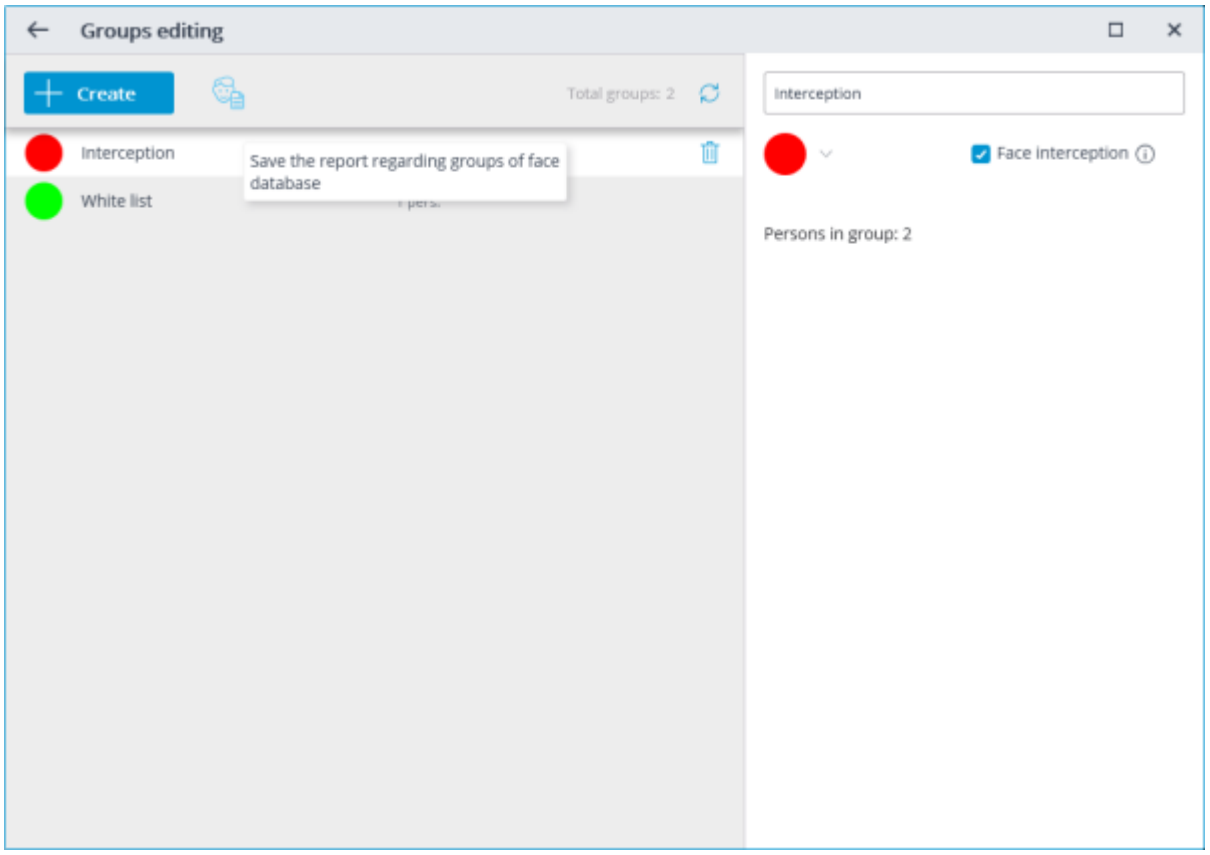
The **Report regarding groups of face database** is a table with the information on the state of the face database: the number of entries in the groups, the number of groups, the total number of entries in the database.

Face Database Groups Report

Date: 23-11-2021, 09:36:15

Item no.	Groups	Number of entries, pcs.
1	Interception	2
2	White list	1
Total number of entries in the database *(some entries may belong to several groups)*		**3**

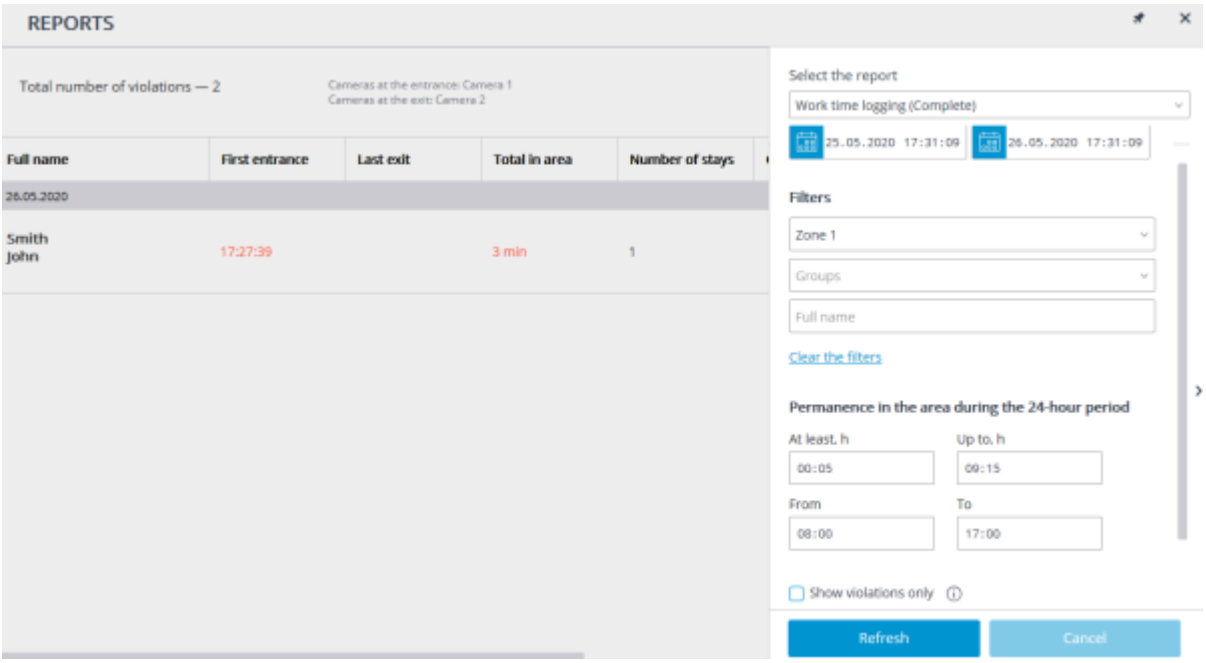
To create a report, it is required to go to the tab **Groups editing** and click on the button .



The report will be saved in the PDF format.

Work time logging (Complete) report

Work time logging (Complete) report is formed by areas (zones). An area is a territory where it is required to monitor the presence of persons. The people's faces must be recognized at the entrance to and the exit from the area by the **Face Recognition (Complete)** module. Several cameras may be used for a single area both at the entrance and at the exit.



For creating a report, it is required to specify the area and the time period for which the report will be made. Additionally, optional filters allowing to create reports by names, by surnames and by groups of people, as well as by the time they spend in the area, are available.

In the **Permanence in the area during the 24-hour period** group of settings, the following parameters that are used to monitor the violations of the allowed time of presence in the area of all the recognized persons are set:

At least, h: total time of presence in the area must not be less than the value set in this field.

Up to, h: total time of presence in the area must not exceed the value set in this field.

From: a person must enter the area before or at the time set in this field.

To: a person must not leave the area before the time set in this field.

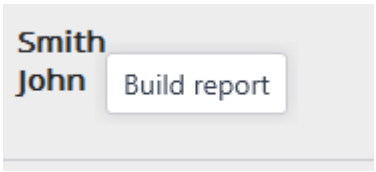
After setting all filters need press the **Refresh list** button.

It is required to press Refresh after setting all filters.

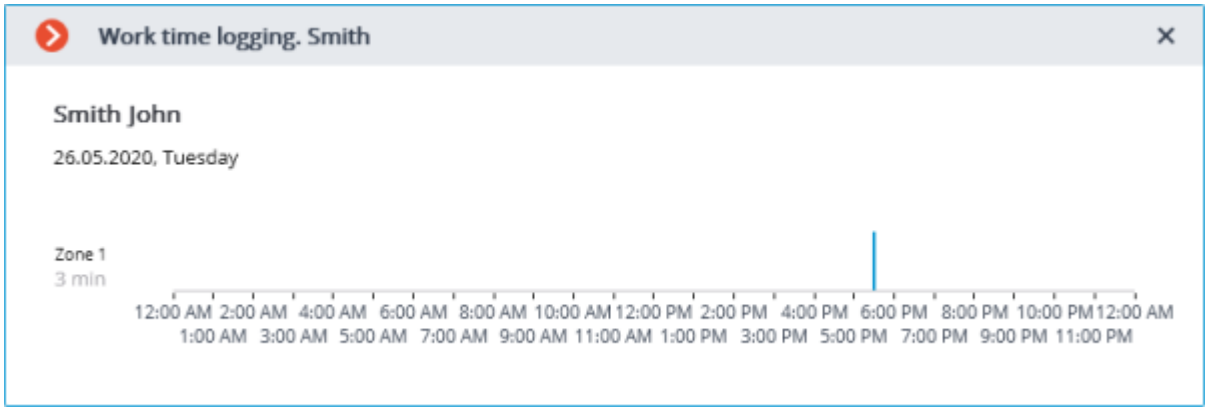
The total number of violations of the rules of presence in the area and the descriptions of cameras monitoring exits and entrances are shown in the title of the report.

The lines of the table are grouped by dates. For each date, the people whose entrances and exits to and from the area are shown.

It is possible to open the context menu in the line of the table by clicking the right mouse button.



The **Build report** item of the context menu opens the individual chart of the presence of a particular person in the areas in the course of a 24-hour period.



The individual chart shows all the areas where a person was during the selected 24-hour period. For each area, the periods of time when the person was there are highlighted. Hovering the mouse pointer over any highlighted period displays the prompt with the amount of time and the interval of presence of the person in the area.

Faces database

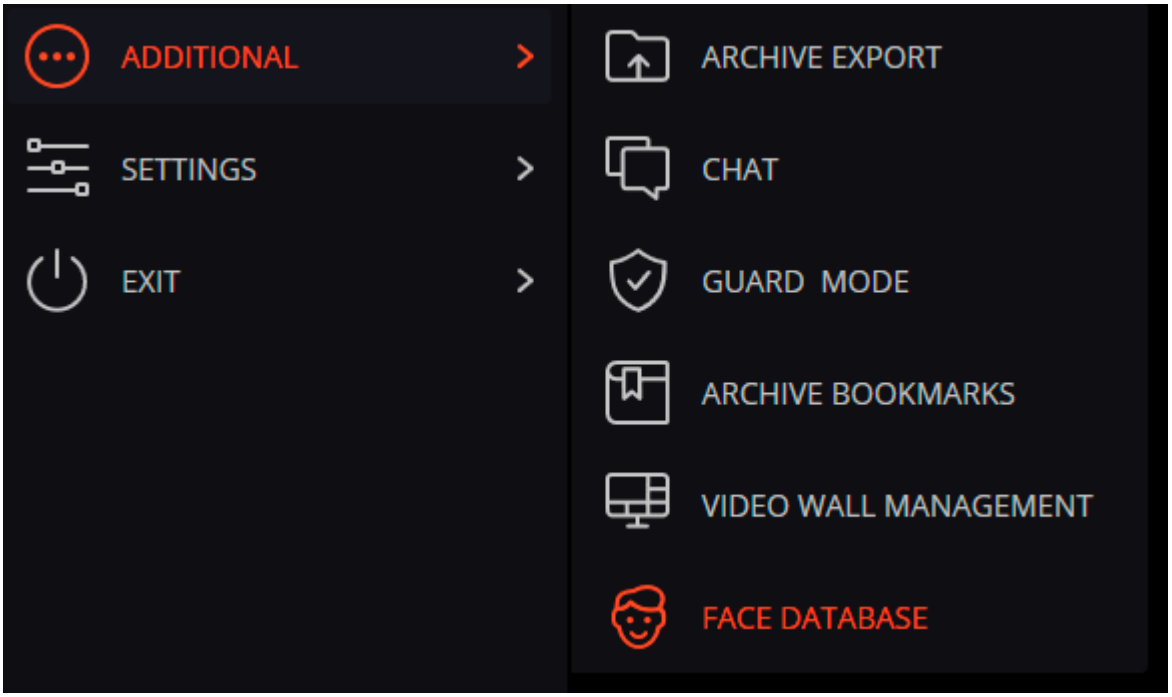
The **Faces database** contains the following information: full name of person; group, to which the person belongs; samples of the person's face, and other.

It is possible to add to the database the faces found by the Face Recognition module as well as to upload image files with faces.

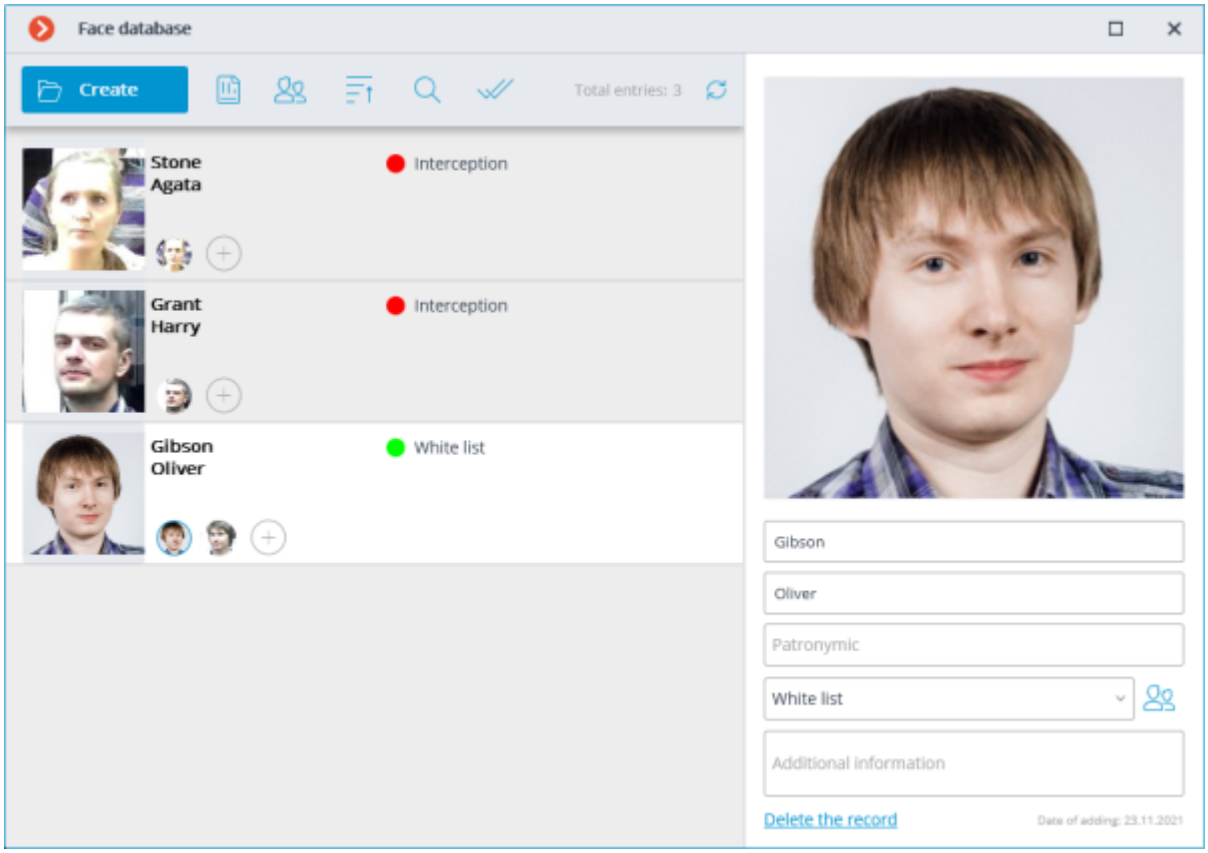
The ways of adding faces found by the Face Recognition module are described below.

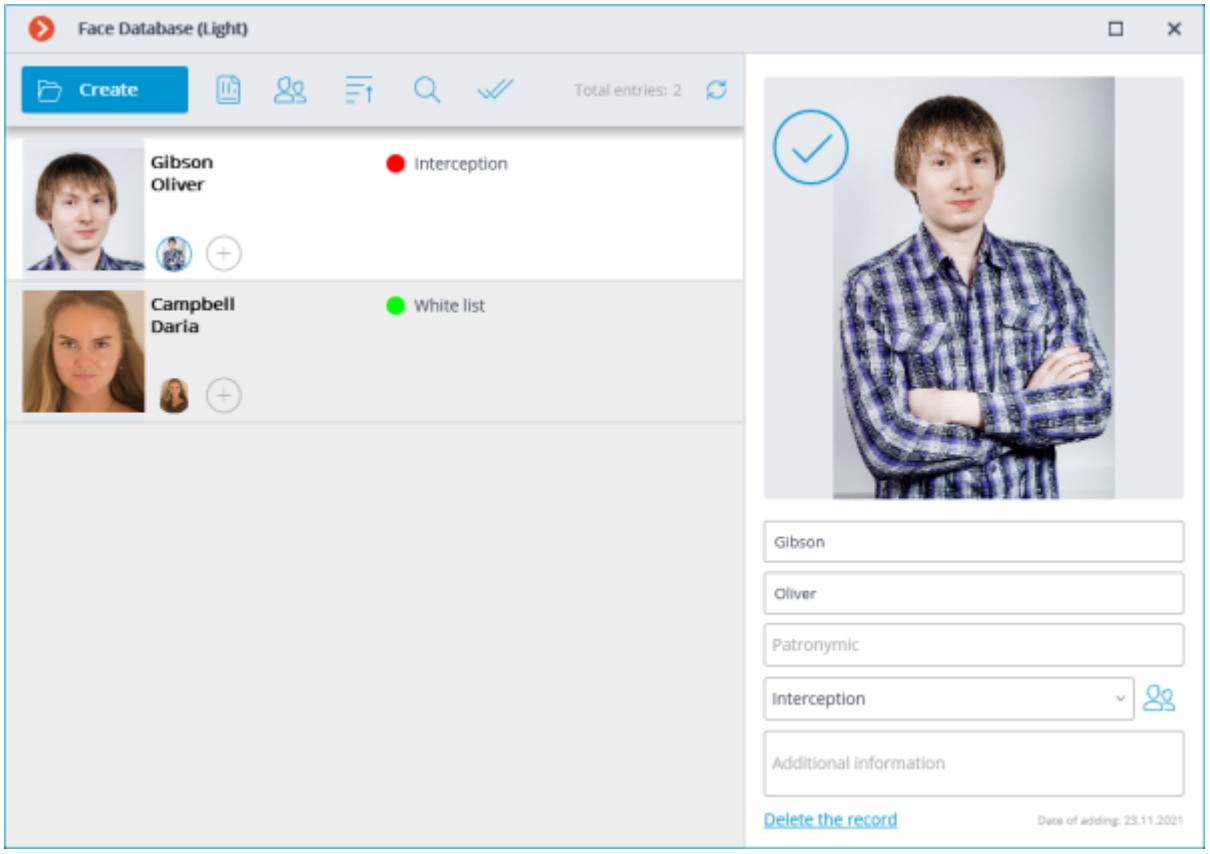
- In the **Face Recognition** report, select a face and press the **Add** button. The face database window will open in the mode of adding a new face.
- In the **Face Recognition** report, select a face and press the **Add photo to face database entry** button. The face database will open, allowing to select the corresponding entry.
- In the camera cell, select a face in the panel of recognized faces, then press the **Create entry in face database** button. The face database window will open in the mode of adding a new face.

The face database window can be opened from the window of the report regarding the recognized faces, from the camera cell when adding a recognized face, and from the main menu of the application.



The face databases of all the modules are similar, with some minor differences in the interfaces and features.



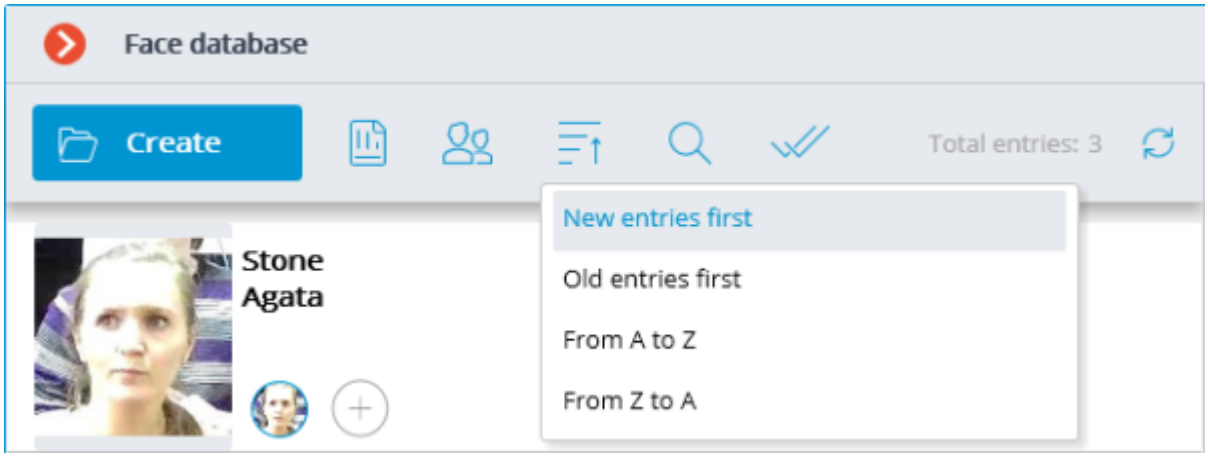


There are the following buttons at the top of the page:

- **Add** button opens the File Explorer for adding a new face image to the database.
- **Reports** button opens the **Face Recognition** report.
- **Groups** button opens the form for editing groups.
- **Sorting**: allows to sort the entries of the face database by the date of addition or alphabetically.
- **Search** button opens the person search form.
- **Group operations**: allows to work simultaneously with several entries of the face database.
- **Refresh list** button allows loading the entries from the face database on the server again. This feature is useful, in particular, in the situation when several users are working with the face database simultaneously; it permits to see recent modifications made by other users.

Sorting face database entries

Pressing the button opens a menu for selecting the type of sorting.

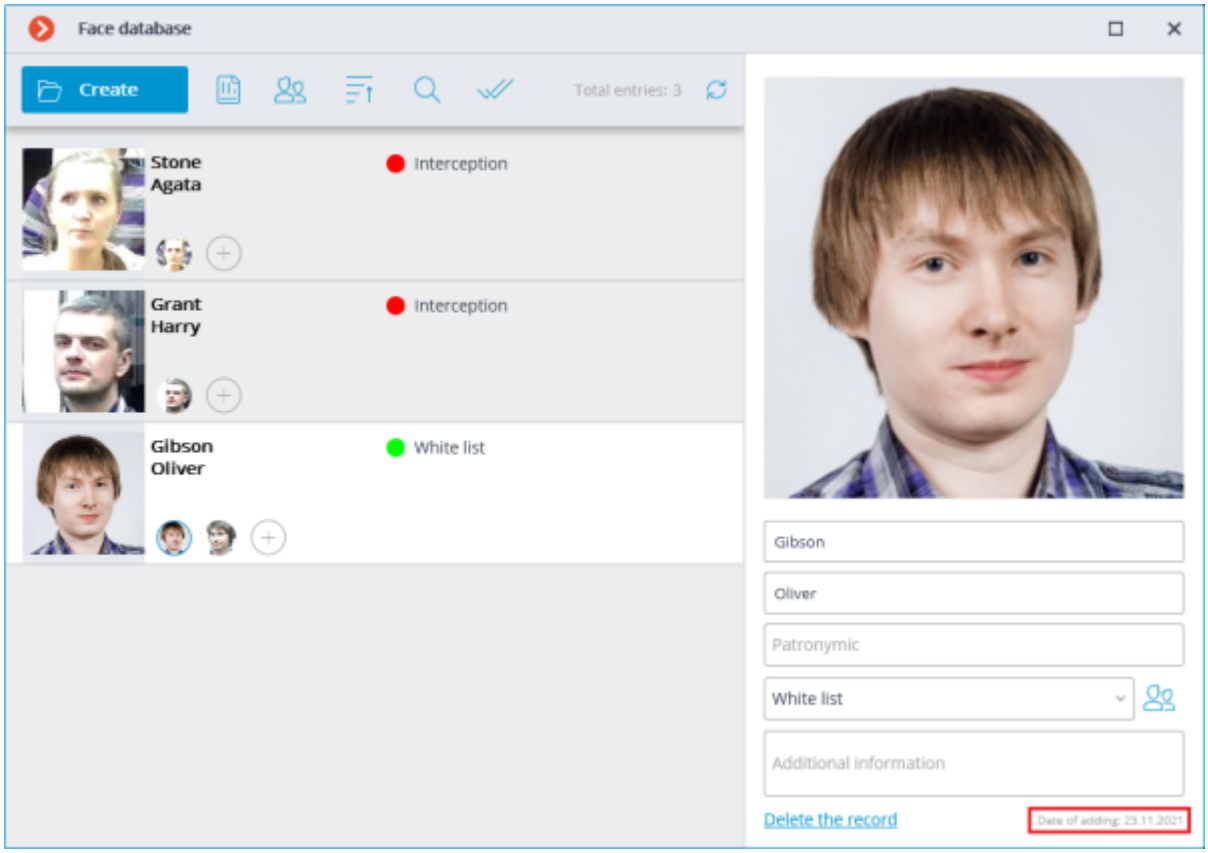


Several types of sorting are available:

- By the date of addition:
  - New entries first;
  - Old entries first.
- Alphabetically:
  - from A to Z;
  - from Z to A.

By default, when opening the face database, entries are sorted by the date of addition: **New entries first**.

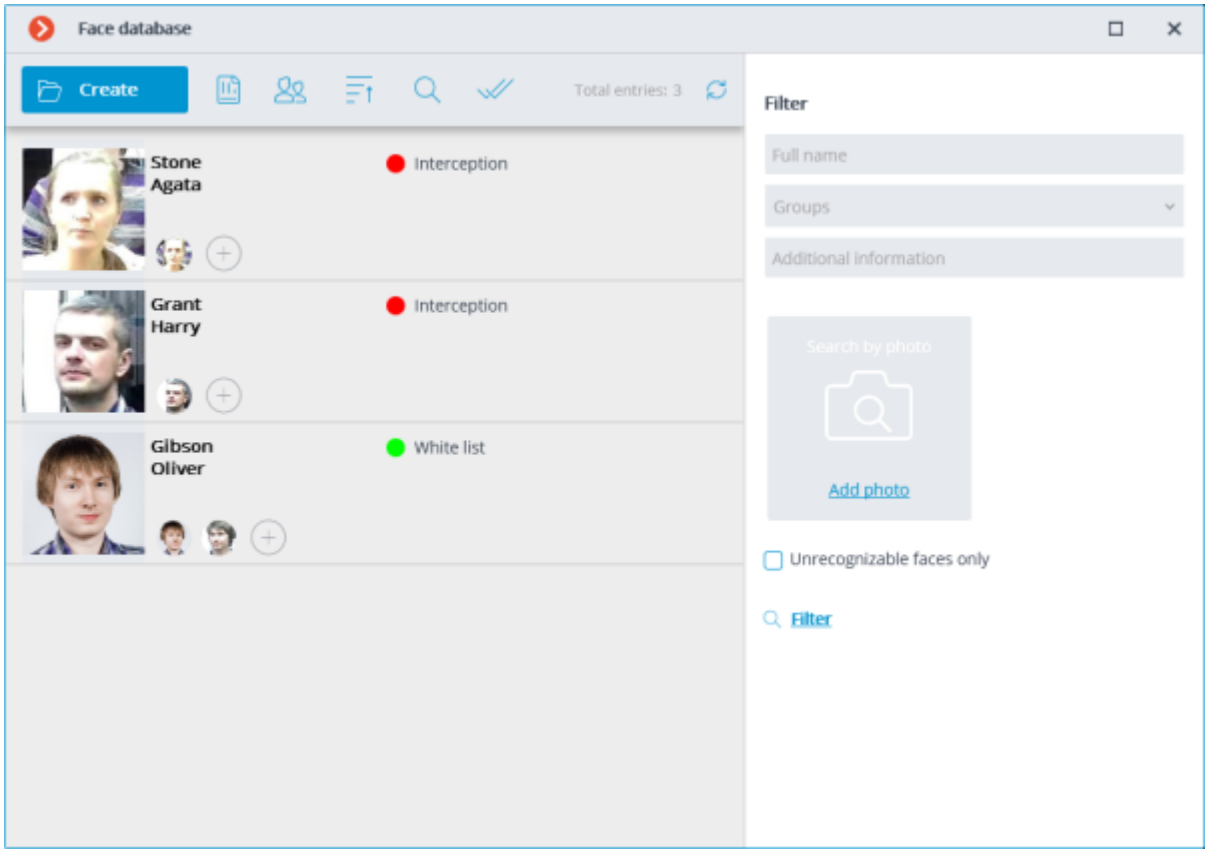
The date the entry was added to the database is displayed at the bottom of the entry card.



Search in the face database

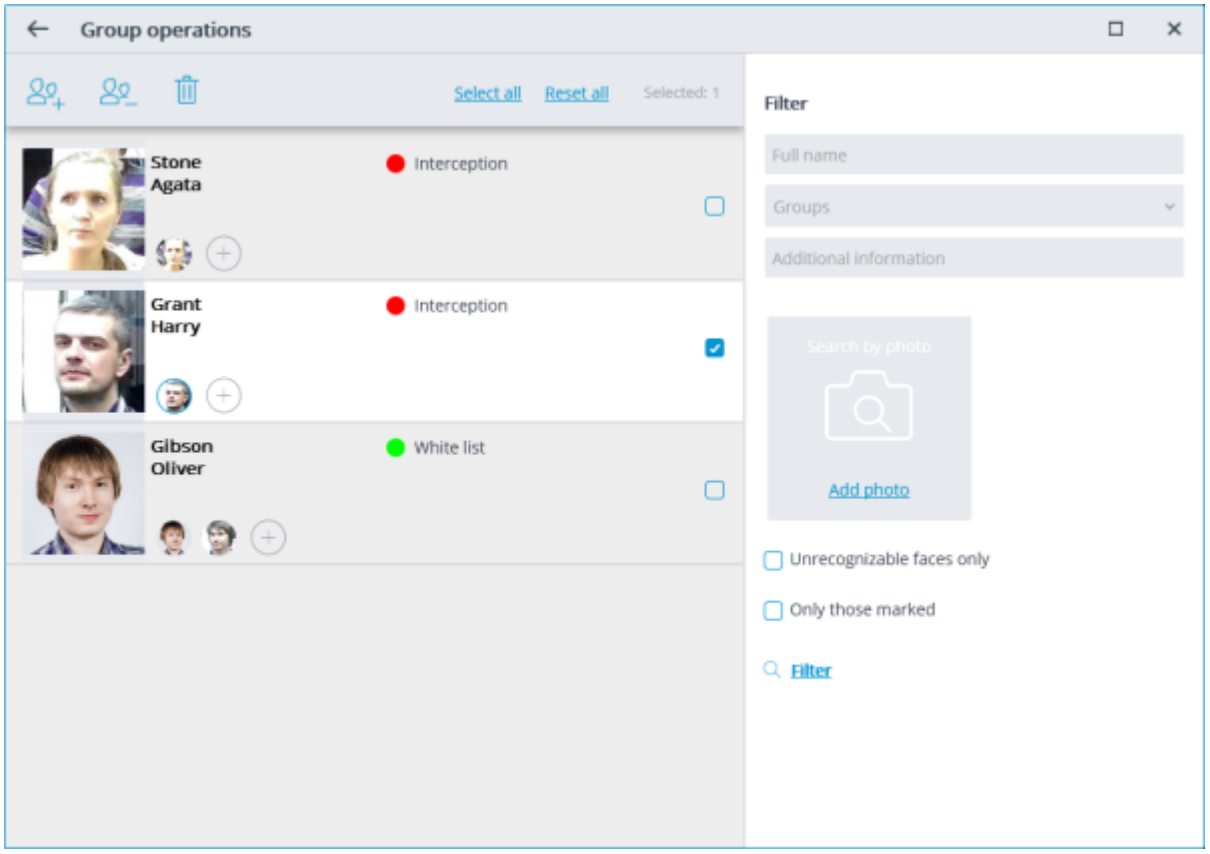
The search in the face database is performed by the following parameters: **Full name**, **Groups**, **Additional information**.

For the **Face Recognition (Complete)** module, a search by photo is available.



Group operations

To work with several entries at the same time, it is necessary to switch to the **Group operations** mode.



The following group operations are available:

- **Adding to groups**: allows to add all the selected entries of the face database to the marked groups.
- **Deletion from groups**: allows to remove all the selected entries in the marked groups from the face database.
- **Delete marked entries**: allows to remove all the selected entries from the face database.

Reopening the **Group operations** mode will discard all previously selected entries.

Capabilities

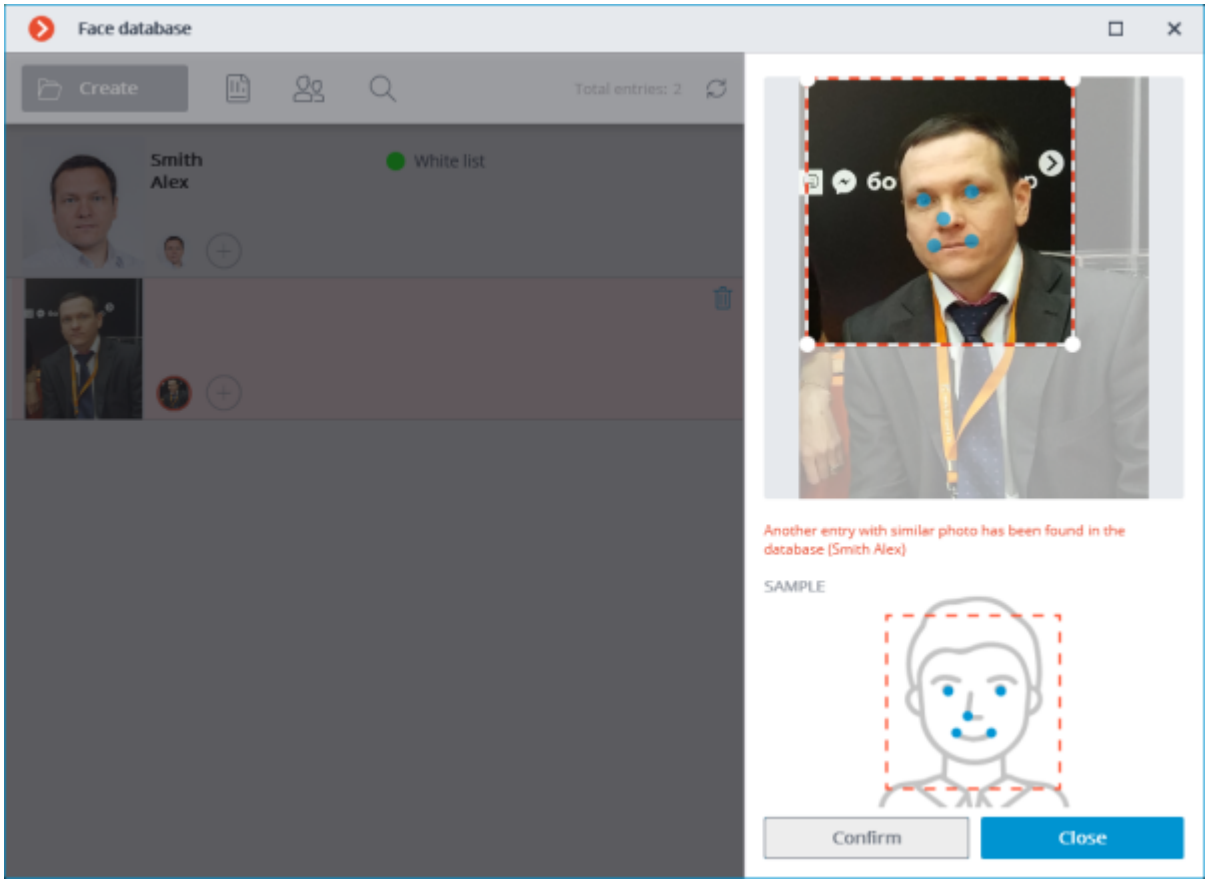
It is possible to add faces found by the Face Recognition module as well as to upload image files with faces to the database. It is also possible to add a new entry to the database and add a recognized face to an existing entry.

Each face database entry contains the following information: sample face images; surname, given name, patronymic of a person whose face images are in the entry; additional textual information about this person; groups the entry belongs to.

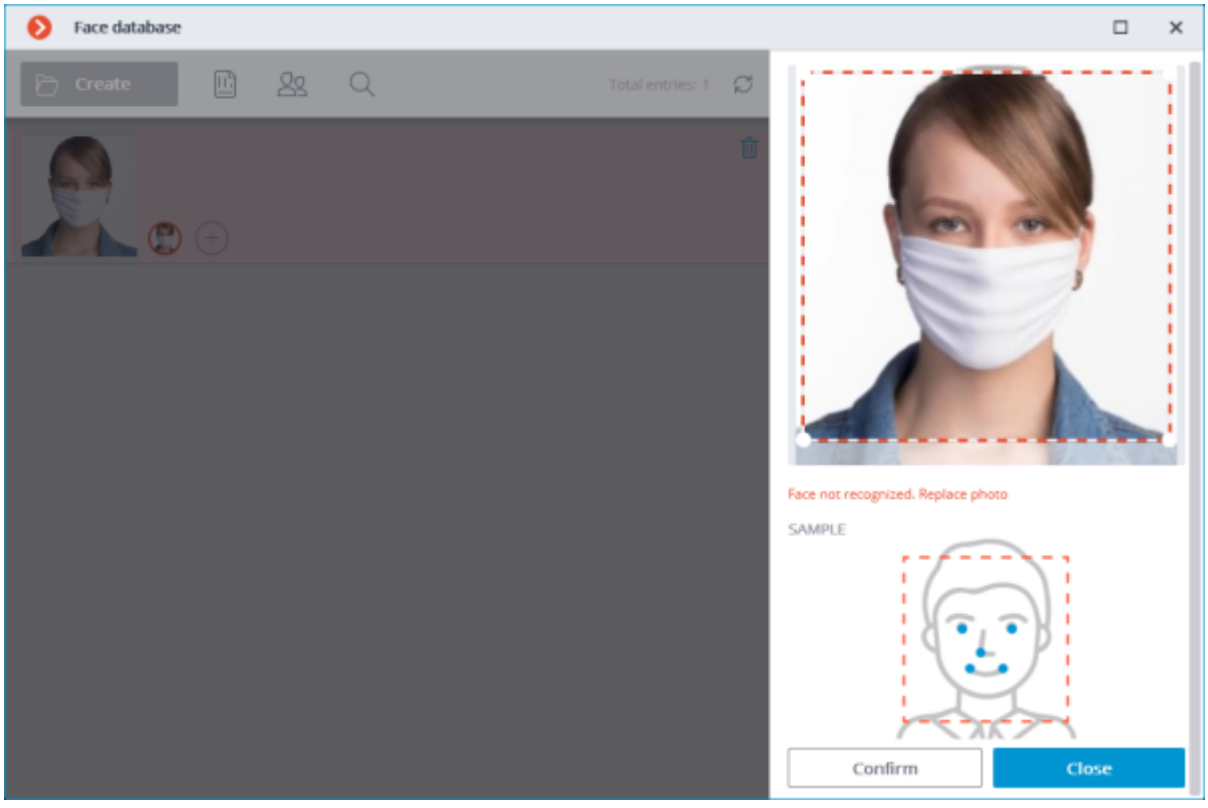
Each entry may contain up to 5 photos. When this limit is reached, the photo adding button will be unavailable.

The entry deletion button is located in the upper right corner of a highlighted entry.

When adding a new face to the database, it is possible to find out if there are duplicates of the given face in the database.



It is not possible to add images of masked faces to the database.



It is possible to add faces that do not meet quality requirements to the database, but they will not be used as samples for recognition. The unrecognized images will be marked with ; it is recommended to replace them with the samples that meet the requirements for recognition.

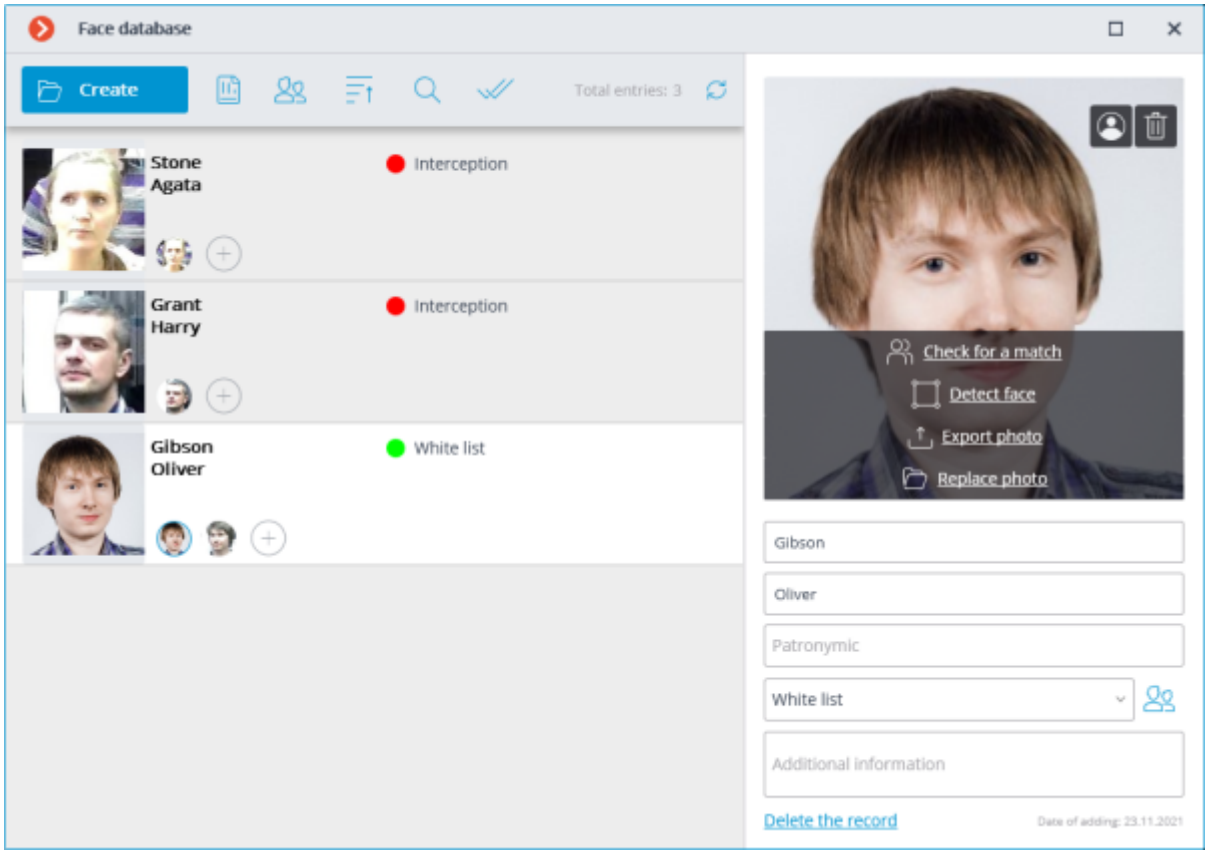
Editing panel

The panel for editing a highlighted entry can be found to the right of the list. The face sample is displayed in the upper part of the panel. The text fields with a surname, a given name, a patronymic and the additional information about a person are located below, together with the field with the list that allows selecting the groups. To the right of the list there is the button that opens the list of groups to be edited.

Saving the changes made in the database using the editing panel is performed when highlighting another entry in the list or when closing the face database window.

By default, the editing panel displays the first (the leftmost) face sample. To display another sample, it is required to click on the thumbnail of the sample in the database entry.

Hovering the mouse pointer over the face sample in the editing panel displays the **Check for a match**, **Detect face**, **Export photo** and **Replace photo** links in the lower part of the image; the sample deletion button appears in the upper right corner.



The **Check for a match** feature is only available for the **Face Recognition (Complete)** module and for recognized faces.

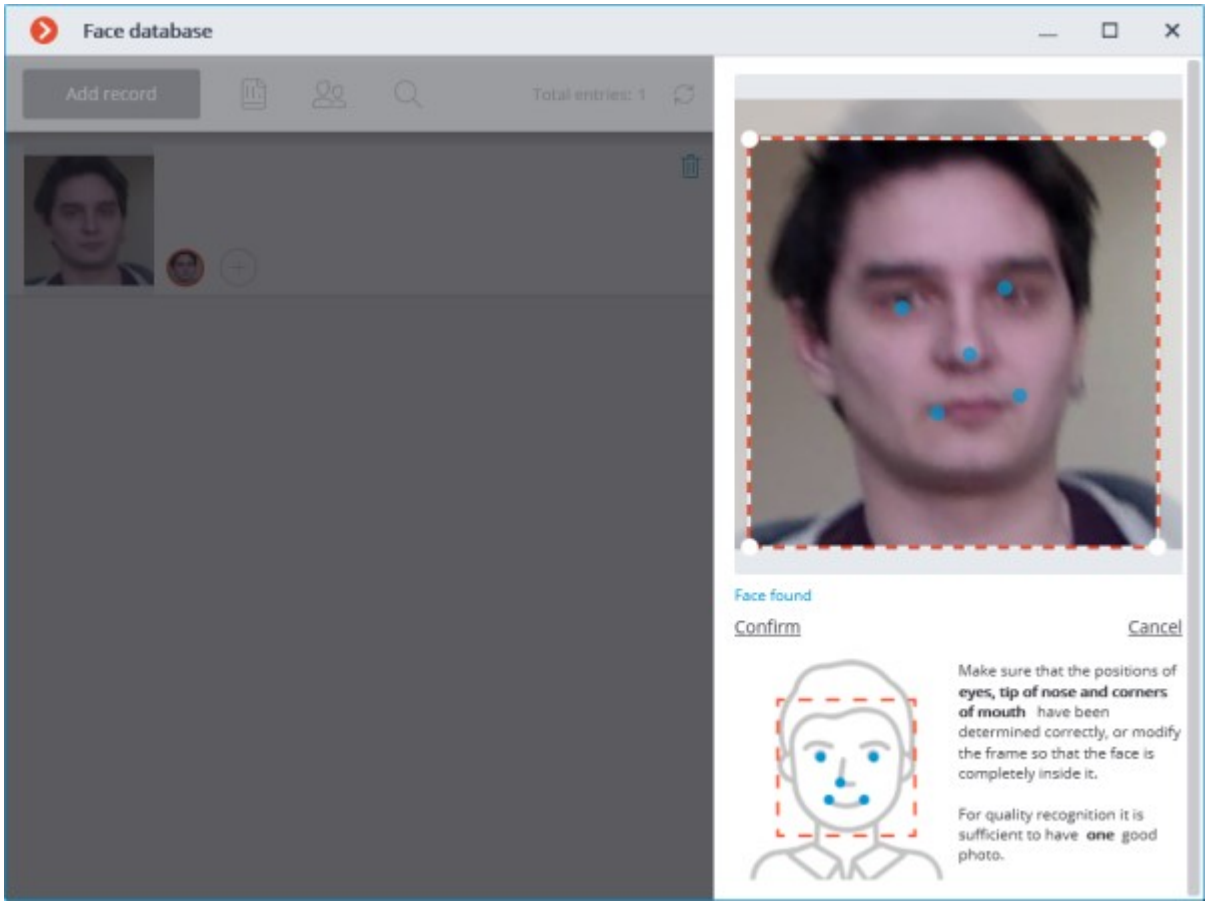
- **Detect face** launches the search for special points of a face.
- **Replace photo** opens the File Explorer for selecting an image file with the replacement face sample. The current sample will be deleted.

The face sample is deleted without confirmation, immediately after the delete button is pressed.

The sample deletion button is shown only for the entries that contain several samples.

The image of a face to be added from a file must not occupy more than one-third of the frame.

When adding a new face or when performing the Determine Face operation, the module attempts to find a face in the frame, highlight it with a frame and show the position of the eyes, tip of the nose and corners of the mouth.



If all the key points of the face are marked correctly, it is required to click on the **Confirm** link.

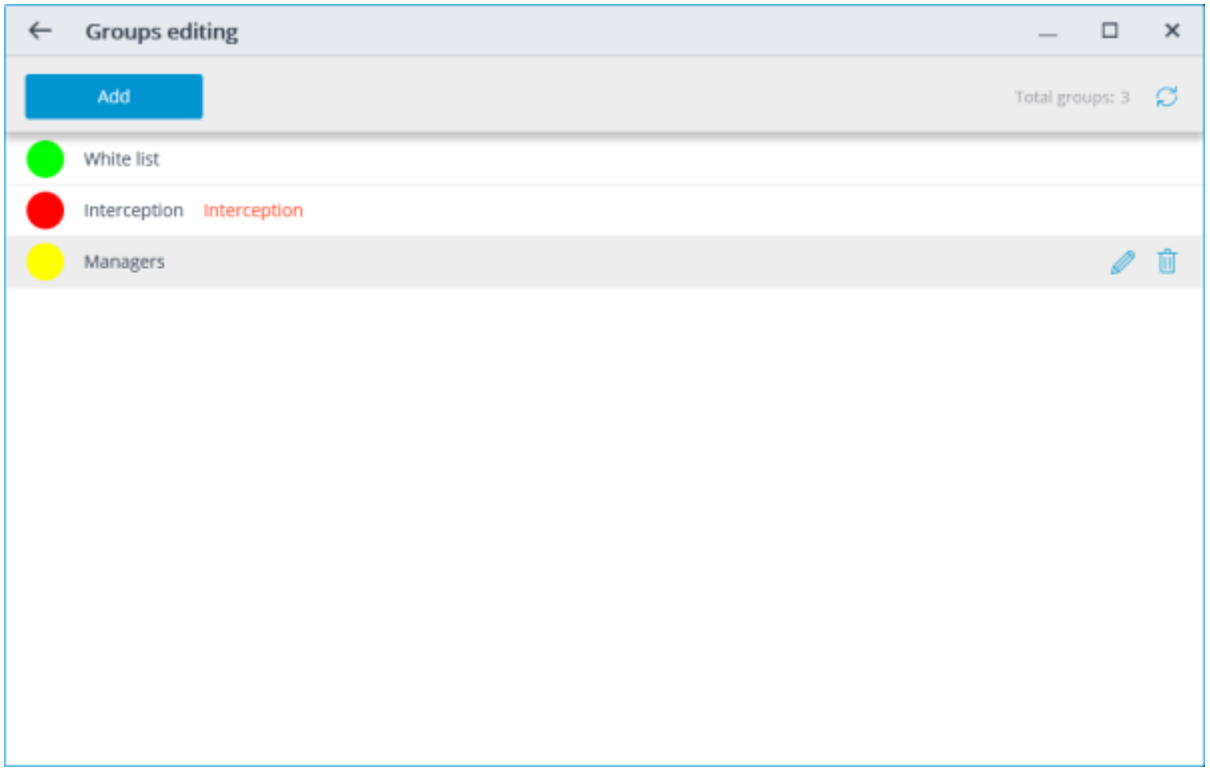
If the key points have not been found or are marked incorrectly, it is required to manually modify the position of the frame to ensure that it fully embraces the face and that the shoulders are also included. After that, the module will attempt to determine the key points again. If the modification of the frame does not help and the key points are not determined or are determined erroneously, it is required to cancel the loading of the image.

If there are several faces in the frame, the module will find one of them; if necessary, you can select a required face manually using a frame.

If the **Confirm** button is not pressed after finding the key points, the photo will be marked in the list by a red frame. It means that it is required to find the key points on the face and confirm them, or replace the image.

The unconfirmed samples are not entered into the database. The samples that are not compliant with the specified requirements are not entered either.

Editing the list of groups:



Each group must have a unique name.

You may also assign a color to the group: in this case, face of this group will be marked with this color in report and list of recognized faces.

You may also enable the **Face interception** option for the group, which may be used to configure the automatic actions.

Fire and Smoke Detector

The module is designed to detect smoke and open flames in the frame.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

To enable the information about the smoke and / or fire select **Show smoke** and / or **Show fire** in the cell context menu. In case of smoke or fire detection the relevant area of the frame will be color framed with **Possible Smoke** of **Possible Fire** header.

All the module events are recorded in the Events log.

FishEye Dewarping

This module is designed to dewarp images from fisheye cameras both in real-time viewing mode, and in the archive playback.

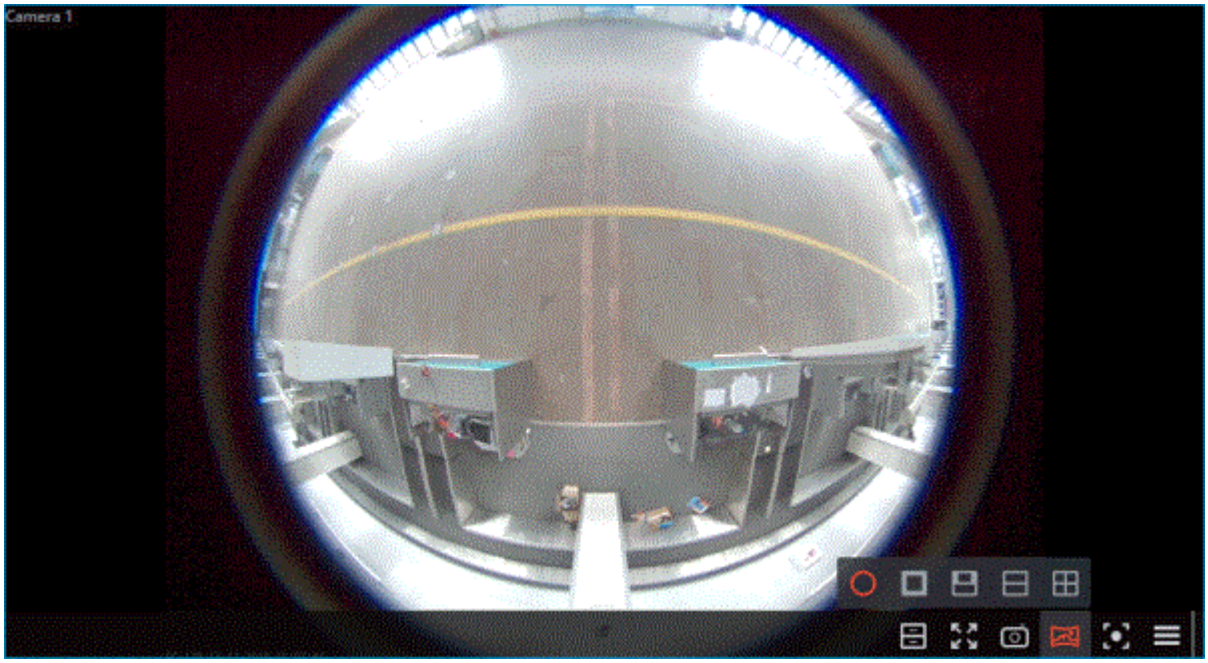
This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Features

The module differentiates cameras with Fisheye lens according to the installation manner to three types: **Ceiling-**, **Wall-** and **Floor-mounted**. Availability of dewarping modes for the camera depends on its type.

Dewarping modes available for **Ceiling-** and **Floor-mounted** cameras:

- Without dewarping
- Virtual PTZ mode
- 360° panorama + Virtual PTZ mode
- Double 180° panorama mode
- Dewarping 4×90°

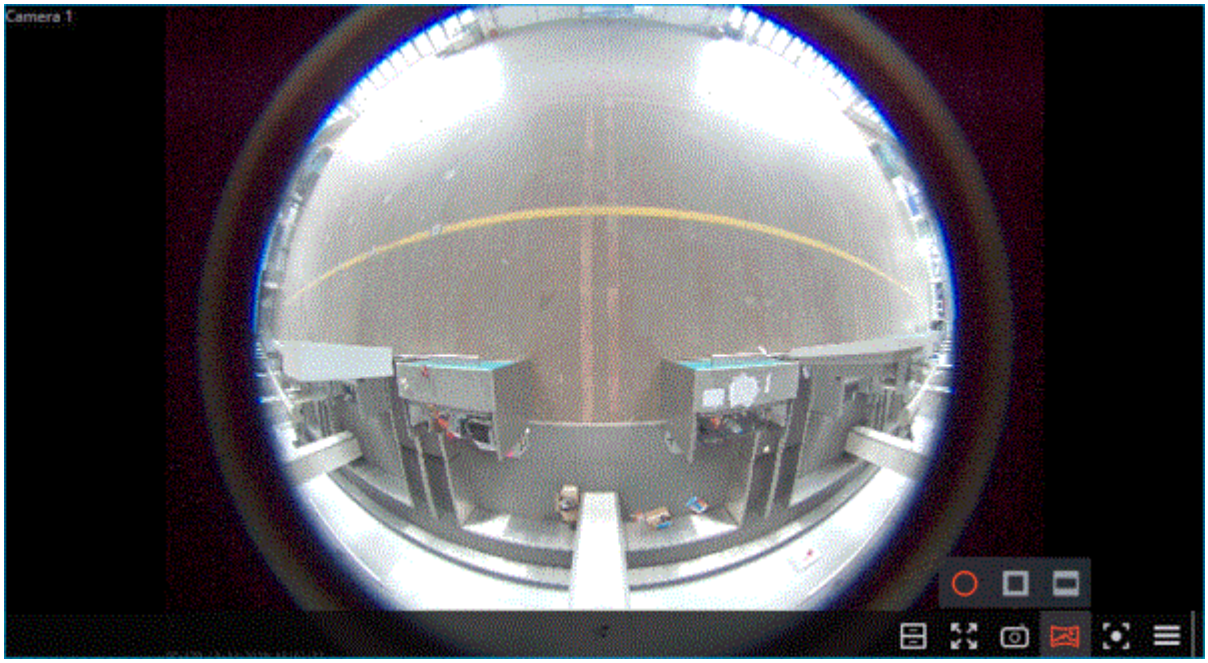


Dewarping modes available for **Wall-mounted** cameras:

Without dewarping

Virtual PTZ mode

180° panorama



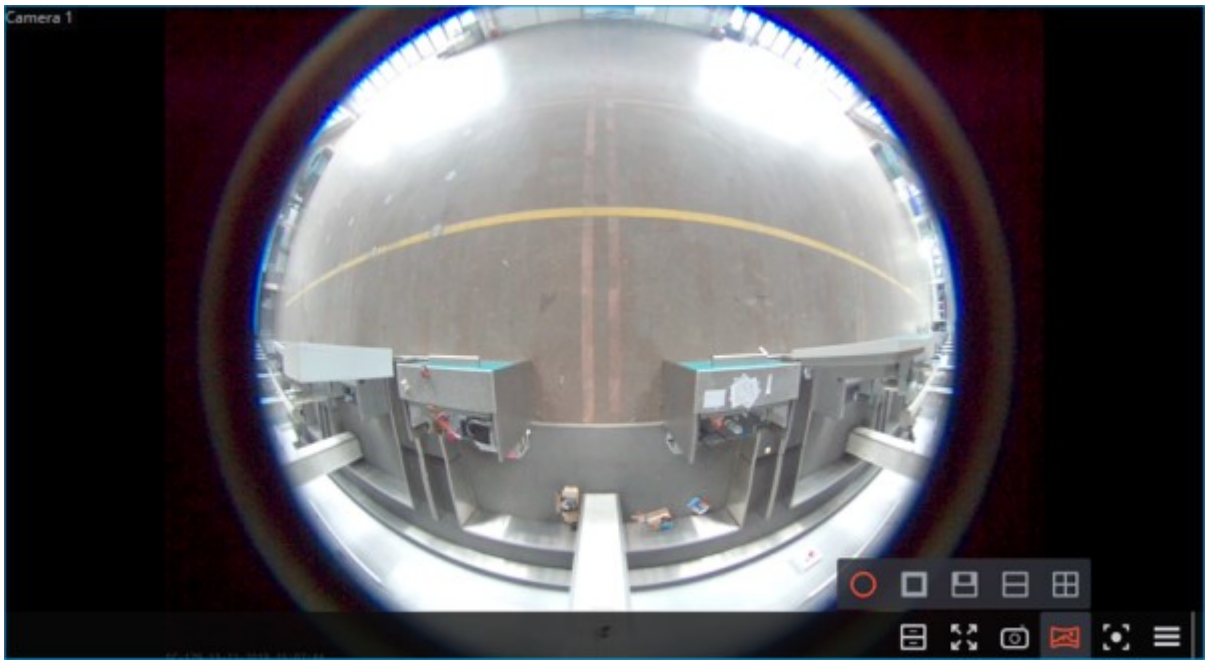
Dewarping is performed only for the convenience of visual monitoring. The module has no effect on the source stream received from the camera. Other video analytics modules, if activated, will process the stream received from the camera in its original form without dewarping.

Usage

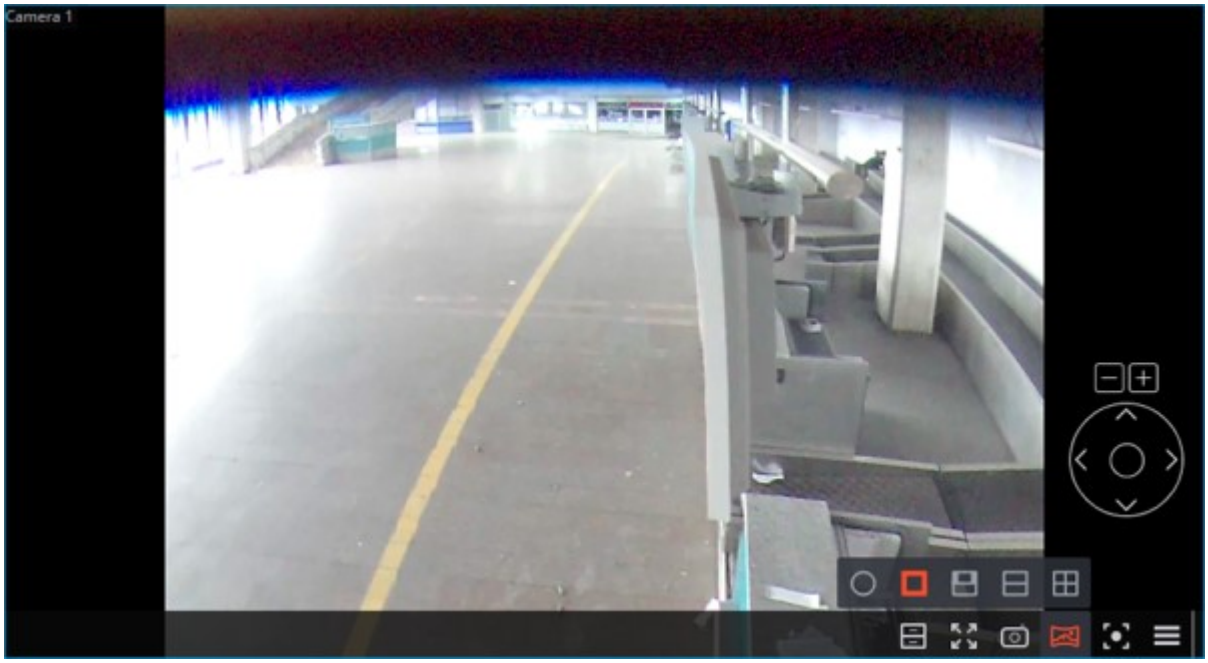
Image dewarping is enabled in the active cell, using the button. Doing so displays a panel with dewarping modes above the clicked button, and a virtual PTZ joystick appears on the right side of the cell to change position of the dewarped image.

The following is a description for each of the modes.

Without dewarping: The image in the cell is displayed as it was received from the camera.



Virtual PTZ mode: The image in the cell, when dewarped, simulates the functionality of a PTZ camera, creating a single 90° field of view.



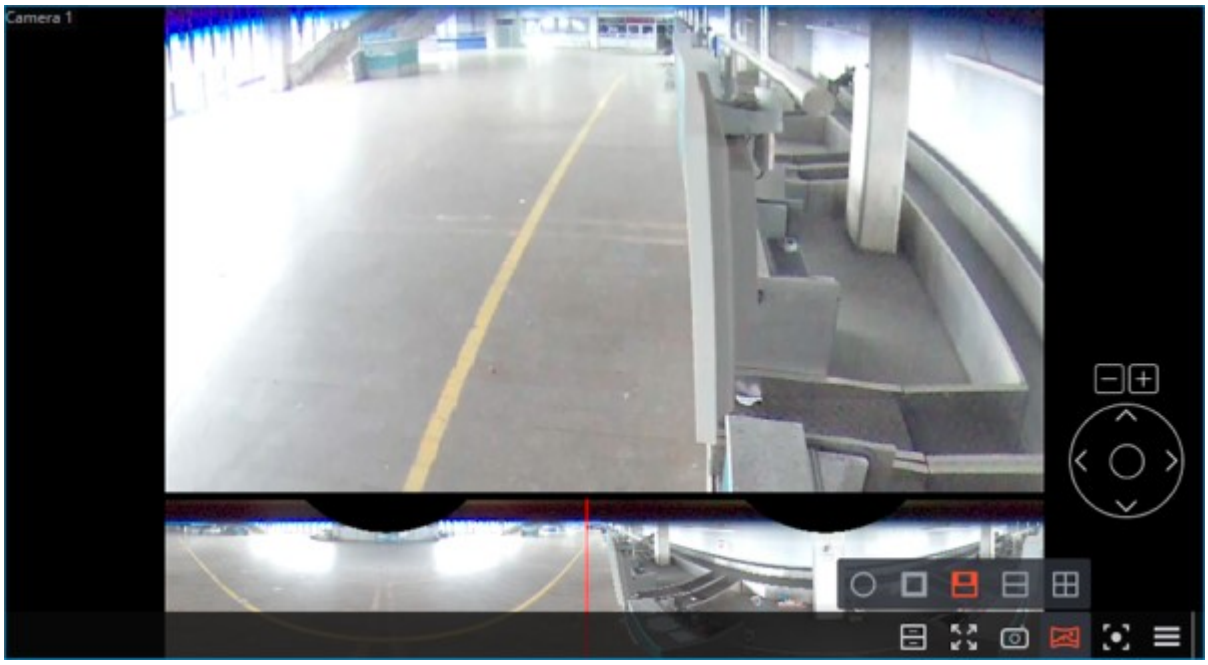
The following are ways to control the field of view.

Using mouse: Pan and tilt can be performed by dragging the camera image with the left button held down, zoom by using the scroll wheel.

Using the **virtual PTZ joystick displayed** in the bottom right part of the cell. Pan and tilt can be performed by dragging the joystick with the left mouse button held in the desired direction, zoom - by clicking the [redacted] and [redacted] buttons above the joystick.

Using a **physical PTZ control device** (PTZ keyboard, joystick) connected to the workplace. Pan, tilt and zoom can be performed according to the settings of the connected device.

360° panorama + Virtual PTZ mode: The cell displays the combination of a 360° panoramic view and virtual PTZ field of view. A red vertical line on the panorama shows the position of the part of the frame displayed by the virtual PTZ.



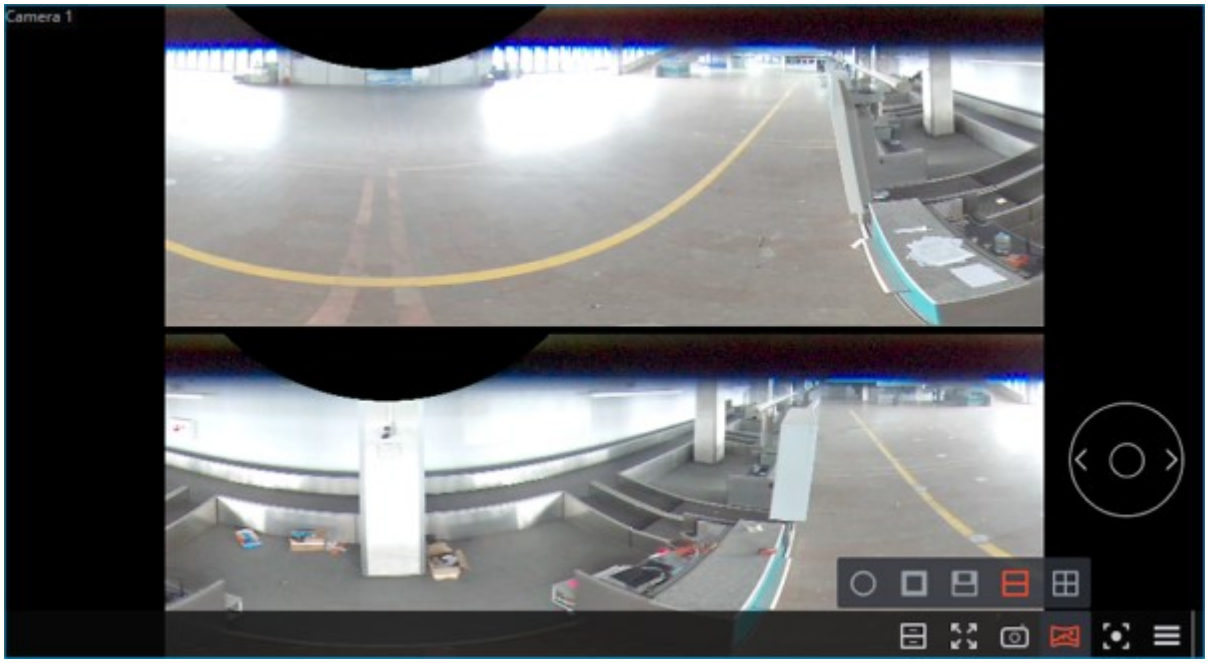
The following are ways to control the field of view.

Using mouse: Pan and tilt can be performed by dragging the camera image with the left button held down, zoom by using the scroll wheel. Mouse control is available only for the virtual PTZ field of view. No mouse control on the panoramic section is available.

Using the **virtual PTZ joystick displayed** in the bottom right part of the cell. Pan and tilt can be performed by dragging the joystick with the left mouse button held in the desired direction, zoom - by clicking the [redacted] and [redacted] buttons above the joystick.

Using a **physical PTZ control device** (PTZ keyboard, joystick) connected to the workplace. Pan, tilt and zoom can be performed according to the settings of the connected device.

Double 180° panorama mode: The cell displays a combination of two 180° panoramic fields of view placed one above the other. The field of view can be changed only by the horizontal axis. Zoom and Tilt are not available for this mode.



The following are ways to control the field of view.

Using the **virtual PTZ joystick displayed** in the bottom right part of the cell. Pan can be performed by dragging the joystick with the left mouse button held in the desired direction.

Using a **physical PTZ control device** (PTZ keyboard, joystick) connected to the workplace. Pan can be performed according to the settings of the connected device.

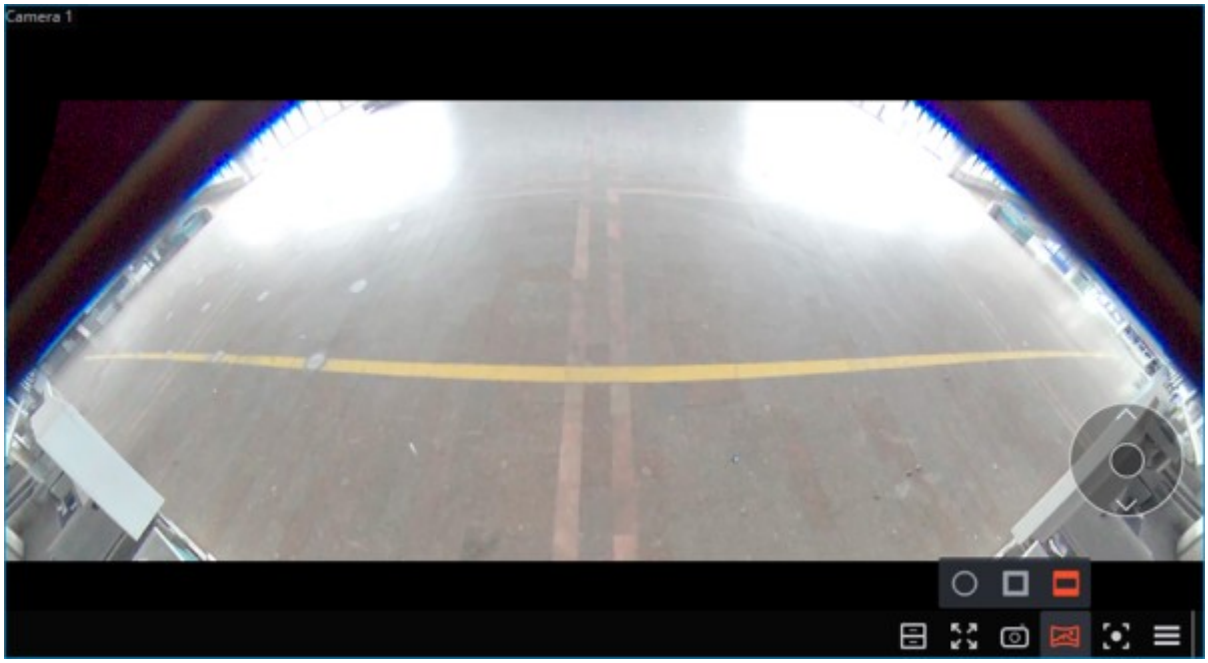
Dewarping 4×90°: The cell displays a combination of four 90° fields of view placed in a 2×2 grid. The field of view can be changed only by the horizontal axis. Zoom and Tilt are not available for this mode.

The following are ways to control the field of view.

Using the **virtual PTZ joystick displayed** in the bottom right part of the cell. Pan can be performed by dragging the joystick with the left mouse button held in the desired direction.

Using a **physical PTZ control device** (PTZ keyboard, joystick) connected to the workplace. Pan can be performed according to the settings of the connected device.

180° panorama: The cell displays a single 180° panoramic field of view. The field of view can be changed only by the vertical axis. Zoom and Pan are not available for this mode.



The following are ways to control the field of view.

Using the **virtual PTZ joystick displayed** in the bottom right part of the cell. Tilt can be performed by dragging the joystick with the left mouse button held in the desired direction.

Using a **physical PTZ control device** (PTZ keyboard, joystick) connected to the workplace. Tilt can be performed according to the settings of the connected device.

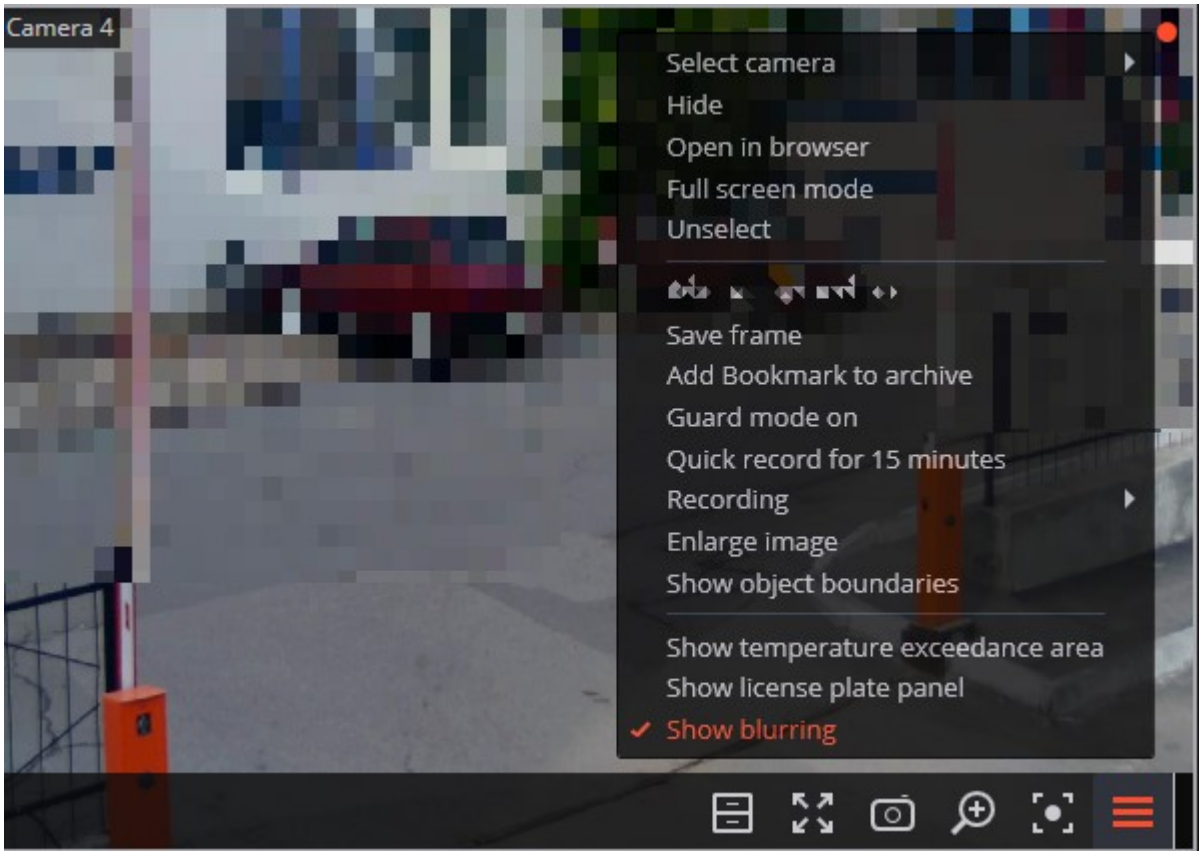
Configuration

Configuration of the module can be performed in the Eocortex Configurator application.

Frame Area Blurring

The **Frame Area Blurring** module is designed to blur the specified areas of the frame on a real-time and archived video.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.



If the user is authorized to disable blurring, the context menu will have the corresponding item.

Frame Area Blurring works when viewing live and archived video in the **Eocortex Client** application.

Frame Area Blurring does not directly affect the video received from the camera and recorded to the archive. Thus, blurring does not work when exporting archive video and saving frames.

Heat Map

The **Heat Map module** is designed to visualize the traffic density in various areas of the frame. A Heat Map is formed by summing up the time during which a movement was observed in a certain point — as a result the areas where objects stay more often and for the longest time are highlighted.

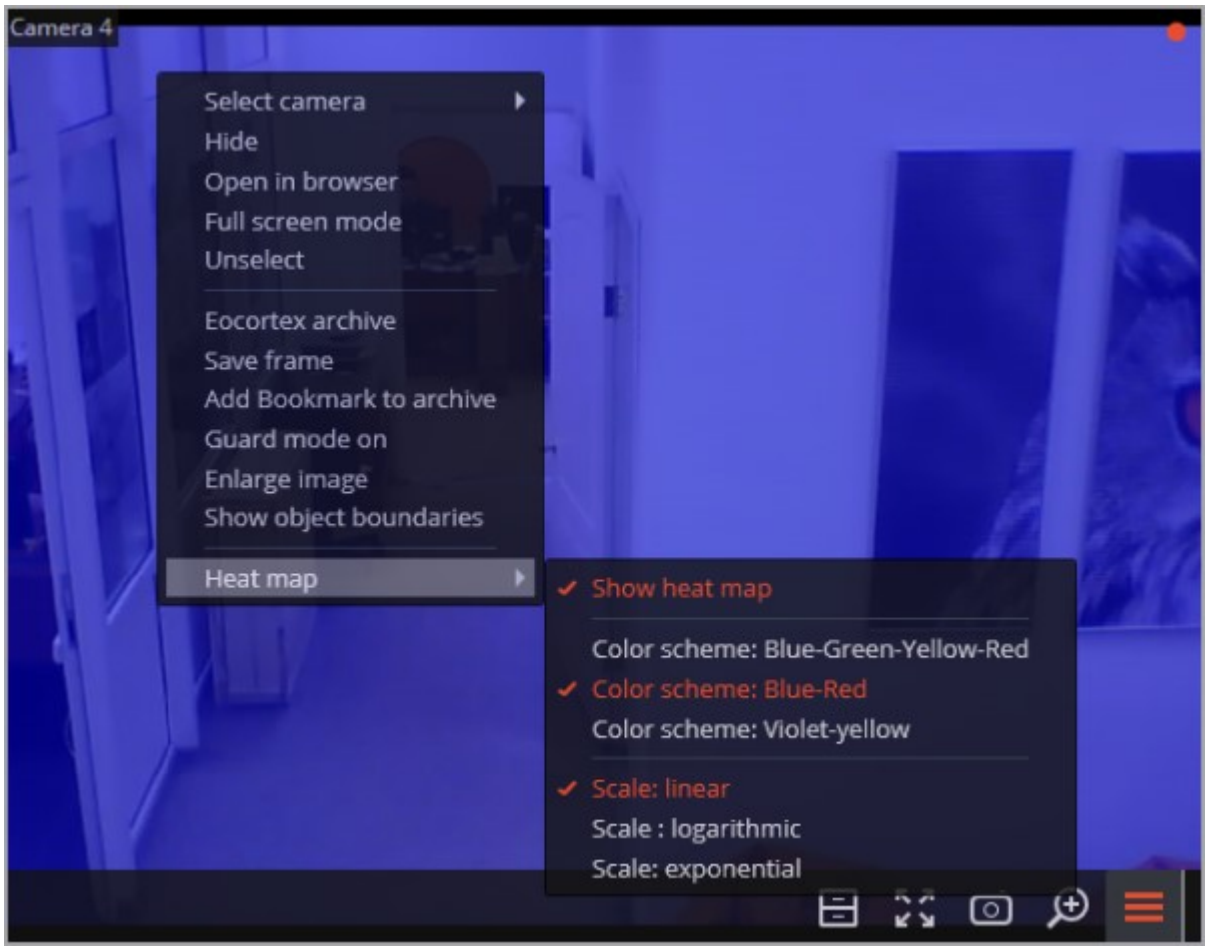
A color scale is used to visualize the traffic density: areas are overlaid with transparent color stains according to the traffic density in a video image. For example, if you use a four-color scale, red color denotes high density areas, blue — low density; green and yellow colors are transient.

The **Heat Map module** can be used to determine the popularity of different places (racks, cabinets) in a store, preferred routes for people or vehicles, as well as to analyze visit statistics of various objects.

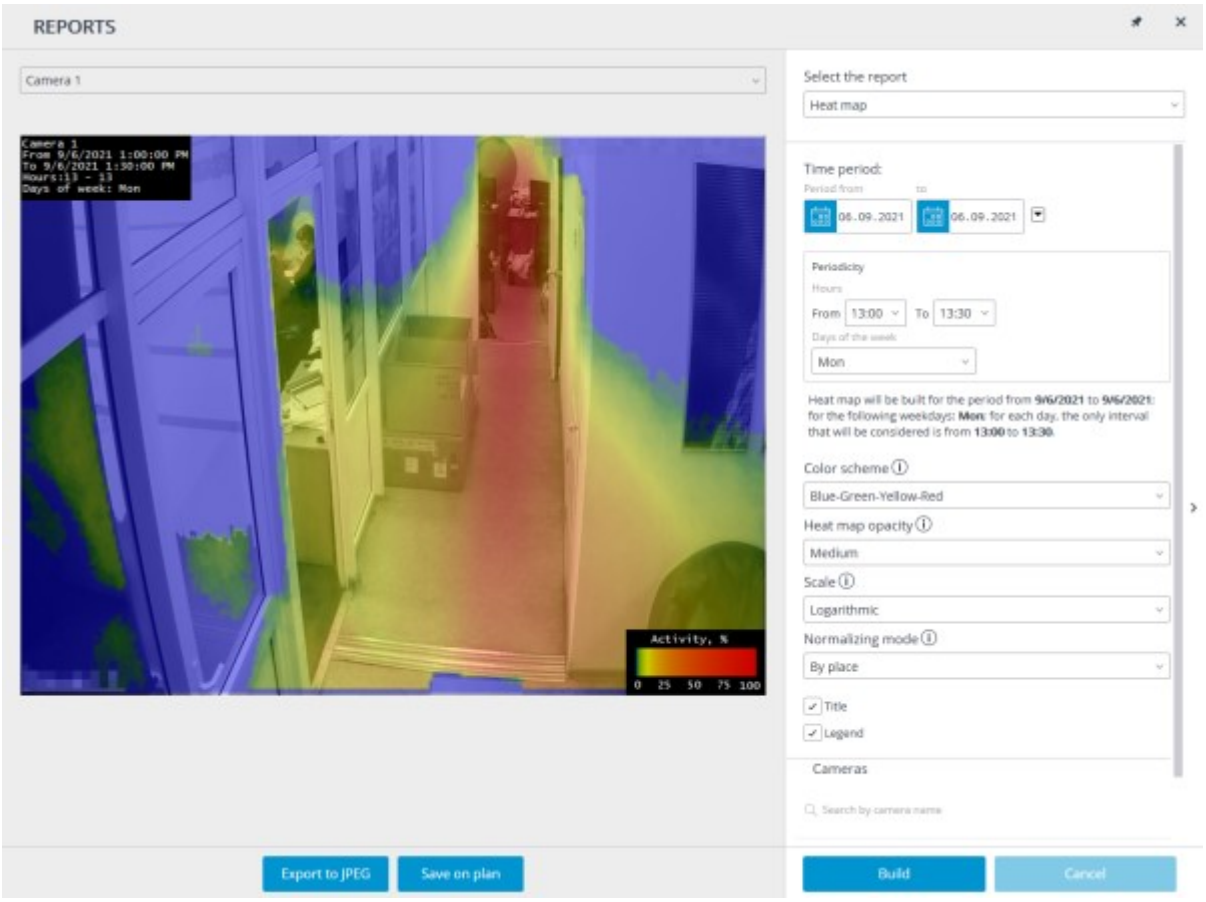
There are three options for using heat maps: real-time mode, scheduled report and camera field of view overlaid on an object plan. In the real-time mode only areas with movement for the last 10 seconds are displayed in the frame. The scheduled report sets the interval of time used to analyze traffic density in the frame. Camera field of view overlaid allows creating a Heat Map not only in the frame but also on an object plan.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

In order to enable **Heat Map** in the cell, select **Heat Map** item in the context menu, then in the open submenu select **Show heat map**. Also, in this menu you can choose a scale and a color scheme of the Heat Map.



To create reports, open the Control Panel and select **Reports** in the **Main Menu**.



In **Select report** field, select the **Heat Map** option.

Set the **Time interval** for which the report will be generated. Also, in the field with the list you can indicate an interval before the current time for which a report shall be generated. To do that, you will need to select one of the following: **Minute, Hour, Day, Week, Month.**

Choose **Transparency**, **Scale**, and **Value Calculation Mode**.

Select **Cameras and zones** for which the report will be created.

Additionally, the following parameters are available to report generation:

Hours – the hours during which the motion in the frame will be taken into consideration.

Week days – the days of the week during which the motion in the frame will be taken into consideration.
The weekdays can be selected by ticking boxes in the pop-up menu.

Color scheme – type of color scheme for filling the heat map.

Transparency of the Heat Map superimposed over the camera image.

Scale – toggles the color scale to non-linear **Header** which displays the following in the upper left corner of the heat map: camera name, interval, weekdays and hours used for creating a heat map.

Value calculation mode determines how the maximum density value will be determined in each point on the heat map.

Header is the text displayed in the lower right corner of the heat map.

Legend displays a legend in the lower right corner of the Heat Map which matches the scale colors with the levels of movement density.

To generate a report, click **Build**. To abort, click **Cancel**.

After generating the report, the **Show Heat Map for given time** scale will appear. It allows to review the reports for the shorter periods of time within the generated report.

To save the report to a disc, press **Export to JPEG.**
In the opened window choose a location where to save the report and press **Save**.

Save on the map button allows to upload the file with Heat Map images superimposed on the corresponding cameras' fields of view on the plan to a disc.

License Plates Recognition

The **License Plates Recognition module** has the following features:

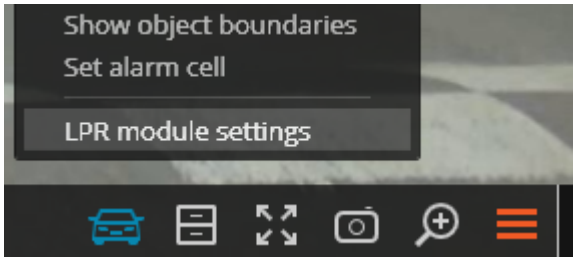
- Recognition of license plates of moving cars and archiving of information about the time and date of recognition, the license plate, as well as the reference to the corresponding video frame.
- Real-time interception of recognized license plates listed in a database.
- Support of the embedded database of license plates: adding and editing license plates, additional information (color, owner, etc.) on vehicles.
- License plate groups, including groups for interception and automatic barrier opening; one license plate can be assigned to one or more groups.
- Search of recognized license plates in the archive by time, date and details from a database.
- Export of the list of recognized license plates in Microsoft Excel or CSV formats.
- Barrier control.
- Counting the total number of vehicles in the parking lot.
- Calculation of the total time of presence of the vehicle in the parking lot. Detection of vehicles that violate the maximum presence time.

The module works only with those cameras on which it is activated in the system settings by the administrator. The functionality, such as the barrier gate control, also depends on the settings.

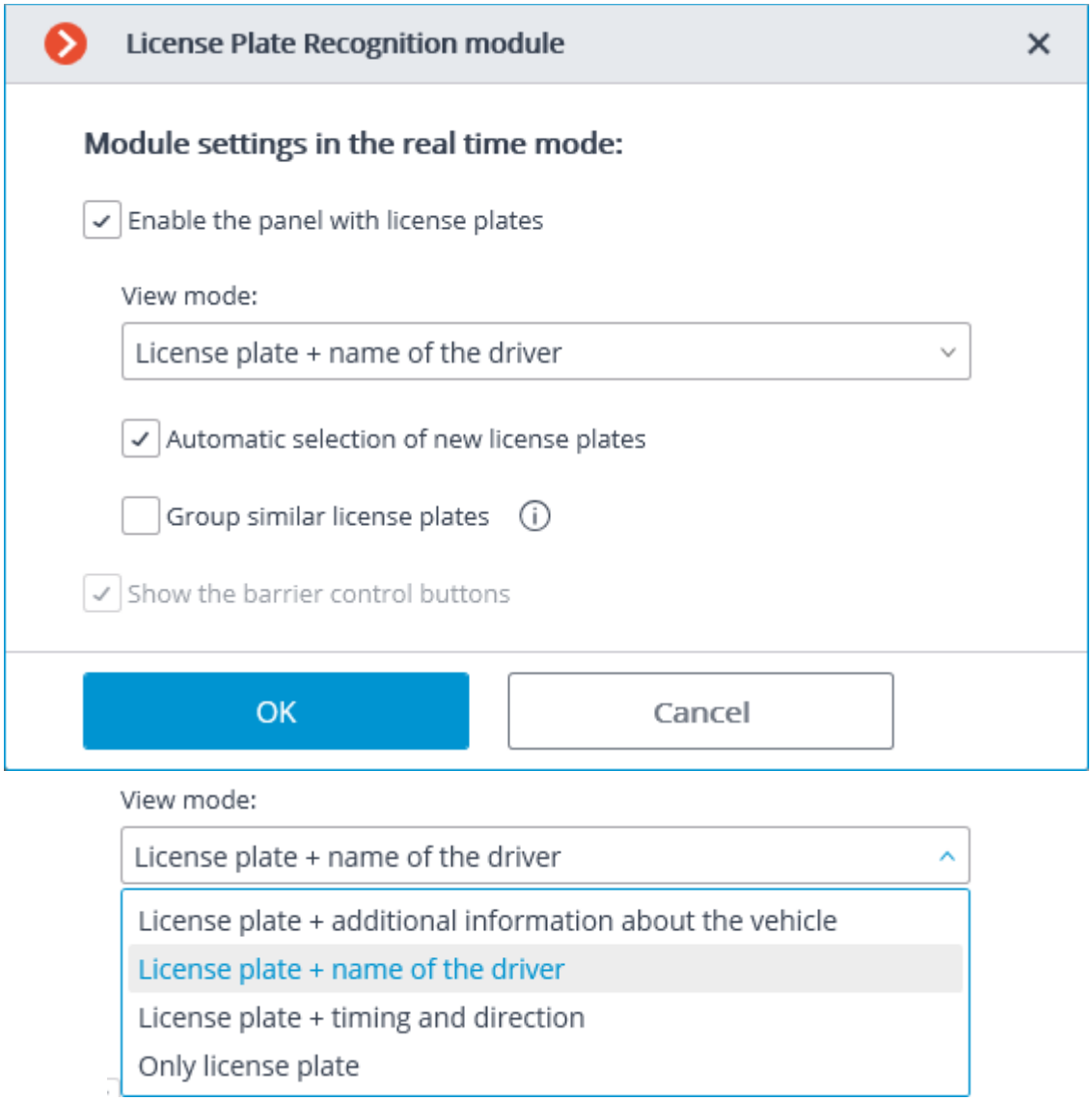
Live view

Display settings

In live view mode, you can turn on the display of the recognized license plates as well as the interface control of the barrier. To do this, select the cell and click the icon, or select **LPR module settings** in the context menu — module settings window will open.



Setting, available in this window, are listed below:



Enable the panel with number plates enables display of the panel (on the right side of the cell) with a list of recognized license plates.

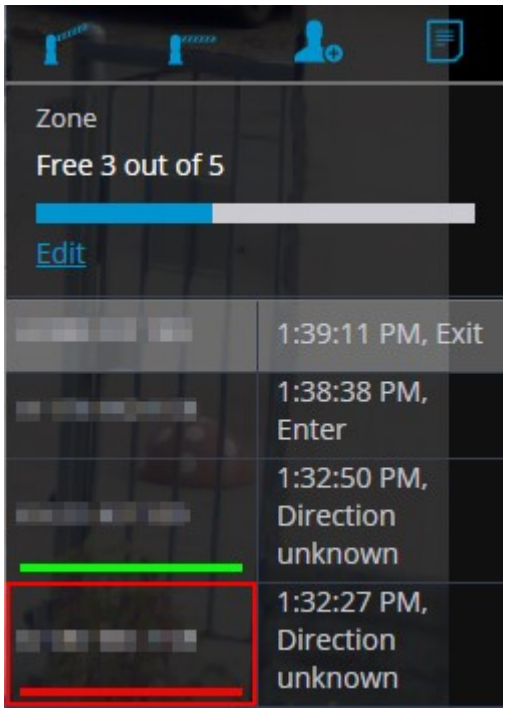
View mode allows to configure the displayed information.

If **Automatic selection of the new number plates** is checked, the last recognized license plate shall be highlighted in the recognized license plates list.

If **Group similar number plates** is checked, only one entry will be in the list for those license plates, which have been recognized several times in 5 minutes.

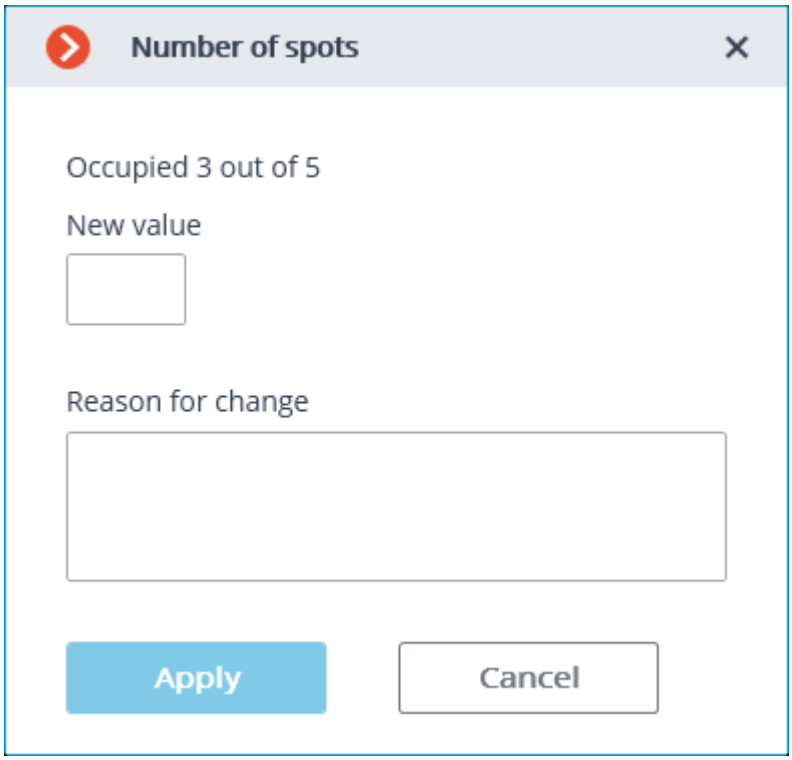
If **Show the barrier control buttons** is checked, **Open / Close barrier** buttons will be displayed at the top of the panel: when clicking these buttons, commands are sent for closing and opening of the barrier. As most of the barriers are closed automatically, closing button may remain unused. This option is available when the barrier control mode is enabled on the channel.

Recognized license plates panel



At the top of the panel there are buttons for adding a license plate number to the database , opening a report window , as well as opening and closing the barrier gate .

If parking lots are configured in the module settings, their current status is displayed under the control buttons. Clicking on the **Edit** button opens a window in which the user can manually set the number of currently occupied parking spots.



Changes to the counter value cannot be applied without specifying a reason in the Reason of change field.

Changes to the counter value can only be performed by those users who have the corresponding right activated in the system settings.

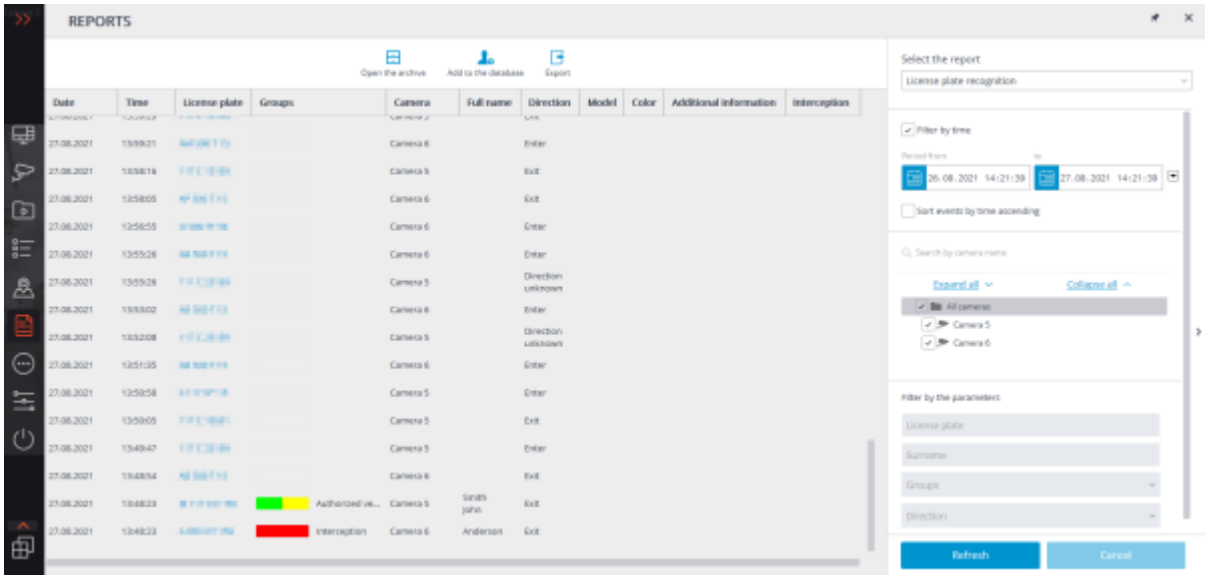
List of recognized license plates is displayed below in descending time order.

If a license plate is a member of one or more groups, a bar with the colors, assigned to these groups, is placed below it.

Double-clicking on the row in the list allows to open the archive window with the moment of recognition of this license plate.

License plate recognition report

License plate recognition report displays the recognized license plates.



This report represents a table, in which each row contains the recognized license plate, date and time of recognition, camera name, as well as other info from the database, bound with license plate (if this license plate exists in the database).

Using the mouse, you can change the order and width of the columns.

The following buttons are available at the top of the report:

Open the archive button opens this license plate recognition moment on archive view page (may also switch to the archive view page by double-clicking on the row).

Edit in the database / **Add to database** buttons open the window for addition/editing of the person's data in database. This allows to change the information about the license plate owner, as well as add new license plate samples.

Export button opens the window for exporting recognized plates to Excel and CSV files.

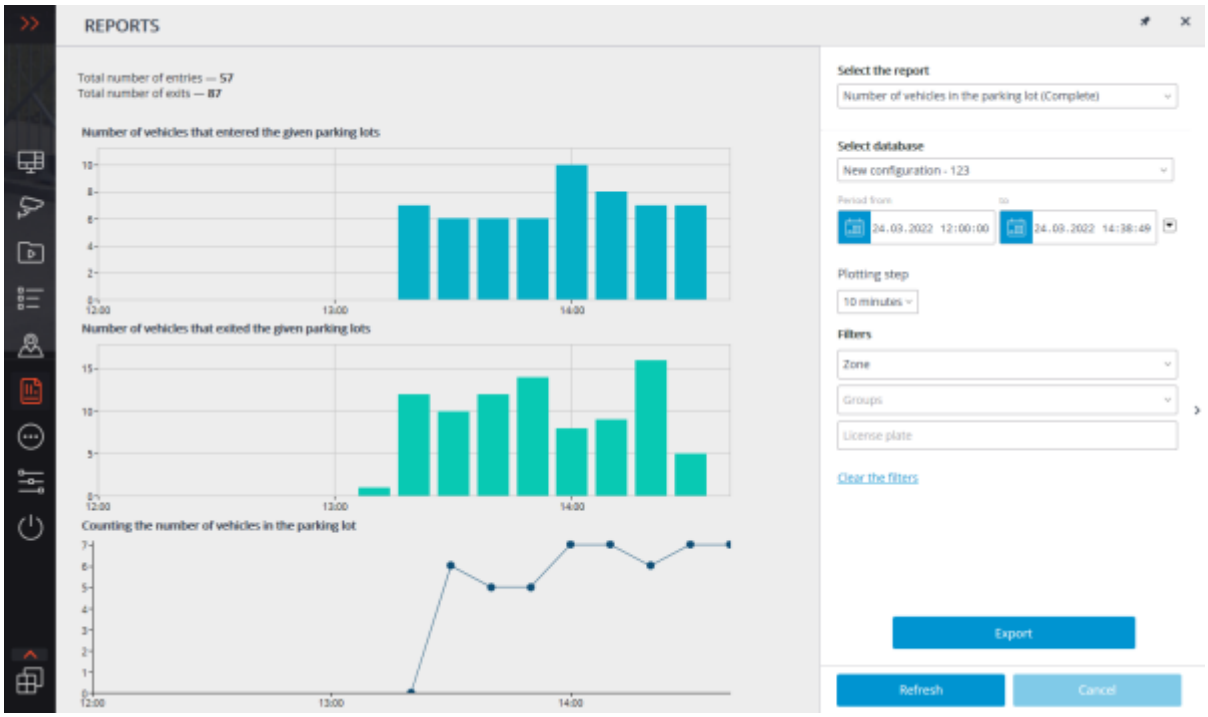
By default, recognized license plates are displayed in descending time order. The list and order of the displayed recognized license plates in the report may be changed, using filter panel, located on the right.

The list may be filtered by time, cameras, groups and other parameters.

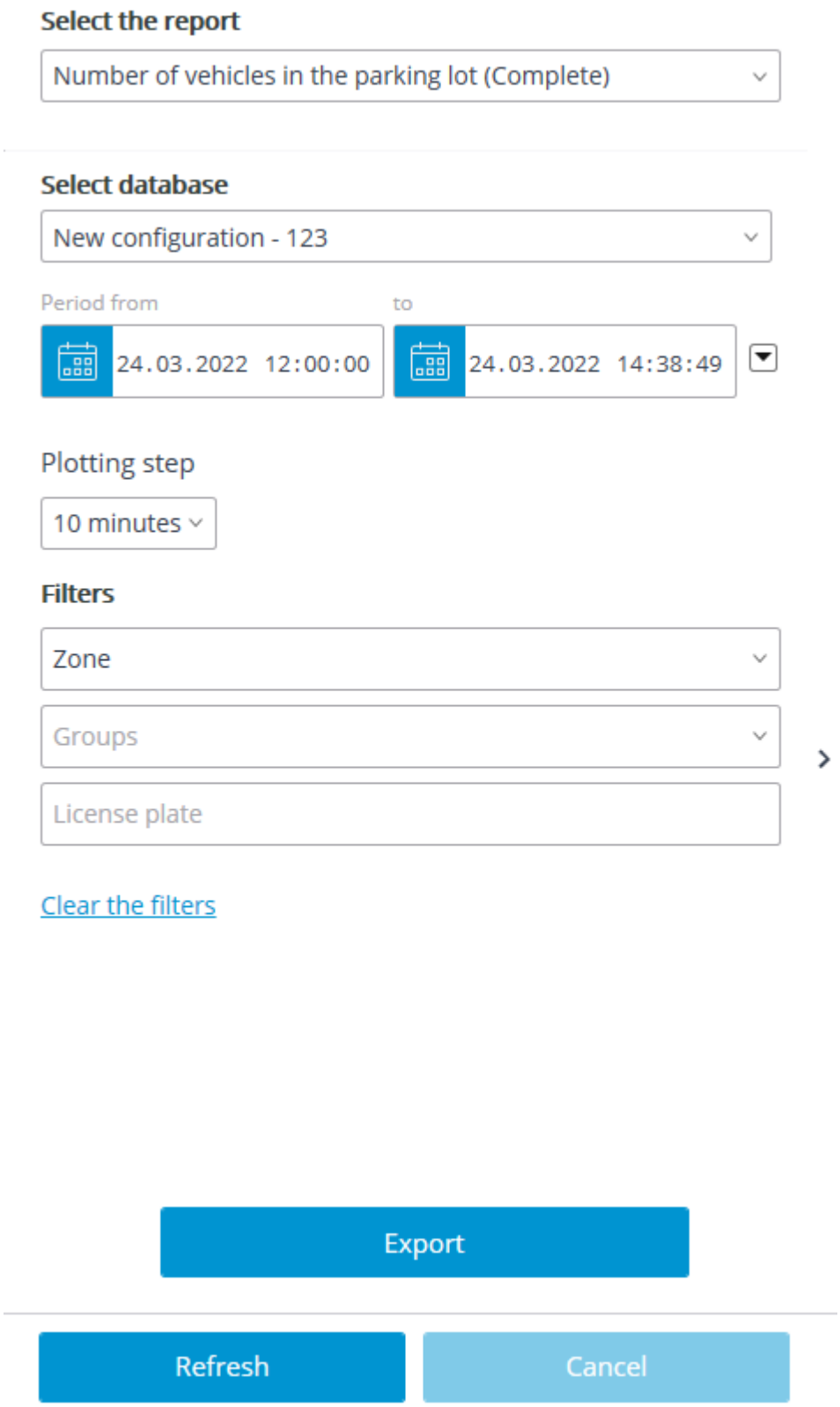
When filtering by time, you may also change the chronological order of the items.

The Number of vehicles in the parking lot report

The **Number of vehicles in the parking lot** report displays the number of vehicles counted as being in the parking lot for the selected time interval.



To generate a report, set the time interval, select the plotting step, select at least one parking lot for which the report will be generated and click the **Refresh** button.



The availability of **plotting step** options depends on the selected time interval and is subject to the following rules:

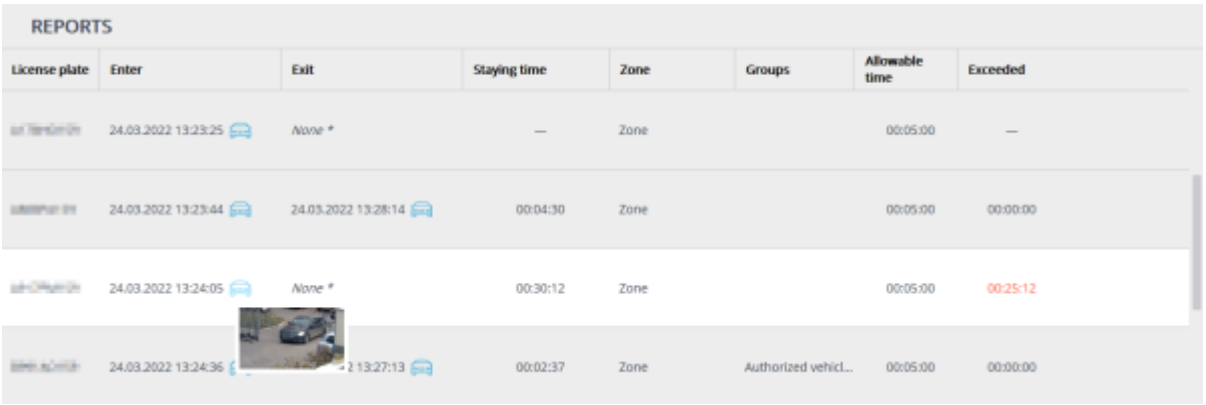
- if an interval less than 60 minutes is selected, then the **minute** step is available;
- if an interval of at least 10 minutes, but not more than 12 hours is selected, then the **10 minutes** step is available;
- if an interval of at least 60 minutes, but not more than 48 hours is selected, then the **hour** step is available;

- if an interval of at least 1 day but not more than 60 days is selected, then the **day** step is available;
- if an interval of at least 1 month is selected, then the **month** step is available.

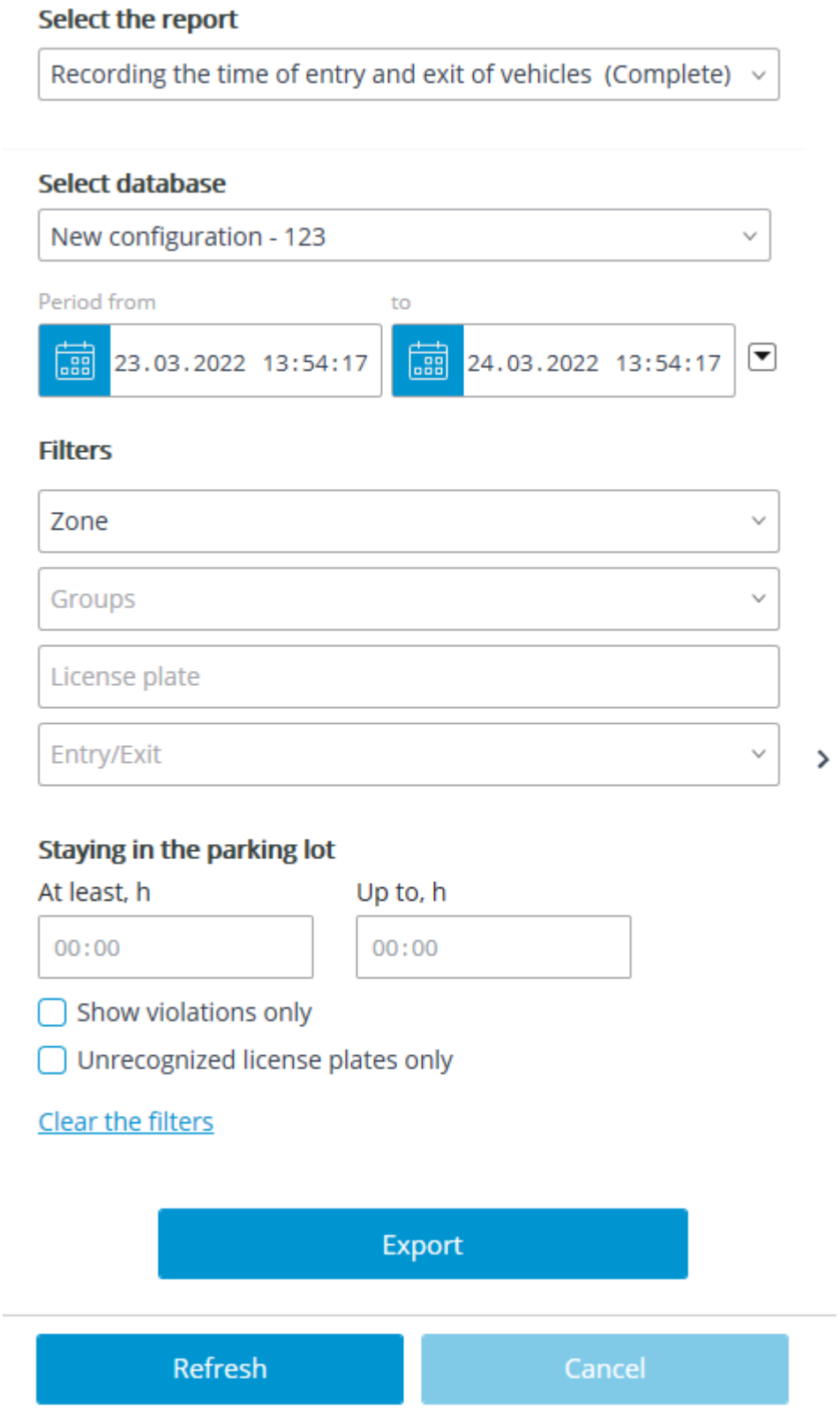
The report can be exported to CSV or Excel formats by clicking the Export button.

The Recording the time of entry and exit of vehicles report

The **Recording the time of entry and exit of vehicles** report displays for each vehicle the time of entry, the time of exit, the total time of staying in the parking lot and the fact that the allowed time to stay in the parking lot was exceeded.



To generate a report, set the time interval, select at least one parking lot for which the report will be generated and click the **Refresh** button.

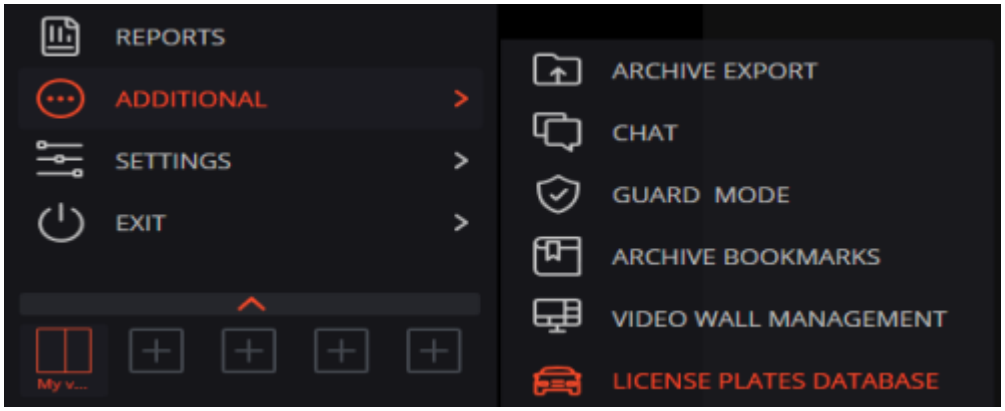


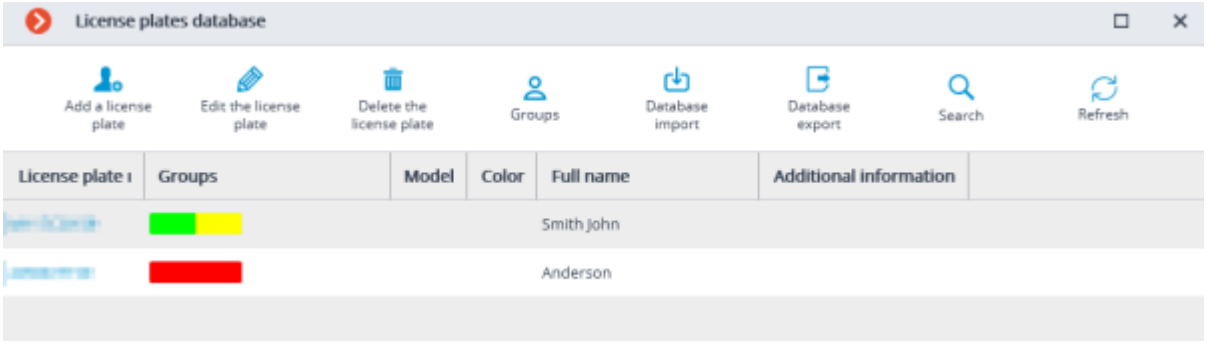
The report can be exported to CSV or Excel formats by clicking the Export button.

License plates database

License plates database contains the following information: license number; group in which this entry is included; model and color of the vehicle; owner's name; additional information.

To open the license plates database, expand the Control panel, select Tools in the Main menu, and then — the appropriate item in the submenu.



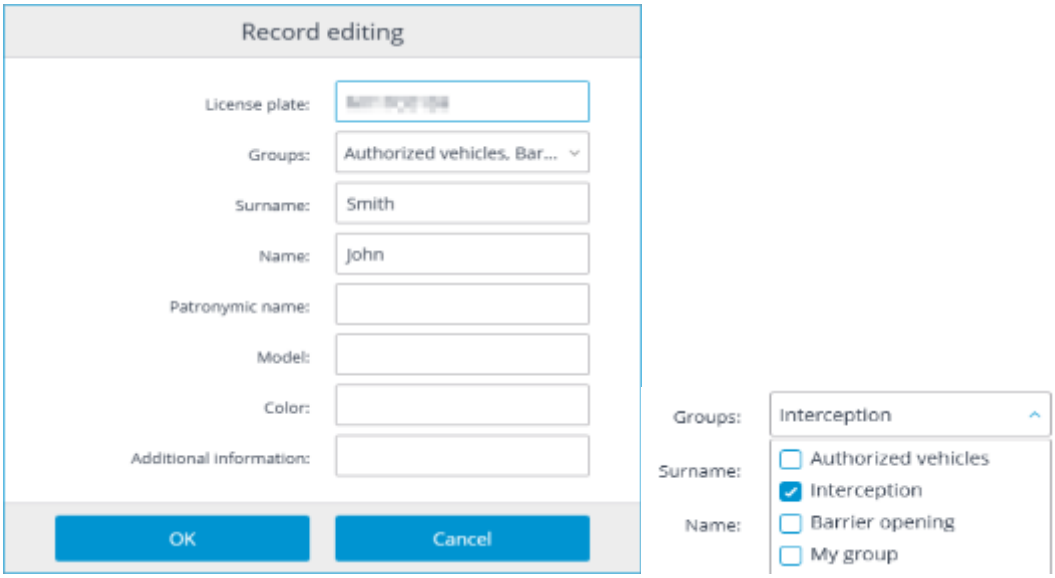


The following buttons are located at the top of the page:

Search button opens the license plate search form.

Delete the number plate button deletes the selected entry from the database.

Add / **Edit the number plate** button opens the form for addition/editing of the entry.



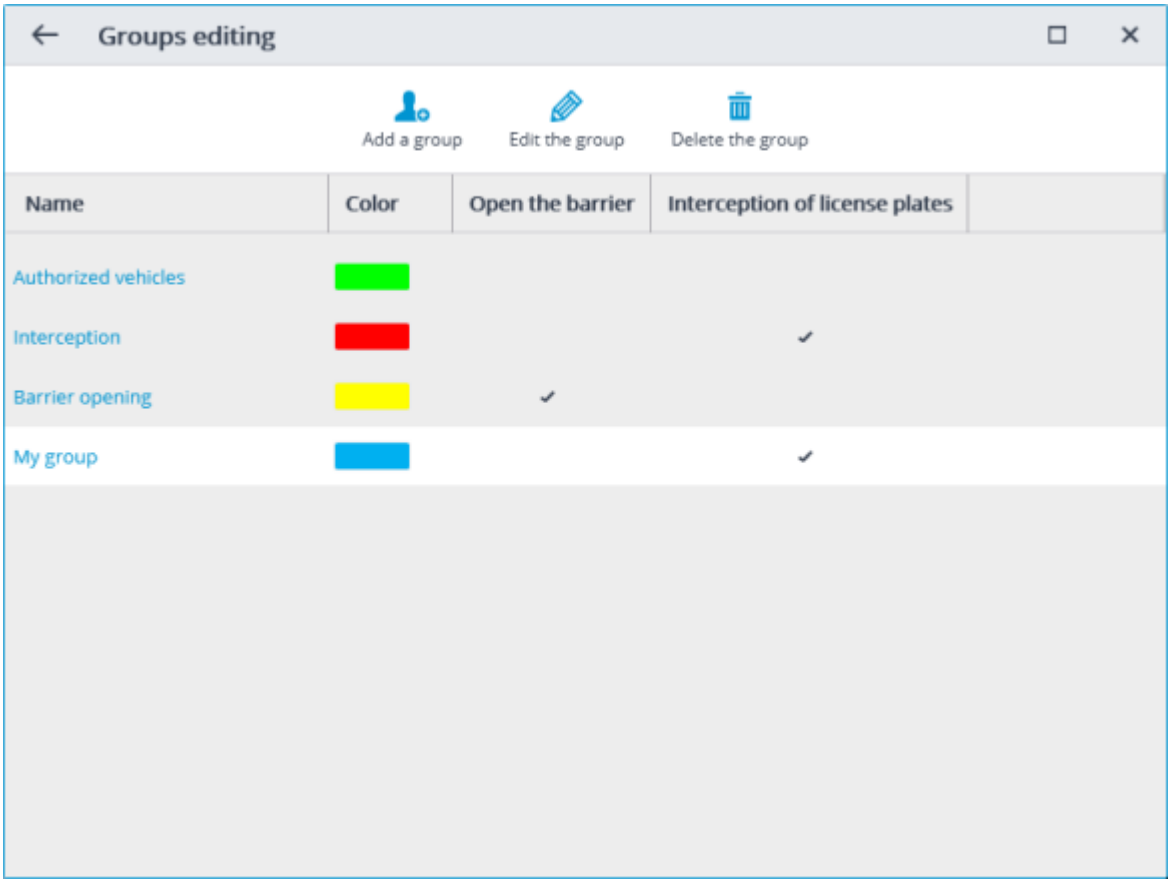
To specify the groups, to which the license plate belongs, open the **Groups** drop-down list and check the corresponding groups.

Database export button is used to save a CSV-file, containing the following data structure:

```
A1234BC;;Surname1;Name1;Patrname1;;;;AddInfo1;Model1;Color1;Group1,Group2;
5678DEF;;Surname2;Name2;Patrname2;;;;AddInfo2;Model2;Color2;Group3,Group4;
```

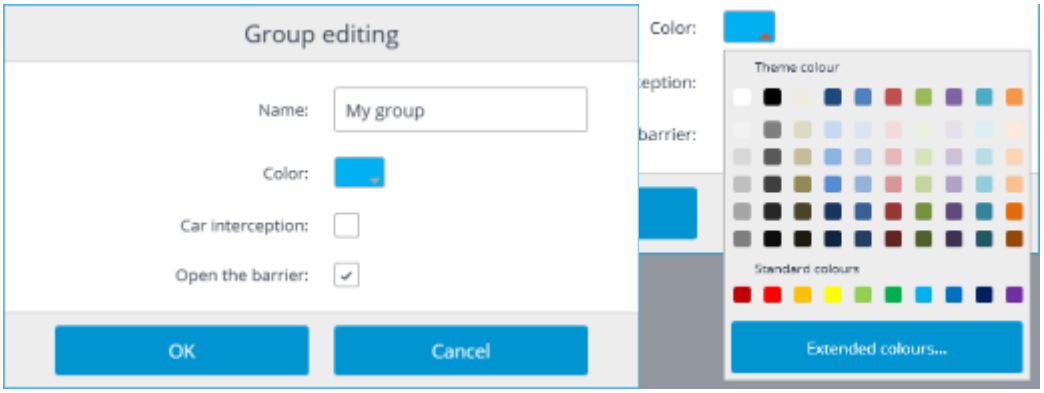
Database import button is used to load the data from a CSV-file, having above-mentioned structure.

Groups button opens the form for groups editing.



Buttons for the addition, editing and deleting of the groups are located at the top of this form.

Each group should have a unique name.



You may also assign a color to the group: in this case, license plate of this group shall be marked with this color in the report and list of recognized license plates.

Car interception and **Open the barrier** options may be used to configure the automatic actions.

Loud Sound Detection

Loud Sound Detection module allows responding to the excessive sound level registered by a camera microphone.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Select Display sound detector in the cell context menu to enable the sound level detector, the indicator will be displayed in the lower left corner of the cell.

The indicator displays the current sound level, and the maximum level set by the system administrator.

All the module events are recorded in the Events log.

Object Classification and Counting

The **Object Classification and Counting** counts objects that are crossing specified lines or contained in predefined areas of arbitrary shape, distinguishing them by categories.

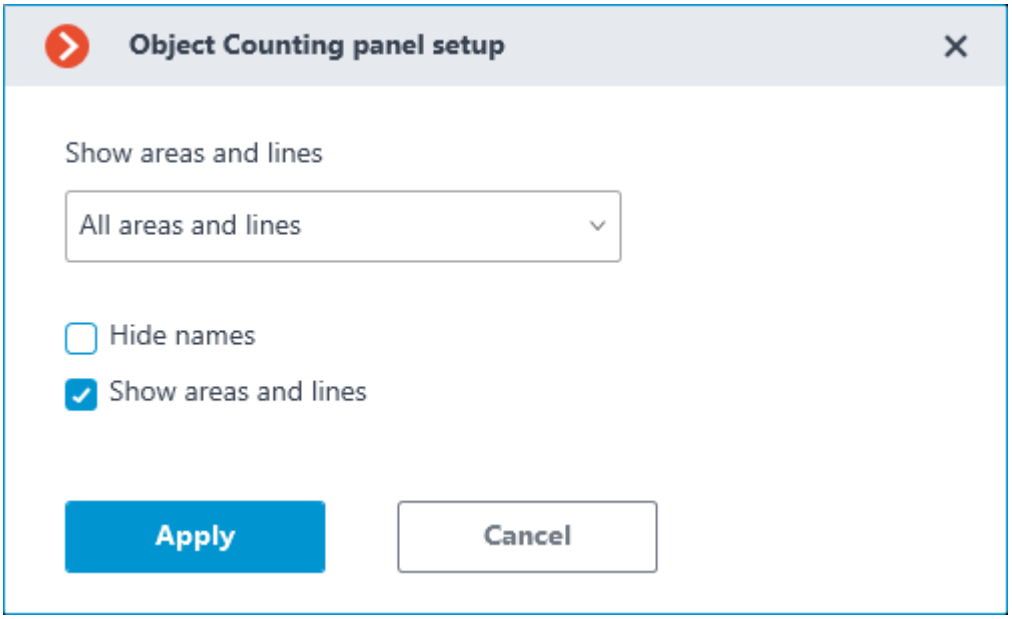
This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Live view

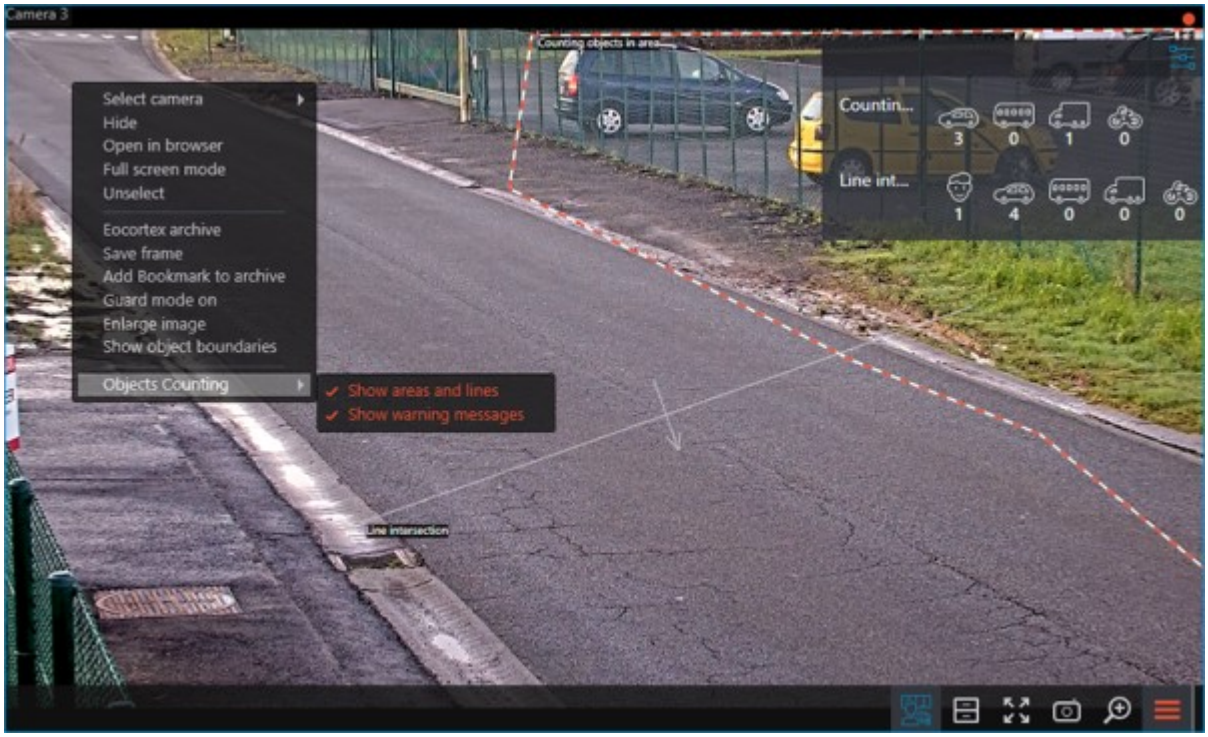
When viewing the camera in live view, it is possible to enable displaying of the object count panel.

To do this, select a cell and click .

Clicking opens a window for configuring the display of areas and lines.



Displaying of areas, lines, and notifications can also be enabled in the context menu of the cell.



Object Classification and Counting report

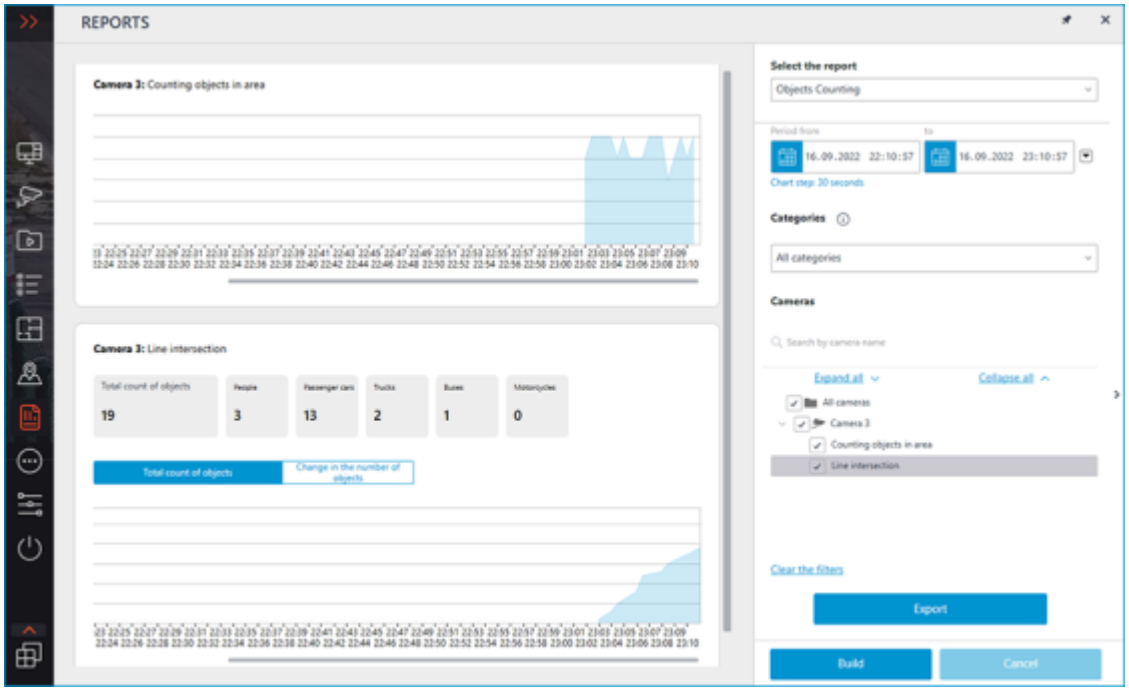
The representation of the **Object Classification and Counting** report depends on the type of counting:

Counting objects in area: The count of objects within the area.

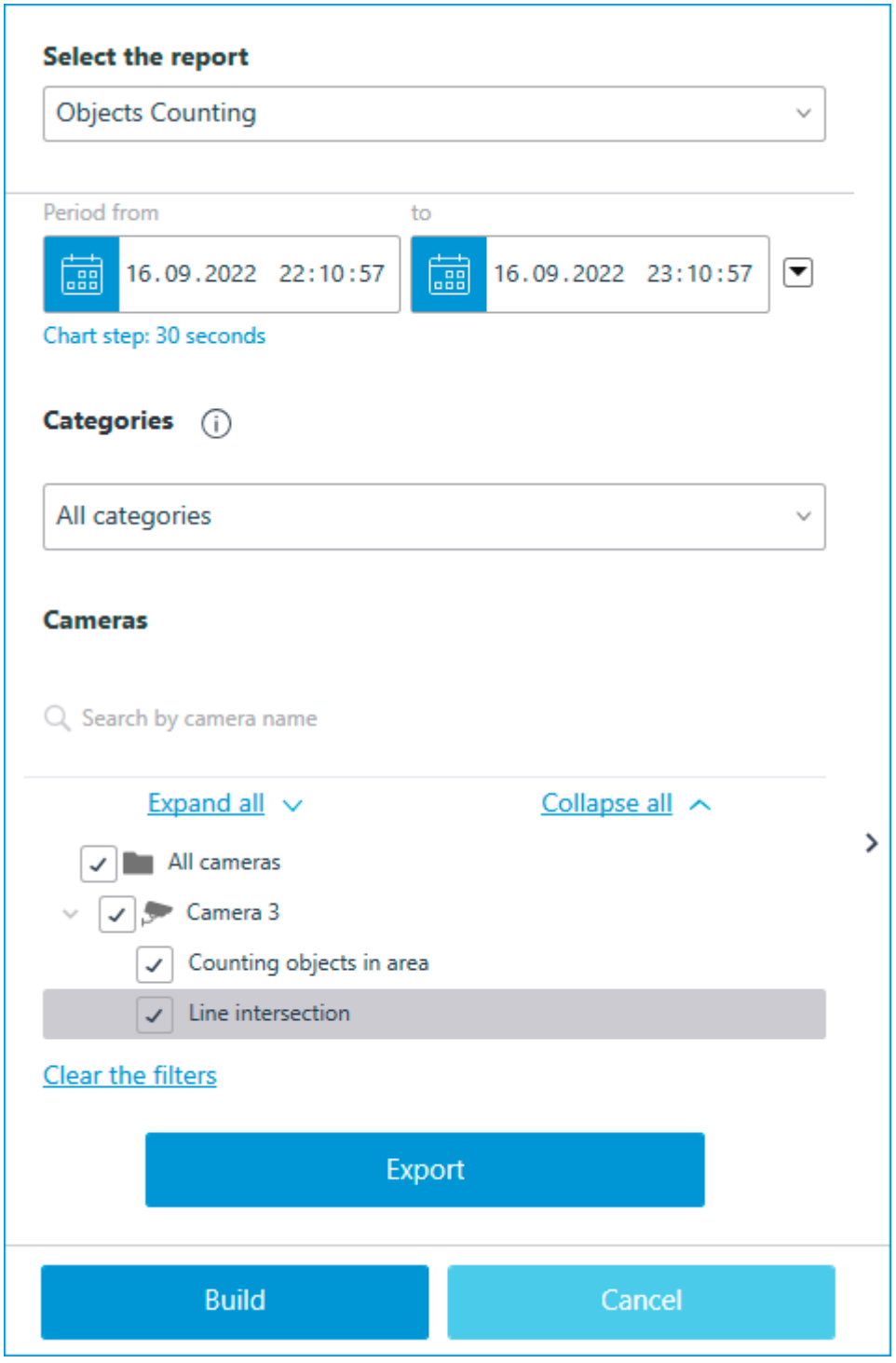
Line intersection: The count of objects that crossed the line in a specified direction. The following parameters will be displayed:

Total count of objects: Objects that have crossed the line since the start of counting or since the last time the counters were reset.

Change in the number of objects: Objects that have crossed the line at each time interval equal to the report plotting step.



To form a report set the time interval, select categories of objects, areas and lines, for which the report will be built, and then click **Build**.



Plotting step is determined automatically depending on the set time interval:

Interval	Step
Up to 1 hour	30 seconds
From 1 to 2 hours	1 minute
From 2 to 10 hours	5 minutes

From 10 to 20 hours	10 minutes
From 20 hours to 2 days	30 minutes
From 2 to 4 days	1 hour
From 4 days to 2 months	12 hours
From 2 to 4 months	1 day
From 4 months to 1 year	3 days
More than 1 year	1 week

Maximum allowable interval for plotting the report is 2 years.
The report can be exported as a CSV or Excel file.

People Counting module

The **People Counting module** module for counting of entering and exiting people based on their crossing the control line and preparing reports based on this data. In addition, the module allows creating control zones in order to respond in time to exceeding the maximum number of people in a room or a zone.

The module will work only for those cameras, in the settings of which the system administrator has enabled its support.

Features

The module has the following features:

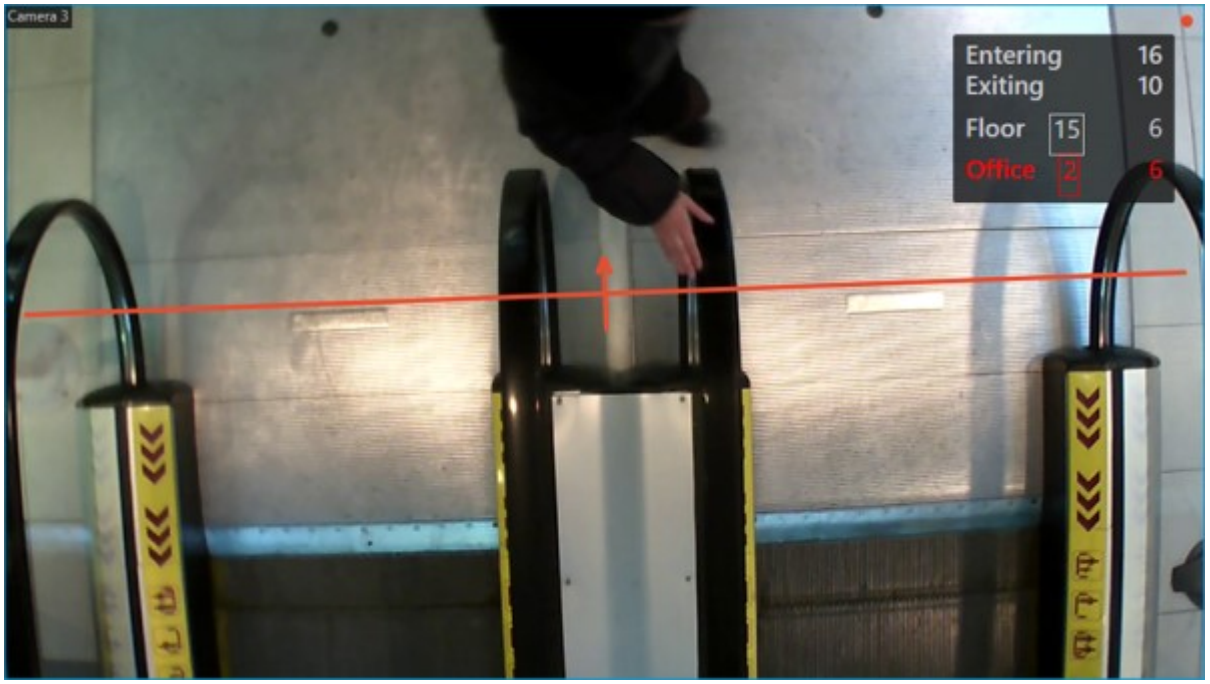
- Counting the number of entering and exiting visitors in real time — either through one or several (if the module is applied to multiple cameras) entrances/exits.
- Creating reports on entered, left and present visitors — over various periods of time (from hours to year) for one or several cameras overseeing one area from different locations.
- Automatic and manual export of reports in CSV, XLS and JPG formats.
- Counting people in moving groups.
- Automatic renewal of the counters.

Additionally, the module allows to set the counting zones and, subsequently, determine the number of people in the zones in real time, providing the following capabilities:

- Setting several counting zones each of which can include an unlimited number of cameras with the active module, assigned to the same server.
- Displaying in real time the information regarding the current number of people in each zone where the camera being viewed is included.
- A possibility to set the current value of the number of people in a zone manually.

- Generating alarm events in case of the maximum allowable number of people in a zone is exceeded as well as in case of the return of this number to the allowable value.

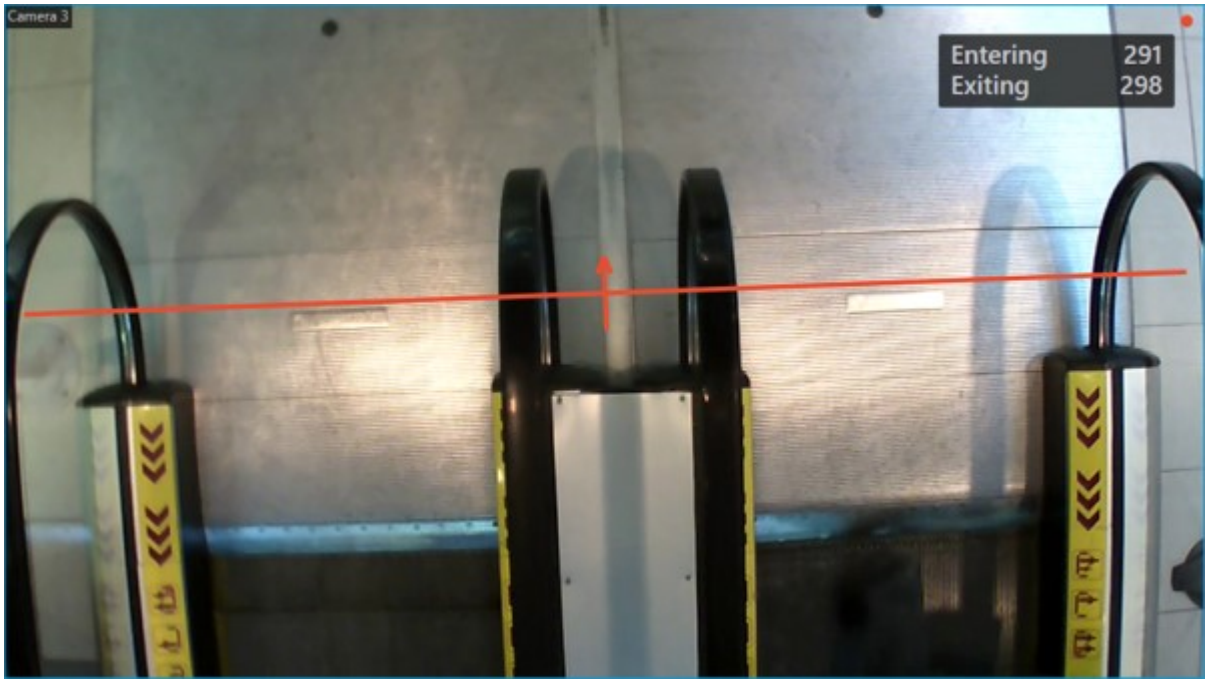
The number of people in the zones comes into account only when the server is functioning. When the server is restarted, the values of the counters will be set to zero; in such a case, the values can be set manually.



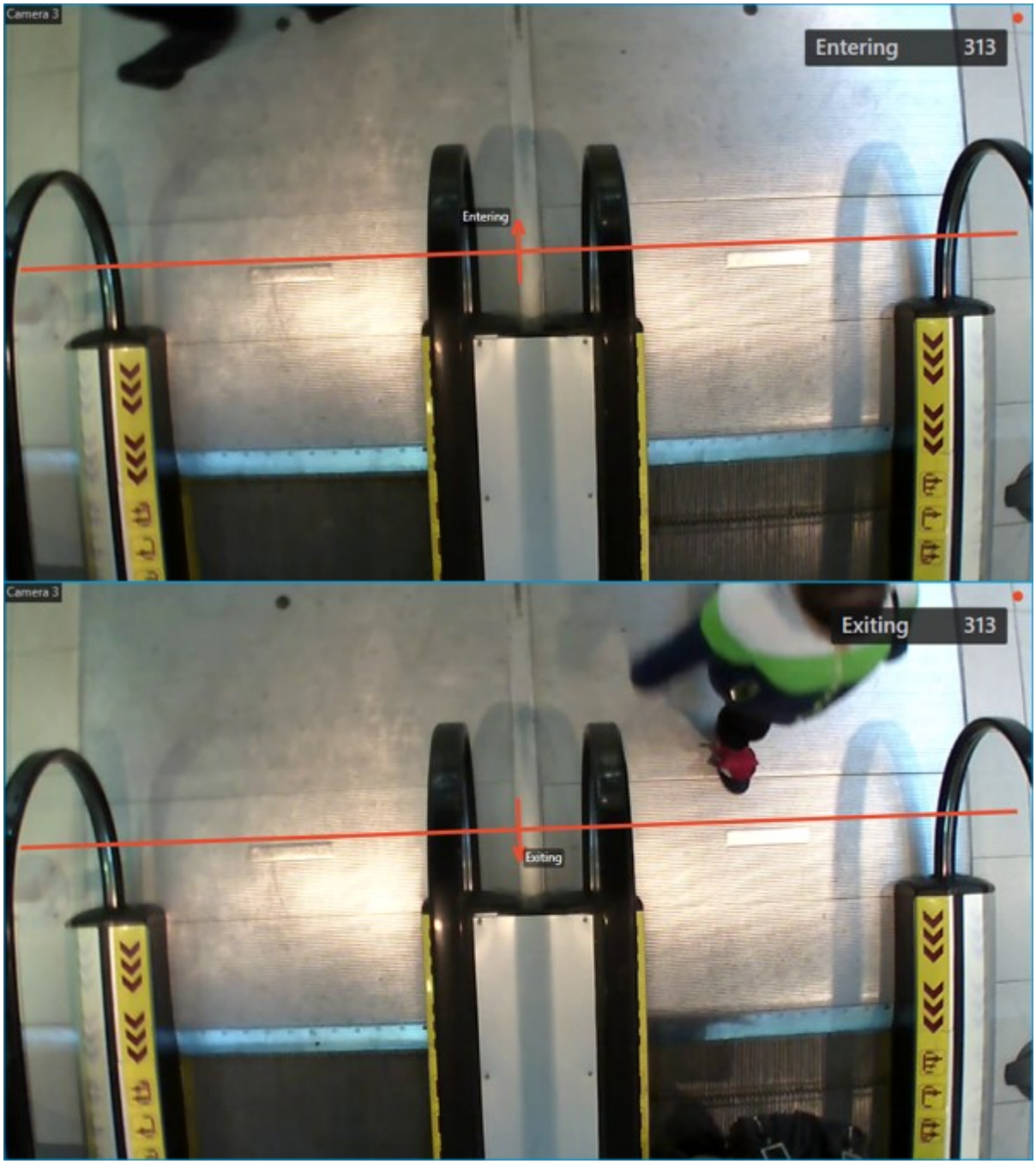
Usage

When the live view from the camera is displayed on the screen, the upper-right corner of the cell will display the number of visitors that have entered and exited since the last time the counters were reset to zero.

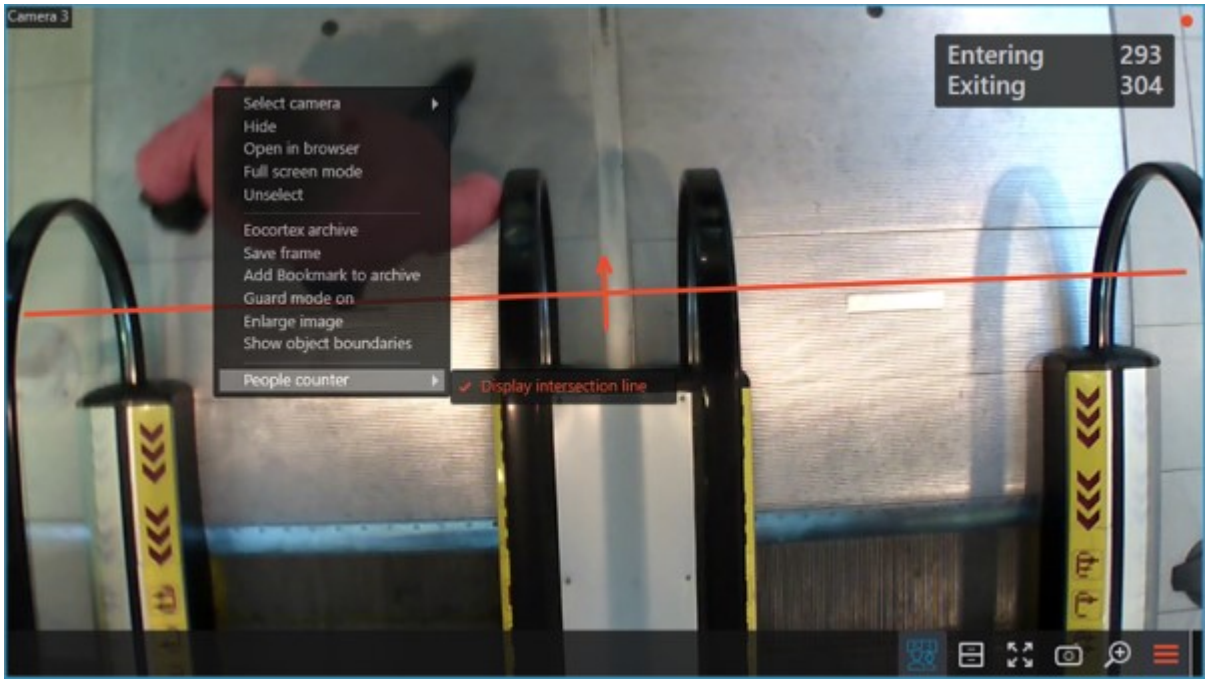
The counter resetting time can be set by the system administrator in the module settings.



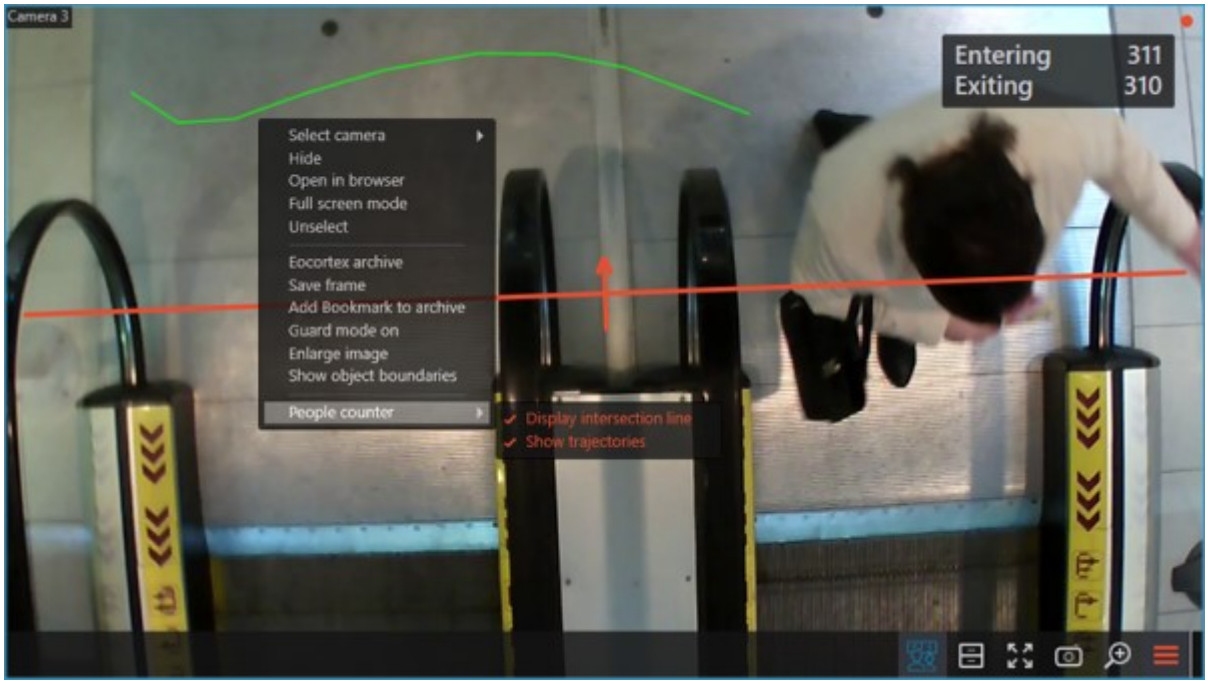
The administrator can configure the module so that only incoming or outgoing visitors will be counted.



For convenient monitoring, the intersection line can be displayed by selecting the corresponding item in the context menu of the cell.



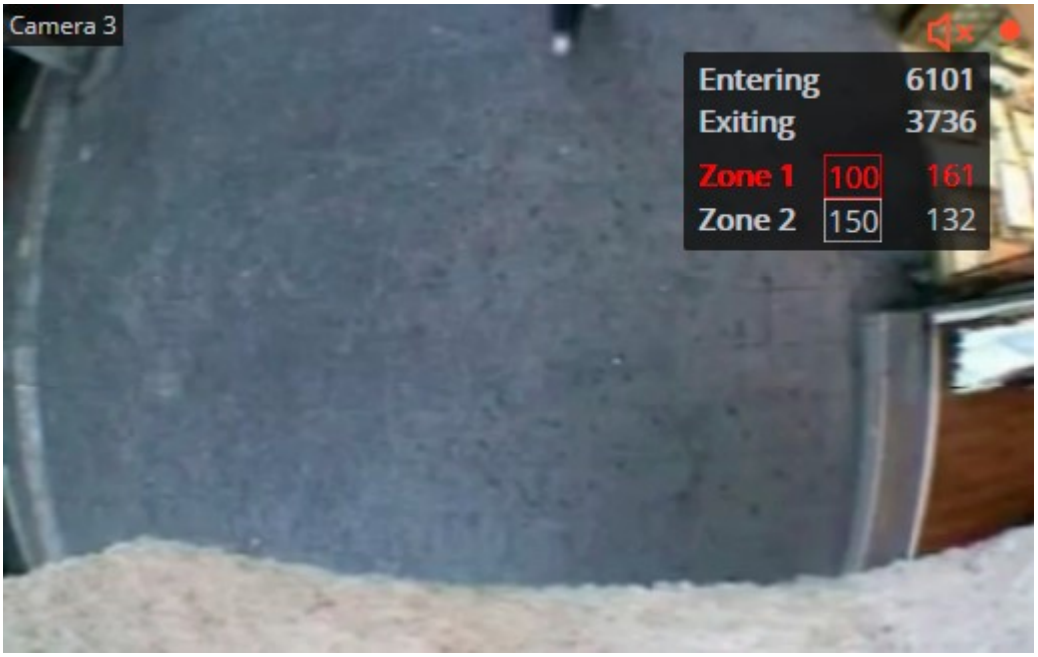
In addition, for one of the counting methods (configurable by the administrator), displaying of object trajectories can be enabled the same way.



Counting areas

By the counting area is meant an abstract area the entrances and exits of which are controlled by one or more cameras with the **People Counting module** module enabled, counting the incoming and outgoing people. The value of the counter of people inside the area is the difference of the sums of counters for incoming and outgoing visitors from all the cameras included to the area.

If the camera is included to the counting area by the system administrator, the counter of this area will be displayed below the camera's own counters.

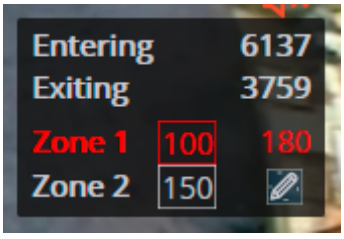


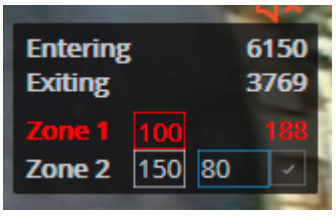
The counting area counter consists of the area name, the wrapped to the frame maximum allowed number of people in the area, and the current number of people in the area.

When exceeding the maximum allowed number of people in the area, the area counter is colored red. In addition, all cases of exceeding the limit and returning to the permissible value are recorded to the Events log.

If necessary, the value of the current number of people inside the counting area can be changed. To set the number of people in an area manually, do the following:

- Hover the cursor over the counter of the desired area.
- Click the button that appears.
- Set the desired value.
- Save the changes by clicking the button.





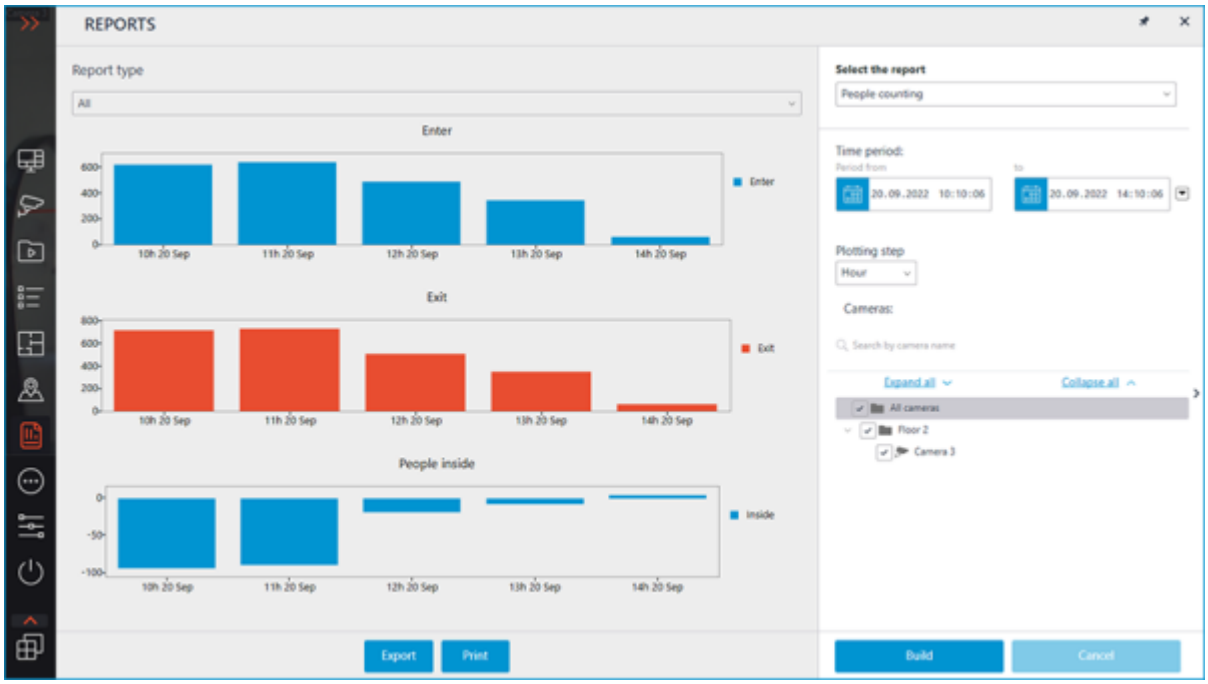
People Counting report

The **People Counting** report is a histogram displaying the number of people who crossed the control line in the direction of entry and exit for a specified time interval, as well as the difference between these two counters taken as the number of people inside the area.

To generate a report, do the following:

- Select the **Reports** item in the control panel of the **Eocortex Client** application.
- Select the **People Counting** report option in the upper-right corner of the page that opens.
- Set the report plotting interval.
- Set the report plotting step.
- Select the cameras for which the report should be generated.

- Click the **Build** button.



To save the obtained report to the disk, do the following:

- Click the **Export** button.
- In the window that opens, select the location to which the report should be saved.
- If necessary, change the **File name** select the **file format to save** - **CSV**, **Excel** or **JPEG**.
- Click **Save**.

To print the obtained report, do the following:

- Click the **Print** button.
- In the window that opens, select the desired device for printing.
- If necessary, adjust print settings.
- Click **Print**.

Configuration

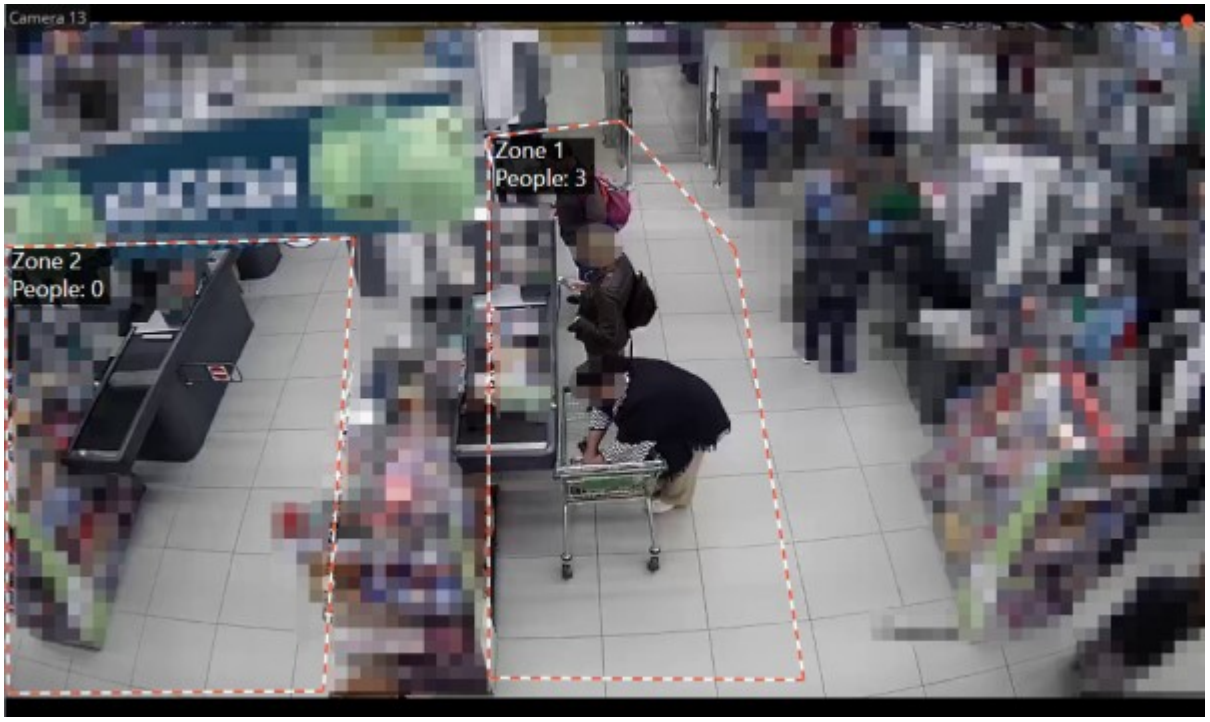
Configuration of the module can be performed in the Eocortex Configurator application.

Counting People in Queue

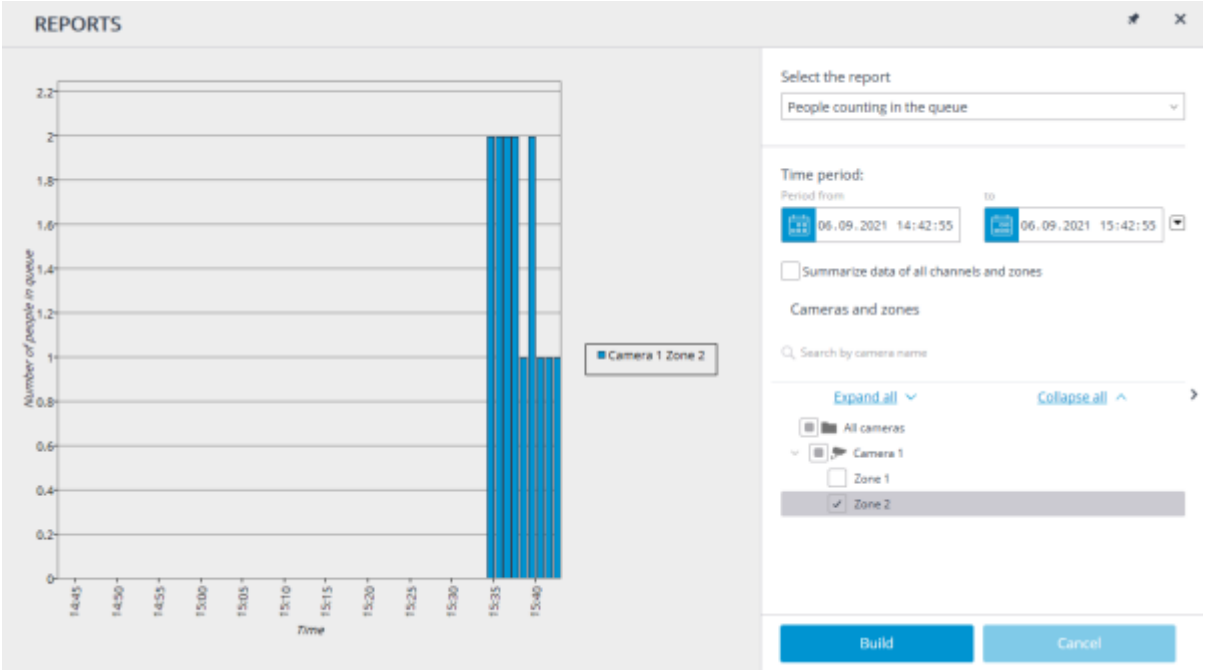
The module is designed to count people in queues.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Select **Show queues** in the cell context menu to enable the queues displaying, after the camera real-time viewing the counting area limits and the number of people in the queue for each area will be displayed in the frame. In case of exceedance of a threshold value, the legend will turn red.



All the module events are recorded to the Events log. To generate the reports open **Control panel** and select **Reports** in the **Main menu**.



In the **Select report**> field, set the **People Counting in queue** option.

Set the **Time interval** for which the report will be generated. The field with the list allows to set the interval prior to the current time, for which the report must be generated, by selecting one of the values: **Minute**, **Hour**, **Day**, **Week**, **Week**.

Select the **Cameras and areas** by which the report will be generated.

To generate the report click **Generate** (to abort the report generating process click **Cancel**).

The report can be exported to CSV and Excel formats.

Personnel Activity Monitoring

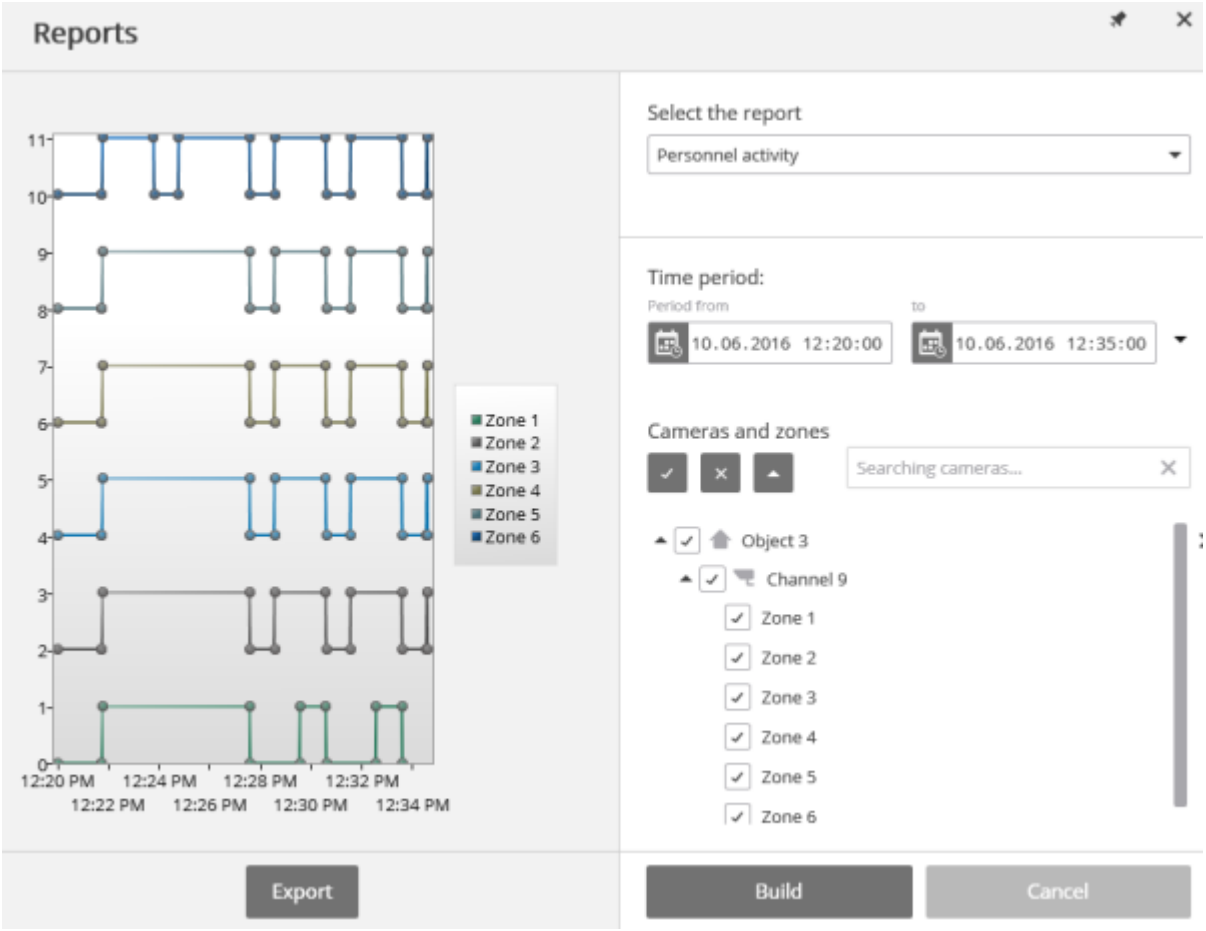
Personnel monitoring Module allows monitoring staff activity time at workstations. By activity is meant fixing movement in the working zone, including minor movements.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Select Show activity areas in the cell context menu to display the information on the personnel activity, after the camera real-time viewing the areas limits will be displayed in the frame, and the area number and status will be displayed in the header of each area. The status can take one of three values: Active area, Low-activity area and Inactive area. For inactive area the header and the limits will change from orange to red.

All the module events are recorded in the Events log.

To generate the reports open Control panel and select Reports in the Main menu.



In the Select a report field, set the Personnel activity option.

Set the Time interval for which the report will be generated. The field with the list allows to set the interval
prior to the current time,for which the report must be generated, by selecting one of the values: Minute, Hour, Day, Week, Month.

Select the Cameras and areas by which the report will be generated.

To generate the report click Generate (to abort the report generating process click Cancel).

To save the report on disk click Export; in the appeared window select the folder to save the frame; if necessary - change the File name and select the File type; press Save.

The report can be exported to Excel format.

The module allows to detect the following events:

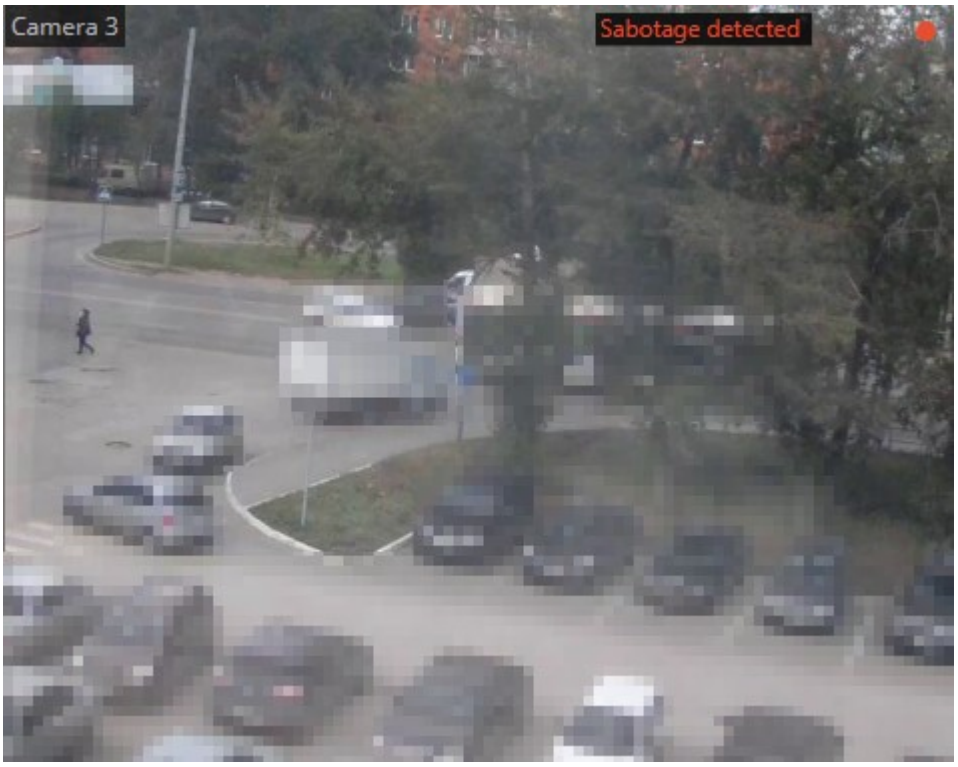
- Camera defocusing.
- Camera turnaway.
- Camera flaring.
- Camera's lens coverage.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

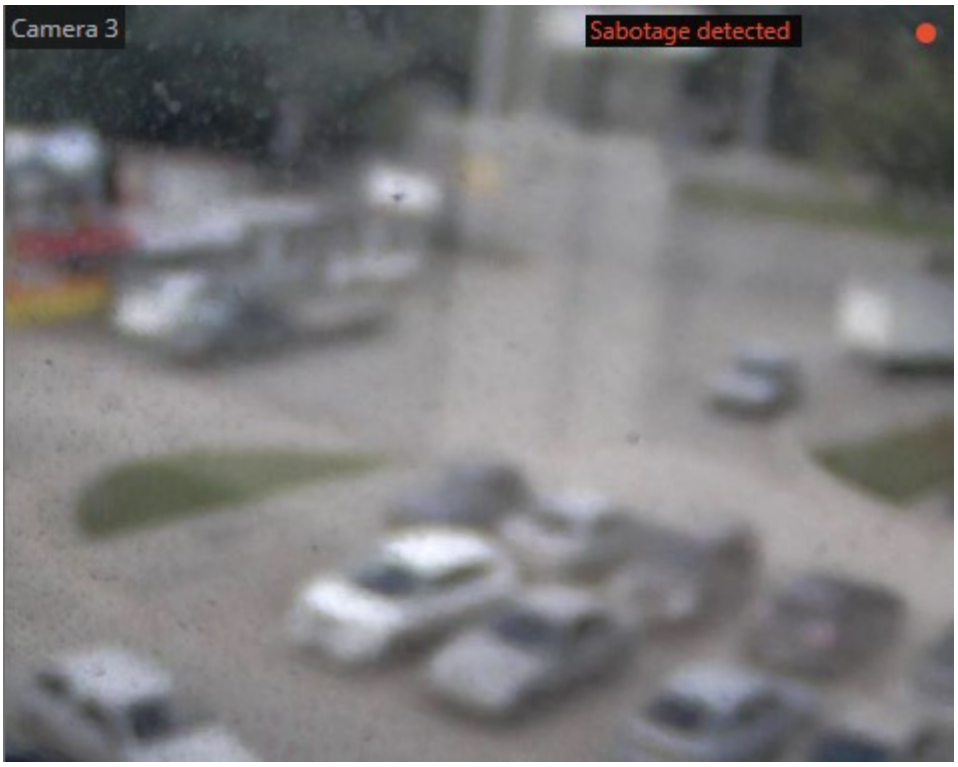
Upon occurrence of one of the situations the alarm message **Sabotage detected** will be displayed in the camera cell.

Below are the sabotage examples.

Recognition of redirection:

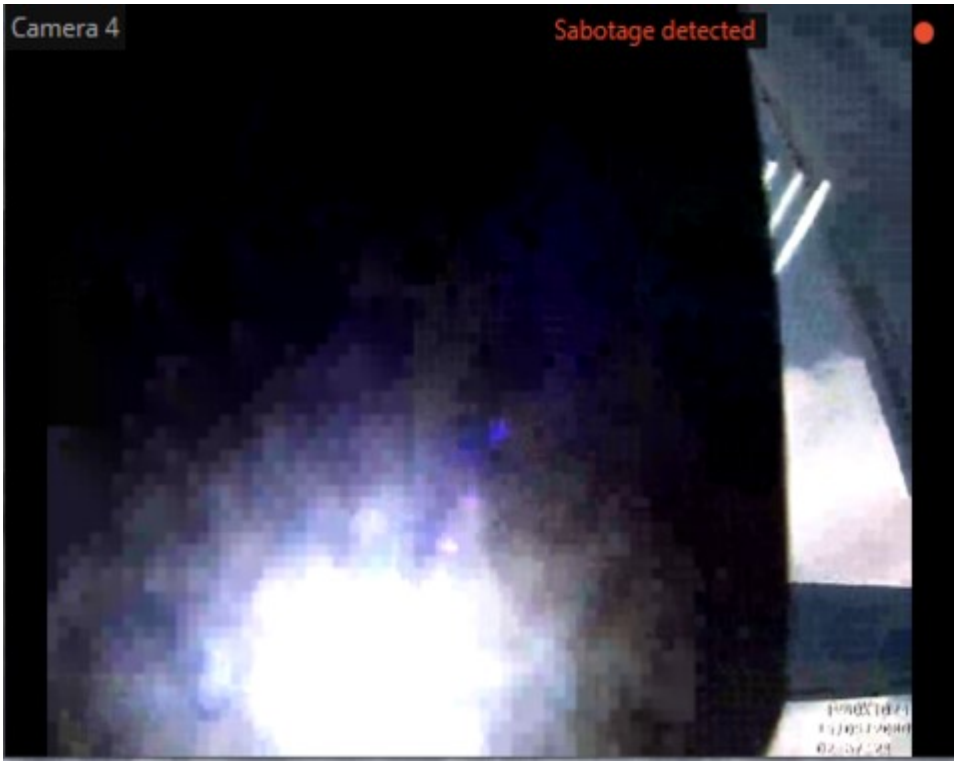


Defocused camera:



Recognition of covering:

Recognition of intense light:



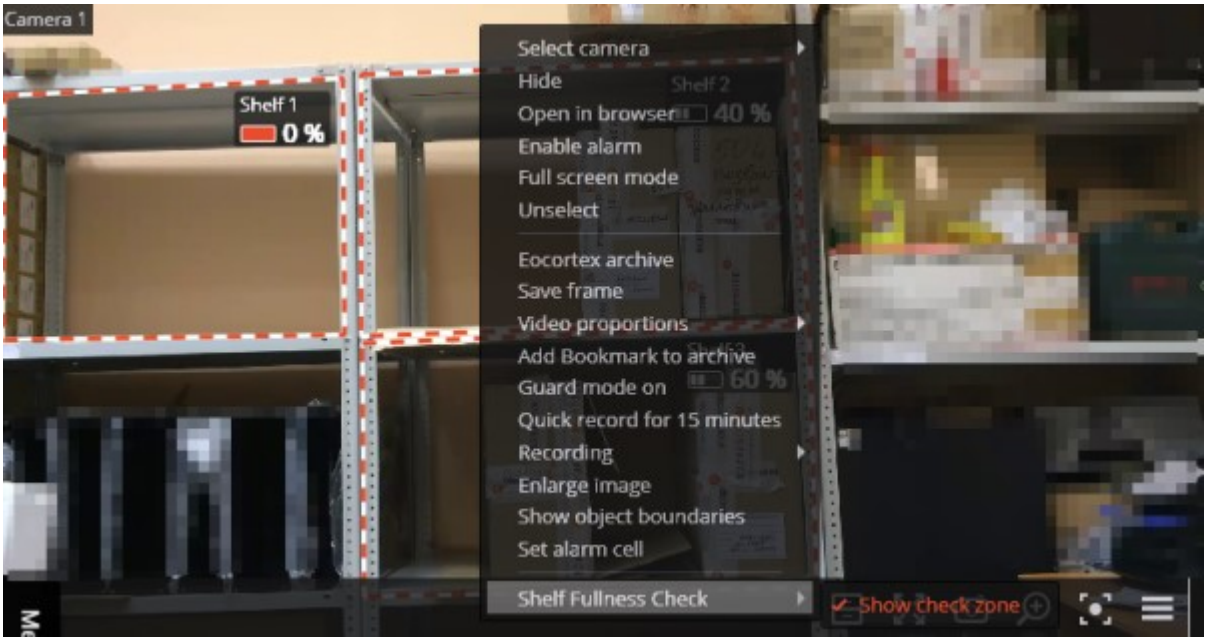
All the module events are recorded in the Events log.

Shelf Fullness Check

The Shelf Fullness Check module is designed for monitoring the fullness of shelves in a store in order to fill them with merchandize in time.

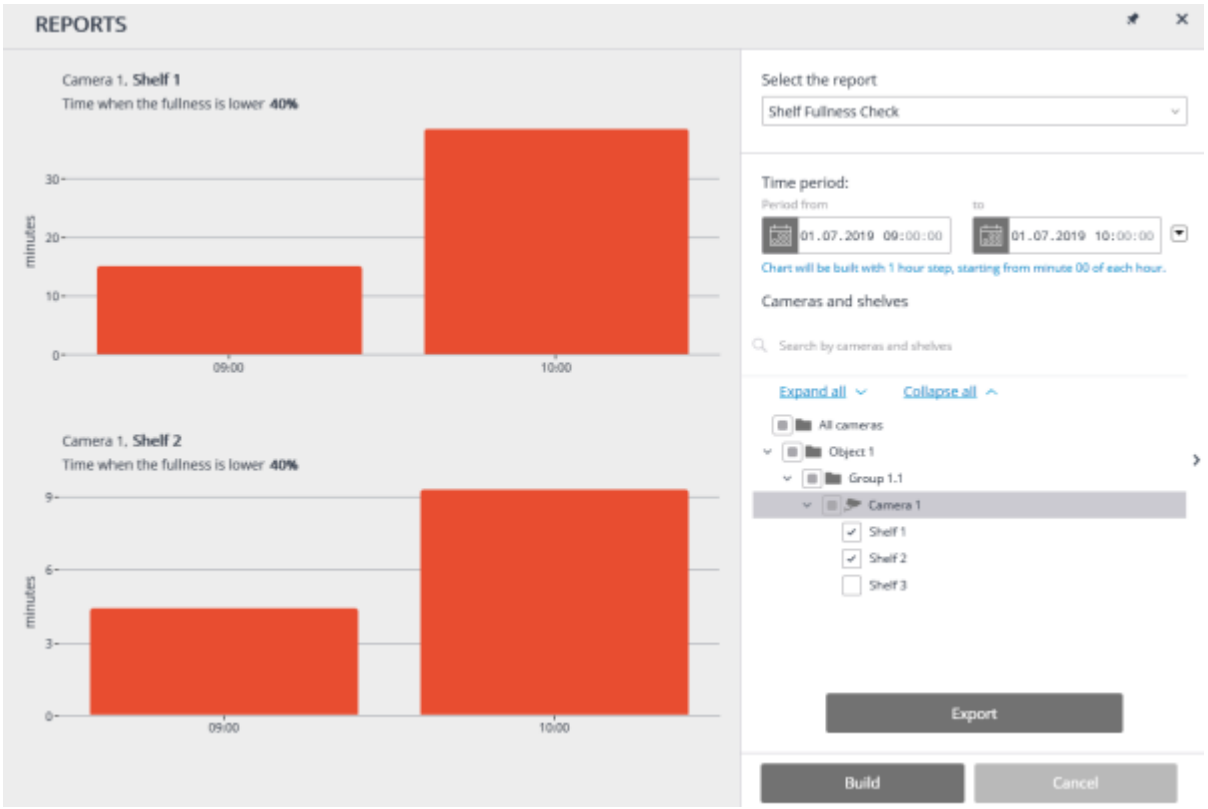
This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

In order to display outlines, names and current fullness indicators, it is required to select Show Check Zone subitem in the Shelf Fullness Check item of the cell's context menu.



All the module events are recorded in the Events log.

To create a report, it is required to select the Reports item in the main menu, then, in the upper right corner of the opened page, select the Shelf Fullness Check report, set the time interval, select the cameras on which the report will be based, and press the Build button.

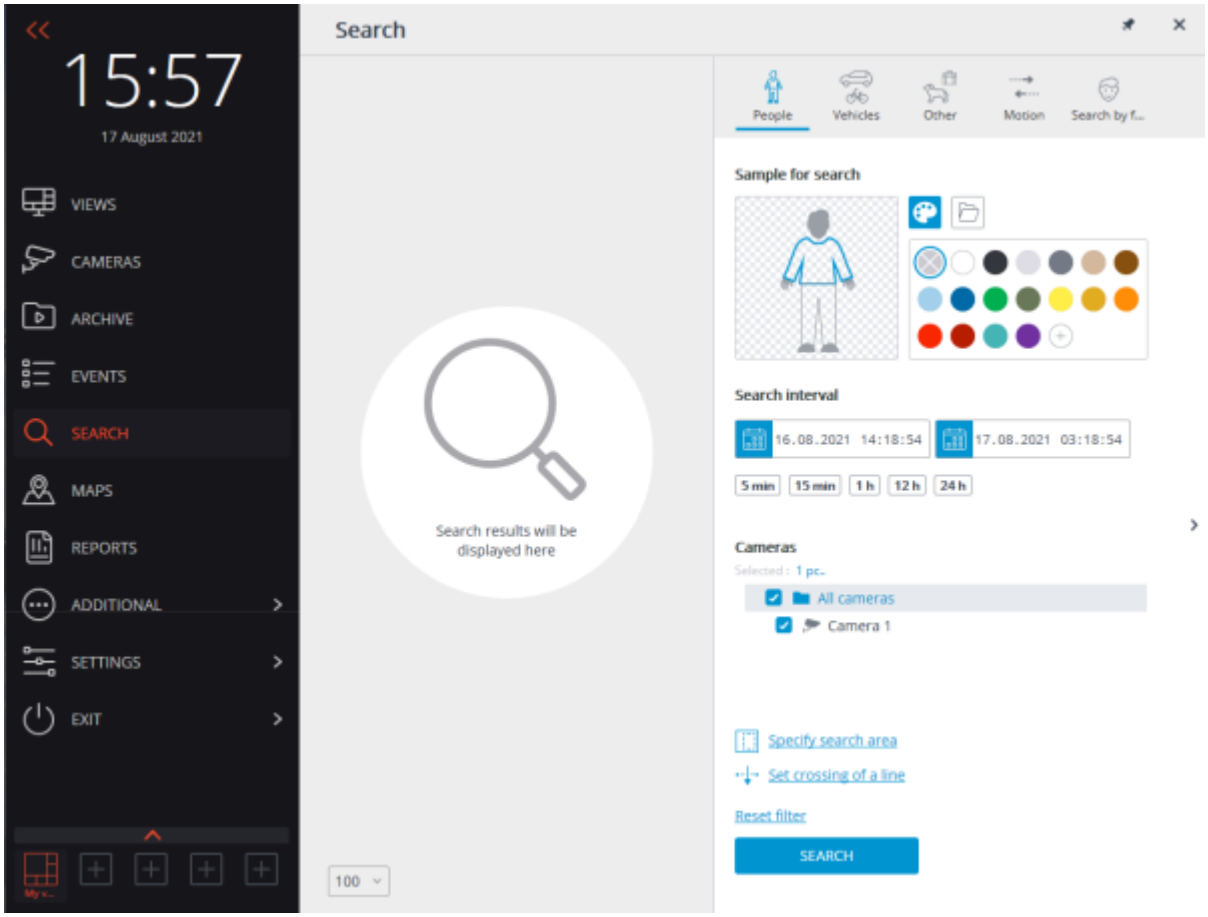


In order to save the report on the drive, press the Export button; select a location where the report will be stored in the opened window; change File name (if required), then press Save.

The report can be exported to CSV format.

Search for Objects

On the **Search** page, a Search for Objects in the archive by various parameters is performed. This page opens when selecting the **Search** item in the main menu.

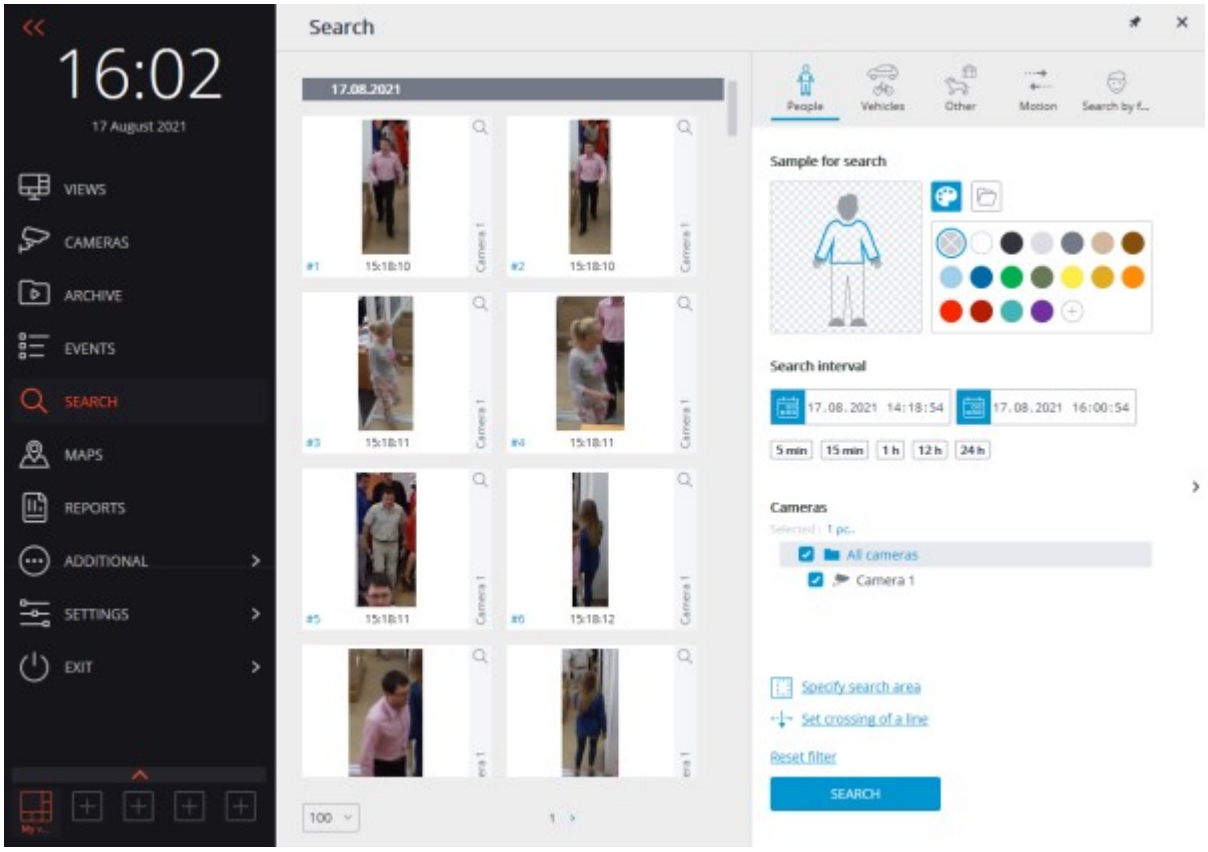


The **Search** menu item is displayed only if the **Search for Objects** or **Face Detection** module is enabled on at least one of the cameras in the system.

Search results

The search results panel is located on the left side of the page. During the search, the links to the found video fragments that meet the specified search parameters will be displayed.

The results of the last search in the search results panel are retained even when the search page is closed, until a new search is performed or until the **Eocortex Client** is closed.



At the bottom of the results panel there is a control panel for displaying search results, which consists of the following controls (from left to right):

- A drop-down list that allows to select the **Number of results per page**.
- Navigation thru pages.

Upon clicking on a fragment, the switching to Synchronous viewing of the archive across several cameras at the corresponding moment in time is performed. In this case, the camera in whose archive the fragment was found will be displayed in the channel grid.

> It is possible to start working with the fragments from the moment they are placed in the results panel, that is, even before the end of the search procedure. In this case, the search will be interrupted upon proceeding to the archive. Alternatively, the search can be interrupted by clicking on the **Cancel** button at the bottom of the filter panel.

Filter panel

Search parameters are set on the filter panel located on the right side of the page. The filter panel can be hidden/shown by clicking on the right edge of the page.

Depending on the selected filter tab, objects of a certain category will be searched for.

When multiple search parameters are specified, the results that satisfy all parameters specified on the current tab at the same time will be displayed.

To clear all the parameters set on the current tab, including color samples and photos, it is required to click on the **Reset filter** button.

The search starts after clicking on the **Search** button.

During the search, the located fragments will be displayed on the results panel.

General parameters

The following search options are available on each tab:

Search interval: this group of settings specifies the interval in which objects will be searched for. In addition to explicitly specifying the start and end values of date and time, it is possible to select one of the preset intervals: **5 min**, **10 min**, **1 h**, **12 h**, **24 h**. When selecting a preset interval, the end time remains unchanged, the start time is calculated in relation to it.

Cameras is used for selecting cameras in whose archive the Search for Objects will be carried out. Each tab displays only those cameras that are to be used for searching for objects of the corresponding category.

Specify search area permits to specify a rectangular area in which the search will be performed. The area is configured in a separate window.

Set crossing of a line allows to set a line. The search results will only include objects that intersect the specified line. In this case, it is possible to optionally specify only one direction of crossing of the set line. The line is configured in a separate window.

If the **Specify search area** or **Set crossing of a line** parameter is set, the parameter icon is filled. To reset the parameters, it is required to use the button ✕ to the right of the parameter.

> The **Specify search area** and **Set crossing of a line** parameters are available only when a single camera is selected.
> The **Specify search area** parameter is available only for the cameras with the **Search for Objects** video analysis module enabled.
> The **Set crossing of a line** parameter is available only for the cameras with the **Tracking module** video analysis module enabled with the **Objects being tracked**: **Only those in motion** setting.

On the **People** and **Vehicles** tabs, it is possible to Search for Objects by color, as well as using photos downloaded from files or obtained from the previous search results.

Color samples

To add a color sample, it is required to click on the button and select a color from the palette. If the desired color is not in the presented palette, it can be added by clicking the button .

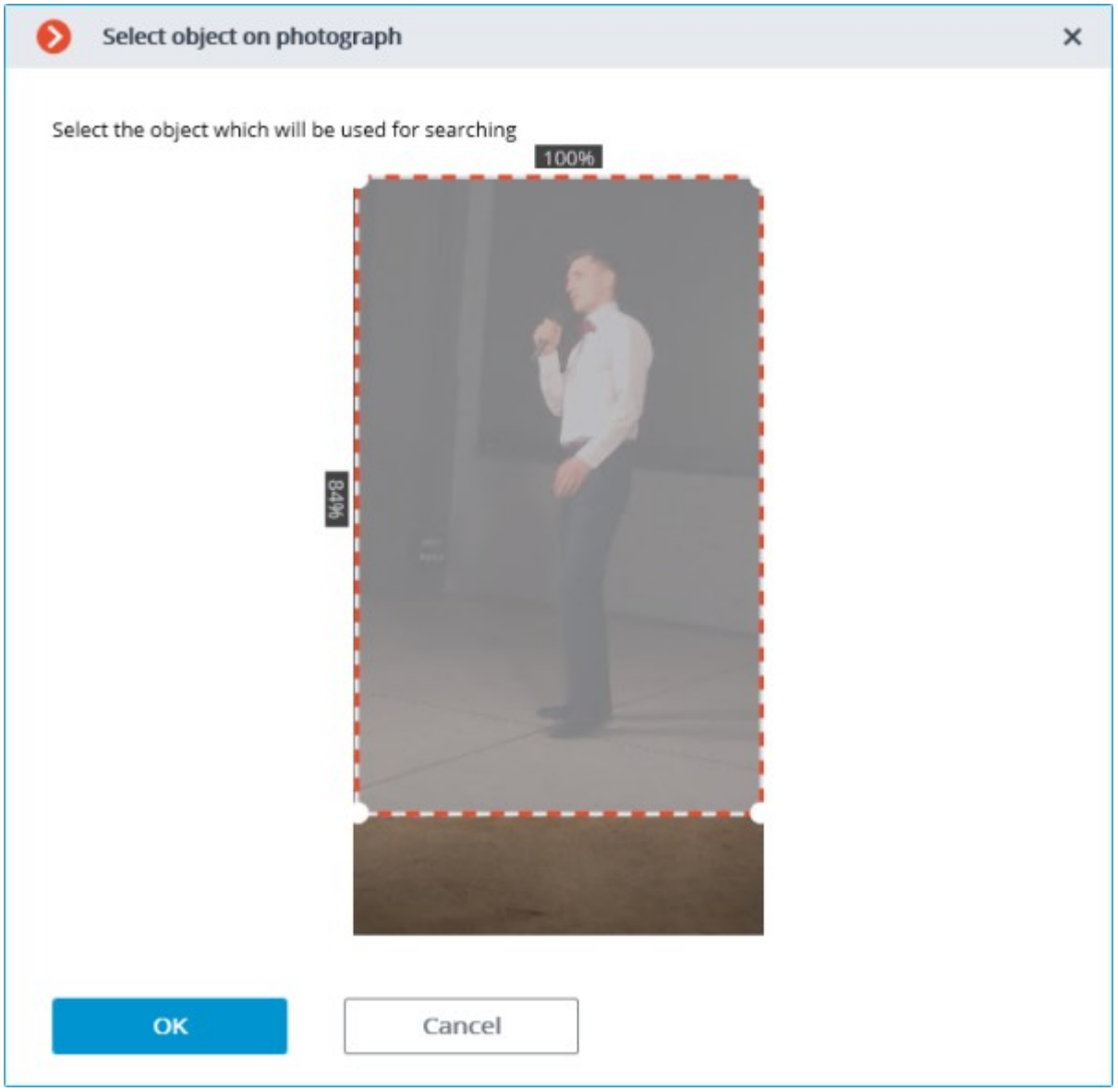
To clear the selected color, it is required to select an empty color in the palette.

To delete a sample, it is required to use the button ✕ located in the upper right corner of the image.

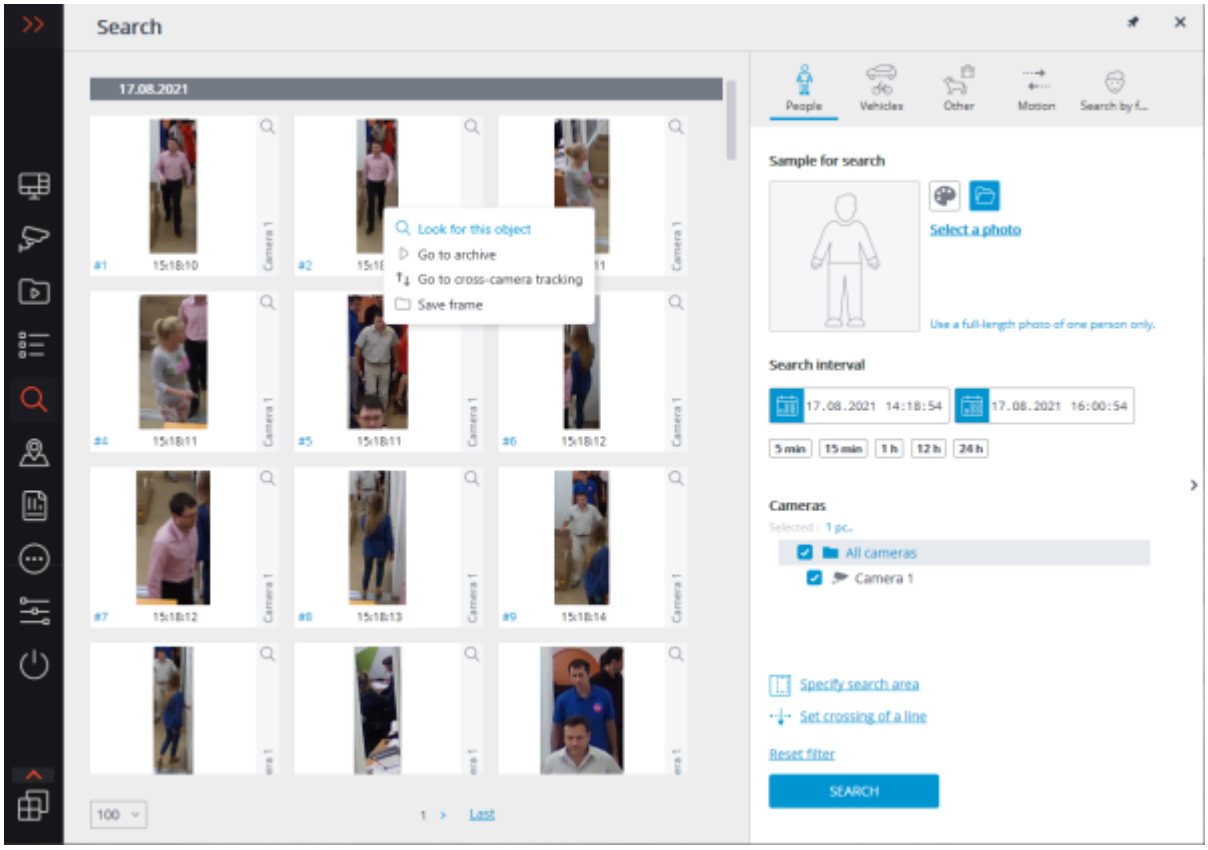
Photo samples

To add a sample from a file, it is required to click on the button and select the file by clicking on the **Select a photo** link.

After selecting the file, a window with the downloaded image will open. In this window, it is required to select the rectangular part of the frame containing the sample and press the **OK** button.



To add a sample from the found results, it is required to select the desired fragment in the results panel and click the button located in the upper right corner of the fragment. It is also possible to select a fragment, open the context menu with the right mouse button and select the **Look for this object** item.



To delete a sample, it is required to use the button ✕ located in the upper right corner of the image.

People

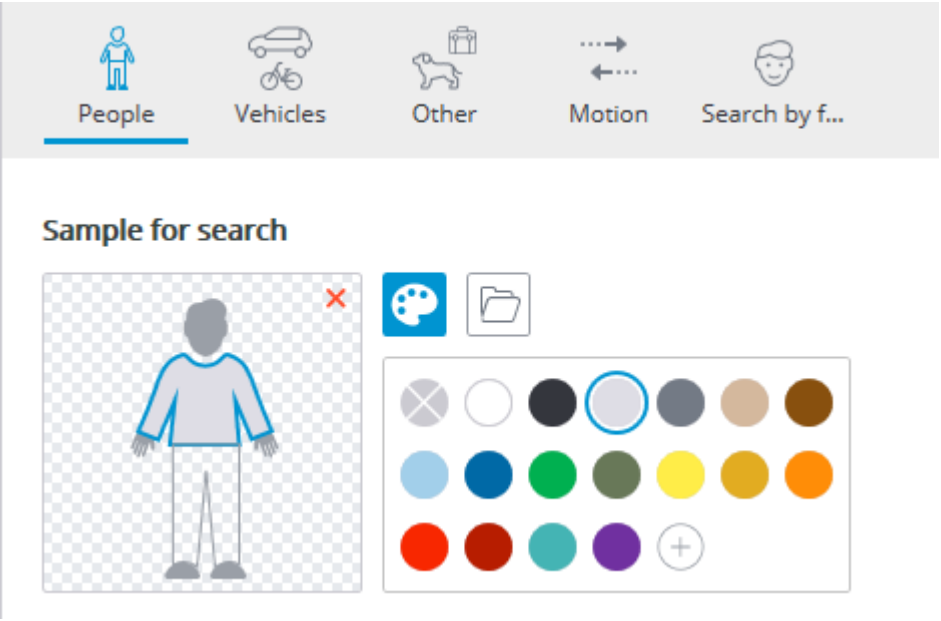
The **People** tab is used for searching for people.

This tab is only available for the cameras on which the **Search for Objects** video analysis module has been enabled, properly configured and is functioning properly.

The video analysis modules are enabled and configured by the administrator of the video surveillance system.

If none of the search parameters has been specified, the results panel will display all the people found in the archive during the specified interval.

When searching for people by color samples, it is required to set the color for the upper and lower parts of a person's figure. To do this, before choosing a color, it is needed to select the corresponding part of the figure. The selected part will be highlighted with a bold outline.



The search results by a color sample can sometimes include people whose lower part was not visible at the time of detection. In this case, a search for the lower item of clothing will work like a search for the top one.

Requirements for lighting and image quality when searching by color sample are as follows:

- A person should be recorded during daylight hours, in good weather, without precipitation.
- The angle in which the person was recorded should allow to correctly determine the prevailing color of clothing.
- The figure of a person must not be overexposed.
- The camera exposure and contrast must be adjusted so that the human eye can clearly identify the color of clothing.

Vehicles

On the **Vehicles** tab, the search for the following types of vehicles is performed:

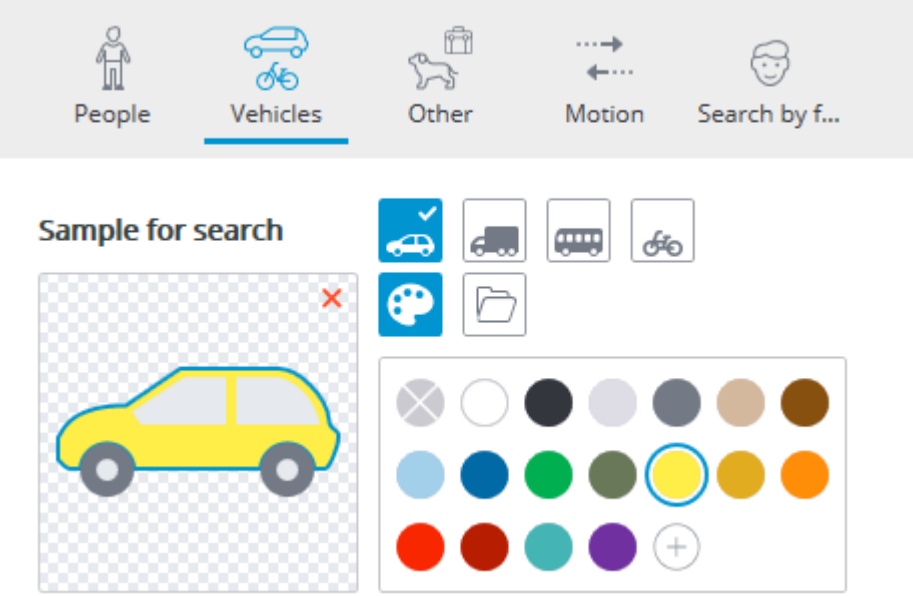
- Passenger cars;
- Trucks;
- Buses;
- Two-wheelers.

This tab is only available for the cameras on which the **Search for Objects** video analysis module has been enabled, properly configured and is functioning properly.

The video analysis modules are enabled and configured by the administrator of the video surveillance system.

Only the vehicles of selected types will be included in the search results.

If only one vehicle type is selected, the vehicle search by color is available.



When searching for vehicles by photo, the selected types of vehicles are not taken into account. In other words, the photo itself is used as a basis for a photo search, regardless of whether the type of the vehicle depicted on it matches the type selected on the filter panel or not.

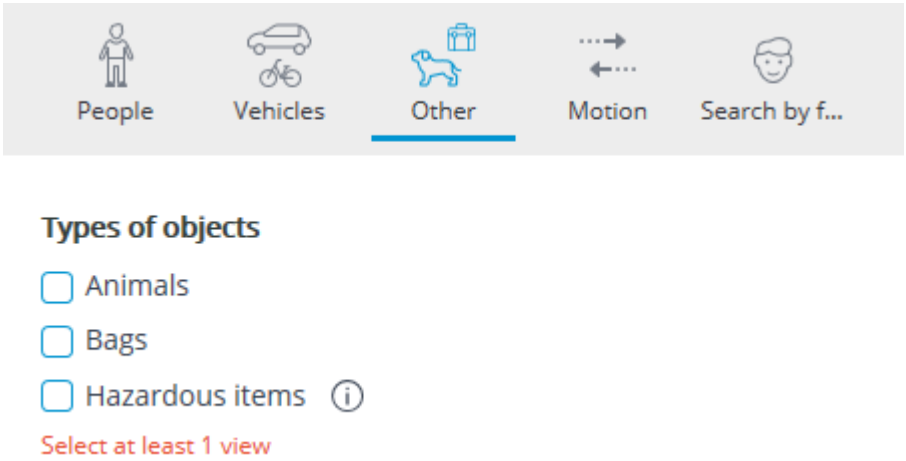
Other

The tab **Other** serves for searching for objects of the following types:

- Animals (terrestrial animals and birds);
- Bags (luggage, suitcases and backpacks);
- Hazardous items (firearms and baseball bats).

This tab is only available for the cameras on which the **Search for Objects** video analysis module has been enabled, properly configured and is functioning properly.

The video analysis modules are enabled and configured by the administrator of the video surveillance system.

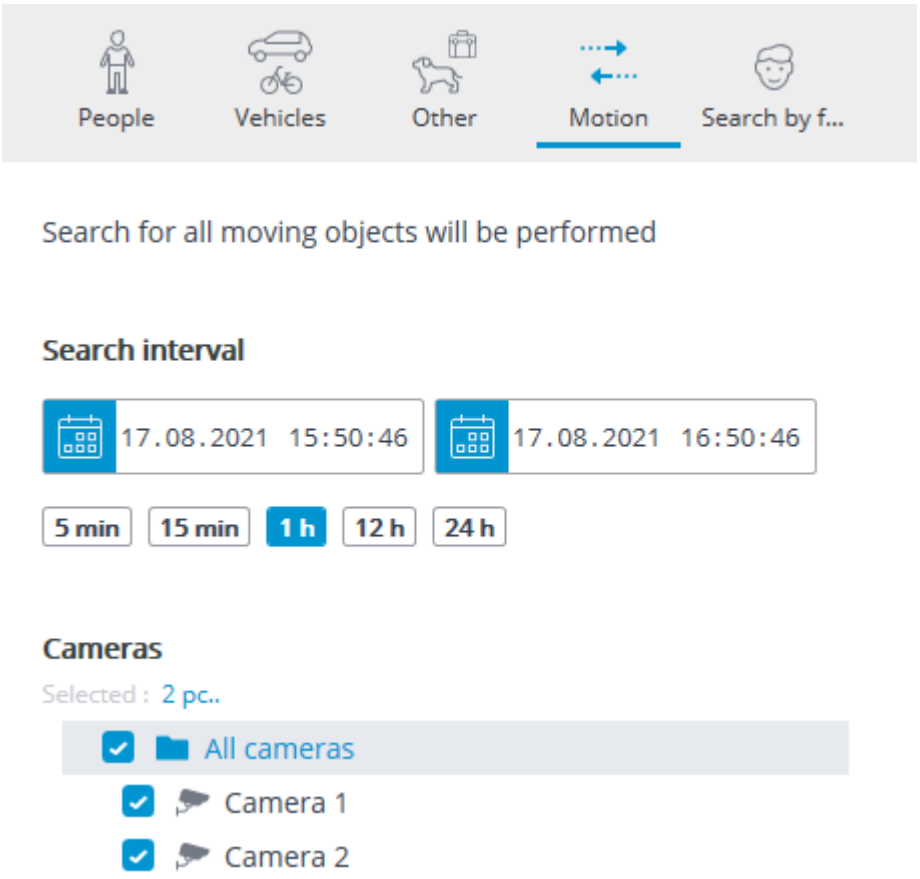


Motion

The search for all moving objects is performed on the tab **Motion**.

This tab is only available for the cameras on which the **Search for Objects** video analysis module has been enabled, properly configured and is functioning properly.

The video analysis modules are enabled and configured by the administrator of the video surveillance system.



Faces

The tab **Faces** is used for searching for faces.

This tab is available only for cameras on which the **Face Detection** video analysis module has been enabled, configured and is properly functioning.

The video analysis modules are enabled and configured by the administrator of the video surveillance system.

Tracking

The **Tracking** module allows to build trajectories of the objects that move in the fields of view of the cameras, track the crossing of lines by these objects in one or both directions, monitor the presence of the objects in the zones of arbitrarily set shapes, and also filter alarm events by object type. At that, the monitored lines and zones as well as the objects' trajectories can be shown on the screen in real time, and the objects themselves can be highlighted by the rectangles of various colors. All the events of the module are recorded in the event log.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

For Tracking convenience it is also possible to:

- display the zones and lines;
- track the objects' trajectories;
- display the colored frames of the objects;
- view object frames by category.

To do this select the relevant subitems in **Tracking** item of the cell context menu.

Crosslines and zones will be highlighted at the moment of crossing the line and entering the zone, even when displaying of lines and zones in the cell is turned off.

Viewing object frames by category is only available for cameras where **Filter by categories** mode is enabled and configured.

All the module events are recorded in the Events log.

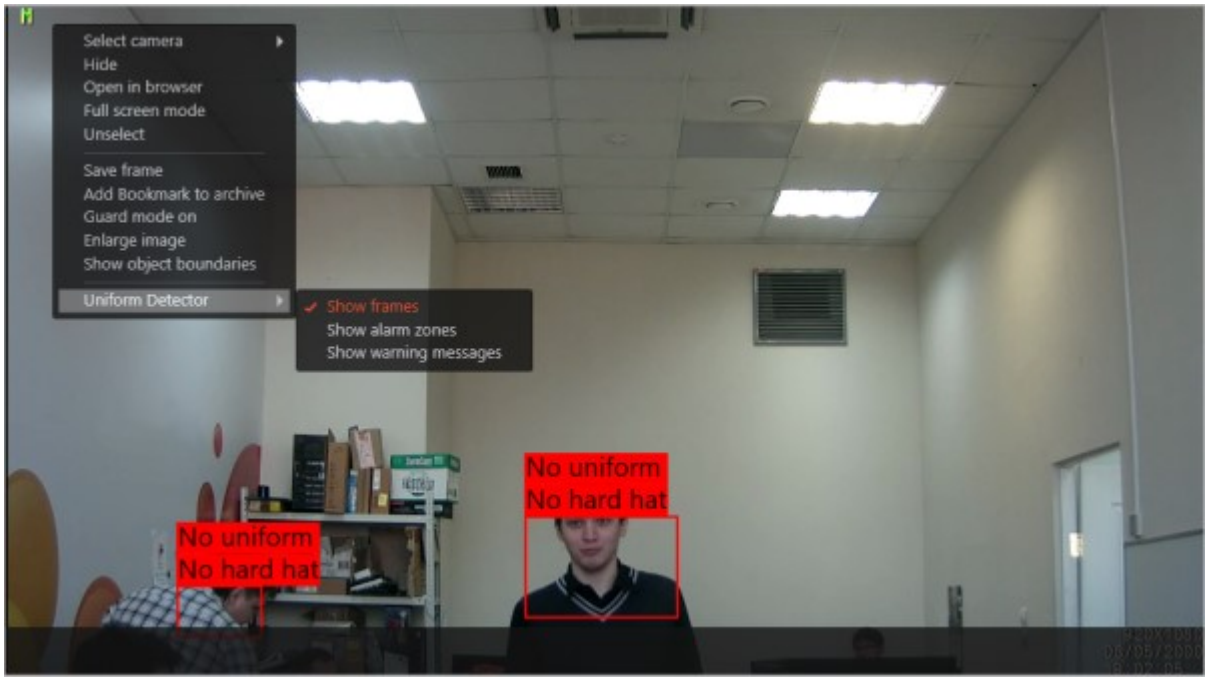
Uniform Detector

The **Uniform Detector** is designed to detect people both in workwear and without it. In live view, such people will be highlighted on the screen with a colored frame, and the incidents will be recorded in the event log.

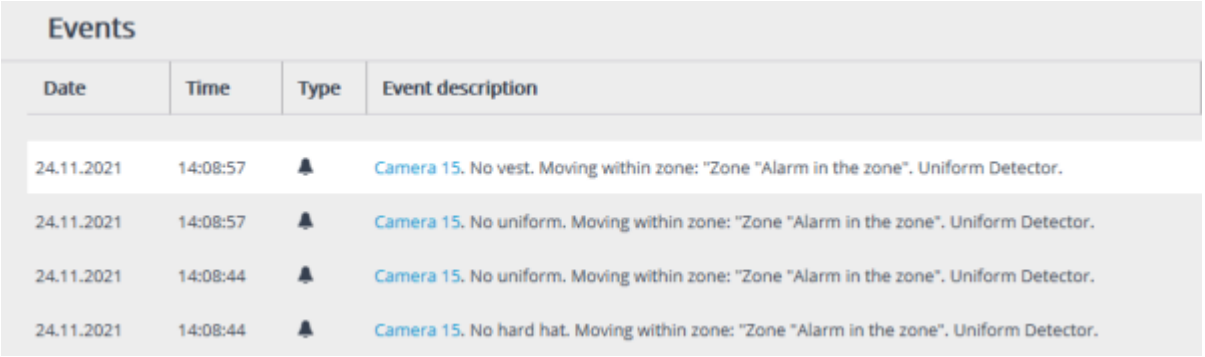
The alarm event is the event of the absence of workwear, a common one is the presence of workwear. Depending on the event, the detection frame and the corresponding text will be highlighted in red or green.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

To enable the display of frames around people in uniform or without it, select the **Uniform Detector** subitem in the **Show frames** item of the cell's context menu.



All the module events are recorded in the Events log.



Events

Date	Time	Type	Event description
24.11.2021	14:08:57		Camera 15. No vest. Moving within zone: "Zone "Alarm in the zone". Uniform Detector.
24.11.2021	14:08:57		Camera 15. No uniform. Moving within zone: "Zone "Alarm in the zone". Uniform Detector.
24.11.2021	14:08:44		Camera 15. No uniform. Moving within zone: "Zone "Alarm in the zone". Uniform Detector.
24.11.2021	14:08:44		Camera 15. No hard hat. Moving within zone: "Zone "Alarm in the zone". Uniform Detector.

Unique Visitor Counting

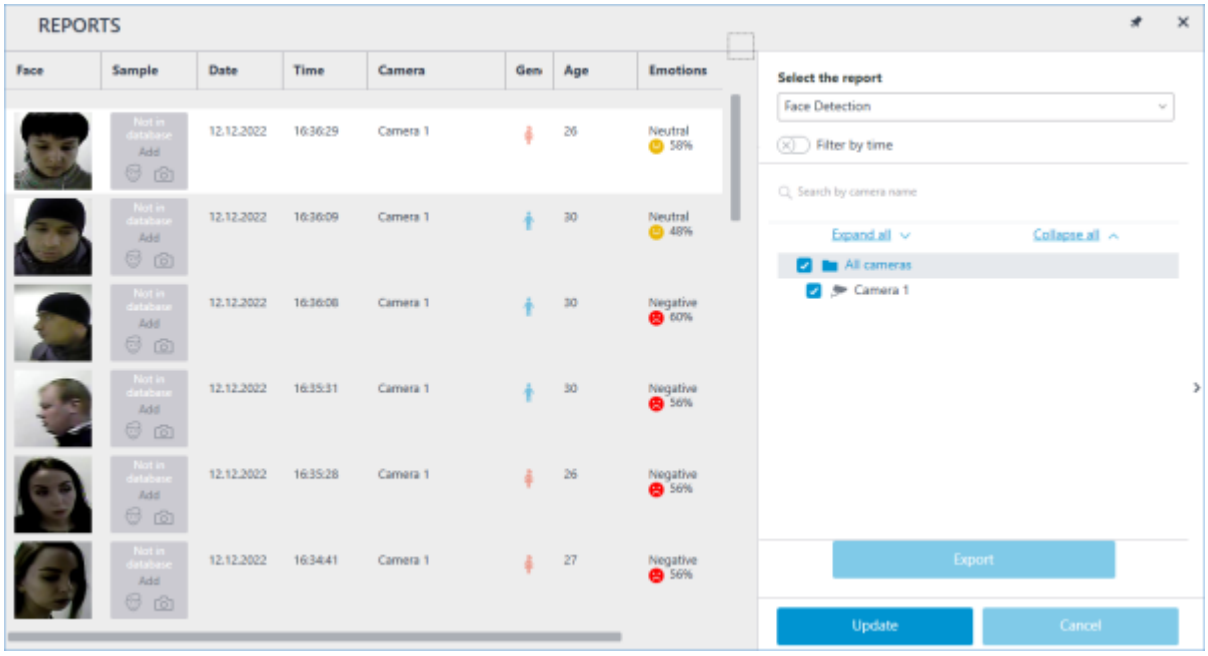
Unique Visitor Counting module is intended for generating Unique Visitor Counting reports based on detecting and recognizing faces. It is possible to exclude faces pertaining to certain groups from the counting, for example, to avoid counting employees.

This module will only work on the cameras on which it has been enabled by the administrator of video surveillance system.

Face Detection report

The **Face Detection** report shows the brief information regarding the detected faces: time of detection, sex, age and emotions (without showing a name, even if the face is in the database).

The following emotion recognition results are available: **Positive**, **Neutral**, **Negative** and **Unknown**.



If a period has been specified for the report, the report will be downloaded to disk upon pressing the **Export** button.

This will open a window where it will be possible to select the location and format of the file: CSV, Excel or PDF.

Unique Visitor Counting report

In the **Unique Visitor Counting** report, the infographics of the unique visitors is displayed, containing four graphs: by number of visitors, by age, by gender and by emotion.

The following emotion recognition results are available: **Positive**, **Neutral**, **Negative** and **Unknown**.

Apart from the period of time and the step of the graph, it is possible to indicate sex, age and emotions of the people to be included into the report. Additionally, it is possible to set the groups from the database whose members will not be taken into consideration when generating the report; thus, it is possible to exclude employees from the counting.

The graph of the number of visitors shows the unique visitors and all the visitors at the same time.

The diagrams of the age, sex and emotions are generated for the unique visitors by default.

For the age, sex and emotions data to be displayed for all visitors, it is required to toggle the corresponding switch. At that, it will not be necessary to generate a new report to update the information.

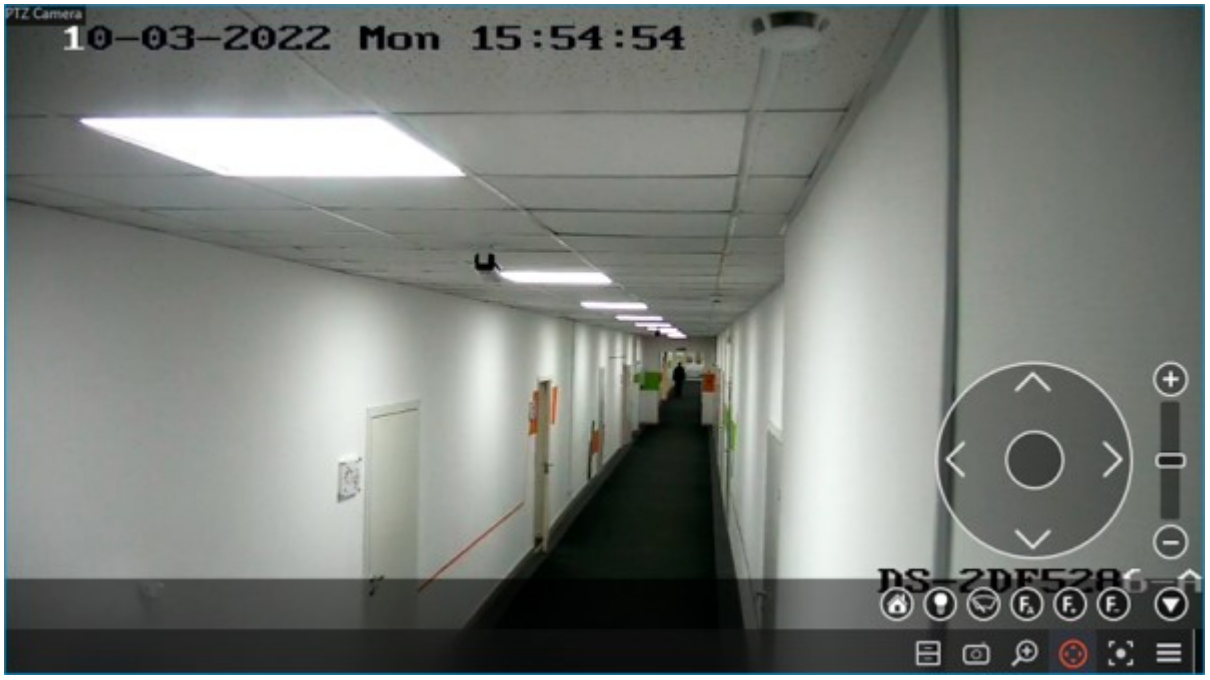
The report can be exported to CSV format by clicking the **Export** button.

Faces database

It is possible to use the face database to exclude certain persons from the count (e.g. employees). Since this database is similar to the ones employed in the Face Recognition modules, the procedure of using it can be found in the Face Recognition documentation.

PTZ Camera Management

Depending on a camera model, it is possible to use in **Eocortex** such additional camera control options as pan, tilt, zoom, focus, various service functions, and pre-set positions (presets).



PTZ Camera Control

Camera position can be interactively controlled by the following options: physical PTZ control device, virtual PTZ joystick, and buttons on the PTZ control panel.

The use of a physical PTZ control device can be configured on the **PTZ Cameras control panel** tab of the **Workplace settings** window in the **Eocortex** application.

To use the virtual joystick and control buttons, click the button in the active cell or select **Camera Control Interface** in the context menu.

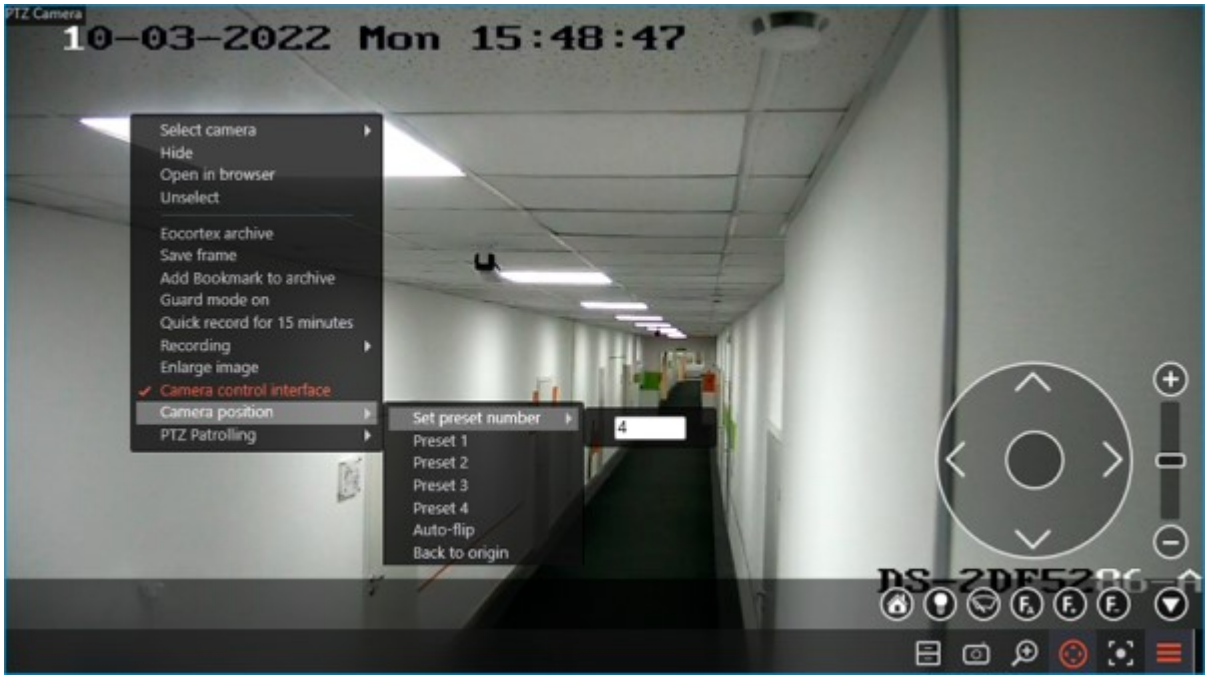
If the **Camera Control Interface** is unavailable, this means that this camera model is not controllable or camera control functions are disabled by the system administrator.

Depending on the set of features available for the camera, the controls may vary. The following elements of the control interface are implemented: virtual joystick, zoom in/out, focus control (+/-/AF), transition to "home" position, infra-red lighting and wiper control.

To hide the camera control interface, re-click the ● button in the active cell or select again **Camera Control Interface** in the context menu.

Camera Preset

To set the camera to one of the presets, in the cell context menu select **Camera position**. In the submenu that opens, select one of the positions available or set the preset number in **Set a preset number**.



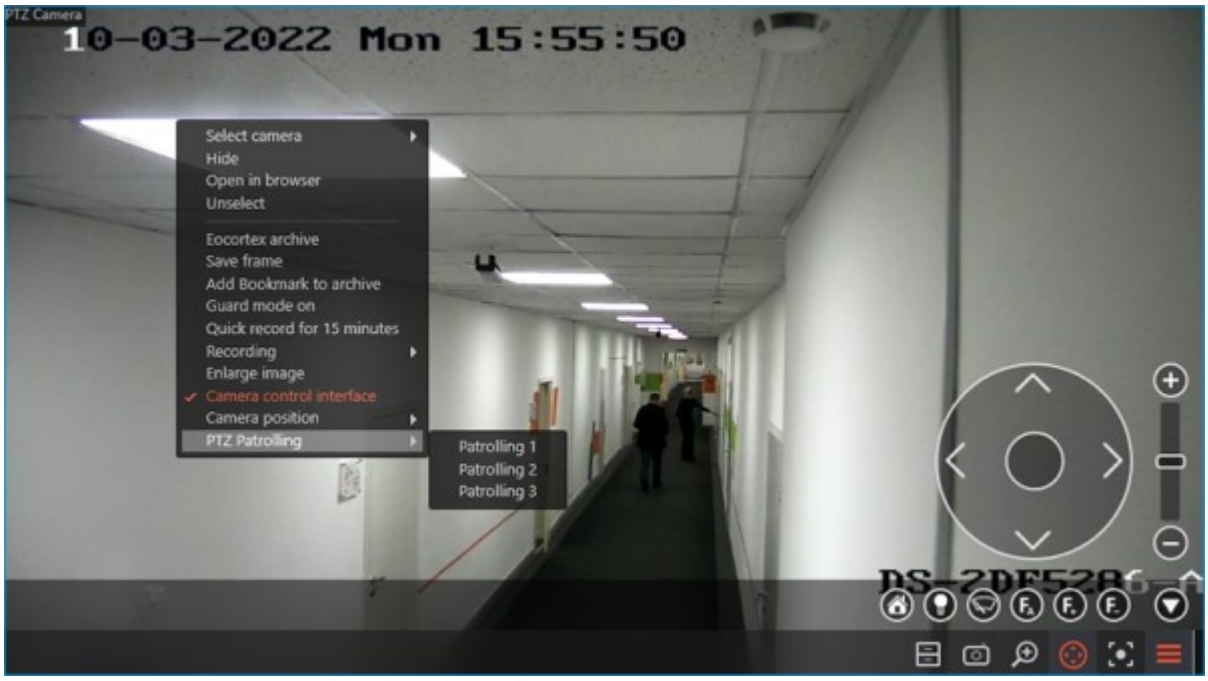
The presets are set on the camera itself by the system administrator.

Some cameras allow setting for presets names (text values) instead of numbers.

Tours (auto patrolling)

The system administrator can set up tours (auto-patrolling) — scenarios of automatic transition of the camera between presets.

To start a tour, select **Tours** in the context menu of the cell and choose one of the tours in the submenu that opens.

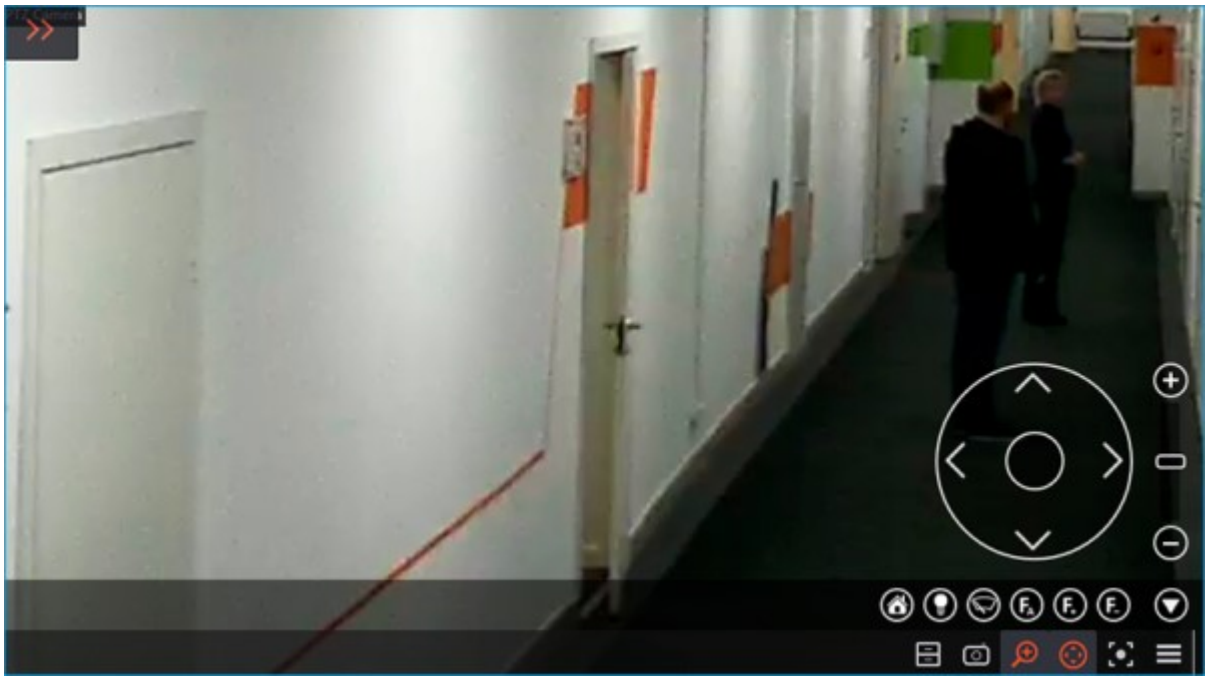


AreaZoom

AreaZoom AreaZoom allows to outline the frame part and enlarge it using the zoom method (mechanical or optical) of the camera itself.

This feature is available not for all camera models.

To use **AreaZoom**, enable the camera control interface. Then holding the left mouse button, select the area of the frame that you want to zoom — the camera will zoom the outlined frame part. If necessary, the camera will change its position, so that the center of the outlined rectangle will be located in the center of the frame.



Control priority

For **Enterprise** and **ULTRA** licenses, users can be assigned one of the priority levels to control the camera's PTZ features: **Maximum**, **High**, **Medium**, **Low**, or **Minimum**. Users with a higher priority can take control of the camera from a user with a lower priority. If the user who took over control is inactive for 5 seconds, the camera will become available to control to other users with the same priority level. When the inactivity interval reaches 15 seconds, the camera will become controllable by users with a lower priority level.

Priority levels are set by the system administrator on the **Users** page of the **Eocortex Configurator** application.

> Control prioritization does not apply to cameras with disabled **Connection via server** option, which is located on the **Connection** page of the **Eocortex Configurator** application. With such configuration, commands from the **Eocortex Client** application are sent directly to the camera, whereas priority control requires user commands to be sent through the server.

Similarly, control prioritization will not apply to multiple workstations with the **Eocortex Client** application connected to the server under the same account.

Alarms and Guard mode

Alarm is the state the camera switches to when an alarm is generated on this camera. An alarm can be generated both automatically, in response to certain system events, and by the user.

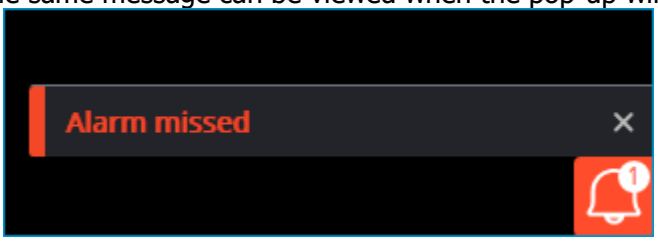
Features

Notification about the alarm is carried out at each workplace according to its settings independently of the other workplaces.

According to the workplace configuration, the following notification methods can be initiated when a channel switches to the alarm state:

- Displaying of the alarm indicator in the upper right corner of the camera cell.
- Playing back an audio signal.
- Displaying camera in an alarm cell.
- Displaying camera on the alarm monitor.
- Displaying camera's alarm indication on plans.

If the alarm has been turned into a missed alarm, a pop-up window appears in the lower right corner of the screen with the **Alarm missed** message and the notification indicator, where the same message can be viewed when the pop-up window disappears.



Clicking the message opens the **Events log** with the **Missed alert** filter applied.

All of these methods of alarm notification at the workplace require that the **Guard mode** is configured for the camera.

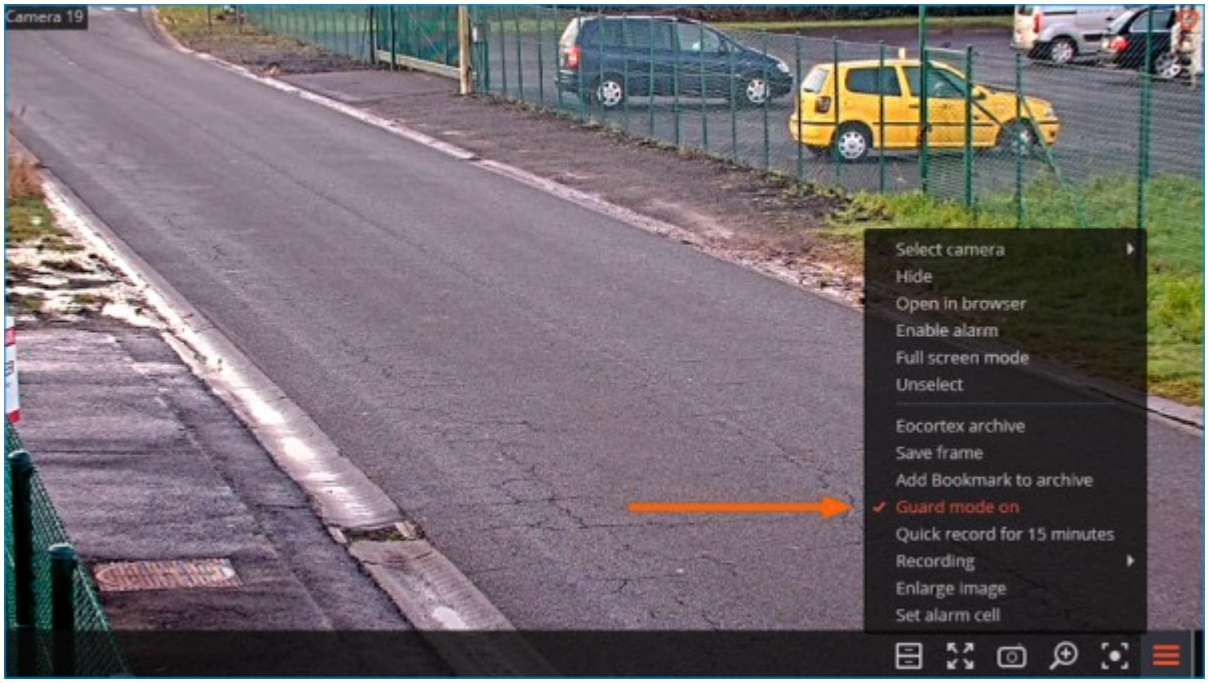
Guard mode

Guard mode is the camera operating mode, which switches the channel to **Alarm** state in case of alarm generation.

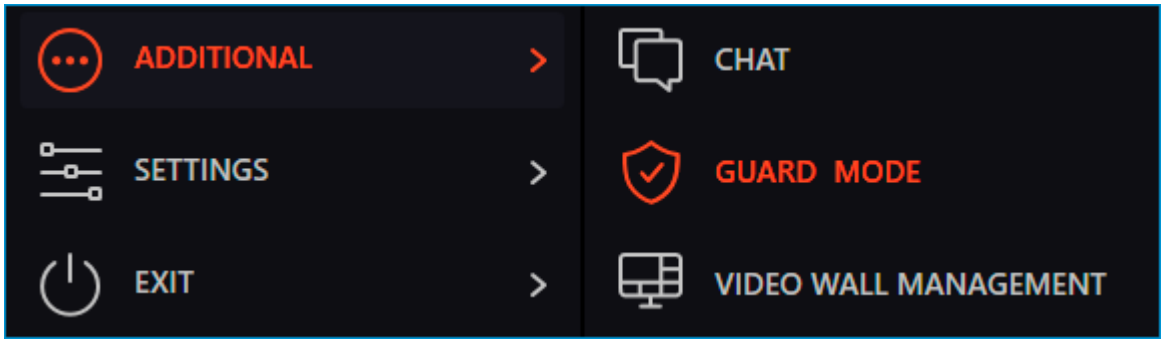
If the camera is set to the **Guard mode**, the indicator will be displayed in the upper right corner of the cell.

How to set the **Guard mode** on and off:

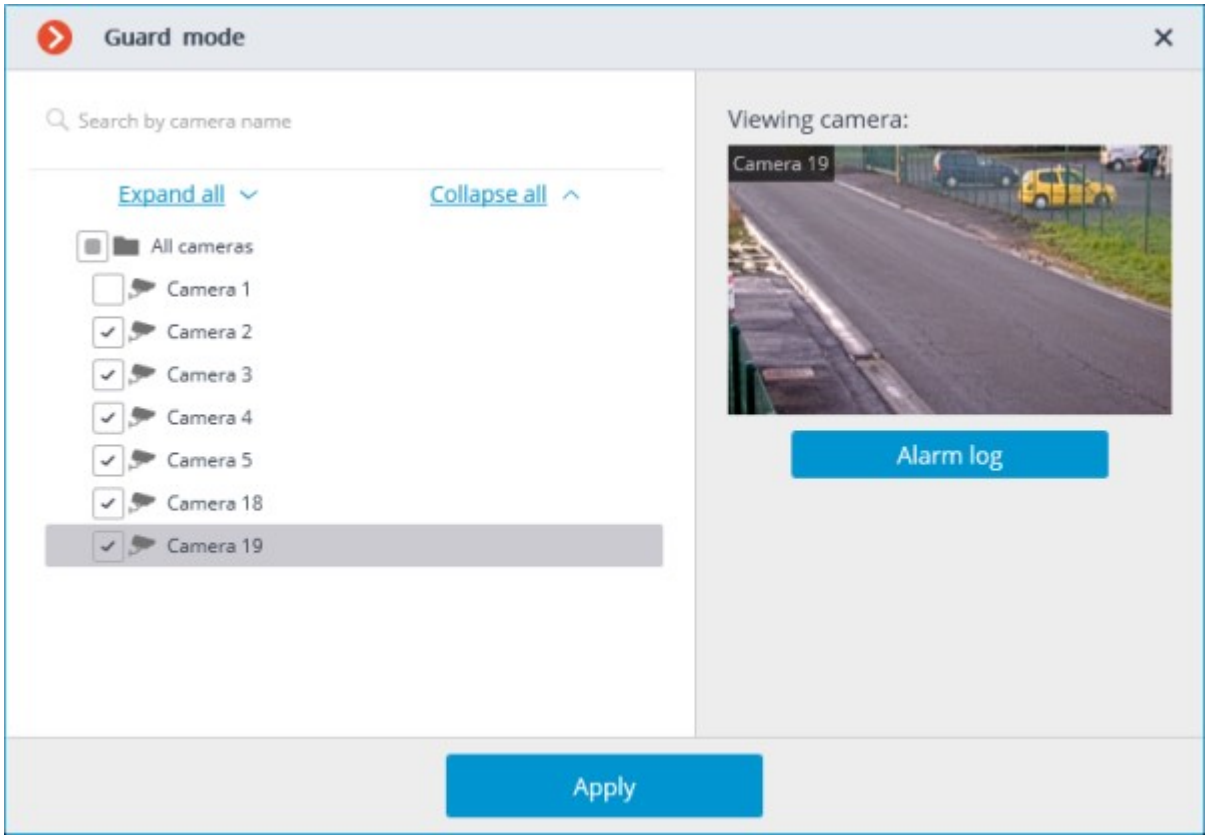
Option 1: Call the context menu of a cell and select the **Guard mode on** item.



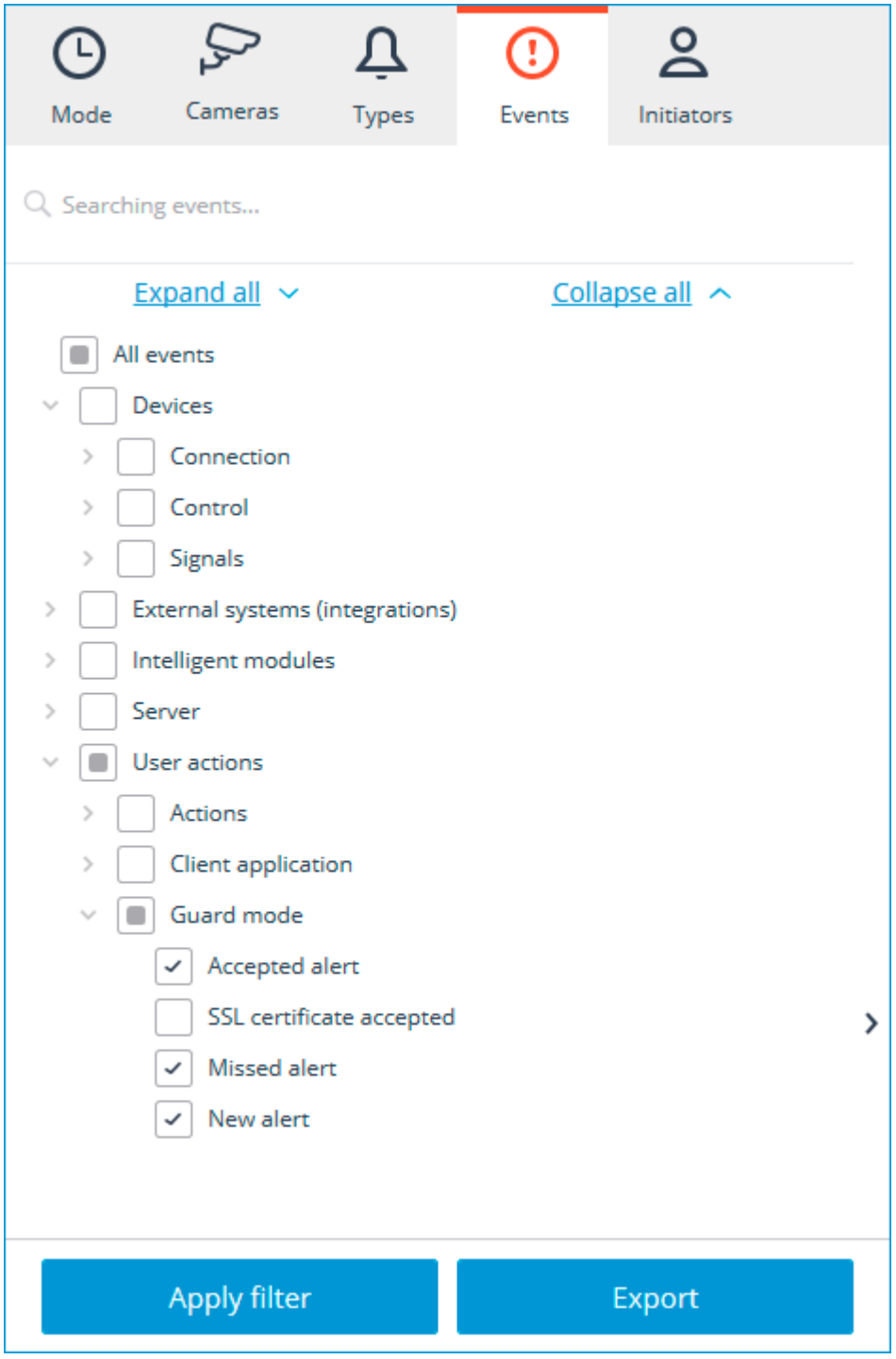
Option 2: Expand the **Additional** item on the control panel and select the **Guard mode** subitem.



In the window that opens, check the cameras that should be set on guard, then click **Apply**. The same way uncheck the cameras, for which the guard should be set off.



Clicking the **Alarm log** button opens **Events log** filtered by alarms.



Option 3: Set up Scheduled Guard mode in the workplace settings.

Alarm generation

Automatic alarm

Eocortex will generate alarm in case if tasks with the **Alarm generation** action are configured on the **Automation** page of the **Eocortex Configurator** application by the surveillance system administrator.

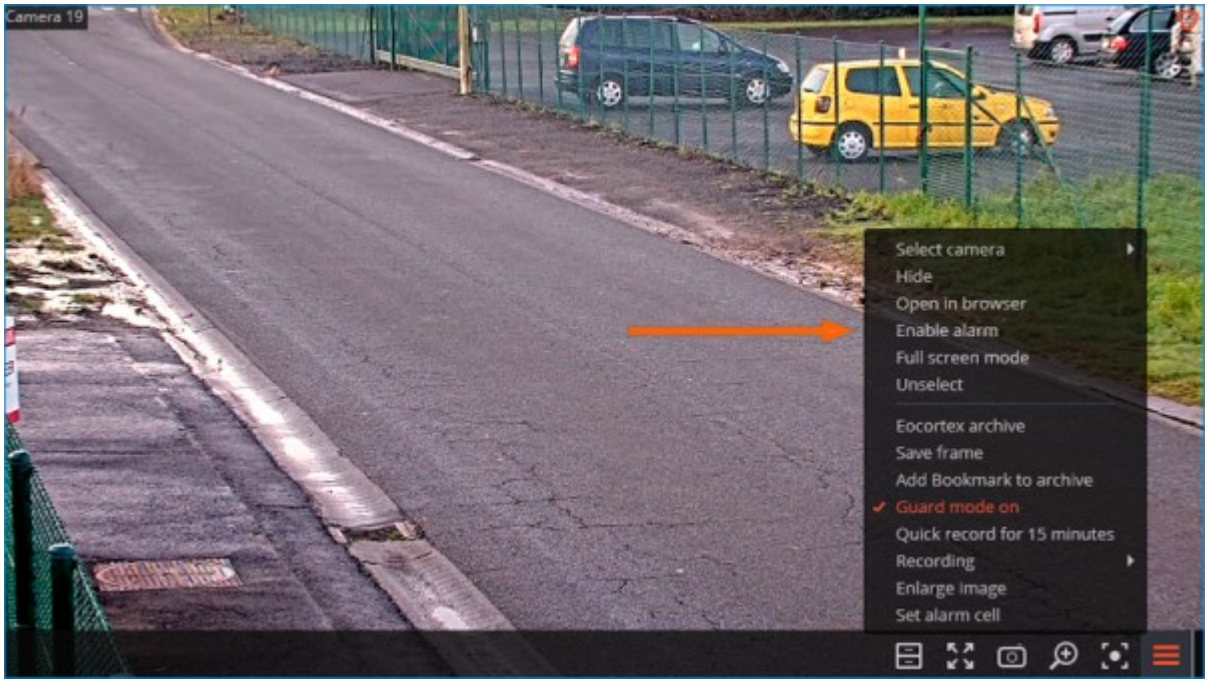
User alarm

User alarm is a special event that user can manually generate by clicking a specific button in the interface or selecting the corresponding item in the context menu of the cell. The administrator of the

surveillance system can set up any type of action to be executed when the **User alarm** event is generated, and for each camera a different action can be configured.

To generate **User alarm** for multiple cameras at once, click the button right to the clock on the control panel.

To generate **User alarm** for a single camera, call the context menu of the camera cell and select the **Enable alarm** item.



Availability of the button and **Enable alarm** context menu item can be configured on the **Interface** tab of the **Workplace settings** window in the **Eocortex Client** application.

The list of cameras, for which User alarm will be generated, can be configured on the **User alarm channels** tab of the **Workplace settings** window in **Eocortex Client**.

Alarm notifications

Audio signal

Audio files for notifications are stored in the Sound folder in root directory of the **Eocortex Client** application (By default: C:\Users\[User name]\AppData\Local\Programs\Eocortex Client\Sounds).

Playback of the sound signal in case of alarm is carried out according to the following rules:

- The file will be played regardless of whether the camera is displayed on the regular monitor, the alarm monitor or in the alarm cell.
- Only audio files converted to WAV are supported.
- Only one file can be used for all alarms.
- Each new alarm initiates playback of the selected audio file from the beginning.

It is recommended to avoid using long duration files and frequent generation of alarms of the same type when setting up tasks. Otherwise, the sound file will be interrupted with a new playback every time an alarm is generated.

Playback of the audio signal can be configured on the **Sheduled Guard mode** tab of the **Workplace settings** window in **Eocortex Client**.

Alarm cell

Alarm cell is a cell on a regular video surveillance monitor, dynamically displaying cameras where the **Alarm** occurred.

To assign a cell as alarm cell, call the context menu and select the **Set alarm cell** item.

If the camera appears in the alarm cell, the alarm must be acknowledged within 1 minute, otherwise it will be marked as missed.

The alarm can be acknowledged by clicking the alarm indicator in the upper right corner of the cell or by selecting the cell.

Placement of the camera in the alarm cell in case of alarm is carried out according to the following rules:

Alarm cell replaces the regular cell, so the maximum number of alarm cells per monitor is limited only by the maximum size of the view — 262 cells.

In case of alarm generation, the camera occupies the first suitable alarm cell in the order.

The order in which alarm cells are filled follows the order of cells on the screen from left to right and from top to bottom. So, for example, in a 5×5 view filled with alarm cells, the top left corner will be cell 1, the top right — cell 5, the bottom right — cell 25.

When the alarm state is acknowledged, the camera continues to be displayed in the alarm cell until it will be replaced by another camera in the alarm state.

Even though the alarm cell remains visually occupied by the camera with acknowledged alarm, it still will be considered free for the alarmed cameras allocation algorithm. Thus, if a de-alarmed camera is placed in alarm cell 1, it will be replaced by another camera when an alarm event occurs, regardless of whether there are other free alarm cells on the monitor or not.

A camera without an alarm state can be manually assigned to the alarm cell, but it will be automatically replaced with a camera in alarm state if the need arises.

If a camera is already assigned to a regular cell on a monitor, it will not be moved to or additionally opened in an alarm cell on the same monitor. The alarm indicator will be displayed for this camera in the regular cell.

If alarm and regular cells are on different monitors of the same workstation, the camera opened in the regular cell on one monitor will also be opened in the alarm cell on the other monitor. The alarm indicator will be displayed in both cells.

If all alarm cells are occupied by cameras with active (not acknowledged) alarm state, the new camera will not be displayed.

If the same workplace has both alarm cells and alarm monitor, a camera in **Alarm** state will be displayed on both of them.

If the **Display only on the alarm monitor** option is enabled on the **Sheduled Guard mode** tab of the **Workplace settings** window, alarmed cameras will not be assigned to alarm cells.

Camera can be manually removed from the alarm cell by selecting the **Hide** item of the cell context menu.

Availability of the **Set alarm cell** context item and the possibility of alarm cells usage can be configured on the **Interface** tab of the **Workplace settings** window in **Eocortex Client**.

Alarm monitor

Alarm monitor is a dedicated monitor dynamically displaying cameras where the **Alarm** occurred.

If the camera appears on the alarm monitor, the alarm must be acknowledged within 1 minute, otherwise it will be marked as missed.

The alarm can be acknowledged by clicking the alarm indicator in the upper right corner of the cell or by double-clicking to the cell.

Placement of the camera on the alarm monitor in case of alarm is carried out according to the following rules:

The maximum number of alarm monitors per workplace — not more than one.

The maximum number of cells on the alarm monitor — no more than 25.

The alarm monitor selects the optimal screen grid automatically, depending on the number of cameras in the **Alarm** state that need to be displayed. The optimal grid is the one that allows to display all cameras in **Alarm** state with the minimum number of empty cells.

For example: The alarm monitor currently displays four cameras in the **Alarm** state, the optimal grid is 2×2 cells. When new cameras in the **Alarm** state appear, the grid will automatically change to the first one that can fit all the cameras.

Cameras cannot be manually placed on the alarm monitor.

If an alarm is acknowledged by clicking the alarm indicator, the camera will be kept in its current cell on the alarm monitor until it will be replaced.

If an alarm is acknowledged by double-clicking to the cell, the camera will be removed from the alarm monitor.

If all alarm monitor cells are occupied by cameras, the new camera in the **Alarm** state will be placed to the first unpinned cell with an acknowledged alarm.

If all alarm monitor cells are occupied by pinned cameras or cameras with an active (not acknowledged) **Alarm** state, the new camera in **Alarm** state will not be displayed on the screen.

If the same workplace has both alarm cells and alarm monitor, a camera in **Alarm** state will be displayed on both of them.

If the **Display only on the alarm monitor** option is enabled on the **Sheduled Guard mode** tab of the **Workplace settings** window, alarmed cameras will be displayed only on the alarm monitor.

Usage of a monitor as the alarm monitor can be configured on the **Monitors** tab of the **Workplace settings** window in **Eocortex Client**.

Cameras can be removed from the alarm monitor not only manually, but also in automatically.

If the **Set the limit of an alarm display period on the alarm monitor** option is configured in the workplace settings, the cameras will automatically hide from the alarm monitor after the expiration of the set time from the moment of alarm generation.

At the same time, if any camera needs to be kept on the alarm monitor, it can be pinned to the cell.

To pin the camera to the alarm monitor cell, use the button located in the upper right corner of the cell.

Pinning of cameras to the alarm monitor cells is carried out according to the following rules:

The maximum number of assigned cells is limited by the maximum number of alarm monitor cells — 25.

A camera that appears in the alarm monitor cell will not be automatically pinned to this cell.

A camera pinned to the alarm monitor cell will not be hidden by timeout as unpinned one.

If a camera is pinned to the alarm monitor cell, it will remain in that cell if an alarm is generated again.

When reducing the size of the screen grid, the pinned camera may change position on the screen if the cells to the left and/or above do not contain other pinned or alarmed cameras.

All camera pins are reset when switching a camera on the alarm monitor to full screen, going to the video wall, manually hiding the camera from the cell or restarting the **Eocortex Client** application.

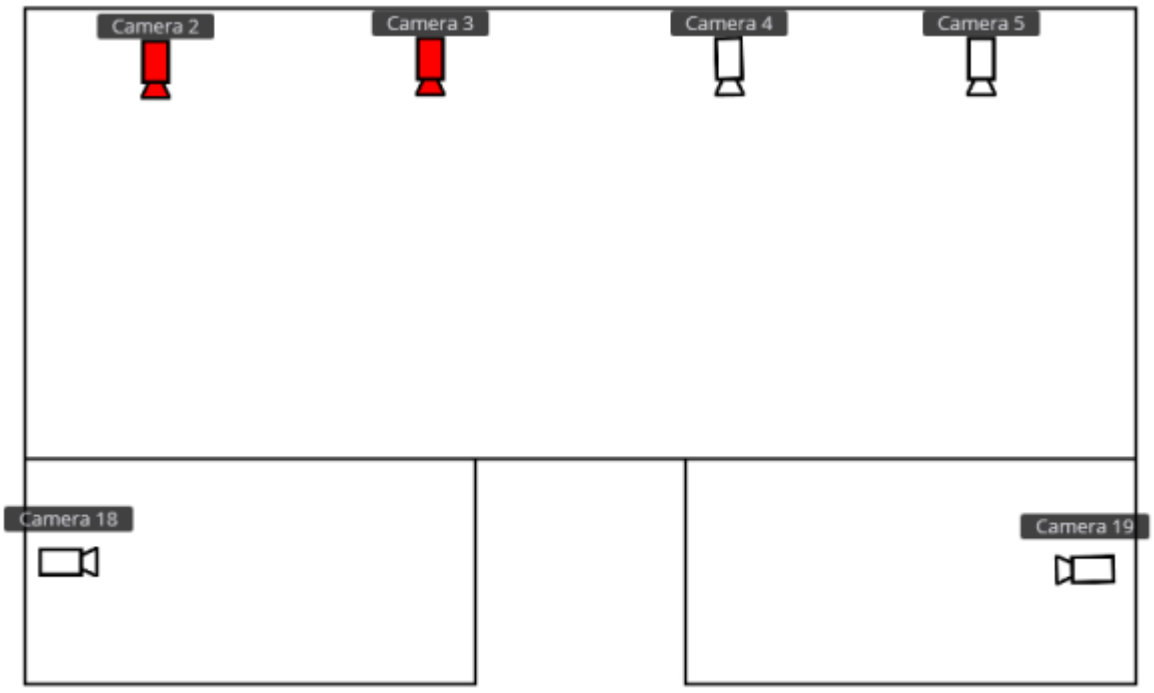
The automatic removal of cameras from the alarm monitor and the possibility to pin cameras associated with it can be configured on the **Sheduled Guard mode** tab of the **Workplace settings** window in **Eocortex Client**.

Displaying alarm indication on plans

This capability is not present in all types of licenses.

For cameras placed on the site plans, it is possible to configure displaying of the **Alarm** indication in the **Plans** section.

When an alarm is generated, the cameras placed on the plans will be colored red.



The indication can be removed in one of the following ways:

- By positioning the mouse cursor over the camera icon and waiting for the preview window to appear.
- By clicking the camera icon on the plan.
- By acknowledging the alarm on the regular or alarm monitor.

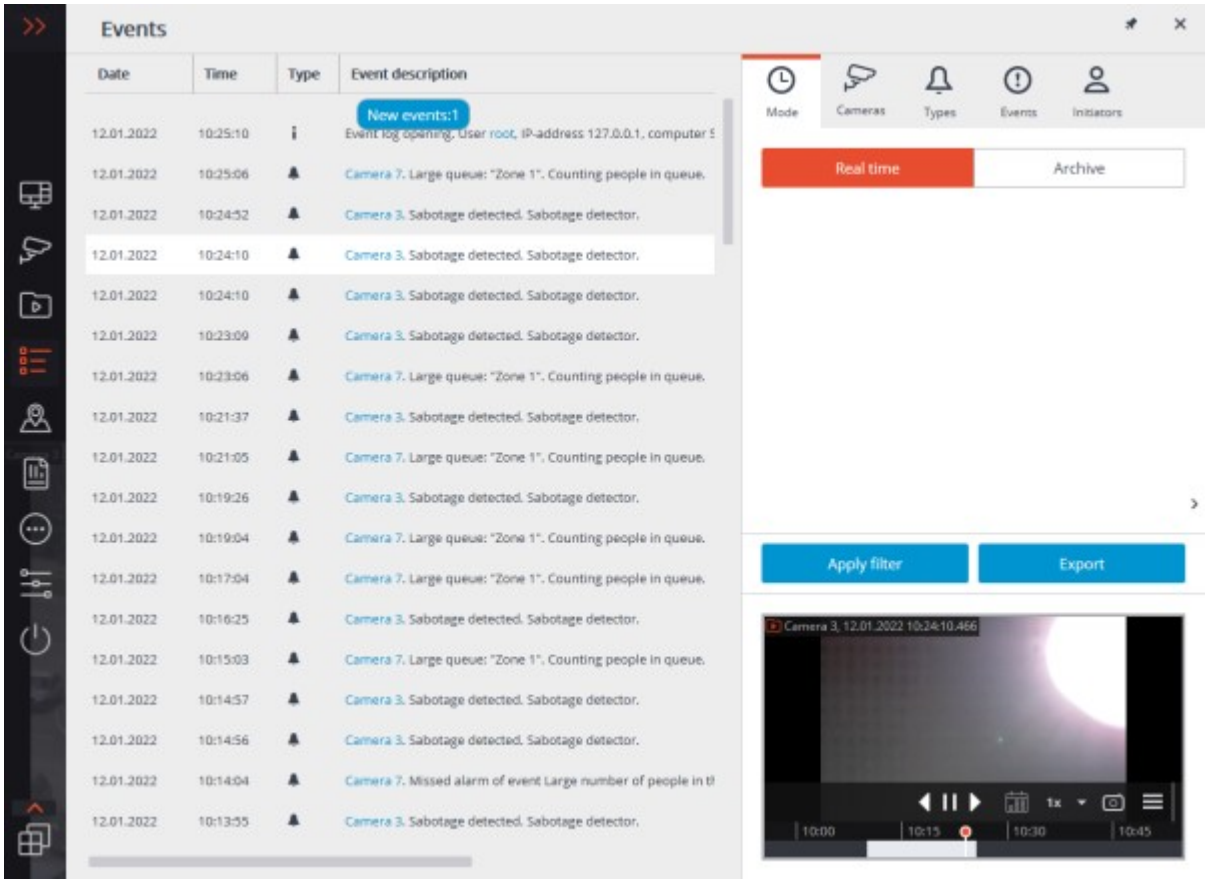
Removal of alarm indication on plans does not cause the alarm acknowledgment.

Display of the alarm indication on plans can be configured on the **Sheduled Guard mode** tab of the **Workplace settings** window in **Eocortex Client**.

Events log

The **Events log** is designed for viewing system and user events.

To switch to the **Events log**, select **Events** from the main menu.



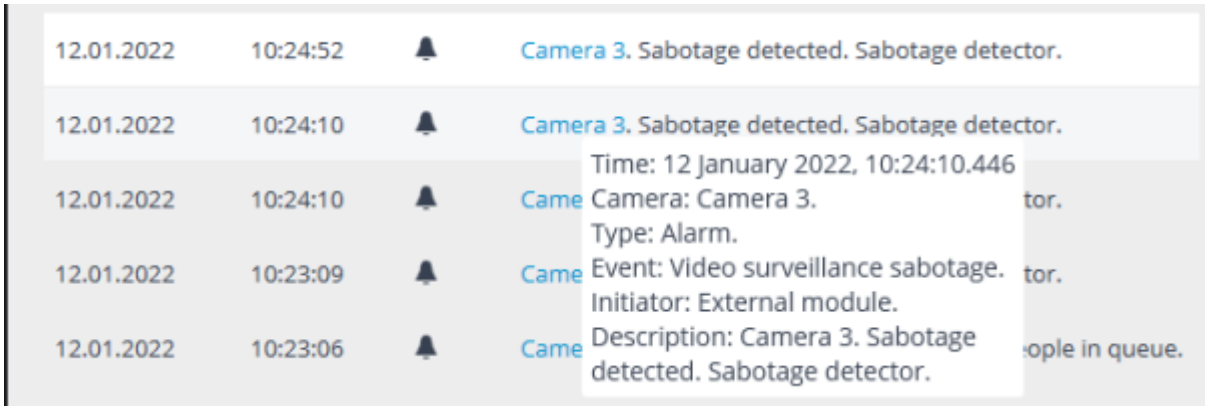
A page with the events list will open. On the right side of this page is a panel available that allows to filter and export event records.

List of events

The Events log displays the **Time**, **Camera time**, **Type** (as an icon) and **Event description** attributes for each event.

The **Event description** includes, in addition to the event name, various attributes associated with the event. The composition of the attributes depends on the event.

Upon selection of an event linked to the camera, and the archive availability at the date / time of event, the preview window will display the frame from the archive. At the same time, archive playback can be performed both directly in the preview window and in full-screen mode, which opens by double-clicking on an event.



Upon right-clicking on the event the context menu with the following items will be displayed:

Switch to the frame (only for events linked to the cameras).

Filter only by this event.

Exclude the event from the filter.

Filter only by this camera (only for events linked to cameras).

Exclude this camera from the filter (only for events linked to cameras).

To filter the list of events by the items selected in the context menu, click the **Apply filter** button.

Filters panel

The filters panel allows to set the parameters for displaying events in the log.

> Some filters may not be displayed depending on user permissions and camera settings.

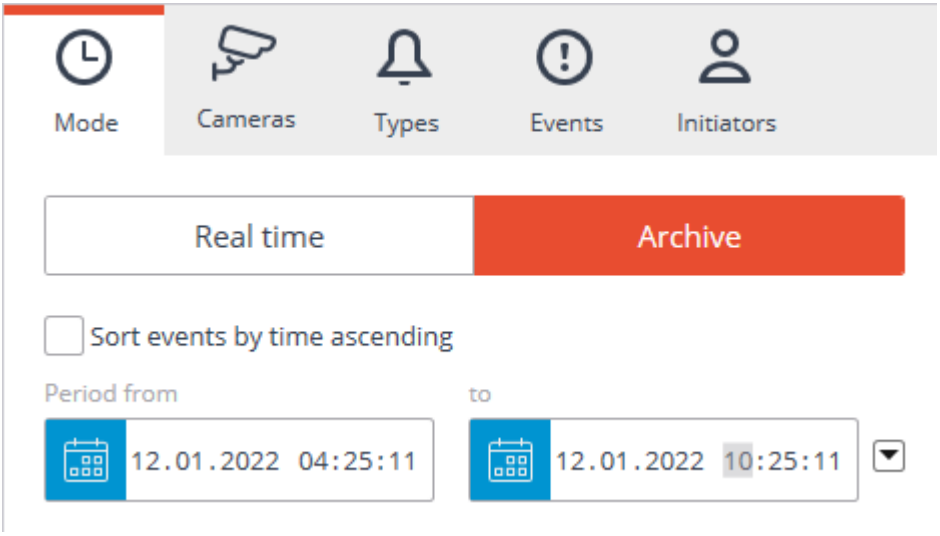
After making changes in the list of filters, click the **Apply filter** button.

The **Mode** filer sets the events display mode:

Real time displays the events in real time. Sorting is performed in reverse chronological order: the new events at the top, the older at the bottom.

Initially, only 150 latest events are displayed and added the new ones, generated during the view.

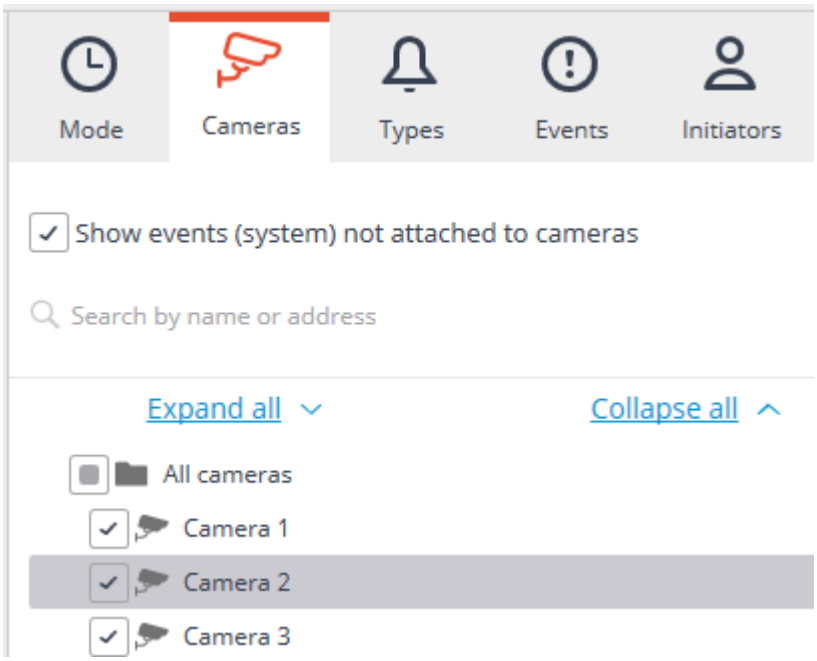
If none of the events is selected, the new events are automatically displayed at the top of the list.



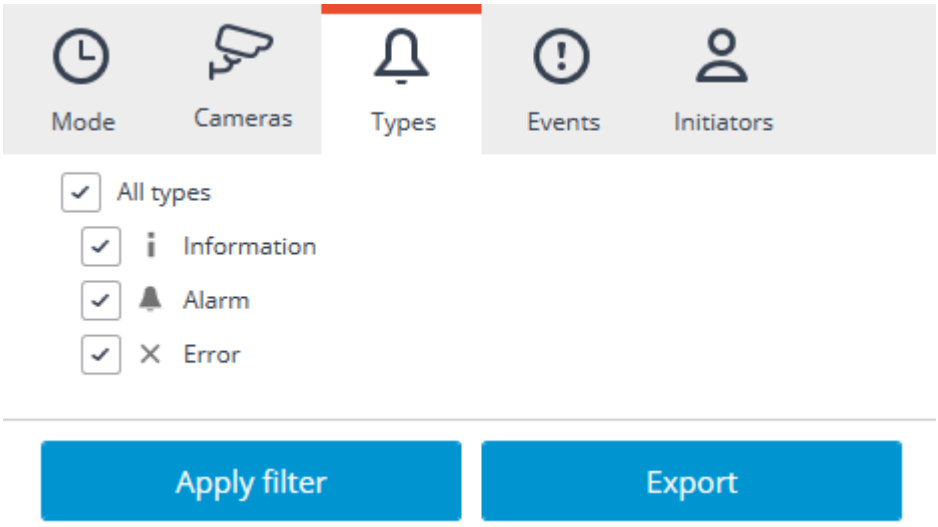
The log is automatically updated with new entries, but this process stops when any of the log entries are selected with a mouse click. The number of new records received since the selection is displayed on the **New events** button at the top of the list of events. Click this button to manually refresh the log and continue receiving events.

Archive displays the archived events within a given time period; you can also specify the order of time sorting in this mode.

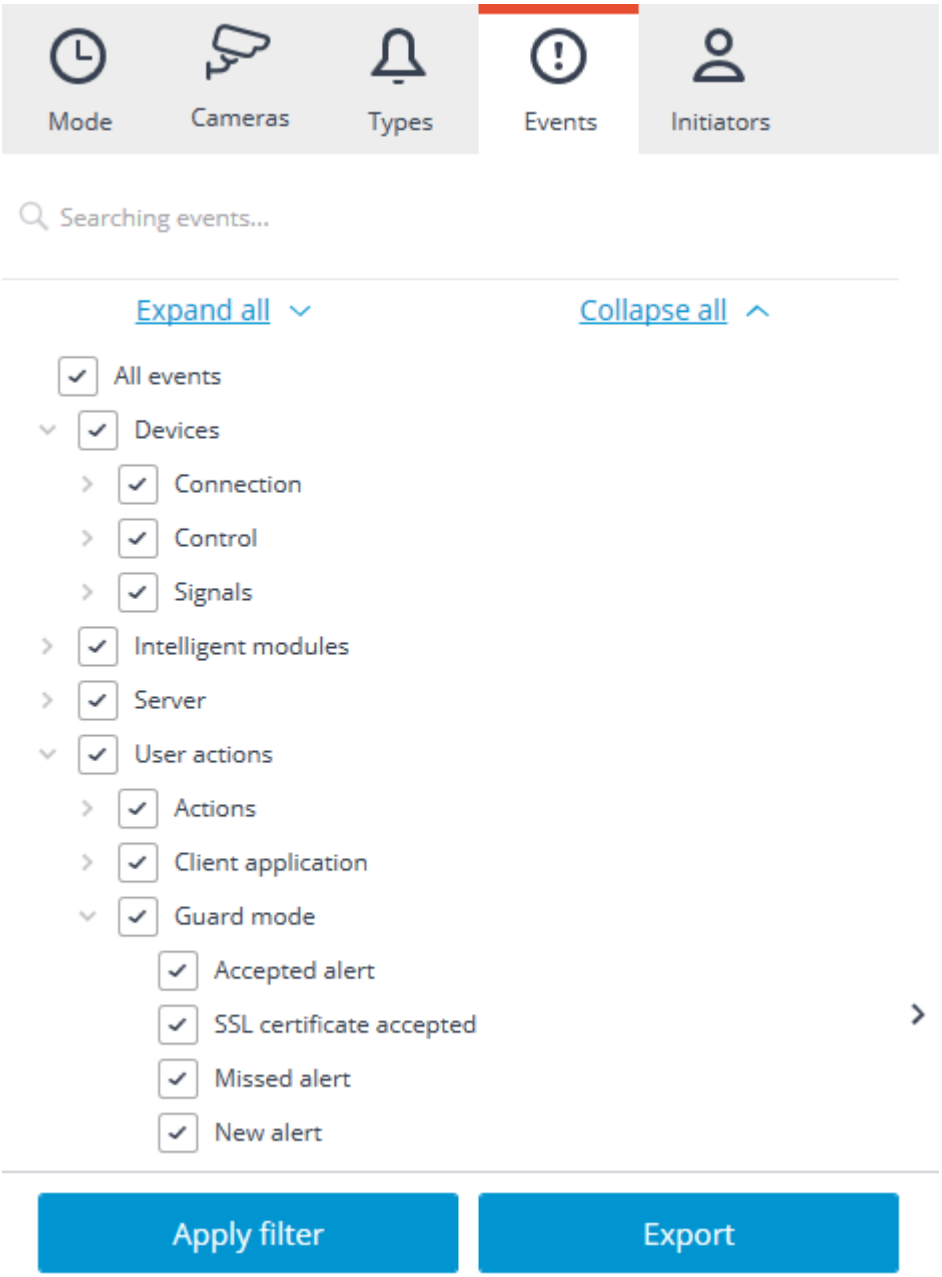
The **Cameras** filter allows to filter the events associated with selected cameras, as well as the system events (not associated with cameras).



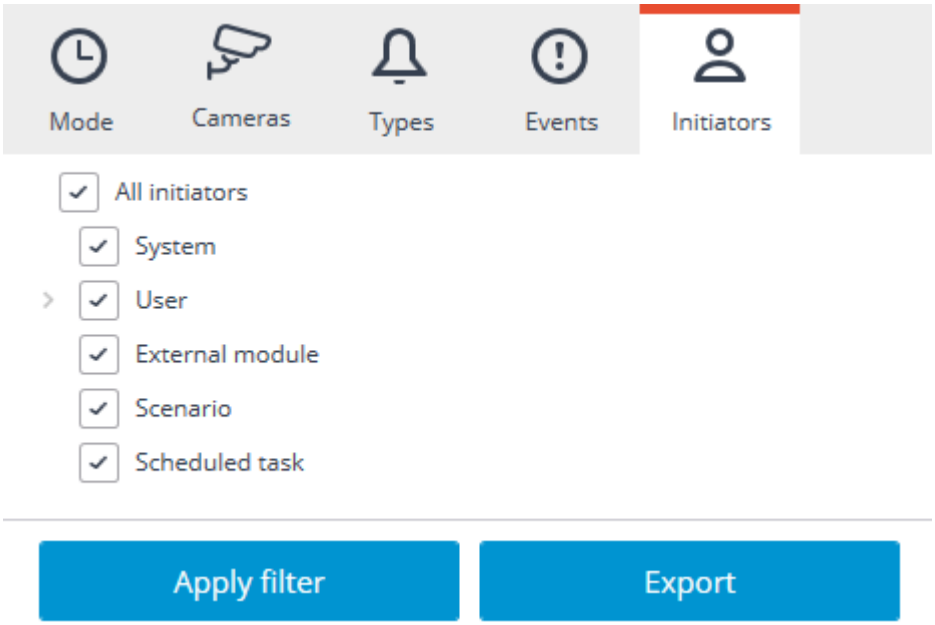
The **Types** filter allows to filter the events by types: **Information**, **Alarm** and **Error**.



The **Events** filter allows to filter the events by groups and names.

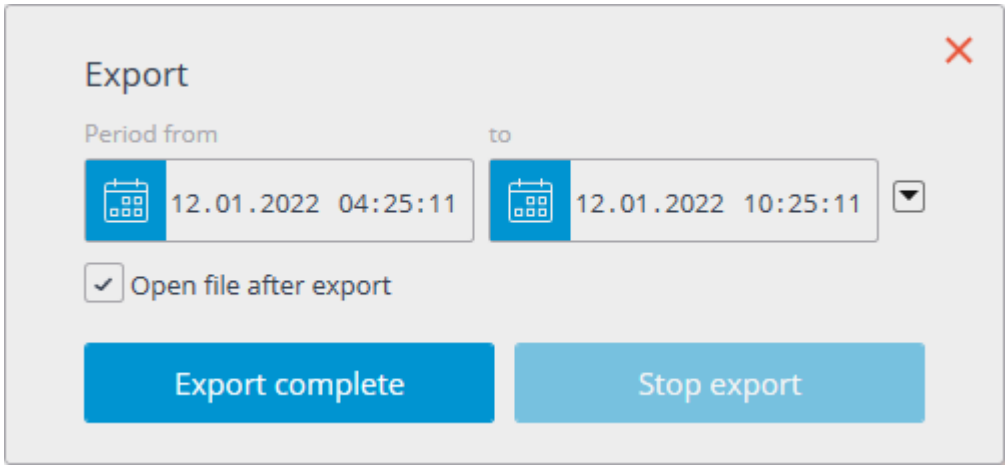


The **Initiators** filter allows to filter the events depending on their initiator.



Export of the Event log

To export the Event log, click the **Export** button on the filters panel. In the Export window that opens set the time interval for which the events will be downloaded; if necessary, activate the **Open file after export** checkbox; then click **Start Export**.



Then, in the appeared window, select the folder in which the log file will be saved; in the File type drop-down list specify the saved file format: CSV (text) or XLS (Microsoft Excel); if necessary, change the file name in the relevant field; click **Save**.

Wait until the export end, and then close the **Export** window.

The events set by the current filters will be exported to the file.

Below is an example of an Excel event log export file.

Time	Camera	Category	Event	Initiator	Description
12.01.2022 10:25:10		Information	Event log opened	User	Event log opening. User root, IP-address 127.0.0.1, computer
12.01.2022 10:25:06	Camera 7	Alarm	Large number of people in the queue	External module	Camera 7. Large queue: "Zone 1". Counting people in queue.
12.01.2022 10:24:52	Camera 3	Alarm	Video surveillance sabotage	External module	Camera 3. Sabotage detected. Sabotage detector.
12.01.2022 10:24:10	Camera 3	Alarm	Video surveillance sabotage	External module	Camera 3. Sabotage detected. Sabotage detector.
12.01.2022 10:24:10	Camera 3	Alarm	Video surveillance sabotage	External module	Camera 3. Sabotage detected. Sabotage detector.
12.01.2022 10:23:09	Camera 3	Alarm	Video surveillance sabotage	External module	Camera 3. Sabotage detected. Sabotage detector.
12.01.2022 10:23:06	Camera 7	Alarm	Large number of people in the queue	External module	Camera 7. Large queue: "Zone 1". Counting people in queue.

Events

The following event types (divided into groups) are displayed in the Events log:

External systems (integrations)

These events are generated if the corresponding integration has been enabled and configured by the system administrator.

External alarm start;

End of external alarm;

External event;

PERCo-Web event;

Suprema BioStar 2 event;

Paxton Net2 event;

Parsec system event;

Honeywell Pro-Watch event;

Skat event;

Krechet-C event;

RusGuard event;

Siemens DMS8000 event;

Orion Pro events;

Orion Pro. Face verified;

Event from Orion Pro;

Event Mediana Security and Access Control System;

ZKBioSecurity event.

User actions

Actions

Archive Bookmark;

Archive exported;

Frame saved;

Simultaneous archive viewing;

Monitoring;

Search for Objects start;

Grid selected;

Screen profile selected;

Real time viewing;

Archive monitoring on channel;

Plans opened;

Event log opened;

User alarm;

Video Wall:

- Video wall setup completed;
- Video wall configuration;
- Video wall management;
- Video wall management complete.

Client application

Successful authentication;

Client application closed;

Changing password from client application;

Login as another user.

Guard mode

Accepted alert;

SSL certificate accepted;

Missed alert;

New alert.

Intelligent modules

These events are generated if the corresponding video analysis module has been enabled and configured by the system administrator.

Loud sound;

No face mask;

Shelf empty;

Uniform check result;

Abandoned object;

Maximum number of people in counting zone exceeded;

Number of people in counting zone is back to allowed;

Tracking event;

Large number of people in the queue;

Large crowd of people;

A person running a fever detected;

Video surveillance sabotage;

Personnel activity:

- Active zone;
- Inactive zone.

Fire and Smoke Detector:

- Smoke;
- Fire.

License plate recognition:

- Recognized license plates;
- Request to open gate;
- Request to close gate;
- Parking vehicle counter has been changed;
- Parking lot occupancy has changed.

Server

Archive

Hard drive malfunctioning problems detected;

Recording speed;

Recording started;

Recording stopped.

Actions

Notified by SMS;

Notified by e-mail;

External application run;

Saving frame to disk;

Sending HTTP request.

Settings

Server configuration application;

General configuration application;

Changed group rights.

Server application

Server started;

Server stopped.

Events

SSL certificate reset;

SSL certificate changed;

SSL certificate expired;

Start of backup;

End of backup;

Episode saved;

Error while saving an episode;

The user saved the archived episode;

Motion started;

Motion stopped;

Error at sending command to watchdog timer;

Computer reset by watchdog timer.

Devices

Signals

Camera-based analytics. Temperature exceedance;

Camera-based analytics. Line crossing;

Camera-based analytics. License plate recognition;

Camera-based analytics. Intrusion;

Camera-based analytics. Area entrance;

Camera-based analytics. Area exiting;

Camera-based analytics. Appearance (disappearance) of object in area;

Camera-based analytics. Loitering in area;

Camera-based analytics. Detection of sound;

Camera-based analytics. Sabotage detection;

Camera-based analytics. Mist and smoke detection;

Camera-based analytics. Size of queue;

Camera-based analytics. Face Detection;

Camera-based analytics. Person detected;

Camera-based analytics. License plate detection;

Camera-based analytics. Vehicle detection;

Camera-based analytics. Exceeded the number of people;

Camera-based analytics. Exceeded the number of people in area;

Camera-based analytics. Abandoned item;

Camera-based analytics. Item disappeared.

Connection

No connection with camera;

Established connection with camera;

No connected camera;

Analog camera connection fail;

Connecting to analog camera.

Control

Camera position setting;

Autofocus enabled;

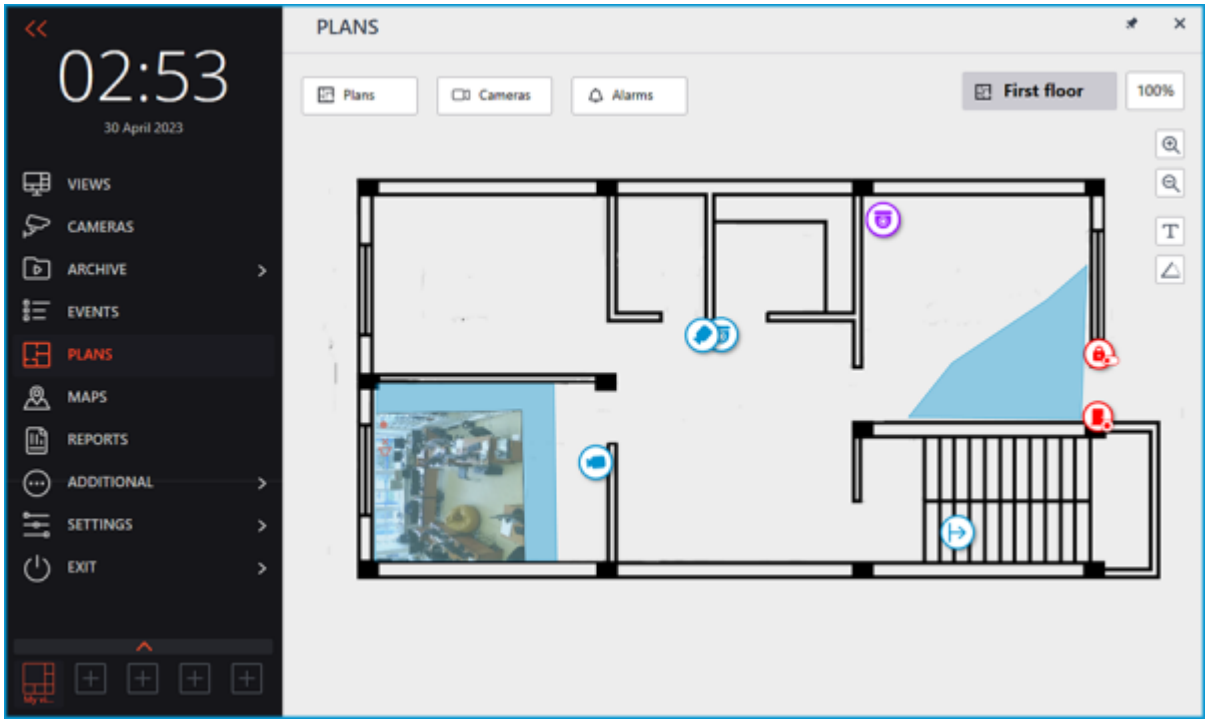
Washer enabled;

Transition to the home position.

Object plans

Eocortex allows placing and interacting with cameras, sensors, and relays on the created plans of objects. In addition, if the field of view is set for the camera, the video from it can be viewed directly on the plan.

To get access to the **Object plans** section, select the **Plans** item in the main menu.



The **Plans**, **Cameras**, and **Alarms** buttons are available at the top of the screen. Clicking the button opens a slide-out panel on the left with the relevant information.

The center of the screen displays the plan with its name and scale.

A bar with the following buttons is available on the right side of the plan:

Zoom in: Scales the plan up.

Zoom out: Scales the plan down.

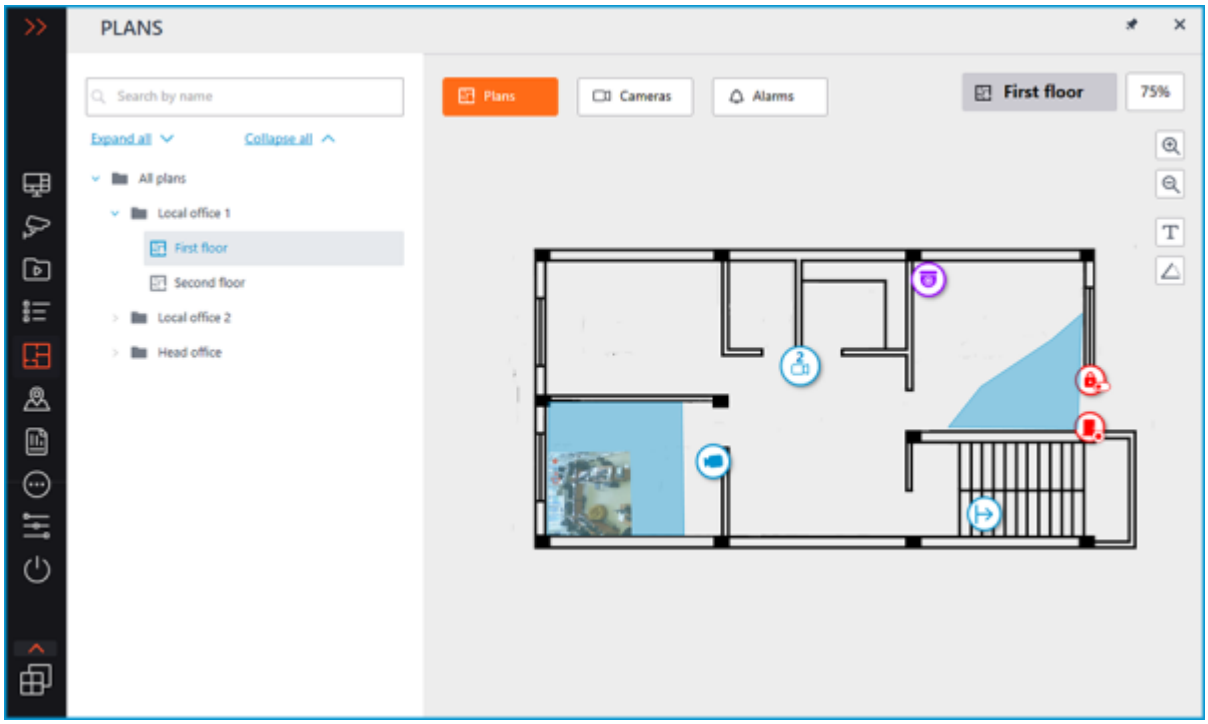
The scale can also be changed with the mouse wheel.

Show camera names: Hides or displays the names of all cameras on the plan.

Show fields of view: Hides or displays the field of view of all cameras on the plan. If no fields of view are configured, this button will not be displayed on the panel.

Show heat maps: Overlays a Heat Map for the specified period on the video in the camera's field of view. If there are no cameras with the **Traffic Density Heat Map** module configured, this button will not be displayed on the panel.

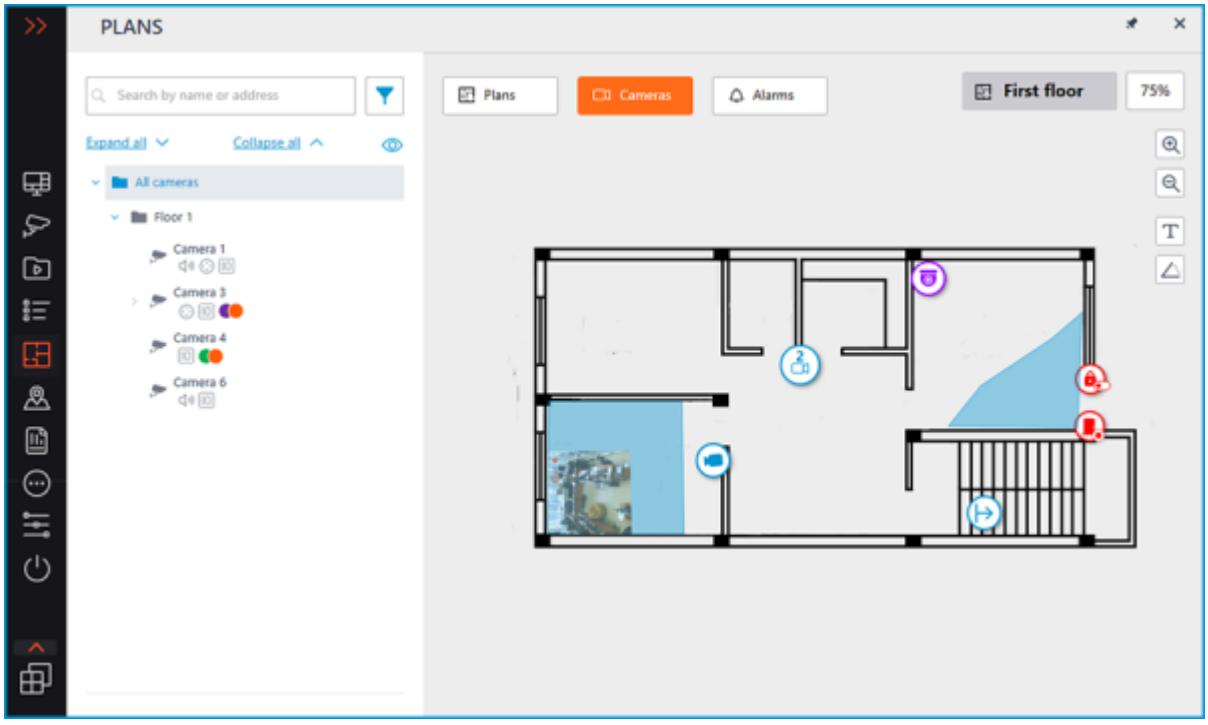
Plans



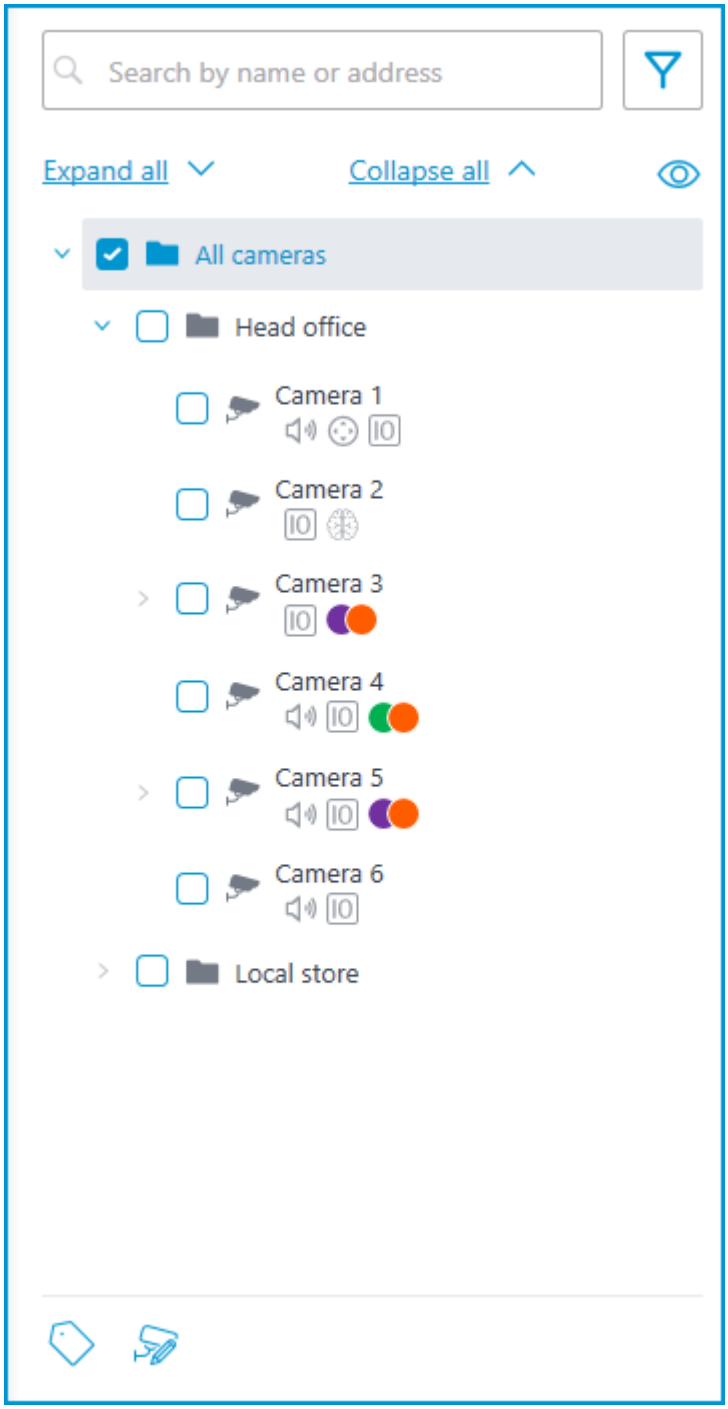
This tab displays the plan tree. Switching between plans is possible by clicking on the needed plan in the tree or via the configured transitions indicated by the ↦ button.

Each plan will have its own cameras tree when clicking the **Cameras** button.

Cameras



This tab contains the cameras tree.



Cameras can have the following attributes:

: the camera has enabled video analytics module;

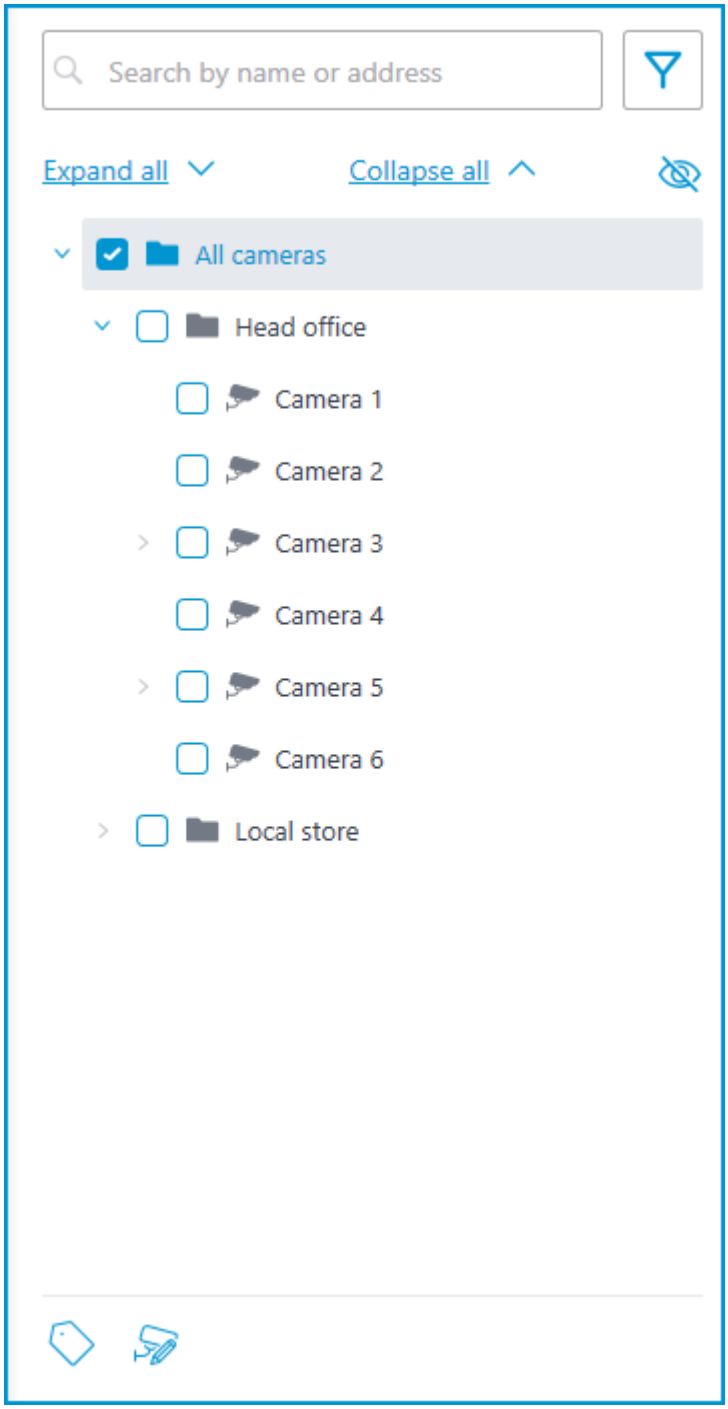
: the camera has enabled sound receiving option;

: the camera has enabled PTZ;

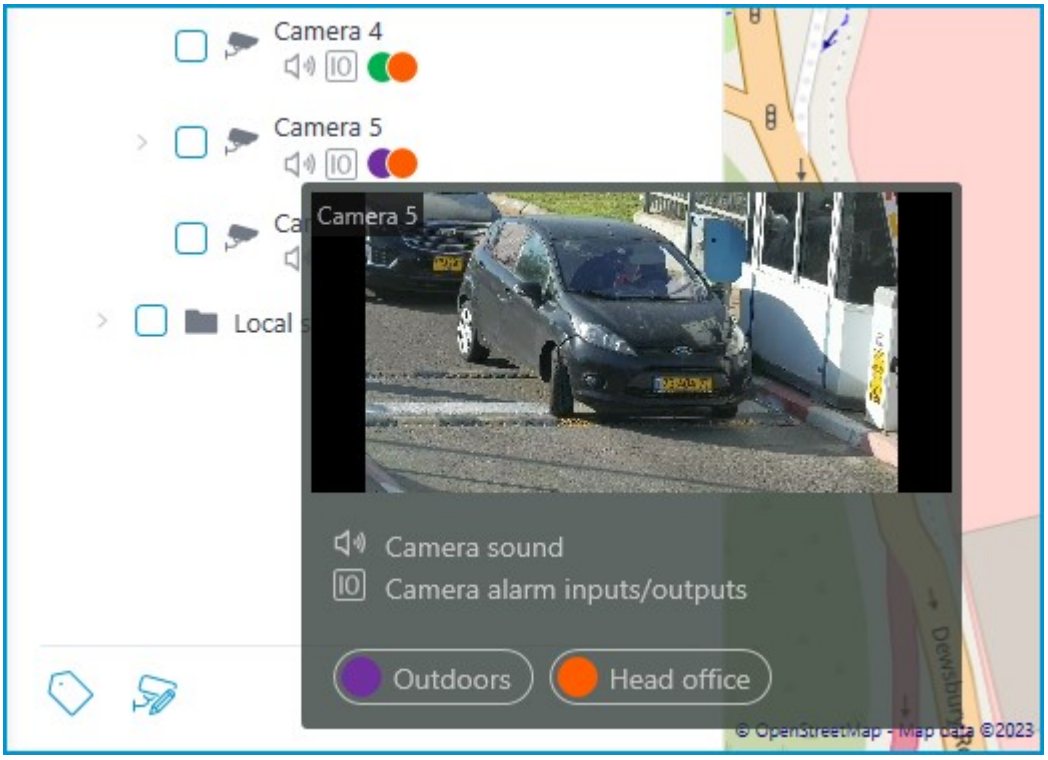
: the camera has enabled alarm inputs/outputs.

Colored labels: the camera has tags with the displayed colors;

If necessary, the attributes can be hidden by clicking the icon on the right side of the tree.

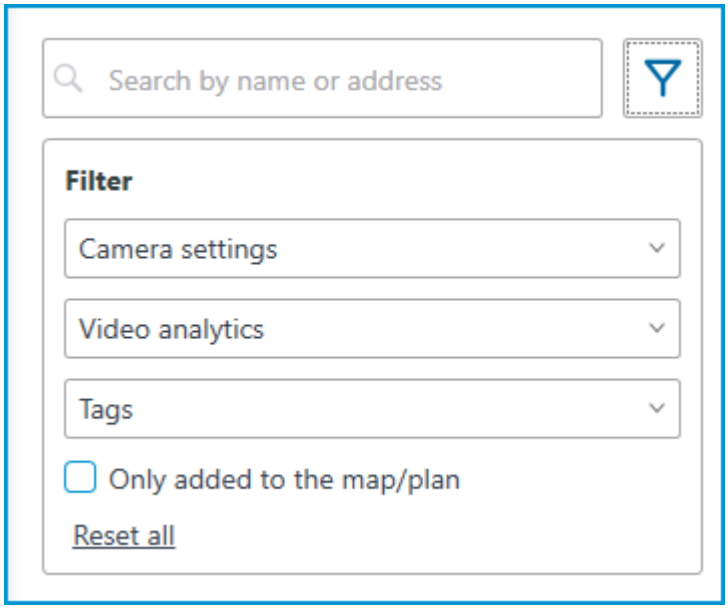


Hovering the cursor over the camera opens a preview window that contains video from the camera and a list of its attributes.



The same preview window opens when hovering the cursor over a camera located outside the cameras tree.

In addition to selecting a camera manually, it can also be found by **name** or **IP address** using the search field above the cameras tree.



Cameras can be filtered by clicking the icon and customizing the following filter options:

Camera settings

Filter by the following attributes: , , .

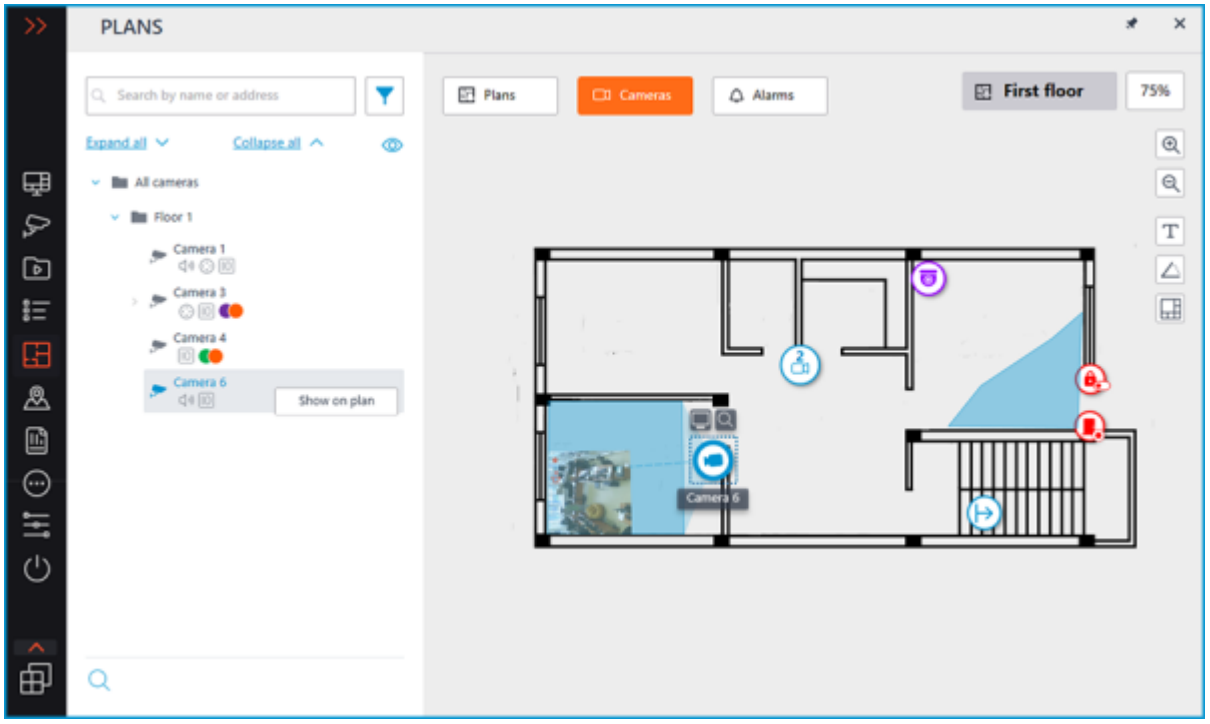
Video analytics

Tags

The availability of filtering options depends on the settings of the cameras. Filtering applies immediately after selecting an item.

If necessary, the filtering can be collapsed by clicking the filter button. When the filtering is applied and collapsed, the filter icon changes to

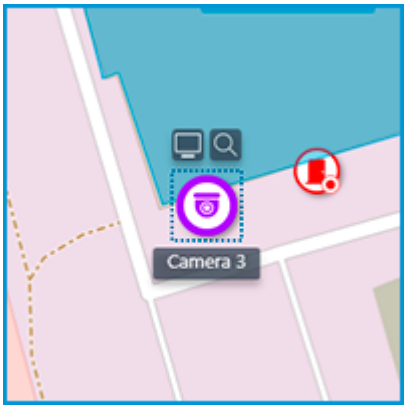
To quickly jump to a camera placed on the plan, select this camera in the tree and click **Show on plan** in the context menu. The same way the sensors and relays located on the plan can be switched to.



When a camera is selected on the map, the following buttons will pop up around the camera:

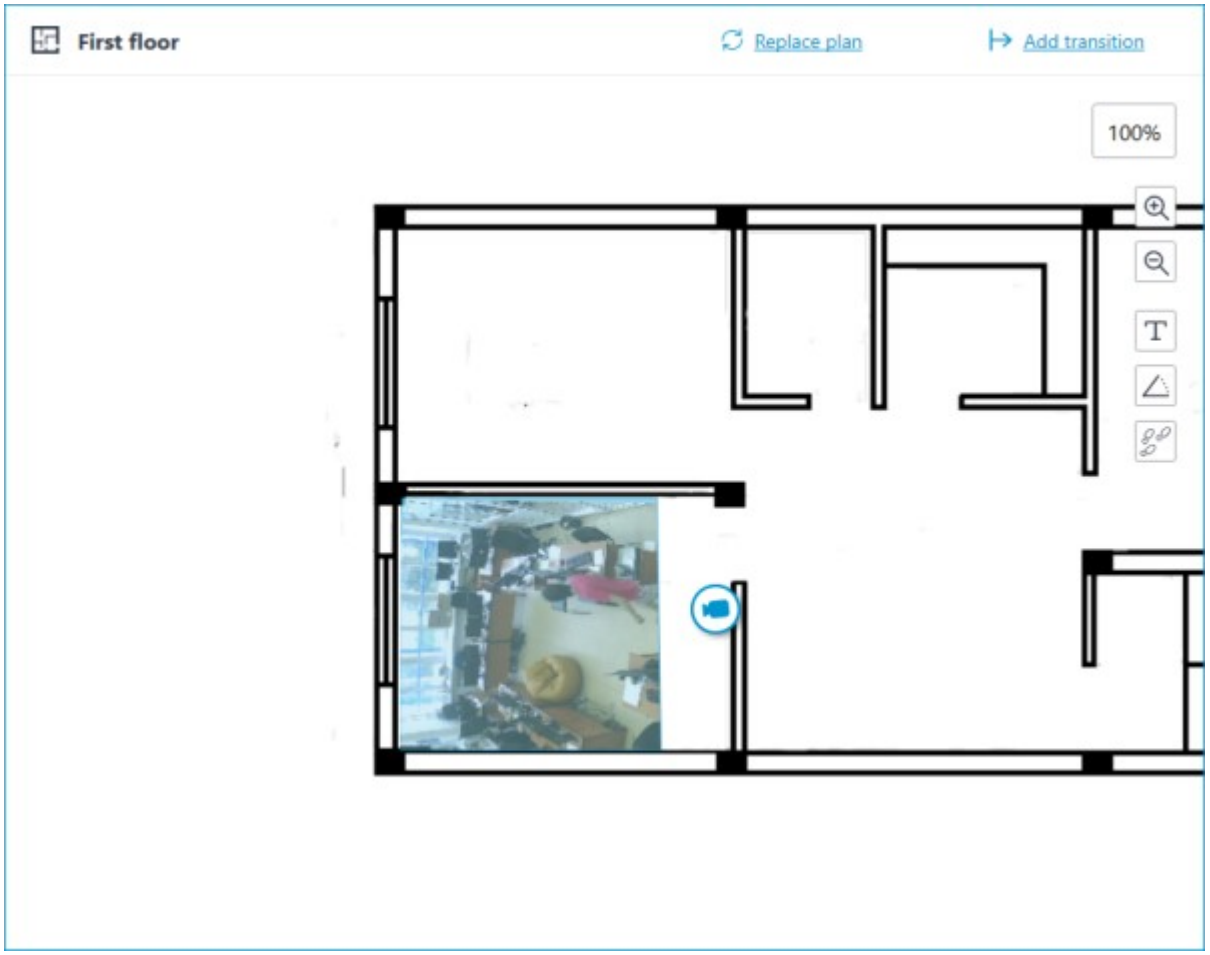
Viewing video from the camera in full-screen mode

Viewing the camera in the tree

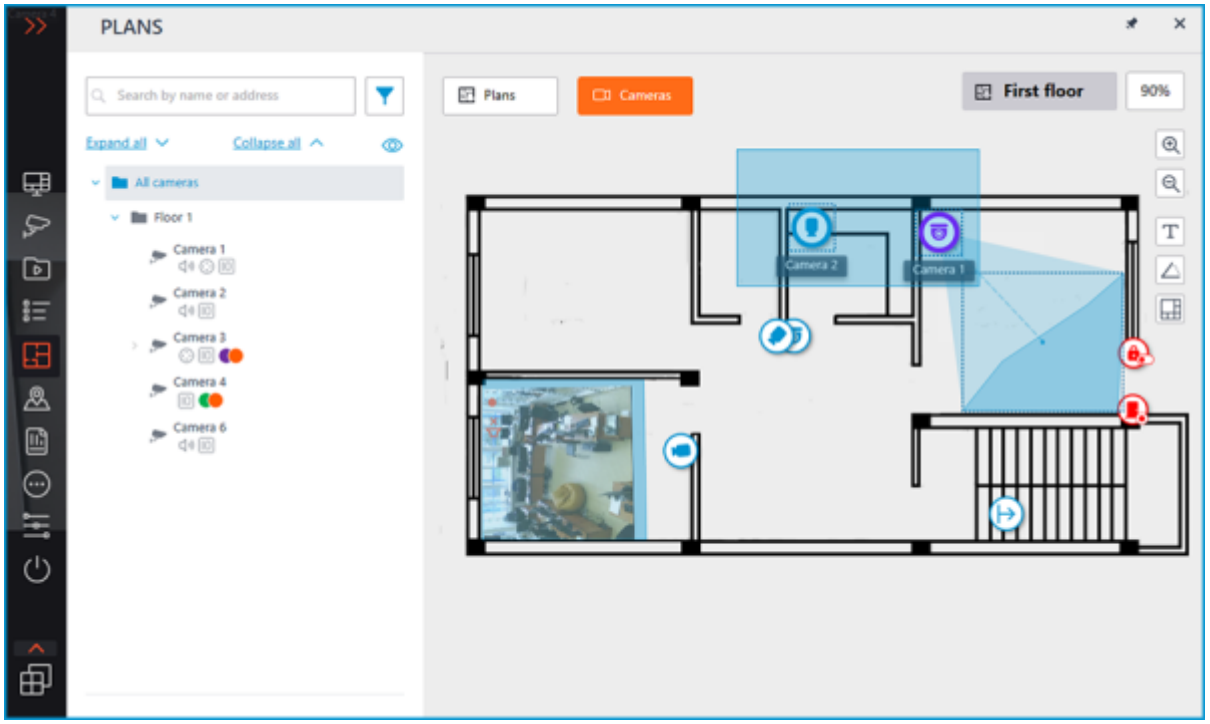


Also, when a camera is selected, its name will be displayed. By default, it is hidden.

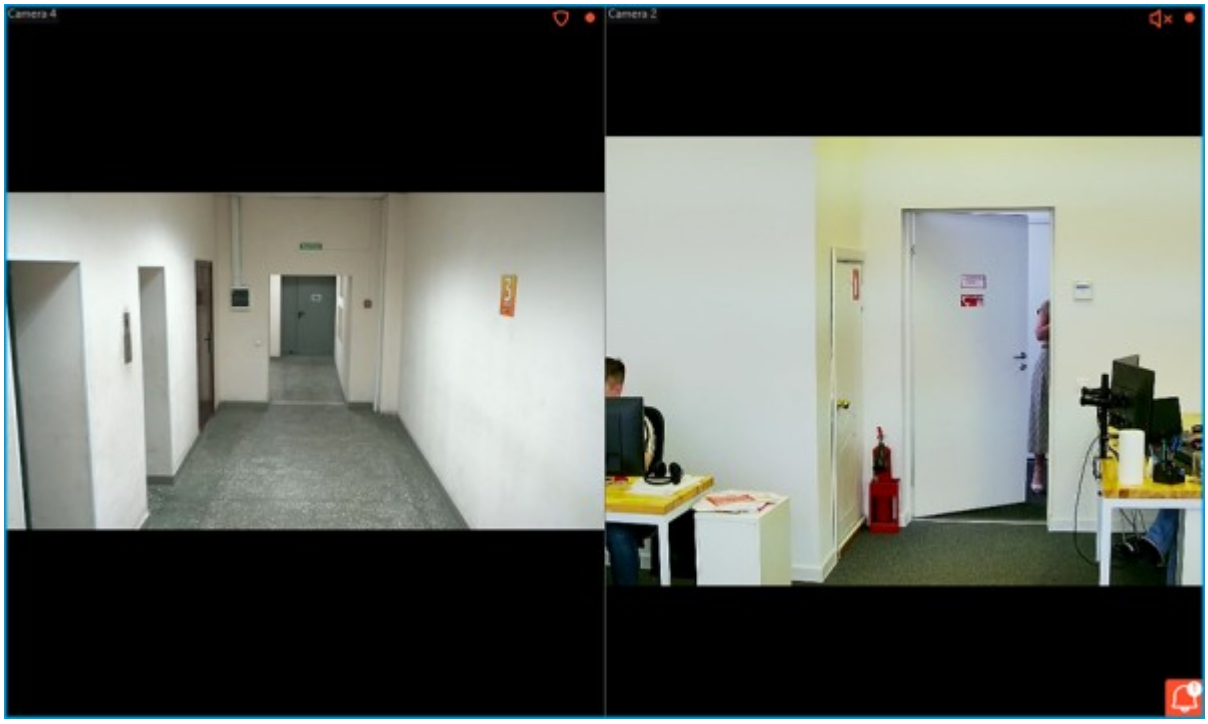
It is possible to display video in the field of view with the proper setting of the camera.



When selecting one or multiple cameras, a new client view can be created that contains the selected cameras. To select multiple cameras, hold the right mouse button and stretch the rectangle to capture all the needed cameras.

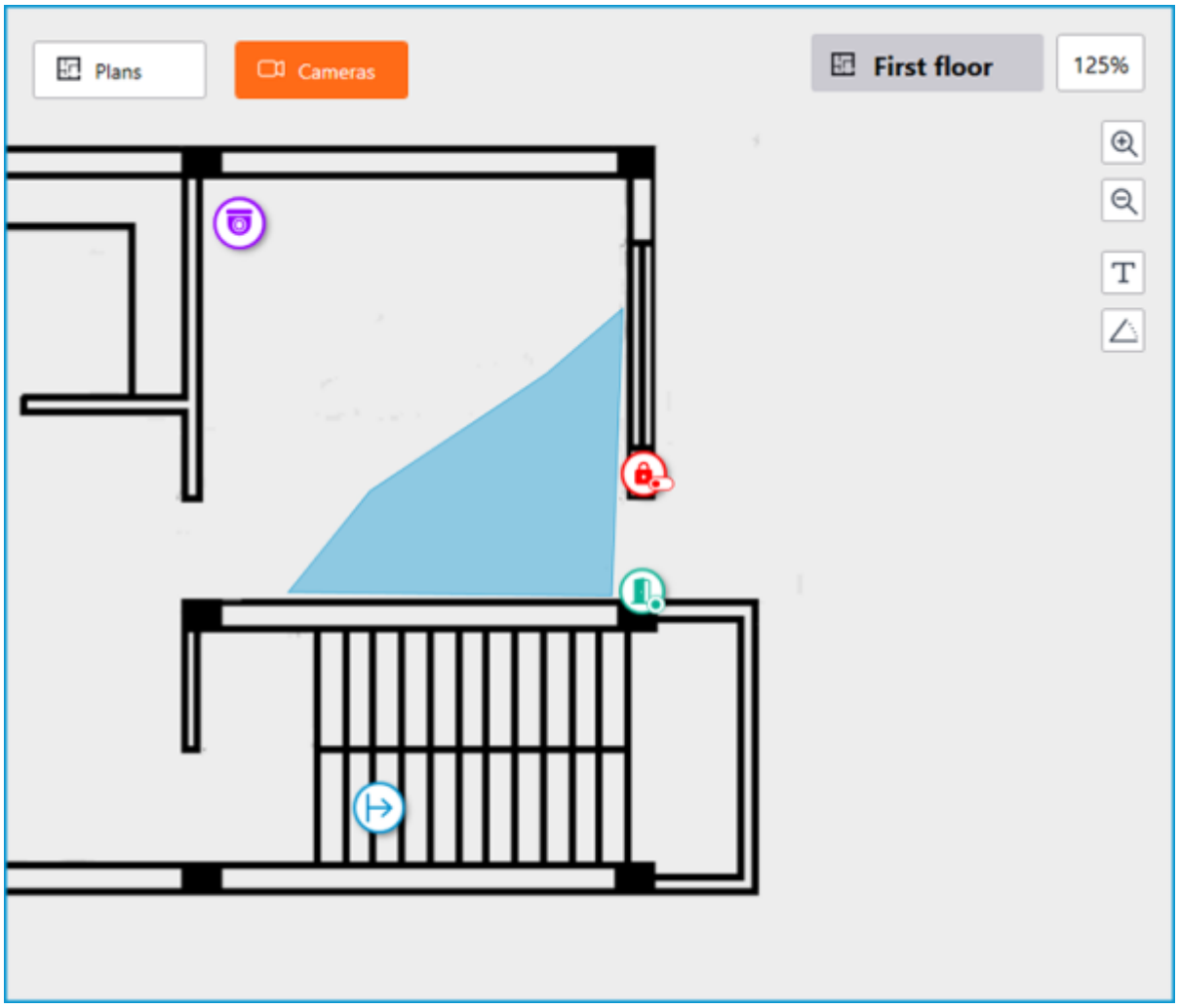


To create a view made up of the selected cameras, click the button.



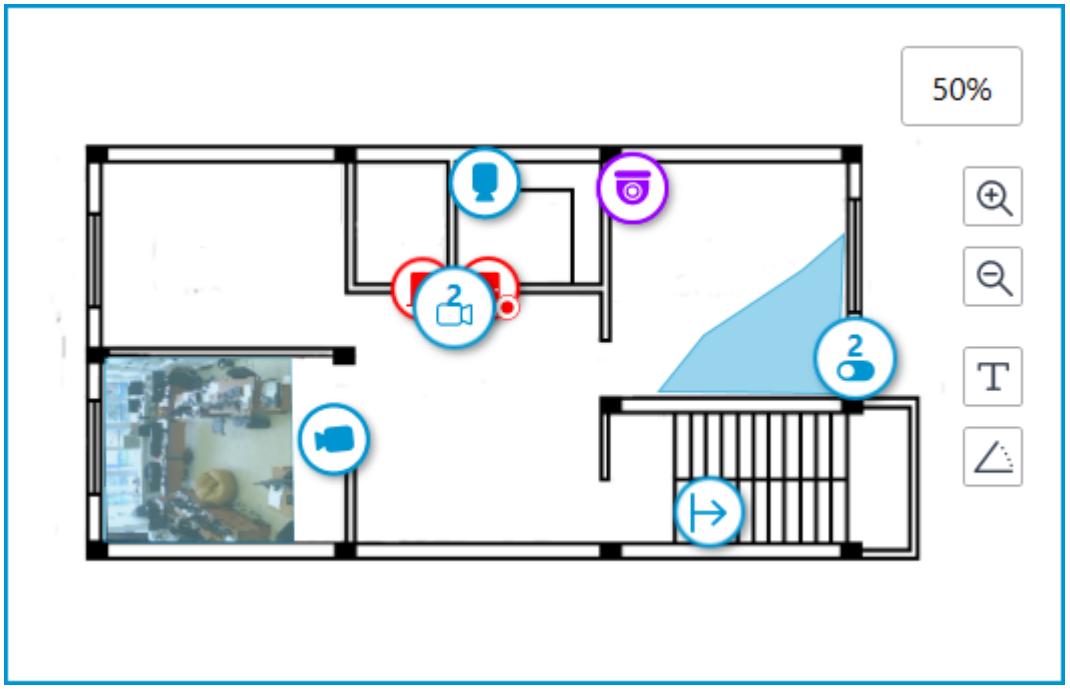
In addition to cameras, the plan can display sensors and relays attached to the alarm inputs and outputs of cameras.

The state of the sensors and relays indicates with its color: red — off, green — on.



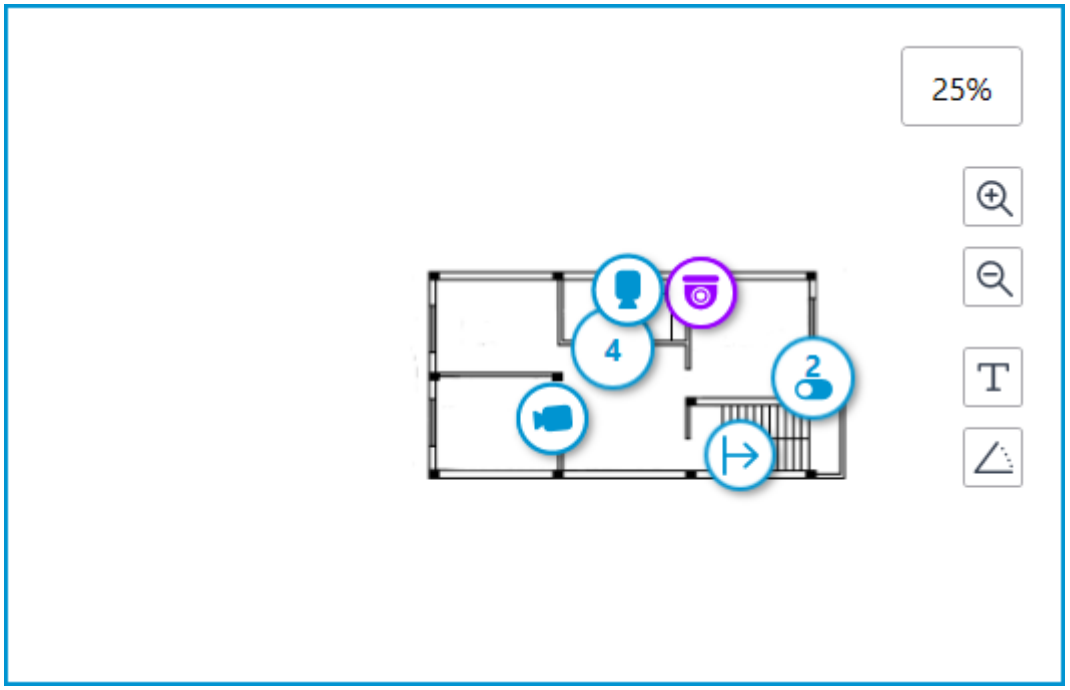
Grouping devices on the plan

When the scale of the plan is changing, cameras, sensors, relays, and transition points on the map can be clustered into the group markers.



Elements of the same type located close to each other on the plan are grouped into one marker with the number of devices and their type: camera, sensor, relay, or transition.

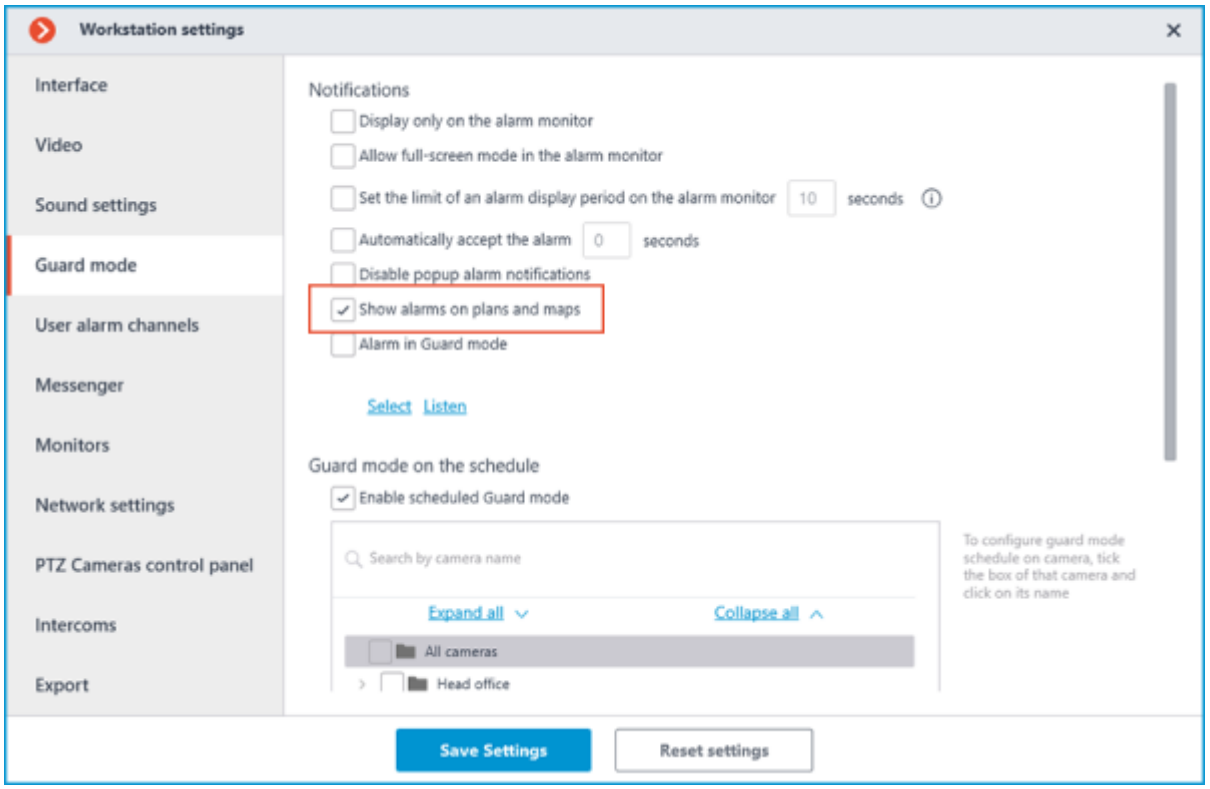
Elements of different types are grouped into one marker with the number of devices.



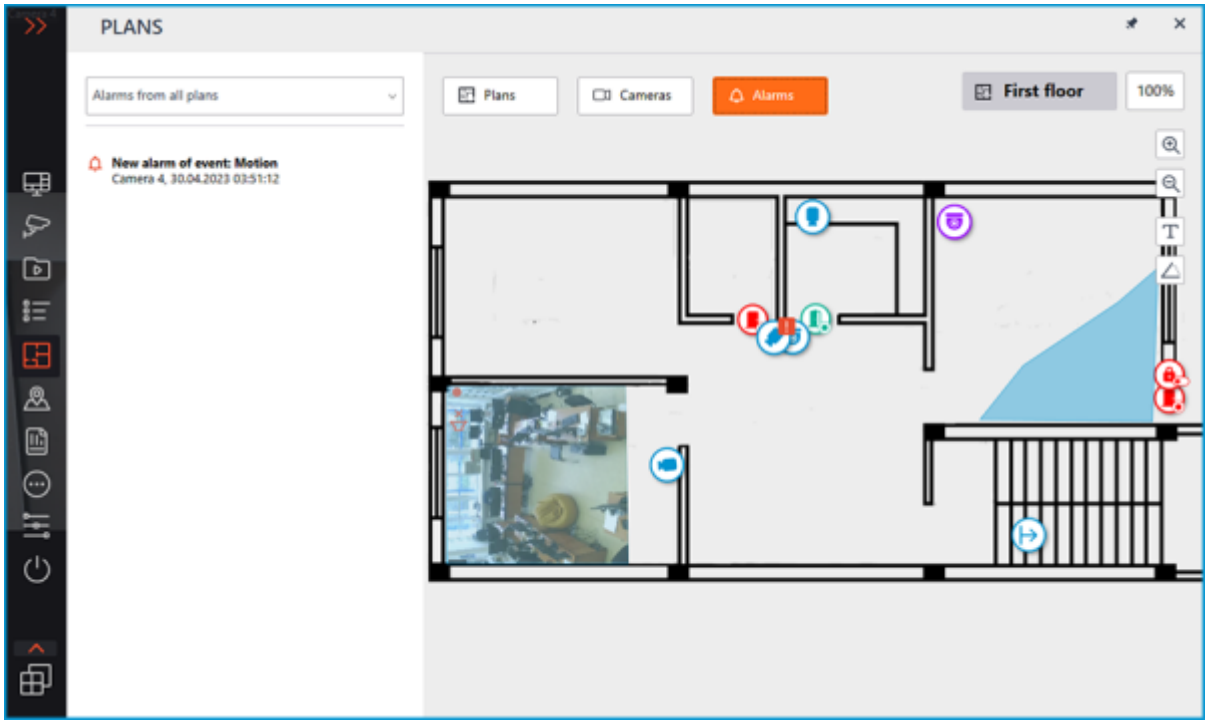
If the number of grouped elements is more than 99, the number on the marker will be displayed as **99+**.

Alarms

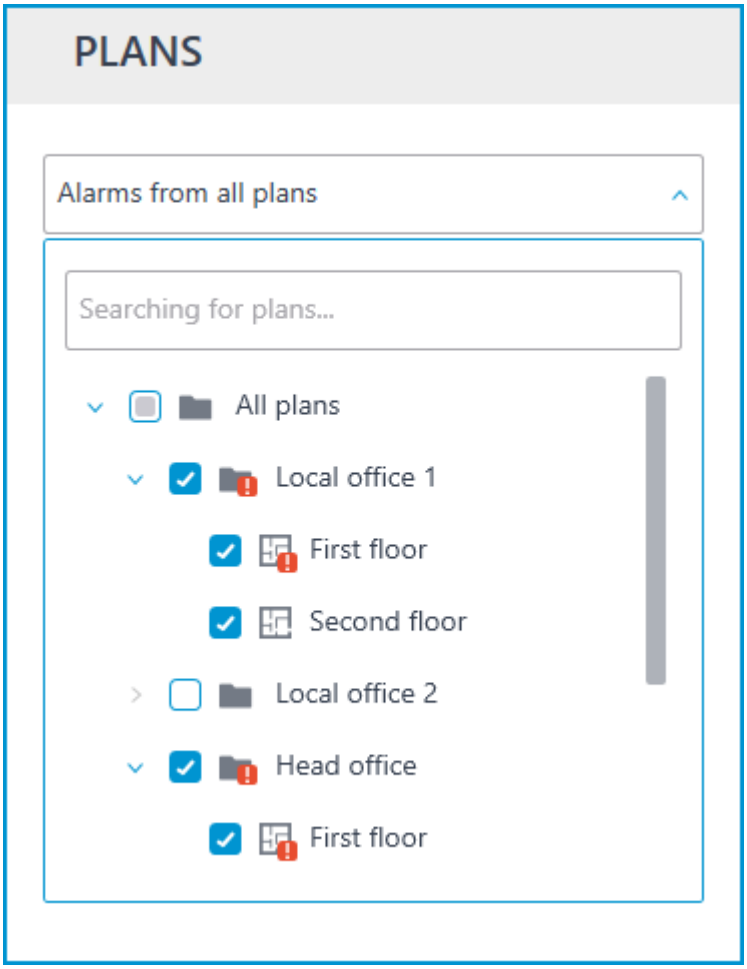
To enable displaying camera alarms, activate the **Guard mode** option in the **Show alarms on plans and maps** section of the workplace settings.



This tab displays alarms from all cameras.

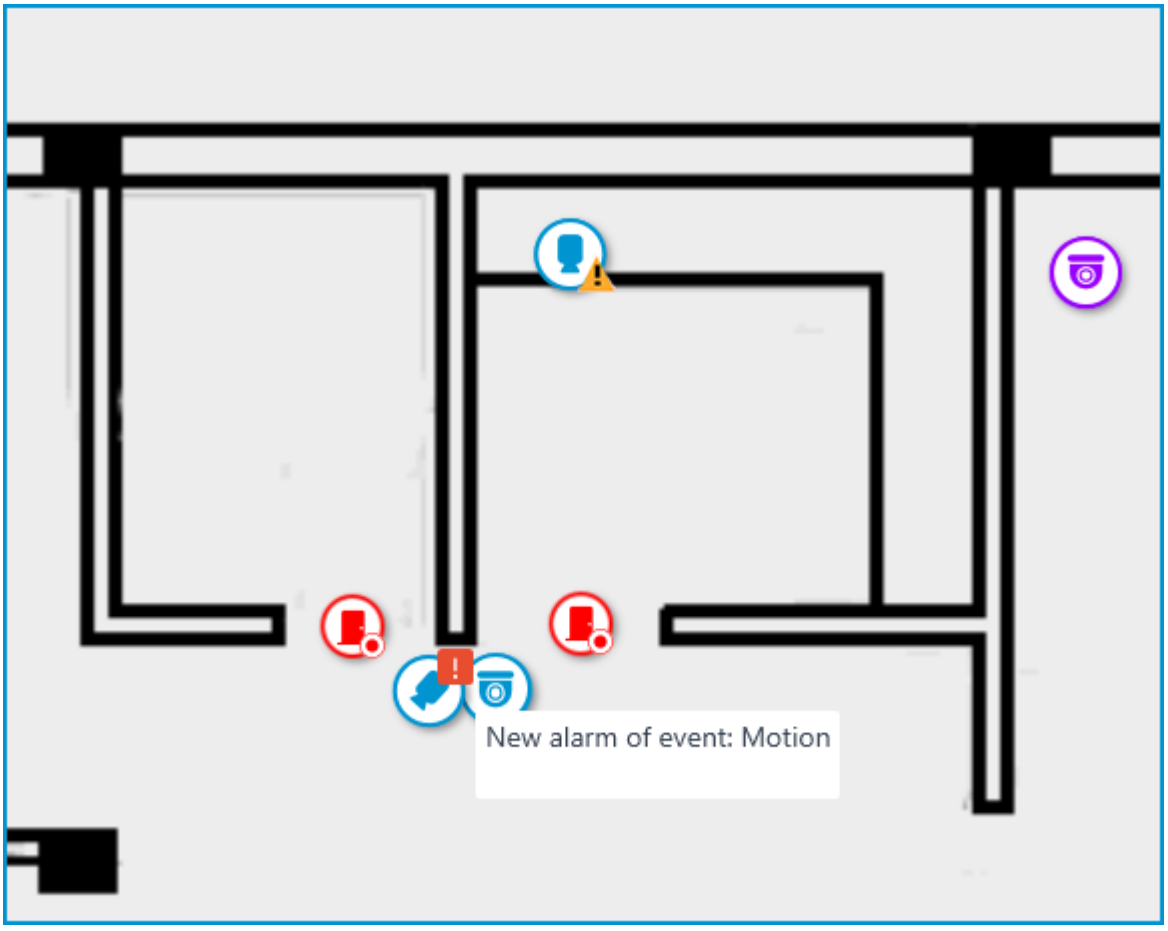


To view the active alarms for the cameras of a certain plan, select the needed plan from the drop-down list.



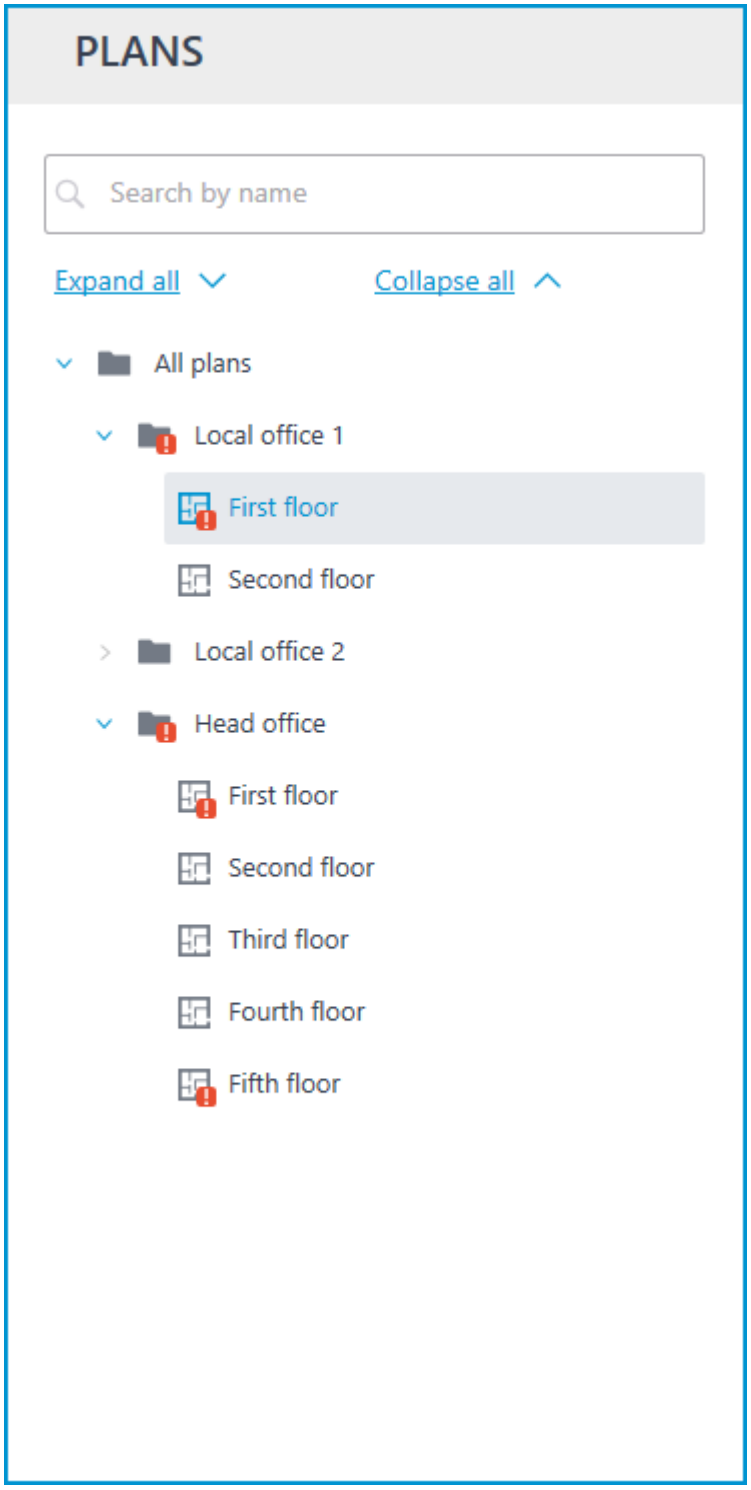
In addition to the alarm indicators, the cameras on the map may also have indicators of a broken or missing connection with the camera.

Alarms are indicated with a red square, broken or missing connection with a yellow triangle. When placing the cursor on the alarm indicator, the event that caused it will be shown.

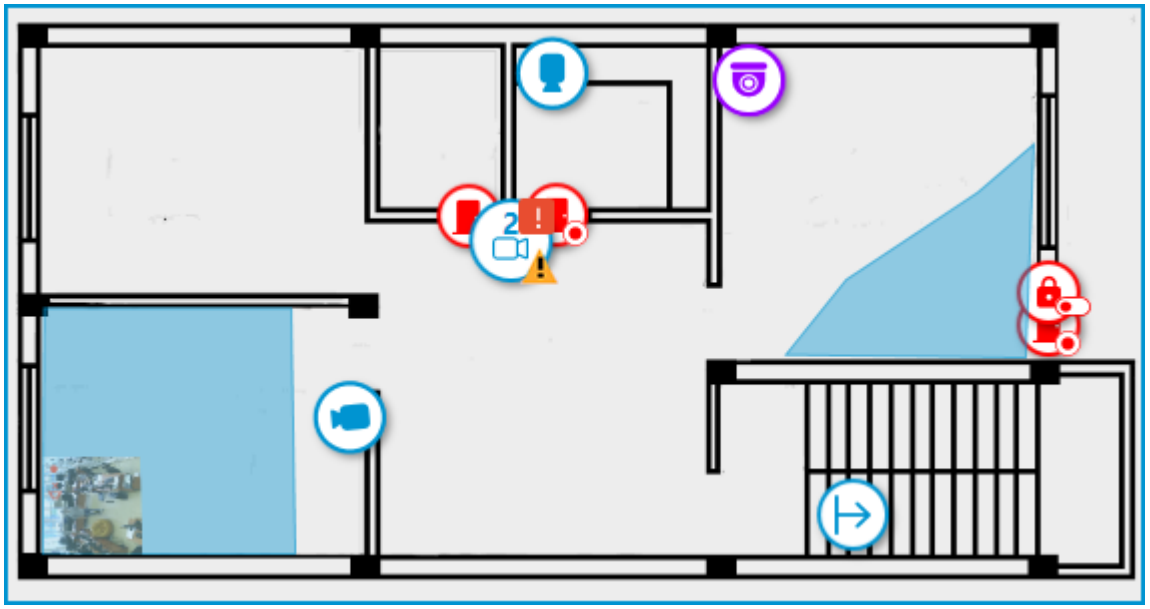


When the connection with the camera is broken, the alarm indicator will be hidden. When the connection is restored and the alarm has not been acknowledged yet, the alarm indicator will be displayed again.

Also, alarm indicators can be displayed on the plans in the plans tree:

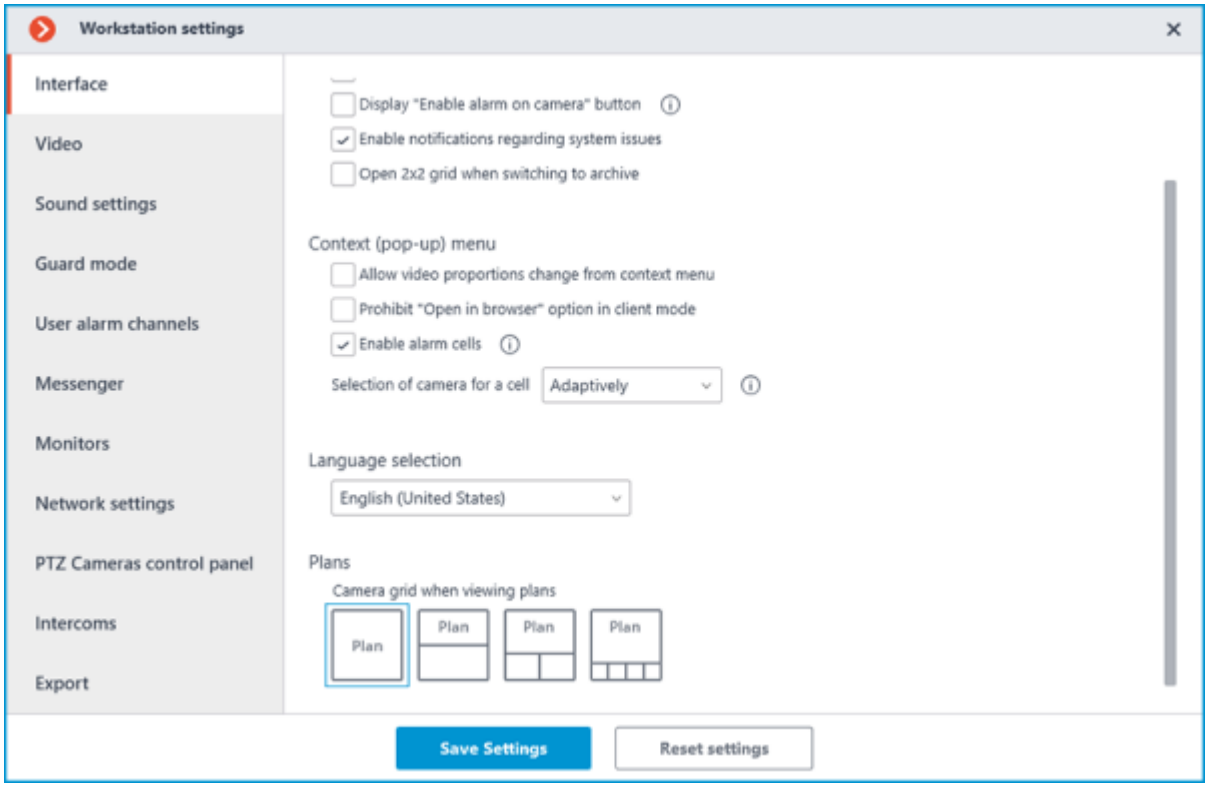


Grouped camera markers also have alarm indicators. If the group contains cameras with an alarm and cameras with a broken or missing connection, both indicators will be displayed.



Camera cells

It is possible to configure displaying of camera cells with video in the Object plans section. To do this, in the **Interface** tab of the workplace settings, select the grid of cells to be used when working with plans.



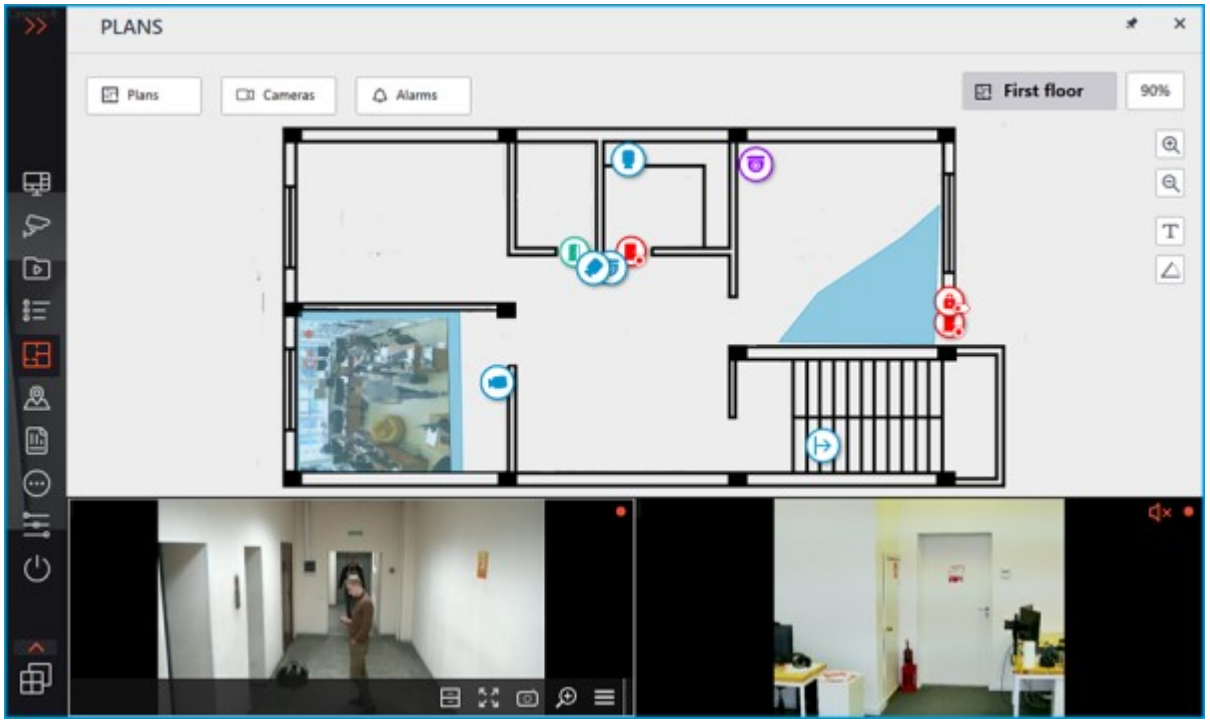
The following displaying options are available:

No camera cells;

One camera cell;

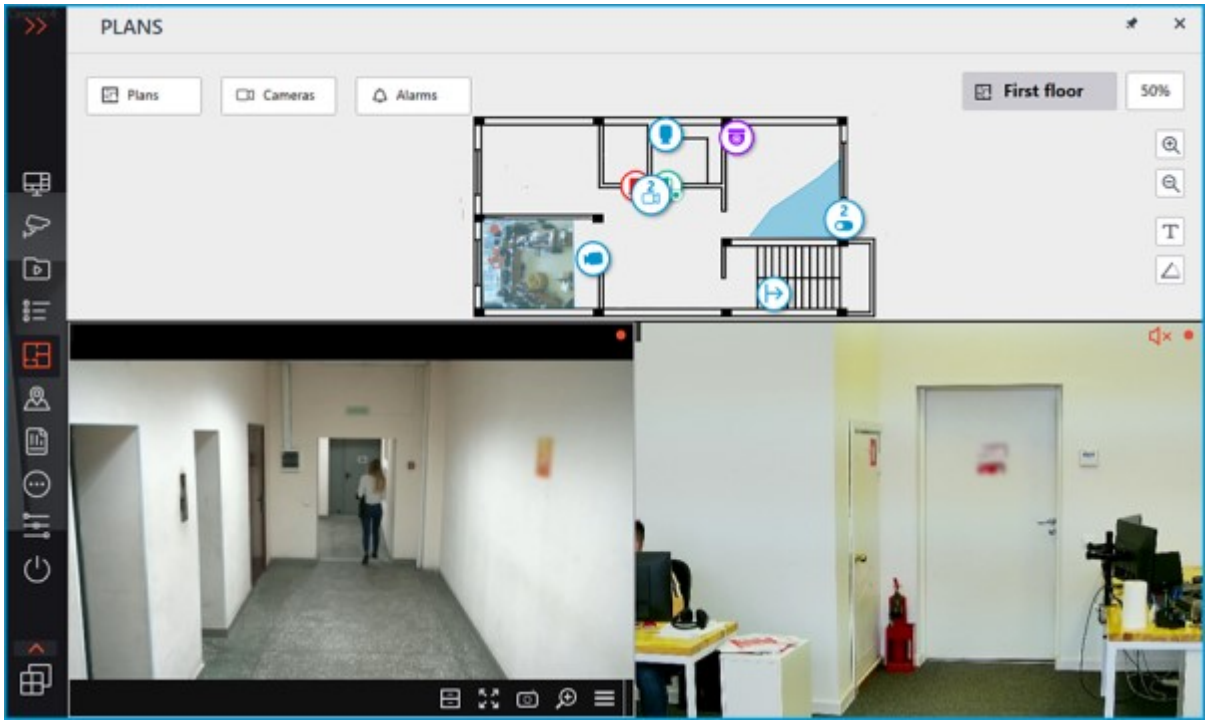
Two camera cells;

Four camera cells.



To be able to assign these cells as alarms, enable the **Enable alarm cells** option available in the same window.

The height of the cells panel can be changed by dragging its top edge.



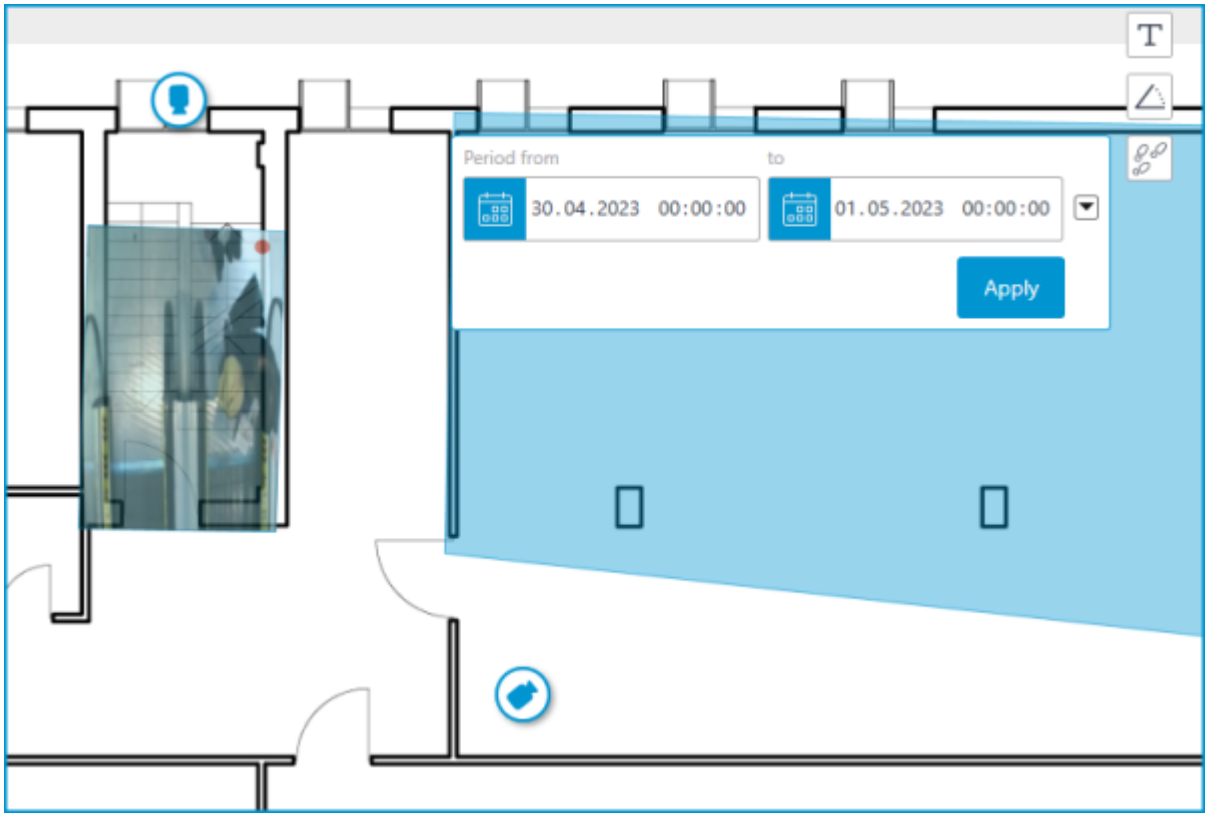
Camera can be added to a cell through the context menu of the cell or by dragging the camera from the plan. The indicator of the alarm that happened on the camera will also be displayed in this cell.

Heat map

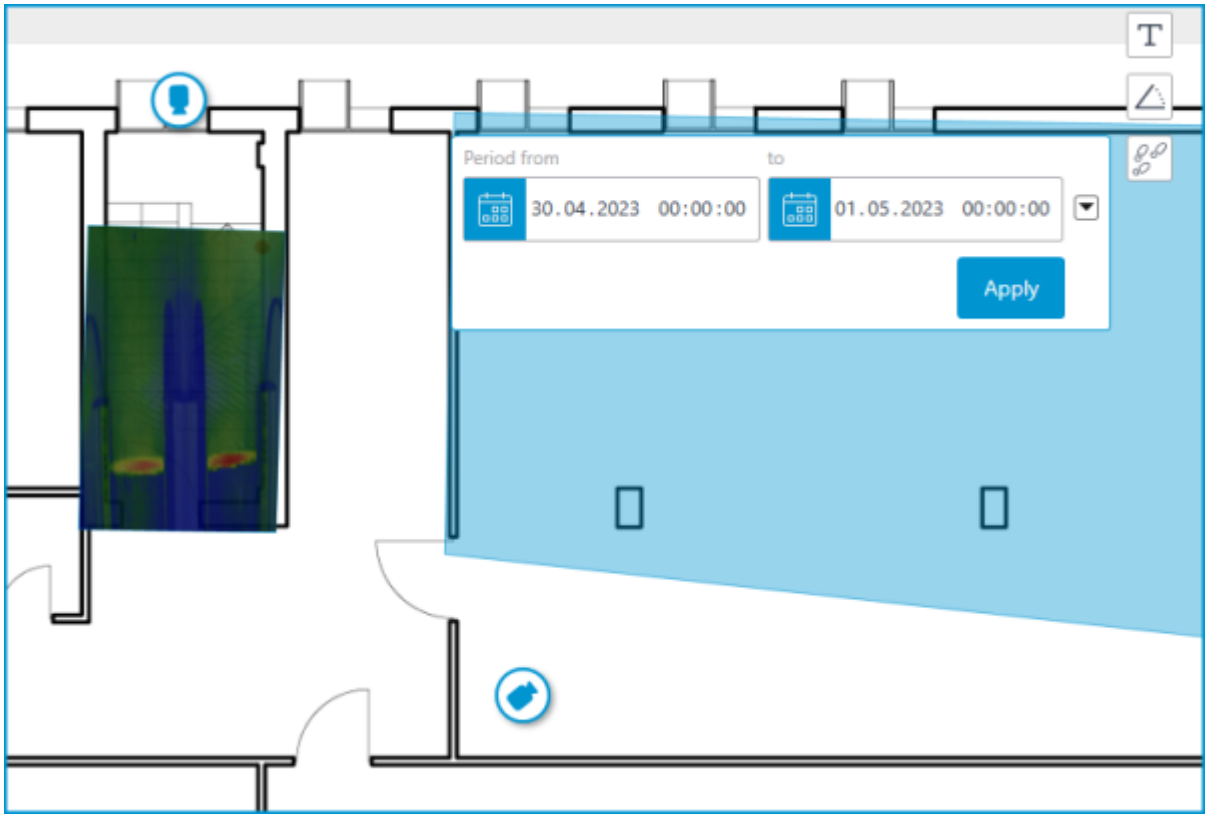
Heat Map — displays the data of the Traffic Density Heat Map module on the plan.

This option is available only if the relevant module is configured on the cameras.

To display the heat map, click the button and set the required time interval, then click **Apply**.



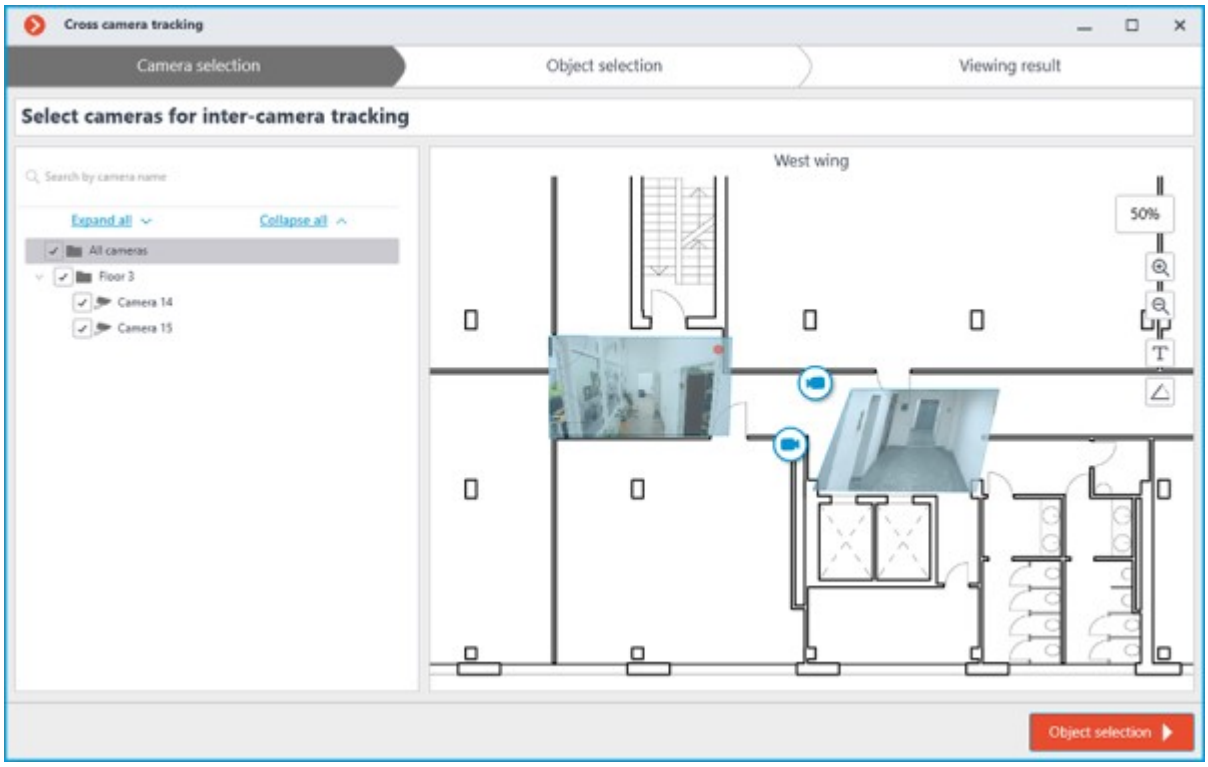
Heat maps will be displayed in all configured camera fields of view. The Heat Map image completely reflects how the video was configured in the field of view and crops to match its shape in exactly the same way.



Cross camera Tracking

When selecting cameras in the Suspect Tracking, the plans associated with them are displayed. It is possible to change the scale of the plan with the mouse scroll wheel and move over the plan by dragging it with the left mouse button held.

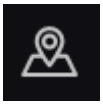
This option is available only if the relevant module is configured on the cameras.

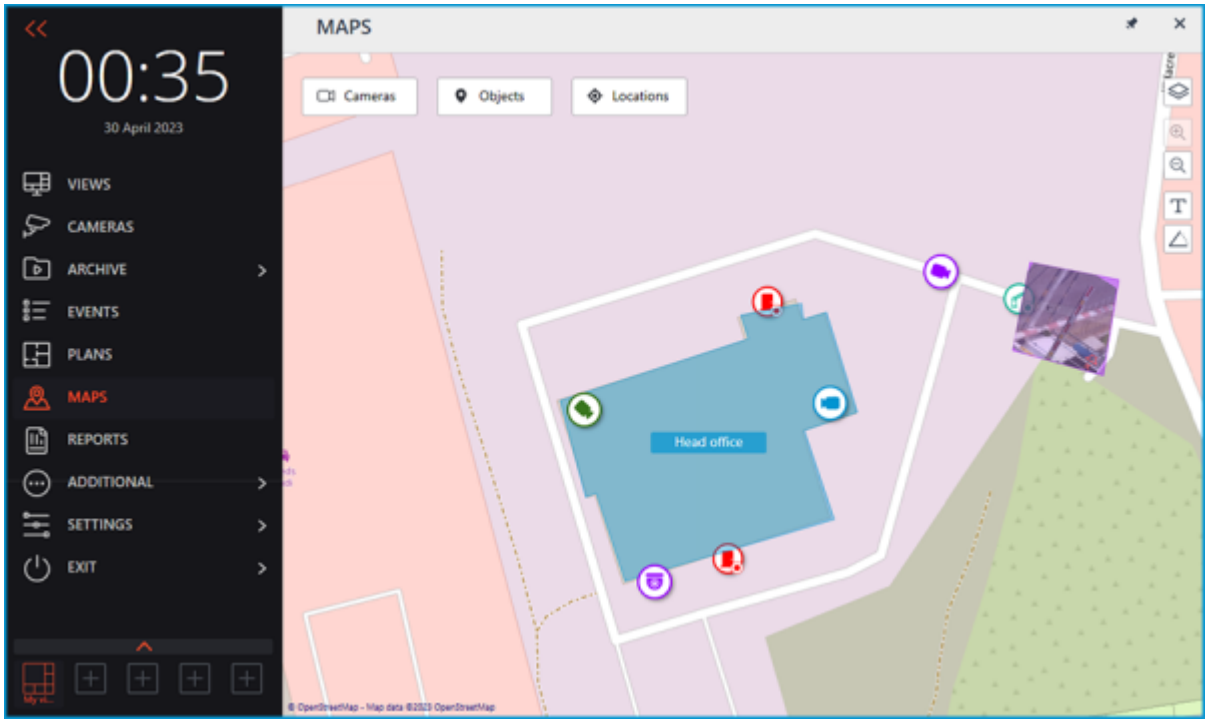


Maps

This feature is available only for **Enterprise** and **ULTRA** licenses.

Eocortex allows placing and interacting with cameras, sensors, and relays on the geographic maps provided by the following map services: **Google Maps**, **OpenStreetMap** and **Yandex**.

To get access to the **Maps** section, select the  **Maps** item in the main menu.



A bar with the following buttons is available on the right side of the map:

Change layer: Changes the current map layer.

Zoom in: Scales the map up.

Zoom out: Scales the map down.

The scale can also be changed with the mouse wheel.

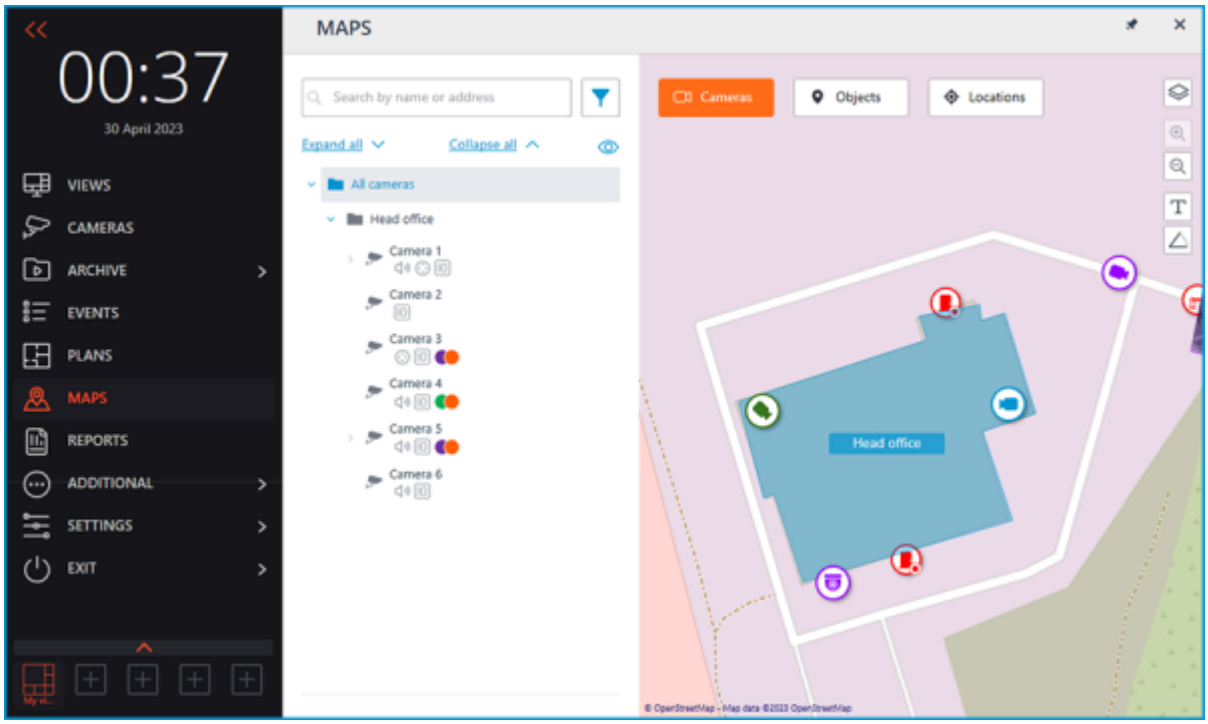
Show camera names: Hides or displays the names of all cameras on the map.

Show fields of view: Hides or displays the field of view of all cameras on the map. If no fields of view are configured, this button will not be displayed on the panel.

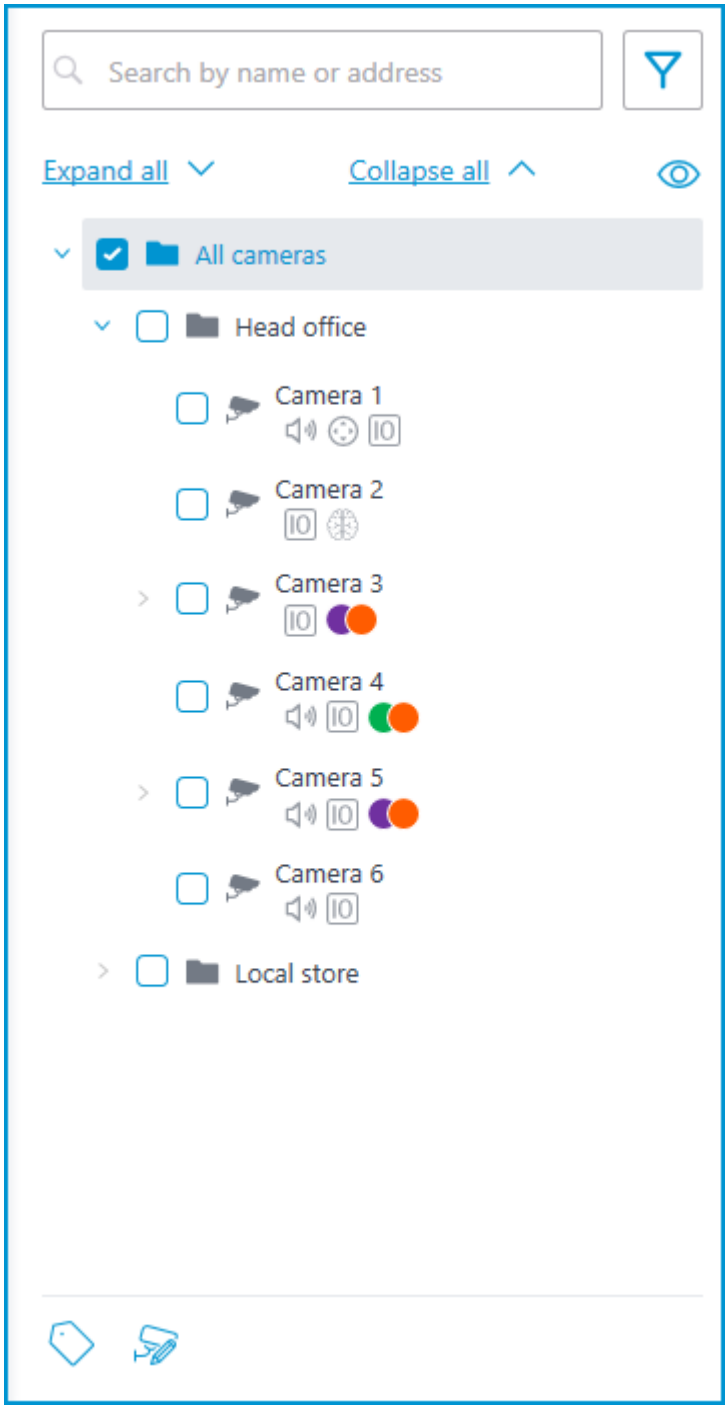
Open in the optimal grid: Creates a view from the cameras selected on the map. If no cameras are selected, this button will not be displayed in the panel.

The **Cameras**, **Objects**, **Locations**, and **Alarms** buttons are available at the top of the screen. Clicking the button opens a slide-out panel on the left with the relevant information.

Cameras



This tab contains the cameras tree.



Cameras can have the following attributes:

: the camera has enabled video analytics module;

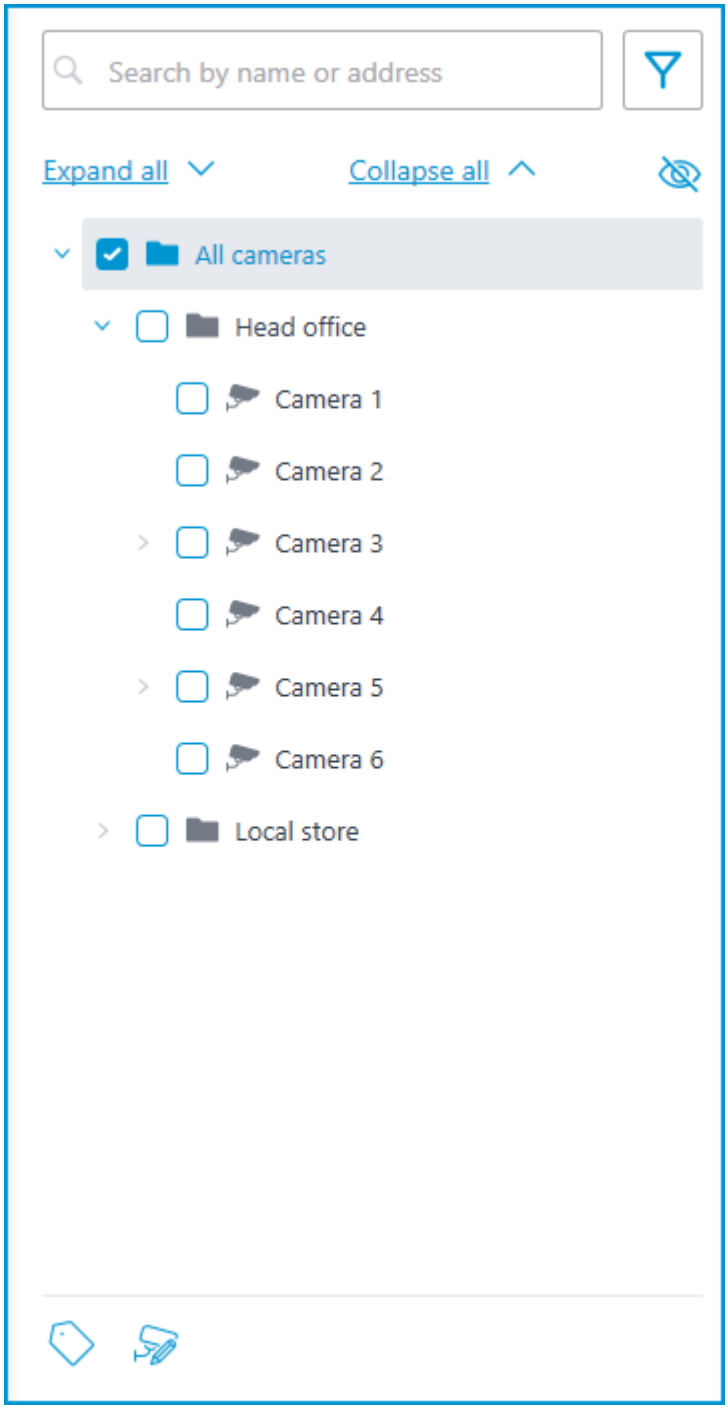
: the camera has enabled sound receiving option;

: the camera has enabled PTZ;

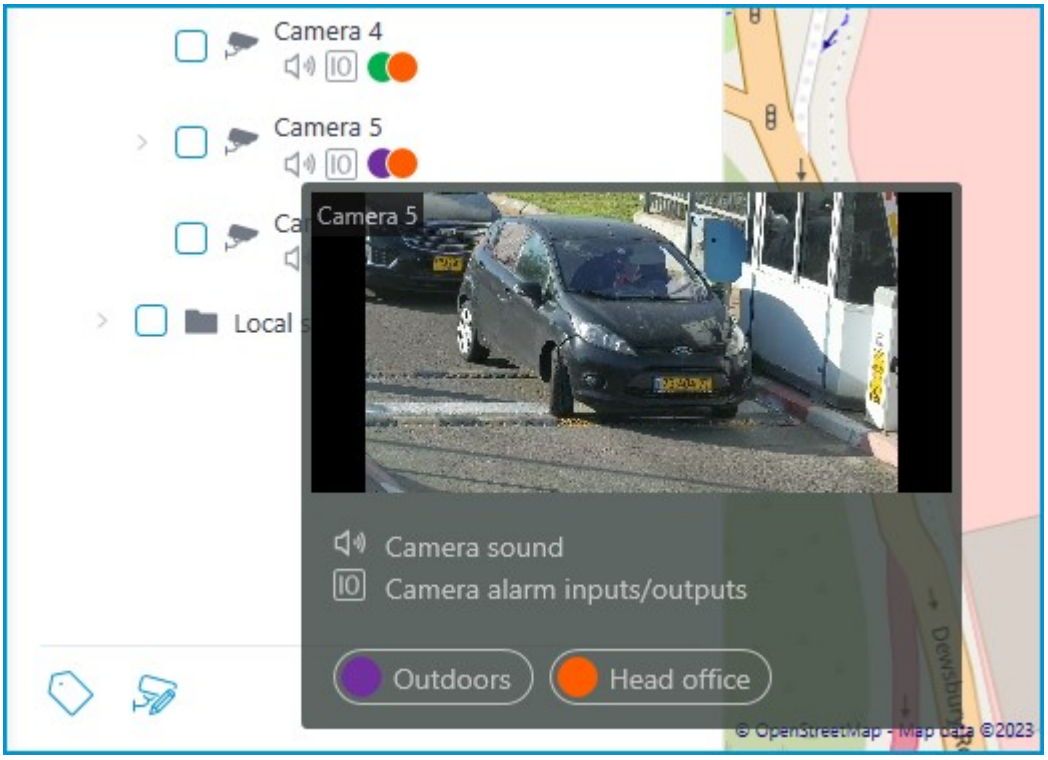
: the camera has enabled alarm inputs/outputs.

Colored labels: the camera has tags with the displayed colors;

If necessary, the attributes can be hidden by clicking the icon on the right side of the tree.

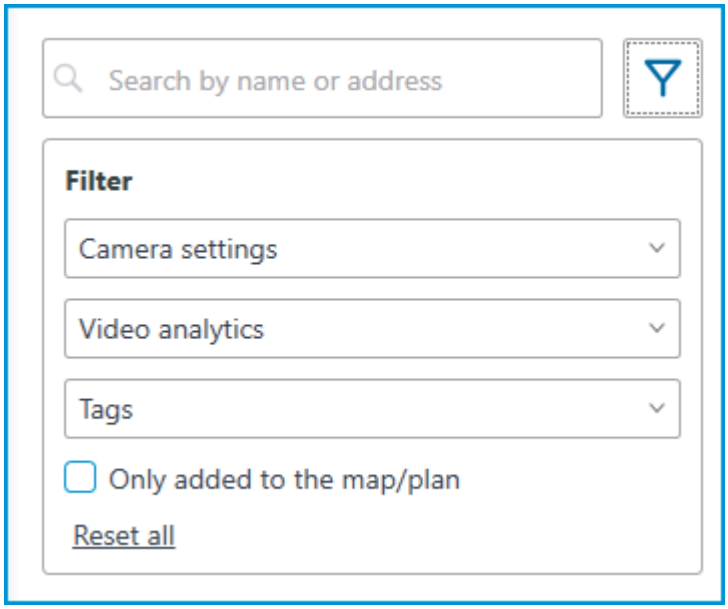


Hovering the cursor over the camera opens a preview window that contains video from the camera and a list of its attributes.



The same preview window opens when hovering the cursor over a camera located outside the cameras tree.

In addition to selecting a camera manually, it can also be found by **name** or **IP address** using the search field above the cameras tree.



Cameras can be filtered by clicking the icon and customizing the following filter options:

Camera settings

Filter by the following attributes: , , .

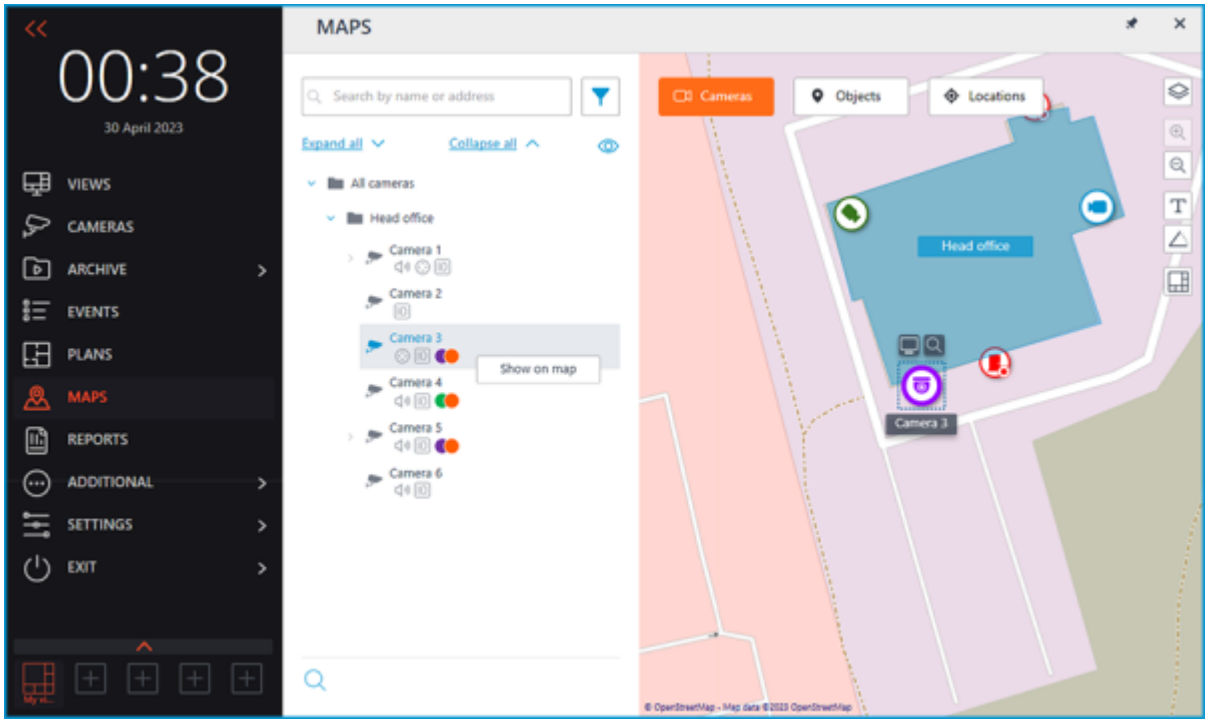
Video analytics

Tags

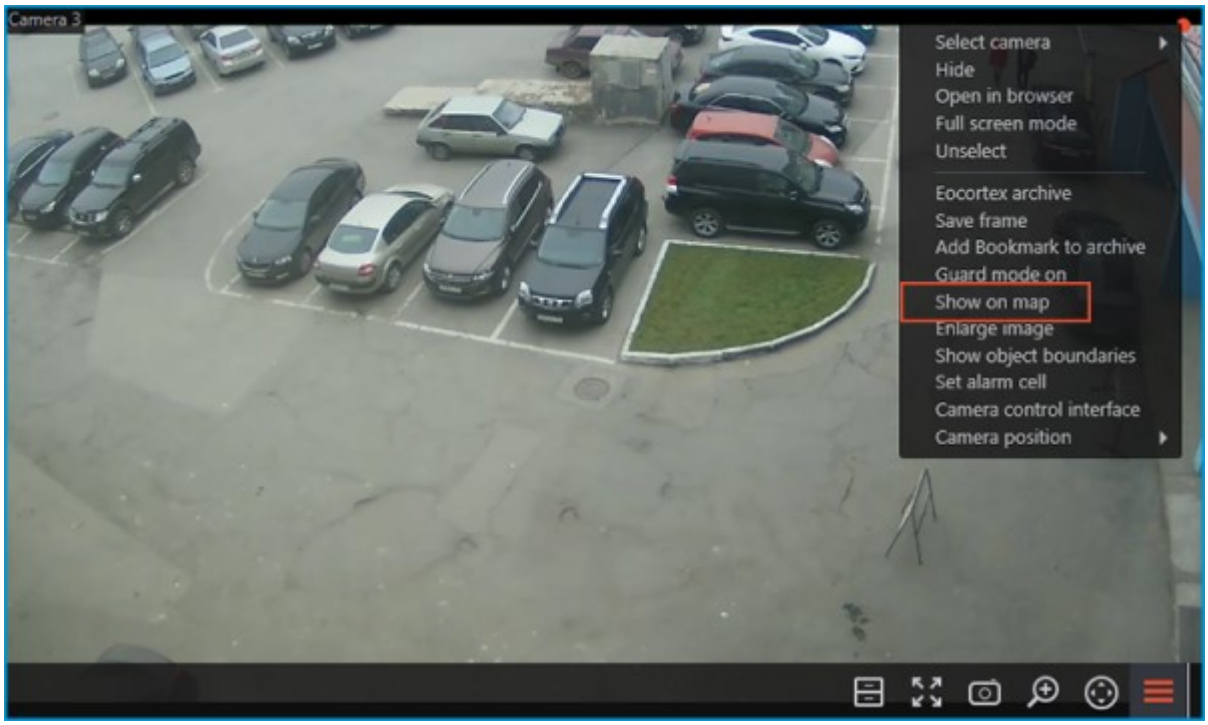
The availability of filtering options depends on the settings of the cameras. Filtering applies immediately after selecting an item.

If necessary, the filtering can be collapsed by clicking the filter button. When the filtering is applied and collapsed, the filter icon changes to

To quickly go to the camera placed on the map, select it in the list and click the **Show on map** item in the context menu. The same method works for the sensors and relays located on the map.



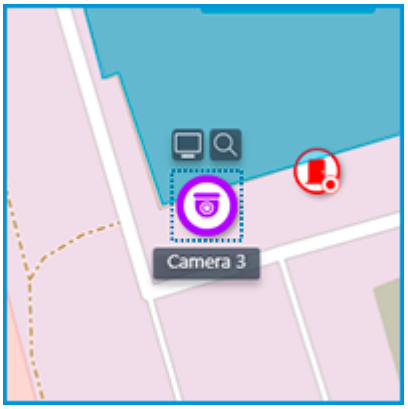
Alternatively, it is possible to go to the camera on the map by selecting **Show on map** in the context menu of the camera cell. This option can be used both when viewing live video and from the archive, including simultaneous playback of the archive of multiple cameras.



When a camera is selected on the map, the following buttons will pop up around the camera:

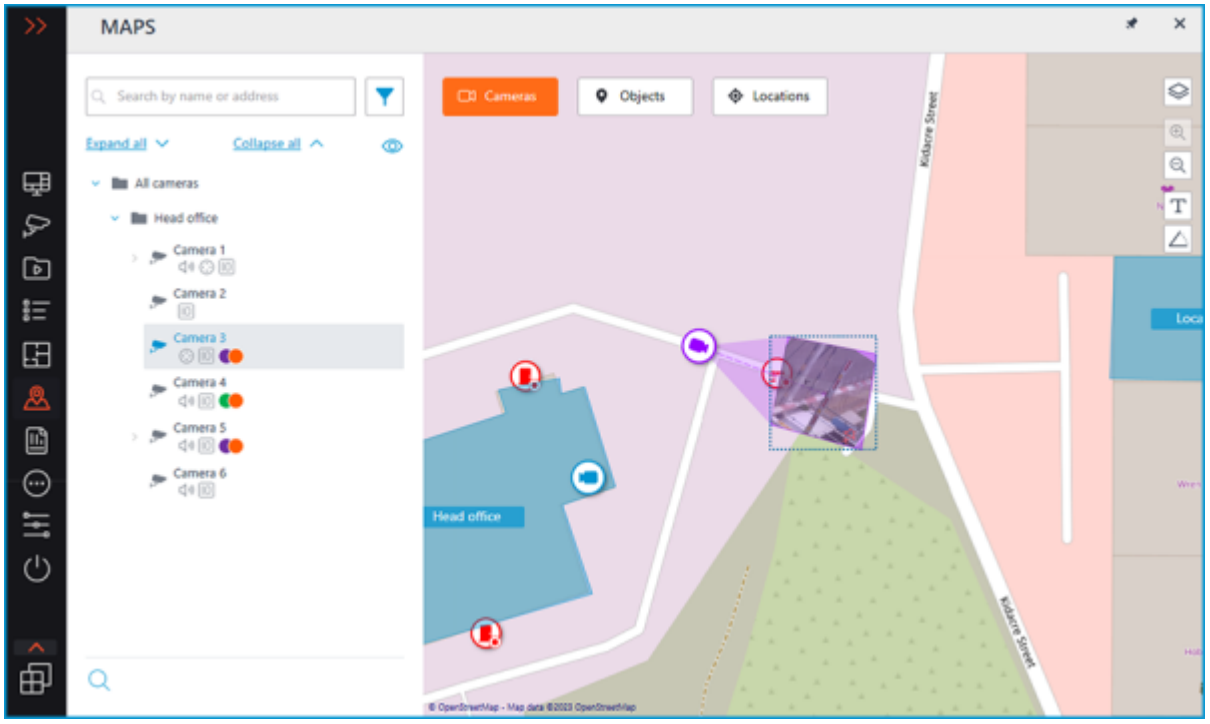
Viewing video from the camera in full-screen mode

Viewing the camera in the tree

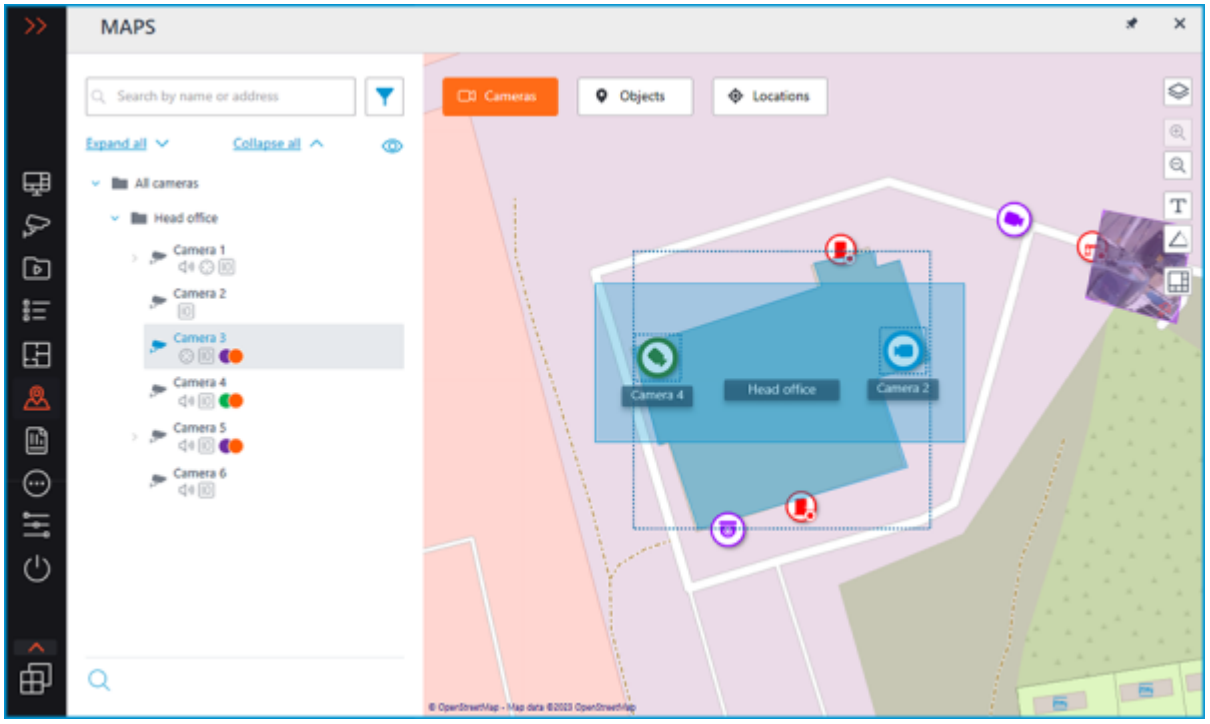


Also, when a camera is selected, its name will be displayed. By default, it is hidden.

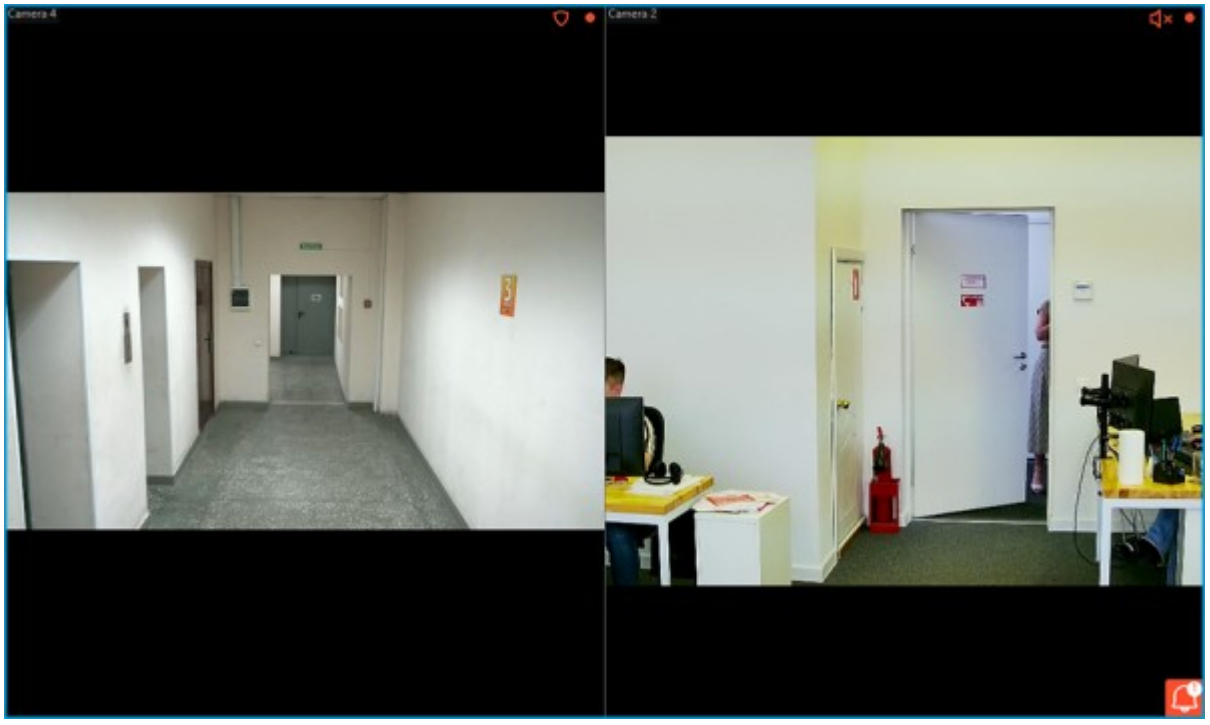
It is possible to display video in the field of view with the proper setting of the camera.



When selecting one or multiple cameras, a new client view can be created that contains the selected cameras. To select multiple cameras, hold the right mouse button and stretch the rectangle to capture all the needed cameras.



To create a view made up of the selected cameras, click the button.

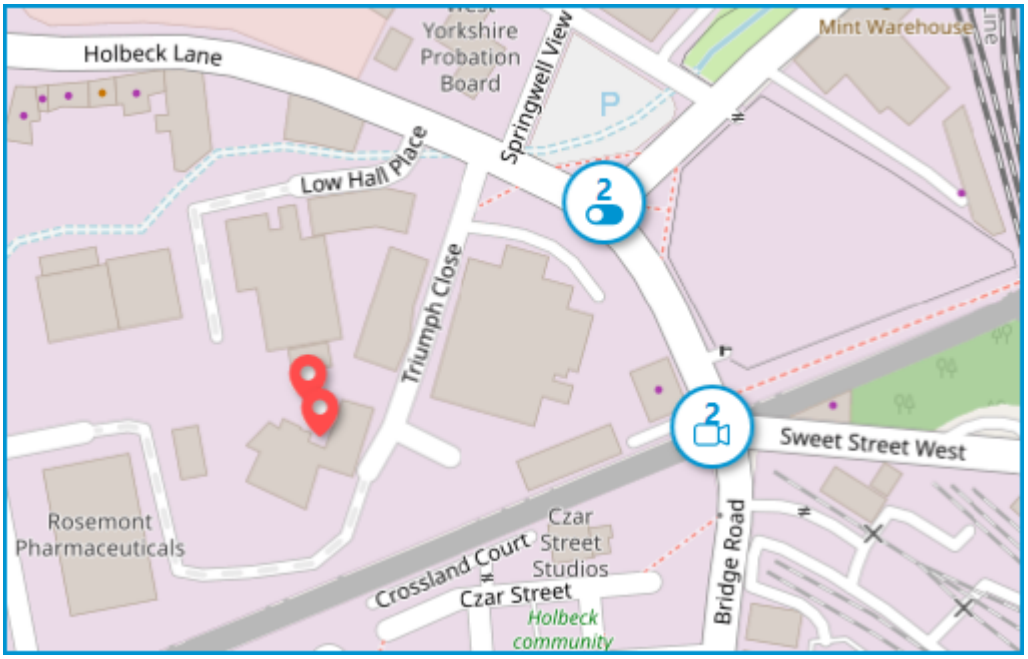


In addition to cameras, the map can display sensors and relays attached to the alarm inputs and outputs of cameras.

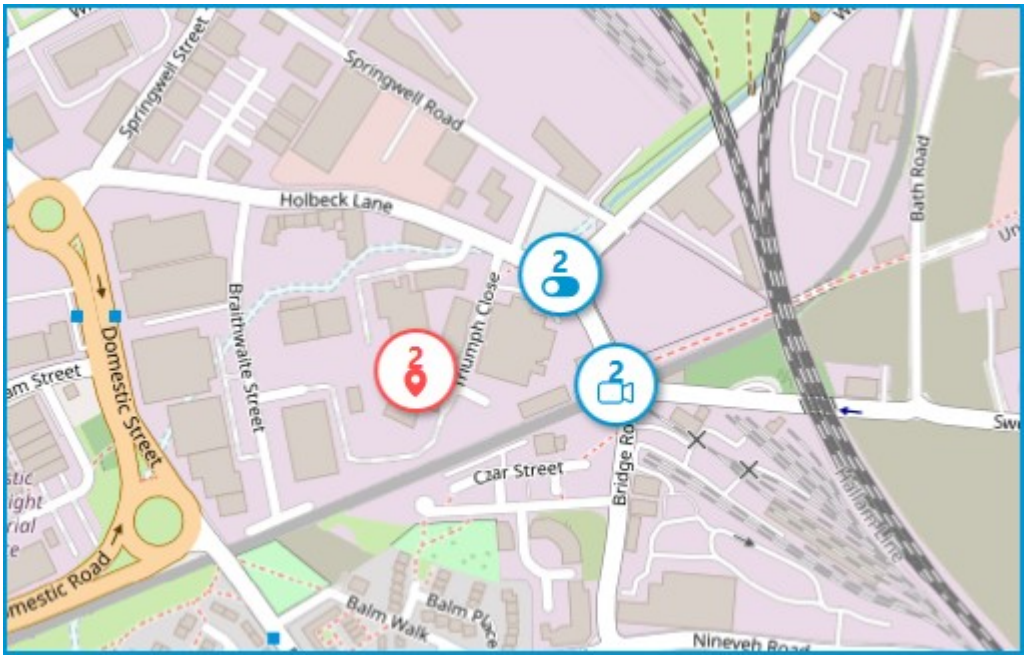
The state of the sensors and relays indicates with its color: red — off, green — on.

Grouping elements on the map

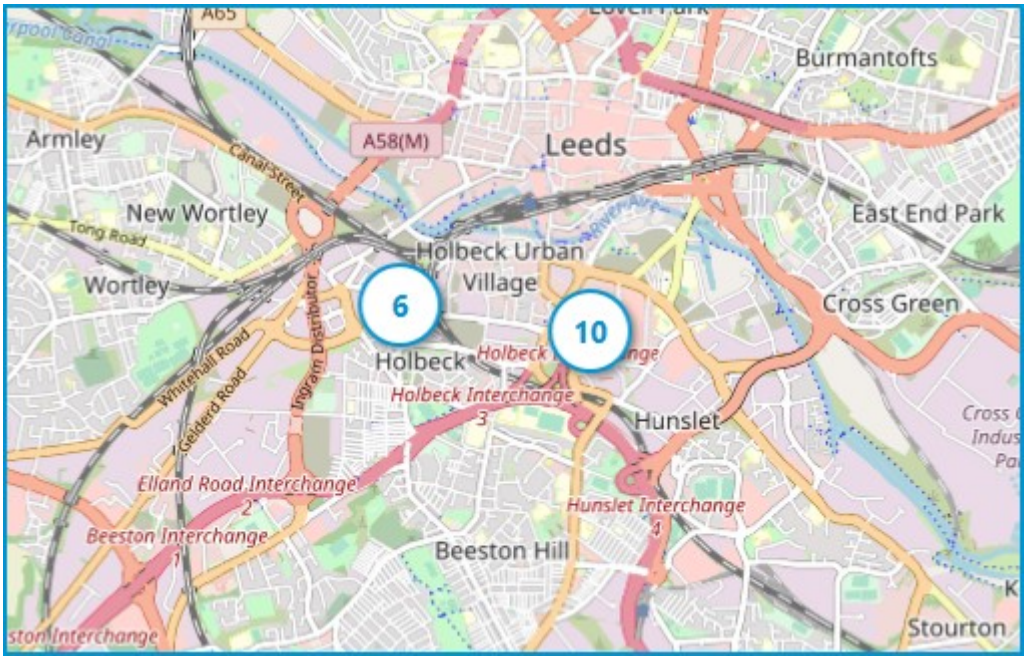
When the scale of the map is changing, cameras, sensors, relays, and objects on the map can be clustered into the group markers.



Elements of the same type located close to each other on the map are grouped into one marker with the number of grouped elements and their type: camera, sensor, relay, or object.



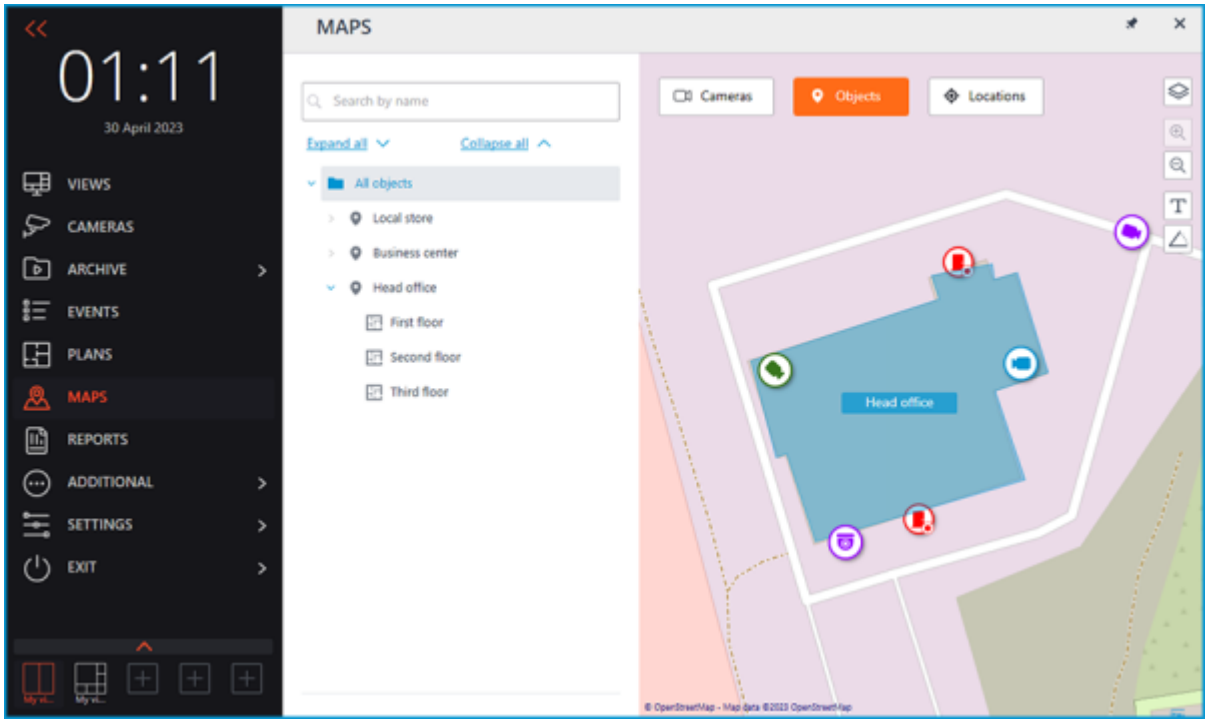
Elements of different types are grouped into one marker with the number of devices.



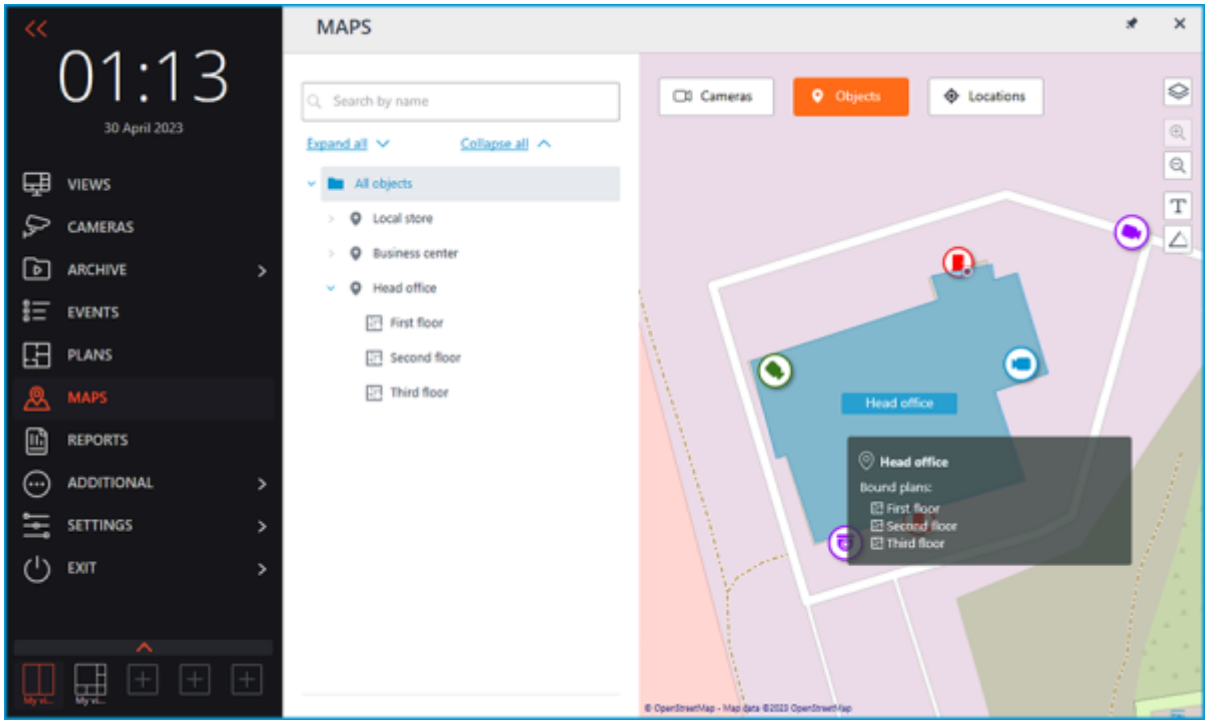
If the number of grouped elements is more than 99, the number on the marker will be displayed as **99+**.

Objects

This tab displays the objects tree. An object is an area on the map that can be used to navigate to the **Plans** view.

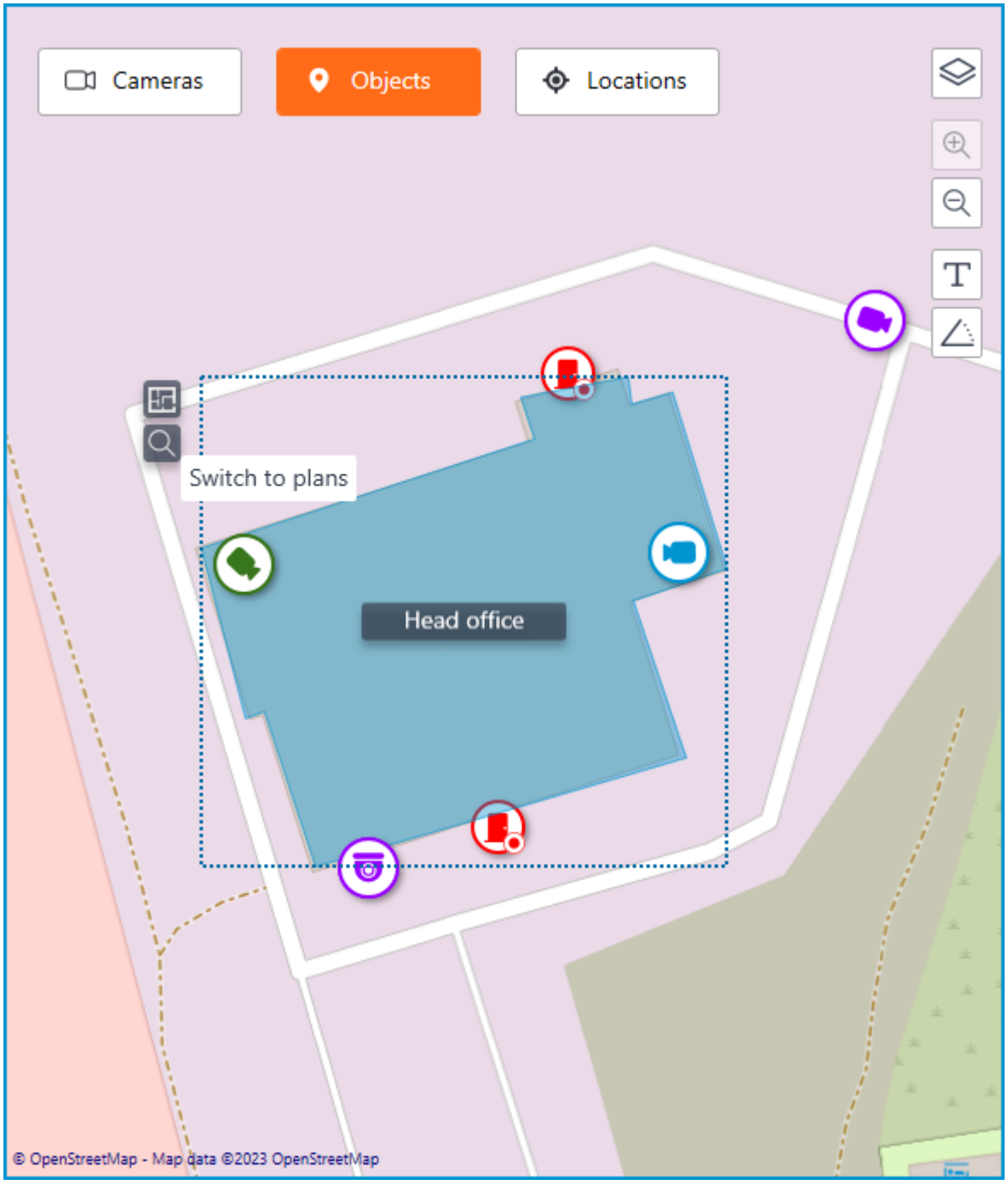


If any plans are attached to the object, the tooltip with a list of attached plans will be displayed when hovering the cursor over the object.

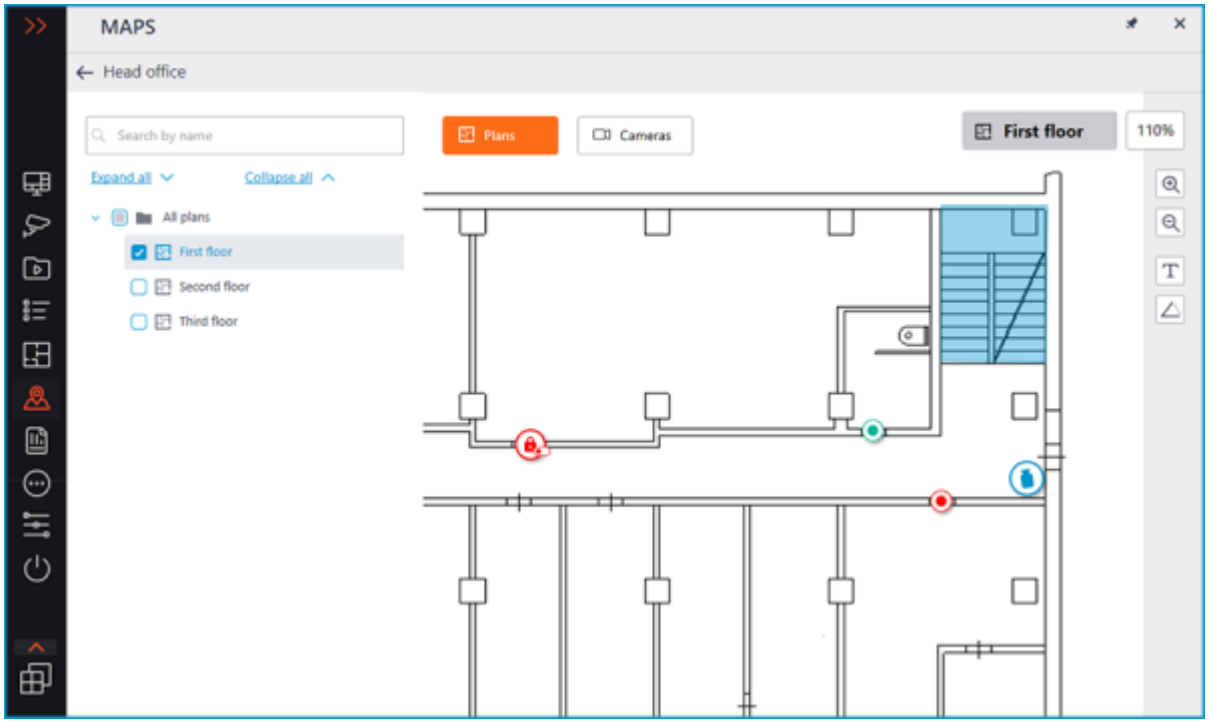


If more than 10 plans are attached, the first 10 plans are displayed and the number of other plans is shown below.

To go to the **Plans** section, select the object and click the **Switch to plans** button.



Clicking this button will display a tree of plans attached to the object.

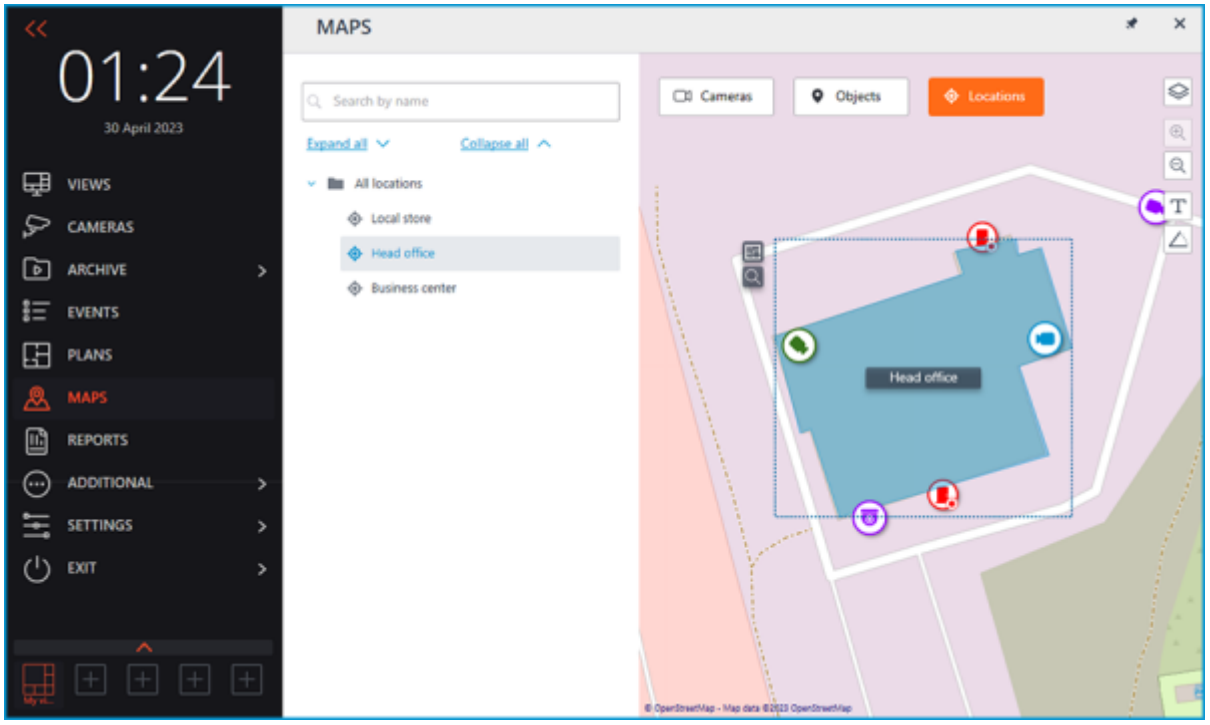


The header of the window displays the name of the object from which the window was switched to the **Plans** section and the **Back** arrow to go back to the **Maps** section.

Locations

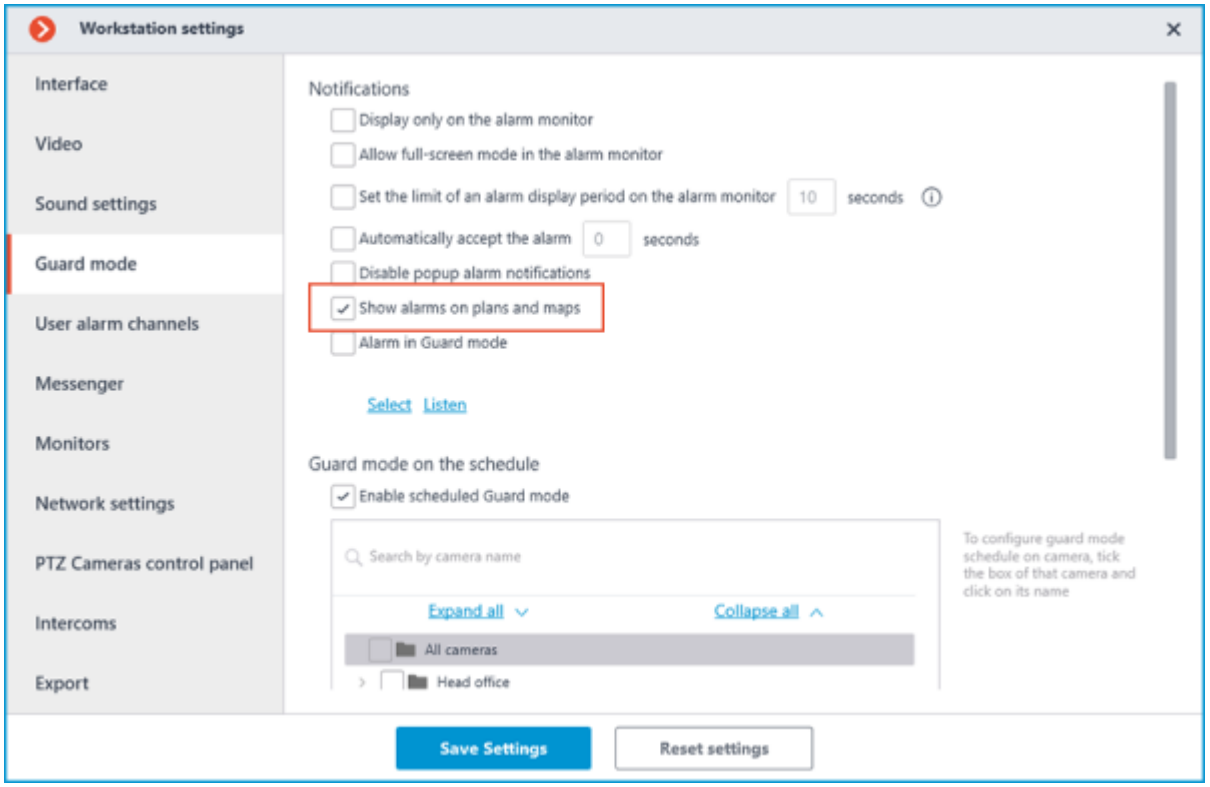
Locations allow jumping to a preset area on the map with the specified scale.

This tab displays the locations tree, with which it is possible to quickly switch to the configured locations on the map.

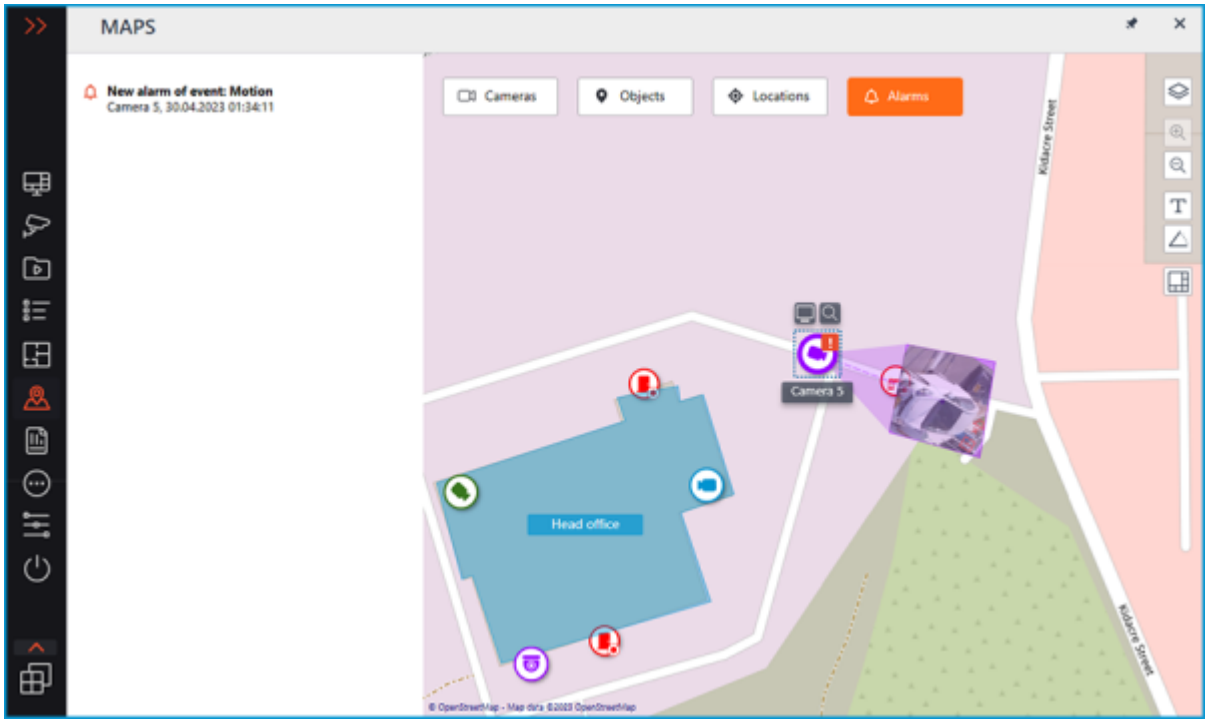


Alarms

To enable displaying camera alarms, activate the **Guard mode** option in the **Show alarms on plans and maps** section of the workplace settings.



This tab displays alarms from all cameras.



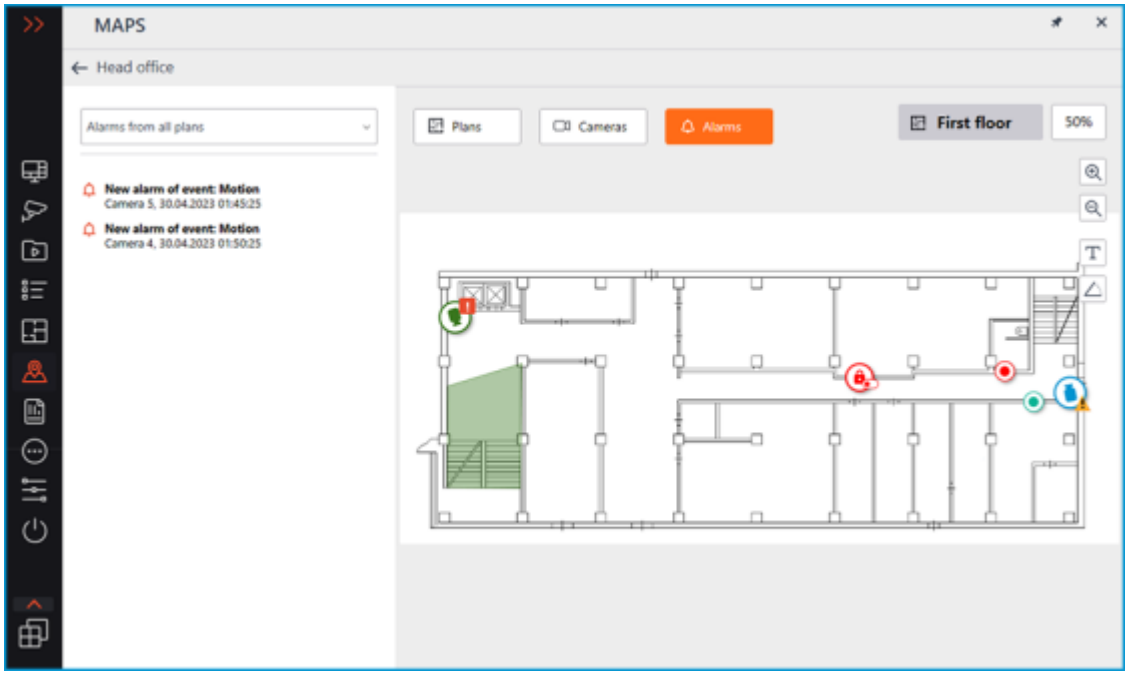
In addition to the alarm indicators, the cameras on the map may also have indicators of a broken or missing connection with the camera.

Alarms are indicated with a red square, broken or missing connection with a yellow triangle. When placing the cursor on the alarm indicator, the event that caused it will be shown.

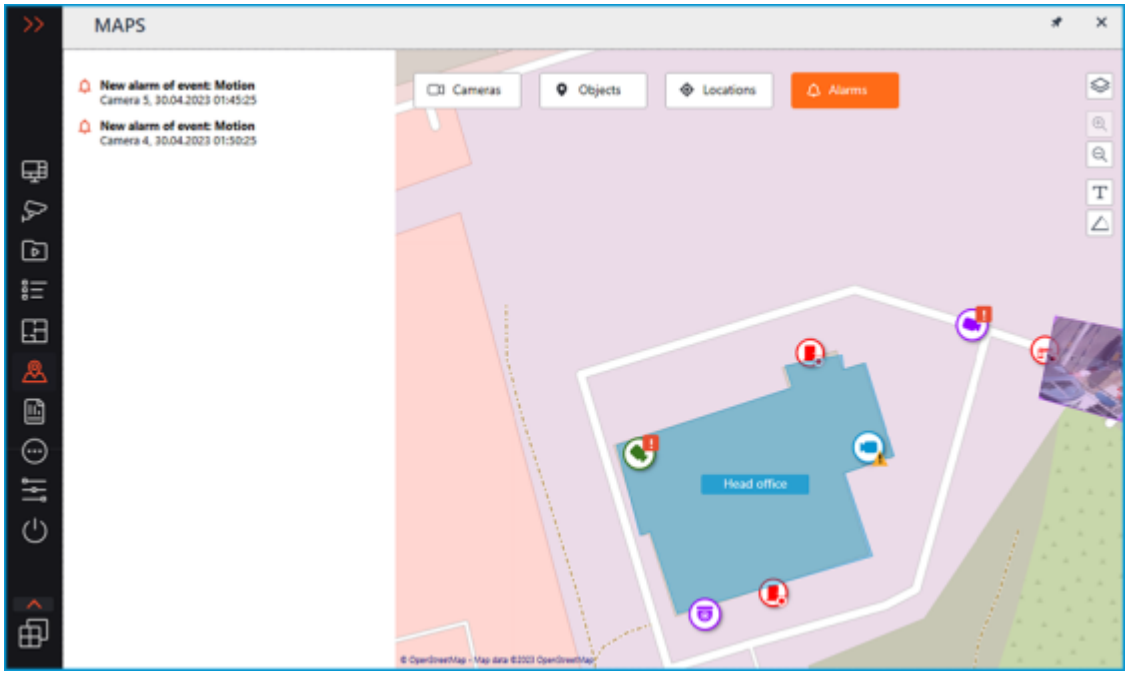
When the connection with the camera is broken, the alarm indicator will be hidden. When the connection is restored and the alarm has not been acknowledged yet, the alarm indicator will be displayed again.

These indicators can also be displayed on plans and objects:

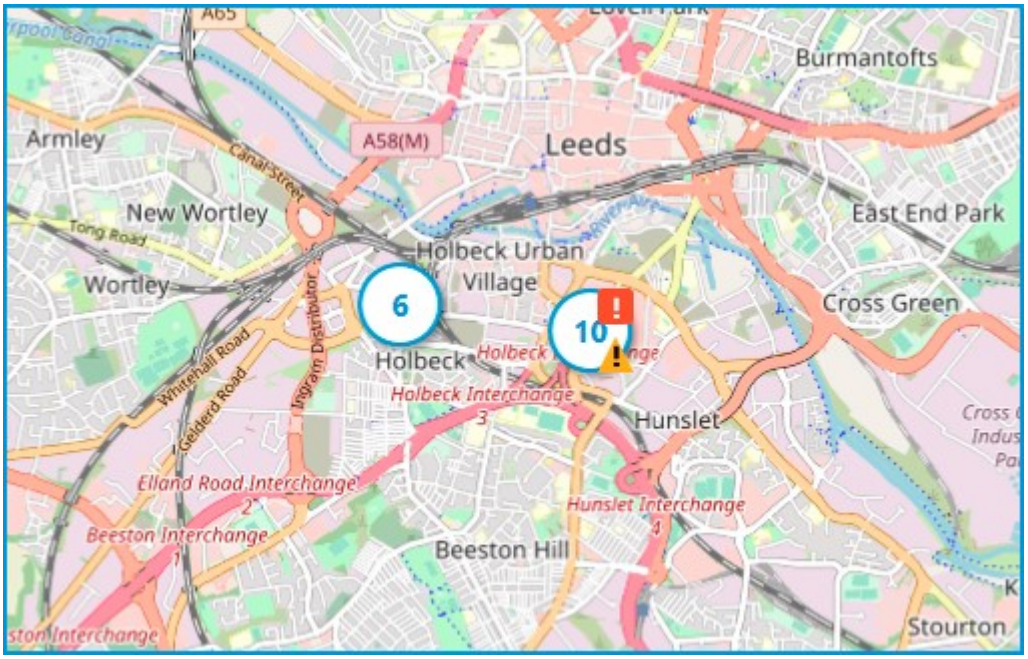
On a plan



On the object



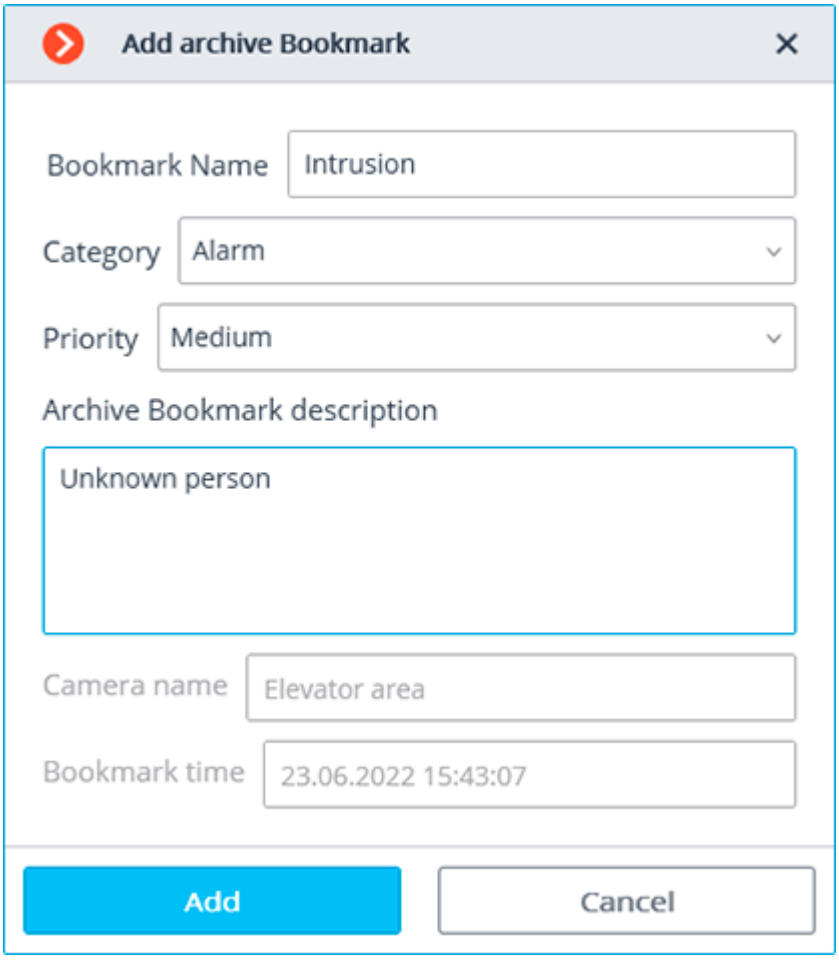
Grouped camera markers also have alarm indicators. If the group contains cameras with an alarm and cameras with a broken or missing connection, both indicators will be displayed.



Bookmarks in the archive

Eocortex allows adding custom markers linked to the archived recordings. Subsequently, by the bookmarks, you can go to the marked location in the archive. Subsequently, the bookmarks created can be used to quickly navigate to the desired archive fragment.

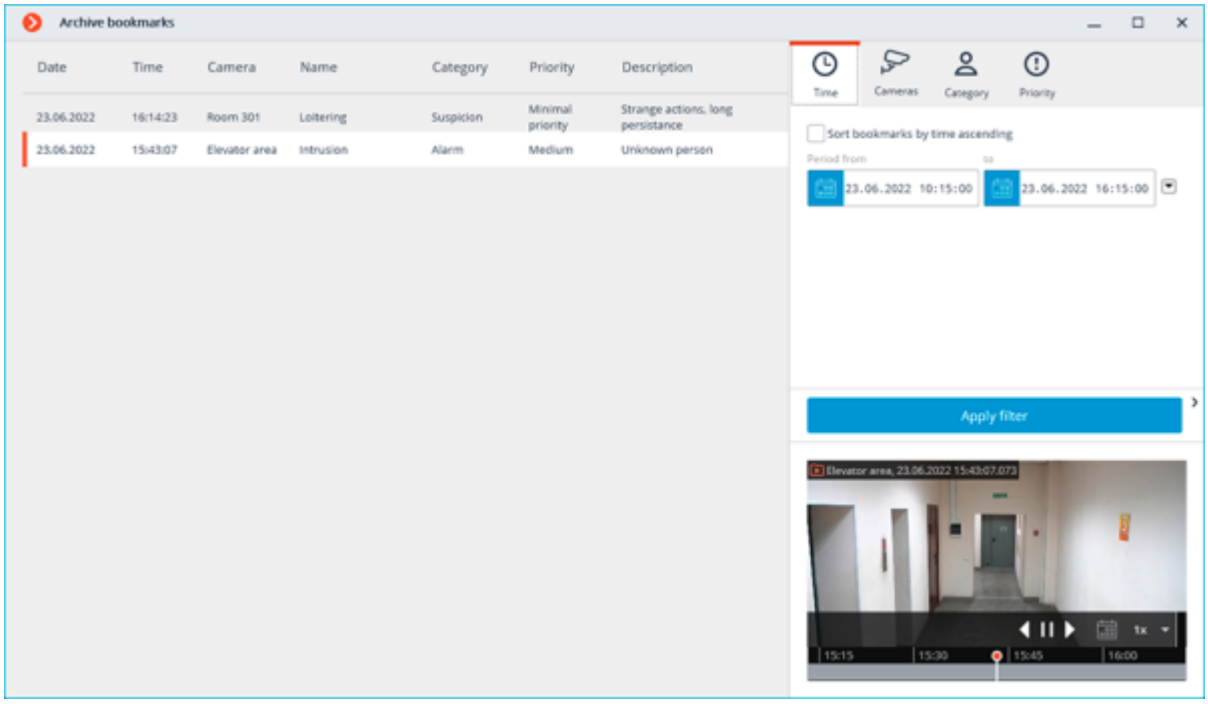
To create a bookmark, open the context menu of the camera and select the **Add Bookmark to archive** item from the list of available actions. In the **Add archive Bookmark** window that opens, set the **Bookmark name**, **Category**, **Priority** and, if it is needed, **Archive Bookmark description**, then click the **Add** button to create the bookmark or the **Cancel** button to exit from this window without saving.



Created archive bookmarks will be kept in the system for the entire period of storage of the related archive fragment and cannot be deleted manually.

The categories of bookmarks are configured by the system administrator through the **Eocortex Configurator** application. **Priority** can be selected only from the list of default options: **Minimal priority**, **Low**, **Medium**, **High**, **Critical**.

To view previously created bookmarks, open the **Additional** section on the control panel and select the **Archive bookmarks** item to open the Archive bookmarks window.

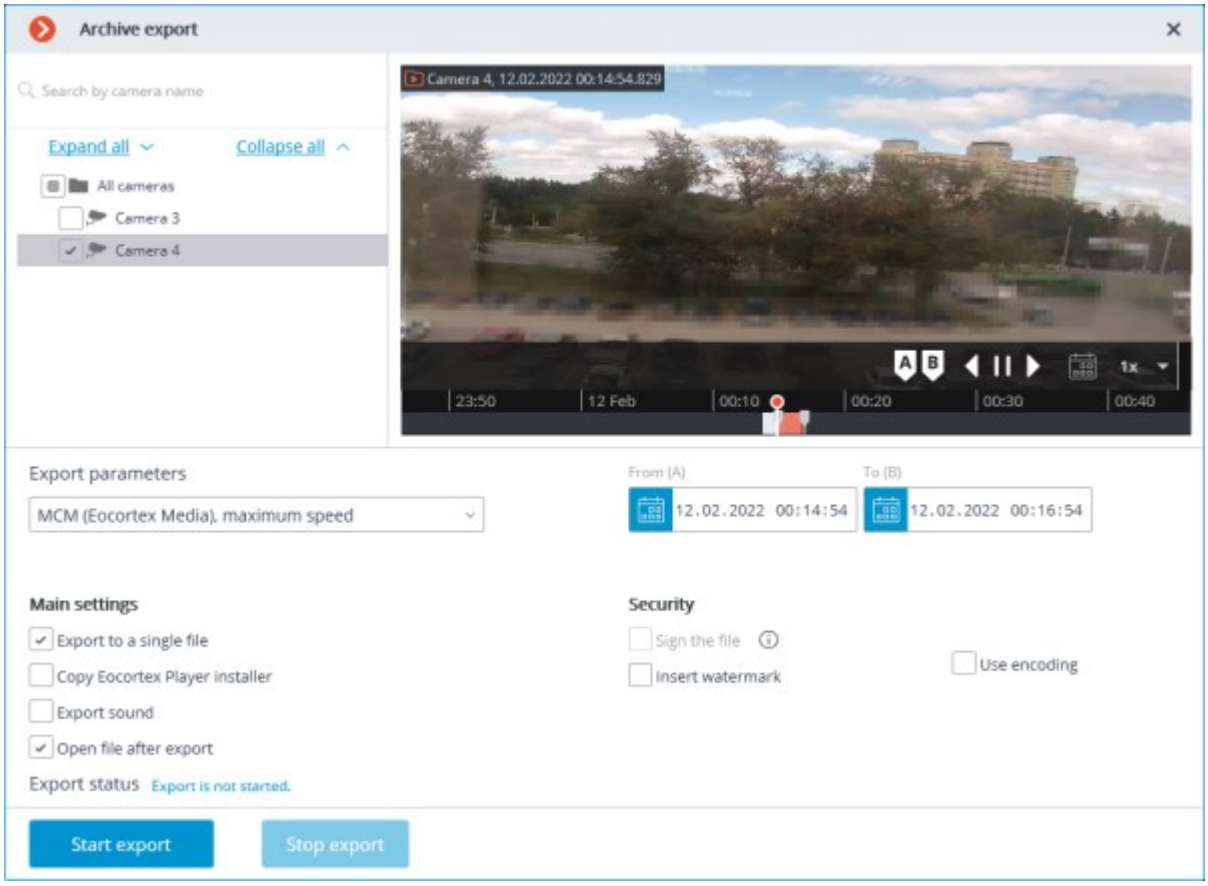


Created bookmarks can be filtered in the log by date and time, related cameras, categories and priority.

Archive export

To export a clip, select the **Archive export** sub-item of the **Archive** item in the **Main menu**. The **Archive export** window will open.

Also, the **Archive Export** window can be accessed by selecting **Archive Export** in the cell context menu.



After specifying all export parameters, click **Start export**; select the folder to store the exported files; if necessary, change the archive name in the **File Name** box; click **Save**.

The export progress will be displayed on the **Export status** panel.

To abort the export, click Stop export.

Export parameters:

In the cameras tree, select the cameras to be exported. If you open the **Archive export** window from the camera cell context menu, this camera will be automatically selected (you can change this selection prior to export).

In the **Period from ... to ...** fields, specify the start and end date and time of the exported fragment.

The format of the resulting video archive is indicated in the **Export options** combo box.

Eocortex Client allows to export your video archive to the files of the following formats:
MCM is an internal **Eocortex** format. Viewing of these files is possible only with the help of the special **Eocortex Player** application provided as part of the installation package. The advantage of exporting to MCM format is the speed of export which is several times faster than the export to AVI. This advantage is due to the fact that no frame conversion is performed. The speed of export depends primarily on the drive performance. It is possible to export the archives of several cameras to one file with the ability to view them simultaneously later.
AVI is a widely-used format. The files of this format can be played in the majority of video players. AVI is a video container with full video stream recoding for adding timestamps to the frames. The timestamps are completely accurate. The export speed is slow (50-70 fps) and depends primarily on the processor performance.
MP4 without timestamps is export to MP4 video container without video stream recoding. The speed of export is comparable with the export to MCM (700-800 fps). No timestamps are added. The speed of export depends on the drive performance.
MP4 is export to MP4 video container with video stream recoding for adding timestamps to frames. The timestamps may not be accurate (error margin is 1-2 seconds). The export speed is significantly slower that the one without recoding, but it is faster than

export to AVI (300-400 fps). The export speed depends primarily on the processor performance.

Export sound: if checked, audio from the camera recorded to the archive is also exported.

Open file after export: if checked, Eocortex Ultra Player playing the newly exported file will be launched after export.

When exporting to MCM, the following options are also available:

Copy Eocortex Player installer: if checked, then the **Eocortex Player** installer will be exported together with the archive (file name: **EocortexPlayer Installer.exe**, size: **29 MB**.) Use this parameter if there is no **Eocortex Player** installed on the computer you want to view MCM files on.

When the **Copy Eocortex Player installer** option is selected, the **Eocortex Player** must be installed on the computer from which the export is carried out.

Export to a single file: if checked, the archive from all selected cameras will be exported to a single file that can be synchronously viewed in **Eocortex Player**. Otherwise the archive for each camera will be exported to a separate file.

Sign the file: adds electronic signature to the exported video clips.

Insert watermark: superimposes a watermark from the specified image file on the video. The watermark can be added to all the formats except **MP4 without time stamps, high speed**.

Use encoding: allows to encode the exported video. AES-128 encoding algorithm is used. This feature is only available when exporting to the **MCM (Eocortex Media), maximum speed** format. The **Eocortex Player** version 3.3 or later is required for viewing.

Save frame (frame fragment)

Click in the active cell or open the context menu and select **Save frame** to save the frame on the disk. Further, in the appeared window select the location to save the frame (if necessary you can change the file name in the **File Name** field and select the image format - JPG, PNG or BMP), and click **Save**.

The camera name and the frame time will be saved in the upper left corner of the frame. If you want to save the frame fragment zoomed in, zoom the image before saving.

Zoom image

Click on in the active cell to switch to the frame zooming mode. Alternatively, press middle mouse button (wheel), or open the context menu and select **Zoom image**.

You can also use mouse wheel to zoom in and zoom out. To zoom in a frame fragment, select a rectangle in the frame using your mouse.

You can move the image in zooming mode by clicking and holding it with the mouse.

To return from the zooming mode to normal viewing, click on again in the active cell. Alternatively, press middle mouse button (wheel) or disable **Zoom image** option in the context menu.

Print frame (frame fragment)

To print frame open the context menu in the active cell and select **Print frame**. Then in the appeared window select the printer, adjust the print settings, if necessary, then press **Print**.

The camera name and the frame time will be displayed in the upper left corner of the frame.

If you want to print the frame fragment zoomed in, zoom the image before printing.

Archive depth report

This report shows the existence and settings of the archive for each camera.

To open a report, select **Reports** in the Main panel, then select the report **Archive depth** in the upper right corner, then mark the channels, on which the report will be built and click **Build** button — a report shall be built for the last month.

Selected channels are listed in the lines of the report. The columns of the report show the archive depth settings for each channel, actual depth of the archive, and the archive for each month number.

To select another month, use time slot selector, located at the bottom of the page above the legend.

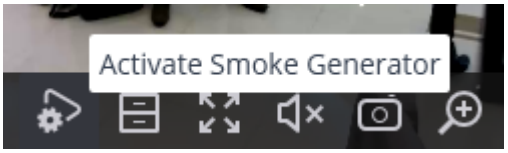
By clicking the **Export** button, report shall be saved to a CSV file.

User tasks

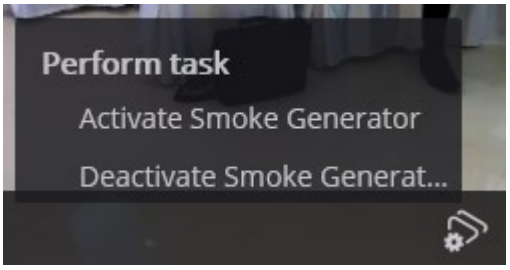
If user tasks are set up on a camera, and the user has the rights to execute these tasks, then, in the observation mode, during the activation of such camera, the or button will be displayed in the cell, depending on the quantity of tasks that can be launched on the camera (one or more).

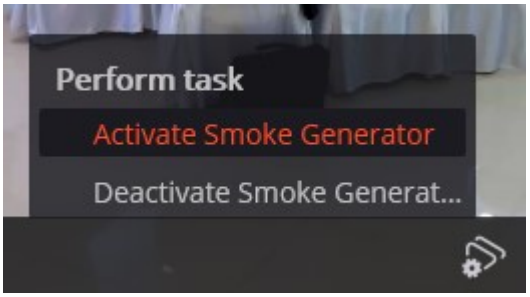
User tasks are configured by the administrator of the video surveillance system.

If only one task is set up on the camera, it will be executed upon pressing the button.



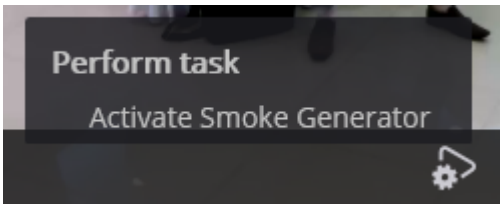
If there are several tasks set up on the camera, a list of those tasks will open upon pressing the button, and the task will be executed only as it is selected in the list.



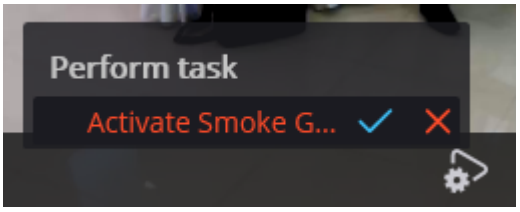


If the launch confirmation has been set in the configuration of the task, a dialog will open before the launch. In this dialog, it will be possible to confirm or cancel the launch.

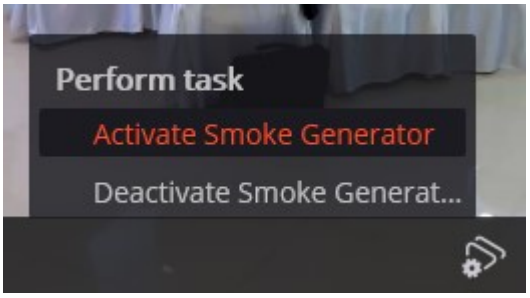
Selection one task with confirmation:



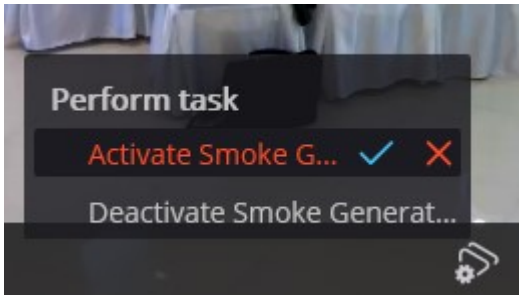
Confirmation of one task:



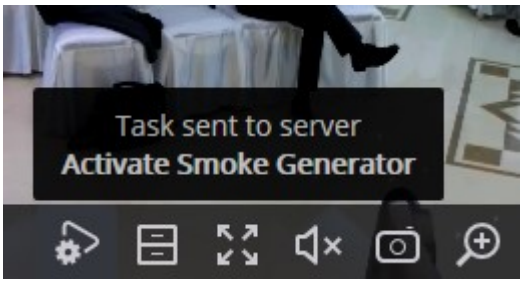
Selection one of several tasks with confirmation:



Confirmation of one of several tasks:



After launching the task, the corresponding notification will appear on the screen.



Video wall

Eocortex has implemented the possibility to build a video wall, consisting of any number of separate monitors, using neither extra devices nor software. The monitors, which make the video wall, must be connected to the computers, with the running **Eocortex Client** application, connected to one of the **Eocortex** servers.

In order to increase efficiency it is advised to use client computers (Remote Work Station - RWS) with several monitors; herewith the RWS hardware configuration must provide the performance required to show the set number of channels.

This capability is not present in all types of licenses.

Video wall setting

Before using the video wall it is necessary to set it up. To do this, open the Control panel and select in the Main menu the **SETTINGS** option, then the **Video wall setting** sub-option.

The main part of the opened setup page for the video wall, is taken by the view window displaying the image from the selected monitor.

In the left part of the page is displayed the hierarchical list of IP addresses of the connected RWS system (client computers with the running **Eocortex Client** application) or servers displaying (**Eocortex Standalone**), and also connected to these RWS/servers monitors.

The list shows only those RWS / servers and monitors which are currently running the **Eocortex Client** application and the view window is open.

To the right of each monitor in square brackets is given the position number (position) of the monitor in the video wall. For visual control over the monitors position numbers, there is a **Show monitor** number button; when pressed, each video wall monitor will show its position number for several seconds.

In order to form a video wall it is necessary to select one of the options in the **Video wall mode** drop-down list, then, with the help of the mouse, move the monitors from the hierarchical list to the relevant cells located under the view window. Then, in order to setup grids and the displayed channels, it is necessary to move to Video wall management.

Hereafter, during operation, separate RWS can be disconnected from the system. In this case the pictograms of these monitors will be red.

Video wall management

In order to manage the video wall it is necessary to open the Control panel and select in the Main menu the **ADDITIONAL** option, and then the **Video wall management** suboption.

The main part of the opened page for video wall management is taken by the remote view window broadcasting the image from the selected monitor.

Monitor selection takes place in the panel located right under the view window. Each monitor has a position number (position number in the video wall), displayed in square brackets in the left top corner of the video wall cell.

Visual control over monitors position number is implemented by a **Show monitor number** button; when pressed, each video wall monitor will show its position number for several seconds.

If any of the monitors used in the video wall does not display the image in the remote view window, this means that the RWS, to which the monitor is connected, is not connected to the system (besides this, the pictogram of this monitor in the list will be red). In this case it is recommended to run the **Eocortex Client** application on this RWS and connect to one of the Eocortex servers (if viewing is implemented on the server with **Eocortex Standalone** display — open the view window). The monitor which manages the video wall will also not broadcast images.

In the left part of the page is displayed the hierarchical list of cameras connected to the system and the panel with the available channels. In case of multiserver configuration, the list will show all the cameras connected to all the servers of this configuration.

In order to display a certain channels network, it is necessary to mark that monitor and then select the grid.

In order to place certain cameras in the grid's cells, it is possible to move these cameras to the relevant cells in the view window, or click inside the cell in the view window and select a camera with the help of the cell context menu.

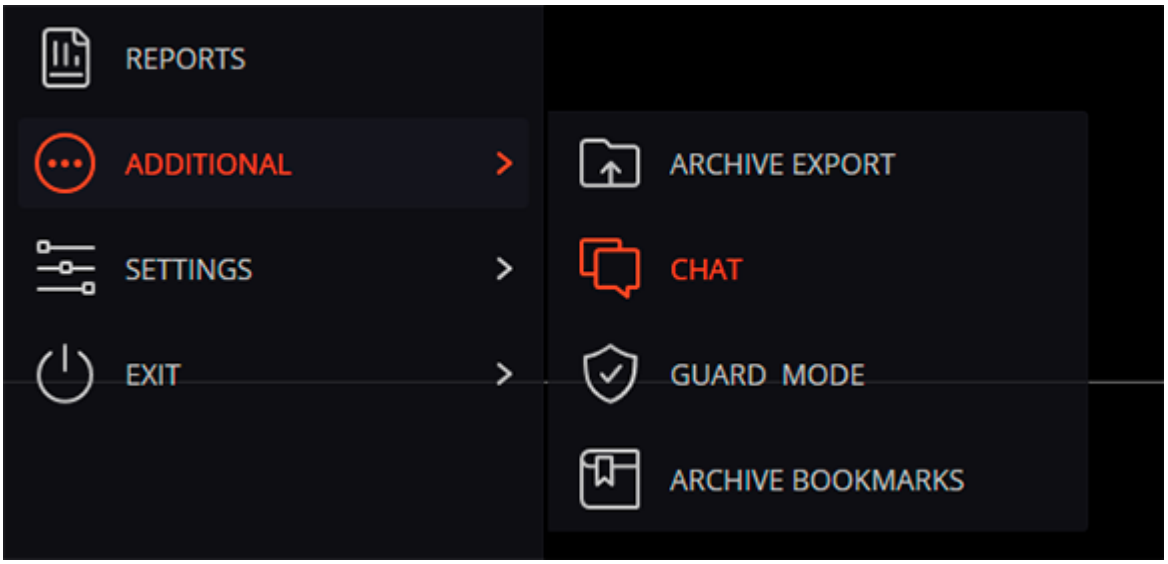
Internal chat

Eocortex has a functionality of messaging between system users - the **internal chat**.

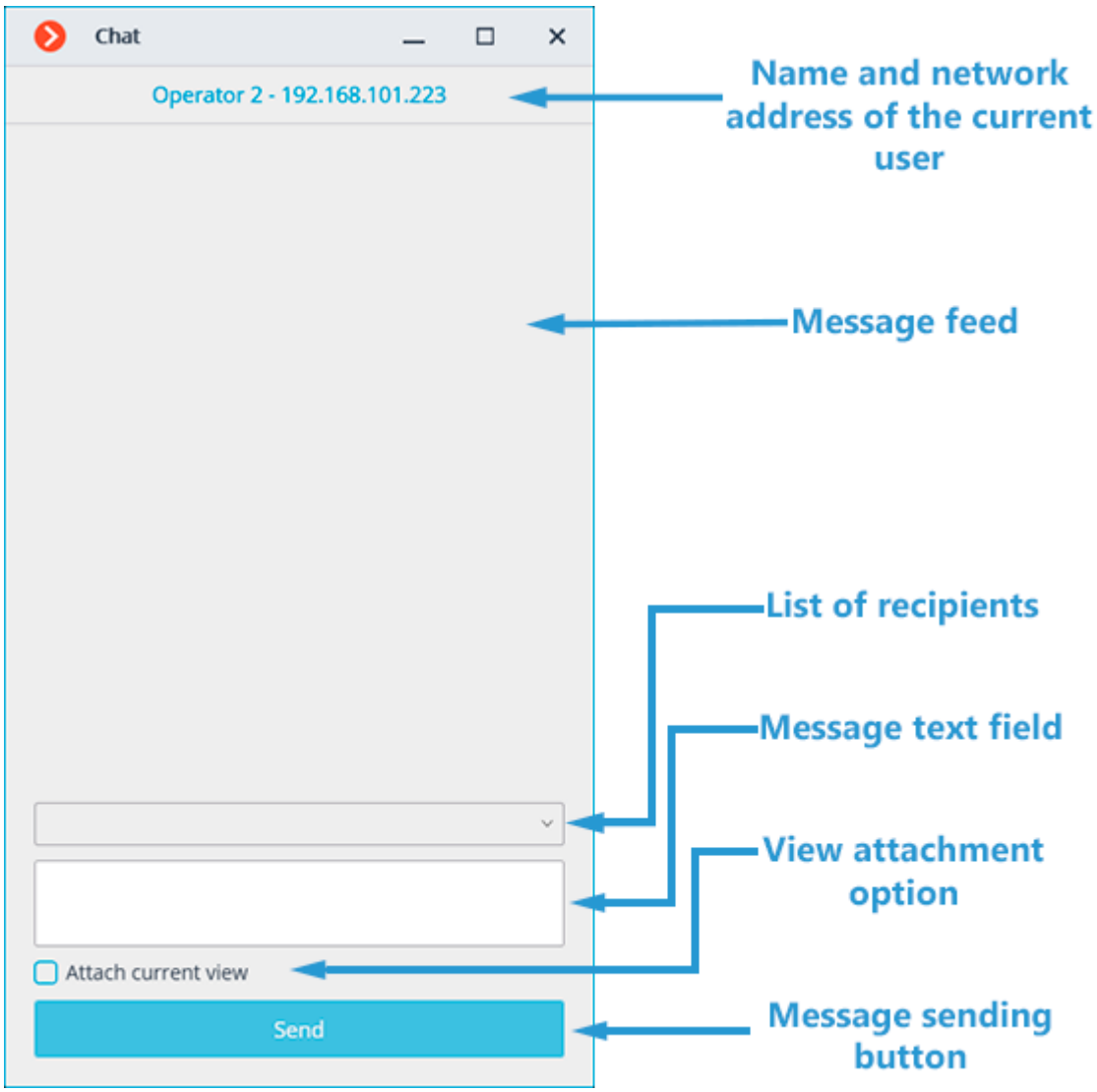
This capability is not present in all types of licenses.

The **internal chat** is available only to those users who have the appropriate permissions granted by the system administrator and only on those **Eocortex Client** workstations where the use of chat allowed in settings.

To open the internal chat, open the **Additional** section on the control panel and select the **Chat** item.



The **Chat** window will open, containing the following interface elements:



Chat window opens automatically for message recipients.

Sending a message

To send a message to one or several system users, select these users from the drop-down menu, type a message in the Message text field and click the **Send** button.

With the **Attach current view** checkbox enabled, the camera view that is used at the moment of sending the message, including all cameras assigned to cells, will be attached.

The drop-down menu contains only those system users who are connected to the system at the moment of sending the message. If no user is logged into the system, the chat window will show the "There are no operators in the chat" message instead of the list of recipients.

The message length cannot exceed 50 characters, including spaces.

The recipient will be able to open the View attached to the message only if he has permission to view the cameras assigned to this View and access to use the View itself is allowed at his workplace.

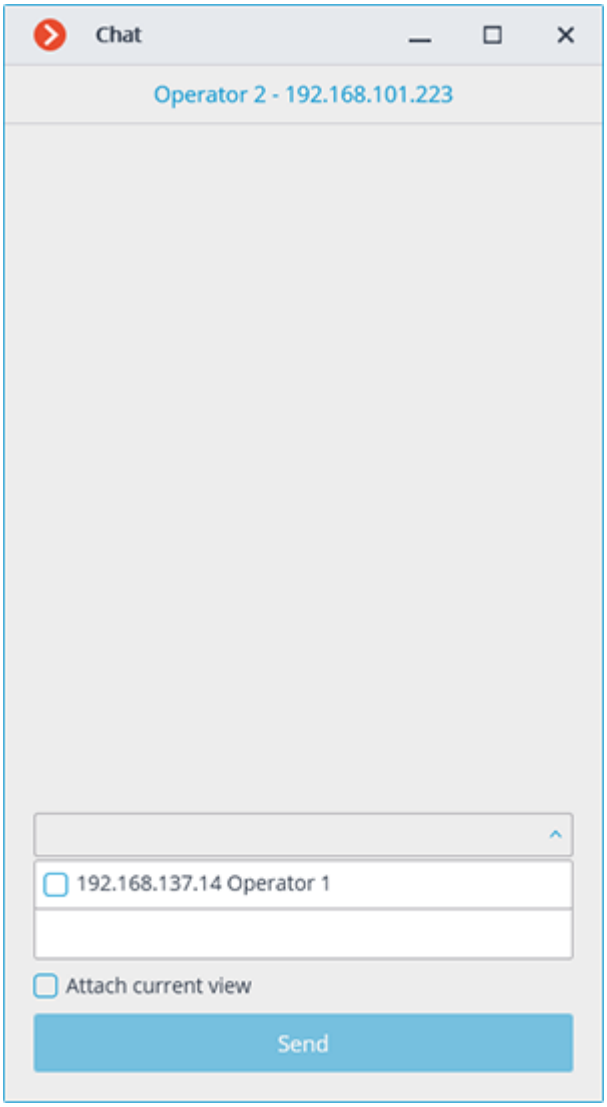
Receiving a message

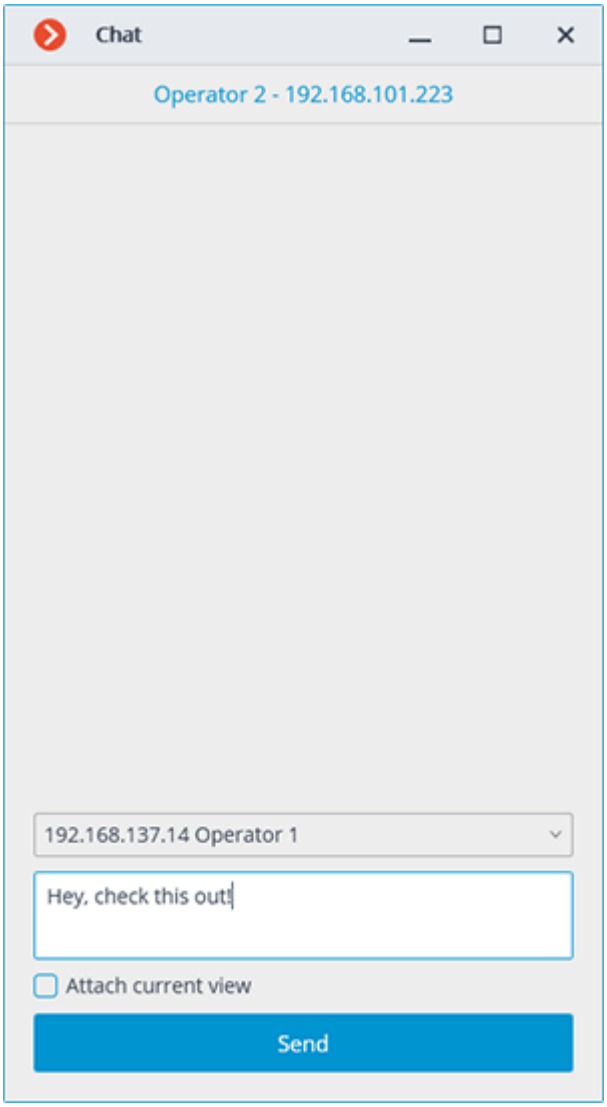
To confirm receipt of a message, click the **Confirm message** button located under the message text. If the message is not confirmed within the time set by the system administrator on the Messenger tab of the Application settings window, an entry about the missed message will be added to the Events log.

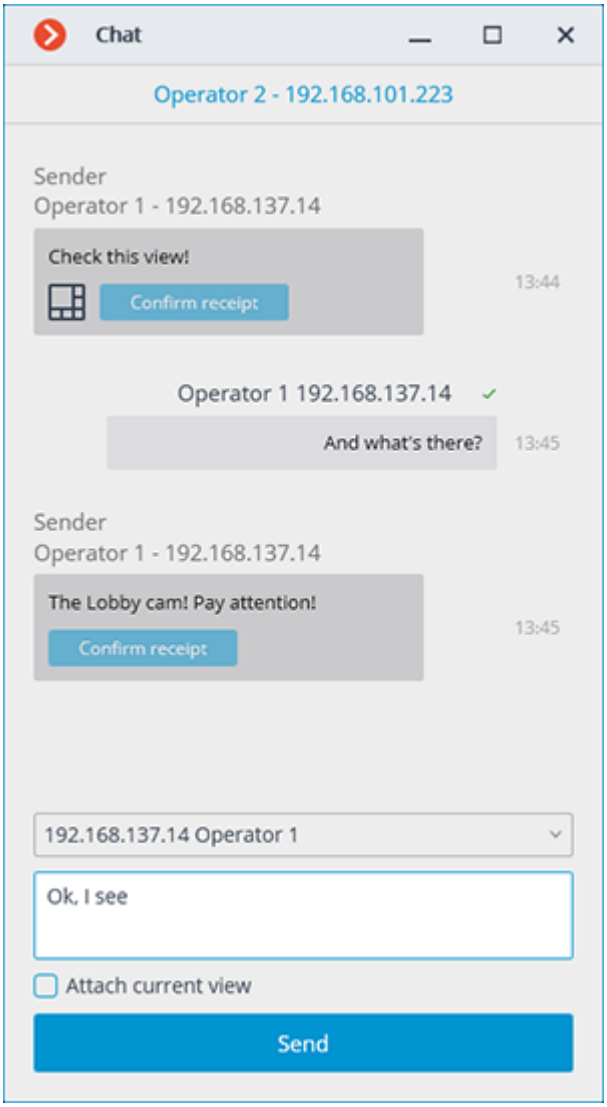
To open a camera grid attached to the message at the current workplace, click on the view icon to the left of the Confirm receipt button.

Replying a message

To reply to a received message, create a new message and specify a list of recipients.


Chat
Operator 2 - 192.168.101.223
192.168.137.14 Operator 1
Attach current view
Send


Chat
Operator 2 - 192.168.101.223
192.168.137.14 Operator 1
Hey, check this out!
Attach current view
Send

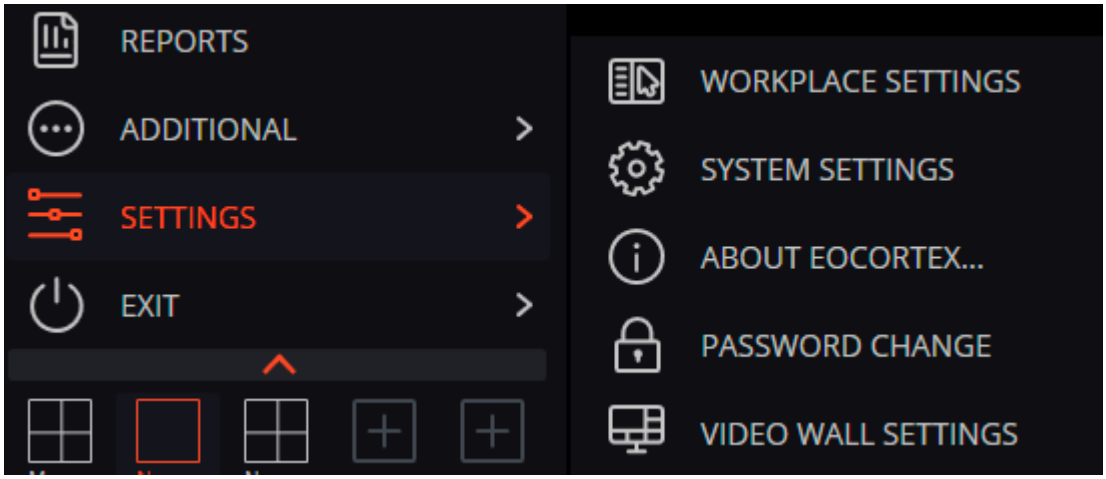


Workplace settings

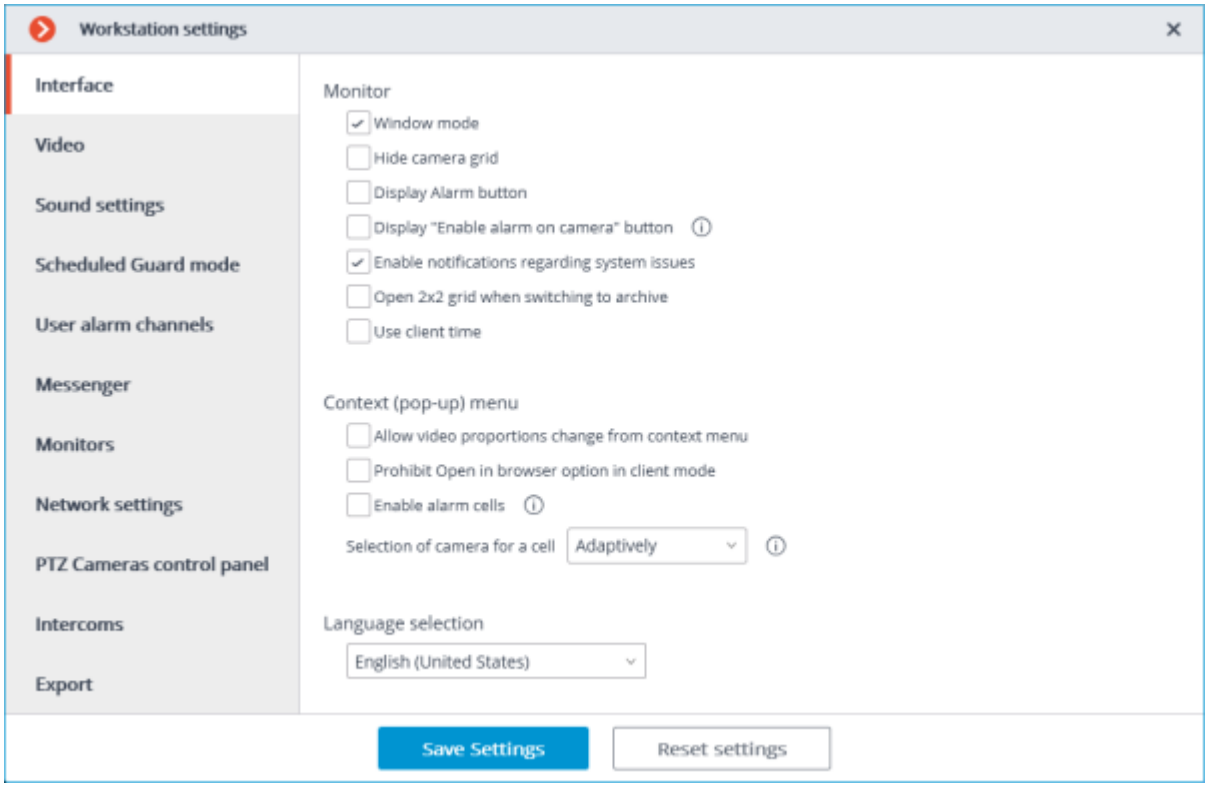
These settings allow you to specify operating parameters for **Eocortex Client** on the applied computer.

To configure the current workstation, open the Control Panel in **Eocortex Client** and select **Workplace settings** under **Settings** .

The **Workplace settings** menu item is available only if a user with configuration rights is logged in.



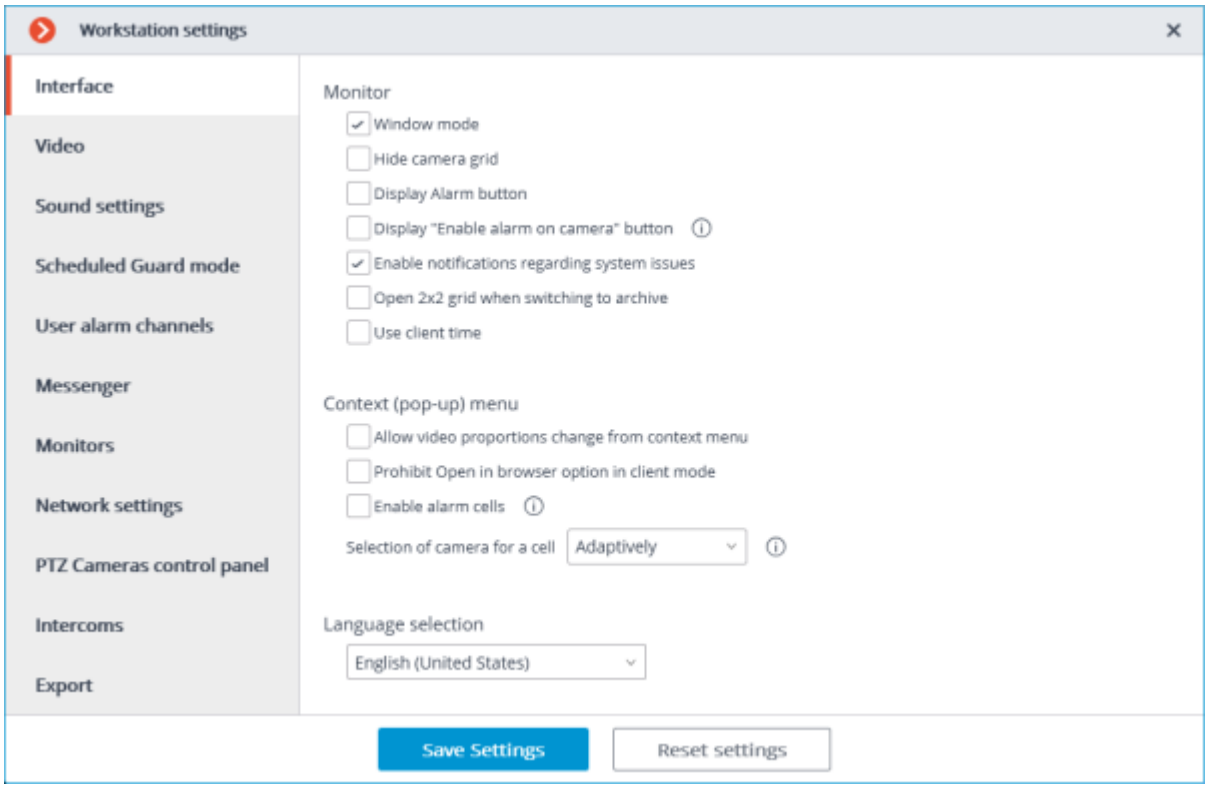
The **Workstation settings** window will open.



To implement the changes made, click **Save Settings** — **Eocortex Client** will reboot automatically. To return to default, click **Reset settings**.

Below is a description of all tabs of the **Workplace settings** window.

Interface



Window mode: if checked, **Eocortex Client** will run in the window mode; otherwise — fullscreen.

Hide channels grid: if checked, the lines separating channel cells will not be displayed; otherwise they will be separated by thin lines.

Display Alarm button: if checked, the **Eocortex Client** toolbar will contain the **Alarm** button; otherwise the button will not be displayed.

Display "Enable alarm on camera" button: if checked, the item **Enable alarm** will be displayed in the context menu of the cameras cells.

Enable notifications regarding system issues: if checked, the system notifications about possible problems (including recommendations for their elimination) will be displayed.

Open 2x2 grid when switching to archive: if this option is enabled, then a 2x2 grid will be used when switching to the simultaneous archive viewing mode.

Use client time: if this option is enabled, the cameras will be displayed with the time zone of the computer running the client application; if disabled, the camera time zone will be used.

> This option is available only if the system administrator has enabled the considering time zones feature in system settings.
> By default, this option is disabled.

Allow video proportions change from context menu: if checked, you will be able to choose video proportions in the cell context menu; otherwise this function will not be available.

Prohibit Open in browser option in client mode: if checked, users of **Eocortex Client** on this computer will not be able to open cameras in browser from the context menu; otherwise the context menu will include the Open in browser option.

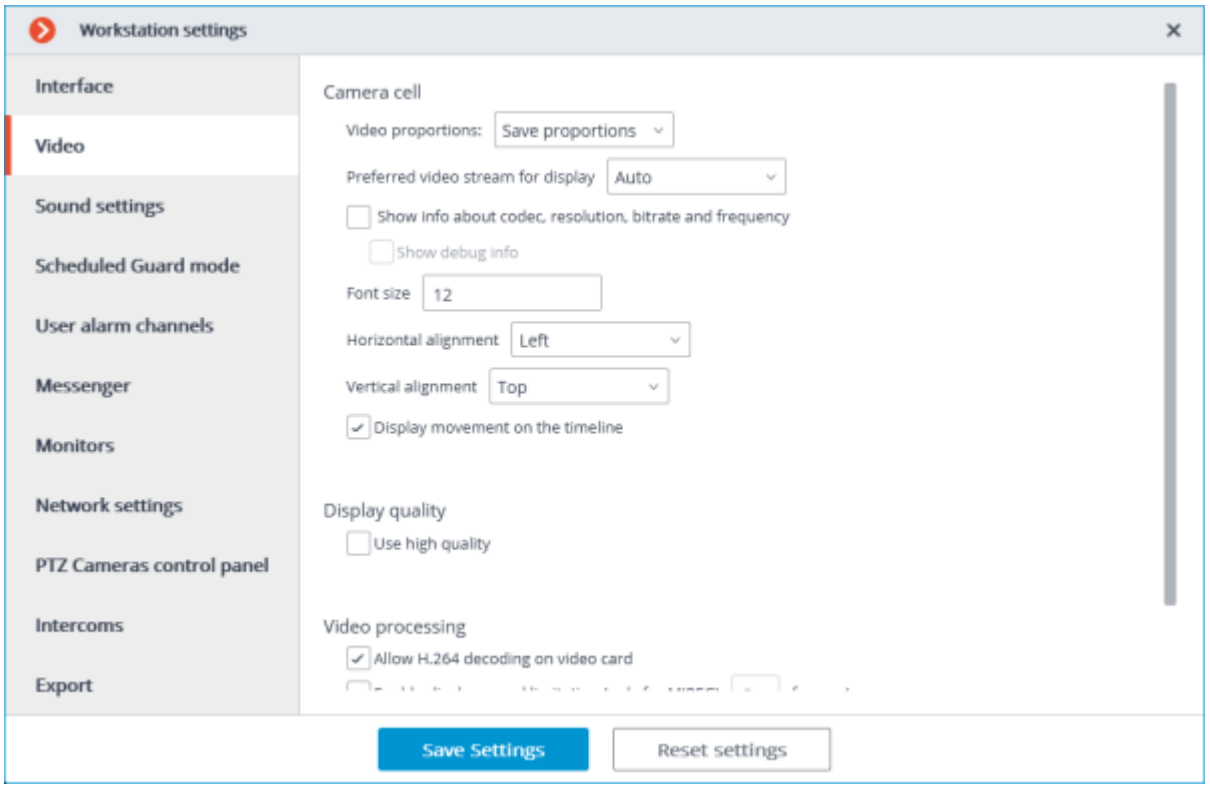
Enable alarm cells: if checked, the **Set alarm cell** item will be displayed in the context menu of the channel cells.

Selection of camera for a cell: Set the method for selecting a camera to be placed in a cell through the context menu called by right-clicking in the cell. With the Only in window option, the Select camera

item in the context menu will open a window with the list of cameras available for selection. With the Only in context menu option, the list of cameras will be displayed as a sub-item of the context menu. With the Adaptively option selected, the client application will use both options regarding the number of cameras available: if more than 300 cameras are available for selection, then the window option will be used. Otherwise, the list of cameras will be displayed in the context menu. For systems with a large number of cameras, it is not recommended to use the context menu option due to possible delays in the display of the context menu and decrease in usability.

Language selection: allows selecting one of the interface languages available for **Eocortex Client**.

Video



Video proportions: you can select how images are scaled in cells:

- **Stretch**: the image will be stretched in a cell;
- **Save proportions**: the image will be displayed with the proportions specified by the camera;
- **Auto**: the program automatically determines chooses whether to stretch the image or keep proportions.

Preferred video stream for display: allows you to select which streams will be displayed on the screen and how:

- **Auto**: in the multiscreen mode all channels that use two stream will display an alternate one; in the uniscreen mode only the main stream will be displayed.
- **Main**: the main stream will be displayed for all channels in all modes.
- **Alternate**: the alternate stream will be displayed for all channels that support two streams in all modes.
- **Average**: in both modes each channel that uses two streams will display the stream, which resolution is closest to the resolution of the current cell.

Show info about codec, resolution, bitrate, frequency and IP-address: if checked, the appropriate information for the displayed stream will be located in the upper left corner.

Show debug info: if checked, the debug information for each channel will be displayed in the upper left corner.

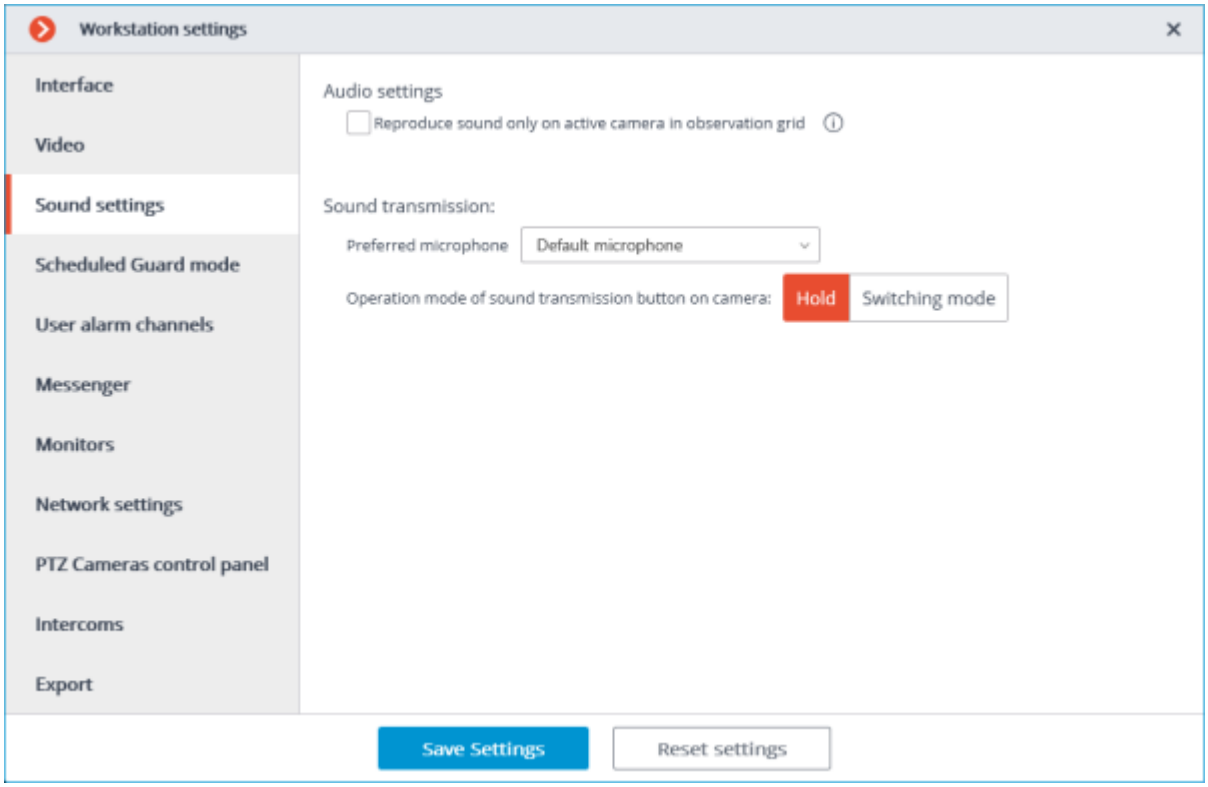
Font size, **Horizontal alignment**, **Vertical alignment**: the display options in the cell of the text blocks with the name of the camera and additional information.

Use high quality: if checked, the image will be sharper but the CPU and RAM load will increase.

Allow H.264 decoding on video card: if checked, H.264 video will be decoded on video card of the client computer; otherwise it will use CPU. Only the channels with this option enabled will be decoded on video card.

Enable display speed limitation (only for MJPEG): if checked, the image will adhere to the specified maximum frame rate. This limitation may be useful to reduce the CPU and RAM load on the client computer.

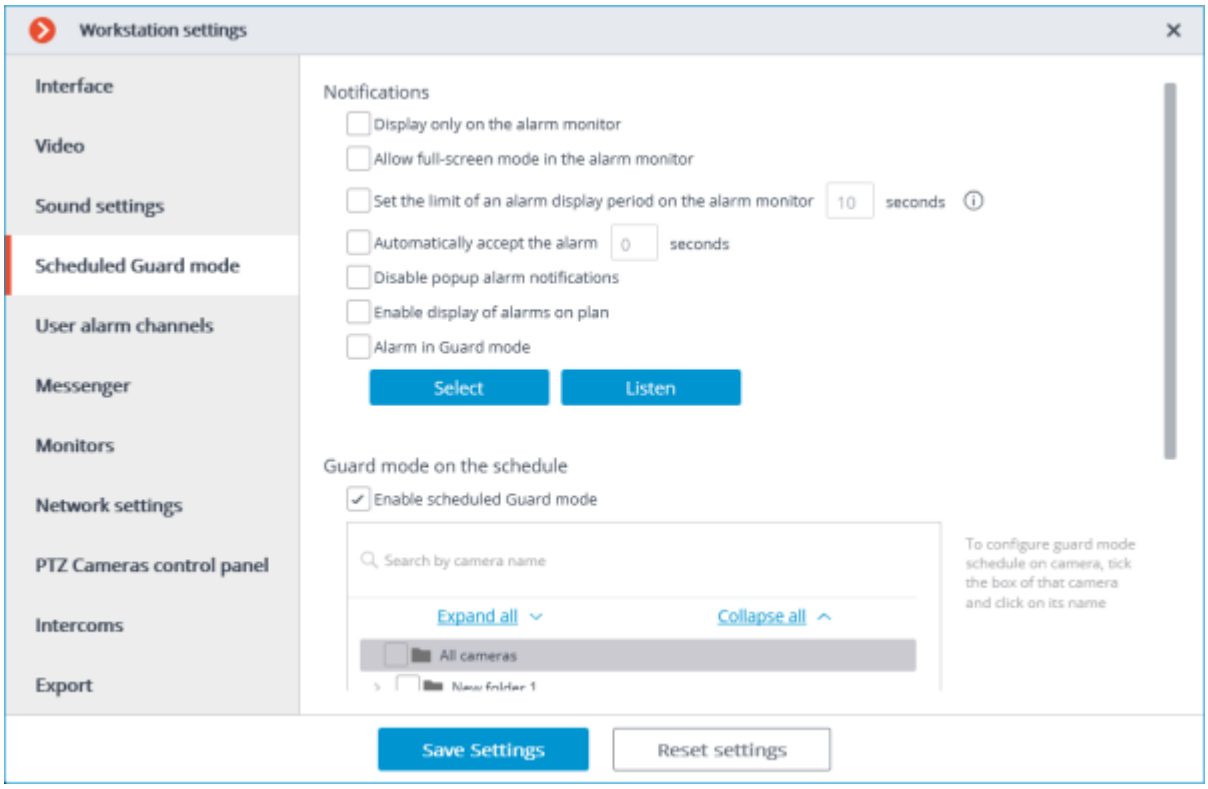
Sound settings



Play only for the active Channel: if checked, the sound will be played only for the active (currently selected) channel; otherwise the sound will be played for all the displayed channels.

The **Sound transmission** setting group allows selecting the microphone and screen button operation modes for the channels that support sound transmission to the camera.

Sheduled Guard mode



Scheduled Guard is the mode, in which a user is notified (in **Eocortex Client**) if the alarm is generated. If you want an alarm to generate in response to a specific event in the system, configure the appropriate scenario in **Eocortex Configurator**.

Display only on the alarm monitor: if checked, visual and audible alerts will be displayed only on the alarm monitor; otherwise they will also be displayed on the monitors used for observation.

Allow full-screen mode in the alarm monitor: if checked, you can expand the channels to full-screen mode on the alarm monitor; if unchecked, it shall be prohibited.

Set the limit of an alarm display period on the alarm monitor: if checked, in the box on the right you can specify how long will the alarm be displayed; otherwise, the alarm will be displayed until the operator's response. In either case, an alert will be aborted if the operator responses to it.

Automatically accept the alarm: if checked, you can specify in the box on the right, how long the alarm will be accepted automatically, if the operator does not respond to it; otherwise, the alarm will be displayed in accordance with the setting **Set the limit of an alarm display period on the alarm monitor**.

Disable popup alarm notifications: if checked, the alarm state of any of the Scheduled Guard channels will not be indicated in the lower right corner of the screen by an exclamation mark.

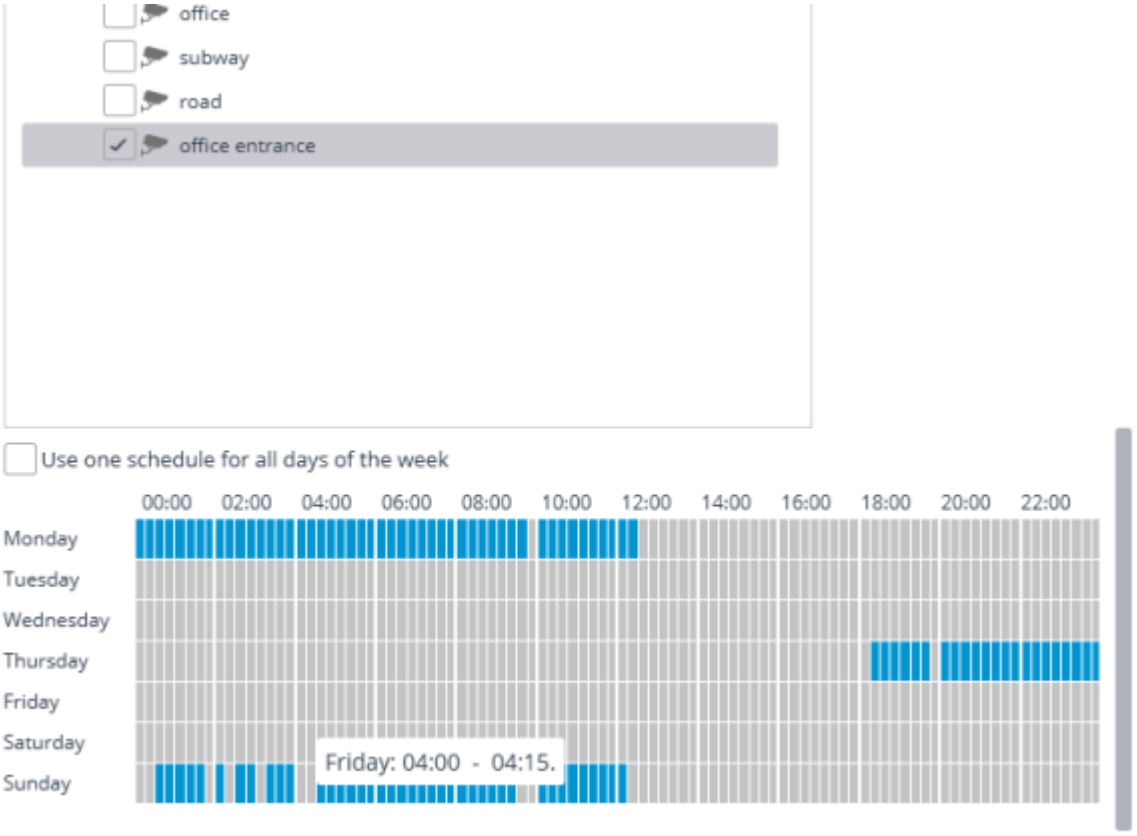
Show alarms on plans and maps: if this checkbox is ticked, the alarms will be displayed on site plans.

Alarm in Guard mode: if checked, the alarm state of any of the Guard channels will be indicated by an audio file. Only WAV files (*.wav) are supported. To select a file, click **Select**. To listen to the selected file, click **Listen**.

Enable scheduled Guard mode: if checked, you can schedule Guard modes for the channels.

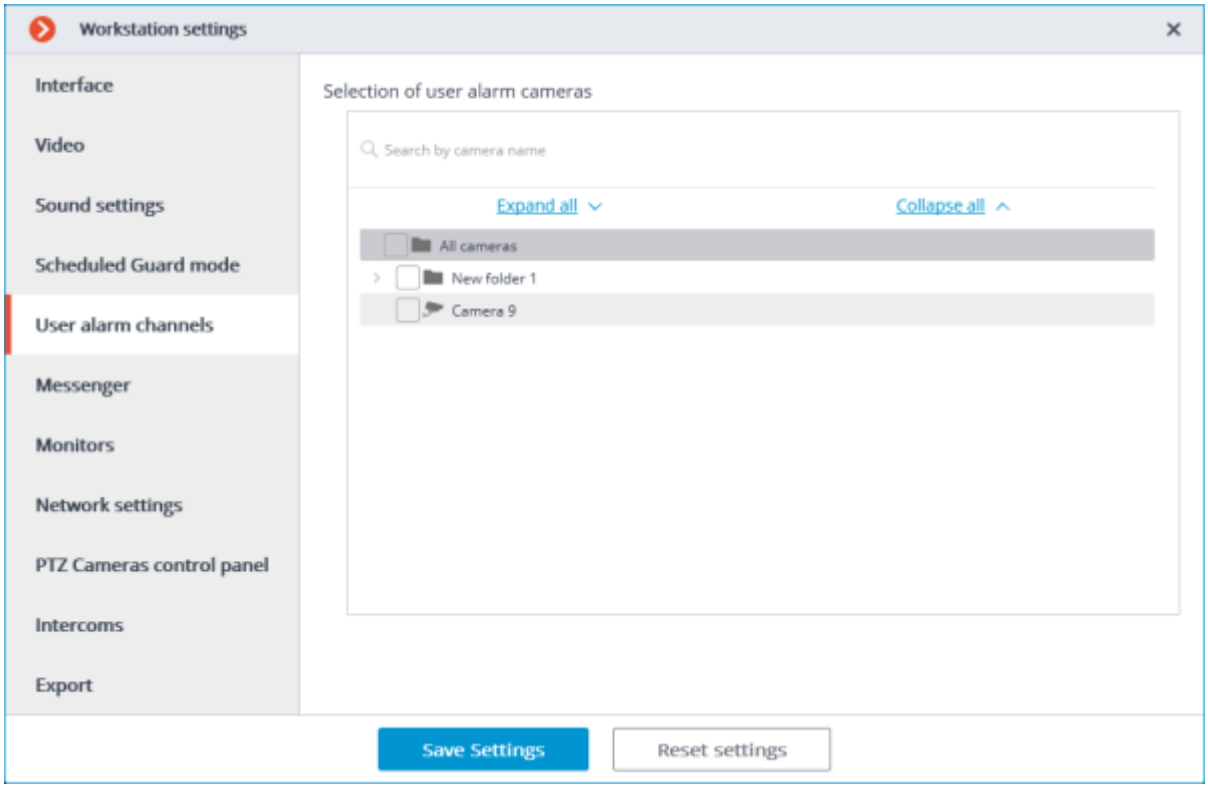
To enable the Guard mode, select the camera in the list, click it and set up a schedule under the list.

The **Search by camera name** field allows you to quickly find and select cameras and security objects containing the entered text.



Blue periods mark when the channel should be in the Guard mode. Left-click the schedule to set a mark and right-click to remove it. If **Use one schedule for all days of the week** is selected, the schedule will be the same for the whole week.

User alarm channels

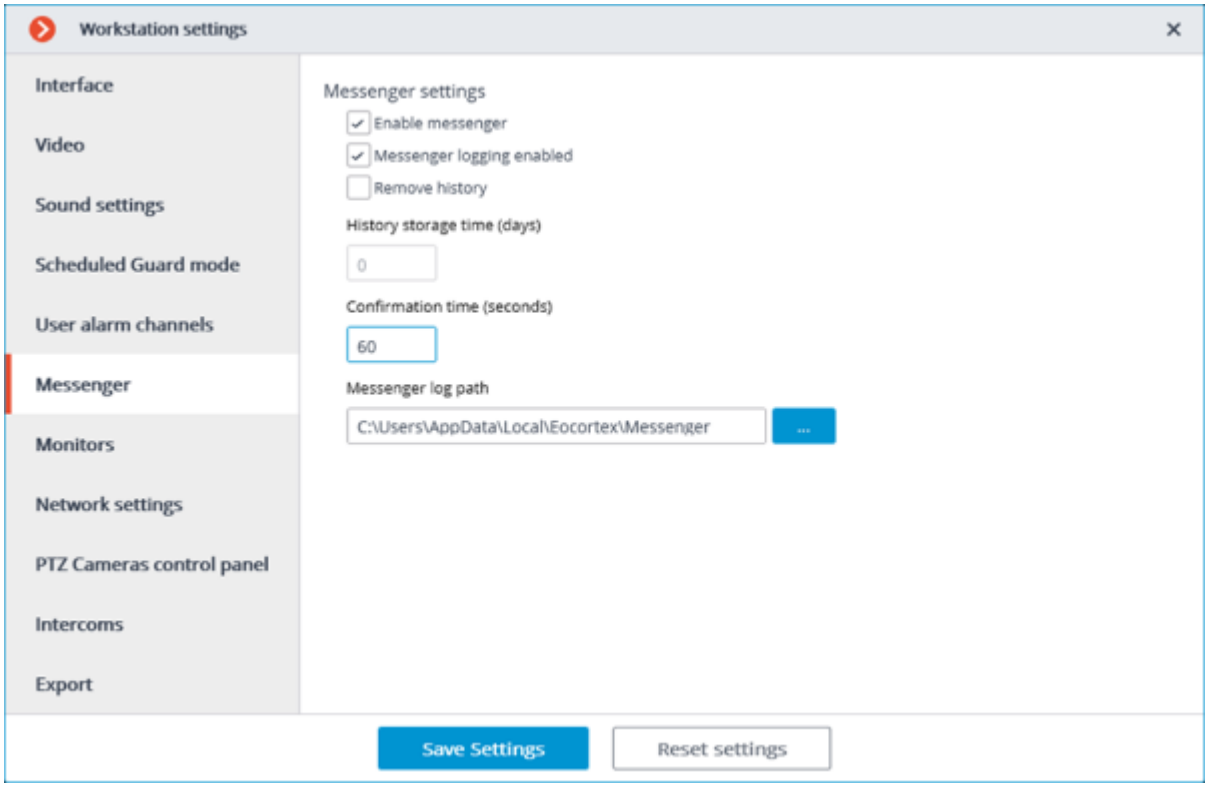


User alarm is an alarm that is generated in **Eocortex Client** if the operator presses the **Alarm activate/deactivate** button located on the Control panel near the clock. Action to be performed in this case is set in **Eocortex Configurator** application.

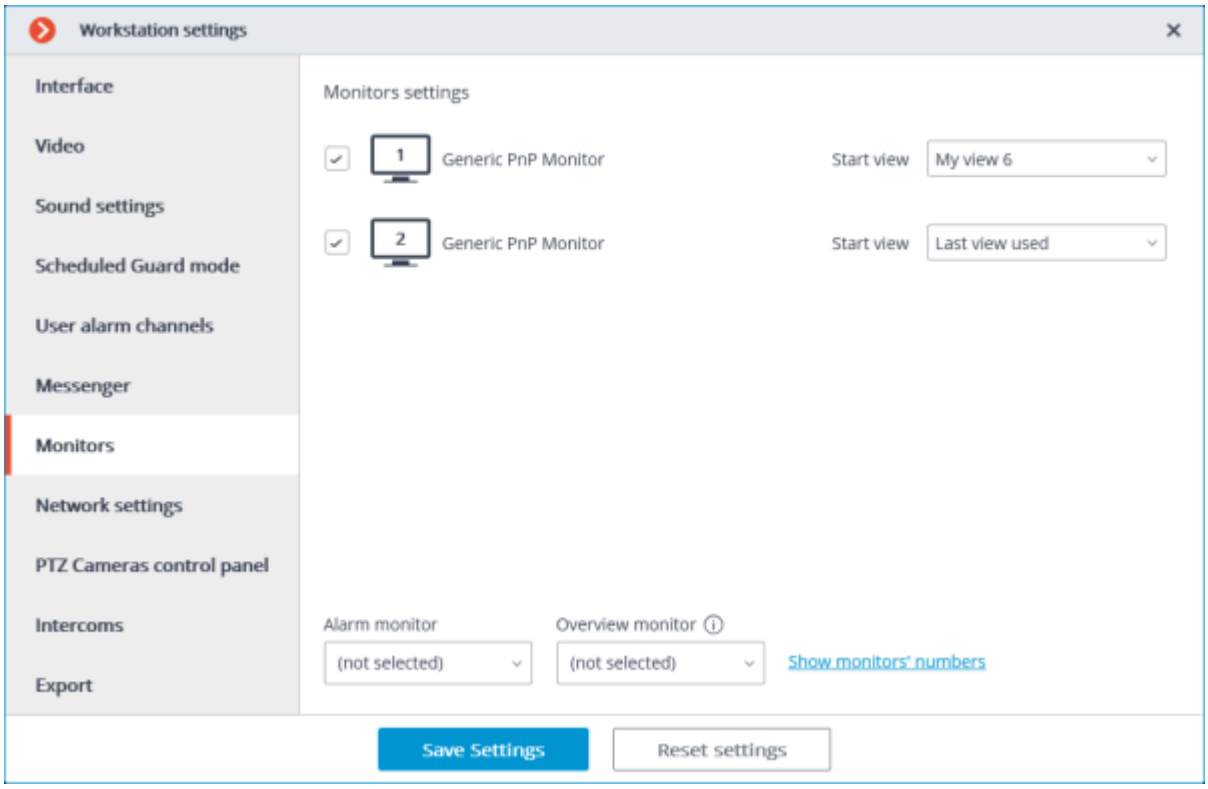
To set cameras to generate **User alarm** after the **Alarm activate/deactivate** button is pressed, select these cameras in the list.

Messenger

This capability is not present in all types of licenses.



Monitors



This tab displays all monitors connected to the computer. Select monitors if you want **Eocortex Client** to use them.

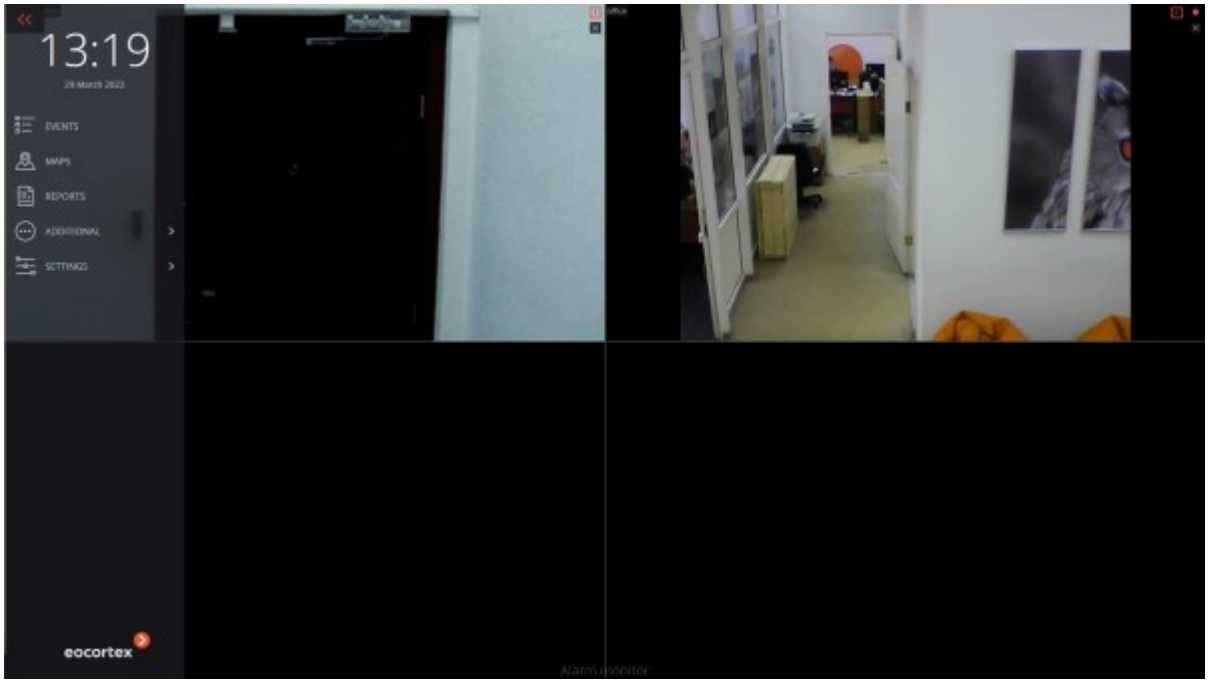
If multiple monitors are connected to the computer, one of the monitors can be used as an **Alarm monitor** or **Overview monitor**.

The same monitor cannot be both alarm and overview monitor at the same time.

When clicking **Show monitors' numbers** button on the monitors, their numbers are displayed.

Alarm monitor

The **Alarm monitor** displays cameras in the state of **Alarm**.



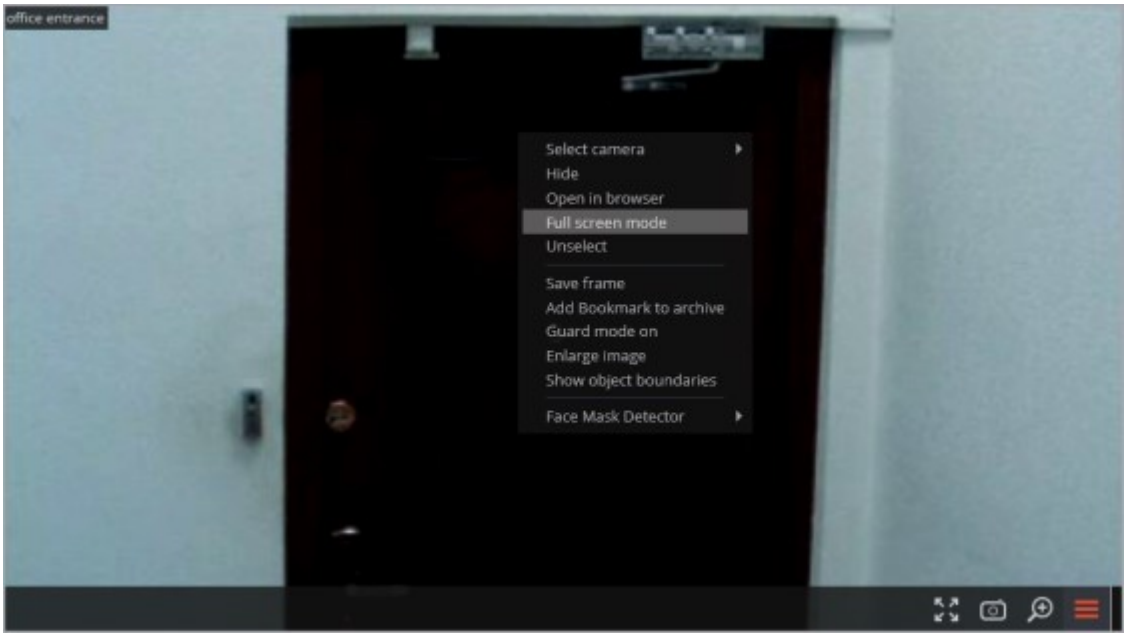
Overview monitor

The **Overview monitor** is used to view any camera in full screen mode on a separate monitor.

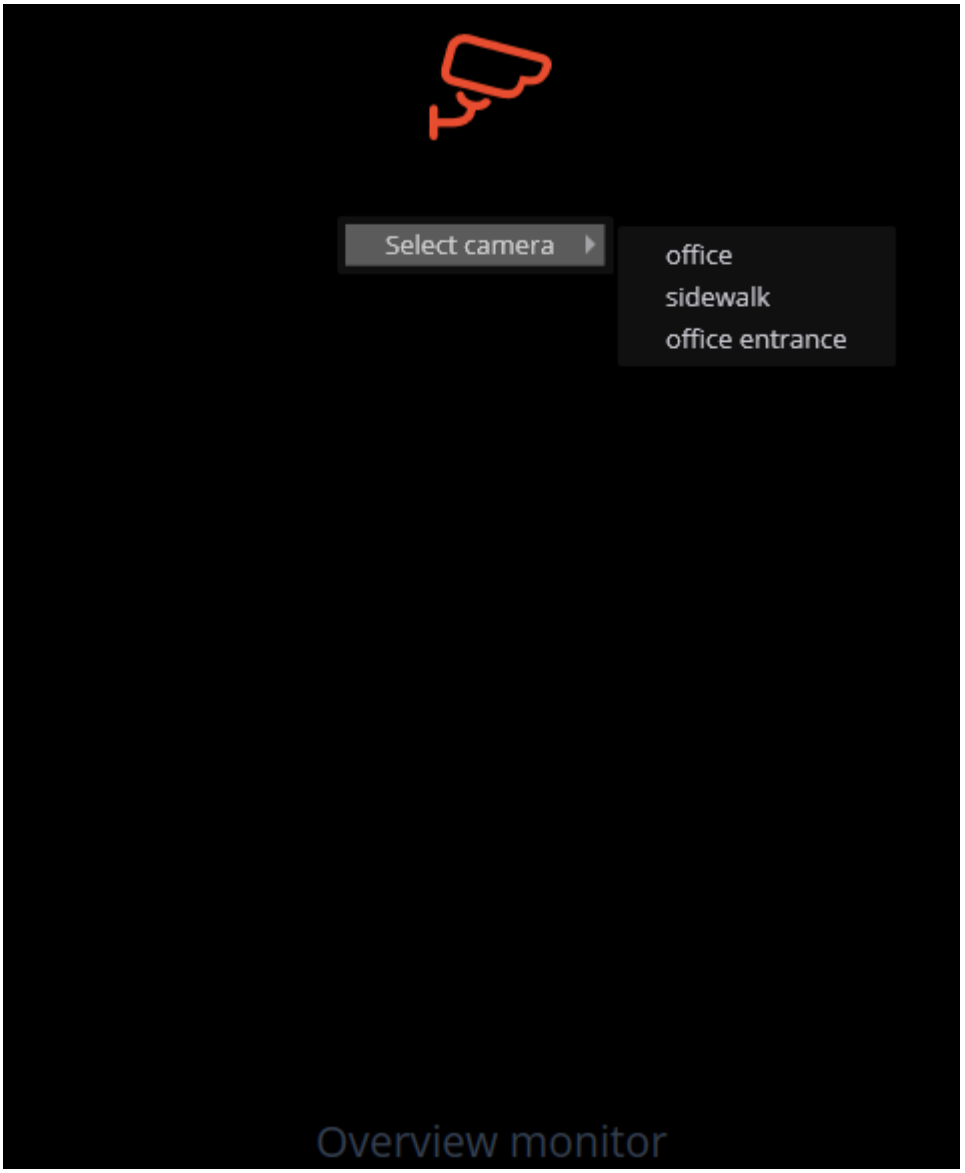
Viewing a camera is performed as follows:

double-clicking in the cell of the main or alarm monitor;

clicking on the button **Full screen mode** in the cell or in the context menu of the camera on the main monitor;



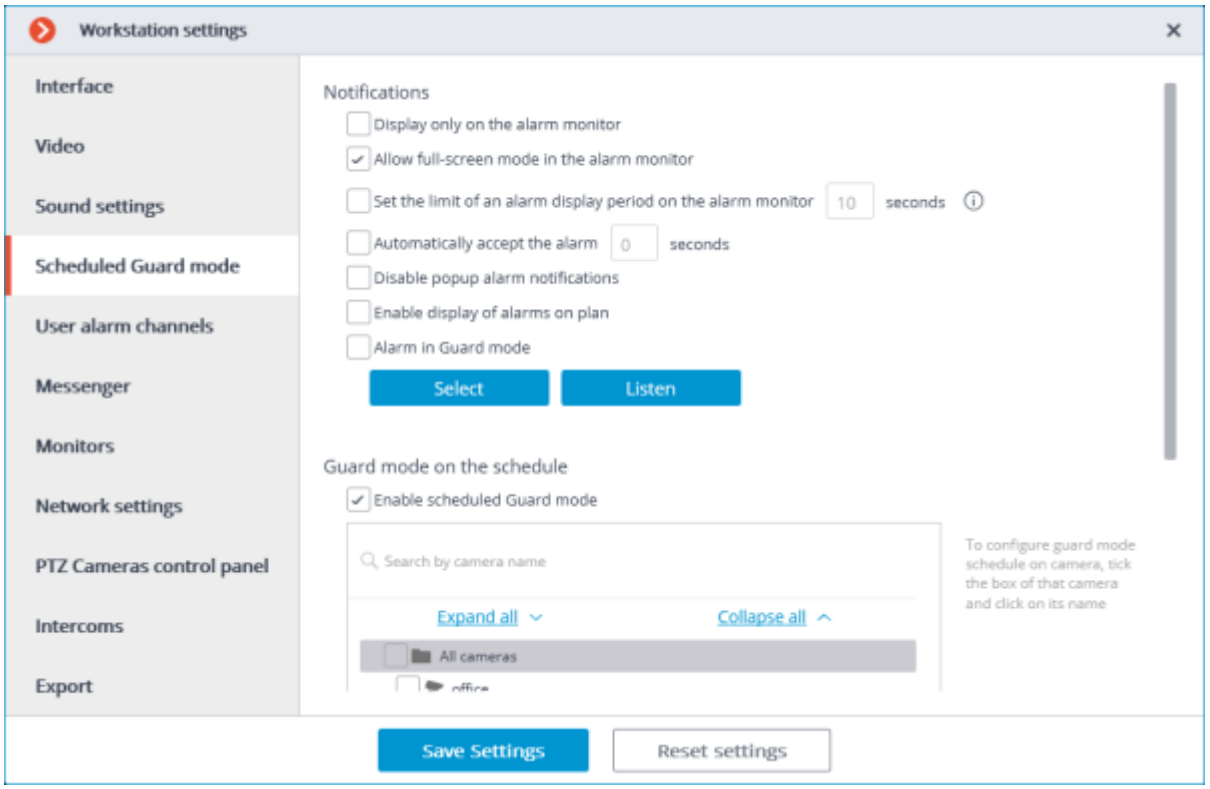
using the context menu of the Overview monitor.



Opening a camera on the overview monitor is available both from the grid of real-time cells or from the archive.

If a camera is opened on the **Overview monitor** from the archive cell, the video will continue from the moment when the transition was made.

To open the alarm monitor cells on the overview monitor, it is required to select the **Settings** item in the control panel, then the **Workplace settings** sub-item, then go to the **Sheduled Guard mode** tab and enable the **Allow full-screen mode in the alarm monitor** option.

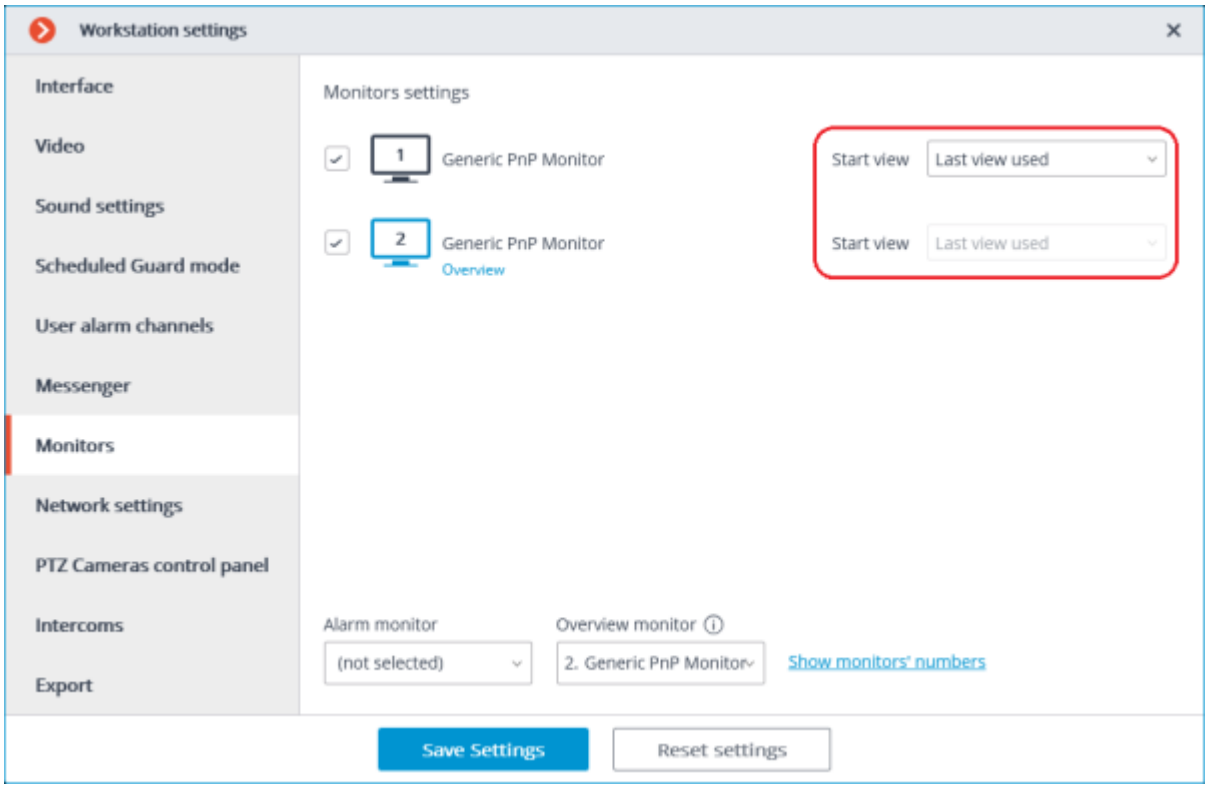


Opening the **Alarm monitor** cells on the **Overview Monitor** is possible if more than one camera is open on the **Alarm monitor**.

Start view

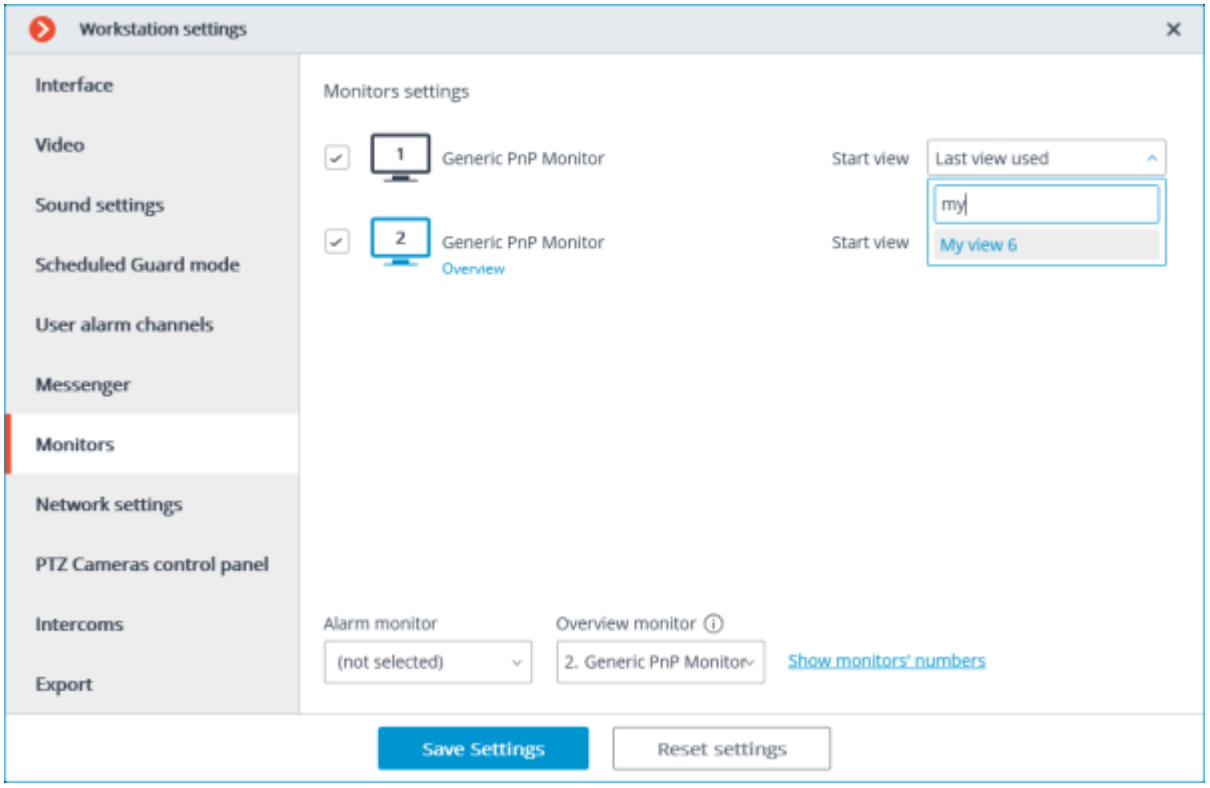
Start view allows to set the start view for each monitor when the **Eocortex Client** application is opened.

By default, the last view is used as the start view for each monitor.

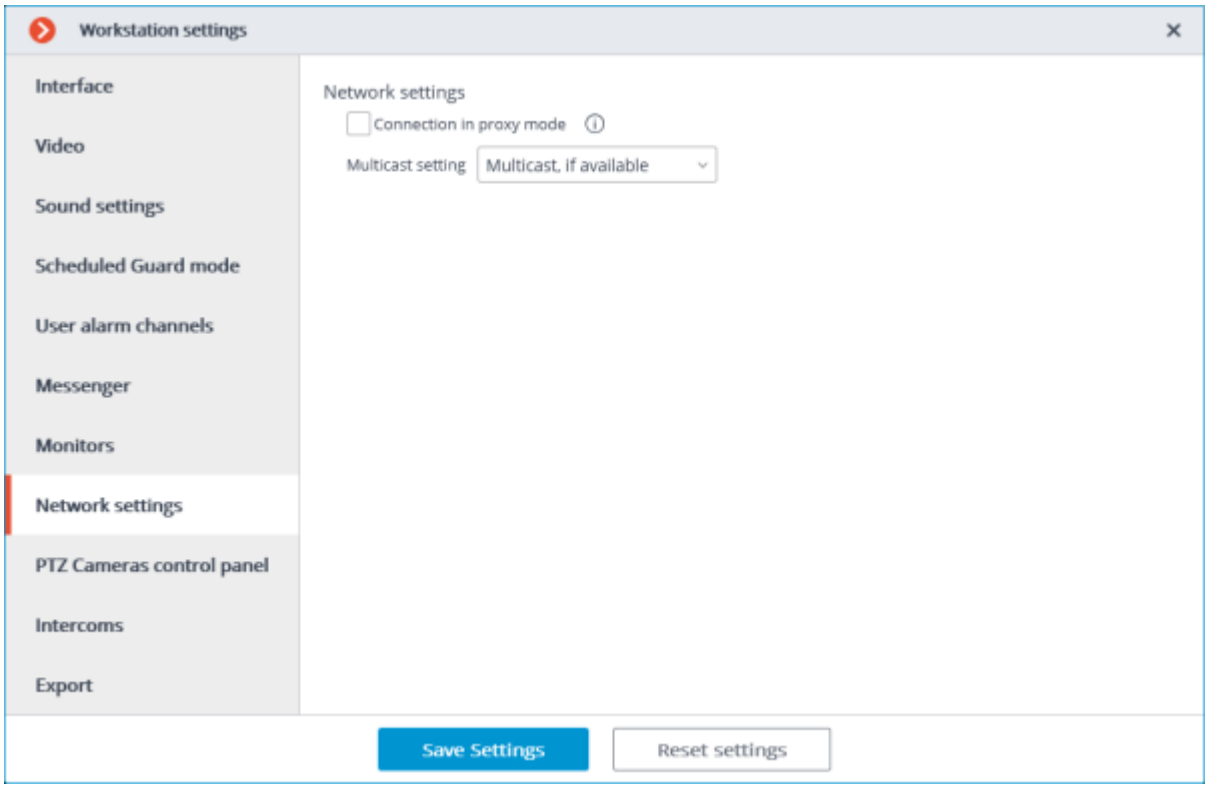


For the alarm and overview monitors, the start view setting is not available.

It is possible to select a start view from the drop-down list or enter a part of or the full name of the view in the input field. The list will be automatically filtered.



Network settings

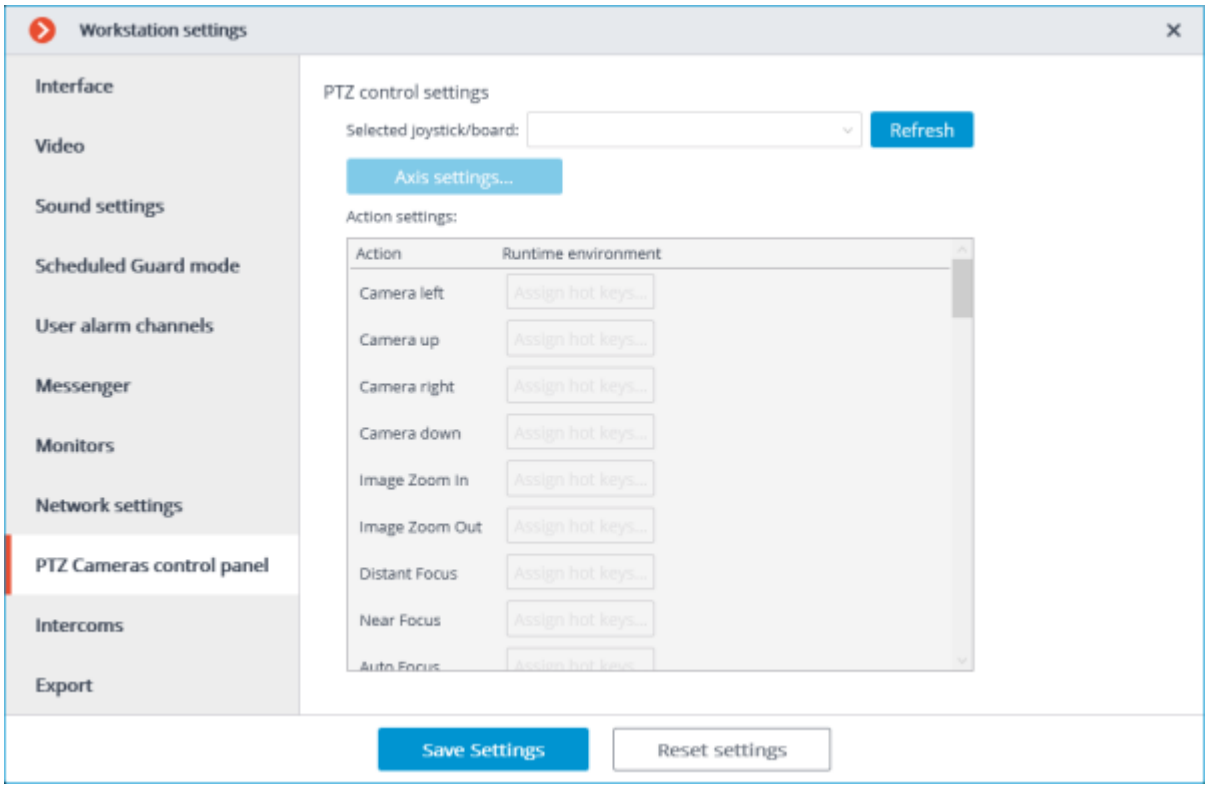


Connection in proxy mode: this option is used when the system includes several video servers: if checked, **Eocortex Client** will receive all real-time video streams and historical records by connecting to only one Eocortex server (this server, in turn, will receive data from other servers and send it to **Eocortex Client**); otherwise **Eocortex Client** will connect directly to those servers, which channels are displayed (i.e., simultaneous connection to multiple servers is possible).

Multicast setting: allows selecting a broadcasting mode for this computer.

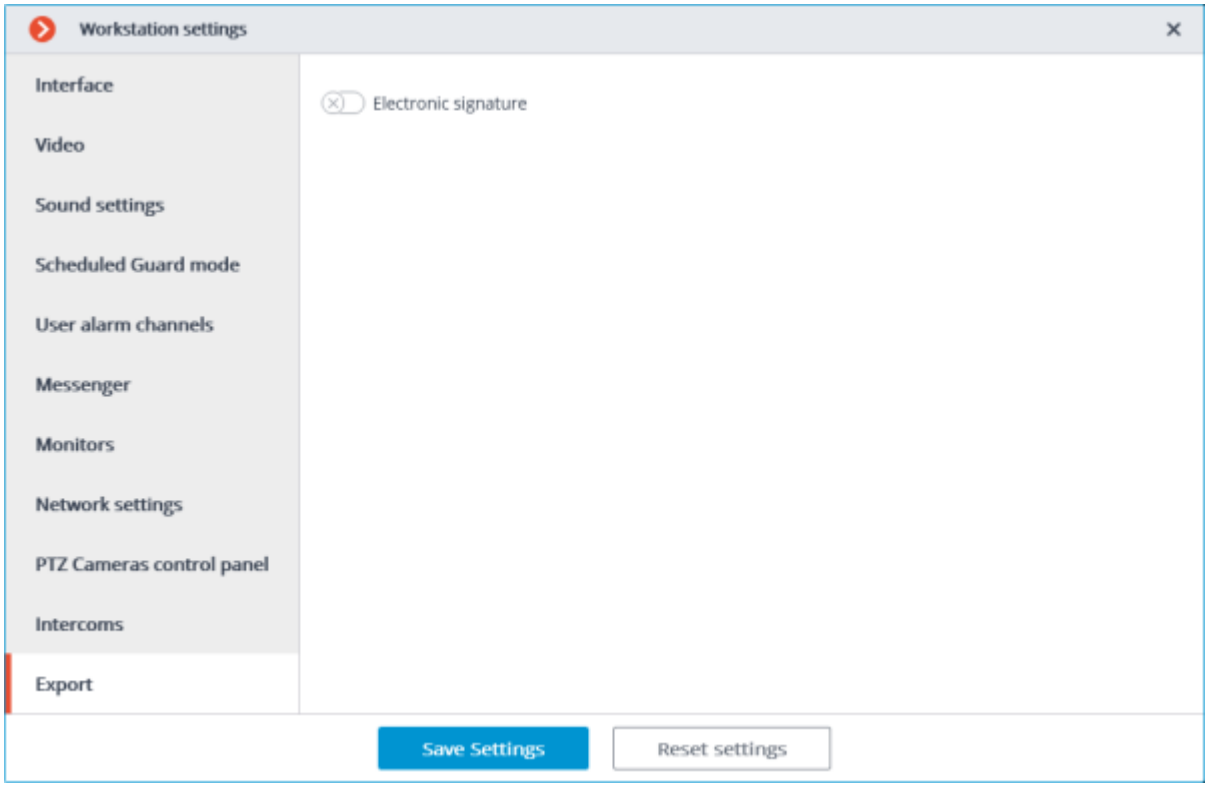
- **Multicast, if available**: channels with all broadcasting modes will be received.
- **Multicast only**: only **multicast** channels will be received.
- **Unicast only**: **unicast** (default) channels will be received.

PTZ Cameras control panel



On the **PTZ Cameras control panel** tab you can configure the remote control or joystick parameters.

Export



Electronic signature can be enabled on this tab.

Eocortex Web-client

Eocortex Web-client allows viewing live video, system archive and Event log in browsers that support **HTML5**.

In **Eocortex**, starting from version 3.5, support for the **Internet Explorer** browser has been discontinued.

Features

View one or more cameras in a live view.

Playback the archive of the selected camera.

Listen to the sound from the selected camera.

Control PTZ functionality of the selected camera.

Save frames — both from a live view, and an archive playback.

View the zoomed frame part — both in a live view, and an archive playback.

View both system and user events.

Filter, sort, and search for events in the log.

Launch ang log into the system

To start a **Eocortex Web-client**, type in the address bar of the browser the following

```
http://<IP_address_or_URL_of_server>:<port>
```

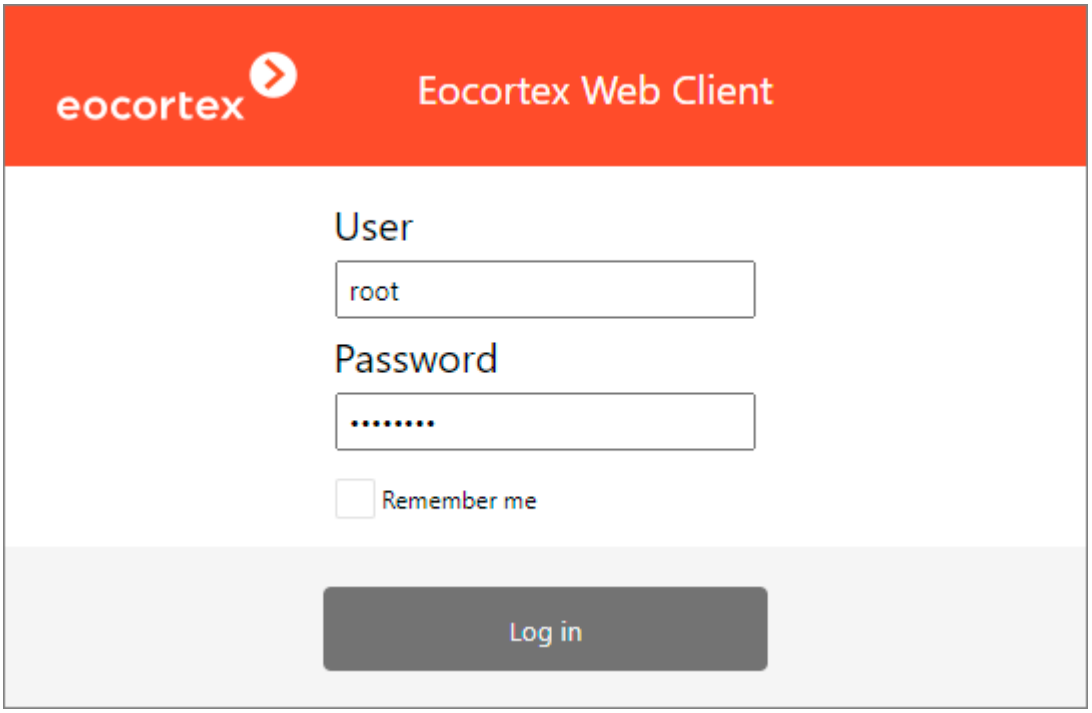
or for the secured connection

```
https://<IP_address_or_URL_of_server>:<SSL_port>
```

Examples:

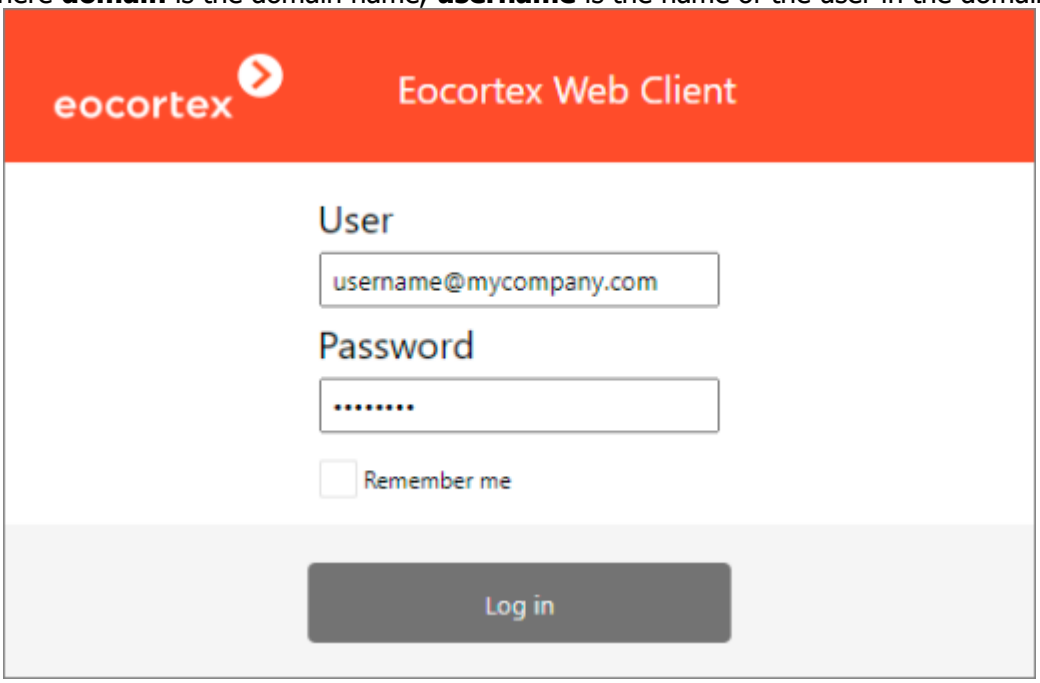
```
http://192.168.1.100:8080
http://server.company.com:9090
https://192.168.1.100:18080
https://server.company.com:18080
```

In the opened authorization form, enter the user name and password, then click Connect.

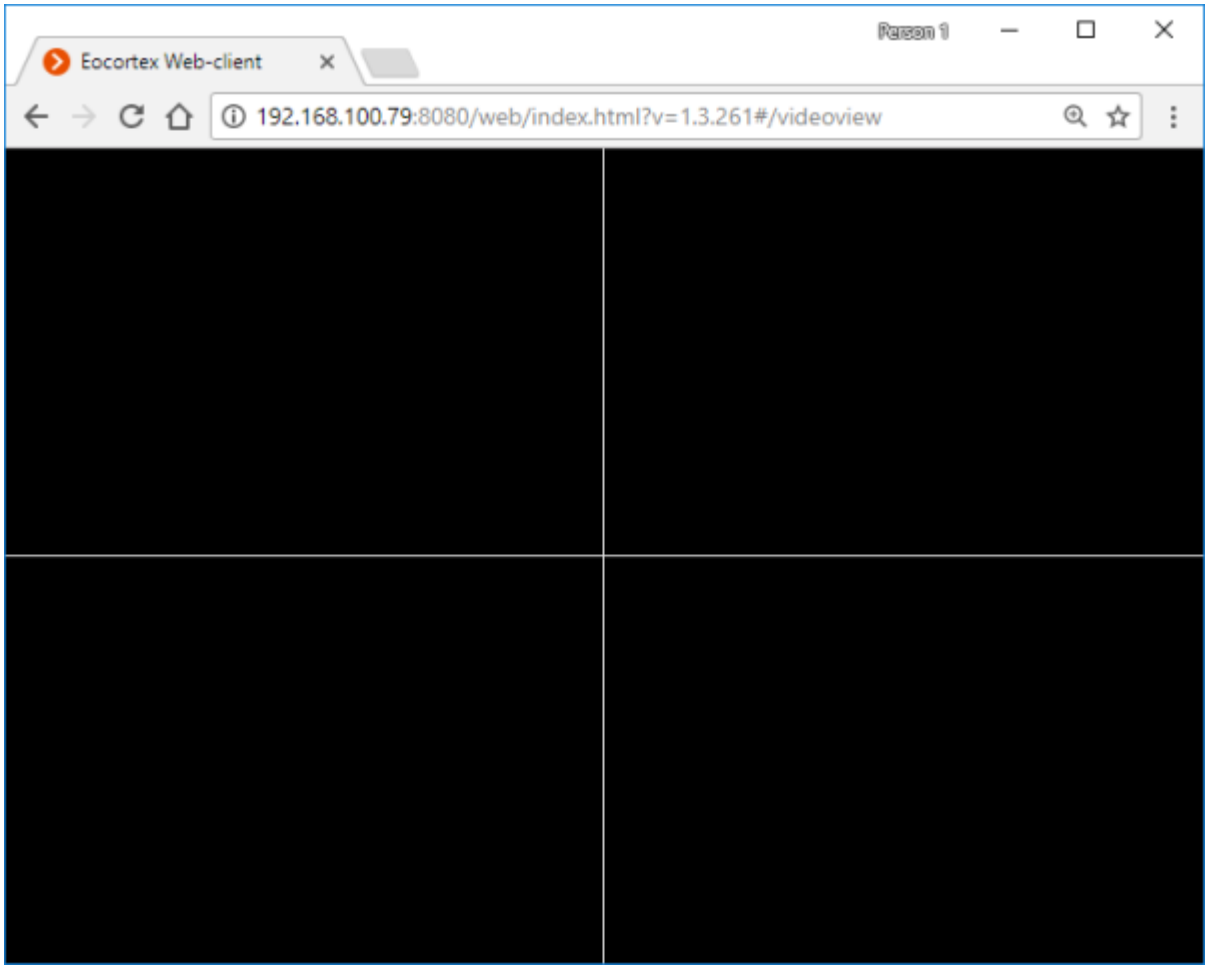


It is possible to connect to **Eocortex** servers running with **Enterprise** and **ULTRA** licenses under **Active Directory** account, if the administrator of the video surveillance system has configured such functionality for the user.

For **Active Directory** accounts, the user name is specified as: **username@domain**; where **domain** is the domain name, **username** is the name of the user in the domain.



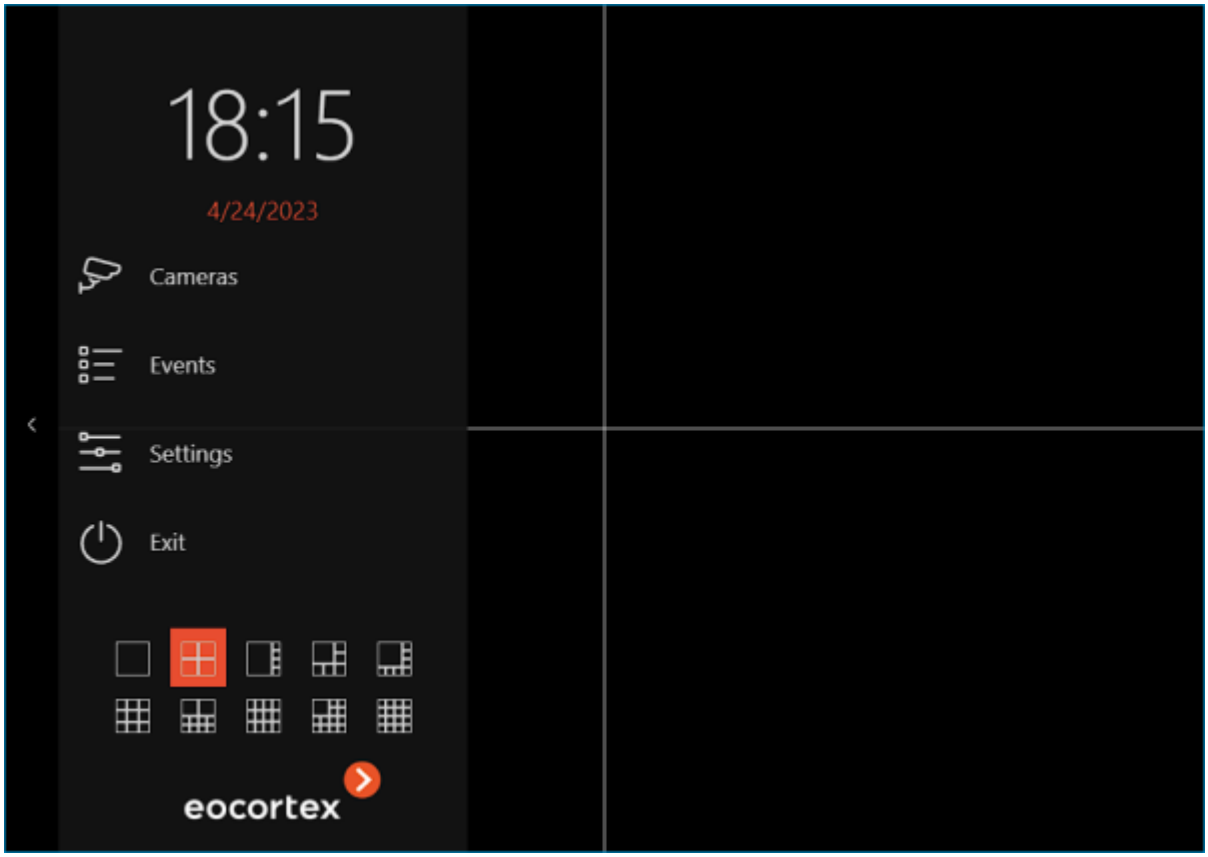
In the course of first starting, a blank page (without display from the cameras) will be opened.



Usage

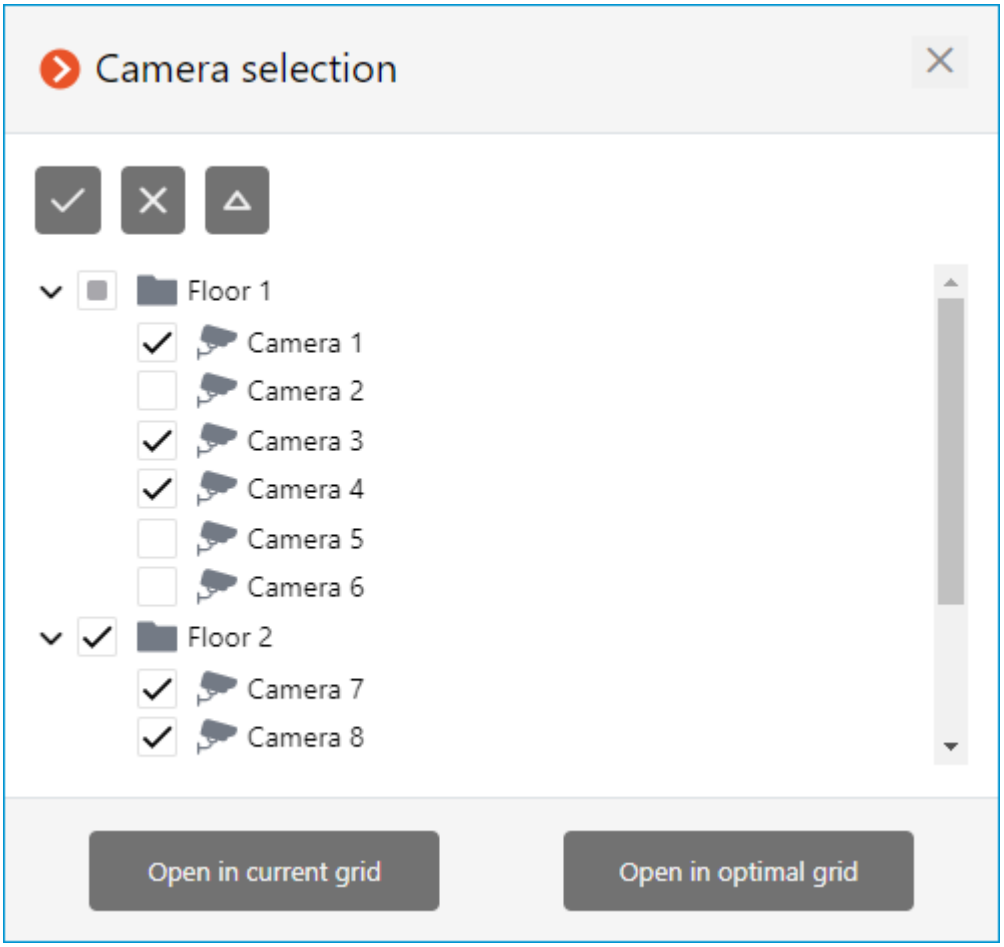
Control panel

The controls in **Eocortex Web-client** are similar to the controls in the **Eocortex Client** application. Clicking by the left border of the window opens the control panel.



The following is a description of the control panel items:

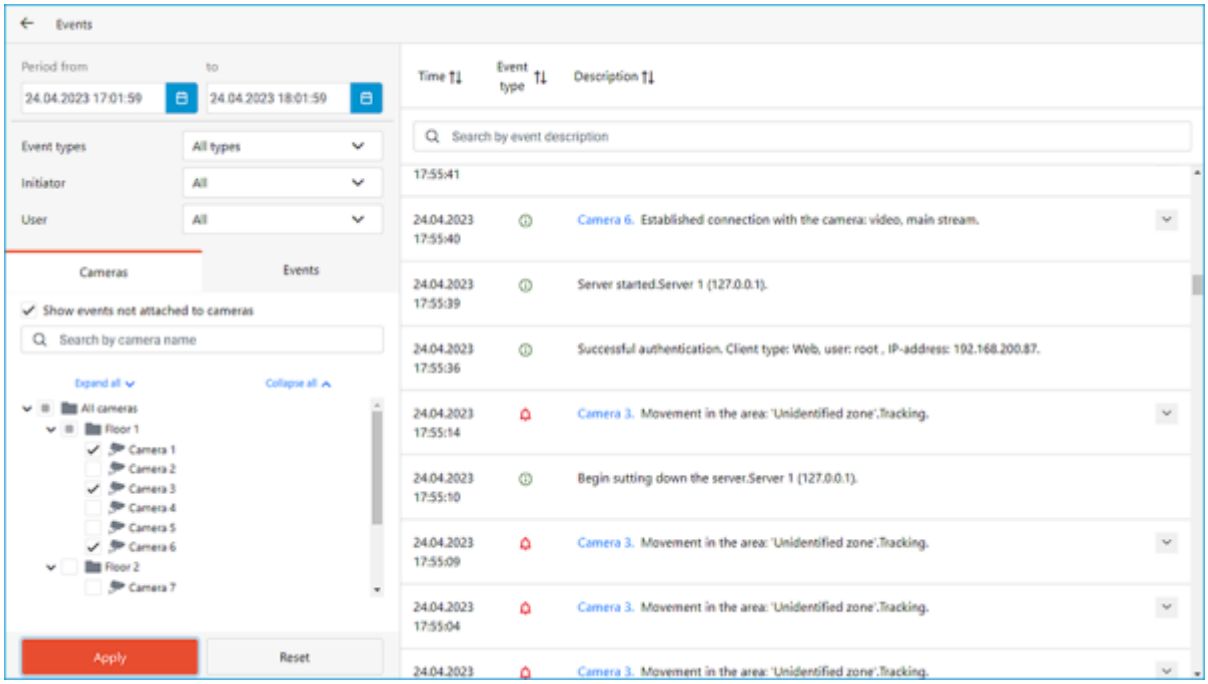
Cameras: allows selecting cameras that will be displayed on the screen.



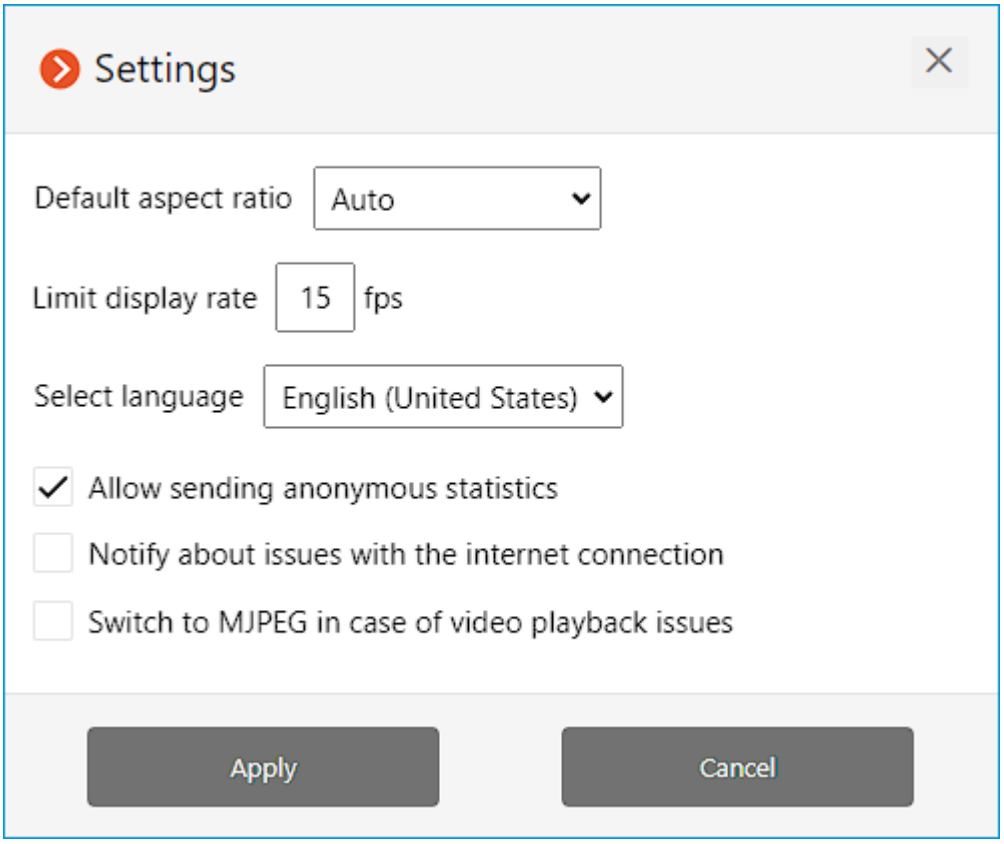
Clicking the **Open in the current grid** button places selected cameras to the cells of the currently used grid.

Clicking the **Open in the optimal grid** button automatically changes the selected grid to the most suitable to display all selected cameras with the minimum of empty cells.

Events: opens the **Event log**, where the events can be viewed, filtered, sorted and searched in the list of system and user events.

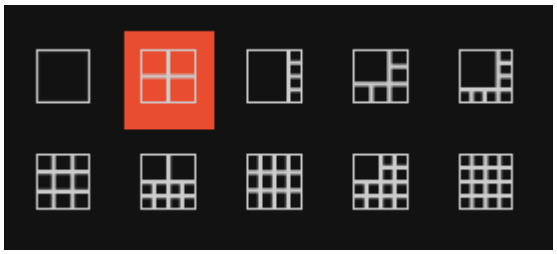


Settings: allows to change the operational parameters of **Eocortex Web-client**.



Exit: allows returning to the authorization screen.

The bottom part of the application control panel contains the grid selection section.

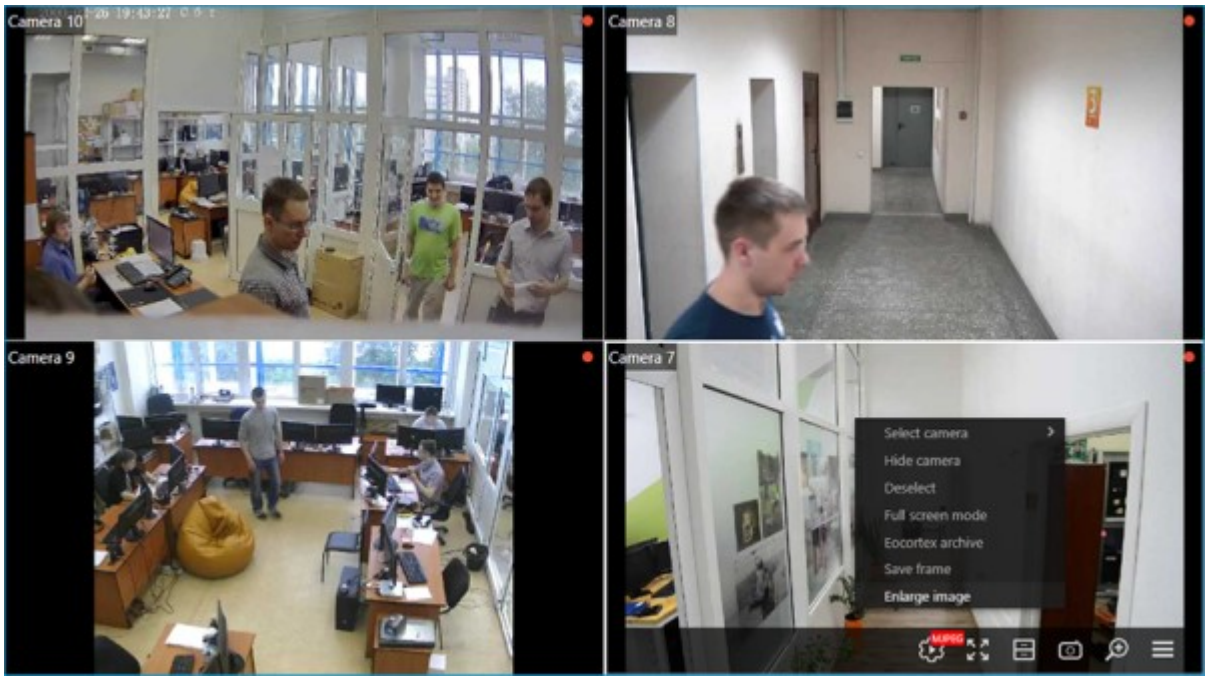


On-screen grid cell

Grid cells display live and archive video of the selected cameras. One of the cells can be selected as active. The active cell is highlighted with a frame. To activate the cell, click inside it.

To call the context menu of the channel, right-click in the cell of that channel, or click to the icon in the active cell.

The contents of the context menu items and the active cell buttons depend on the camera and application settings.



The following is a description of items in the context menu and control buttons:

Select camera: allows selecting the camera which will be displayed in the cell.

Hide camera: allows hiding the camera (clears the cell).

Deselect: removes the selection from the cell (makes the cell inactive).

Full-screen mode: expands the cell to the entire browser window.

The change between the grid mode and full-screen mode can also be performed by double-clicking in the grid cell.

Eocortex Archive: opens archive of the selected camera recorded on the server.

Save frame: saves the current frame to disk. When this menu item is selected (or after clicking on the icon), the window for the selection of the location and name of the file to be saved will open.

Enlarge image: displays the enlarged area of the frame. To enlarge the frame area, select this item in the context menu or click the corresponding button and draw the frame over the area to be enlarged. Enlarging mode can be disabled by clicking the middle mouse button.

Camera control interface: displays PTZ control elements.

Stream selection: Allows to choose the stream to display in the camera cell.

The following streams are available:

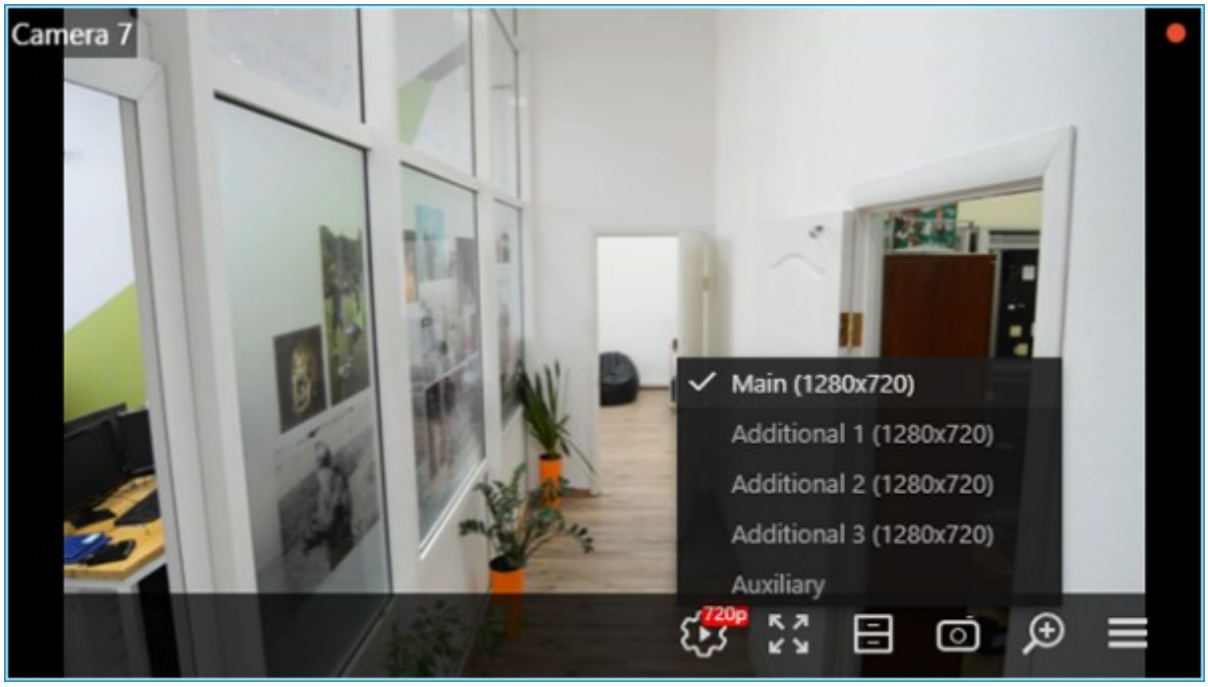
Main

Additional 1

Additional 2

Additional 3

Auxiliary



Both main and additional streams are available for selection only in case if they are encoded to H.264 video codec in the source and the browser is capable to decode and display it.

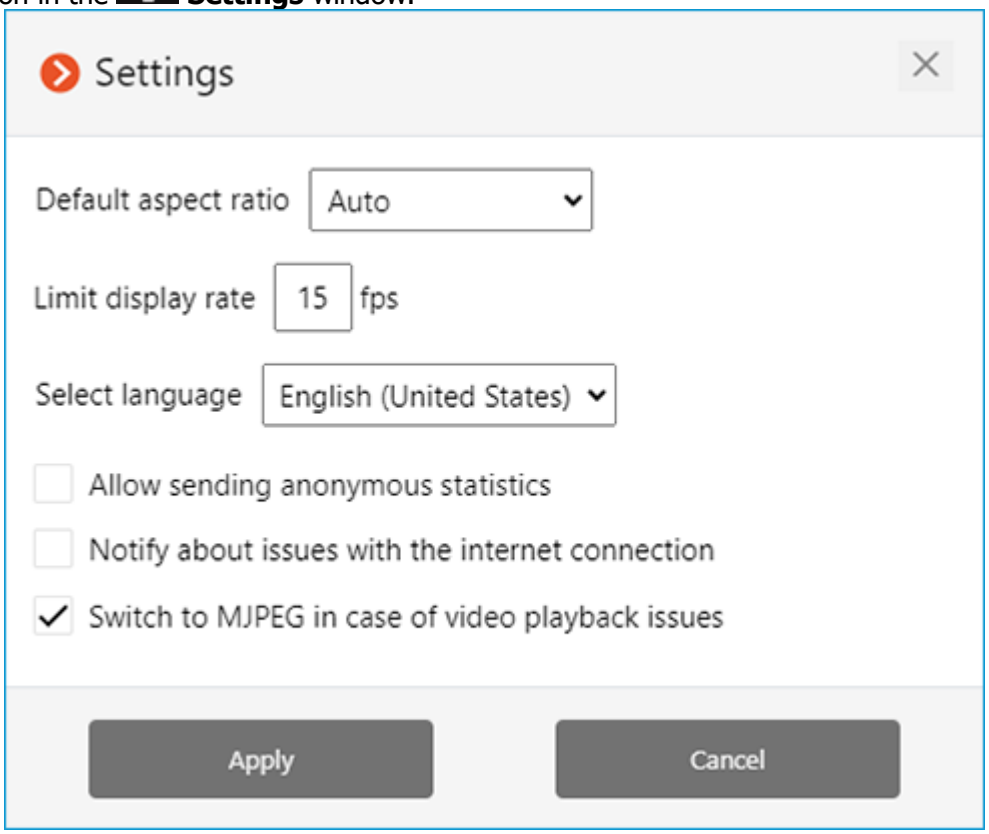
Configuration of video streams should be performed by the surveillance system administrator.

Auxiliary stream will always be available for selection. The server generates this stream in MJPEG from the original stream regardless of what video codec this original stream was encoded.

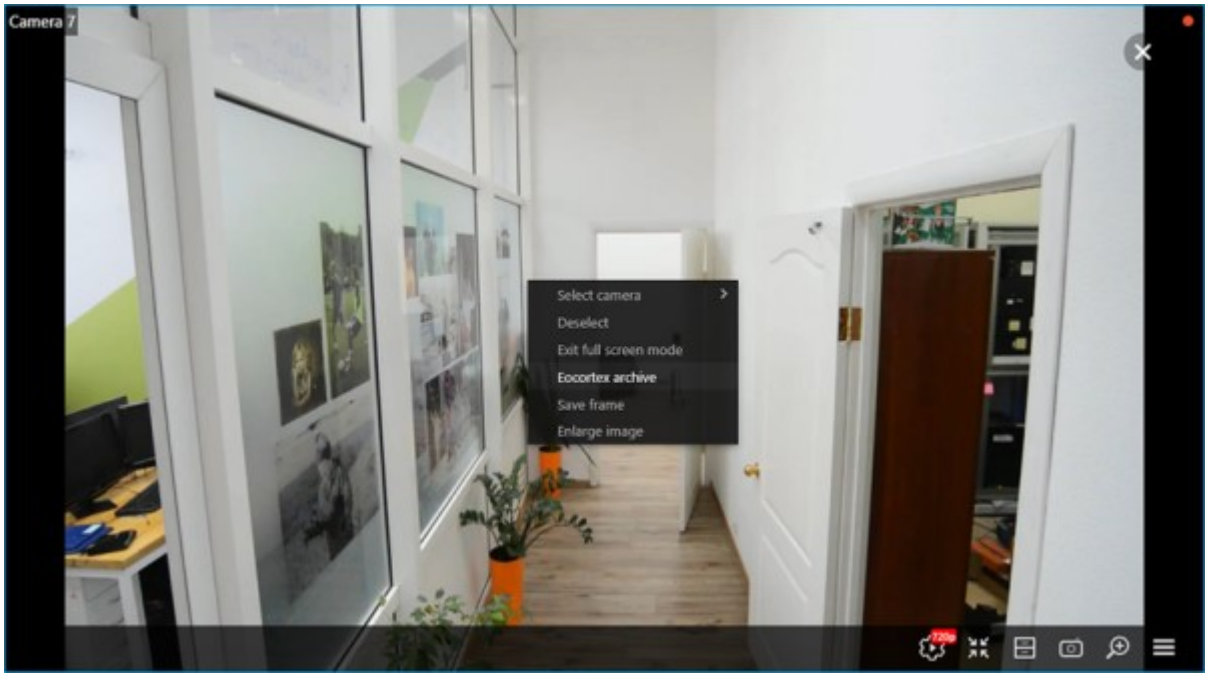
When assigning a camera to the cell for the first time, the auxiliary stream will be displayed by default.

Stream selection settings will be saved for each camera in the cell.

When viewing many cameras in H.264 video codec simultaneously, problems with the playback may occur. In such cases it is recommended to decrease the load to the browser by activating the **Switch to MJPEG in case of video playback issues** option in the **Settings** window.



Full-screen live viewing



The full-screen mode may significantly increase the load to the device where the browser with **Eocortex Web-client** is running. In addition, it may increase consumption of network channel with the surveillance server.

The following is a description of context menu items and buttons specific to full-screen viewing:

Stream selection: Allows to choose the stream to display in the camera cell.

By default, when switching to the full-screen mode, the best available stream with the highest image quality will be selected automatically.
When changing the stream selection for the camera in the full-screen mode, the selection will be saved for this camera.

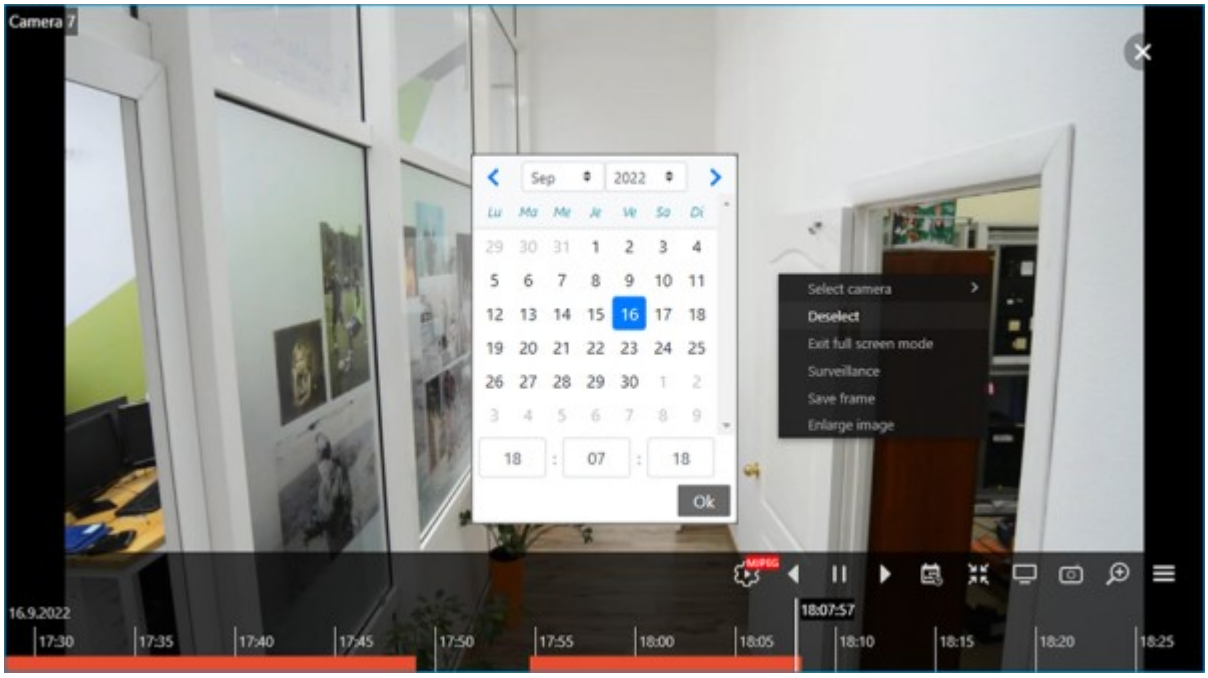
Exit full screen mode: allows returning to the on-screen grid of channels.

Eocortex Archive: opens archive of the selected camera recorded on the server.

Turn sound On / **Turn sound Off**: allows enabling and disabling the sound transmission from the camera.

There may be a gap between the sound and the image that may be up to 1.5 seconds long.

Playback of archive



The scale of time on the Fragments panel can be changed by rotating the mouse wheel.

The following is a description of context menu items and buttons specific to archive playback:

Stream selection: Allows to choose the stream to display in the camera cell.

Choice of stream for archive playback is saved for the camera. Selected stream will be applied to the camera next time when viewing archive.

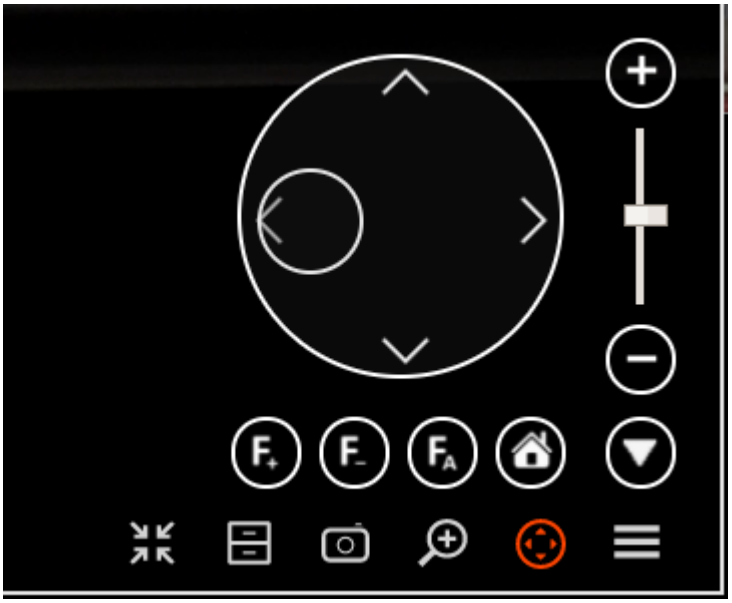
: playback controls: backward, forward, pause.

When playing in backward, the archive recordings will be displayed only in key frames.

: opens the calendar for switching to a set date and time.

Surveillance: switches the cell to live view.

PTZ control



PTZ controls in **Eocortex Web-client** are similar to the controls in the **Eocortex Client** application.

Pan and tilt can be performed with the virtual joystick by dragging a handle (a small circle inside a large circle) with the mouse.

/ : zoom in / out.

/ / : focus control.

: return to camera home position.

Video analytics

Real-time video analytics in the **Eocortex Web-client** is available for the following modules:

- **Face Recognition**;
- **People Counting**.

If the cell size is less than 500×400 pixels (the cell is smaller than a cell in a 4×4 grid), no video analytics are displayed.

If several analytic modules are enabled for the same camera, it is possible to select the data of which module should be displayed on the screen at the current moment.

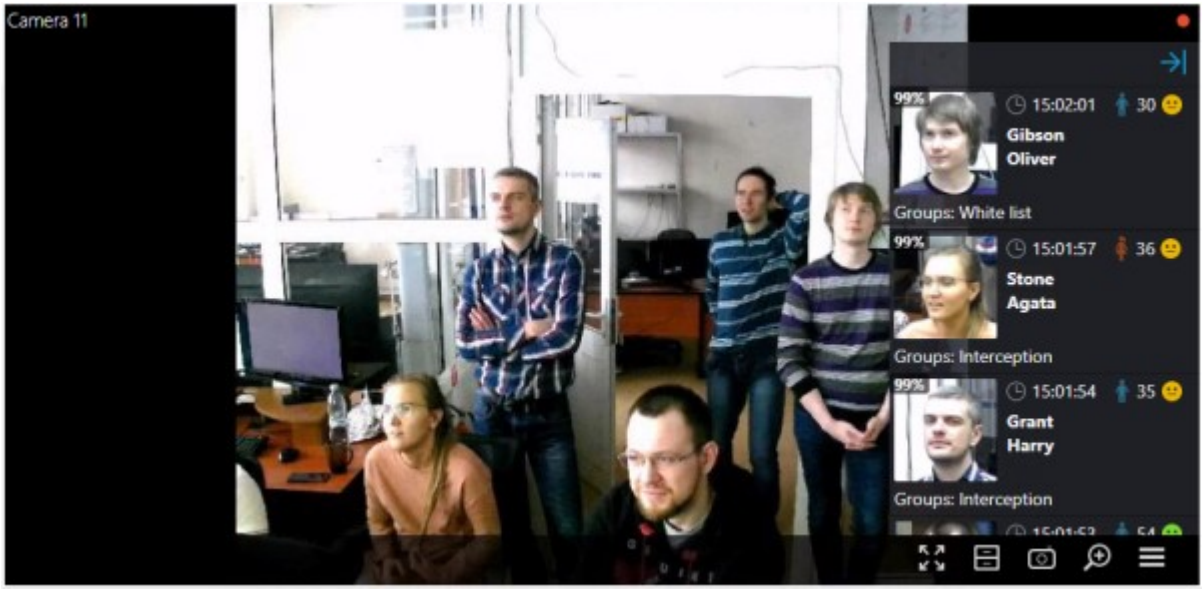
Face Recognition

If **Face Recognition (Complete)** or **Face Recognition (Light)** modules are enabled on the camera, a panel with recognized faces with the date of recognition and full names of the recognized persons will be displayed on the right side of the cell in real time.

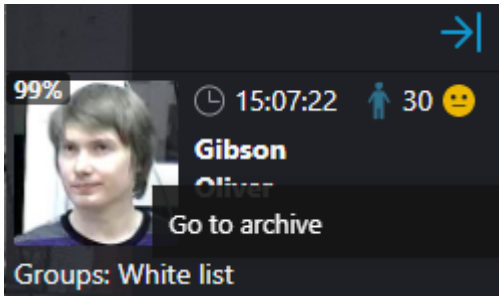
Also, the following data is displayed in the panel upon pressing the button :

- gender;
- age;
- group the recognized person belongs to;
- emotions.

Gender, age and emotions are displayed in the **Face Recognition (Complete)** module only.



In the context menu, depending on whether the person has been identified or not, it is possible to switch to the archive.



The last 50 recognized faces are automatically loaded to the panel from the archive. The maximum capacity of the panel is 200 recognized faces. The panel is overwritten when this number is exceeded.

People Counting

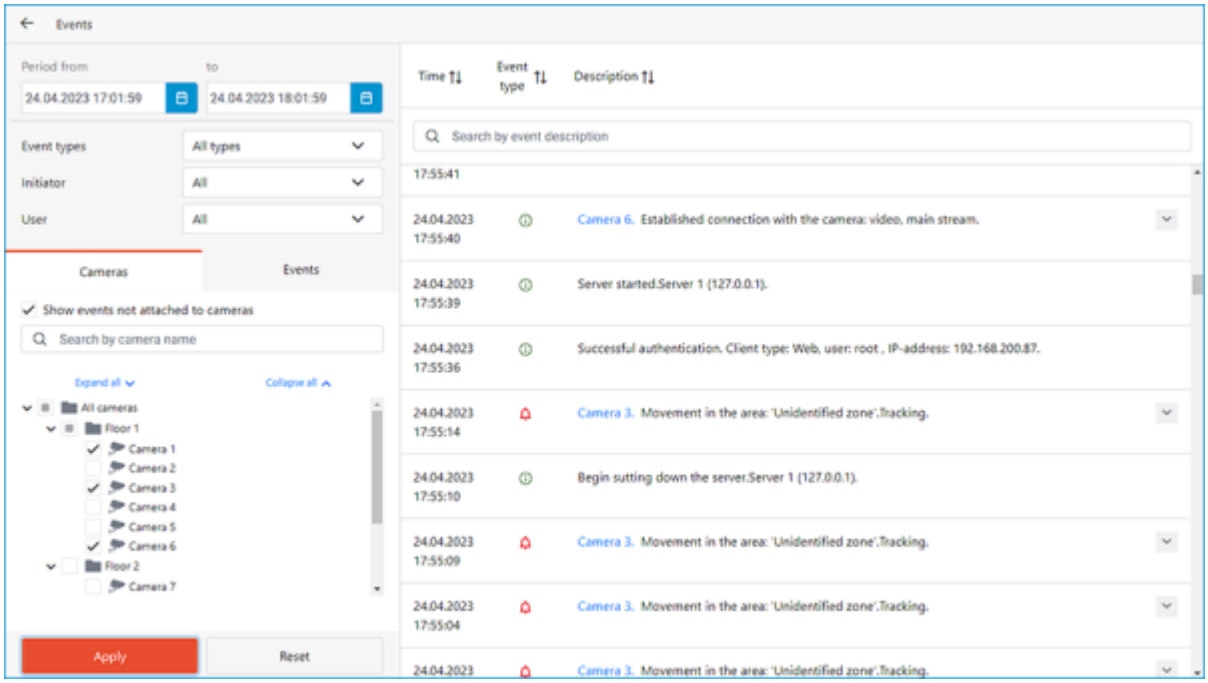
If the **People Counting** module is enabled on the camera, the number of visitors who have entered and exited the premises since the last time the counters were reset will be displayed in the upper right corner of the cell in real time. The time of resetting the counters is set by the system administrator. The administrator can also configure the module in such a way that only entering or only exiting visitors are counted.

Event log

The **Event log** is available only to those system users who have enabled access to it in group settings.

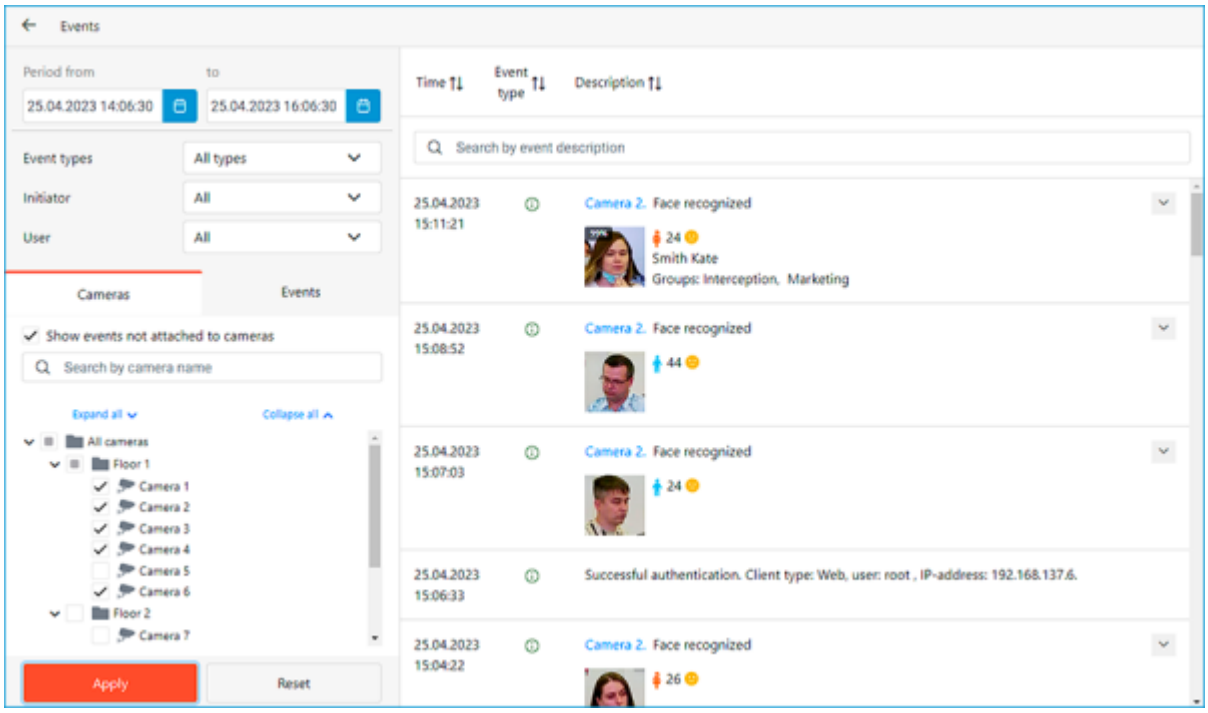
The **Events log** is designed for viewing system and user events.

To switch to the **Events log**, select **Events** from the main menu.



The page with the list of events will open. On the left side of this page is a panel that allows filtering the events. The two panels above the list of events allow sorting events by attributes and searching for events by description.

Events list

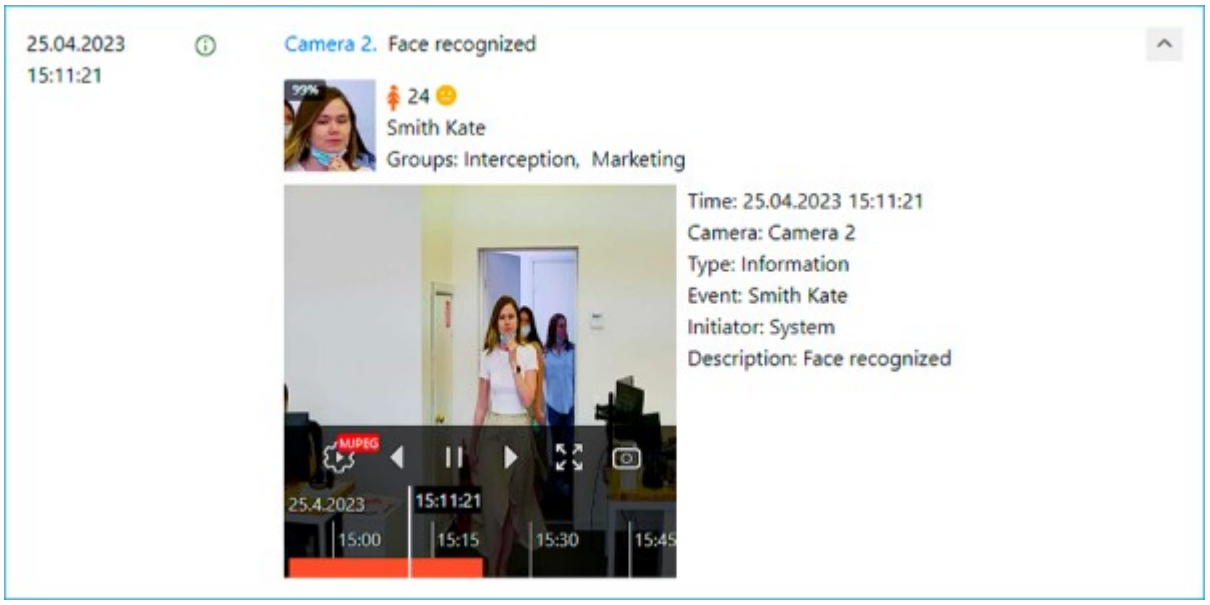


Each event has its **Time**, **Camera time**, **Type** as the icon, and **Event description** displayed.

The **Consider time zones** option must be enabled in the system settings to display the time according to time zone of the camera in the event properties.

The **Event description** contains the name of the event and various attributes related to this event. The list of attributes depends on the event.

If the event is associated with a camera and there is an archive for the time of the event, a frame from the archive will be displayed in the preview window. The archive can be played back in the preview window, and double-clicking on the event opens a full-screen view of the archive.



Events of the Face Recognition module additionally have:

Face image

Gender

Age

Emotion

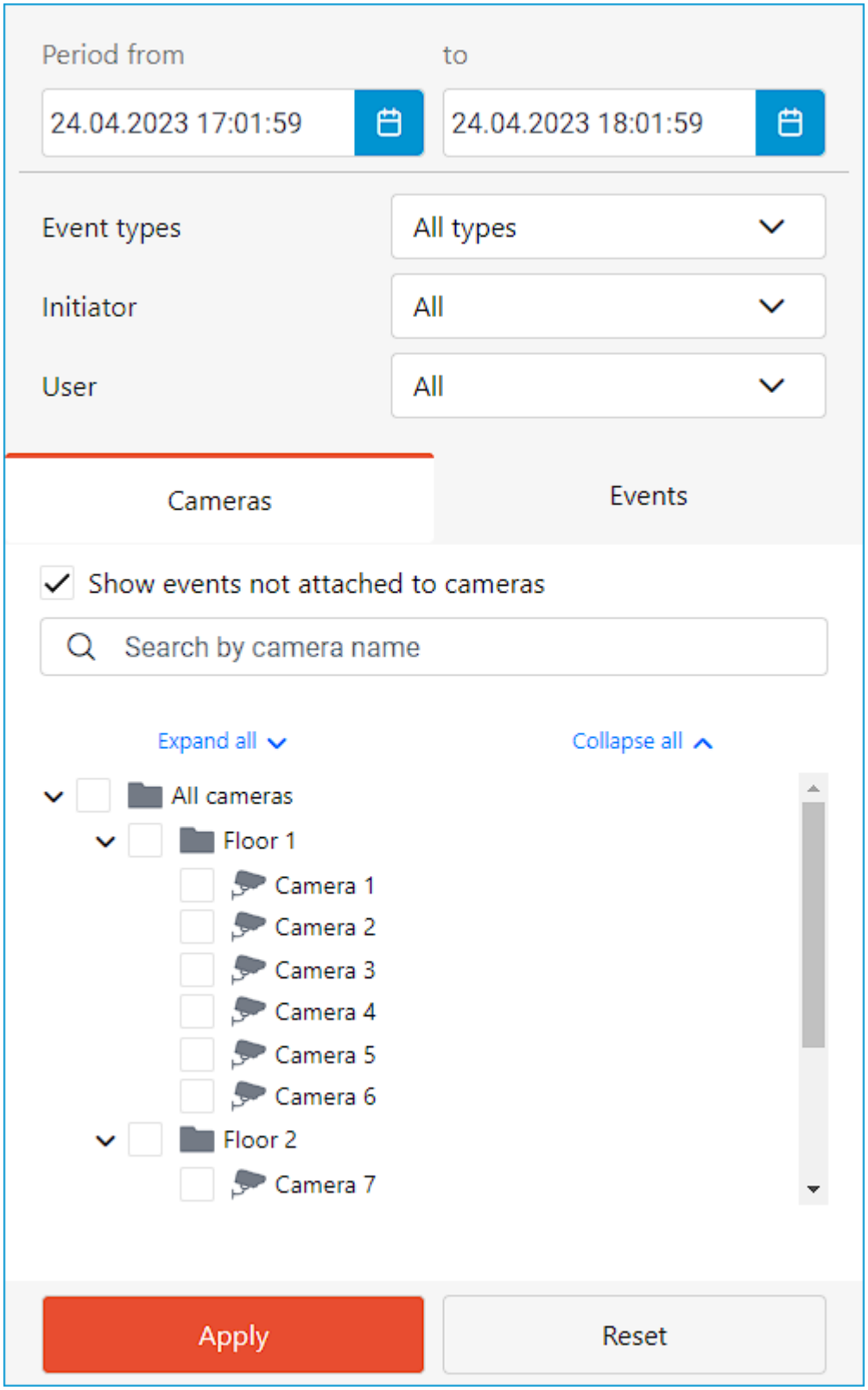
If the face is in the database - given name, group, recognition accuracy

Filter panel

The filter panel allows to define the parameters of displaying events in the log.

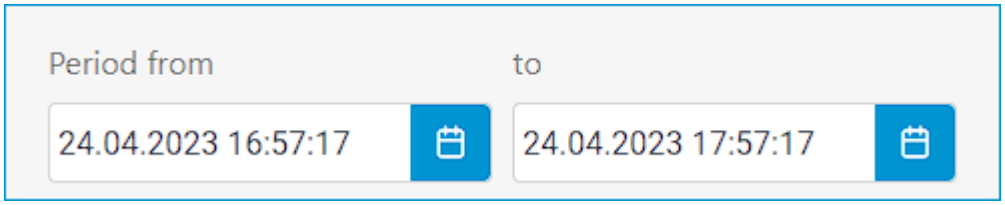
To apply changes to the filter settings, click the **Apply** button.

To reset changes to the original settings, click the **Reset** button.

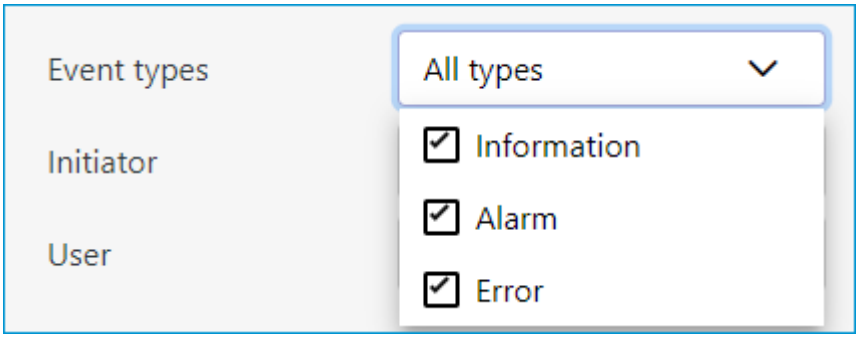


The following filters can be applied to the log:

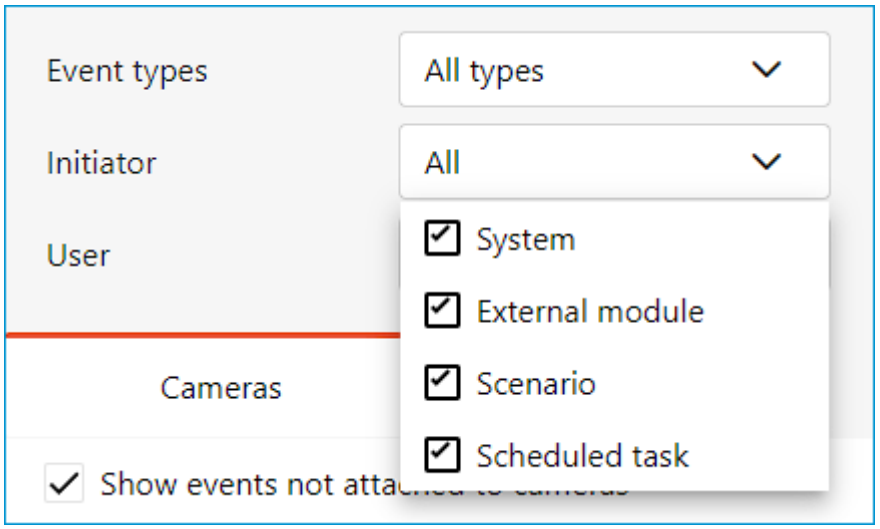
The **Period** filter displays archive events of a given time interval.



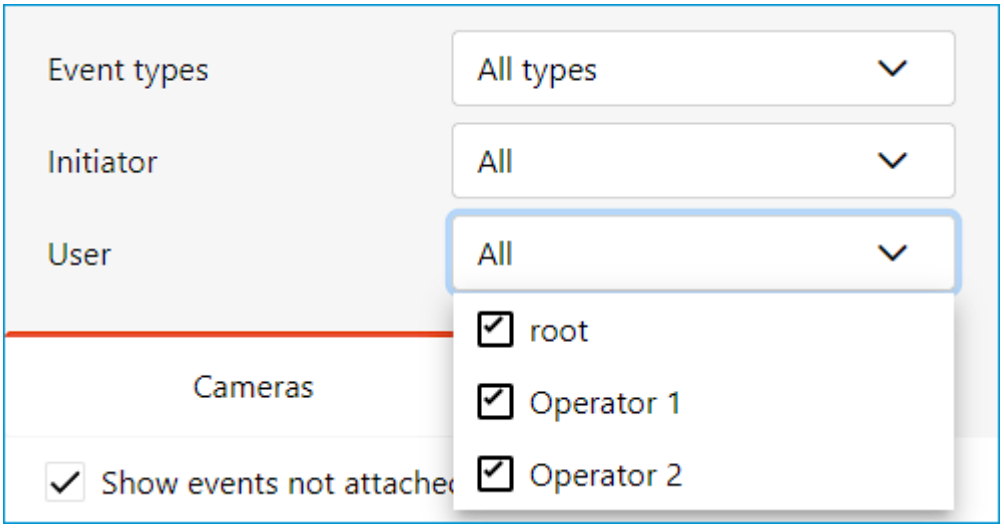
The **Types** filter displays events by type: **Information**, **Alarm**, and **Error**.



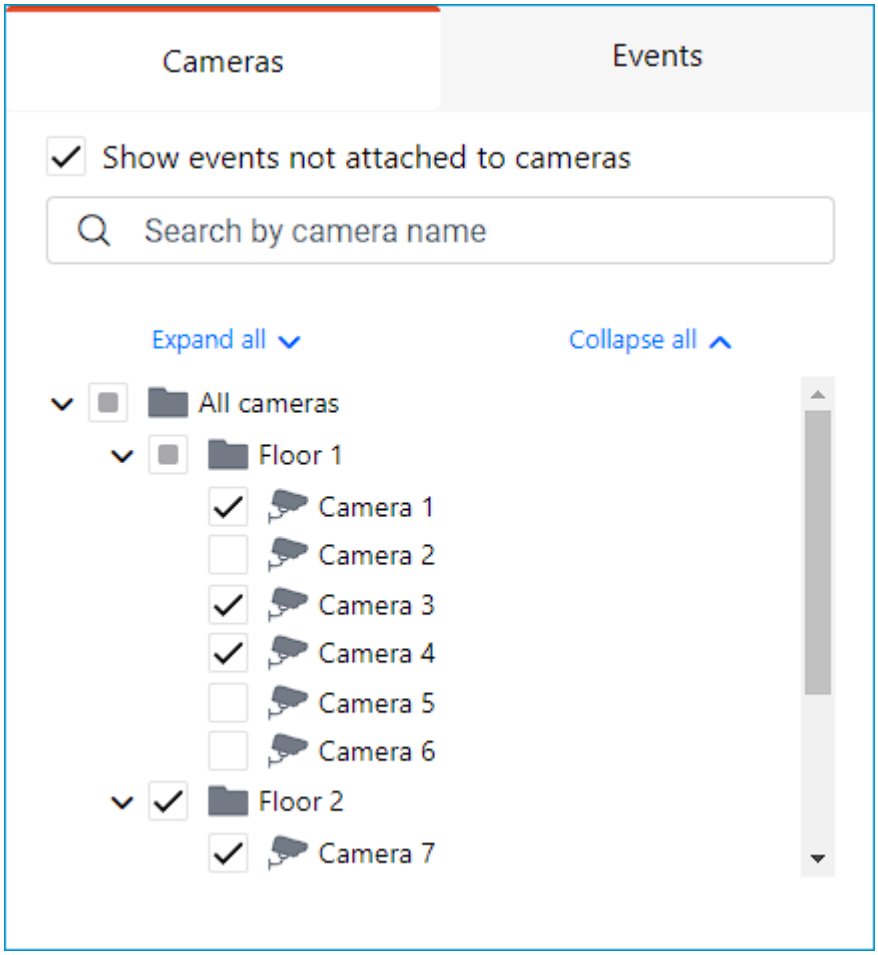
The **Initiators** filter displays events depending on their initiator.



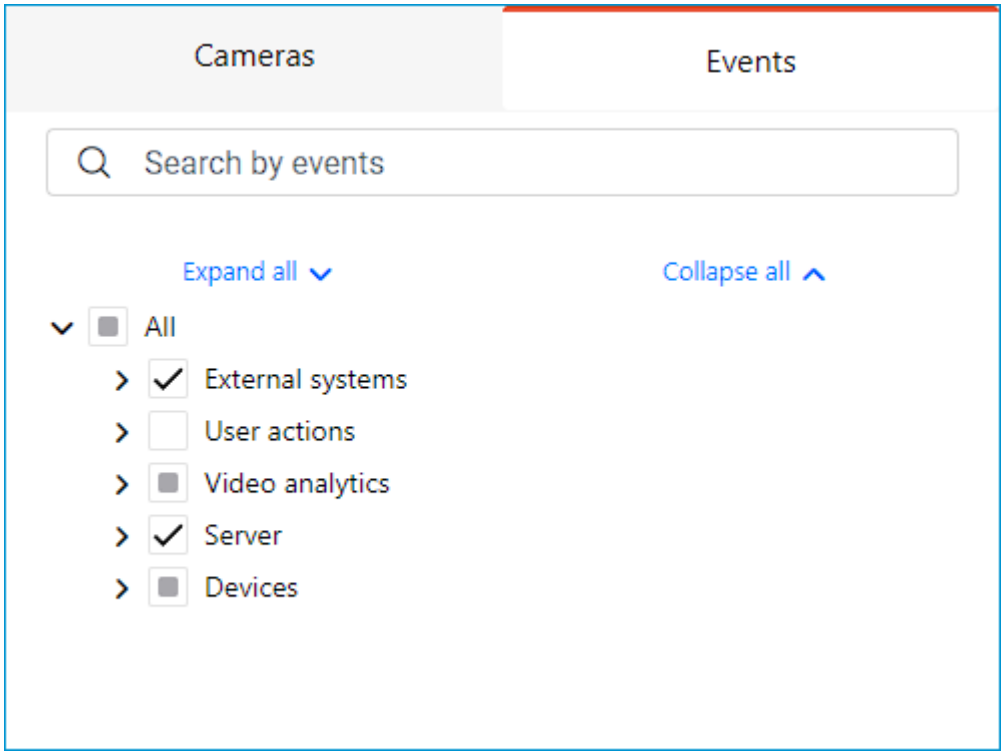
The **User** filter displays events by the user who initiated them.



The **Cameras** filter displays events associated with the selected cameras, as well as system events that are not related to any cameras.

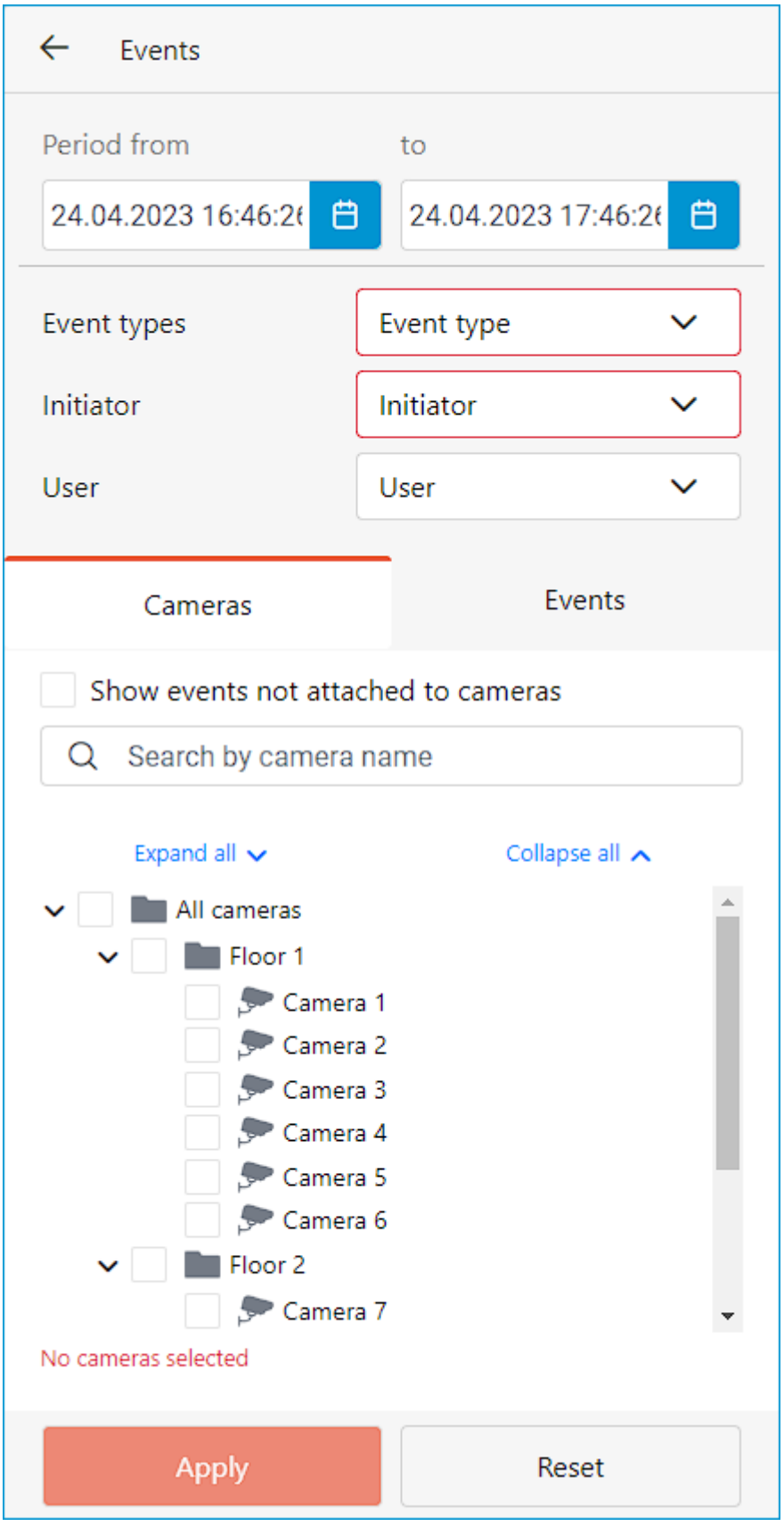


The **Events** filter displays events by their groups or names.



Filters have settings validity checks to make sure that the settings are correct. If no options are set in filters or no camera is selected, the **Apply** button will be unavailable. In this case an error indication will appear on the filter, and the respective error will be displayed for the cameras below the list.

Below is an example of incorrect filter settings:



Mobile client for Android

Mobile client for Android is an application that is designed to view video and listen to audio from cameras connected to **Eocortex** both in real time and from the archive.

Connect to the **Eocortex** remote server to access the video. Use IP-address or URI to connect to server. Any available network connection type may be used to connect to the server. The connection must provide access to the server by its address and have adequate bandwidth.

Mobile client for Android is supported on devices running Android 7.0 or higher.

The app can operate both in portrait and landscape mode.

Capabilities

Using the application, it is possible to:

View live video

View the archive video.

Listen to sound from a selected camera.

Control the PTZ functionality of the camera.

Save a frame both from the live video and from the archive recordings.

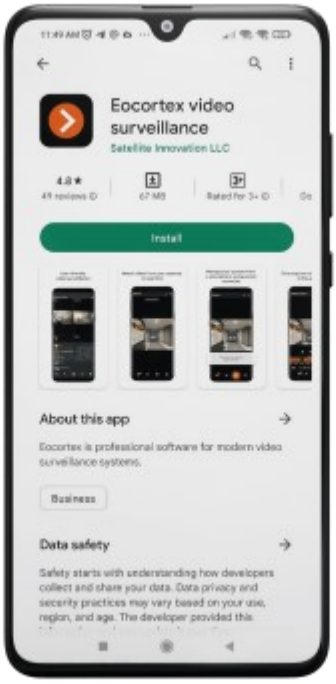
View an enlarged frame area both on the live video and on archive recordings.

Receive push notifications about events occurring in the video surveillance system.

View camera placement on the online map.

Installation

Installing **Mobile client for Android** on a device can be done using the standard installation method from **Google Play**. Search for the needed package can be performed using **Eocortex** as a keyword.



Connecting to systems

Description

When the application is launched for the first time, a login page opens with three buttons: **Connect to the video system** and **Log in to Eocortex Union** which are used to connect to the **Eocortex** servers and **Eocortex Union** systems respectively, as well as to configure these connections.

At the bottom of the screen there is a button for viewing the **Demo server**, whose address is located in the cloud. It is also possible to add, edit and delete own servers.

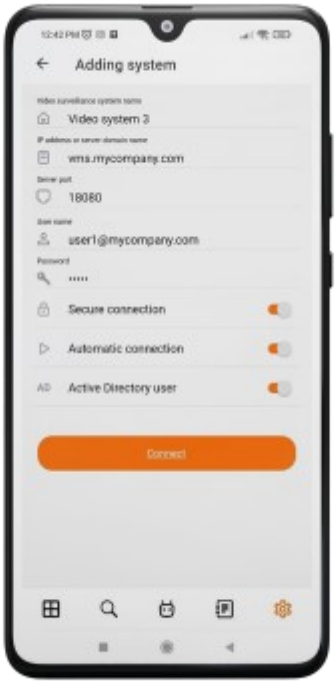
If there is at least one system, a **Video System** or a **Union Account**, then when the application is launched, a list of available systems is displayed. Switching between lists is performed using the buttons on top: **Video Servers**, **Union Accounts**.

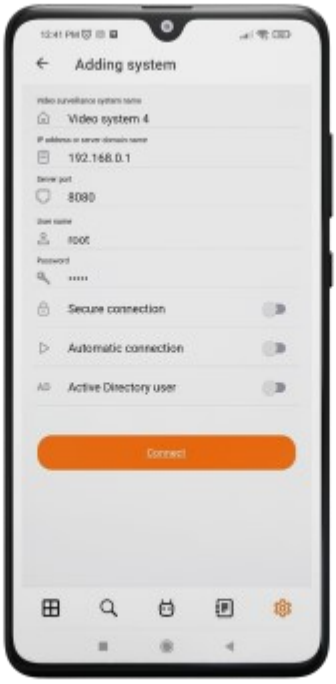
If the connection to the server has been successful, the list for this server will display a preview of the first frame received from the server instead of the icon.

Selecting a system from the list opens a window that displays live video from cameras connected to that system.

Adding a video management system

To establish a connection to the video surveillance system, it is needed to fill the IP address and connection port fields for **Eocortex** server, as well as set the Username and Password of the **Eocortex** user.

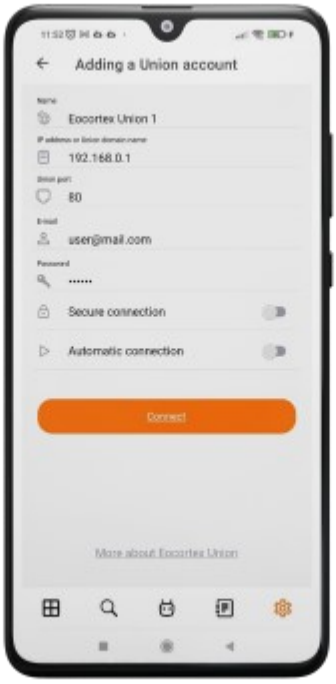




The connection settings are provided by the administrator of the video surveillance system.

Adding a Union account

To add a Union account to the application, it is needed to fill the IP address and connection port fields for **Eocortex Union** server, as well as set the Email and Password of the **Eocortex Union** user.



When **Secure connection** is turned on, the connection port automatically changes to 443; when turned off, it changes to 80.

When connecting to **Eocortex Union**, the mobile application establishes a connection with all systems associated with the **Eocortex Union** account.
If any of the connected systems is not available, then the mobile application will work with systems to which it was possible to establish a connection.

The connection settings are provided by the administrator of the video surveillance system.

Editing the connection settings

To edit a system, swipe over it from right to left and tap the **Modify** button.

Deleting a system

To delete a system from the list, swipe over it from right to left and tap the **Delete** button.

Server for automatic connection

Server for automatic connection is a server that is automatically connected to when the application starts.

There can only be one such server/account for an application.

If there is no available system, then, when a cloud account is added, it automatically becomes an auto-connection server. This setting, however, is not displayed in the list.

Main application panel

After successfully connecting to the video system, the main application panel is displayed.

The following navigation buttons are located on the screen:

- : Notification log.
- : Viewing cameras and selecting a View.
- : Selecting a camera for full-screen viewing and finding cameras on the map.
- : Voice assistant
- : Event log
- : Settings

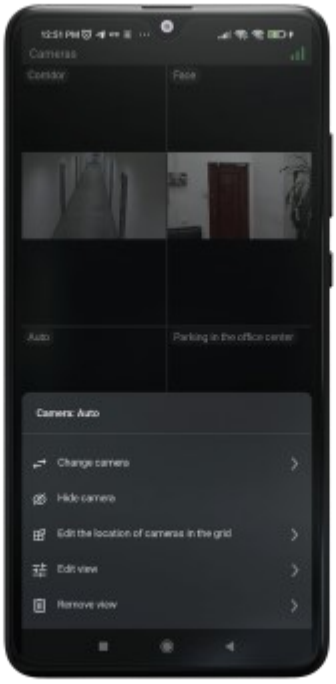
By default, after connecting to the system, the Viewing and selecting a View tab opens.

Viewing

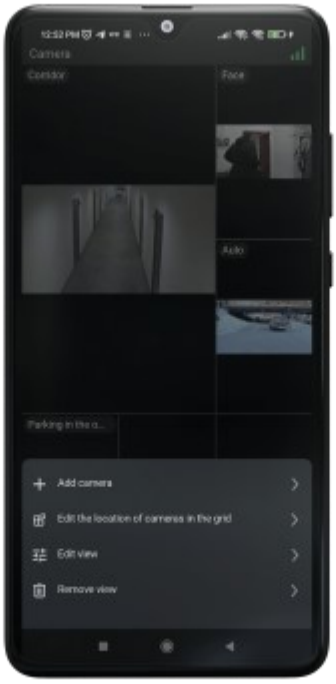
Viewing in the grid mode

Tapping on a camera cell expands the selected camera to full screen.

A long tap on a camera cell opens a context menu:



If no camera is selected in a cell, then a long tap in an empty cell opens a context menu that allows you to select a camera.



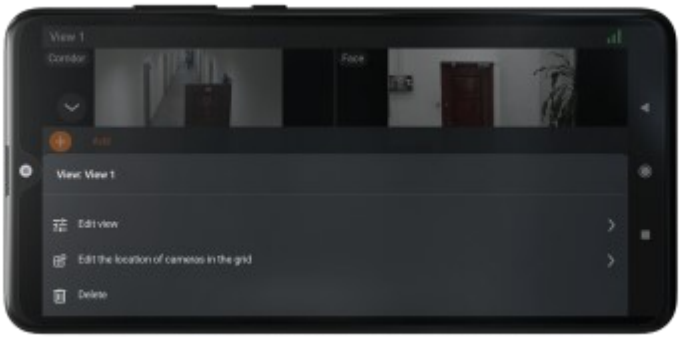
Selecting a view

Pressing the ◓ button in the bottom left corner of the screen opens the view selection menu.

View is a pre-configured on-screen grid with cameras already assigned to cells.

Views are available for selection, both centrally configured by the system administrator, and configured on this device by the current user.

A long tap on a view opens the context menu:



The context menu is not available for server-configured views.

Full screen view

Controls and gestures

The following gestures are available in full-screen mode:

Single tap on the screen: hides/uncovers controls;

Zoom: put two fingers side by side on the screen. Spread your fingers apart to zoom in, or pinch your fingers together to zoom out;

Double-tap on the screen:

- if the current zoom is less than 5x, then zoom to the screen point by 5x will occur;
- if the current zoom is greater than 5x and less than 10x, then zoom to the screen point by 10x will occur;
- if the current zoom is maximum (10x), then the image will be reset to the original scale.

Swiping left/right: Scrolls through the cameras within the current open view.

Swiping down: Closes the full-screen view.

If zoom is active, then swiping using gestures is not available.

The following actions are available in full-screen mode by pressing the corresponding buttons:

: video stream selection;

: launching a user task (available only for cameras with user tasks configured);

: open PTZ camera control (available only for PTZ cameras);

: switch to viewing the archive;

: turn the sound on/off (available only for cameras with sound reception enabled);

: save the frame to the Gallery of the device.

User tasks

If one or more user tasks are assigned to the camera, pressing the button opens the task launch menu.

Some tasks may require launch confirmation to run.

PTZ

Pressing the button for PTZ cameras will display the on-screen joystick and other camera controls.

PTZ camera controls:

: Zoom in/out

/ : Focus control

(Guidance mode) : Turn the camera by tapping on the desired point on the screen.

(presets) : Set the camera to preconfigured positions.

Archive

To play back a camera's archive, expand that camera to full screen in view mode and press the on-screen button .

At the bottom of the screen is a panel of archive fragments superimposed on the timeline.

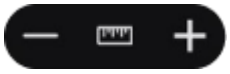
For positioning in the archive, touch the timeline at the desired time point.

Timeline can be scrolled to the right/left.

The following actions are available in the archive playback mode by pressing the corresponding buttons:

: Archive playback control (back/pause/forward).

: Date and time selection.

 : Timeline scale control. The scale can be changed either using the +/- buttons or by selecting from the list that opens by pressing the button.

: Archive playback speed control. Playback speed can be changed either using the +/- buttons or by selecting from the list that opens by pressing the button.

: Video stream selection.

: Turn the sound on/off (available only for cameras with sound recording enabled).

: Save the frame to the Gallery of the device.

: Export video archive to the Gallery of the device.

In the horizontal orientation of the device, pressing the button opens a context menu that allows you to save a frame and control the playback speed of the archive.

Archive export

Pressing the on-screen button will enable the camera archive export mode.

This button is available if the user has rights to view and export the archive.

All buttons are hidden except for playback in this mode. The archive is paused, while playback remains available. Markers appear on the timeline, with which you can select a fragment of the archive for export. A fragment of the video is highlighted: -30 and +30 seconds from the current time by default.

In the export mode, you can select a fragment of the archive and save it to your device in the **.mp4** format.

The maximum fragment size is **5 minutes**. The intervals on the timeline automatically adjust to the screen size so that a fragment of 5 minutes fits on the screen.

Two labels appear on the screen, showing the time boundaries of the fragment and two buttons. The **Cancel** button closes the export mode. The **OK** button starts the export with the set parameters.

After pressing the **OK** button, the export mode is closed and the export itself starts in the background, and the user sees a notification window about the start of the export. If you activate the checkbox, then next time the window will not be shown. Instead, the user will see a pop-up message in the center of the screen:

All saved file records are stored in Export History.

Saving exported video files

The video files are saved in the **Eocortex** folder, which is created in the **Video** or **Directory Movies** folder, the name of the latter may vary depending on the system. User permission is required to save.

Export archive with timestamps

The archive is exported without timestamps by default.

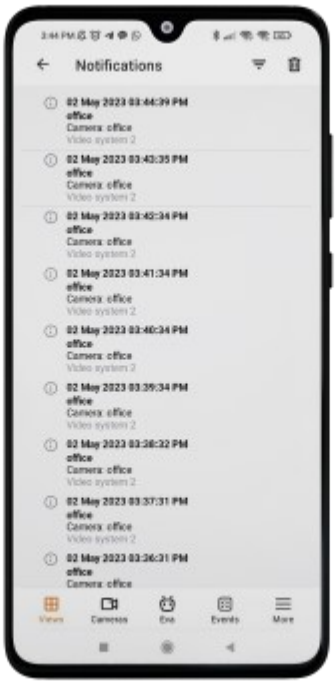
This feature is configured on the **Application** tab by selecting **Export archive with timestamps**.

The mode with timestamps significantly reduces the amount of video received, but increases the load on the server. In the enabled mode, a timestamp is superimposed on each frame, the permissible error of which is 1-2 seconds. T he export speed is lower and is 300-400 frames per second. Video with timestamps is indispensable for restoring the chronology and picture of events.

When exporting H.265 video, the video generation time and server load may increase.

Notifications

Tapping on the icon , which is located on the top panel of the **Views** tab, will open the push notifications log. In application settings it is possible to mark those video systems whose notifications will be displayed in the log.

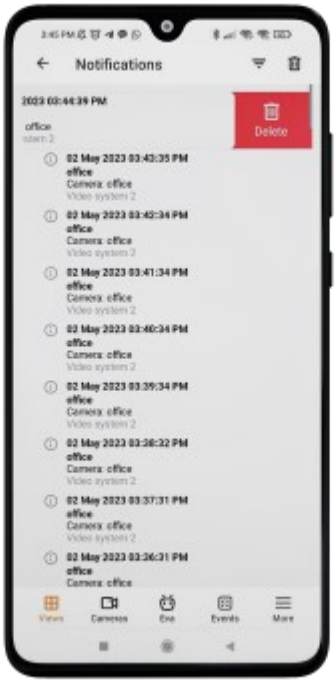


Revisiting a tab that previously viewed the notification log and didn't exit it will open the same log.

The list loads a maximum of 500 notifications.
All notifications are sorted according to time.

Tapping on a notification opens a fragment of the archive at the time the event occurred.

To delete a notification, swipe over it from right to left and press the **Delete** button.



Tapping on the button will open the notification filter settings by time or cameras.

Filtering by **time period** uses the time zone of the device. Filtering consists of the following sequence of steps:

1. The time of all notifications is brought to the form corresponding to the time of the device.
2. Time filtering is performed.
3. All matching notifications are displayed in the log.

Filtering **by cameras** includes filtering by all cameras and systems from which notifications have already been received.

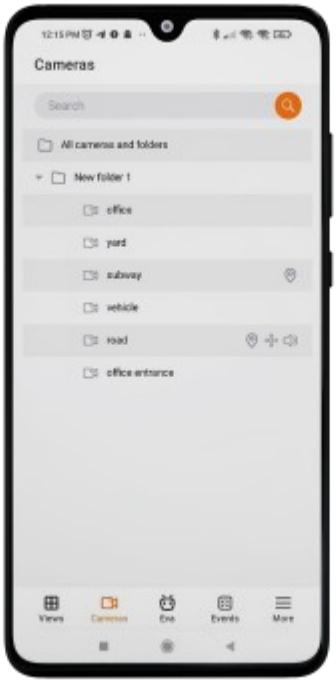
The **Reset** button cancels all previously configured filter options. Pressing the **Apply** button will display a list of elements according to the filters you have set.

Sometimes incoming notifications are not immediately displayed in the log. In this case, there is a need to reopen the current tab.

Cameras

On the **Cameras** tab it is possible to:

- Search for cameras and folders by their names.
- Check which cameras have PTZ control, sound and analytics are enabled.
- Switch to full-screen view by tapping on the camera.
- Switch to viewing cameras on the map.

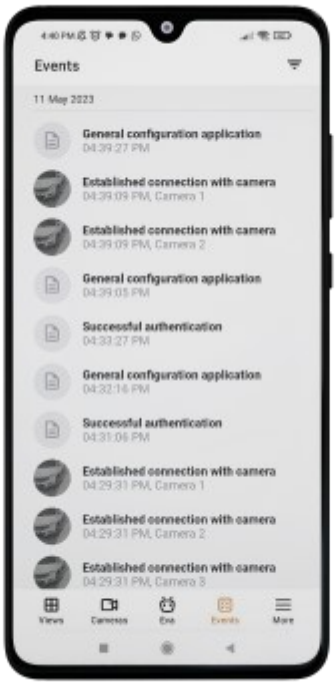


Smart assistant

Tapping the button opens the smart assistant (EVA) window, which allows interacting with the application using voice or text commands.

Events log

Tapping the button opens the **Events log**.



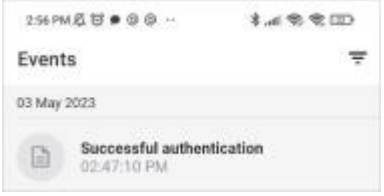
The Events log is a list of archive events. Each event contains the following information:

- Name
- Time
- Camera name
- Preview.

The list of events is not updated in real time. Swipe down from the top of the screen to refresh the list of events.

The preview is a frame from the archive according to the time of the event and is displayed if the user has access to view the archive and the event is linked to the camera.

A preview of the Face Recognition module event is obtained along with the event without a request to the archive.



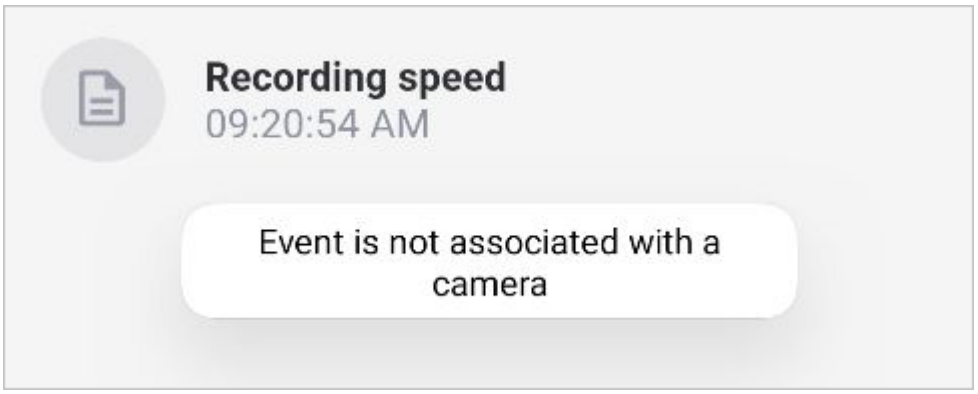
Loading a preview for an event starts at the moment when this event is displayed on the screen. For list items that are currently hidden, the preview is not loaded. If an event that already has a preview is displayed on the screen, it is not reloaded.

The time of the event is shown according to the time mode settings on the device. Because of this, either the local time of the device or the time on the camera will be displayed.

The time of the event will be indicated in the device's time zone if the event has not been linked to the camera.

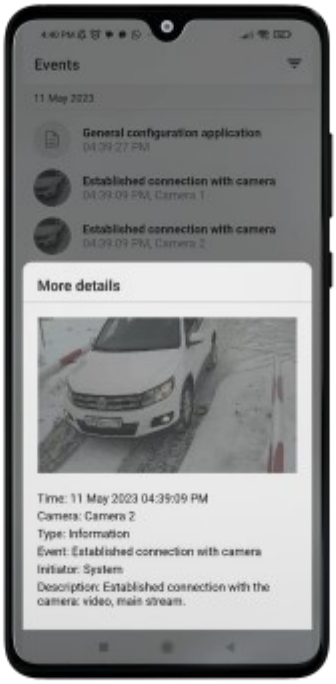
Entries are grouped by event date.

A single click on a list item opens the event archive. If the archive is unavailable or the event is not linked to the camera, the corresponding information will appear in the center of the screen.

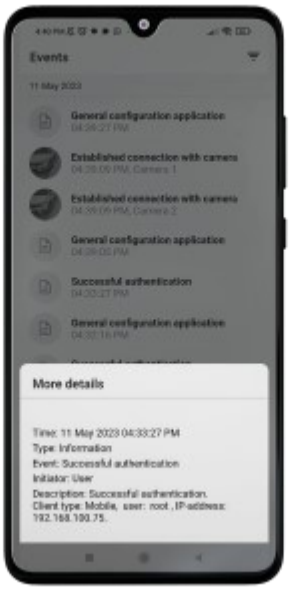


A long press on a list item opens a pop-up window with the following event information:

- Time
- Camera name
- Type
- Name
- Initiator
- Description
- Archive frame



The event frame is not displayed if the archive is unavailable or if the archive frame could not be obtained.



Frames on faces and additional information for Face Recognition module events are displayed on the frame.

Filtration

Filtering by events is available.

Tapping the button opens the filter settings page. The following filters are available: by time, cameras and events, including event types and initiators.

Filtering by **time period** uses the time zone of the device. Filtering consists of the following sequence of steps:

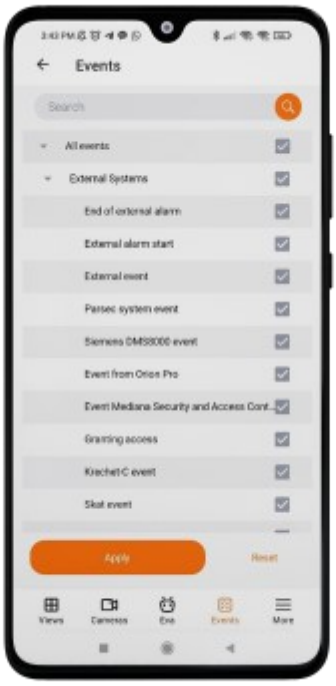
1. The time of all notifications is brought to the form corresponding to the time of the device.
2. Time filtering is performed.
3. All matching notifications are displayed in the log.

Clicking on a **start** or **end** date opens a dialog window with a time selection.

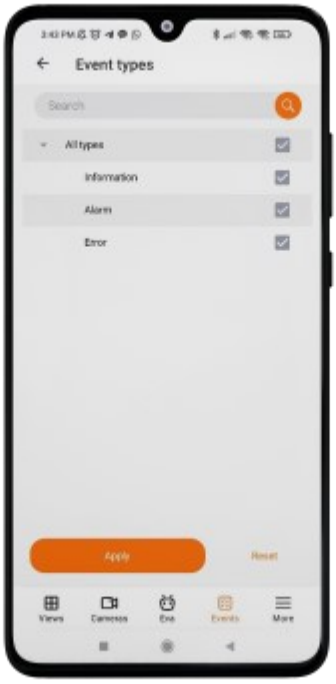
Filter by **cameras** is a list of all cameras on the server in a tree form.

There is an item in the list for requesting events that are not linked with cameras.

Filter by **events** is a list of all events in a tree form.

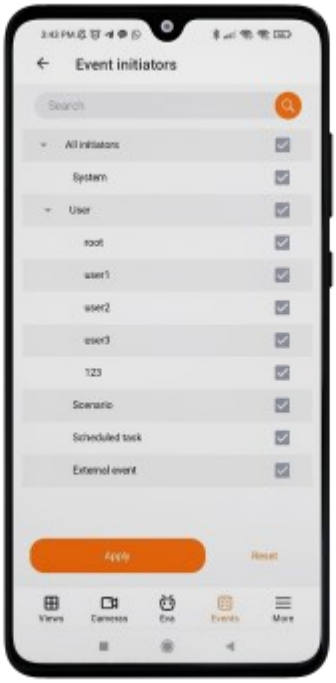


Filter by **event types** is a list of three event categories: Information, Alarm, Error.

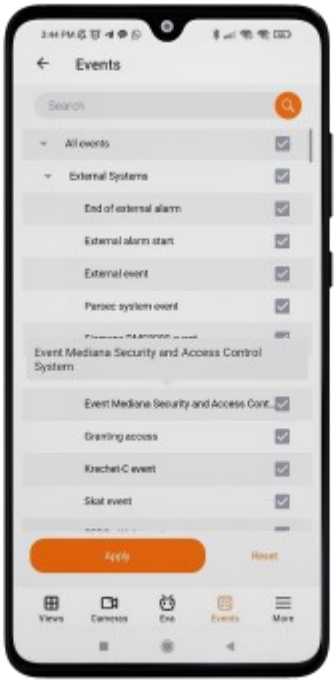


The filter by **event initiators** is a list in the form of a tree, consisting of all event initiators, as well as all users registered in the system.

The list of users is requested from the server when connecting to the server or if the current server configuration has changed.



A long press on a tree element shows the full name of this element in all filters, except for the filter by **time**.

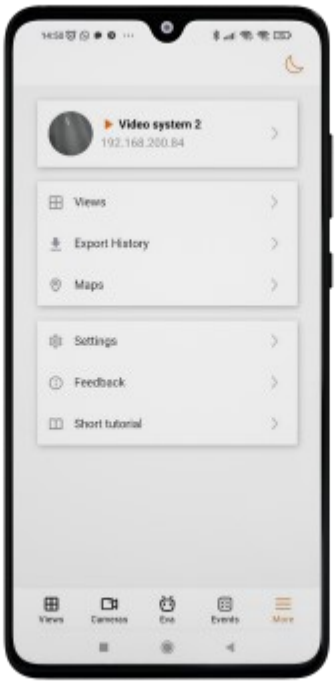


The **Reset** button cancels all previously configured filter options. Pressing the **Apply** button will display a list of elements according to the filters you have set.

An image labeled **No Events** will be displayed in the center of the page when there are no events after filters have been applied.

Tapping on ☰ button opens a menu with additional application options.

More



Theme

Switching themes

A theme switch button has been added in the upper right corner of the settings window.

The content of the icon changes depending on the selected theme, including the system theme, and can take the following form: or . When you click this button, the color theme of the application changes to **Light** or **Dark**.

To configure the **System** theme, go to the **Application** tab and select the **Color theme** option.

Depending on the theme color:

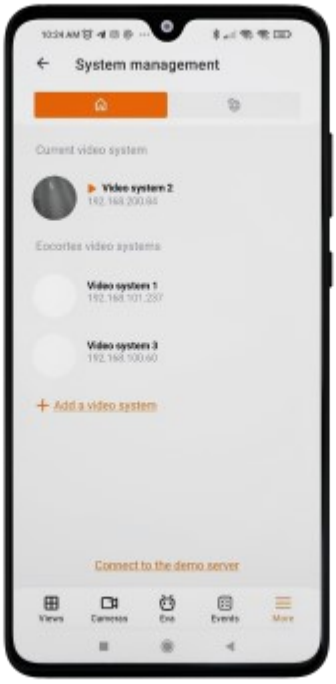
Application download window. In a light theme, the window will have a white background, and in a dark one, it will have a black background.

Keyboard color.

The color of the panel and navigation buttons.

Systems

This tab displays a list of all application systems with the ability to edit and delete a system, as well as connect to another system.



Views

This tab displays a list of all views.

The active view is marked with an orange arrow. A single click will take you to the selected view.

To edit/delete a view, swipe from right to left over it. To delete all views, except server ones, you need to click on the top panel button .

Server views cannot be edited or deleted.

When adding and changing a view, you need to select cameras, then select the screen grid, set the name of the view and the location of the cameras on the grids.

The cell where the camera is being dragged is highlighted in orange while dragging.

The cell where the camera is being dragged is highlighted in orange while dragging.

You can switch between pages of the view editor using the **Back** button at the top of the screen and the **Next** button.

In the **List** view in edit mode, dragging the camera is activated by long pressing. You can scroll through the list with a normal click.

The maximum number of cameras that can be added to the **List** view is 262.

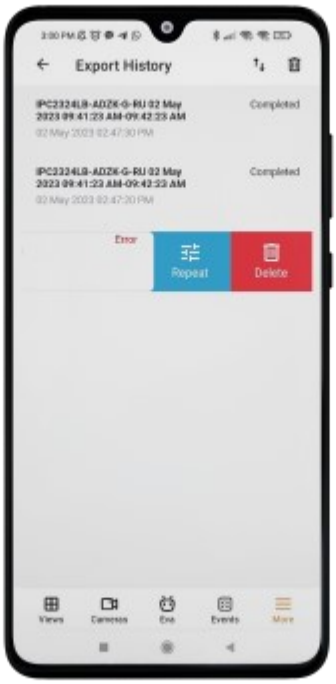
Export History

This tab displays all archive export entries.

Each entry contains the name of the saved file, the end time of the export and the status of the export. The file name is built from the camera name, fragment start and end time, time zone offset and file extension.

To manage the entry, you need to swipe your finger from right to left on it:

- Any entry can be deleted by clicking the **Delete** button. In this case, the entry file will remain on the device. It is also possible to use the button on the top panel to delete all notifications.
- For the **Error** status, it is possible to retry the export by clicking the **Retry** button.



- For the **Completed** status, it is possible to share the entry by clicking on the **Share** button.

Sorting

Entries can be sorted by clicking on the ↑↓ icon. After clicking, a list with sort order will open.

Single tap in the log

Tapping on an exported video opens its preview through the system window.

Maps

Pressing the button opens a window that allows you to view the cameras on the map.

This button will be available and displayed on the menu bar in the following cases:

- The user has access to the maps.
- The server license supports the use of maps.

Only those cameras to which the user has access will be displayed on the map.
The transition to maps is available when there are no cameras on the map.
For viewing, the map service **Google Maps** is used.

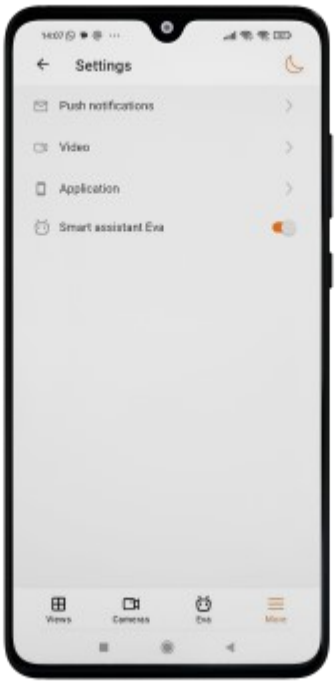
If the transition to the map is carried out without a selected camera, then the map will be positioned at the current location of the user.
If the transition to the map is carried out using a specific camera, then the selected camera will zoom in on the map and a preview will open.
Tapping on the preview opens the full-screen view of this camera.

Depending on the chosen theme, the color of the navigation bar changes from light to dark.

2:53 PM
Map
Civita Castellana
Forano
Poggio Mirteto
Sutri
Nepi
Sant'Oreste
Calcata Vecchia
Fara In Sabina
Trevignano Romano
Campagnano di Roma
Capena
Fiano Romano
Angullara Sabazia
Formello
Riano
Monterotondo
Palombara Sabina
La Giustiniana
Tor Lupara
Guidonia
Ottavia
Tivoli Terme
Aranova
Rome
Ponte Galeria
Ciampino
Fiumicino
Selcetta
Marino
Ostia
Castel Romano
Ariccia
Velletri
Pomezia
Torvaianica
Ardea
Aprilia
Tor San Lorenzo
Google
Views
Cameras
Eva
Events
More

2:53 PM
Map
Nepi
Sant'Oreste
Calcata Vecchia
Fiano Romano
Campagnano di Roma
Capena
Angullara Sabazia
Formello
Riano
Monterotondo
Tor Lupara
Guidonia
La Giustiniana
Ottavia
Tivoli Terme
Rome
Ponte Galeria
Mostacciano
Ciampino
Frascati
Selcetta
Marino
Ostia
Castel Romano
Ariccia
Pomezia
Torvaianica
Ardea
Aprilia
Tor San Lorenzo
Google
Views
Cameras
Eva
Events
More

Settings



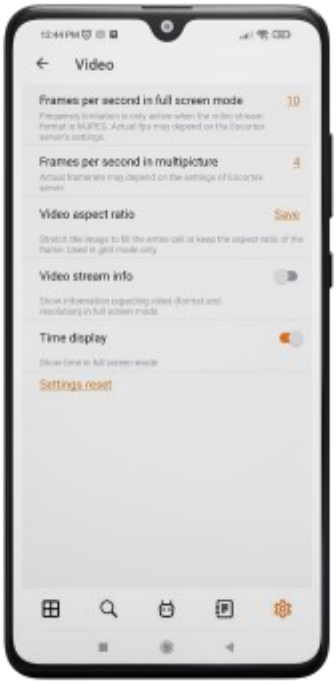
Push notifications

This tab displays a list of all systems/accounts in the application with the ability to enable/disable push notifications from them.

When a new system is added, push notifications are enabled for it by default.

Video

This tab contains application video display settings that apply to all systems added to the applications.



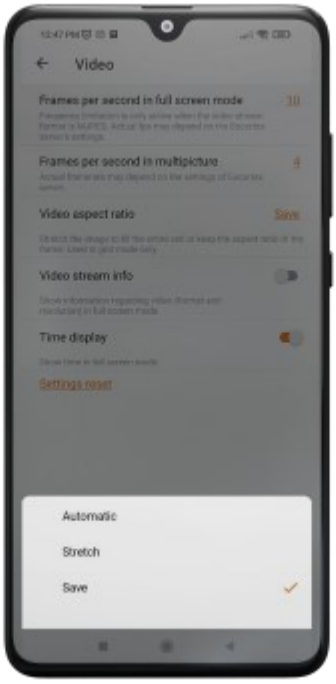
Before adjusting the frame rate and transcoding, it is recommended to consult with the administrator of the video surveillance system, since these settings will not work on all cameras and may also be ineffective.

The **Video aspect ratio** setting allows choosing how the video will be scaled in cells:

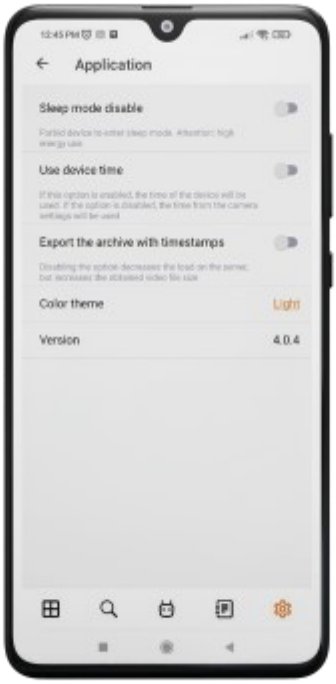
Automatic: the application automatically determines whether to stretch the image or keep the aspect ratio;

Stretch: the image will be stretched in the cell;

Save: the camera aspect ratio will be used.



Application



After enabling the **Use device time** option, the device time will be used in notifications, full-screen and archive views, on saved frames and in the smart assistant.

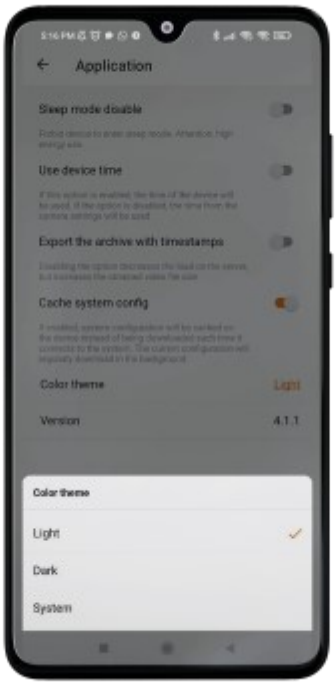
The time from the camera settings is used by default.

In the **Theme** setting, you can choose one of the following color themes:

Light

Dark

System



The **System** theme depends on the color theme of the device's operating system and can be dark or light.

You can change the system theme in the following ways:

Manually by the user in the device settings.

Automatically, after the user configures the scheduled theme on the device. The application adapts to the current theme without reloading.

On this page, you can also configure the display of **Voice Assistant EVA** in the application. When disabled, the corresponding icon will be removed from the navigation panel.

Feedback

This window is provided for solving problems that have arisen, as well as for suggestions and evaluation of the application.

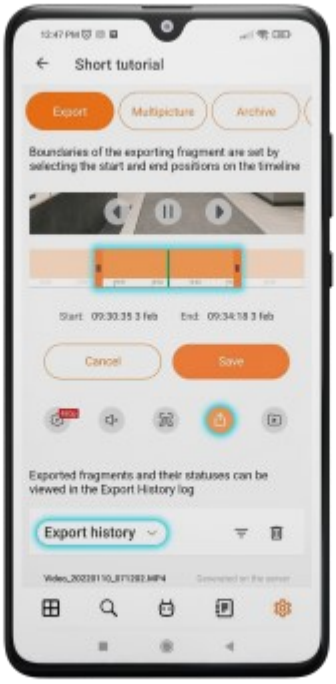
Short tutorial

A learning page consists of a panel with buttons and brief tutorials. Tutorials contain the following sections:

- Export
- Events
- Grid
- Archive
- Analytics
- PTZ
- EVA.

Pressing the button opens the corresponding tab with training information.

Tabs can be switched both using buttons and using a swipe gesture.


Short tutorial
Export
Multipicture
Archive
Boundaries of the exporting fragment are set by selecting the start and end positions on the timeline
Start: 09:30:35 3 feb
End: 09:34:18 3 feb
Cancel
Save
Exported fragments and their statuses can be viewed in the Export History log
Export history

Mobile client for iOS

Mobile client for iOS is an application that is designed to view video and listen to audio from cameras connected to **Eocortex** both in real time and from the archive.

Connect to the **Eocortex** remote server to access the video. Use IP-address or URI to connect to server. Any available network connection type may be used to connect to the server. The connection must provide access to the server by its address and have adequate bandwidth.

Mobile client for iOS is supported on devices running iOS 11.4 or higher.

The app can operate both in portrait and landscape mode.

Capabilities

Using the application, it is possible to:

View live video

View the archive video.

Listen to sound from a selected camera.

Control the PTZ functionality of the camera.

Save a frame both from the live video and from the archive recordings.

View an enlarged frame area both on the live video and on archive recordings.

Receive push notifications about events occurring in the video surveillance system.

View camera placement on the online map.

Installation

Installing **Mobile client for iOS** on a device can be done using the standard installation method from **App Store**. Search for the needed package can be performed using **Eocortex** as a keyword.

Connecting to systems

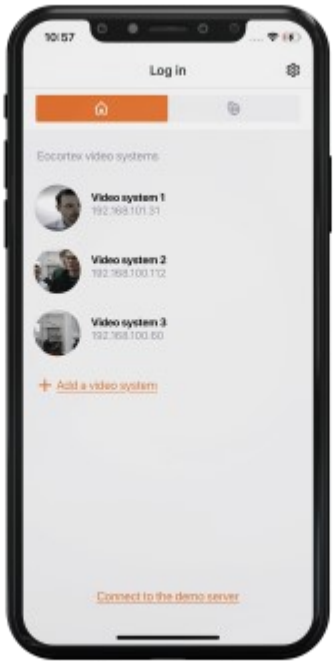
Description

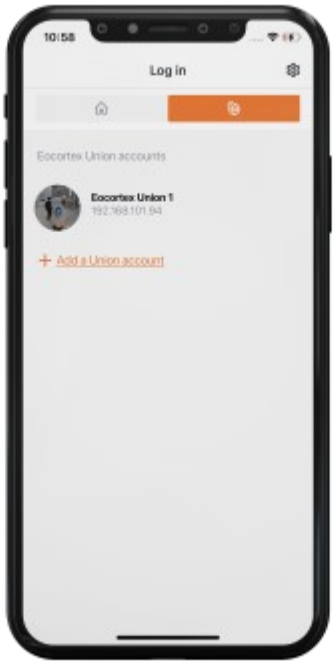
When the application is launched for the first time, a login page opens with three buttons: **Connect to the video system** and **Log in to Eocortex Union** which are used to connect to the **Eocortex** servers and **Eocortex Union** systems respectively, as well as to configure these connections.

At the bottom of the screen there is a button for viewing the **Demo server**, whose address is located in the cloud. It is also possible to add, edit and delete own servers.

If there is at least one system, a **Video System** or a **Union Account**, then when the application is launched, a list of available systems is displayed. Switching between lists is performed using the buttons on top: **Video Servers**, **Union Accounts**.

If the connection to the server has been successful, the list for this server will display a preview of the first frame received from the server instead of the icon.

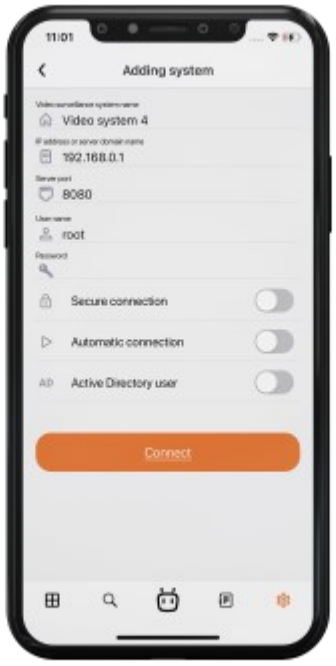




Selecting a system from the list opens a window that displays live video from cameras connected to that system.

Adding a video management system

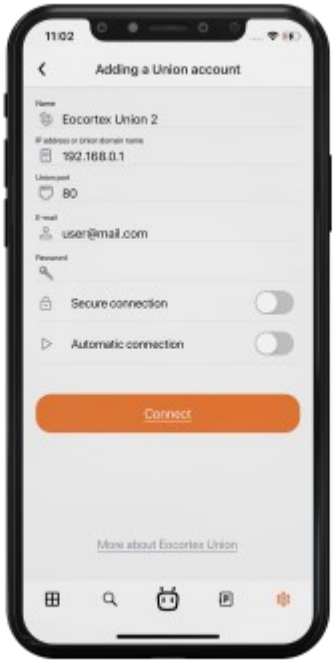
To establish a connection to the video surveillance system, it is needed to fill the IP address and connection port fields for **Eocortex** server, as well as set the Username and Password of the **Eocortex** user.



The connection settings are provided by the administrator of the video surveillance system.

Adding a Union account

To add a Union account to the application, it is needed to fill the IP address and connection port fields for **Eocortex Union** server, as well as set the Email and Password of the **Eocortex Union** user.



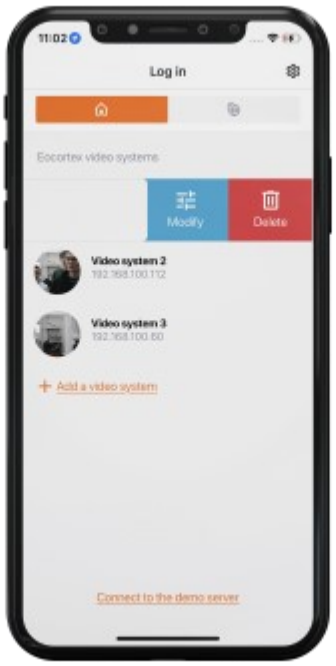
When **Secure connection** is turned on, the connection port automatically changes to 443; when turned off, it changes to 80.

When connecting to **Eocortex Union**, the mobile application establishes a connection with all systems associated with the **Eocortex Union** account.
If any of the connected systems is not available, then the mobile application will work with systems to which it was possible to establish a connection.

The connection settings are provided by the administrator of the video surveillance system.

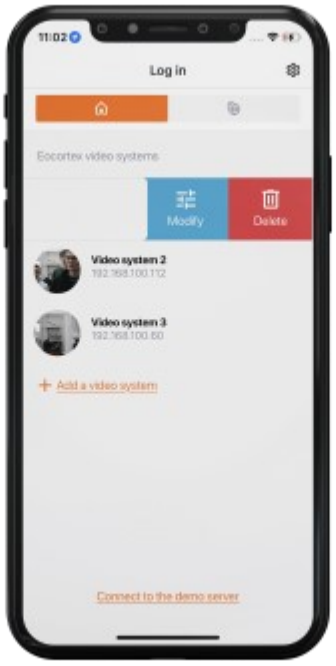
Editing the connection settings

To edit a system, swipe over it from right to left and tap the **Modify** button.



Deleting a system

To delete a system from the list, swipe over it from right to left and tap the **Delete** button.

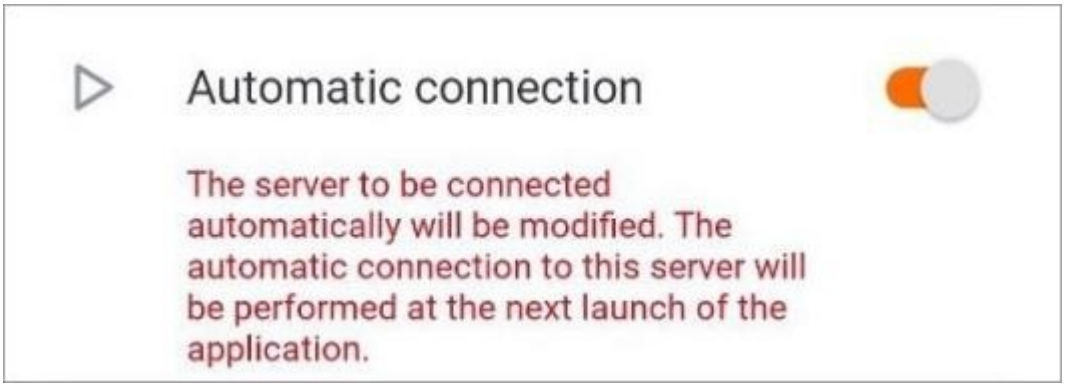


Server for automatic connection

Server for automatic connection is a server that is automatically connected to when the application starts.

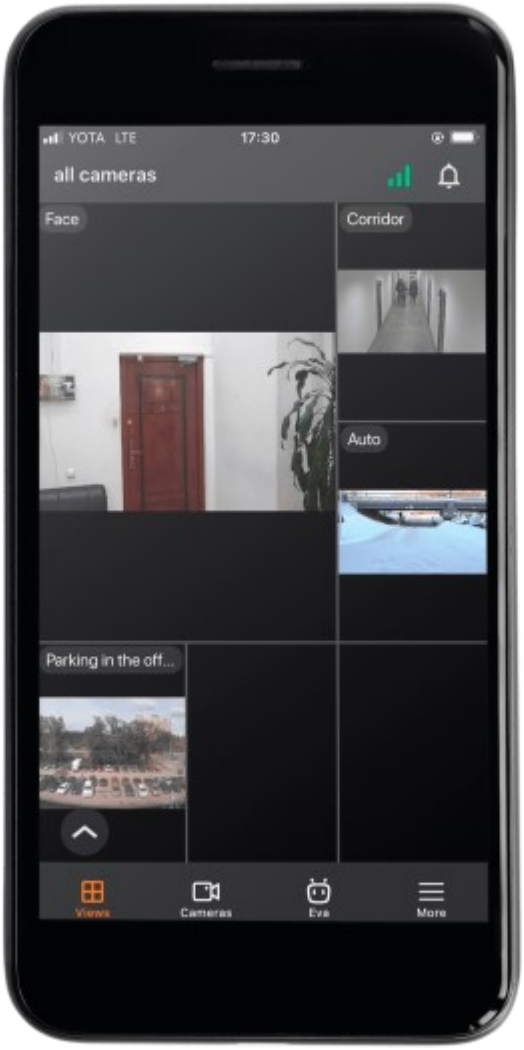
There can only be one such server/account for an application.

If there is no available system, then, when a cloud account is added, it automatically becomes an auto-connection server. This setting, however, is not displayed in the list.



Main application panel

After successfully connecting to the video system, the main application panel is displayed.



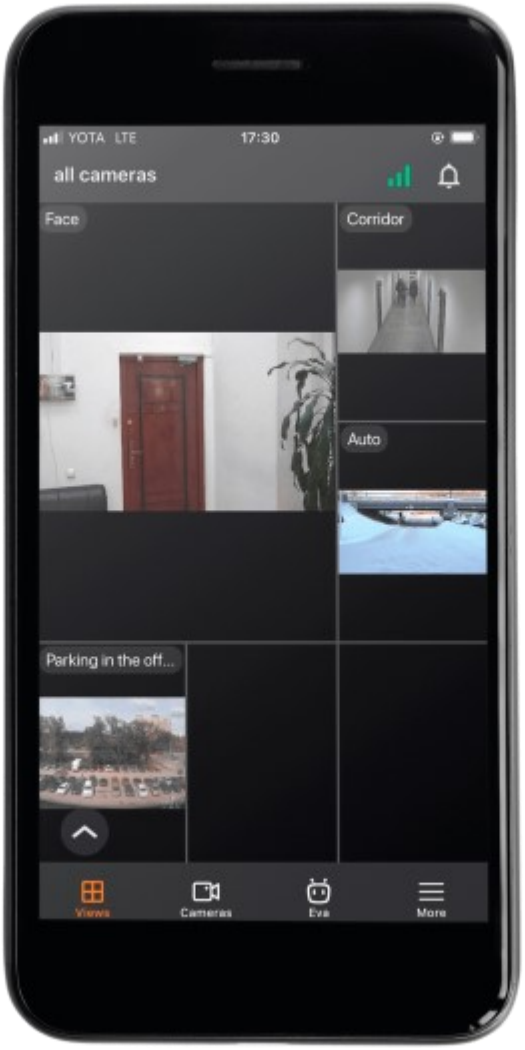
The following navigation buttons are located on the screen:

- : Notification log.
- : Viewing cameras and selecting a View.
- : Selecting a camera for full-screen viewing and finding cameras on the map.
- : Voice assistant
- : Event log
- : Settings

By default, after connecting to the system, the Viewing and selecting a View tab opens.

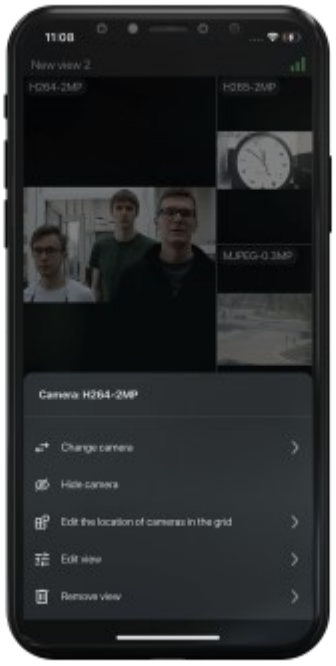
Viewing

Viewing in the grid mode

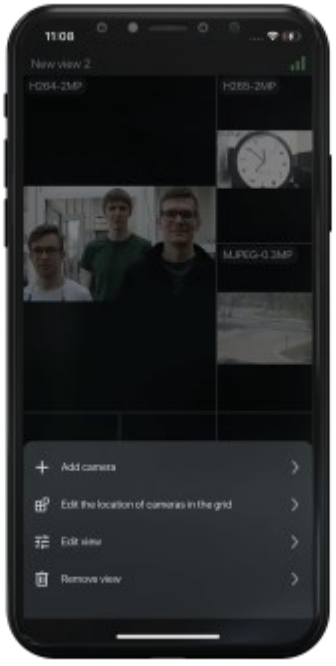


Tapping on a camera cell expands the selected camera to full screen.

A long tap on a camera cell opens a context menu:



If no camera is selected in a cell, then a long tap in an empty cell opens a context menu that allows you to select a camera.



Selecting a view

Pressing the ◓ button in the bottom left corner of the screen opens the view selection menu.

View is a pre-configured on-screen grid with cameras already assigned to cells.

Views are available for selection, both centrally configured by the system administrator, and configured on this device by the current user.

A long tap on a view opens the context menu:

The context menu is not available for server-configured views.

Full screen view

Controls and gestures

The following gestures are available in full-screen mode:

Single tap on the screen: hides/uncovers controls;

Zoom: put two fingers side by side on the screen. Spread your fingers apart to zoom in, or pinch your fingers together to zoom out;

Double-tap on the screen:

- if the current zoom is less than 5x, then zoom to the screen point by 5x will occur;
- if the current zoom is greater than 5x and less than 10x, then zoom to the screen point by 10x will occur;
- if the current zoom is maximum (10x), then the image will be reset to the original scale.

Swiping left/right: Scrolls through the cameras within the current open view.

Swiping down: Closes the full-screen view.

If zoom is active, then swiping using gestures is not available.

The following actions are available in full-screen mode by pressing the corresponding buttons:

: video stream selection;

: launching a user task (available only for cameras with user tasks configured);

: open PTZ camera control (available only for PTZ cameras);

: switch to viewing the archive;

: turn the sound on/off (available only for cameras with sound reception enabled);

: save the frame to the Gallery of the device.

User tasks

If one or more user tasks are assigned to the camera, pressing the button opens the task launch menu.

Some tasks may require launch confirmation to run.

PTZ

Pressing the button for PTZ cameras will display the on-screen joystick and other camera controls.

PTZ camera controls:

: Zoom in/out

/ : Focus control

(Guidance mode) : Turn the camera by tapping on the desired point on the screen.

(presets) : Set the camera to preconfigured positions.

Archive

To play back a camera's archive, expand that camera to full screen in view mode and press the on-screen button .

At the bottom of the screen is a panel of archive fragments superimposed on the timeline.

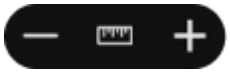
For positioning in the archive, touch the timeline at the desired time point.

Timeline can be scrolled to the right/left.

The following actions are available in the archive playback mode by pressing the corresponding buttons:

: Archive playback control (back/pause/forward).

: Date and time selection.

 : Timeline scale control. The scale can be changed either using the +/- buttons or by selecting from the list that opens by pressing the button.

: Archive playback speed control. Playback speed can be changed either using the +/- buttons or by selecting from the list that opens by pressing the button.

: Video stream selection.

: Turn the sound on/off (available only for cameras with sound recording enabled).

: Save the frame to the Gallery of the device.

: Export video archive to the Gallery of the device.

In the horizontal orientation of the device, pressing the button opens a context menu that allows you to save a frame and control the playback speed of the archive.

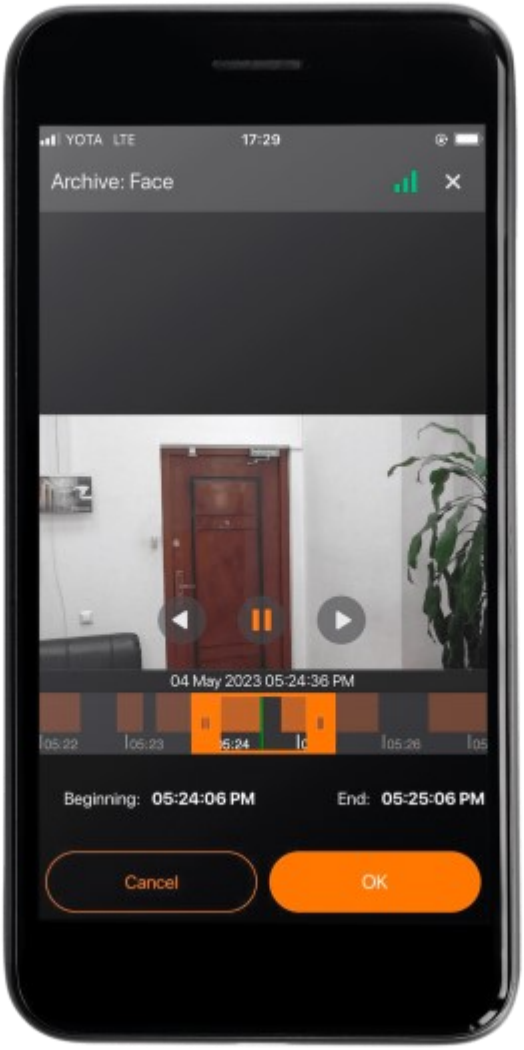
Archive export

This feature is supported on devices with iOS version 13 and above.

Pressing the on-screen button will enable the camera archive export mode.

This button is available if the user has rights to view and export the archive.

All buttons are hidden except for playback in this mode. The archive is paused, while playback remains available. Markers appear on the timeline, with which you can select a fragment of the archive for export. A fragment of the video is highlighted: -30 and +30 seconds from the current time by default.

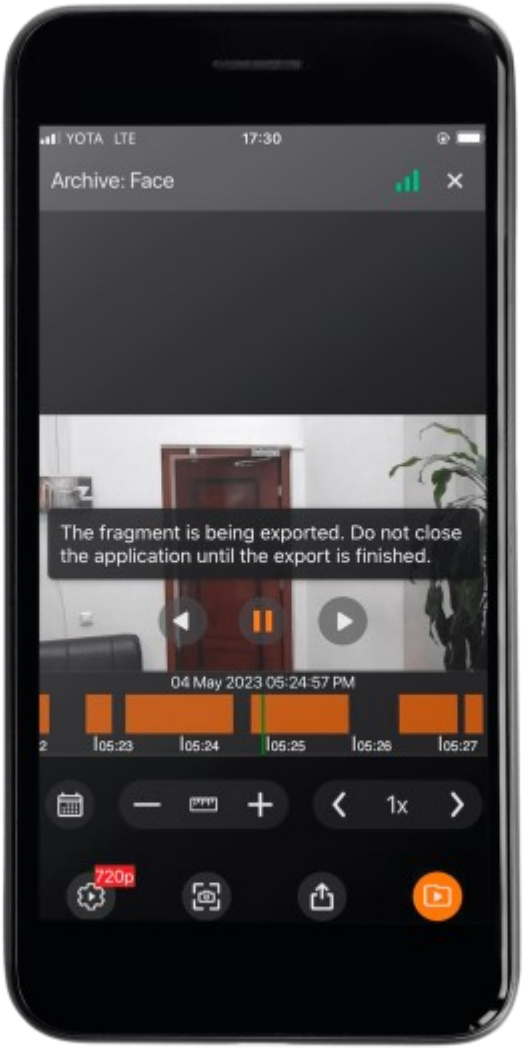


In the export mode, you can select a fragment of the archive and save it to your device in the **.mp4** format.

The maximum fragment size is **5 minutes**. The intervals on the timeline automatically adjust to the screen size so that a fragment of 5 minutes fits on the screen.

Two labels appear on the screen, showing the time boundaries of the fragment, and two buttons. The **Cancel** button closes the export mode. The **OK** button starts the export with the set parameters.

After pressing the **OK** button, the export mode is closed and the export itself starts in the background, and the user sees a notification window about the start of the export. If you activate the checkbox, then next time the window will not be shown. Instead, the user will see a pop-up message in the center of the screen:



All saved file records are stored in Export History.

Saving exported video files

The video files are saved in the **Eocortex** folder, which is created in the **Files** folder. User permission is required to save.

Export archive with timestamps

The archive is exported without timestamps by default.

This feature is configured on the **Application** tab by selecting **Export archive with timestamps**.

The mode with timestamps significantly reduces the amount of video received, but increases the load on the server. In the enabled mode, a timestamp is superimposed on each frame, the permissible error of which is 1-2 seconds. T he export speed is lower and is 300-400 frames per second. Video with timestamps is indispensable for restoring the chronology and picture of events.

When exporting H.265 video, the video generation time and server load may increase.

Notifications

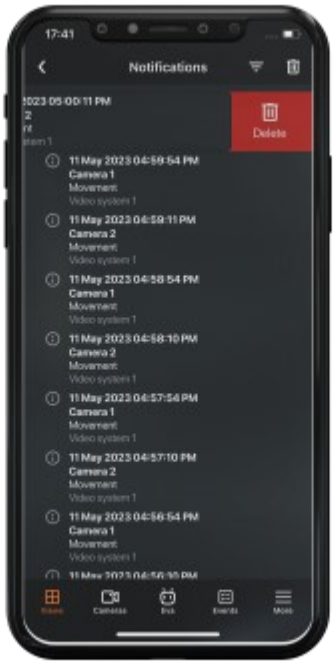
Tapping on the icon , which is located on the top panel of the **Views** tab, will open the push notifications log. In application settings it is possible to mark those video systems whose notifications will be displayed in the log.

Revisiting a tab that previously viewed the notification log and didn't exit it will open the same log.

The list loads a maximum of 500 notifications.
All notifications are sorted according to time.

Tapping on a notification opens a fragment of the archive at the time the event occurred.

To delete a notification, swipe over it from right to left and press the **Delete** button.

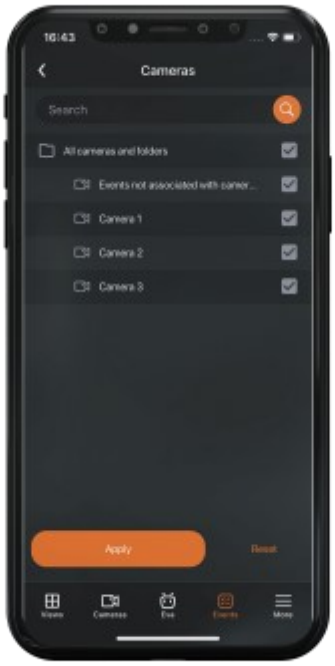


Tapping on the button will open the notification filter settings by time or cameras.

Filtering by **time period** uses the time zone of the device. Filtering consists of the following sequence of steps:

1. The time of all notifications is brought to the form corresponding to the time of the device.
2. Time filtering is performed.
3. All matching notifications are displayed in the log.

Filtering **by cameras** includes filtering by all cameras and systems from which notifications have already been received.



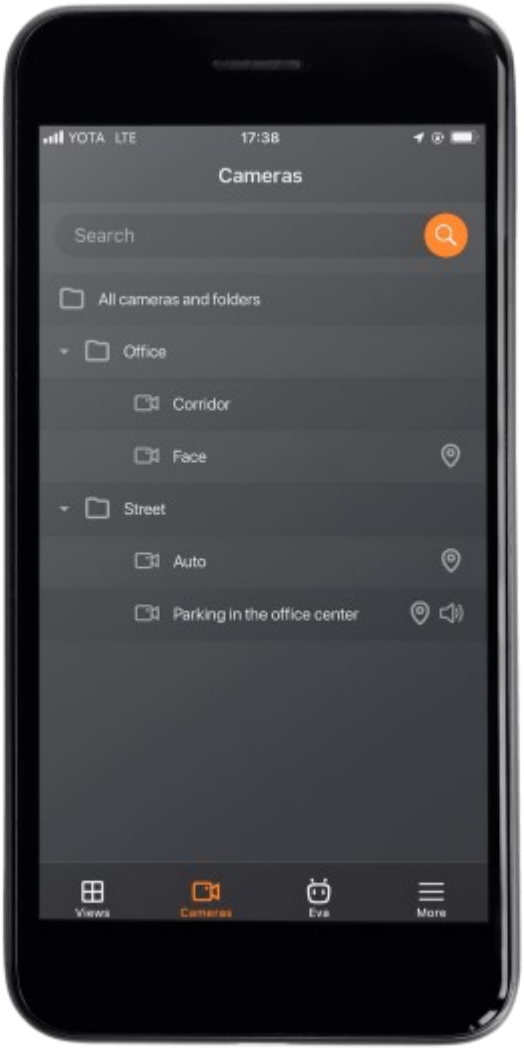
The **Reset** button cancels all previously configured filter options. Pressing the **Apply** button will display a list of elements according to the filters you have set.

Sometimes incoming notifications are not immediately displayed in the log. In this case, there is a need to reopen the current tab.

Cameras

On the **Cameras** tab it is possible to:

- Search for cameras and folders by their names.
- Check which cameras have PTZ control, sound and analytics are enabled.
- Switch to full-screen view by tapping on the camera.
- Switch to viewing cameras on the map.

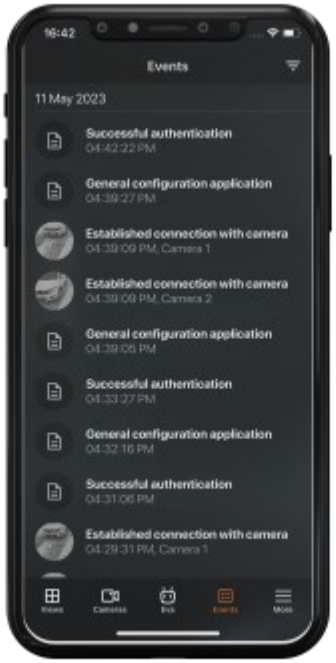


Smart assistant

Tapping the button opens the smart assistant (EVA), window, which allows interacting with the application using voice or text commands.

Events log

Tapping the button opens the **Events log**.



The Events log is a list of archive events. Each event contains the following information:

- Name

- Time
- Camera name
- Preview.

The list of events is not updated in real time. Swipe down from the top of the screen to refresh the list of events.

The preview is a frame from the archive according to the time of the event and is displayed if the user has access to view the archive and the event is linked to the camera.

A preview of the Face Recognition module event is obtained along with the event without a request to the archive.

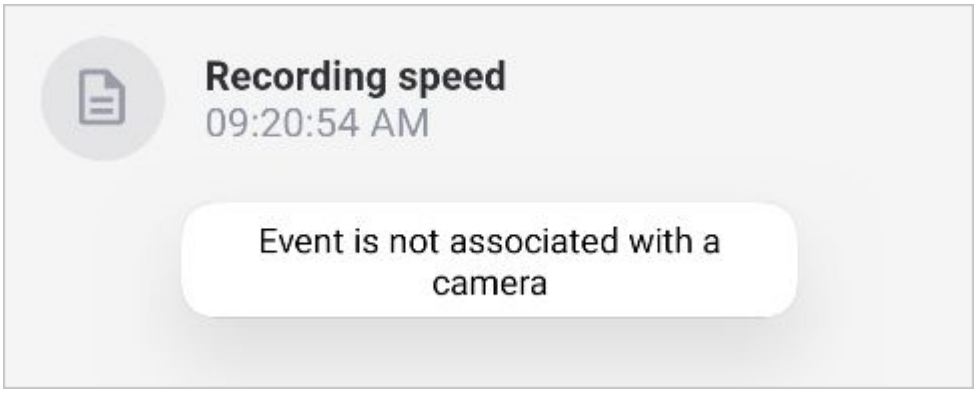
Loading a preview for an event starts at the moment when this event is displayed on the screen. For list items that are currently hidden, the preview is not loaded. If an event that already has a preview is displayed on the screen, it is not reloaded.

The time of the event is shown according to the time mode settings on the device. Because of this, either the local time of the device or the time on the camera will be displayed.

The time of the event will be indicated in the device's time zone if the event has not been linked to the camera.

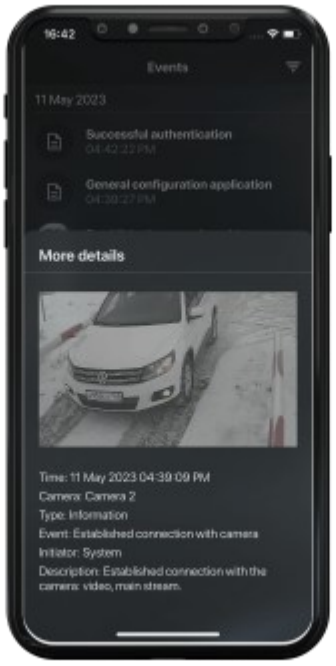
Entries are grouped by event date.

A single click on a list item opens the event archive. If the archive is unavailable or the event is not linked to the camera, the corresponding information will appear in the center of the screen.

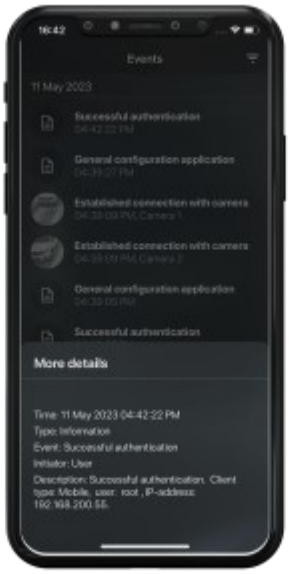


A long press on a list item opens a pop-up window with the following event information:

- Time
- Camera name
- Type
- Name
- Initiator
- Description
- Archive frame



The event frame is not displayed if the archive is unavailable or if the archive frame could not be obtained.



Frames on faces and additional information for Face Recognition module events are displayed on the frame.

Filtration

Filtering by events is available.

Tapping the button opens the filter settings page. The following filters are available: by time, cameras and events, including event types and initiators.

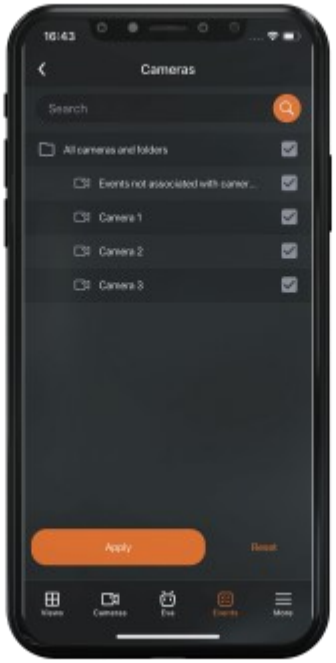
Filtering by **time period** uses the time zone of the device. Filtering consists of the following sequence of steps:

1. The time of all notifications is brought to the form corresponding to the time of the device.
2. Time filtering is performed.
3. All matching notifications are displayed in the log.

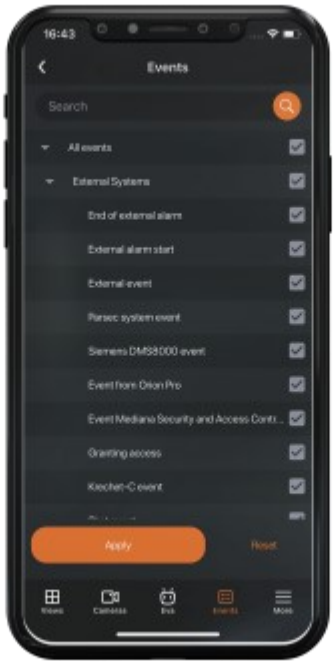
Clicking on a **start** or **end** date opens a dialog window with a time selection.

Filter by **cameras** is a list of all cameras on the server in a tree form.

There is an item in the list for requesting events that are not linked with cameras.



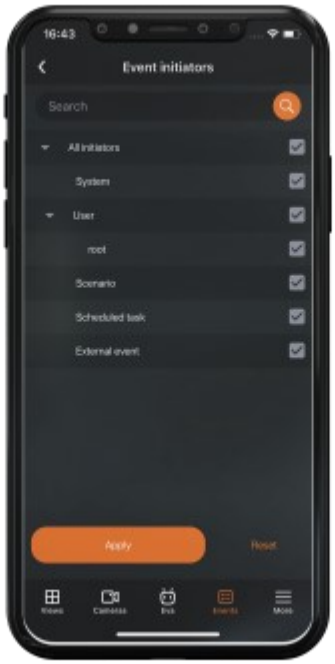
Filter by **events** is a list of all events in a tree form.



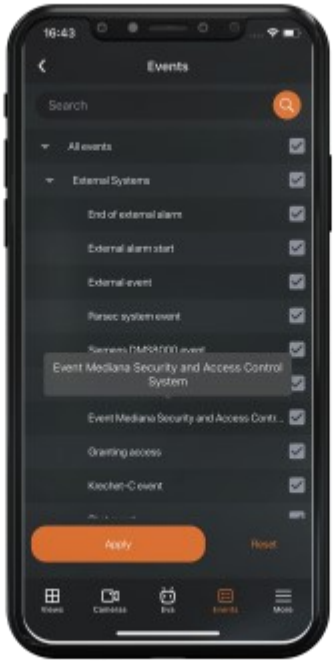
Filter by **event types** is a list of three event categories: Information, Alarm, Error.

The filter by **event initiators** is a list in the form of a tree, consisting of all event initiators, as well as all users registered in the system.

The list of users is requested from the server when connecting to the server or if the current server configuration has changed.



A long press on a tree element shows the full name of this element in all filters, except for the filter by **time**.

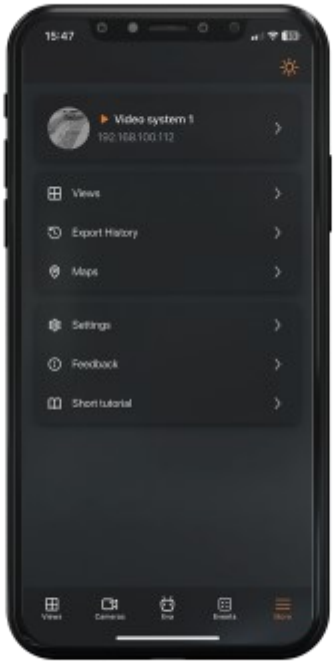


The **Reset** button cancels all previously configured filter options. Pressing the **Apply** button will display a list of elements according to the filters you have set.

An image labeled **No Events** will be displayed in the center of the page when there are no events after filters have been applied.

Tapping on ☰ button opens a menu with additional application options.

More



Theme

Switching themes

A theme switch button has been added in the upper right corner of the settings window.

The content of the icon changes depending on the selected theme, including the system theme, and can take the following form: ☀ or ☾ . When you click this button, the color theme of the application changes to **Light** or **Dark**.

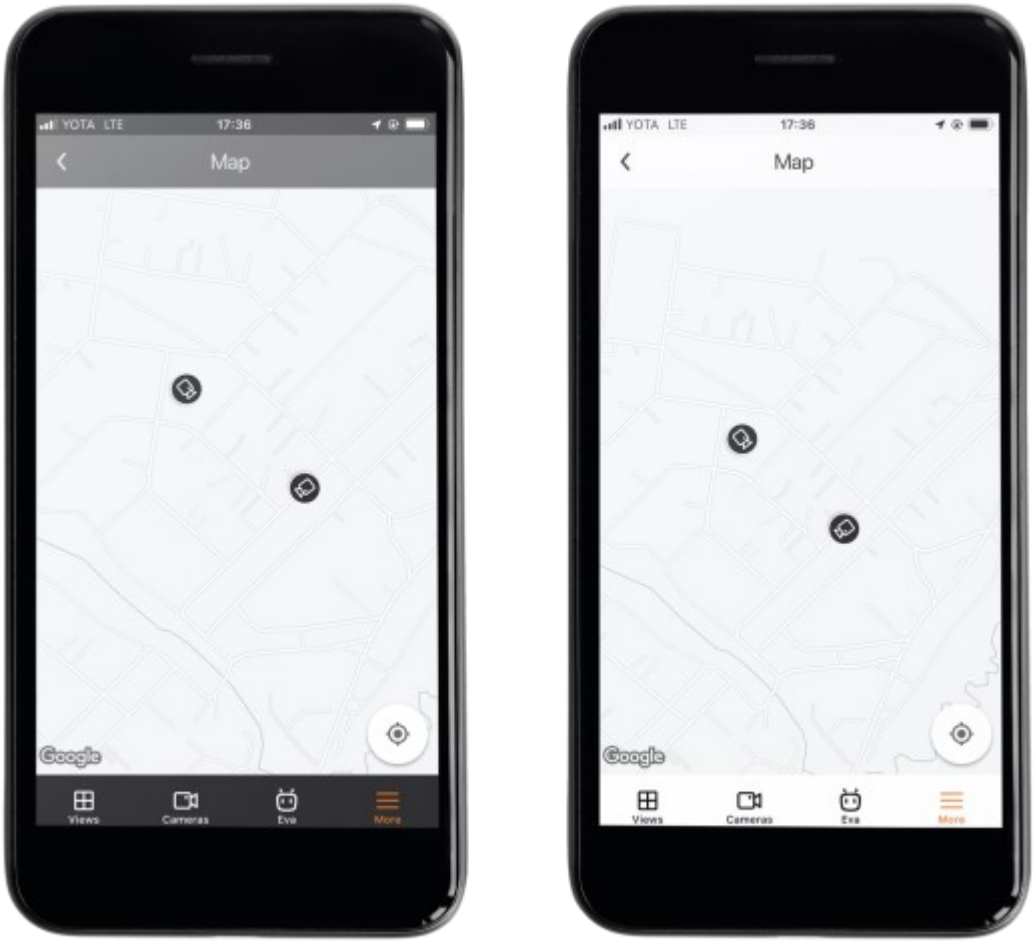
To configure the **System** theme, go to the **Application** tab and select the **Color theme** option.

Depending on the theme color:

Application download window. In a light theme, the window will have a white background, and in a dark one, it will have a black background.

Keyboard color.

The color of the panel and navigation buttons.



Systems

This tab displays a list of all application systems with the ability to edit and delete a system, as well as connect to another system.

Views

This tab displays a list of all views.
The active view is marked with an orange arrow. A single click will take you to the selected view.

To edit/delete a view, swipe from right to left over it. To delete all views, except server ones, you need to click on the top panel button .

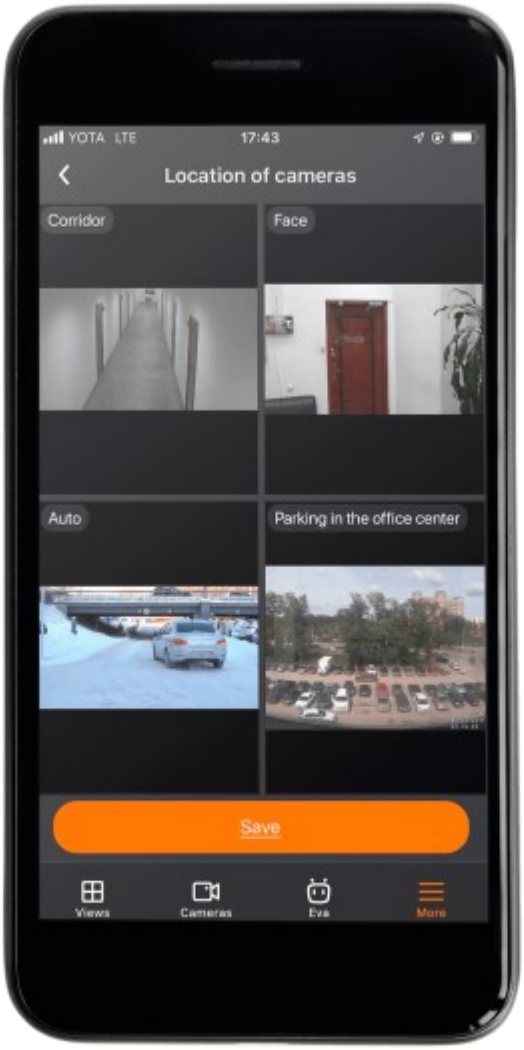
Server views cannot be edited or deleted.

When adding and changing a view, you need to select cameras, then select the screen grid, set the name of the view and the location of the cameras on the grids.

The cell where the camera is being dragged is highlighted in orange while dragging.

The cell where the camera is being dragged is highlighted in orange while dragging.

You can switch between pages of the view editor using the **Back** button at the top of the screen and the **Next** button.

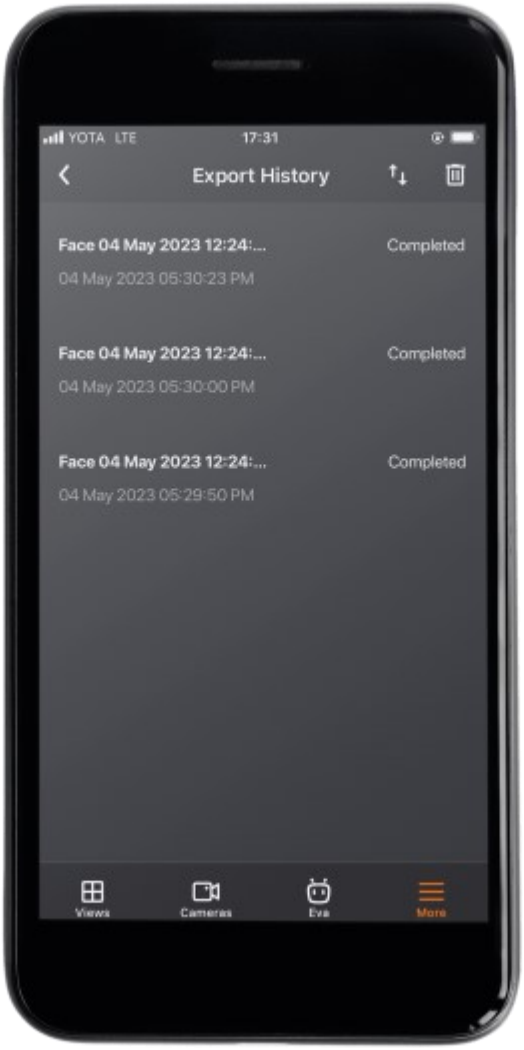


In the **List** view in edit mode, dragging the camera is activated by long pressing. You can scroll through the list with a normal click.

The maximum number of cameras that can be added to the **List** view is 262.

Export History

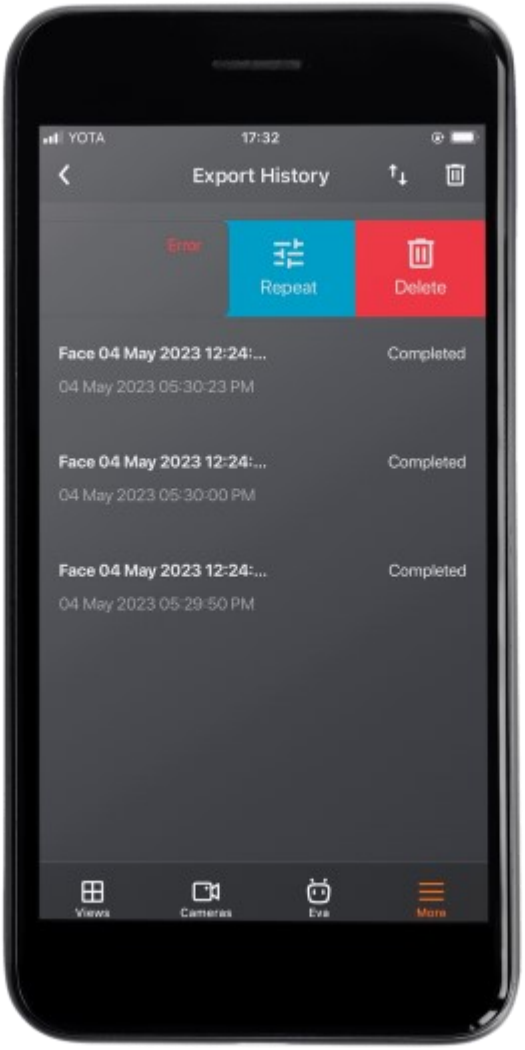
This tab displays all archive export entries.



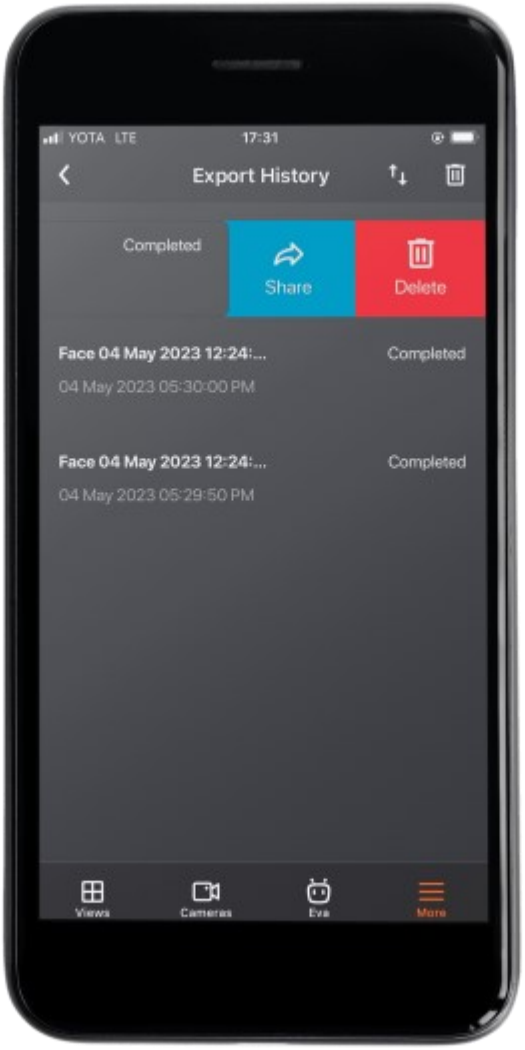
Each entry contains the name of the saved file, the end time of the export and the status of the export. The file name is built from the camera name, fragment start and end time, time zone offset and file extension.

To manage the entry, you need to swipe your finger from right to left on it:

- Any entry can be deleted by clicking the **Delete** button. In this case, the entry file will remain on the device. It is also possible to use the button on the top panel to delete all notifications.
- For the **Error** status, it is possible to retry the export by clicking the **Retry** button.

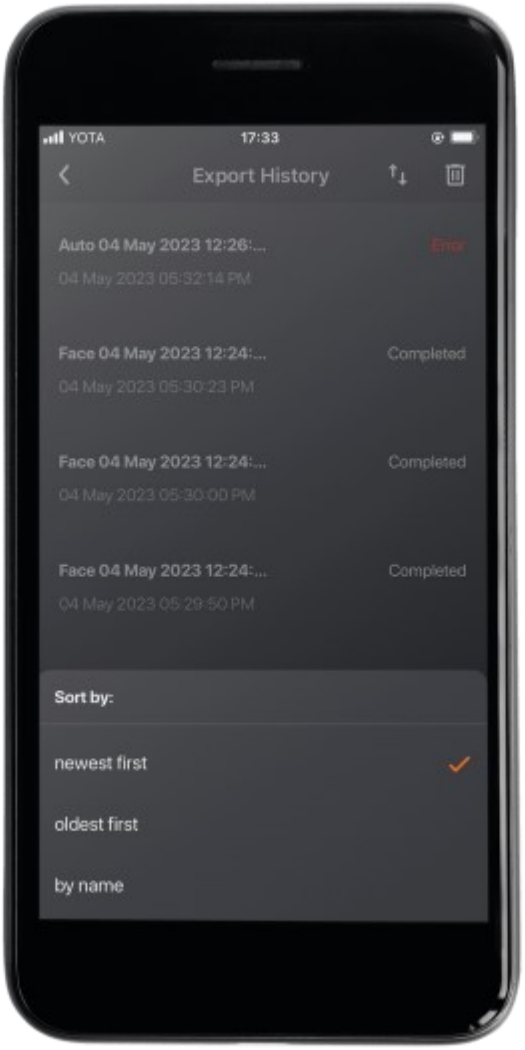


- For the **Completed** status, it is possible to share the entry by clicking on the **Share** button.



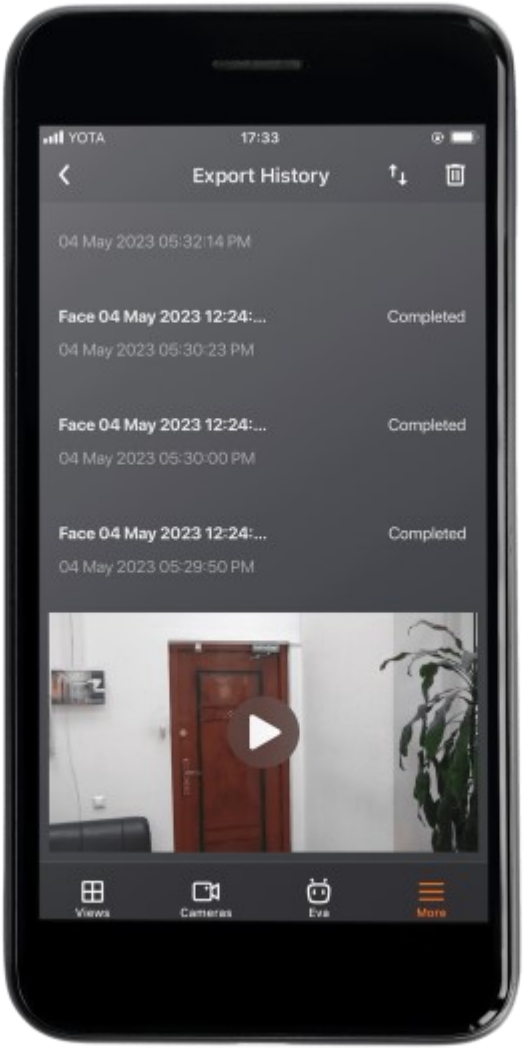
Sorting

Entries can be sorted by clicking on the ↑↓ icon. After clicking, a list with sort order will open.



Single tap in the log

Tapping on an exported video opens its preview directly in the export log. If the video cannot be played, a corresponding message appears on the screen.



Maps

Pressing the button opens a window that allows you to view the cameras on the map.

This button will be available and displayed on the menu bar in the following cases:

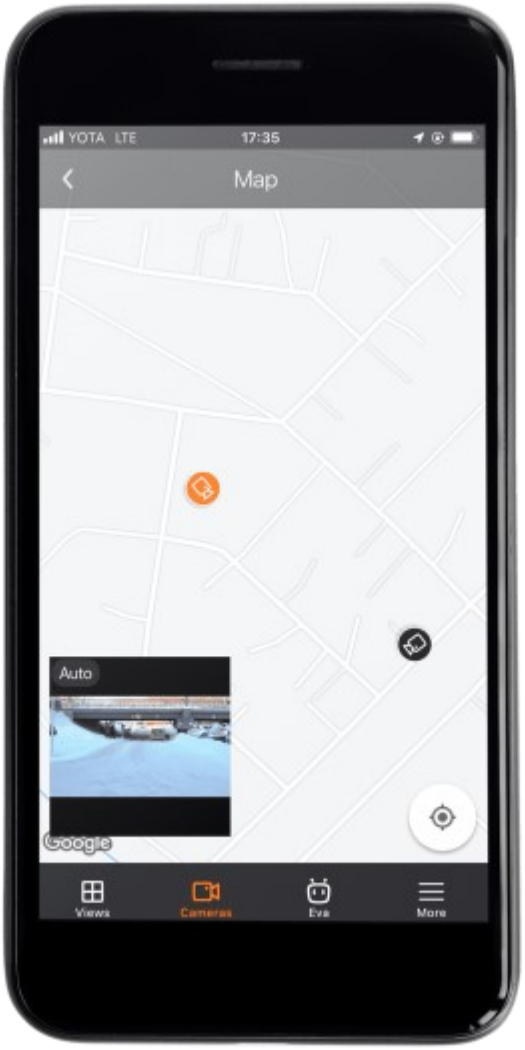
- The user has access to the maps.
- The server license supports the use of maps.

Only those cameras to which the user has access will be displayed on the map.
The transition to maps is available when there are no cameras on the map.
For viewing, the map service **Google Maps** is used.

If the transition to the map is carried out without a selected camera, then the map will be positioned at the current location of the user.

If the transition to the map is carried out using a specific camera, then the selected camera will zoom in on the map and a preview will open.

Tapping on the preview opens the full-screen view of this camera.

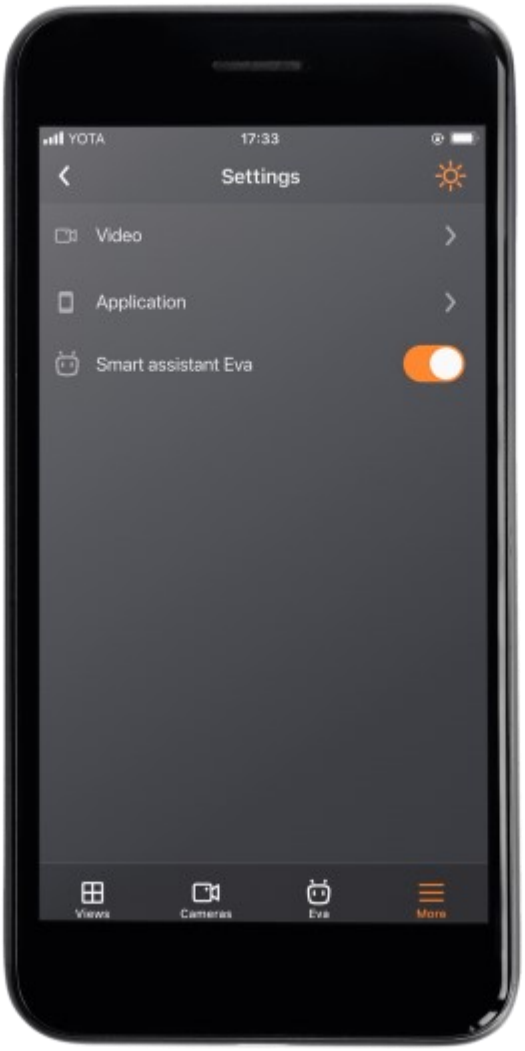


Depending on the chosen theme, the color of the navigation bar changes from light to dark.

YOTA LTE
17:36
Map
Google
Views
Cameras
Eva
More

YOTA LTE
17:36
Map
Google
Views
Cameras
Eva
More

Settings



Push notifications

This tab displays a list of all systems/accounts in the application with the ability to enable/disable push notifications from them.

When a new system is added, push notifications are enabled for it by default.

Video

This tab contains application video display settings that apply to all systems added to the applications.

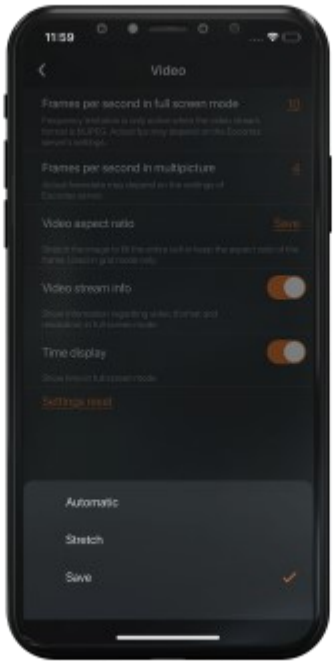
Before adjusting the frame rate and transcoding, it is recommended to consult with the administrator of the video surveillance system, since these settings will not work on all cameras and may also be ineffective.

The **Video aspect ratio** setting allows choosing how the video will be scaled in cells:

Automatic: the application automatically determines whether to stretch the image or keep the aspect ratio;

Stretch: the image will be stretched in the cell;

Save: the camera aspect ratio will be used.



Application

After enabling the **Use device time** option, the device time will be used in notifications, full-screen and archive views, on saved frames and in the smart assistant.

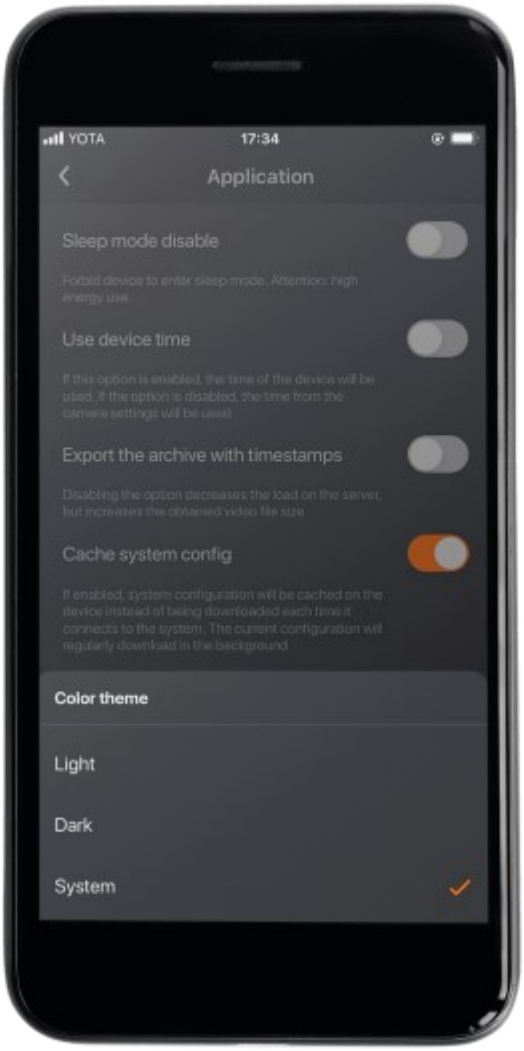
The time from the camera settings is used by default.

In the **Theme** setting, you can choose one of the following color themes:

Light

Dark

System



The **System** theme depends on the color theme of the device's operating system and can be dark or light.

You can change the system theme in the following ways:

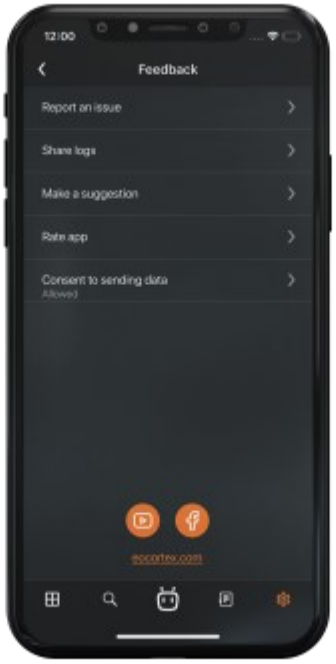
Manually by the user in the device settings.

Automatically, after the user configures the scheduled theme on the device. The application adapts to the current theme without reloading.

On this page, you can also configure the display of **Voice Assistant EVA** in the application. When disabled, the corresponding icon will be removed from the navigation panel.

Feedback

This window is provided for solving problems that have arisen, as well as for suggestions and evaluation of the application.



Short tutorial

A learning page consists of a panel with buttons and brief tutorials. Tutorials contain the following sections:

- Export
- Events
- Grid
- Archive
- Analytics
- PTZ
- EVA.

Pressing the button opens the corresponding tab with training information.

Tabs can be switched both using buttons and using a swipe gesture.

Quick start

The Quick Start guide is intended to explain how to quickly install, configure and start working with the **Eocortex** video management system.

For information not covered in the Quick Start guide, it is recommended to read the full software guide.

List of terms

Applications:

Eocortex Server is a server software for a distributed network video management system designed to receive, analyze, process and archive video data from IP cameras. It is installed on a separate server computer, where data is processed and archive is stored. **Eocortex Server** installs and works as a **Windows** service that starts at the computer startup and runs in the background. The computer where the software is installed must be highly reliable and capable to work uninterruptedly. To license the computer with installed software as an Eocortex server, it is required to activate a license key provided as a software key code or a USB dongle.

Eocortex Client is a client software for a distributed network video management system designed to view video and audio from IP cameras in live and archive modes, controlling cameras and work with intelligent modules' data. It is installed on the computers of operators, the head of the security department and other users of the video management system. **Eocortex Client** does not require a license key to work.

Eocortex Standalone is a software that combines the feature of a video surveillance system server and client. It is installed on a single machine, where the data is processed, the archive is stored, and real-time video streams are viewed. **Eocortex Standalone** is not a **Windows** service — it is a separately launching application with window interface. The computer where the software is installed must be highly reliable and capable to work uninterruptedly. To license the computer with installed

software as an Eocortex server, it is required to activate a license key provided as a software key code or a USB dongle.

Eocortex Configurator is an application designed for configuration of the **Eocortex** video management system.

Eocortex Server Info is an application designed to inform the user about the current state of the server.

The licensing of **Eocortex** server software can be performed with one of two options: using a USB dongle or using a software key code.

Only one licensing type can be used on one server simultaneously.

The license key based on a USB dongle consists of a dongle itself and a license file associated with it. The key can be activated automatically via the Internet or using a license file. The USB key is not tied to a specific computer where it was installed and can be transferred to another computer with subsequent reactivation in case of transferring the server.

The license key based on a software code is based on binding of the **Eocortex** Server software to the hardware components of a computer. Due to that, once the key has been activated on the specific computer, it cannot be transferred to another computer. The key can be activated automatically via the Internet or by generation of special activation files. For the second option, an activation request file with the information about computer configuration is generated on the server. This file should be sent by e-mail to the licensing server that will send an activation file in response. To activate the license, the received file should be uploaded to the server in a special way.

Use case

The following use case with the specific system configuration provided in this Quick Start guide may be used as an example of installing, configuring and getting started with the **Eocortex** video management system:

The **Eocortex Server** option will be used as a server software.

The USB dongle option will be used to license the server.

The **Eocortex Client** software and the **Eocortex Server** software will be installed on the same computer with 64-bit **Windows 10** operating system.

The **Eocortex Client** software and the **Eocortex Server** software will be installed from the **Eocortex** Full Version installation package.

Activation of the license key will be performed in automatic mode via the Internet.

Before installation

Before installing and configuring the **Eocortex** system, prepare the following:

Computer with **Windows 10** operating system that will work as the **Eocortex** server;

USB dongle with **Eocortex** license;

The **Eocortex** Full Version installation package available for the computer mentioned above.

No third-party applications, except for **Microsoft** applications that are installed during the installation of the **Windows** operating system, should be installed on the computer that will be used as the **Eocortex** server.

The most up-to-date version of **Eocortex** can be downloaded at Support / Software Installation Packages Supported.

In case of software failures, as well as other issues related to the Eocortex software, it is recommended to contact the technical support department:

- Website: https://eocortex.com/
- E-mail: support@eocortex.com

Installing Eocortex applications

Preparing the computer

Minimum requirements on the computer hardware can be calculated at the Software for IP Cameras / Calculator page of the eocortex.com website.

Detailed recommendations on the computer hardware are provided in the full version of the software documentation.

For the best CPU performance, it is recommended to disable power saving features, like **EIST** for **Intel** or **Cool'n'Quiet** for **AMD** CPUs. Such features usually can be disabled in the **Advanced/CPU** section of the **BIOS** settings. To use SATA drives, it is important to set **AHCI** as SATA mode. This option is typically available in the **Advanced/SATA** section of the **BIOS** settings, but only for those controllers that support this mode.

Before installing the **Eocortex** software, it is important to prepare the operating system:

Install all **Windows** updates and disable auto-update feature.

Select the proper time zone according to the location of the server and set the date and time manually, or synchronize it with an NTP server on the Internet or on the company's local network. Once the date and time are set, disable synchronization.

Switch the power plan to high performance. Go to **Control panel / Power options** and enable the **High Performance** Power Plan. It is also recommended to disable the **Turn off hard drive** feature in the power plan settings, as the drives in the video surveillance system must be active clock round and hibernating drives or turning them off while the system is running may cause the **Eocortex** server malfunction.

Disable User Account Control. Go to **Control panel / User accounts / Change User Account Control settings** and set the slider to the **Never notify** position.

Disable the Firewall. Go to **Control panel / Windows Defender Firewall / Turn Windows Defender Firewall on or off** and select the **Turn off Windows Defender Firewall** option. If the Firewall cannot be completely disabled due to the security policies, make sure that all network ports used by the system to communicate with cameras and client applications are whitelisted.

In particular, the following ports are used by default:
Incoming TCP connections:

- **8080**: HTTP port for basic client-server and server-server connections.
- **18080**: SSL port for secured client-server and server-server connections.
- **8089**: Port for mobile applications and web clients to communicate with a system with connection proxying disabled. By default, the proxy is enabled and can be managed in the server settings section of the **Eocortex Configurator** application.

Outcoming TCP connections:

- **8080**: Port for communication with the main server in the system.
- **80**: Port for communication with cameras via HTTP or ONVIF.
- **554**: Port for communication with cameras via RTSP.

- **443**: Port for communication with cameras via HTTPS.

  Depending on the **Eocortex** features enabled and the cameras used, other ports for incoming and outcoming connections may need to be opened.

If the antivirus is installed on the computer, it should not scan HTTP and RTSP traffic, including incoming video streams from IP cameras, as this will significantly affect system performance. Also, it is important to include the **Eocortex** application executables in the list of trusted antivirus and firewall applications.

Some AV software scan video streams even when disabled, cause during installation they "embed" own components at the OS drivers level. Because of that, for the best performance, it is recommended to not install AV software on the computer hosting the **Eocortex** server if possible.

It is not recommended to install **Eocortex** applications on the computer with other video surveillance software or screen capturing software installed, even if such software is not running when working with **Eocortex** applications. Doing so may cause **Eocortex** software to malfunction.

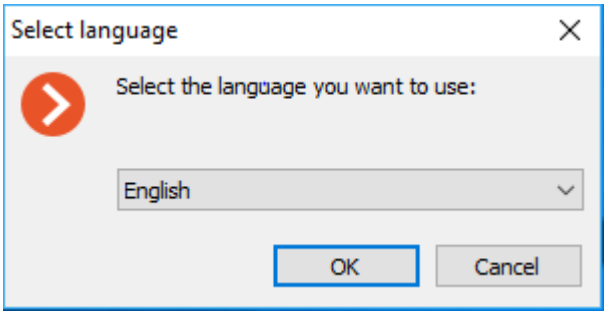
Installing Eocortex applications from the Full version package

It is recommended to close all **Windows** and third-party applications and plug in the **Eocortex** protection USB key to the computer before starting the installation of **Eocortex** applications.

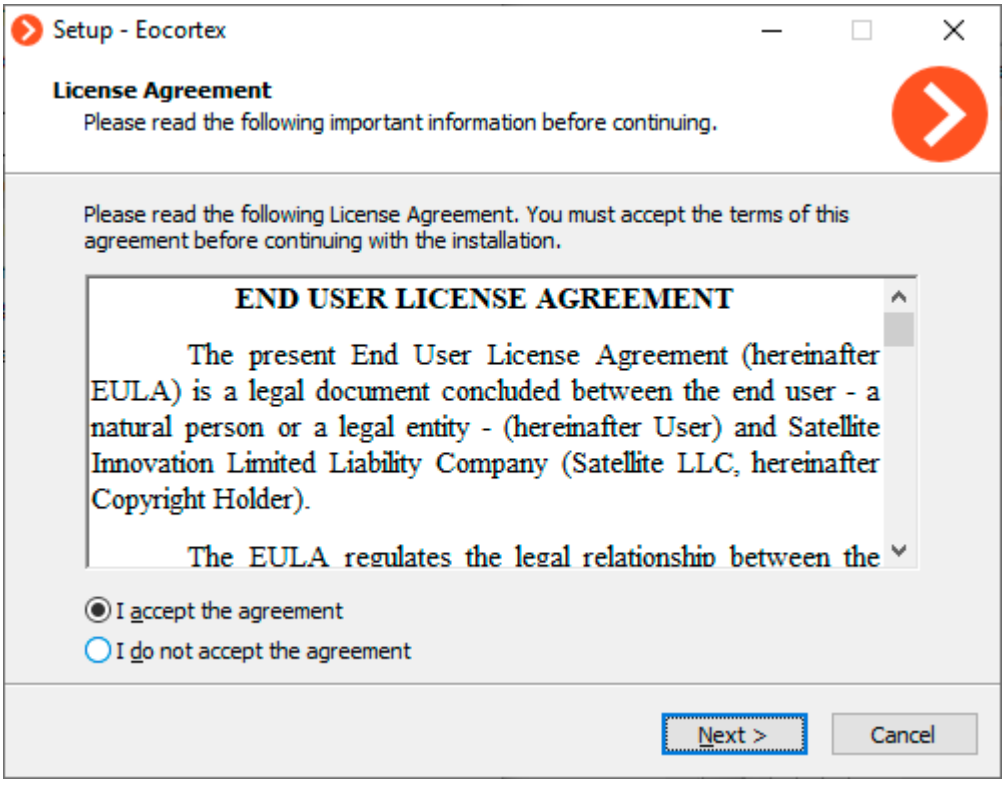
Installation of the **Eocortex Server** must be performed under an account that has full access rights to the computer, such as local administrator, domain administrator, etc.

To install the **Eocortex** applications, run the **EocortexMainCommon Installer.exe** file.

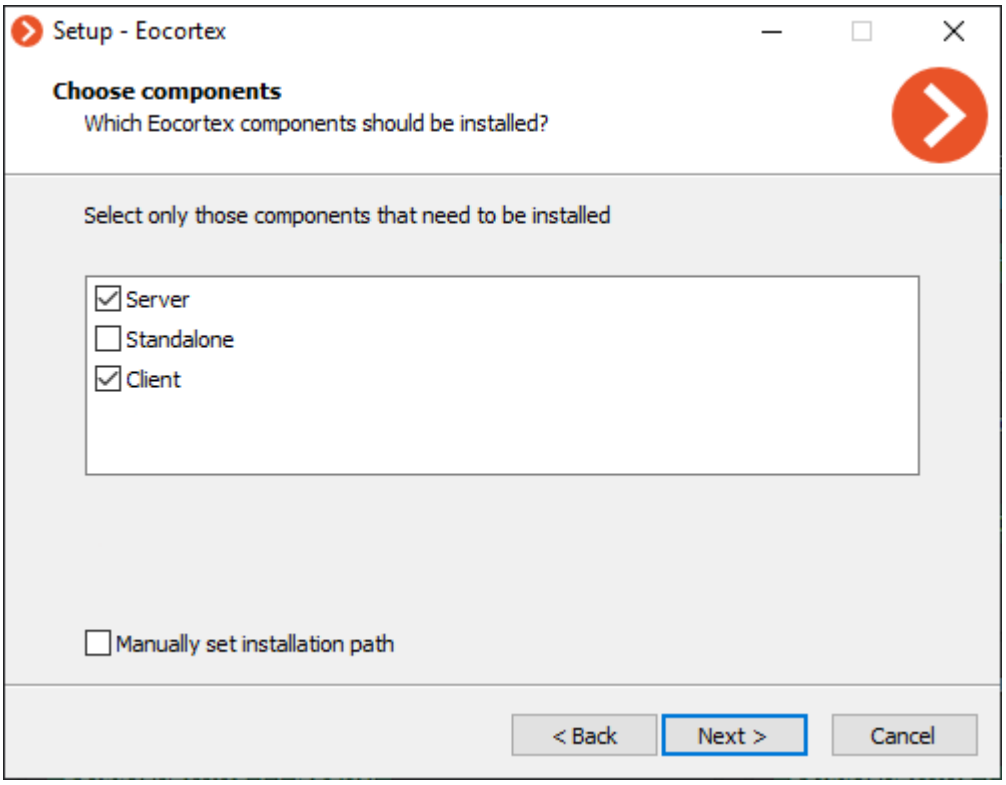
In the **Select language** window that opens, select the language that will be used both during installation and further operation of the application on this computer.

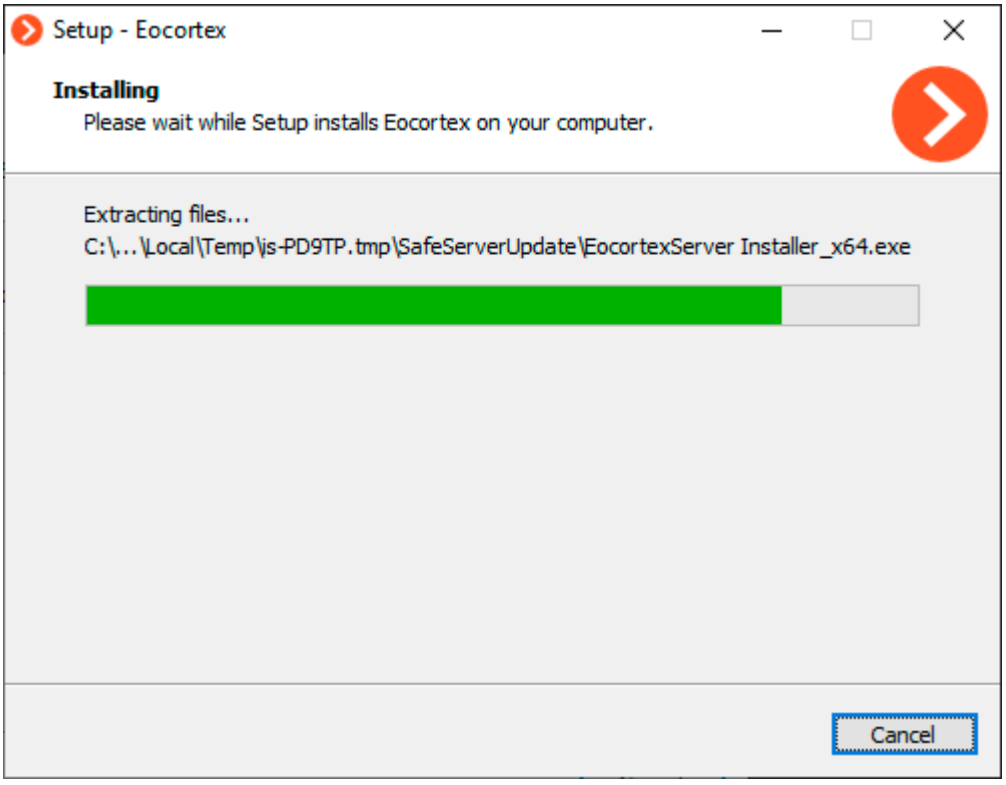


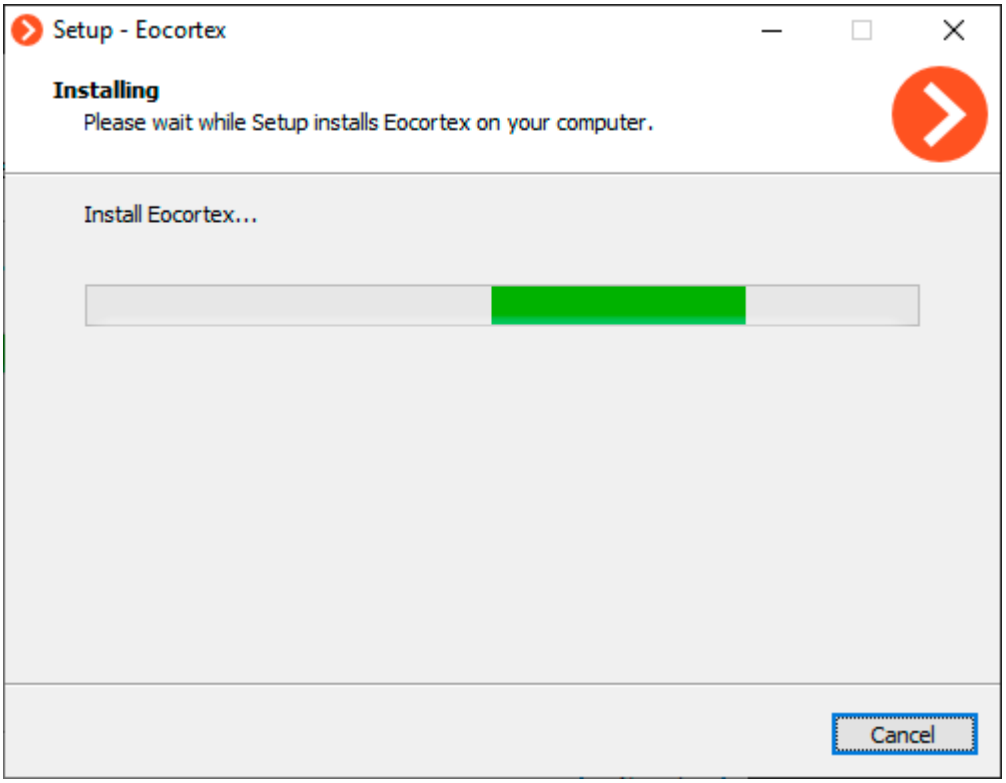
Clicking **OK** starts the **Eocortex** installation wizard. Follow the instructions.

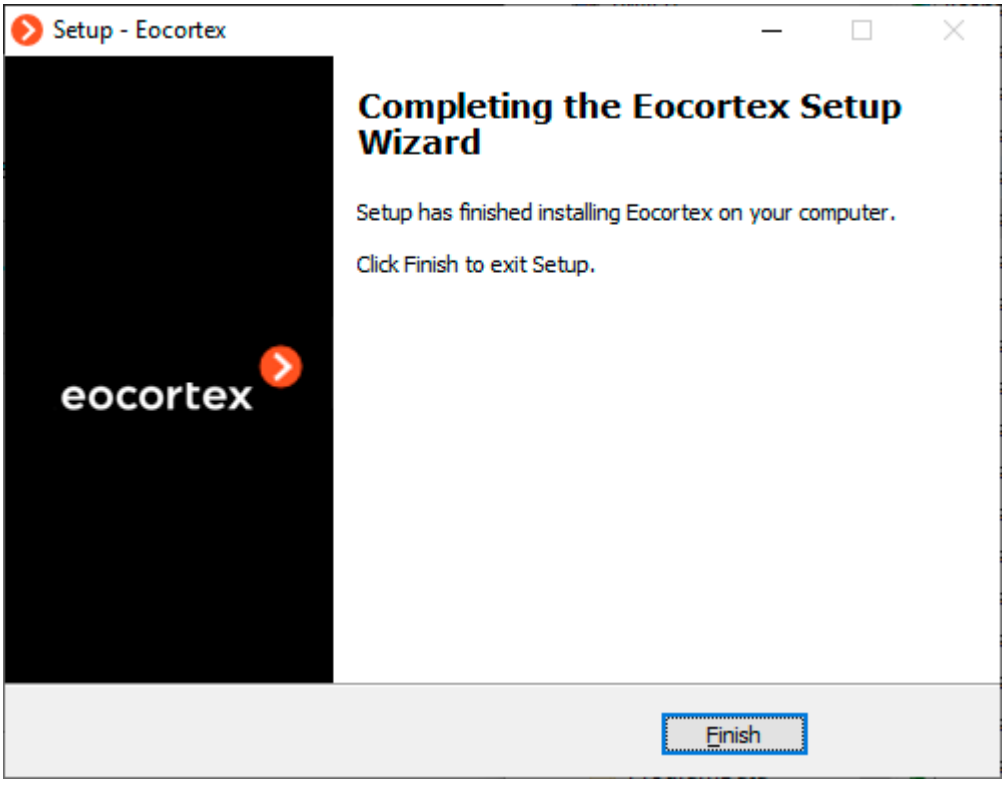


On the **Select components** page, select the applications that must be installed on the computer. In this example, the **Server** and **Client** options are selected.



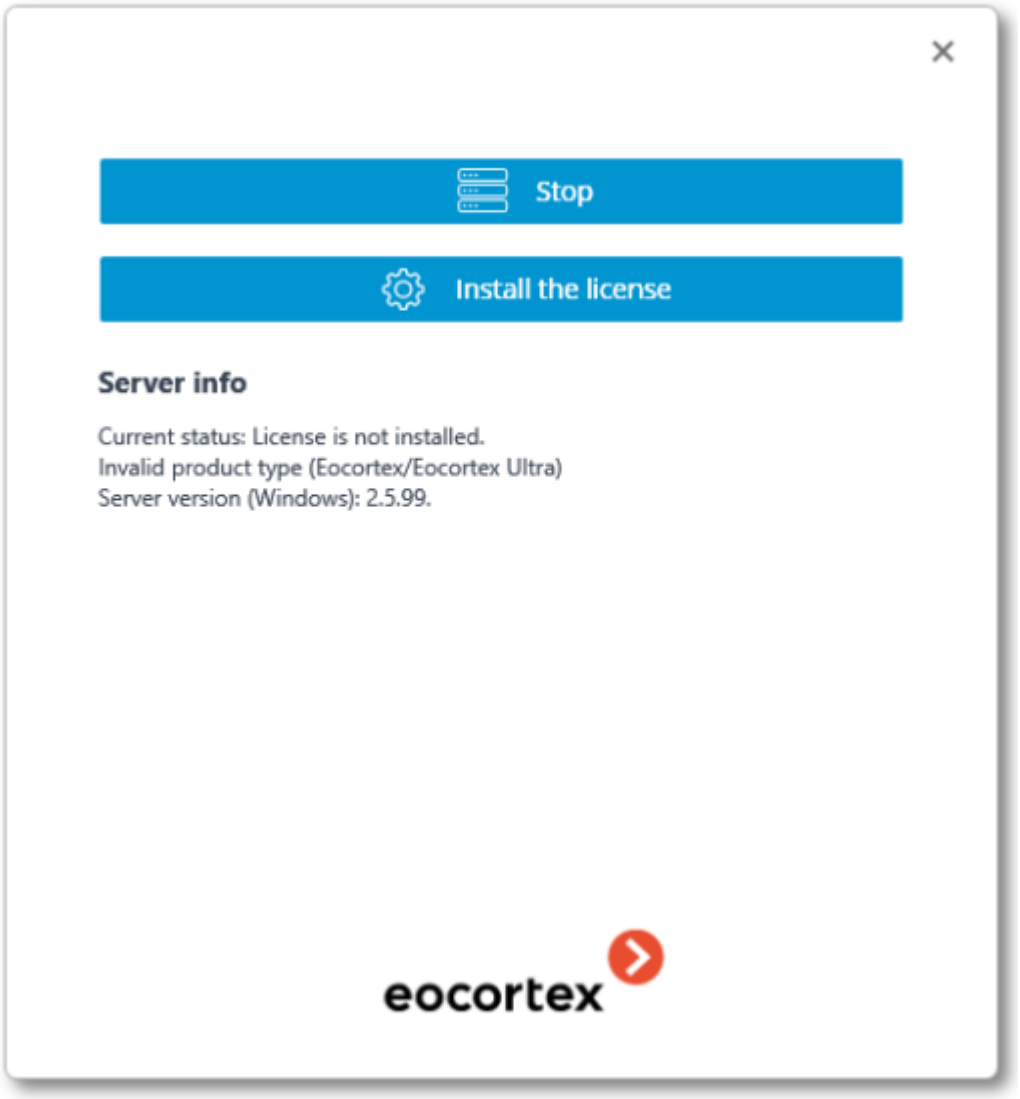

Setup - Eocortex
Installing
Please wait while Setup installs Eocortex on your computer.
Extracting files...
C:\...\Local\Temp\is-PD9TP.tmp\SafeServerUpdate\EocortexServer Installer_x64.exe
Cancel


Setup - Eocortex
Installing
Please wait while Setup installs Eocortex on your computer.
Install Eocortex...
Cancel



When the **Eocortex Server** component is installed, it will automatically start as a **Windows** service. At the same time, a user **root** with an empty password, which has an inalienable full set of rights, will be created on the server by default. Later, it is recommended to change the password for this user.

Also, after closing the installation wizard, the **Eocortex Server Info** utility window will open. Clicking the **Install License** button will start the license installation and activation wizard. Installing and activating the license is described further in the section Configuring the video surveillance server.



Configuring the video surveillance server

The **Eocortex Configurator** application is used to configure the **Eocortex** server, including activation of the license protection key.

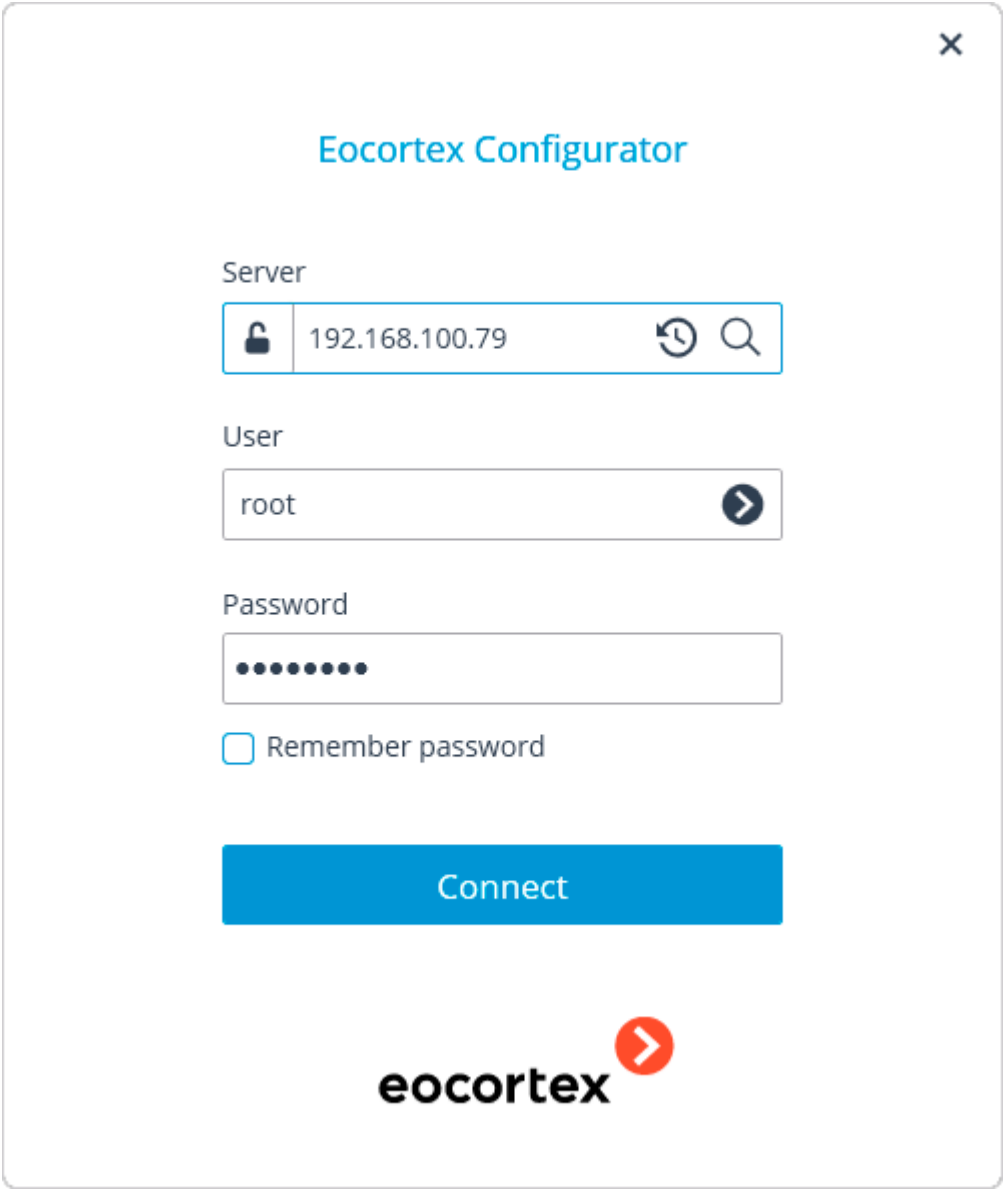
The **Eocortex Configurator** is included to all installation packages and is automatically installed when either the **Eocortex** server or client applications are installed.

To work with the **Eocortex Configurator** application, it is recommended to use a screen resolution of at least 1024×768, as the application may not display properly on lower resolution screens.

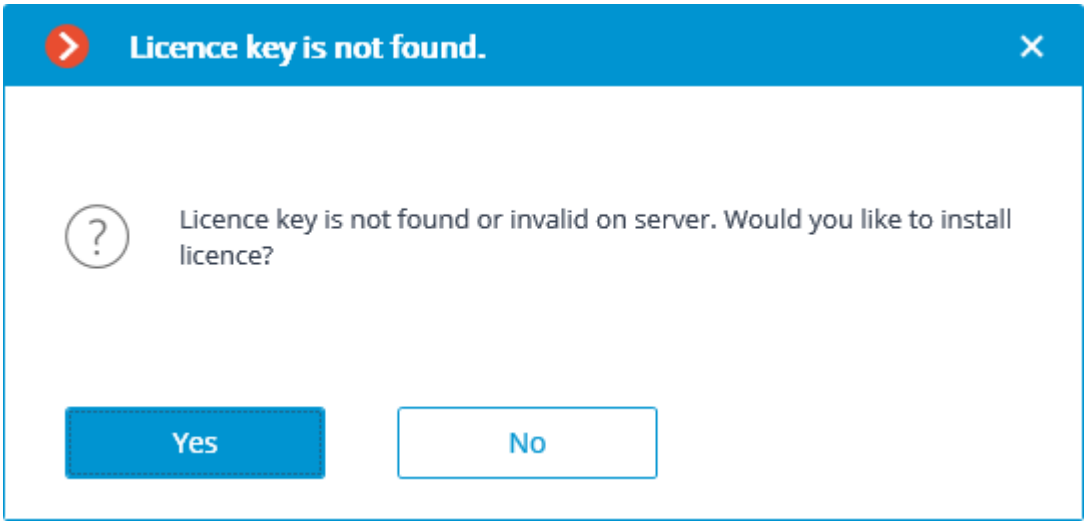
Activating the license key

When activating the protection key, it is better that the server has access to the Internet, since the most convenient way to activate the key is automatic activation via the Internet. In this case, it is usually enough to follow the steps suggested by the **License Installation** wizard by default. It is this way of activating the USB license protection key that is described below.

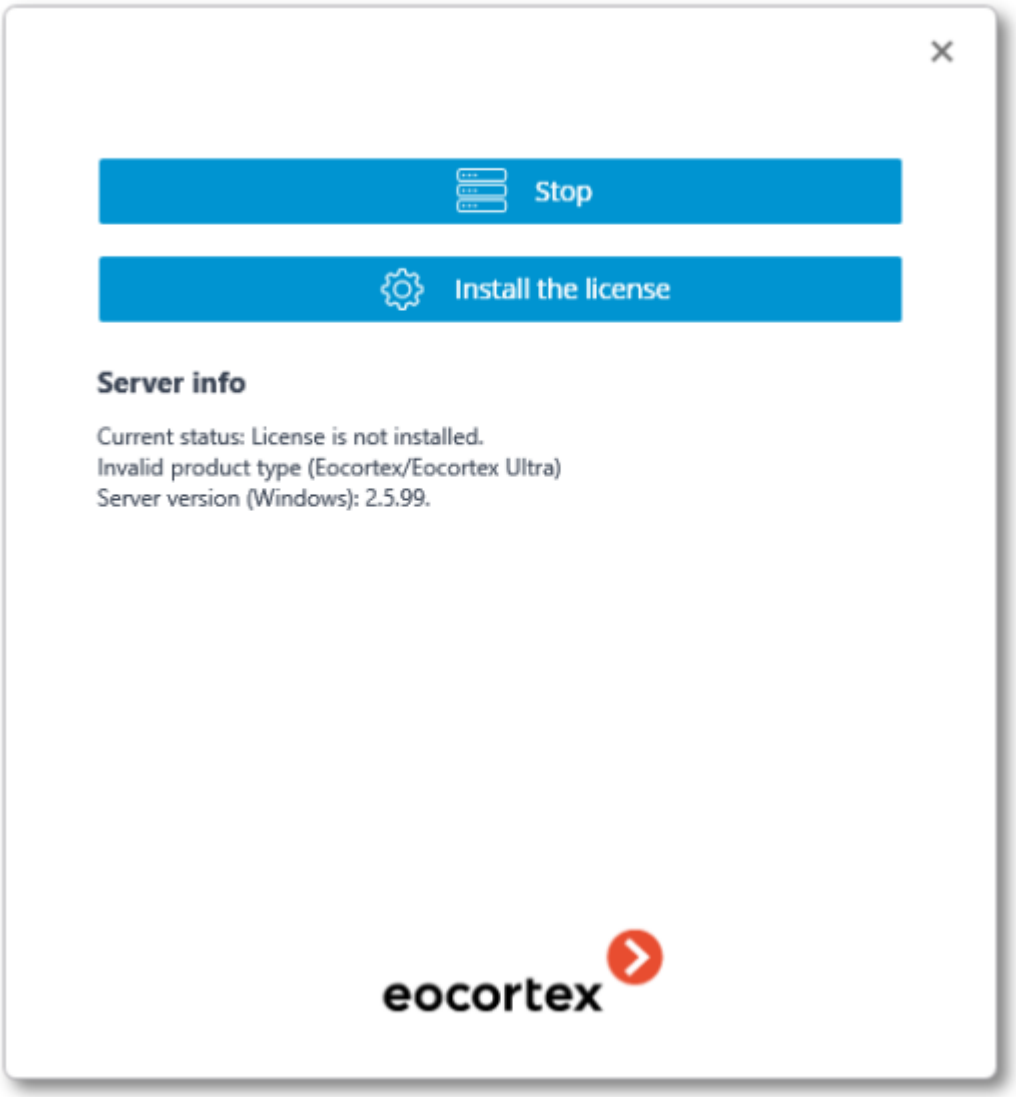
To activate the license key on the **Eocortex** server, run the **Eocortex Configurator** application. In the authorization window that opens, specify the address of the server to connect, set the name and password of a user with sufficient access rights to configure **Eocortex** and click **OK**.



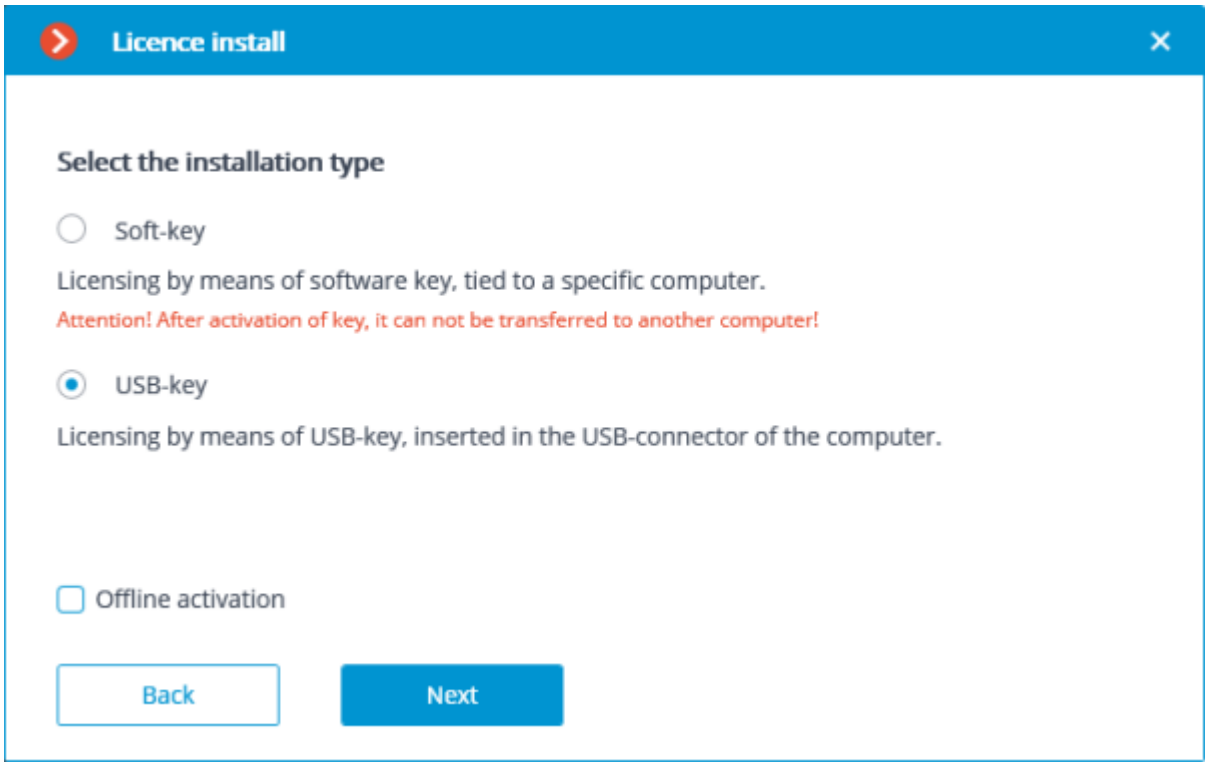
If the license key is not activated on the server, then when connecting to the server, the **Eocortex Configurator** application will prompt to install a license. Clicking **Yes** will open the **License Installation** wizard window.



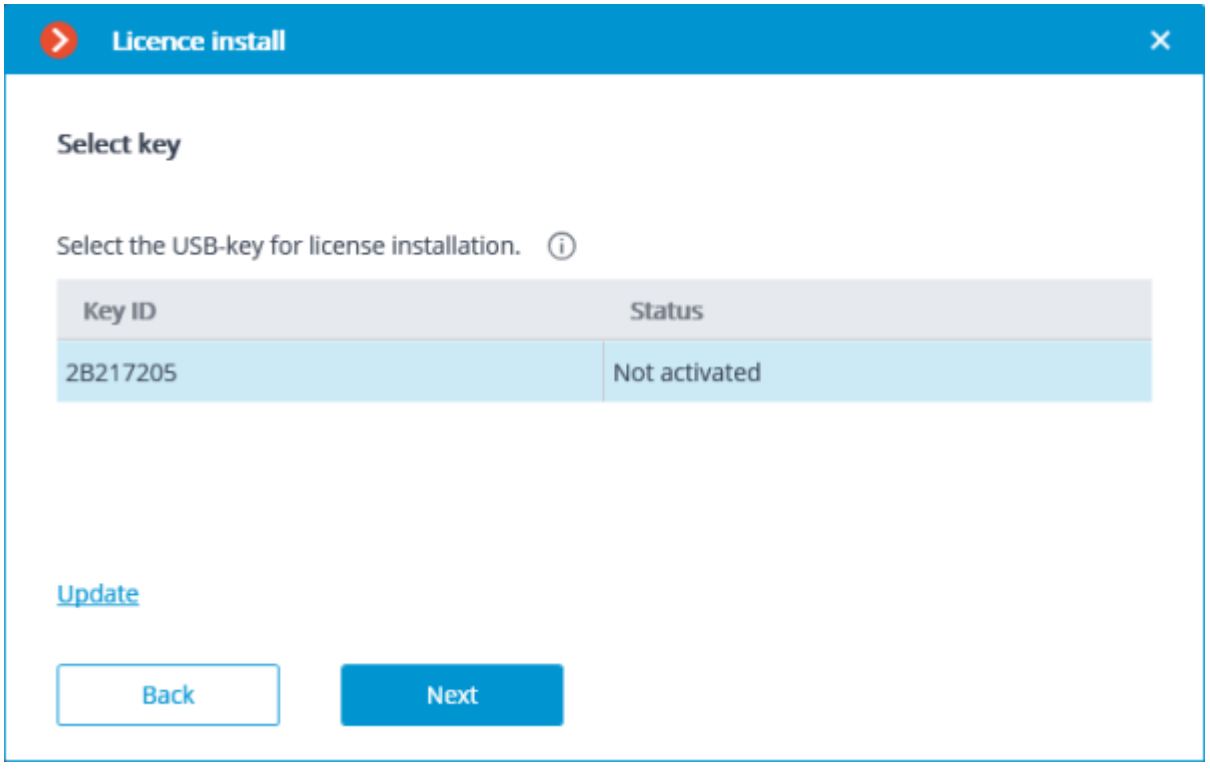
Another way to start the **License Installation** wizard is running it from the **Eocortex Server Info** window. If the license is not installed on the server, **Eocortex Server Info** will have an **Install license** button instead of **Eocortex Configurator**, clicking on which will open the wizard window.



On the **Select the installation type** page, select the type of key and the activation method for the license to be installed. This example uses a license key on a USB dongle and online activation via the Internet, so select the **USB-key** option and click **Next**.

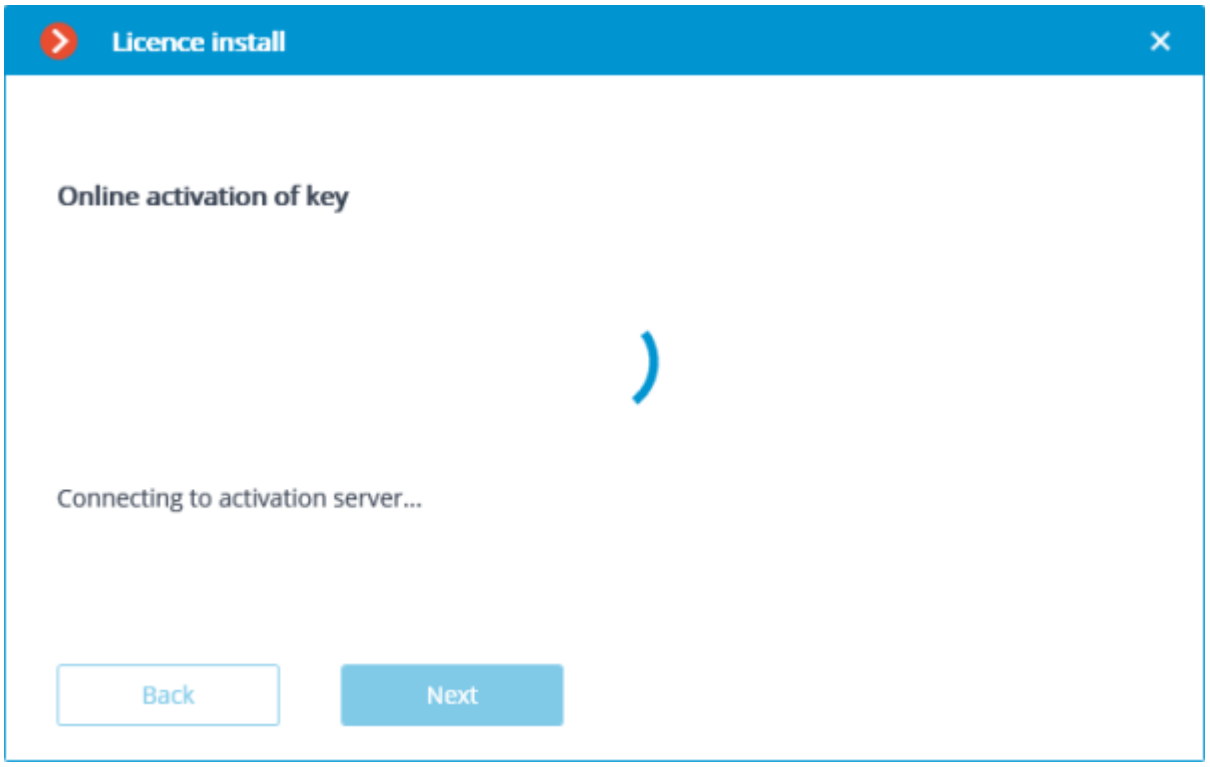


The **Select key** page will open with a list of USB dongles connected to the server. The **Key ID** column of the list displays the number printed on the side of the USB key. If the required dongle is not in the list, then it is not connected to the server's USB port; in this case, you need to connect the key to the server and after a few seconds, click **Update** — the list will be updated. To proceed with the installation, click **Next**.

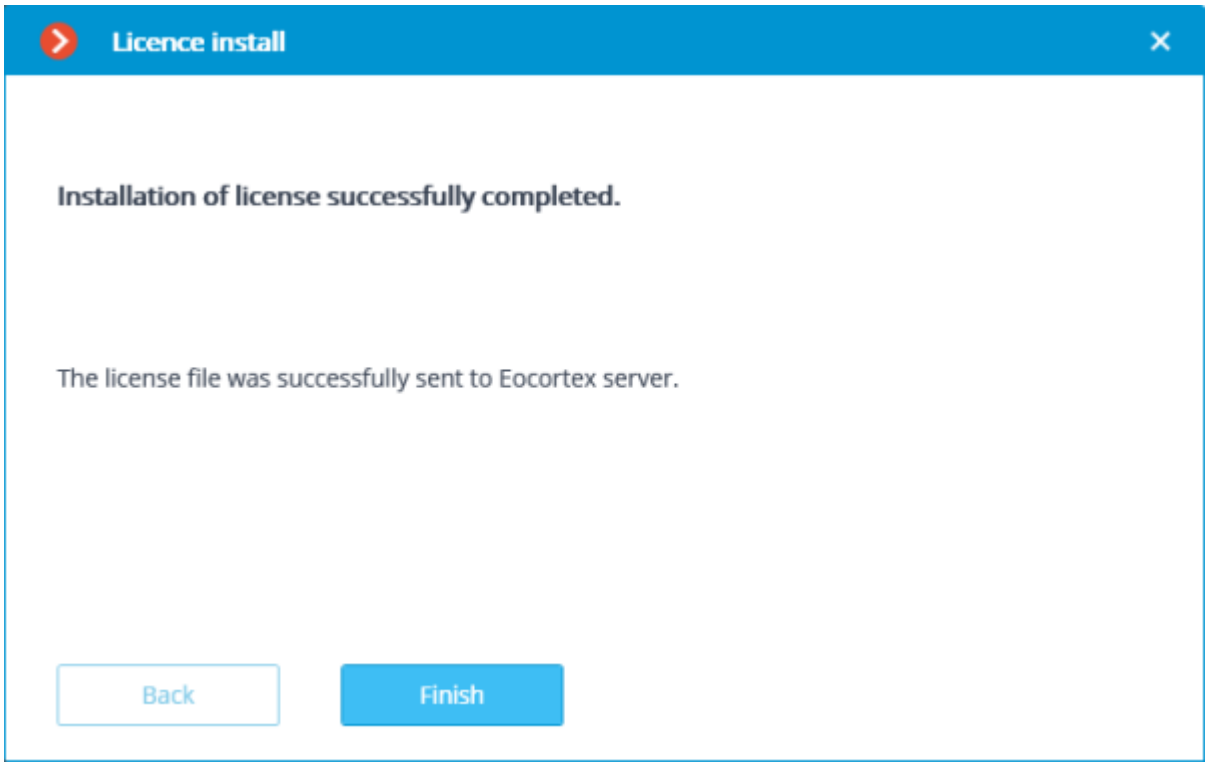


The next step, i.e., key activation, depends on the availability of the internet connection. If the Internet connection is available, the **Eocortex** server will connect to a remote license activation

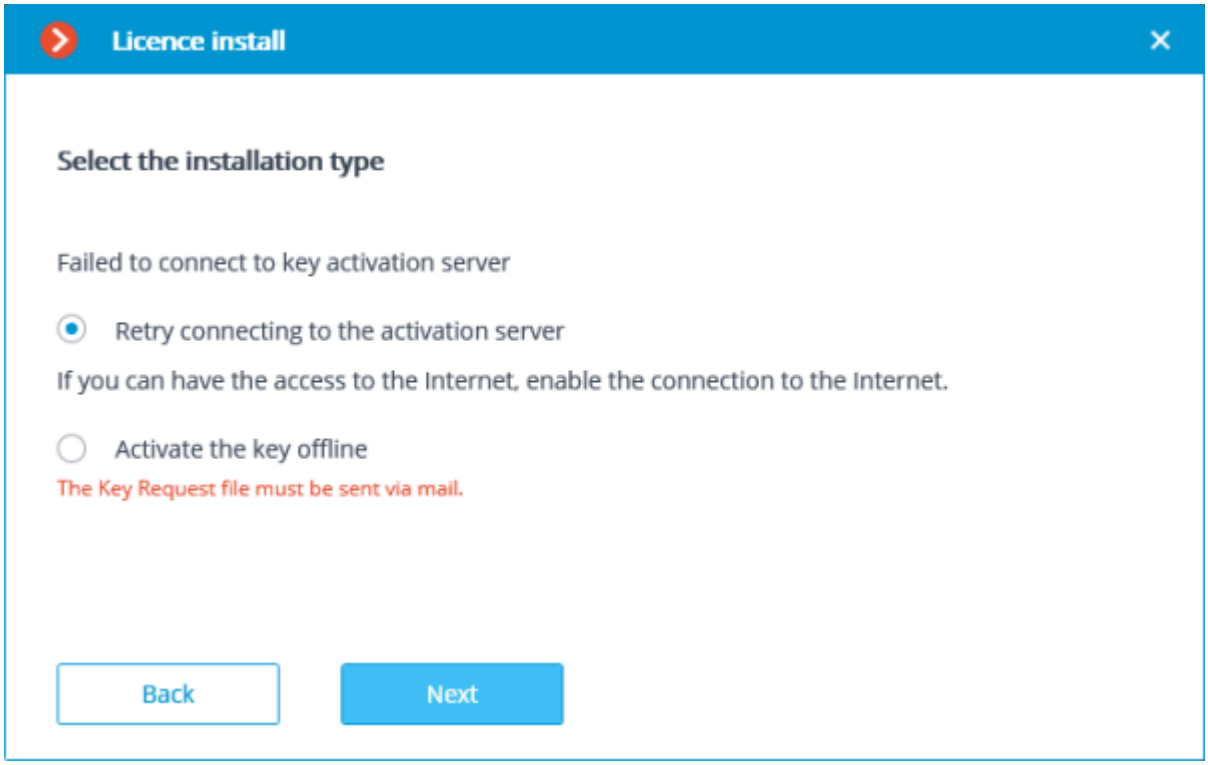
server and try to activate the key in automatic mode in accordance with the licenses assigned to the key. The **Online activation of key** page will be shown during the activation process. If the key is being activated for the first time, the **USB key activation code** will be requested.



In case of successful activation, the **License has been successfully installed** window will appear. To exit the license installation wizard, click **Finish**.



If an error occurs during activation, the **Failed to install the license** page will be displayed with two options: **Retry connecting to the activation server** and **Activate the key offline**. The second option will start the USB key offline activation procedure. Additionally, the activation of the key can be interrupted by closing the wizard window.



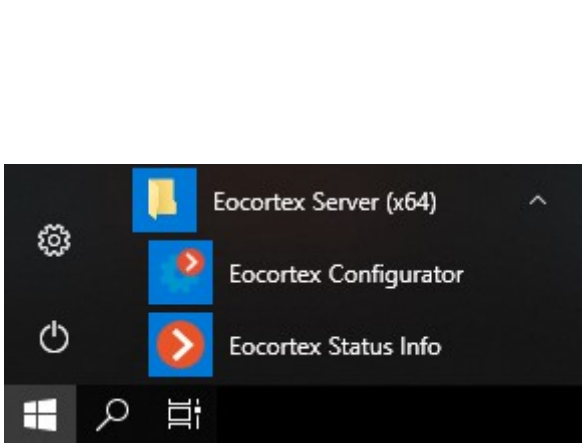
Possible online activation errors:

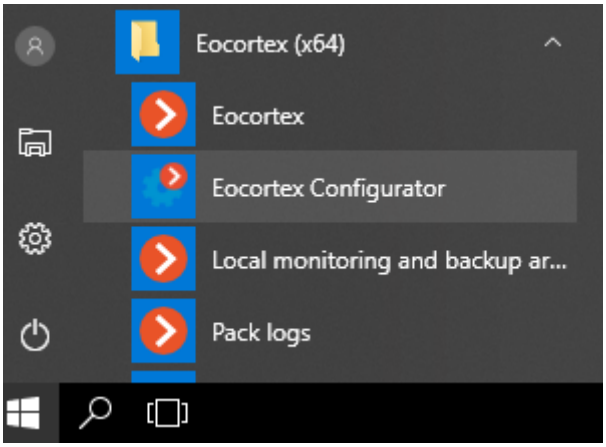
- Connection with the activation server was interrupted during the activation process; e.g., due to a connection problem, low connection speed, or due to a problem with one of the connection chain links.
- The selected key has no assigned licenses. In such a situation, contact the license supplier (seller).
- The selected key is intended for other software with the same protection system.

Launching Eocortex Configurator

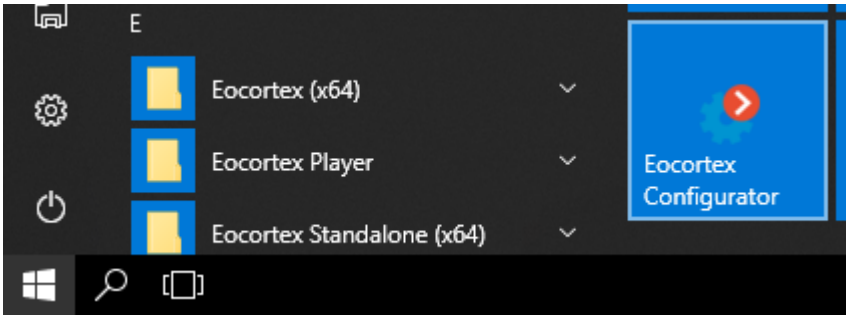
There are several ways to launch the **Eocortex Configurator** application:

From the **Start** menu.

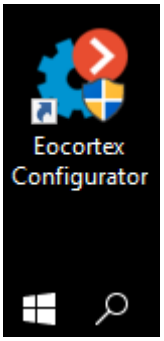




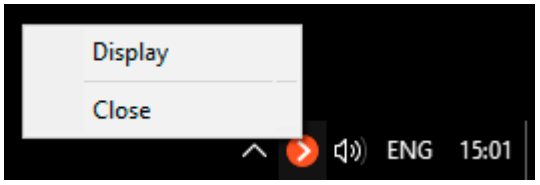
From the **Windows** Start screen.

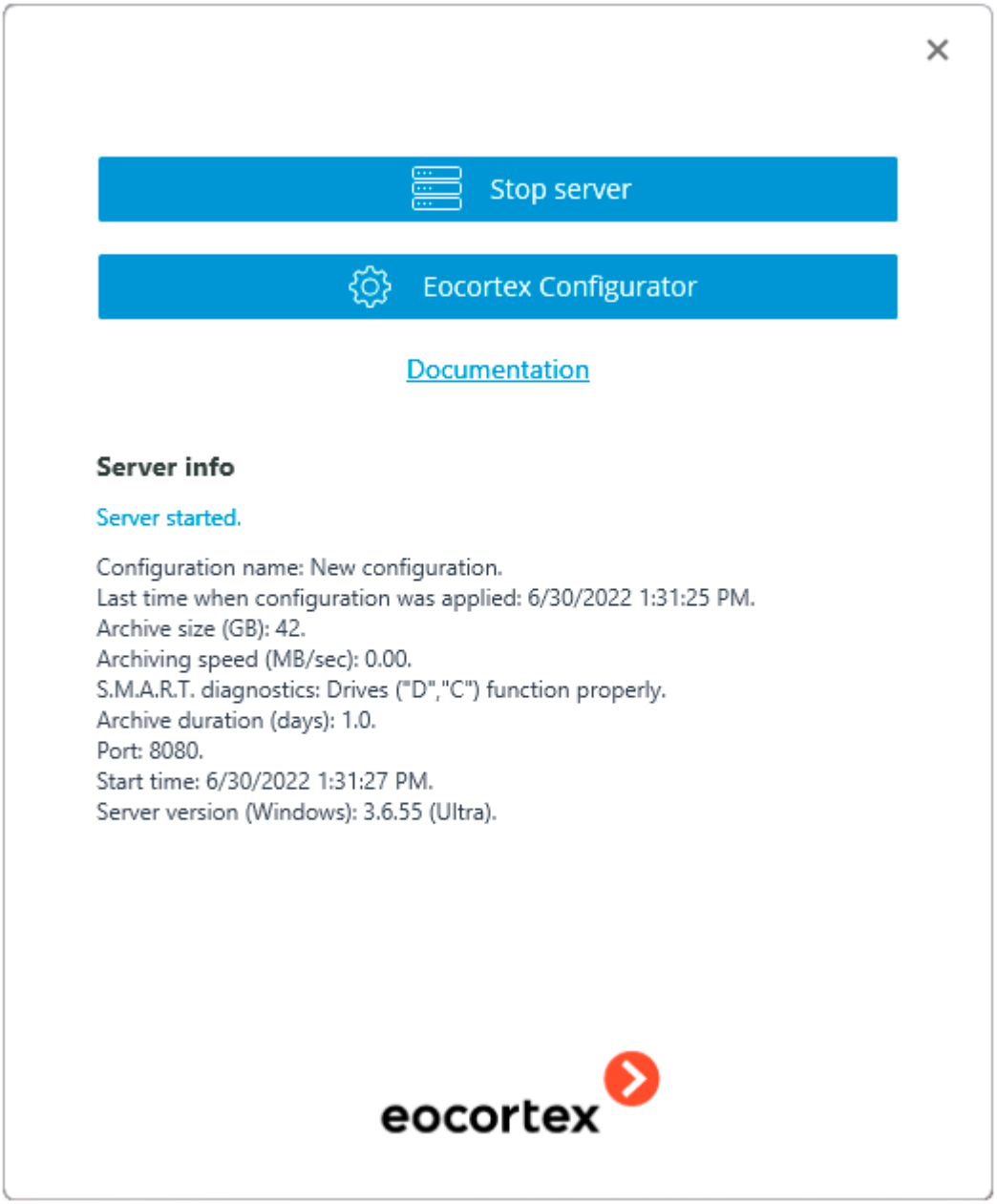


Using the shortcut on the **Desktop**.

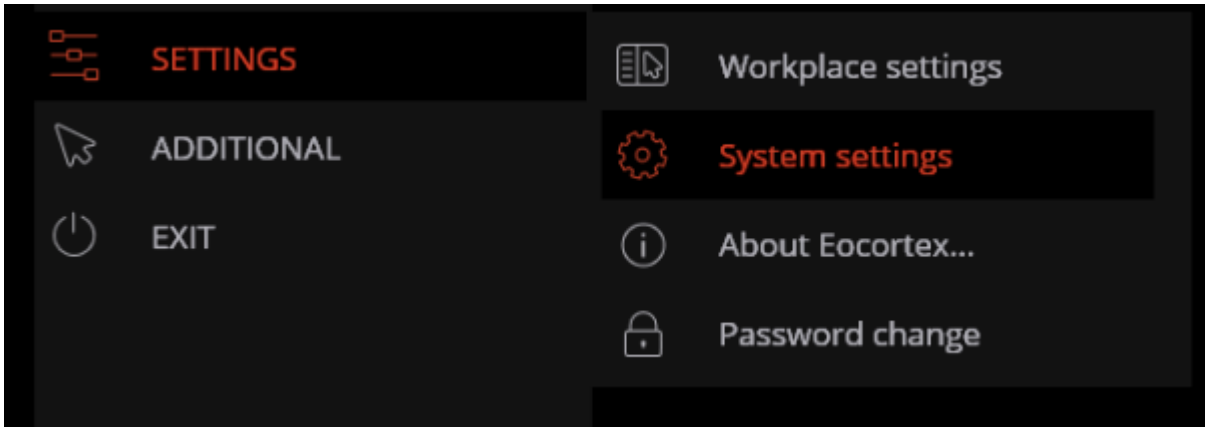


From the **Eocortex Server Info** utility window.





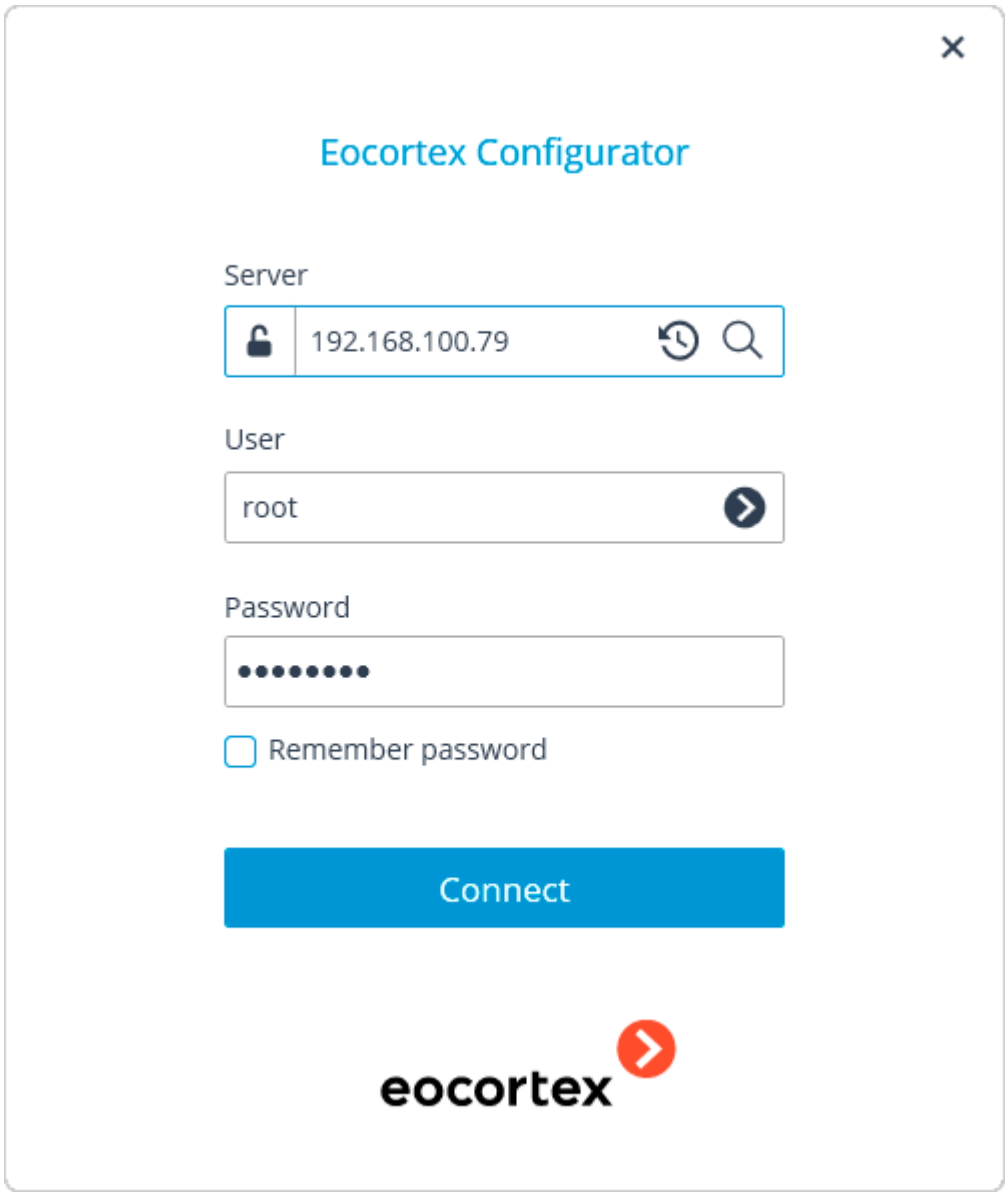
From the **Eocortex Client** application.

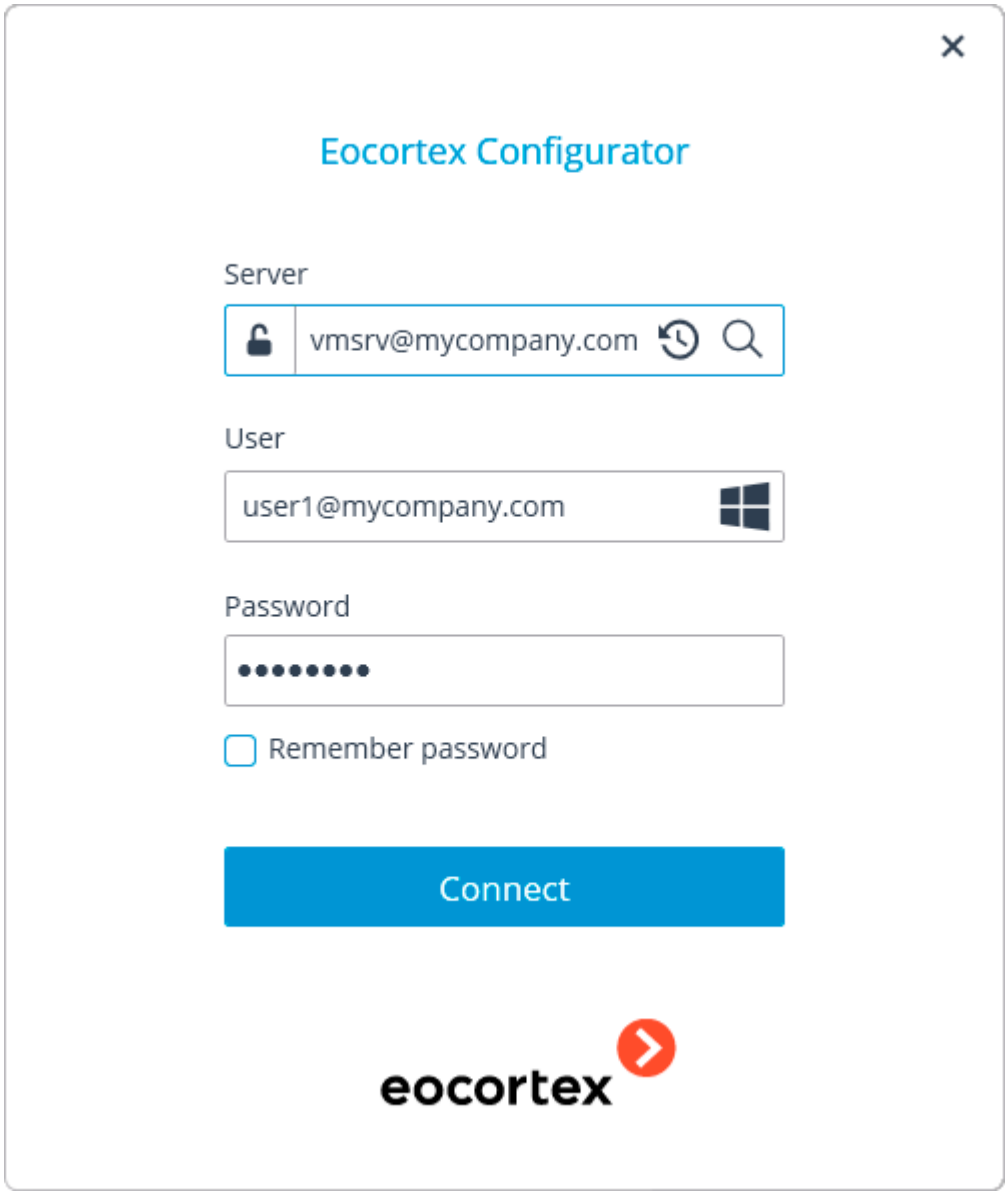


The authorization window will open. It is required to indicate the server address there in the **Server** field (or select the address in the dropdown list to the right of the input field) and the account type (only for **Enterprise** and **ULTRA**), username and password, then press the **Connect** button.

Account type: **Eocortex**; **Active Directory**.

For **Active Directory** accounts, the user name is specified as: **username@domain**; where **domain** is the domain name, **username** is the name of the user in the domain.
Registration under an **Active Directory** account is available not for all types of licenses.


Eocortex Configurator
Server
192.168.100.79
User
root
Password
Remember password
Connect
eocortex



During the initial installation on the **Eocortex** server the **root** user with an empty password is created. This user has a full set of rights. When setting up user authorities, it is recommended to change the password of this user in the **Eocortex Configurator** application.

Client connection port is **8080** by default; if required, it can be changed in the **Eocortex Configurator** application.

Following the successful authorization, the main window of the **Eocortex Configurator** application will open.

Connecting and configuring cameras

To connect a camera, first obtain the following information about it:

Camera address (IP or URI).

Camera manufacturer (brand) and model, or information about camera support for **ONVIF** or **PSIA**.

Username and password for connecting to the camera (not to be confused with the username and password of the **Eocortex** user), most often the camera administrator name and password are used.

Number of streams (One or more) from the camera and the codec (**H.264**, **MJPEG**, **MPEG-4**, **H.265**, **MxPEG**) for each stream.

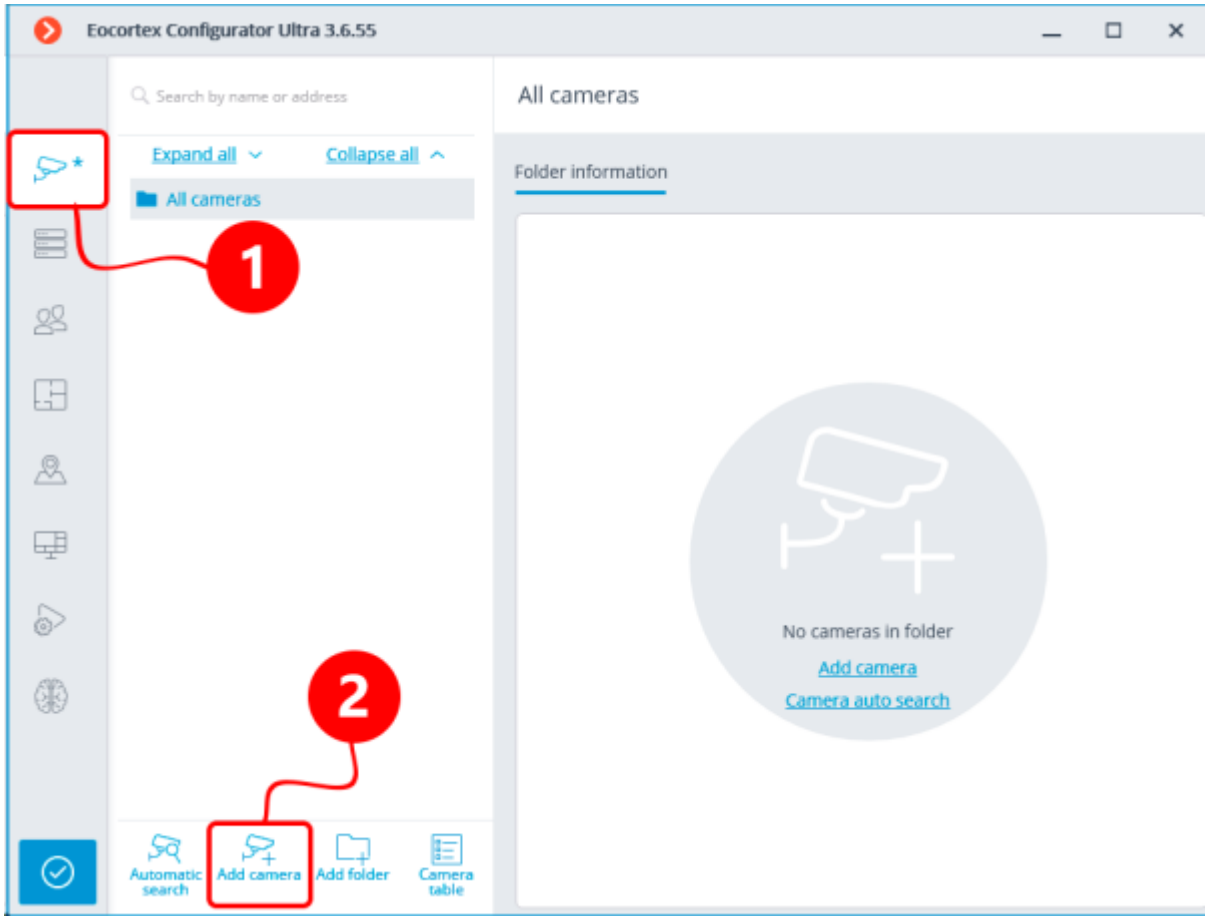
Availability of additional options: sound reception, PTZ and others.

Below is an example of a basic connection between a camera and a **Eocortex** server. For more details on connecting and configuring cameras, see the full documentation for the product.

To connect a camera to the **Eocortex** server, run the **Eocortex Configurator** and login to the server.

The main **Eocortex Configurator** window will open.

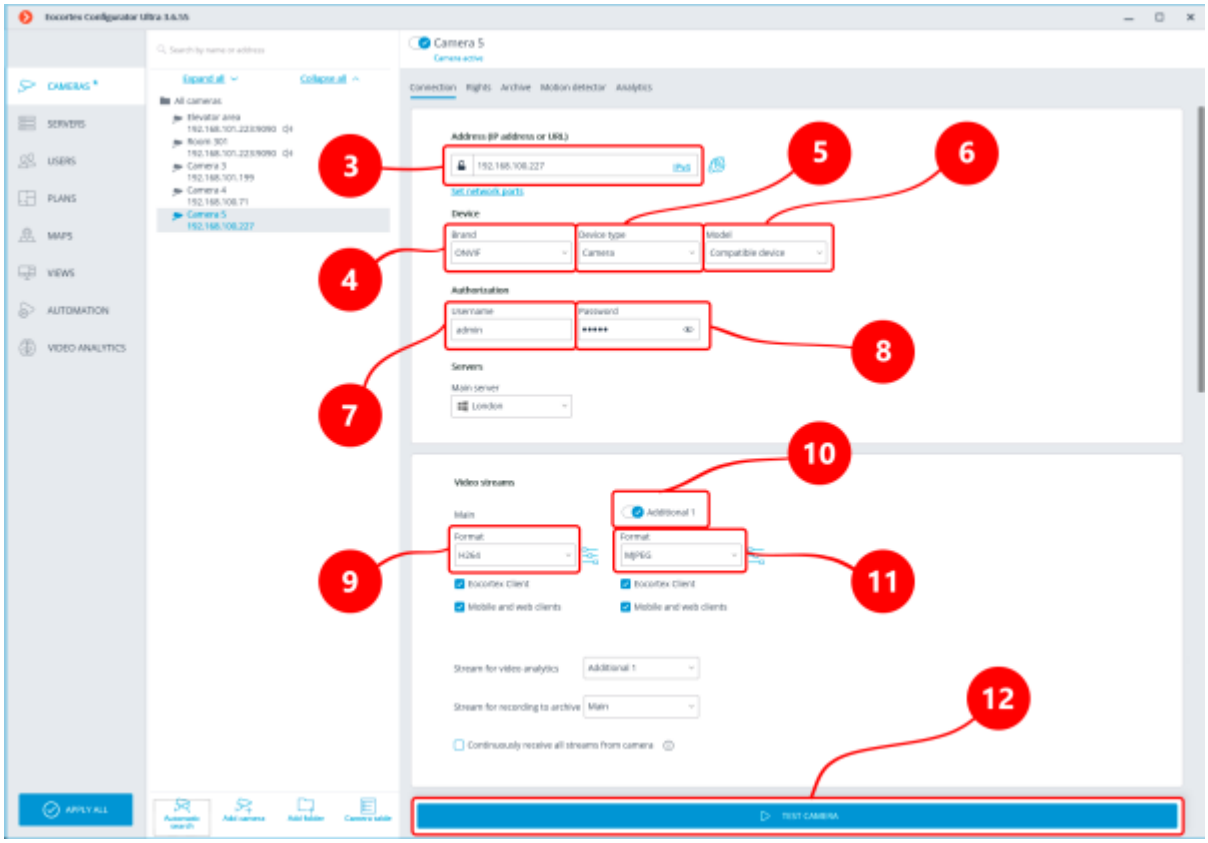
Follow the steps to connect and configure the camera as listed below:



1. In the **Eocortex Configurator**, switch to the **Cameras** page.

2. Click the **Add camera** button. The new item **Camera 1** will be created in the list.

Next, on the **Connection** tab, configure the connection to the camera, as well as the settings for the video streams received from the camera.



3. Set the camera address (IP or URI).

4. Set the camera manufacturer (brand) and model. If the connection will be carried out according to the **ONVIF** or **PSIA** standard, then set the name of the standard as the field value.

5. Set the **Camera** option in the device type field.

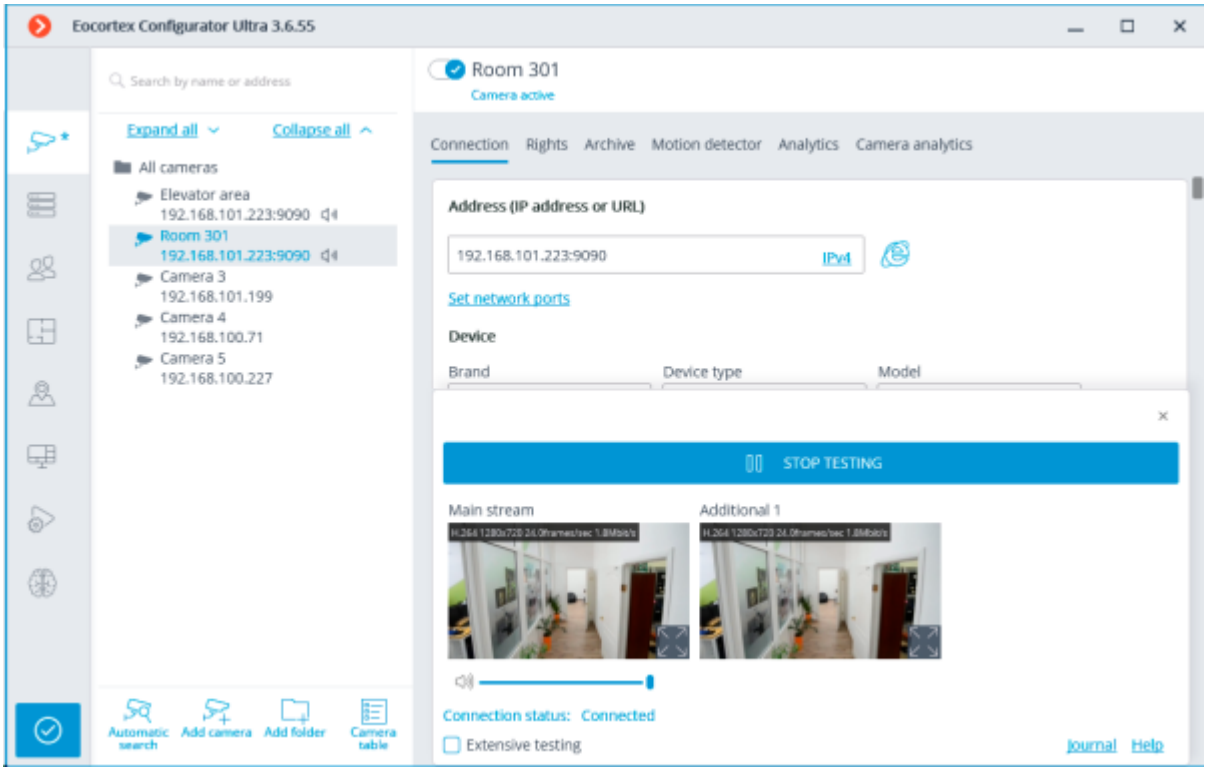
6. Set the camera model. The drop-down list may contain items that do not refer to a specific model, but to several models, series of models, or a single item for all cameras of a given manufacturer. For the connection standards listed above, the **Compatible device** value is automatically substituted.

7-8. Set the camera username and password.

9. Set a codec for the main stream.

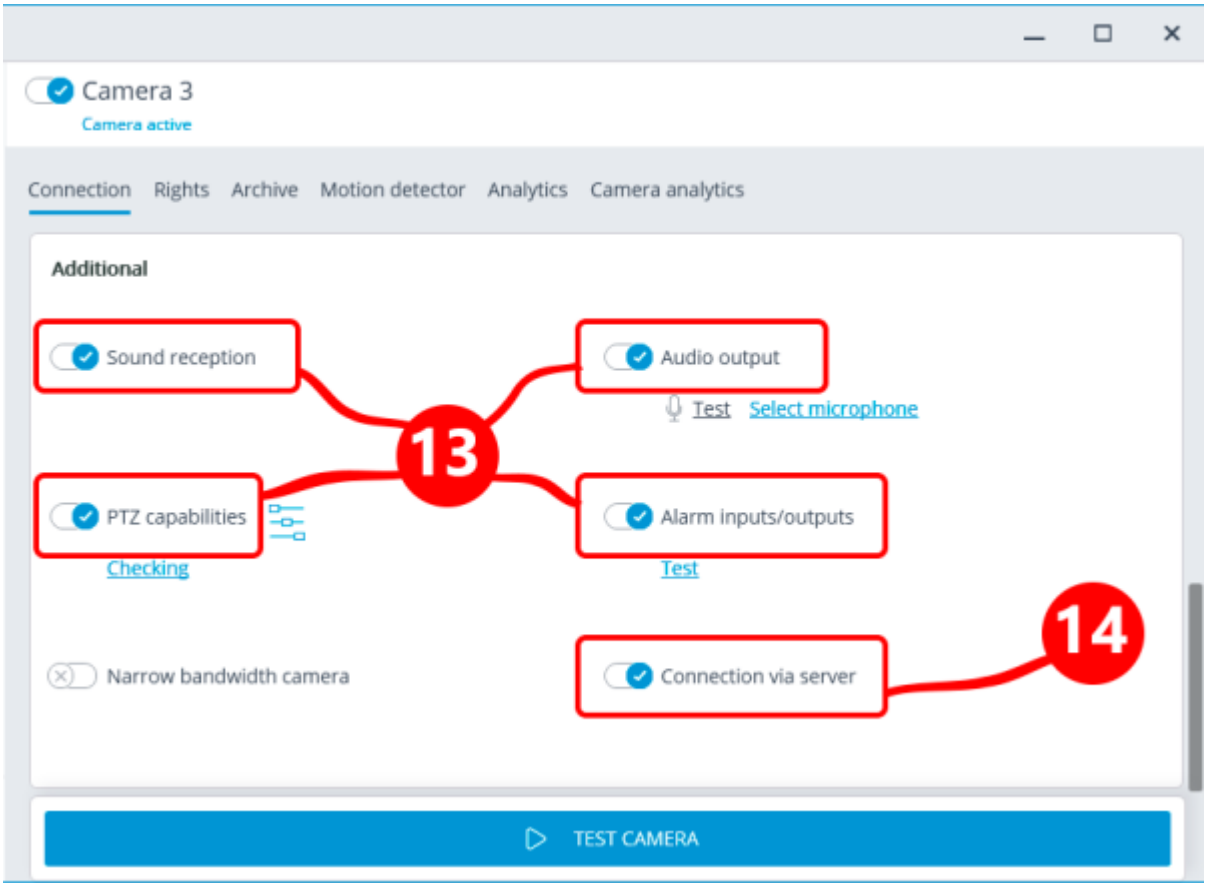
10-11. If the camera is supporting multiple streams, enable the **Additional 1, 2 or 3** options and select a codec for additional video streams.

12. Click the **Test camera** button – if the settings are correct, the live view will be displayed in this section.

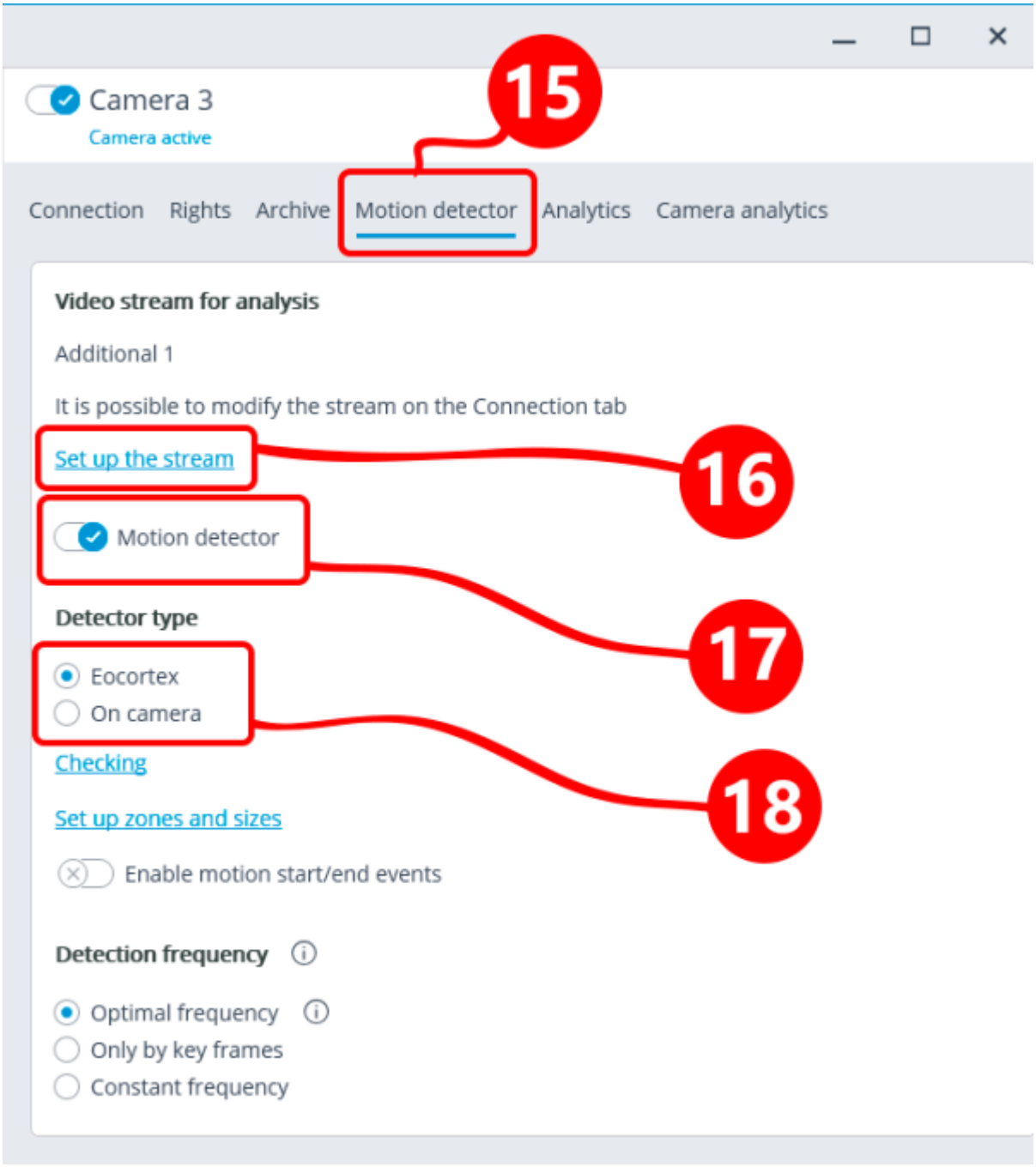


If the image does not appear, check that the camera is available from this computer through the camera's web interface. Then make sure that the address, username and password, as well as the codec are specified correctly. If the camera is available and the connection settings are correct, but the video from the camera is not displayed in the test section, then try to select other device models from the list.

13-14. In the **Additional** settings section below, additional camera features can be configured (but only if these features are supported for this camera model in **Eocortex**): sound reception and transmission, alarm inputs and outputs, PTZ control interface. Also in this section it is recommended to enable the option **Connect via server**.



15. To use the Motion Detector, switch to the **Motion detector** tab.



16. Switch on the **Motion Detector**.

17. Select the **Detector type**:

Eocortex: The server-based software Motion Detector will be used.

On camera: The camera's own Motion Detector will be used.

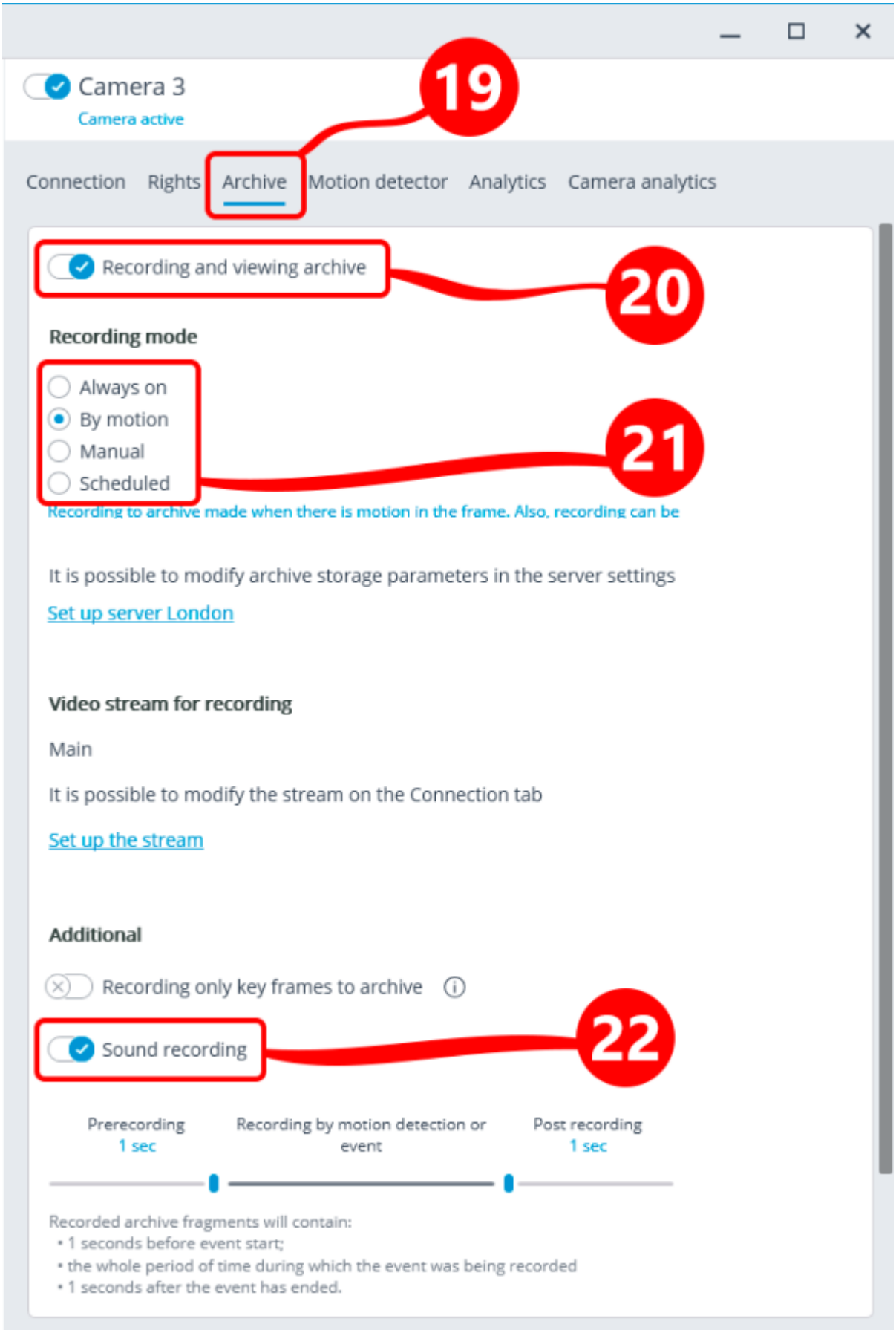
Using the Motion Detector built into the camera makes video analytics on the **Eocortex** server unavailable to this camera.

18. When using software motion detection with a camera that transmits multiple video streams, set up the **Video stream for analysis**. This parameter determines which stream will be used for software motion detection on the **Eocortex** server.

Below is a recommendation on how to choose a stream for analysis, provided that the main stream has a higher resolution than the additional one; for example, the main stream is 1920×1080, the additional one is 640×480:

Select **Additional** if no video analytics other than the Motion Detector will be used for this camera.
Select **Main** if any video analytics will be used for this camera in addition to the Motion Detector.

19. To configure the recording of video and audio from the connected camera to the archive, switch to the **Archive** tab.



20. Recording to the archive will be performed only if the **Recording and viewing archive** option is enabled.

21. The archive recording settings set by default can be left unchanged: in this case, the video archive will be continuously recorded. On the other hand, if the Motion Detector is used, it is recommended to select the **By motion** mode: in this case, the archive will be recorded only when motion is detected in the frame, as well as at the command of the operator.

22. To record audio from the camera, enable the **Sound recording** option.

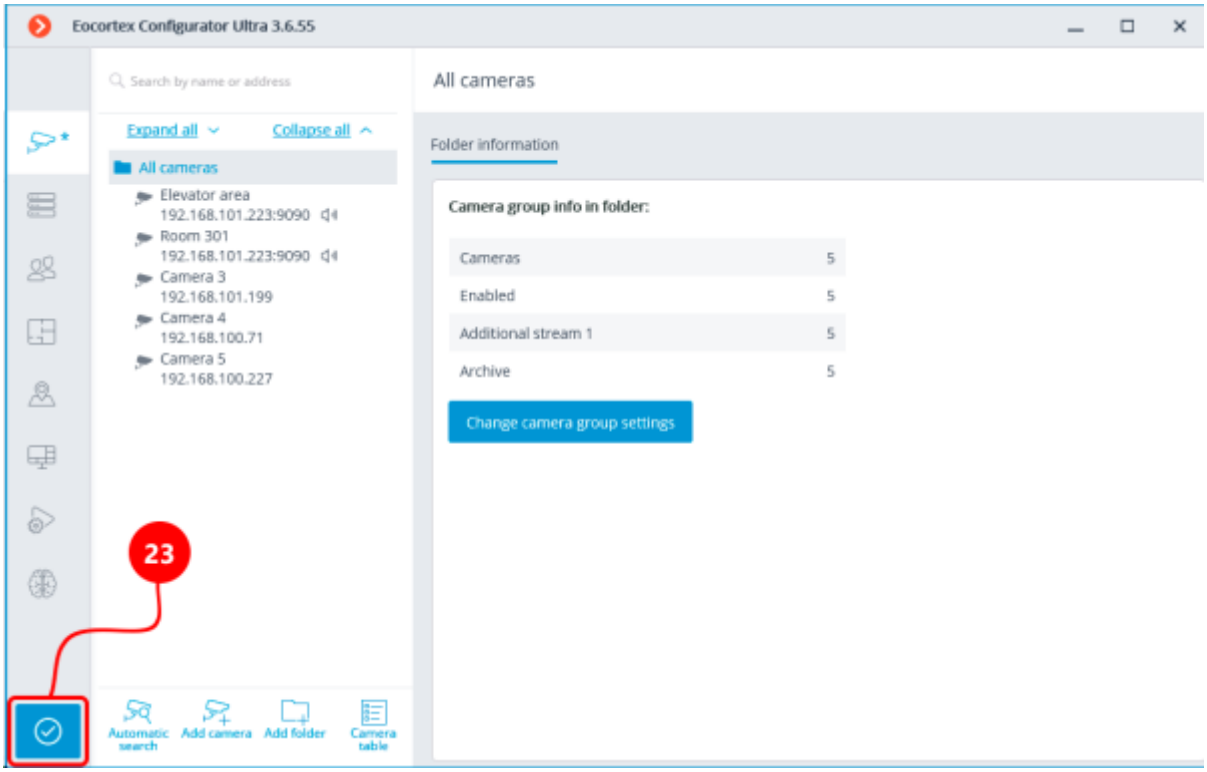
To connect additional cameras, repeat steps 1 to 22.

Applying settings

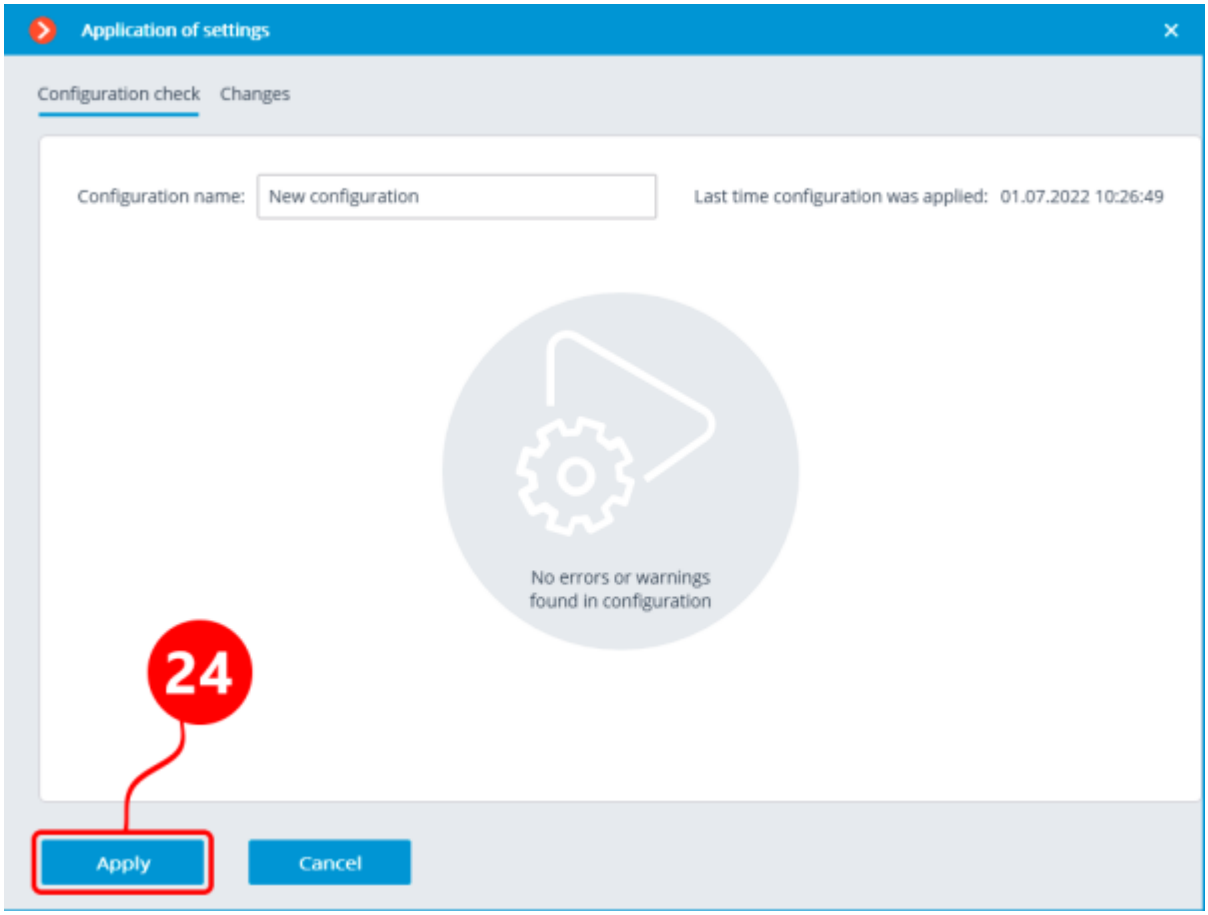
Any changes made to the system settings will take effect only after the settings are applied.

Settings section titles that have unapplied changes are marked with an asterisk.

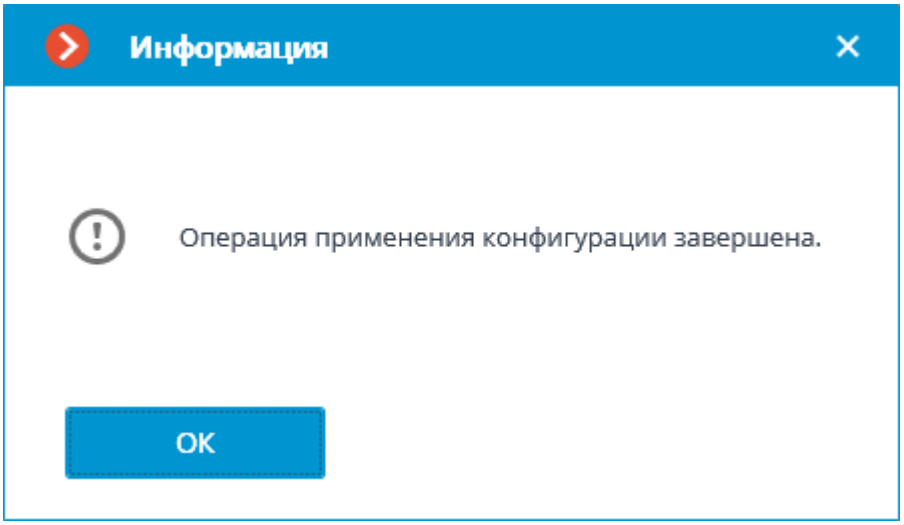
23. To apply system settings, click the **Apply** button.



The **Application of settings** window will open, in which the **Configuration check** tab will show the results of checking the settings before applying, and the **Changes** — current settings changes.



24. To apply the settings changes, click the **Apply** button. To return to changing the settings without applying them, click the **Cancel** button.



After applying the settings, the **Eocortex Configurator** application can be closed and the normal work in the video surveillance system can be started.

Basics of working with Eocortex Client

To work with the **Eocortex** video management system on a computer running Windows, the **Eocortex Client** application is used.

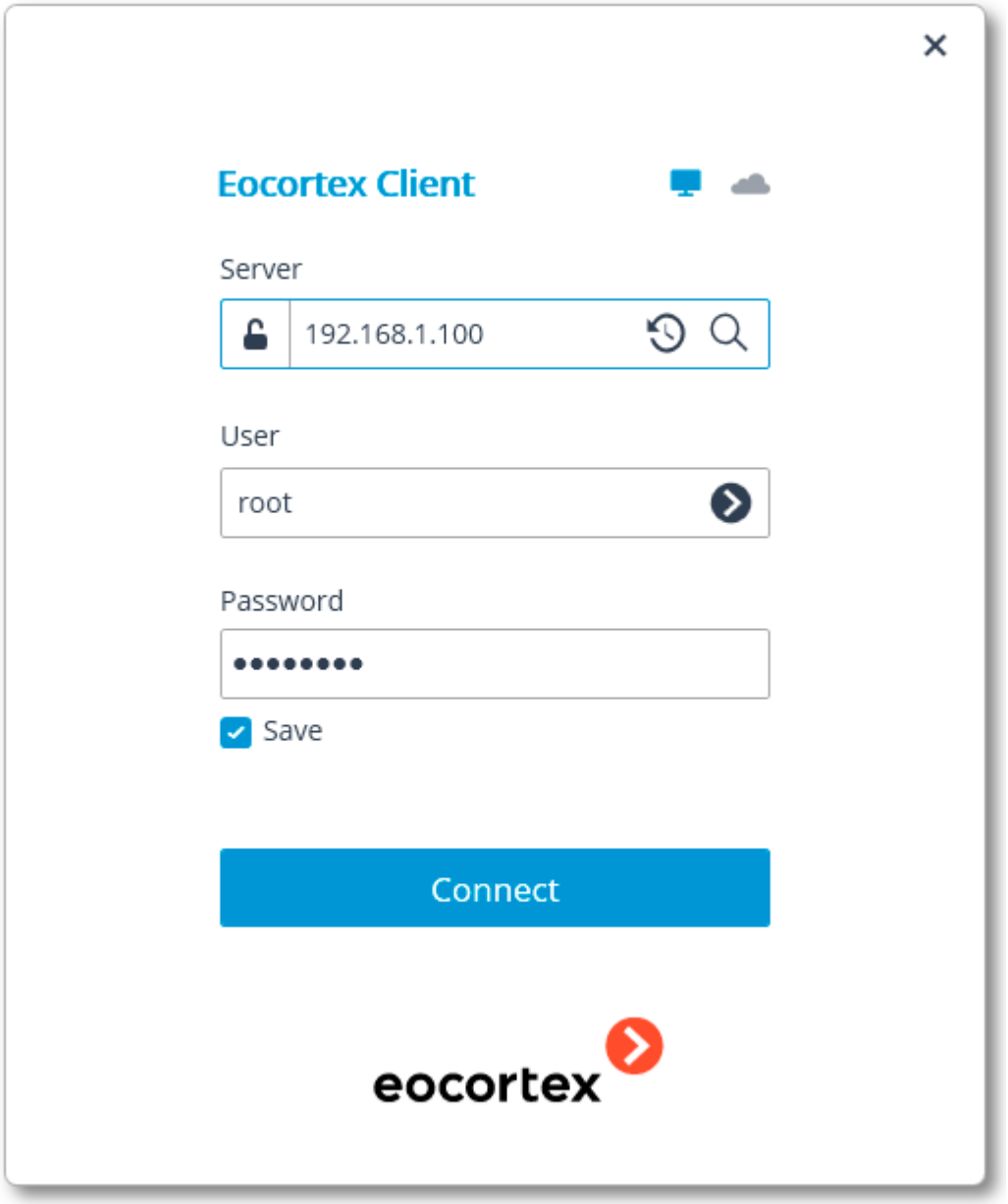
Launch and login

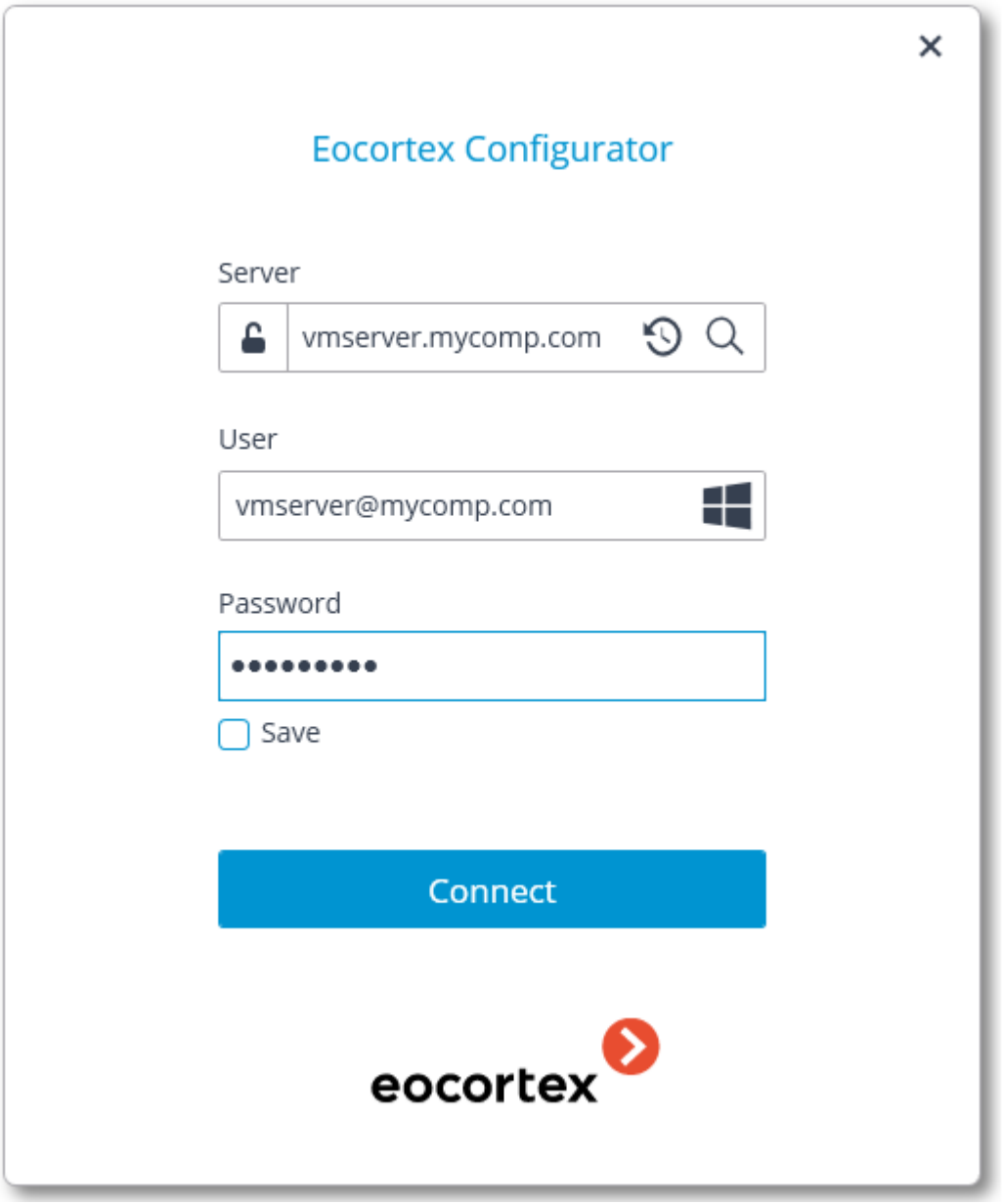
To start the work, launch the **Eocortex Client** application using the **Eocortex Client** shortcut on the desktop or quick launch bar. Another way to launch the application is to use the shortcut on the start screen or in the **Eocortex** group of the Start menu.

The authorization window will open. It is required to indicate the server address there in the **Server** field (or select the address in the dropdown list to the right of the input field) and the account type (only for **Enterprise** and **ULTRA**), username and password, then press the **Connect** button.

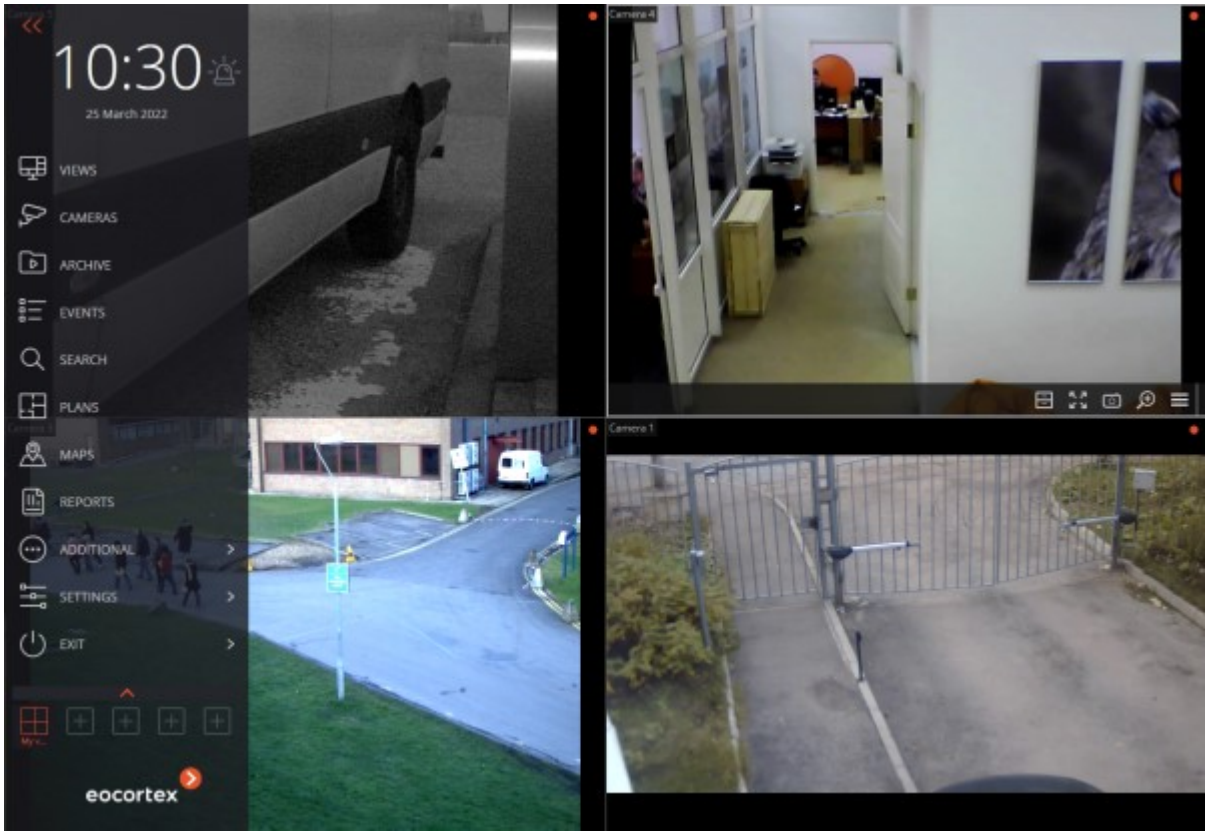
Account type: **Eocortex**; **Active Directory**.

For **Active Directory** accounts, the user name is specified as: **username@domain**; where **domain** is the domain name, **username** is the name of the user in the domain. Registration under an **Active Directory** account is available not for all types of licenses.




Eocortex Configurator
Server
vmserver.mycomp.com
User
vmserver@mycomp.com
Password
Save
Connect
eocortex

Main window



The main window of the **Eocortex Client** application consists of a workspace (where the channel grid is located) and a control panel (in the left part of the window).

Control panel

Alarm activate/deactivate button

Cameras

Synchronous archive

Events

Search

Plans

Reports

Additional

Settings

Views

Exit

Selection of views

Control panel

In order to display the control panel, it is required to click on the button located in the upper left corner of the window.

The clock and the user alarm activation button can be found in the upper part of the control panel. The items of the main menu are located under the clock. The view selection menu is in the lower part of the panel.

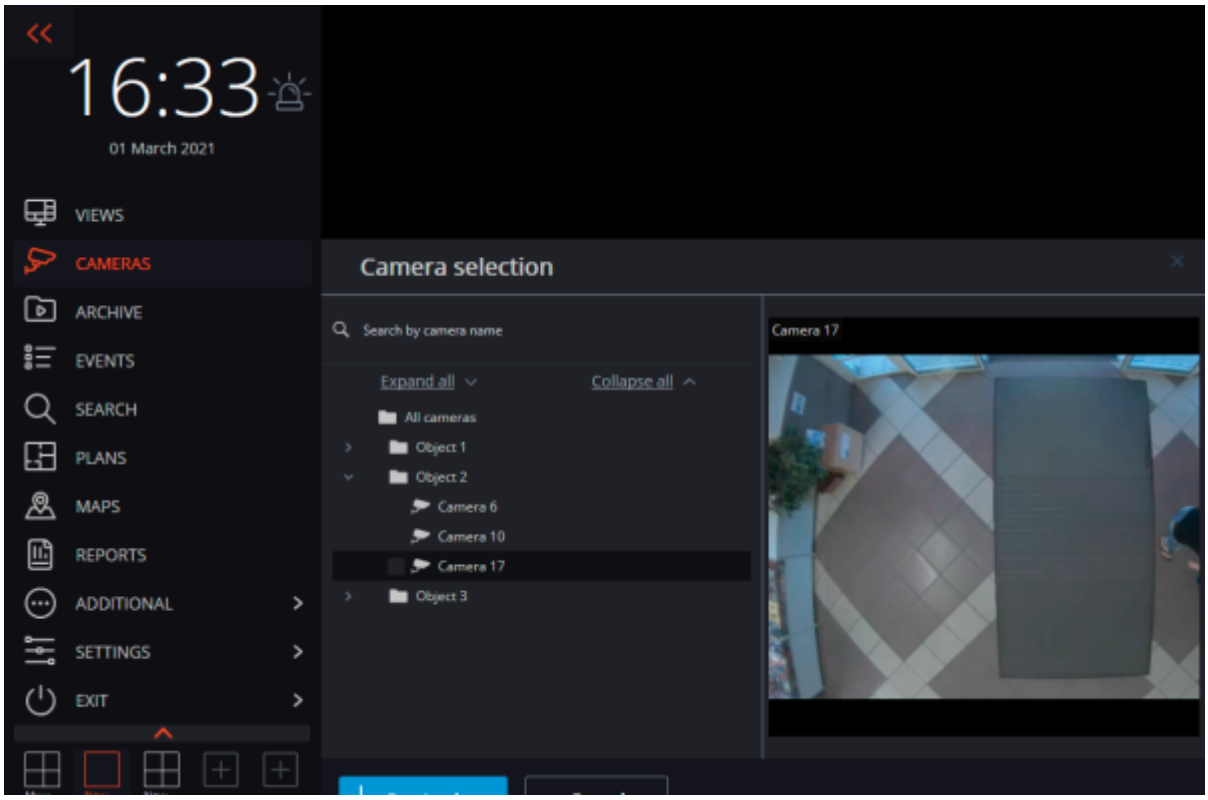
Some items are only displayed when the corresponding features are available for the user.

The **Alarm activate/deactivate** button that enables/disables the user alarm is placed to the right of a clock.

The cameras for which the user alarm is enabled, the actions that are performed upon the activation of the user alarm, and the displaying of the **Alarm activate/deactivate** button are set in the workstation settings.

Below you will find the description of the control panel items:

Cameras item allows to select the cameras to be displayed on the screen.



After selecting cameras, it is required to press the **Create view** button. This will display the selected cameras on the screen without names, using the most suitable grid.

Synchronous archive opens Simultaneous archive viewing from multiple cameras.

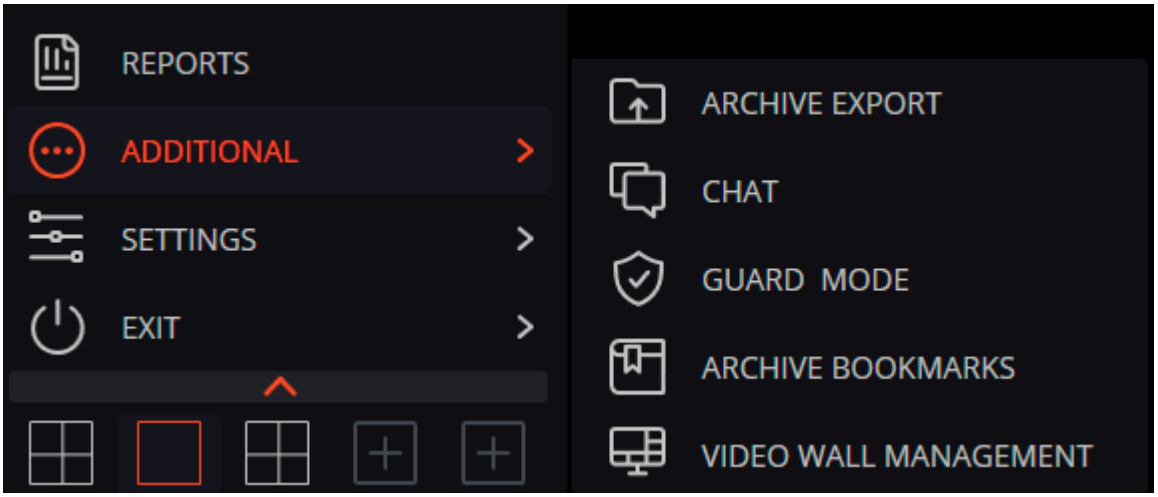
Events opens **Events log**.

Search opens **Suspect Search**.

Plans opens Object plans.

Reports permits to create reports available for the current user.

Additional opens the submenu that contains the following items:



Archive export performs the export of the archive.

Chat opens the internal chat.

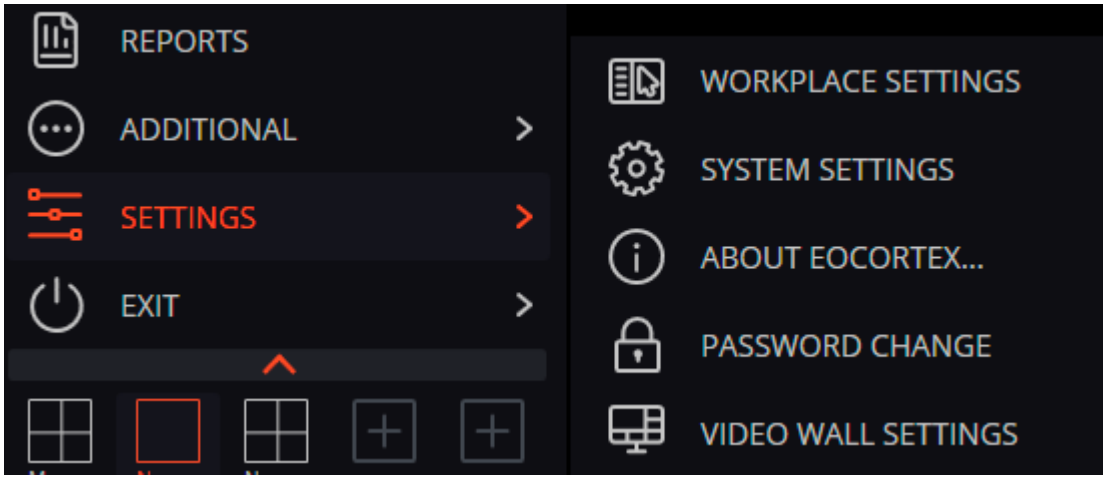
Guard mode allows setting up the guard mode.

Archive bookmarks opens the archive bookmark log.

Video wall management permits to manage the video wall.

This submenu can also contain items that open the face and license plate recognition databases in case the corresponding modules are used in the system.

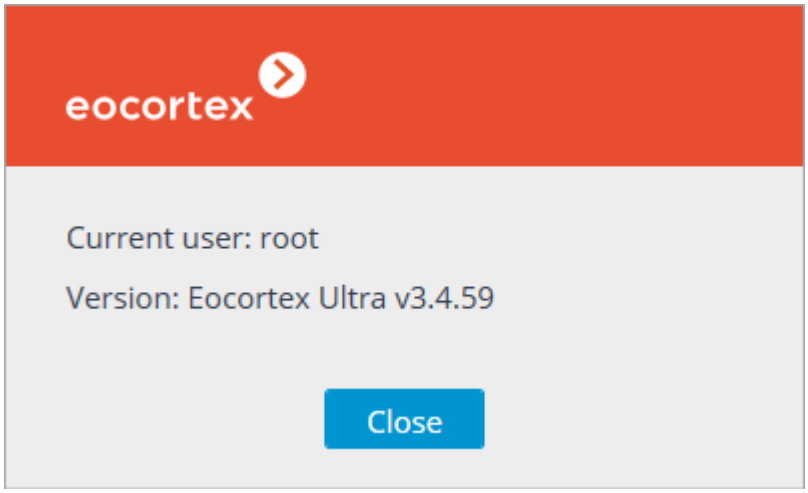
Settings opens the submenu that contains the following items:



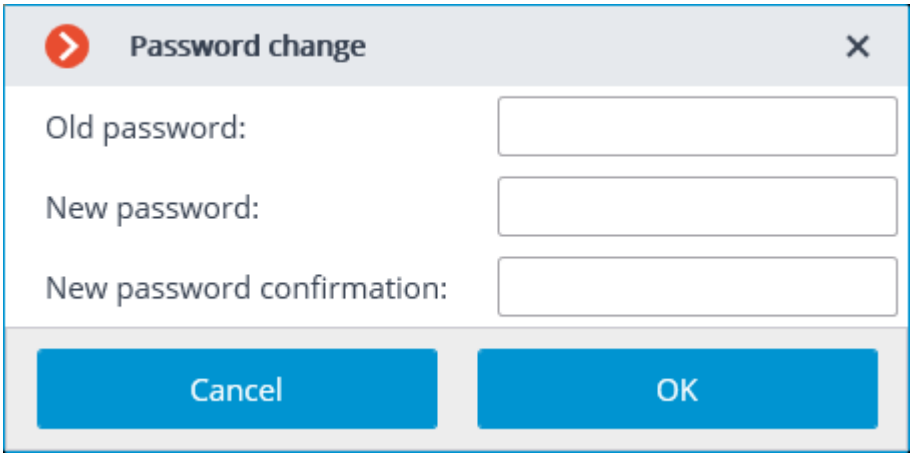
Workplace settings opens the **Workstation settings**.

System settings launches the **Eocortex Configurator** application.

About Eocortex... opens the information window.

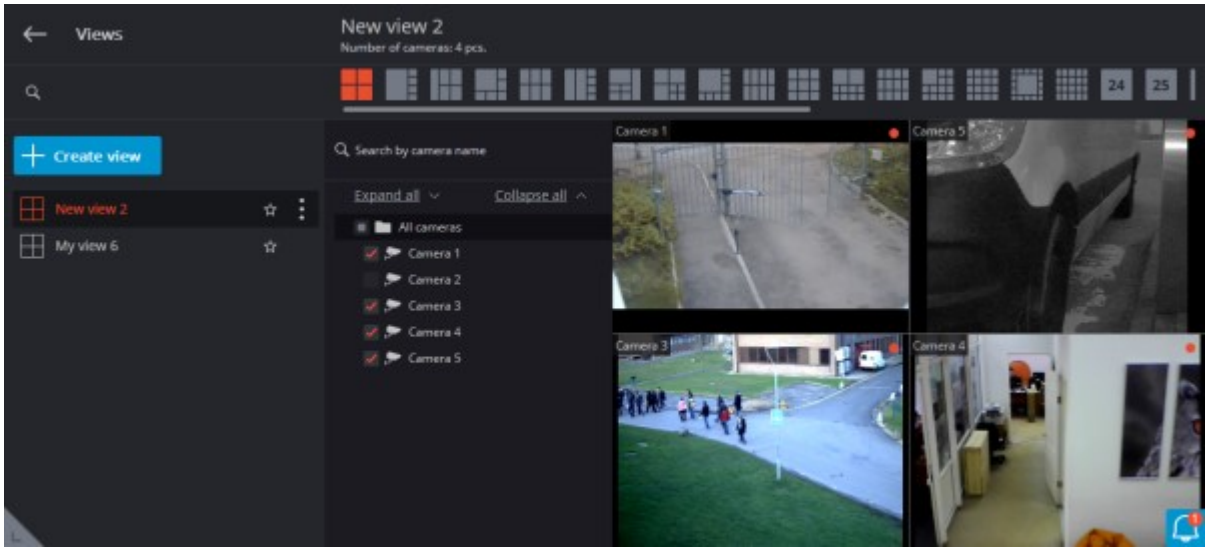


Password change permits to change the password.

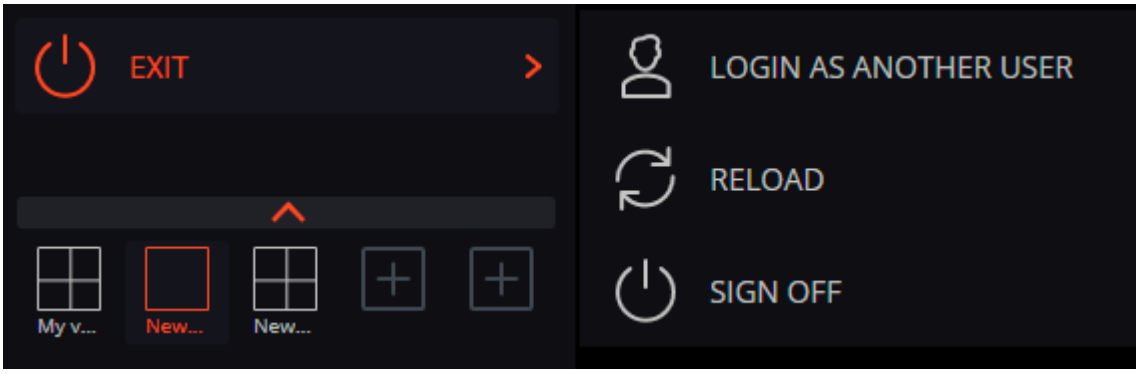


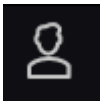
Video wall settings allows to set up the video wall.

Views opens the **Views** page.



Exit opens the submenu that contains the following items:





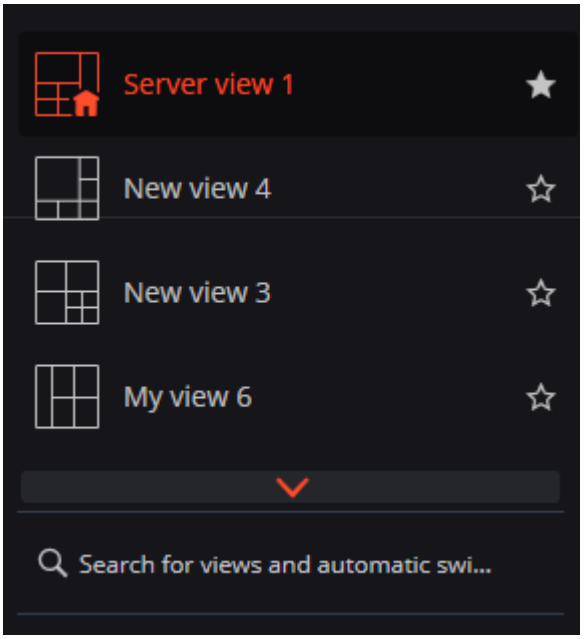
Login as another user allows changing the user. When this item is selected, the main window closes and the authorization window opens.

Sign off shuts down the application.

Reload restarts the application without the necessity to perform a reauthorization.

Selection of views

In the lower part of the control panel there is a menu that permits to choose one of the preset screen views, or to activate the automatic screen view switching mode.



Setting the server views and the automatic screen view switching lists is performed by the administrator of a video surveillance system in the **Eocortex Configurator** application. Client views are set up in the view editor.

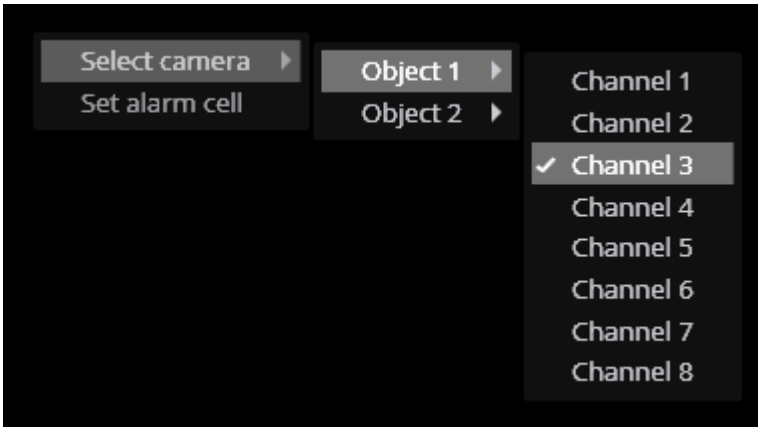
This menu does not display views and automatic switches that do not contain any cameras available for the current user.
Views marked with an asterisk (*) are temporary and will be deleted when the application is closed or restarted.

Current view

The cameras can be dragged between the cells of the current view by holding the left mouse button. If the view cell where the camera is being moved is occupied, the cameras swap their places.

One of the cells of the view can be active. The active cell is highlighted by a frame. To activate a cell, it is required to click inside it with the mouse.

By clicking in the empty view cell, it is possible to select a camera in the list that opens, or in the camera selection window.



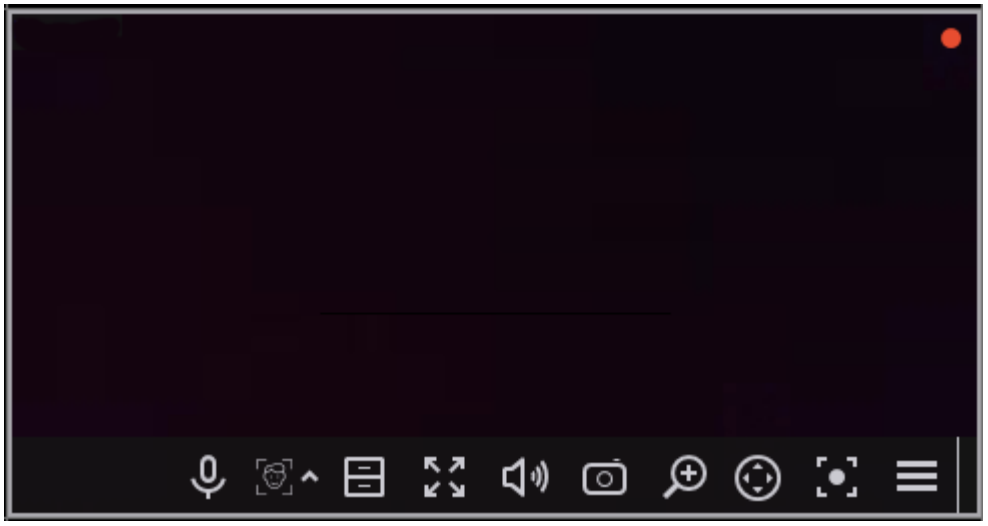
It is also possible to select a camera in the active cell using the context menu by opening it and choosing the **Select camera** item.

In live view mod, the camera cell can display informational messages instead of the camera image:

- **Waiting...** — an attempt is being made to connect to a camera or server.

- **No connection** — connection to camera or server is not successful.

Live viewing



To display the controls in a grid cell, you need to click inside the cell.

All commands from the icons in the grid cell, can also be called from the context menu.

Some of the icons appear only when the feature is set for the camera, and the current user has access to this feature. The system administrator sets the cameras options and access rights.

Recording to the archive indicator is displayed during the video recording to the archive.

Microphone allows to transmit sound from the client workspace microphone to the camera speaker. Click on the microphone icon to transmit the sound. The microphone can operate in two modes:

- **Hold** — the microphone works while the button is held;
- **Switching on/off** — by clicking the microphone is activated/deactivated.

The microphone mode is set by the system administrator in the current workspace settings.

Archive — switches the cell to View the separate camera archive.

Full-screen mode — expands the cell full-screen; in full-screen mode — returns to the grid mode.

The transition between the grid mode and full screen mode is also performed by double-clicking in a grid cell.

Save frame — Saves the frame (frame fragment).

Volume control — allows to adjust the sound volume, translated from the camera, and to enable or disable audio playback. Click on the speaker icon to display the volume control. If the design or the camera settings not allowed to broadcast the sound, as in the off playback the icon is displayed.

Zoom image — performs the Image zoom.

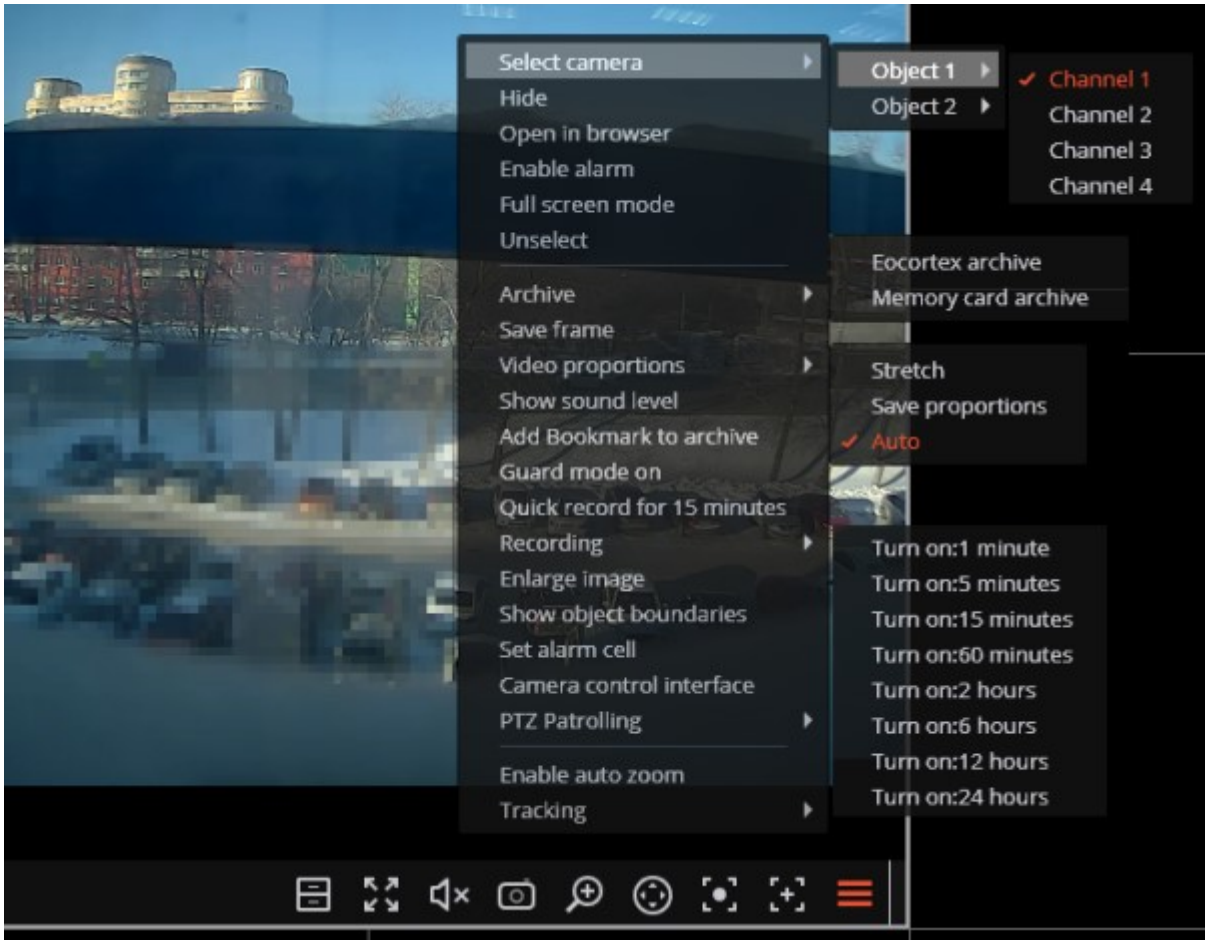
Camera control interface — shows / hides the PTZ control.

Quick recording to the archive — switches the video recording from a camera to the archive for 15 minutes.

The context menu can be accessed in two ways:

- by clicking in the lower right corner of the cell;
- by right-clicking anywhere in the cell.

The number of menu items may be different from below, depending on the settings of camera, archive and client workstation.



Cell context menu:

Select camera — allows selecting one of the available cameras to be displayed in a cell grid.

Hide — hides the camera (frees the cell).

Open in browser — opens the camera web interface in browser.

Enable alarm — Set the camera to the Alarm state.

Full screen mode / **Exit Full screen mode** — expands the cell full-screen; in full-screen mode - returns to the grid mode.

The transition between the grid mode and full screen mode is also performed by double-clicking in a grid cell.

Unselect — removes selection from the cell (makes it inactive).

Archive — switches the cell to View the separate camera archive. The access to the following archive types is possible:

- **Eocortex Archive** — the archive on Eocortex server.
- **Memory card archive** — the archive on the camera memory card.

Save frame — Saves the frame (frame fragment).

Video proportions — allows selecting frame proportions.

Show sound level — displays the volume control element at the bottom of the cell.

Add Bookmark to archive — creates an Archive bookmark.

Guard mode on/off — enables/disables the **Guard mode** for the camera.

Quick record for 15 minutes — enables the compulsory video recording from the camera to the archive for 15 minutes.

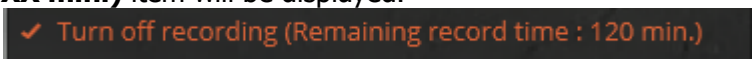
Recording — enables the compulsory video recording from the camera to the archive for the time interval selected in the submenu.

Compulsory recording to the camera archive will be performed only if the system administrator has set the permission to do that for this camera and user.

If the compulsory recording is enabled, the recording to the archive will be continuous during the specified time, no matter what recording settings are set by the system administrator for this camera.

When the compulsory recording ends, the recording to the archive will be in the mode set by the system administrator for this camera.

When the compulsory recording is enabled the **Turn off recording (Remaining record time: XX min.)** item will be displayed.



Select this option to disable the compulsory recording.

If **Quick Recording to the archive for 15 minutes** and **Recording** items are unavailable then the archive recording for this camera is already permanent or impossible.

Enlarge image — performs the Image zoom.

Show objects boundaries — enables the display of colored rectangular frames for moving objects (when using the software motion detector) and for detected faces (using Face Detection module).

Set alarm cell — the cameras in the **Alarm** state will be displayed in the alarm cells.

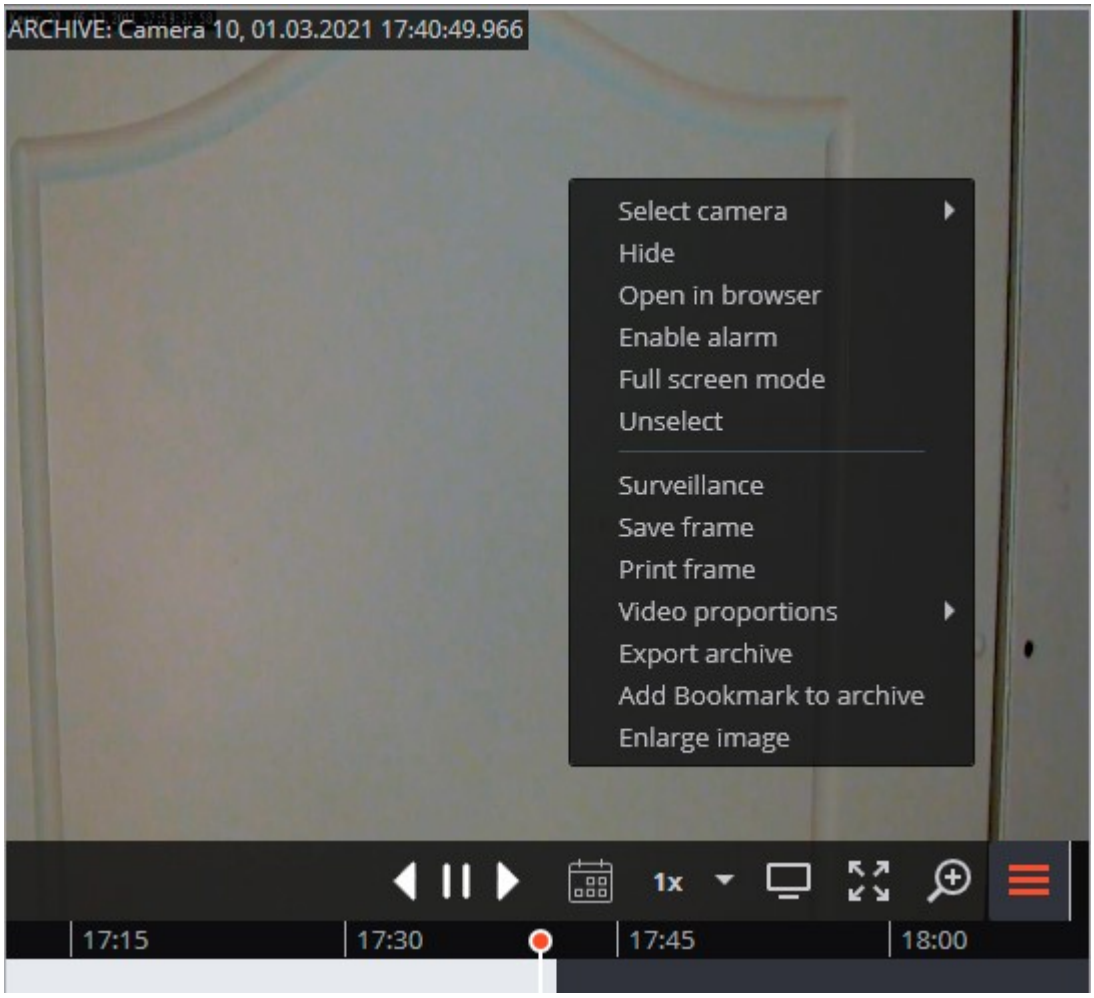
Camera control interface — shows the PTZ control.

PTZ Patrolling — setting the camera to the selected preconfigured position (Camera preset).

The items associated with the intelligent modules activated for this camera are placed in the bottom of the menu. The description of these items is given in the sections describing the relevant intelligent modules.

Viewing the single camera archive

To open the camera archive (from the real time view mode), click in the active cell or select **Eocortex Archive** in the context menu: the cell will switch to the archive view mode.



The controls available in the cell in a single camera archive view mode are described below:

Fragments panel — a timeline displaying fragments of video recordings saved in the archive of the selected camera. The vertical bar shows the place in the archive that is being displayed currently. To go to the required time moment, click on the corresponding point on the timeline. To shift the timeline backward or forward, click on it and, holding the mouse button, shift the scale in the required direction. The time scale can be changed by rotating the mouse wheel. **Calendar** allows going to a particular place in the archive by specifying the exact date and time.

The fragments panel displays archive fragments in the local time of the computer on which the archive is being viewed. At the same time, the server stores the archive with the indication of **Coordinated Universal Time (UTC)**.

For example:

On the server with **UTC+03:00** time zone settings, the archive fragment was recorded from 12:00 to 12:05 local time.

If the **Eocortex Client** application is running directly on the server (i.e., has the same time zone), then it will display this fragment on the timeline from 12:00 to 12:05.

If the Eocortex Client application is running on a computer with the time zone settings **UTC+05:00**, then the fragment time on the timeline will be from 14:00 to 14:05.

On the contrary, if the Eocortex Client application is running on a computer with the time zone settings **UTC+01:00**, then the fragment time on the timeline will be from 10:00 to 10:05.

If the archive decimation feature is used for the selected camera, the decimated and non-decimated archive fragments will have different conventions on the timeline.

The **playback control buttons** are used to play the archive forward and backward, and to stop playback.

Calendar allows going to a particular place in the archive by specifying the exact date and time. Dates for which archive records are available are marked with hatching.

Playback speed — pressing this button opens a slider that allows user to set the archive playback speed from x0.1 to x120.

For frame-by-frame playback, move the mouse pointer to the cell and scroll the mouse wheel (down is forwards, up is backwards).

Frames encoded in H.264 may freeze when playing backward because only key frames (intra-coded frames) are displayed. The reason is the specifics of H.264 codec: since for decoding intermediate frames it is necessary to keep the entire sequence of frames in RAM, starting from the last key frame, when playing backward, this may cause an unreasonable waste of computer resources.

Hide/show fragment panel — switches on/off the demonstration of the fragment panel in the camera cell.

Surveillance — switches the cell in the real time video viewing mode.

Cross camera Tracking — transition to the **Cross camera Tracking** window.

Cross camera Tracking is only available for cameras for which the **Search for Objects** module is enabled.

Full screen mode / Exit Full screen mode — cell reversal full screen / return to grid mode.

The transition between the grid mode and full screen mode is also performed by double-clicking in a grid cell.

Save frame — saves the frame (frame fragment).

Volume control allows adjusting the sound volume, translated from the archive, and enabling or disabling audio playback. Click the speaker icon to display the volume control. If the sound recording is not set for the archive, then the icon is displayed as in case of the disabled playback. This icon is displayed only when the sound recording to the archive is set for the camera.

The context menu can be accessed in two ways:

- by clicking in the lower right corner of the cell;
- by right-clicking anywhere in the cell.

The number of menu items may be different from below, depending on the settings of camera, archive and client workstation.

Select camera — selects one of the cameras available for display in the grid cell.

Hide — hides the camera (frees the cell).

Open in browser — opens the camera web interface in browser.

Enable alarm — set the camera to the Alarm state.

Full screen mode / Exit Full screen mode — expands the cell full-screen; in full-screen mode - returns to the grid mode.

Unselect — removes selection from the cell (makes it inactive).

Surveillance — switches the cell in the real time video viewing mode.

Save frame — saves the frame (frame fragment).

Print frame — prints the frame (frame fragment).

Video proportions — allows selecting frame proportions.

Volume control — displays the volume control element at the bottom of the cell.

Export archive — transition to the Export archive window.

Add bookmark to the archive — creates an Archive bookmark.

Enlarge image — performs the Image zoom.

Set alarm cell — the cameras in the **Alarm** state will be displayed in the alarm cells.

Fragment mode: shows the archive as fragments.

The items associated with the intelligent modules activated for this camera are placed in the bottom of the menu. The description of these items is given in the sections describing the relevant intelligent modules.

Smart assistant (EVA)

EVA is the smart voice assistant that helps to manage the **Eocortex** video surveillance system.

EVA can be interacted with any convenient way: by voice, text, or by pressing buttons with the corresponding commands.

Currently **EVA** is available in **Eocortex** mobile application (iOS and Android).

What can EVA do?

EVA can help to interact with the video surveillance system to quickly perform variable actions and obtain information, such as:

Open any available camera in full-screen mode.

Open the archive of any available camera.

Open any available view (group of cameras).

Get a report on the state of the system (quality of connection with servers and cameras, archive depth).

If the **Face Recognition** is configured in the system, then **EVA** will be able to:

Notify of the arrival of a person.

Find all the arrivals of a person.

Add or delete a person from the database.

Add or delete a person from a group.

Show information available in the face database about a person.

Usage

The version of **Eocortex** installed on servers must be at least 3.2 for EVA to work. If the currently installed version is lower, update all servers in the system to version 3.2 or higher.

EVA is not yet available for **Eocortex Union** and **Eocortex Cloud** systems, as well as for demo server.

Getting Started

To get started with **EVA**, launch the **Eocortex** mobile application and press the button in the main panel.

EVA can be interacted with by voice or keyboard .

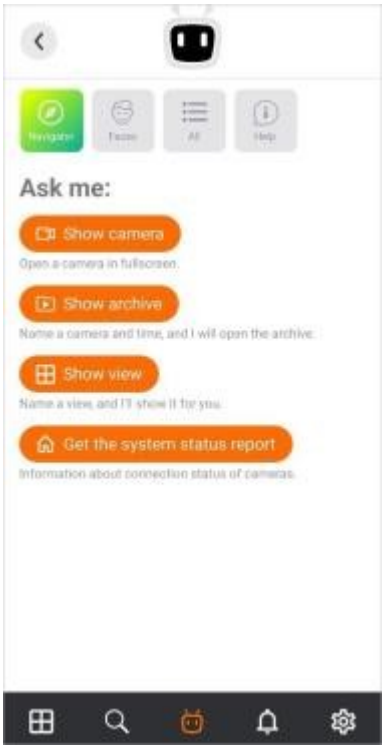
When pressing the microphone button, **EVA** starts listening and recognizing speech. Recognized message can be seen as text on the screen. When the phrase is finished, it will be sent as a command.

Recognition lasts no more than 5 seconds:

- If the user was silent, recognition will end and **EVA** will wait for commands again.
- If the user spoke for more than 5 seconds, recognition will stop and the phrase that was recognized will be sent.

Help and quick commands

Pressing the ? button opens a menu with quick commands and help.



To close this menu, press the button in the upper left corner.

Context menu

Pressing the button opens the context menu.

What you can do?: A menu with quick commands and help.

Clear message history: Deletes the history of interactions with **EVA**.

The entire history of interactions with **EVA** is stored on the device. It can be viewed the next time when application is launched.

Turn the sound off: Enables **silent mode** in which **EVA** does not voices its messages.

Statuses of EVA

: ready for work

: listening

: thinks

: speaks

: no connection

No connection status displays when:

- The device has lost internet connection and about 30 seconds have passed without activity of the user.
- The device has lost internet connection and the microphone button has been pressed. In this case, speech recognition will not start after pressing the button.

When the state is no connection, the bottom panel disappears, as well as the **What you can do?** item from the context menu.
After the device's Internet connection is restored, **EVA** will be ready for work in about 30 seconds.

Commands

Mobile client and system control

Access to a camera

Show camera *camera name*

Open camera *camera name*

Show cam *camera name*

Open cam *camera name*

If *camera name* is not specified, then **EVA** will provide up to 20 cameras to choose from.

EVA will open the selected camera in full-screen mode.

Views control

Show view *view name*

Switch on view *view name*

Start view *view name*

Open view *view name*

EVA will open the selected view in a grid mode.

Access to the archive

Open archive

Show archive

Switch to archive

Archive for camera

Show archive for camera *camera name* for *date and time*

If the mobile device uses camera time settings, then **EVA** will propose to open the archive taking into account the time zone of the selected camera.

System status report

Get the report about the system

Report about the system

Report

Show report

System status

Show system status

Interplay with the Face Recognition module

Commands below can be pronounced together with the last name, first name, or patronymic, and then the command will be executed for the named person.

Notification about a person's arrival

Notify when *person*

Inform when *person*

Say when *person*

Tell when *person*

Show the last appearance of a person

Show when left *person*

When left *person*

Find last person detection of a day *person*

Find *person*

Last detection *person*

The device time is used to display the received information.

Show the first appearance of a person

Show when came *person*

Show when appeared *person*

When reached *person*

When arrived *person*

When came *person*

Find first person detection of day *person*

The device time is used to display the received information.

Show how many times a person has been detected

Show how many times *person*

How many times *person*

Find person in archive *person*

Find person *person*

Find in archive *person*

Show in archive *person*

Add a person to the face database

Add to database
Bring to database
Add record
Put to database
Add person

Open a person's profile from the database

Show person *person*
Open person *person*
Show face *person*
Open face *person*
Show file *person*
Open file *person*
Show profile *person*
Open profile *person*
Show record *person*
Open record *person*
Show information about *person*
Open information about *person*
Show person information *person*
Open person information *person*

Add a person to a group

Add to group *person*
Put to group *person*
Bring to group *person*
Assign to group *person*

Remove a person from a group

Remove group *person*
Delete group *person*
Remove from group *person*
Delete from group *person*
Take out group *person*
Take out from group *person*

Delete a person from the face database

Remove person *person*
Delete person *person*
Remove *person*
Delete *person*
Remove record *person*

Delete record *person*

Remove from database *person*

Delete from database *person*

Troubleshooting

Various issues may occur when working with **EVA**: from server failures up to interruption of the Internet connection. In such cases, **EVA** informs the user about the issue when trying to execute the command.

Why does EVA not understand the person's last name?

Some last names may be difficult to process or recognize from a voice command. There are several restrictions:

Everything that **EVA** did not recognize as a first and last name when adding a person to the face database will be added as the last name right after the recognized part, regardless of the order in which the phrase was pronounced.

	Sample 1	Sample 2
Pronounced	*unrecognized_part* Smith John	Smith John *unrecognized_part*
Recognized last name	Smith *unrecognized_part*	Smith *unrecognized_part*
Recognized first name	John	John

When a last name has been successfully recognized and a first name is not, both parts will be added to the database as the last name with the unrecognized part added after the recognized one, regardless of the order in which the phrase was pronounced.

During the execution of the **Add to group a** *person* command, **EVA** will process only the recognized part. When manually specifying the last name, first name, or patronymic, everything that the user enters will be counted.

EVA does not accept words with punctuation marks when searching for and adding persons to the database.